
LIBRARY.
Baptist College,
BRISTOL.


UNIVERSITY OF WISCONSIN
LIBRARY

G. & R. J. Finch Ap. 1714.


THEOLOGIA
CYCLOPÆDIA
J. Stuart sculp.

CYCLOPÆDIA:

OR, AN

UNIVERSAL DICTIONARY

OF

ARTS and SCIENCES;

CONTAINING

The DEFINITIONS of the TERMS;

And ACCOUNTS of

The THINGS signify'd thereby,

In the ſeveral ARTS,

Both *LIBERAL* and *MECHANICAL*,

And the ſeveral SCIENCES,

HUMAN and *DIVINE*:

The Figures, Kinds, Properties, Productions, Preparations, and Uſes, of Things NATURAL and ARTIFICIAL;

The Riſe, Progreſs, and State of Things ECCLESIASTICAL, CIVIL, MILITARY, and COMMERCIAL:

With the ſeveral Syſtems, Sects, Opinions, *&c.* among Philoſophers, Divines, Mathematicians, Phyſicians, Antiquaries, Criticks, *&c.*

The Whole intended as a Courſe of Antient and Modern LEARNING.

Compiled from the beſt Authors, Dictionaries, Journals, Memoirs, Tranſactions, Ephemerides, *&c.* in ſeveral Languages.

In TWO VOLUMES.

By *E. CHAMBERS* Gent.

Floriferis ut apes in ſaltibus omnia libant,
Omnia nos——————————LUCRET.

VOLUME the FIRST.

LONDON:

Printed for *James* and *John Knapton*, *John Darby*, *Daniel Midwinter*, *Arthur Betteſworth*, *John Senex*, *Robert Goſling*, *John Pemberton*, *William* and *John Innys*, *John Osborn* and *Tho. Longman*, *Charles Rivington*, *John Hooke*, *Ranew Robinſon*, *Francis Clay*, *Aaron Ward*, *Edward Symon*, *Daniel Browne*, *Andrew Johnſton*, and *Thomas Osborn*. M.DCC.XXVIII.

TO THE

KING.

SIR,

THE ARTS and SCIENCES humbly crave Audience of Your Majesty. The near Concern they have in the Happiness of a People, assures 'em of the favourable Attention of a Prince who makes that Happiness his own. 'Tis by These, the Parsimony of Nature is supplied, and Life render'd easy and agreeable under its numerous Infirmities. By these the Mind is reclaim'd from its native Wildness; and enrich'd with Sentiments which lead to Virtue and Glory. 'Tis these, in fine, that make the Difference between your Majesty's Subjects, and the Savages of *Canada*, or the *Cape of Good Hope*.

THE Protection of ARTS has ever been esteemed the proper Province of the Great. 'Tis a Branch of the Regal Office; which a Prince, like Your Majesty, equal to the whole Charge of a Crown, will not suffer to be alienated into other Hands. From this, do the first and most distinguish'd Names in the List of Fame, derive a large Share of their Glory: and if there be any Age or Nation more conspicuous than the rest, and which is look'd on with Envy by our own; 'tis that wherein the Sovereigns have signaliz'd themselves most in this Quality.——Indeed, the Time seems at hand, when we are no longer to envy *Rome* her AUGUSTUS and AUGUSTAN AGE, but *Rome* in her turn shall envy ours.

SOMETHING extraordinaty is apparently intended by Providence in calling such a Prince, to such a People: A Prince who feels a generous Impulse to devote his Cares and all his Toils to the Welfare of Mankind; and a People conspiring with unexampled Ardor and Unanimity to all his glorious Views. Some of our best Princes have had their Hands ty'd down; check'd by reluctant Factions, who opposed every nobler Design: Your Majesty has found the happy Secret, to make even Contention do you Homage; and turn Opposition itself into Approbation, and Applause.

THERE is a Time reserv'd in Fate for every Nation to arrive at its Height; and the uppermost Place on the Terrestrial Ball is held successively by several States. May not the numerous Presages which usher in Your Majesty's Reign, give us room

to

to expect that our Turn is next; and that what *Greece* was under ALEXANDER, and *Rome* under AUGUSTUS *Cæsar*, *Britain* shall be under GEORGE and CAROLINE?

BUT even this were to under-rate our Hopes, which are rais'd, by Your Majesty, to something still more truly glorious. Greatness, so fondly coveted, has already cost the World very dear; and, tho still pursued by unthinking Men under almost every Shape, is only desirable in a few. Of it self it is rather an Object of Terror and Alarm, than Delight; and at best only pleases, when join'd with something naturally amiable. From the Practice of Your Majesty, Men may correct their Sentiments, and learn, that Greatness has no Charm except when founded in Goodness. To be Great, and a King, is but a small Matter with Your Majesty; 'tis a Quality many others enjoy in common with You, and to which some have even been doom'd, to their Infamy: 'tis what *Herod* was, and *Nebuchadnezzar* was; and *Nero*, and *Domitian* were. But, while other Princes chuse to be great in what is destructive, and others in things wholly indifferent; 'tis Your Majesty's Praise to be great in what is the Perfection of our Nature, and that whereby we approach nearest the Deity. Happy Choice! to use Power only as the Means of rendering your Beneficence more diffusive; and thus make Power and Royalty minister to the Happiness of Mankind, which they have too often invaded.

YOUR Majesty commands a People capable of every thing. Not more fitted to shine in Arms, or maintain an extended Commerce; than to succeed in the stiller Pursuits of Philosophy and Literature. And it will be Your Majesty's Glory, not to let any of their Talents lie unemploy'd.——If Your Majesty gives the Word, while some of 'em are busied in avenging Your Cause, by humbling some turbulent Monarch; some in extending your Dominions by new Settlements, and some in increasing your Peoples Wealth, by new Trades: Others will be employ'd in enlarging our Knowledge, by new Discoveries in Nature, or new Contrivances of Art; others in refining our Language; others in improving our Morals; and others in recording the Glories of your Reign, in immortal Verse.

THE Work I here presume to lay at Your Majesty's Feet, is an Attempt towards a Survey of the Republick of Learning, as it stands at the Beginning of Your Majesty's auspicious Reign. We have here the Boundary that circumscribes our present Prospect; and separates the known, from the unknown Parts of the Intelligible World. Under Your Majesty's Princely Influence and Encouragement, we promise our selves this Boundary will be removed, and the Prospect extended far into the other Hemisphere. Methinks I see Trophies erecting to Your Majesty in the yet undiscover'd Regions of Science; and Your Majesty's Name inscribed to Inventions at present held impossible!

I am, with all Sincerity and Devotion,

May it please Your MAJESTY,

Your Majesty's most Dutiful,

and Obedient Subject,

and Servant,

Ephraim Chambers.

THE PREFACE.

THIS not without ſome Concern that I put this Work in the Reader's Hands; a Work ſo diſproportionate to a ſingle Perſon's Experience, and which might have employ'd an Academy. What adds to my Jealouſy, is the little meaſure of Time allow'd for a Performance to which a Man's whole Life ſcarce ſeems equal. The bare Vocabulary of the Academy *della Cruſca* was above forty Years in compiling, and the Dictionary of the *French* Academy much longer; and yet the preſent Work is as much more extenſive than either of them in its Nature and Subject, as it falls ſhort of 'em in number of Years, or of Perſons employ'd.

THE Reader might be here led to ſuſpect ſomething of Diſingenuity; and think I firſt put a Book upon him, and then give him Reaſons why I ſhould not have done it.----But his Suſpicions will ceaſe, when he is appriz'd of the Advantages under which I engaged; which, in one Senſe, are ſuperior to what had been known in any former Work of the Kind; all that had been done in them accruing, of courſe, to the Benefit of this. I come like an Heir to a large Patrimony, gradually rais'd by the Induſtry, and Endeavours of a long Race of Anceſtors. What the *French Academiſts*, the *Jeſuits de Trevoux*, *Daviler*, *Chomel*, *Savary*, *Chauvin*, *Harris*, *Wolfius*, and many more have done, has been ſubſervient to my Purpoſes. To ſay nothing of a numerous Claſs of particular Dictionaries which contributed their Share; Lexicons on almoſt every Subject, from Medicine and Law, down to Heraldry and the Manage.

Yet this is but a Part. I am far from having contented my ſelf to take what was ready procured; but have augmented it with a large Acceſſion from other Quarters. No part of the Commonwealth of Learning, but has been traffick'd to on this Occaſion. Recourſe has been had to the *Originals* themſelves on the ſeveral Arts; and, not to mention what ſmall Matters could be furniſhed *de proprio penu*, the Reader will here have Extracts and Accounts from a great Number of *Authors* of all Kinds, either overlook'd by former Dictionariſts, or not then extant; and a Multitude of Improvements in the ſeveral Parts, eſpecially of Natural Knowledge, made in theſe laſt Years. I ſhould produce Inſtances hereof; but I hope this would be needleſs, as it is endleſs; and that there are few Pages which will not afford ſeveral.

SUCH are the Sources from whence the Materials of the preſent Work were derived; which, it muſt be allowed, were rich enough not only to afford Plenty, but even Profuſion: So that the chief Difficulty lay in the Form; in the Order, and Œconomy of the Work: To diſpoſe ſuch a Variety of Materials in ſuch manner, as not to make a confuſed Heap of incongruous Parts, but one conſiſtent Whole.----And here it muſt be confeſs'd there was no Aſſiſtance to be had; but I was forced to ſtand wholly on my own Bottom. Former Lexicographers have not attempted any thing like Structure in their Works; nor ſeem to have been aware that a Dictionary was in ſome meaſure capable of the Advantages of a continued Diſcourſe. Accordingly, we ſee nothing like a Whole in what they have done: And hence, ſuch Materials as they did afford for the preſent Work, generally needed further Preparation, ere they became fit for our Purpoſe; which was as different from theirs, as a Syſtem from a Cento.

THIS we endeavoured to attain, by conſidering the ſeveral Matters not only abſolutely and independently, as to what they are in themſelves; but alſo relatively, or as they reſpect each other. They are both treated as ſo many Wholes, and as ſo many Parts of ſome greater Whole; their Connexion with which, is pointed out by a *Reference*. So that by a Courſe of References, from Generals to Particulars; from Premiſes to Concluſions; from Cauſe to Effect; and *vice verſa*, *i. e.* in one word, from more to leſs complex, and from leſs to more: A Communication is opened between the ſeveral Parts of the Work; and the ſeveral Articles are in ſome meaſure replaced in their natural Order of Science, out of which the Technical or Alphabetical one had remov'd them.

FOR an Inſtance----The Article ANATOMY is not only conſider'd as a *Whole*, *i. e.* as a particular Combination or Syſtem of Ideas; and accordingly divided into its Parts, *Humane* and *Comparative*: and Humane again ſubdivided into the Analyſis of *Solids* and *Fluids*, (which are referr'd to in the ſeveral Places in the Book, where they themſelves being treated of, refer to others ſtill lower, and ſo on) but alſo as a *Part* of MEDICINE; which accordingly it refers to, and which it ſelf refers to another higher, *&c.*----By which means a Chain is carried on from one End of an Art to the other, *i. e.* from the firſt or ſimpleſt Complication of Ideas appropriated to the Art, which we call the *Elements* or Principles thereof; to the moſt complex or general one, the *Name* or Term that denotes the whole Art.

NOR is the Purſuit dropt here: but as the Elements or Data in one Art, are ordinarily *quæſita* in ſome other ſubordinate one, and are furniſhed thereby; (as here for Inſtance, the Elements of *Anatomy* are furniſhed by *Natural Hiſtory*, *Phyſicks*, and *Mechanicks*; and Anatomy may be conſidered as a Datum, or Element furniſhed to Medicine) We carry on the View farther, and refer out of one Art or Province into the adjoining ones, and thus lay the whole Land of Knowledge open: It appears indeed with the Face of a Wilderneſs; but 'tis a Wilderneſs thro' which the Reader may purſue his Journey as ſecurely, tho not ſo expeditiouſly and eaſily, as thro' a regular Parterre.

IT may be even ſaid, that if the Syſtem be an Improvement upon the Dictionary; the Dictionary is ſome Advantage to the Syſtem; and that this is perhaps the only Way wherein the whole Circle or Body of Knowledge can be deliver'd. In any other Form, many thouſand Things muſt neceſſarily be hid and overlook'd: All the Pins, the Joints, the binding of the Fabrick muſt be inviſible of courſe; all the leſſer Parts, one might ſay all the Parts whatſoever, muſt be in ſome meaſure ſwallowed up in the Whole. The Imagination, ſtretch'd

and amplified to take in ſo large a Structure, can have but a very general, indiſtinguiſhing Perception of any of the Parts.----Whereas the Parts are not leſs Matter of Knowledge when taken ſeparately, than when put together. Nay, and in ſtrictneſs, as our Ideas are all Singulars or Individuals, and as every Thing that exiſts is one; it ſeems more natural to conſider Knowledge in its proper Parts, *i.e.* as divided into ſeparate Articles denoted by different Terms; than to conſider the whole Aſſemblage of it in its utmoſt Compoſition: which is a thing merely artificial and imaginary.

AND yet the latter Way muſt be allow'd to have many and real Advantages over the former; which in truth is only of uſe and ſignificance as it partakes thereof: For this Reaſon, that all Writing is in its own Nature artificial; and that the Imagination is really the Faculty it immediately applies to. Hence it ſhould follow, that the moſt advantageous way, is to make uſe of both Methods: To conſider every Point both as a Part; to help the Imagination to the Whole: and as a Whole, to help it to every Part.----Which is the View in the preſent Work—ſo far as the many and great Difficulties we had to labour under would allow us to purſue it.

IN this View we have endeavoured to give the Subſtance of what has been hitherto found in the ſeveral Branches of Knowledge both natural and artificial; that is, of Nature, *firſt*, as ſhe appears to our Senſes; either ſpontaneouſly, as in Natural Hiſtory; or with the Aſſiſtance of Art, as in Anatomy, Chymiſtry, Medicine, Agriculture, *&c.* *Secondly*, to our Imagination; as in Grammar, Rhetorick, Poetry, *&c.* *Thirdly*, to our Reaſon; as in Phyſicks, Metaphyſicks, Logicks, and Mathematicks. With the ſeveral ſubordinate Arts ariſing from each; as Architecture, Painting, Sculpture, Trade, Manufactures, Policy, Law, *&c.* and numerous remote Particulars, not immediately reducible to any of theſe Heads; as Heraldry, Philology, Antiquities, Cuſtoms, *&c.*

THE *Plan* of the Work, then, I hope, will be allow'd to be good; whatever Exceptions may be taken to the Execution of it. It wou'd look extravagant to ſay, That half the Men of Letters of an Age might be employ'd in it to advantage; and yet it will appear, that a Work accompliſh'd as it ought to be, on the Footing of this, would anſwer all the Purpoſes of a Library, except Parade and Incumbrance; and contribute more to the propagating of uſeful Knowledge thro' the Body of a People, than any, I had almoſt ſaid all, the Books extant.---After this, let the Reader judge how far I may deſerve Cenſure for engaging in it, even diſadvantageouſly; and whether to have fail'd in ſo noble a Deſign, may not be ſome degree of Praiſe.

BUT, it will be here neceſſary to carry on the Diviſion of Knowledge a little further; and make a preciſe Partition of the Body thereof, in the more formal Way of Analyſis: The rather, as an Analyſis, by ſhewing the Origin and Derivation of the ſeveral Parts, and the Relation in which they ſtand to their common Stock and to each other; will aſſiſt in reſtoring 'em to their proper Places, and connecting 'em together.

- KNOWLEDGE, is either
  - *Natural* and *Scientifical*, which is either
    - *Senſible*; conſiſting in the Perception of Phænomena, or External Objects——called PHYSIOLOGY, or NATURAL HISTORY; and which according to the different Kinds of ſuch Objects, divides into
      - METEOROLOGY [1].
      - HYDROLOGY [2].
      - MINEROLOGY [3].
      - PHYTOLOGY [4].
      - ZOOLOGY [5].
    - OR,
    - *Rational*; conſiſting in the Perception of the intrinſick Characters or Habitudes of ſenſible Objects—either
      - Their *Powers* and *Properties*—called PHYSICKS, and NATURAL PHILOSOPHY [6].
      - *Abſtracts* thereof—called METAPHYSICS [7] which ſubdivides into
        - ONTOLOGY.
        - PNEUMATOLOGY.
      - *Quantities* thereof, called MATHEMATICS—— which divides, according to the Subject of the Quantity, into
        - ARITHMETIC [8]—whence
          - ANALYTICS [9].
          - ALGEBRA [10].
        - GEOMETRY [11]—whence
          - TRIGONOMETRY.
          - CONICS.
          - SPHERICS.
        - STATICS [12].
      - *Relations* thereof to our Happineſs—— called RELIGION, or the Doctrine of OFFICES, which ſubdivides into——
        - ETHICS [13], or NATURAL RELIGION—whence
          - POLITICS [14].
          - LAW [15].
        - THEOLOGY [16], or REVELATION.
  - OR,
  - *Artificial* and *Technical*, (conſiſting in the Application of Natural Notices to further Purpoſes) which is either
    - *Internal*; employ'd in diſcovering their Agreement and Diſagreement; or their Relations in reſpect of Truth—call'd LOGICS [17].
    - OR,
    - *External*, which is either---
      - *Real*, employ'd in diſcovering and applying the---
        - *Quantities* of Bodies—— call'd MIX'D MATHEMATICS; which according to the different Subjects reſolves into
          - OPTICS [19], CATOPTRICS, DIOPTRICS——whence
            - PERSPECTIVE [20].
            - PAINTING [21].
          - PHONICS——whence MUSICK [22].
          - HYDROSTATICS [23], HYDRAULICS.
          - PNEUMATICS [24].
          - MECHANICS [25]——whence
            - ARCHITECTURE [26].
            - SCULPTURE [27].
            - TRADES [28], and MANUFACTURES.
          - PYROTECHNIA [29]—whence
            - The MILITARY *Art* [30].
            - FORTIFICATION [31].
          - ASTRONOMY [32]——whence
            - CHRONOLOGY [33].
            - DIALLING [34].
          - GEOGRAPHY [35], HYDROGRAPHY——whence
            - NAVIGATION [36].
            - COMMERCE [37].
        - *Structure* and *Oeconomy* of Organical Bodies——called ANATOMY [38].
        - *Relations* thereof to the Preſervation and Improvement—either of
          - Animals——called
            - MEDICINE [39].
            - PHARMACY [40].
          - Vegetables—called
            - AGRICULTURE [41].
            - GARDENING [42].
          - Brutes——called
            - FARRYING [43],
            - MANAGE——whence
              - HUNTING.
              - FALCONRY.
              - FISHING, *&c.*
      - OR;
      - *Symbolical*, employ'd in framing
        - *Words*, or Articulate Signs of Ideas——called GRAMMAR [44].
        - *Figures*——called RHETORIC [45]—whence
          - The making of *Armories*, called HERALDRY [46].
        - *Fables*——called POETRY [47].

THIS is a View of Knowledge, as it were, *in ſemine*; exhibiting only the grand, conſtituent Parts thereof. It would be endleſs to purſue it into all its Members and Ramifications; which is the proper Buſineſs of the Book itſelf. It might here, therefore, ſeem ſufficient to refer from the ſeveral Heads thus deduced, to the ſame in the Courſe of the Work; where their Diviſion is carried on. And yet this would ſometimes prove inconvenient for the Reader; who to find ſome particular Matter muſt go a long Circuit, and be bandied from one part of the Book to another: To ſay nothing of the Interruptions which may frequently happen in the Series of References. To obviate this we ſhall take a middle Courſe, and carry on the Diſtribution further, in a Note in the Margin;

gin; but this in a loofer manner, to prevent the Embarrafs of an Analyfis fo complex and diffufive as this muft prove. Some of the principal Heads of each Kind will here come in fight, and fuch as will naturally fuggeft, and lead to the reft; fo that this will afford the Reader a fort of Summary of the Whole: And at the fame time will difpenfe a kind of auxiliary or fuccedaneous Order thro'out the Whole; the numerous Articles omitted, all naturally enough ranging themfelves to their proper Places among thefe. A Detail of this Kind is of the more Confequence, as it may not only fupply the Office of a *Table of Contents*, by prefenting the difperfed Materials of the Book in one View; but alfo that of a *Directory*, by indicating the Order they are moft advantageoufly read in.——*Note*, then, That the *initial* Articles here, tally to the *final* ones of the Analyfis; and that the feveral *Members* hereof, are fo many *Heads* in the Book.

I

[1] METEOROLOGY, or the Hiftory of AIR and ATMOSPHERE: including, 1°, that of its Contents, *Æther, Fire, Vapour, Exhalation*, &c. 2°, Meteors form'd therein, as *Cloud, Rain, Shower, Drop, Snow, Hail, Dew, Damp*, &c. *Rainbow, Parhelion, Halo, Thunder, Water-fpout*, &c. Winds, *Mon-foon, Hurricane*, and the like.

[2] HYDROLOGY, or the Hiftory of WATER; including that of *Springs, Rivers, Acidulæ*, &c. of *Lake, Sea, Ocean*, &c. of *Tides, Deluge*, and the like.

[3] MINEROLOGY, or the Hiftory of EARTH; 1°, Its Parts, as *Mountain, Mine, Mofs, Bog, Grotto*; and their Phænomena, as *Earth, quake, Volcano, Conflagration*, &c. Its Strata, as *Clay, Bole, Sand*- &c. 2°, Foffils or Minerals, as *Metals, Gold, Silver, Mercury*, &c. with Operations relating to 'em, as *Fufion, Refining, Purifying, Parting, Effaying*, &c. *Litharge, Lavatory, Pinea*, &c. Salts, as *Nitre, Natron, Gemma, Allum, Armoniac, Borax*, &c. Sulphurs, as *Arfenic, Amber, Ambergreafe, Coal, Bitumen, Naphtha, Petrol*, &c. Semimetals, as *Antimony, Cinnabar, Marcafite, Magnet, Bifmuth, Calamine, Cobalt*, &c. Stones, as *Marble, Porphyry, Slate, Asbeftos*, &c. Gems, as *Diamond, Ruby, Emerald, Opal, Turcoife*, &c. *Emery, Lapis*, &c. whence *Ultramarine, Azure*, &c. Petrifactions, as *Cryftal, Spar, Stalactites, Trochites, Cornu Ammonis*, and the like.

[4] PHYTOLOGY, or the Hiftory of PLANTS; their Origin, in the *Seed, Fruit*, &c. Their Kinds, as *Tree, Herb*, &c. extraordinary Species, as *Tea, Coffee, Paraguay, Vine, Ginfeng, Cotton, Tobacco*, &c. *Coral, Mufhroom, Truffle, Parafite, Miffelto, Mofs*, &c. Parts, as *Root, Stone, Flower*; *Wood*, as *Guaiacum, Saffafras, Ebeny, Aloes*, &c. Leaf, as *Foliation, Roll*, &c. Bark, *Quinquina*, &c. *Piftil, Farina, Stamina*, &c. Operations thereof, as *Vegetation, Germination, Circulation*, &c. Circumftances, as *Perpendicularity, Parallelifm, Fertility*, &c. Productions, as *Honey, Wax, Balm, Sugar, Manna*, &c. *Gum, Refin, Camphor*, &c. *Indigo, Opium, Galls*, and the like.

[5] ZOOLOGY, or the Hiftory of ANIMALS: Their Origin in *Egg, Embryo, Fœtus, Generation, Conception, Geftation, Hatching, Migration*, &c. Their Kinds, as *Quadruped, Bird, Fifh, Infect, Reptile, Ruminant, Carnivorous*, &c. Extraordinary Species, as *Unicorn, Torpedo, Tarantula, Tortoife, Cameleon, Salamander*, &c. *Barnacle, Anchovy, Death-Watch*, &c. Monfters, as *Double Animals, Hermaphrodite, Mule, Pigmy, Giant*, &c. Metamorphofes, as *Aurelia, Metempfychofis*, &c. Parts, as *Head, Hand, Foot, Finger, Tail, Fin, Wing, Gills*, &c. Covering, as *Hair, Wool, Silk, Feathers*, &c. Armature, as *Nail, Sting, Horn, Tooth, Shell, Proboofcis, Web*, &c. Productions, as *Pearl, Bezoard, Caftoreum, Civet, Meconium, Mummy, Ufnea*, &c. *Kermes, Cochineal*, &c. Motion, as *Flying, Swimming*, and the like.

[6] PHYSICS, or the Doctrine of CAUSES; as *Nature, Law*, &c. Occafions or Means, as *Principle, Matter, Form*, &c. Their Compofition or Conftitution, in *Element, Atom, Particle, Body. Chaos, World, Univerfe, Space, Vacuum*, &c. Properties of Body, as *Extenfion, Solidity, Figure, Divifibility*, &c. Powers thereof, as *Attraction, Cohefion, Gravitation, Repulfion. Elafticity, Electricity, Magnetifm*, &c. Qualities, as *Fluidity, Firmnefs, Ductility, Hardnefs, Volatility, Denfity, Polarity*, &c. *Light, Heat, Cold*, &c. Operations or Effects thereof, as *Motion, Rarefaction, Dilatation, Condenfation. Diffolution, Ebullition, Freezing, Evaporation, Fermentation, Digeftion, Effervefcence*, &c. *Vifion, Seeing, Hearing, Feeling, Smelling*, &c. Modifications or Changes, as *Alteration, Corruption, Putrefaction, Generation, Degeneration, Tranfmutation*, &c. Syftems or Hypothefes hereof, *Corpufcular, Epicurean, Ariftotelian, Peripatetic, Cartefian, Newtonian*, &c.——Occult and Fictitious Qualities, Powers, and Operations, *Antiperiftafis, Sympathy, Antipathy, Archæus*, &c. *Magic, Witchcraft, Virgula Divina, Ligature, Talifman, Cabbala*, &c. *Druid, Bard, Brachman, Gymnofophift, Magi, Roficrucian*, and the like.

[7] METAPHYSICS, or the Doctrine of ENS, *Effence, Exifence, Power, Act, Underftanding*, &c.——The MIND, Its Faculties, *Apprehenfion, Judgment, Imagination, Reafon, Wit*, &c. Its Operations, *Retention, Reflection, Affociation, Abftraction*, &c. Its Perceptions, as *Subftance, Accident, Mode*, &c. Relations, as *Unity, Multitude, Infinity, Univerfal*, &c. *Quantity, Quality, Whole, Part*, &c. *Genus, Species, Difference*, &c. *Proper, Oppofite, Circumftance, External*, &c. Effects hereof, *Knowledge, Science, Art, Experience*, &c. Conditions, *Probability, Certainty, Fallacy*, &c. Syftems hereof, *Nominals, Scotifts*, &c.

[8] ARITHMETIC, including the Doctrine of DISCRETE or *Difcontinuous* QUANTITY, viz. *Number, Ratio, Proportion*, &c. Kinds, as *Integer, Fraction, Decimal, Surd*, &c. Relations, as *Root, Power, Square, Cube*, &c. Rules or Operations thereof, as *Notation, Numeration, Addition, Subtraction*, &c. *Reduction, Practice, Position*, &c. *Extraction, Approximation*, &c. Inftruments fubfervient thereto, as *Logarithms, Nepair's Bones*, &c.

[9] ANALYTICS, or the Refolution of PROBLEMS by *Species* or Symbolical Expreffions: Rules or Operations hereof, *Addition, Subtraction, Multiplication*, &c. Application thereof, in *Combinations, Permutations, Magic Squares, Chances, Gaming*, &c. *Series, Progreffions*, &c. *Methods de Maximis, Fluxions, Exponentials, Tangents*, &c.

[10] ALGEBRA, or the Doctrine of EQUATIONS; *Simple, Quadratic, Cubic*, &c. Operations thereof, as *Reduction, Conftruction*, &c.

[11] GEOMETRY, or the Doctrine of EXTENDED, or *Continuous* QUANTITY, viz. 1°, Lines, *Right, Perpendicular, Parallel, Oblique*, &c. Angles, *Acute, Scalenous, Vertical, Oppofite*, &c. 2°, Figures, or Surfaces, *Triangle, Square, Parallelogram, Trapezium, Polygon*, &c. Circumftances hereof, as *Perimeter, Area*, &c. Operations relating hereto, as *Bifecting, Dividing, Multiplying, Meafuring*, &c. Inftruments ufed therein, as *Compaffes, Ruler, Square, Parallelifm, Scale*, &c. Curves, as *Circle, Cycloid, Ciffoid, Catenaria, Caftic, Evolute, Quadratrix*, &c. Circumftances thereof, as *Axis, Diameter, Radius, Centre, Circumference, Abfcifs, Ordinate*, &c. *Arch, Chord, Sine, Tangent, Secant*, &c. Inftruments ufed herein, as *Artificial Lines, Canons*, &c. Operations arifing herefrom, as Surveying, taking *Angles* or *Bearings*, &c. with *Quadrant, Plain-Table, Semicircle, Circumferentor*, &c. taking *Diftances*, with *Chain, Perambulator*, &c. *Plotting* into *Draught, Map*, &c. with *Protractor*, &c. 3°, Solids or Bodies, as *Cube, Parallelopiped, Prifm, Pyramid, Cylinder, Polyhedron*, &c. Their *Surface, Solidity*, &c. Operations relating hereto, as *Cubature*, meafuring of *Timber, Gauging*, &c. Inftruments ufed herein, as *Carpenters Rule, Sector, Sliding Rule, Gauging Rod*, &c.——The Sphere, its Doctrine, *Projection*, &c. Application thereof, in *Planifphere, Analemma*, &c.——The Cone, its *Sections, Ellipfis, Parabola, Hyperbola*, &c. Their *Afymptotes, Foci*, &c. Their *Conftruction, Quadrature, Rectification*, &c.

[12] STATICS, or the Doctrine of MOTION; Its Laws, *Velocity, Momentum*, &c. Caufes, as *Gravity, Percuffion, Communication*, &c. Modifications, as *Compofition, Acceleration, Retardation, Reflection, Refraction*, &c. Kinds, as *Afcent, Defcent, Central, Centripetal*, &c. *Ofcillation, Undulation, Projection*, &c. Powers or Applications thereof, in *Lever, Screw*, &c. *Pendulum, Projectile*, &c. Operations directed hereby, as *Gunnery*, the *Mechanical Arts*, &c. enumerated hereafter.

[13] ETHICS, or the Confideration of *Natural Inclinations, Paffions, Tafte*s, &c. Objects thereof, as *Good, Evil, Virtue, Vice, Beauty, Deformity*, &c. *Pleafure, Pain*, &c. *Rectitude, Equity, Confcience*, &c. *Law, Obligation*, &c. *Will, Liberty, Action, Affent*, &c. *Neceffity, Premotion, Providence*, &c. Syftems hereof, *Stoicifm, Platonifm, Academy, Cynic*, and the like.

[14] POLICY, or the Confideration of SOCIETY and COMMONWEAL; Its Origin, in *Contract*, &c. Conftitutions and Forms thereof, as, 1°, *Monarchy, Defpotifm*, &c. Powers thereof, *King, Queen, Prince, Duke. Emperor, Sultan, Sophy, Caliph, Cæfar, Czar, Inca, Ethnarch, Tetrarch, Defpot*, and the like. Their Titles, *Majefty, Highnefs, Grace, Excellence*, and the like. Their Regalia, *Crown, Sceptre, Tiara, Fafces*, &c. 2°, Ariftocracy; its Powers, as *Archon, Dictator, Doge, Senate, Council*, &c. 3°, Democracy; *States-General, Stadtholder, Protector*, &c. Their Succeffion, *Elective, Hereditary*, by *Primogeniture*, &c. Their Tranfactions, as *Peace, War, Treaty, Union, League, Croifade*, &c. By *Armies, Fleets, Embaffies. Secretary, Plenipotentiary, Envoy, Legate, Nuntio*, &c. Their Territories, *Empire, Principality, Signory*, &c. Their Eftates, *Nobles, Commons, Clergy. Cenfus, Enumeration, Tribe, Quarter*, &c. *Province, Circle, County, City, Town*, &c. Magiftrature, *Chancellor, Judge, Sheriff, Juftice, Mayor, Alderman, Bailiff, Conftable. Inter-Rex, Conful, Pretor, Cenfor, Vizir. Tribune, Triumvir, Provoft, Ephori, Ædile, Prefect, Quæftor, Proconful. Vice-Roy, Lieutenant, Steward, Warden, Keeper. Jurifconfultus, Procurator, Advocate, Barrifter, Prothonotary, Cuftos, Philazer, Chirographer, Ufher, Clerk*, &c. Their Jurifdiction; Courts, as *Areopagus, Comitia, &c. Parliament, Diet, Divan. Chamber, Affize, Privy Council, &c. Chancery, King's-Bench, Exchequer, Admiralty, Verge, Seffions, Turn, County Court, Leet, Eyre*, &c. *Terms, Circuits, Commiffions, Oyer. Convocation, Arches, Prerogative, Faculties, Delegates. Rota, Inquifition*, &c. Their Revenues, *Treafury, Fife, Exchequer, Tally, Political Arithmetic. Duties, Cuftoms, Gabel, Excife*, &c. *Coinage, Money, Intereft, Ufury*, &c. Their Houfhold, *Chamber, Green-Cloth, Ward-robe*, &c. Under *Steward, Chamberlain, Comptroller, Cofferer, Aga, Oda*, &c. *Guard, Stables, Ordnance*, &c. directed by *Captain, Mafter, Equerry*, &c. Militia, *Navy, Poft, Timariot, Arriere-ban*, &c. Dignities, *Dauphin, Elector, Palatine. Grave, Palfgrave. Thane, Earl, Count, Knight, Garter, Baronet, Bath, Teutonic, Malta, Elephant*, &c. *Gentleman, Yeoman*, &c. Their *Names, Sirnames, Titles, Precedence*, &c. Factions, *Patrician, Guelf, Tory*, &c. Corporations, or leffer *Communities, University, Academy, Colleges*;

I MIGHT here have ended my Preface; and perhaps the Reader would be willing enough to be thus dismiss'd. But something has been already started which will require a further Disquisition.----The Distribution we have made of Knowledge is founded on this, That the several Branches thereof commence either *Art* or *Science* according to the Agency or Non-agency of the human Mind in respect thereof: It remains to take the Matter up a little higher; and explain the Reason and Manner of this Operation. To consider Knowledge in its Principles,

lege, Society, Chapter, School, Hospital, Inn. Public *Edifices, Guild-hall, Prison, Tower, Arsenal, Library, Museum, Circus,* &c. Solemn *Ceremonies,* as *Triumph, Tournament, Carrousel, Quadril. Donative, Medal, Trophy, Monument, Funeral, Tomb, Catacomb,* &c.

[15] LAW, or the Rules and Measures of SOCIETY; publish'd in *Act, Statute, Charter, Rescript, Constitution, Decretal, Senatus-consultum, Pragmatic sanction,* &c. Recorded, in *Institute, Code, Novel, Register, Pandect, Corpus, Domesday,* &c. Kinds, *Civil, Canon, Sumptuary,* &c. Respecting, 1°, Persons, as *the King*; his *Prerogative, Royalties,* &c. *viz.* granting *Dispensation, Pardon, Commendam, Exemption. Dignities, Franchises. Forest, Park, Purlieu, Vert, Chase. Impost, Subsidy, Toll, Tax, Aid, Hidage, Scutage, Prisage. Waif, Estray, Escheat, Treasure Trove,* &c. Officers and Magistrates, created by *Writ, Warrant, Commission,* &c. Their *Oath, Test, Declaration. Visitation, Procuration,* &c. Corporations, *Regular, Secular,* &c. made by *Charter, Patent,* &c. dissolved by *Quo Warranto, Mandamus,* &c. Subjects, as *Denizen, Naturalization. Husband, Wife, Marriage, Concubine, Separation, Alimony, Dower, Affinity, Bastard. Adoption, Emancipation. Lord, Tenant, Villain, Vassal. Client, Patron. Servant, Slave, Retainer. Manumission, Enfranchising,* &c. *Tenure, Service, Homage, Fealty, Serjeanty, Escuage, Relief, Guardian, Wardship, Socage. Heir, Intestate, Ancestor,* &c.——2°, Estates or Things; either Real, as *Tenements, Hereditaments. Freehold, Fee, Customary, Tail, Gavelkind, Courtesy,* &c. In *Reversion, Mortgage, Hypotheca,* &c. *Manor, Demesn, Honours. Common, Glebe, Advowson,* &c. Acquired by *Occupancy, Prescription, Descent, Deed, Feoffment, Fine, Recovery. Defeizance, Lease, Devise, Attournment, Investiture, Livery,* &c. Lost by *Alienation, Mortmain, Disseisin, Abatement. Surrender, Discontinuance, Disclaimer, Forfeiture, Resignation, Deprivation, Lapse,* &c. Or Personal, as *Goods, Chattels, Emblements, Annuity, Debts, Specialty, Recognizance,* &c. Acquired by *Succession, Heriot, Mortuary, Heir Loom. Testament, Executor, Administrator, Ordinary. Judgment, Fieri facias,* &c.——3°, Wrongs or Injuries; either Criminal, and to Persons, as *Treason, Parricide, Murder, Felony, Assault, Rape, Assassin. Adultery, Fornication, Defloration, Polygamy, Heresy,* &c. Prosecuted by *Indictment, Accusation, Actions of Conspiracy,* and *upon the Case, Habeas Corpus,* &c. Punish'd, with *Hanging, Crucifixion, Wheel, Furca, Scala, Pillory, Transportation, Divorce, Scaphism,* &c. Or Civil, and to Things; as *Trespass, Nuisance, Deforcement,* &c. Remedied by Writs of *Quare Impedit, Darrein Presentment, Appeal, Attaint, Error, Right, Disceit, Supersedeas, Audita Querela,* &c. Suit, or Course of Proceedings whereby Redress is procured; including, 1°, *Process,* either by *Bill, Summons, Subpœna, Attachment, Capias, Exigent,* &c. to which belong *Appearance, Attorney, Bail, Essoign, Default, Nonsuit, Arraignment,* &c. 2°, Pleading; whence *Count, Declaration, Aid Praier, Voucher, Age Prier, Bar, Abate, Release, Replication, Outlawry, Sequestration,* &c. 3°, Issue; whence *Demurrer.* 4°, Trial; whence *Proof, Evidence, Presumption, Oath, Affidavit, Affirmation. Jury, Challenge, Array, Verdict. Battel, Duel, Champion, Purgation, Ordeal,* &c. *Paine fort & duret, Rack, Torture,* &c. 5°, Judgment; whence *Arrest,* &c. 6°, Execution; whence *Scire facias, Reprieve,* &c.

[16] THEOLOGY, or the Consideration of GOD: his Nature and *Attributes,* as *Eternity, Ubiquity,* &c. His *Unity, Trinity,* &c. *Persons, Hypostasis,* &c. Our Duty to him, discover'd by *Inspiration, Revelation, Prophecy,* &c. by the *Messiah, Evangelists, Apostles,* &c. In the Bible, *Pentateuch, Hagiographa, Psalter, Gospel, Apocalypse,* &c. *Canon, Deuterocanonical, Apocrypha,* &c. Circumstances thereof, *Style, Allegory, Type, Parable, Mystical,* &c. *Text, Version, Septuagint, Vulgate,* &c. *Paraphrase, Targum,* &c. *Points, Quotations,* &c. Matter thereof; Declarations, of *Incarnation, Passion, Crucifixion, Miracle,* &c. Injunctions, as *Worship, Prayer, Sacrifice,* &c. Sacraments, as *Eucharist, Baptism,* &c. Promises, as *Grace, Justification,* &c. Decrees, as *Predestination, Election, Reprobation,* &c. Breaches on our Part, *Sin, Apostacy, Imputation,* &c. Remedies thereof, by *Repentance, Confession,* &c. Rewards and Punishments allotted thereto, *Heaven, Hell, Resurrection, Immortality,* &c. His Ministers, *Angels, Devil,* &c. His Church, either *Triumphant,* as *Saints, Martyrs, Confessors, Fathers, Doctors,* &c. or *Militant,* &c. Its Offices, *Creed, Liturgy, Decalogue, Doxology, Trisagion,* &c. Discipline, Rites, &c. as *Absolution, Anathema, Excommunication,* &c. *Catechumen, Confirmation, Genuflexion,* &c. Its Priesthood, as *Bishop, Priest, Deacon,* &c. *Patriarch, Archbishop, Primate, Dean, Canon, Prebend, Archdeacon, Chantor,* &c. Their Ensigns, *Mitre, Crozier, Pallium,* &c. Their *Ordination, Consecration, Collation, Imposition,* &c. *Benefices, Revenues, Tithes,* &c. Places set apart, as *Church, Chapel, Oratory,* &c. *Cathedral, Parochial, Cardinal,* &c. *Choir, Nave, Altar, Font,* &c. *Diocese, Province,* &c. Assemblies, as *Synod, Council, Convocation, Consistory, Chapter, Presbytery,* &c. *Feasts, Fasts, Lent, Vigils,* &c. *Easter, Epiphany, Pentecost, Annunciation, Purification, Presentation,* &c.——Particular Systems or Professions thereof, *viz. Reform'd* or Protestant, as the *Church of England, Lutheranism, Calvinism,* &c. Romish or *Latin*; its *Mass, Breviary, Legend,* &c. *Transubstantiation, Extreme Unction, Supererogation, Penance,* &c. *Hierarchy*; *Pope, Cardinal,* &c. *Secular, Regular, Monk, Religious, Abbot, Prior,* &c. *Order, Congregation, Monastery, General,* &c. *Jesuit, Carthusian, Carmelite, Franciscan, Dominican,* &c. Third Order, *Cenobite, Anchorite, Hermit, Recluse, Monastery, Cell,* &c. *Rule, Vow, Reform, Noviciate,* &c. *Image, Relicks, Saint, Virgin, Rosary,* &c. *Canonization, Beatification,* &c. *Indulgence, Jubilee, Exorcism,* &c.——Greek, it. *Anthologue, Prothesis, Particles,* &c. *Maronite, Jacobite, Thomaan,* &c. *Armenian, Cophti, Solitary,* &c.——Sects, and Heresies; as *Manichees, Gnostics, Arians,* &c. *Ebionites, Nestorians, Millenaries, Quartodecimans,* &c. *Montanists, Socinians, Arminians,* &c. *Presbyterians, Anabaptists, Independents, Quakers,* &c. *Quietists, Servetists, Pre-adamites,* &c. *Deist, Atheist, Spinosism,* &c.——Jewish, its *Talmud, Tradition,* &c. *Temple, Tabernacle, Sanctuary, Ark,* &c. *Pontiff, Levite, Tribe,* &c. *Ephod, Theraphim, Circumcision, Sabbath, Sanhedrim,* &c. *Rabbin, Doctor, Cabbala, Massora,* &c. *Pharisee, Sadducee, Essean, Carnite,* &c. *Nazarite, Therapeuta,* &c. *Samaritan, Dosithean, Hellenist,* &c. *Passover, Scenopegia, Gehenna,* &c.——Mahometan; Their *Alcoran, Mufti, Dervice, Mosque, Mussulman,* &c.——Heathen; Their *Idolatry, Theogony,* &c. Their Gods; *Penates, Lares, Lemures,* &c. *Panes, Sylvans, Nymphs, Tritons,* &c. *Demi-god, Hero, Fortune, Destiny, Demon, Genius,* &c. *Apotheosis, Sacrifice,* &c. *Feast, Lustration,* &c. as *Eleusinia, Saturnalia, Cerealia.* &c. Ministers thereof; *Rex, Pontifex, Flamen, Vestal, Corybantes,* &c. Games; *Olympic, Isthmean,* &c. *Divination, Oracle, Pythian, Sibyl,* &c. *Augur, Auspex,* &c. *Temple, Fane, Pagod,* &c. Sects; as *Banians, Bramans, Sabaans,* &c.

[17] LOGICS, or the Consideration of IDEAS or NOTIONS; Their Kinds, *Simple, Complex, Adequate,* &c. Disposition, into *Classes* or *Categories, Predicaments, Predicates,* &c. Their Composition, or Association into *Axioms, Propositions, Problems, Theorems, Theses, Hypotheses.* Arguments, as *Syllogism, Enthymeme, Sorites, Sophism, Dilemma, Crocodilus.* &c. Their Resolution, *Definition, Division,* &c. into *Premisses, Consequences, Terms,* &c. Their *Truth, Falsehood, Evidence, Demonstration,* &c. Operations therewith, as *Argumentation, Induction, Discoursing, Philosophizing,* &c. *Disputation, Distinction, Contradiction, Reductio ad absurdum,* &c.

[18] CHYMISTRY, including the Use of FIRE, *Water, Baths, Ferments, Menstruums, Furnaces, Retorts,* and other Instruments; to change *Animal, Vegetable,* and *Fossil* Bodies; by inducing *Fusion, Putrefaction, Fermentation, Dissolution, Exhalation,* &c. and hereby procuring *Spirits, Salts, Oils. Acid, Alcaline, Aromatic, Urinous. Wines, Vinegars, Flowers, Calces, Crystals, Soaps, Tartars. Regulus, Magistery, Extract, Elixir. Cerussa, Minium, Litharge. Quintessence, Phosphorus, Alcahest, Philosopher's Stone,* and the like; by the Operations of *Distillation, Expression, Cohobation, Sublimation, Rectification, Crystallization, Calcination, Amalgamation, Digestion, Precipitation, Vitrification, Fixation, Transmutation,* and the like.——*Arbor Diana. Aurum Fulminans, Artificial Earthquake, Magic, Divination,* &c.

[19] OPTICS, including the Laws and Consideration of VISION, and *Visible Objects*; effected by means of *Light,* its *Rays.* Their *Refrangibility, Reflexibility,* &c. *Focus, Transparency, Opacity, Shadow,* &c. ——Reflection thereof, in *Mirror, Looking-glass, Catoptric Cistula,* &c.——Refraction, in *Lens, Prism, Glass,* &c. Application, in *Telescope, Microscope, Magic Lanthorn,* &c. *Spectacle, Polemoscope, Polyhedron, Camera Obscura,* &c.

[20] PERSPECTIVE, or the PROJECTION of *Points, Lines, Planes,* &c. in *Scenography, Orthography, Ichnography, Anamorphosis,* &c.

[21] PAINTING, or the DESIGNING of Objects in *Clair-obscure, Proportion,* &c. with *Ordonnance, Expression,* &c. Circumstances hereof, *Attitude, Contrast, Group,* &c. Kinds, *Limning, Miniature, Camieux, Fresco,* &c. *Enamelling, Mosaic,* &c.

[22] PHONICS, or the Doctrine of SOUNDS, *Voice,* &c. Their Modifications in *Echo, Resonance, Whispering-Place, Speaking-Trumpet,* &c.——Their Tune, *Gravity, Interval,* &c. Time, *Triple,* &c. express'd by *Note, Chord,* &c. Comparisons thereof, *Concord,* as *Unison, Octave, Third, Fourth, Discord,* &c. Composition, as *Melody, Harmony, Counter-point. Symphony, Synaulia, Chime, Song, Rhythmus,* &c. Kinds, *Genera, Mode,* &c. Circumstances, *Key, Cleff, Signature, Transposition,* &c. *Staff, Scale, Gammut, Solfaing, Modulation,* &c. Instruments, *Organ, Bell, Trumpet, Lyre, Cymbal, Violin, Harpsichord,* &c.

[23] HYDROSTATICS, or the Consideration of FLUIDS; their *Specific Gravity, Density, Equilibrium.* &c. Instruments to measure the same, as *Areometer, Hydrostatical Balance,* &c. *Syphon, Torricellian,* &c.——Motion thereof, in *Pump, Fountain, Spiral Screw, Hydrocanisterium, Hydromantic,* &c.

[24] PNEUMATICS, or the Consideration of the AIR; its *Weight, Density. Pressure, Elasticity,* &c. *Condensation, Rarefaction, Motion, Wind,* &c. In *Air-pump, Suction, Vacuum,* &c. Measur'd by *Barometer, Thermometer, Hygrometer, Manometer,* &c. *Anemometer, Windmill* &c.

[25] MECHANICS, including the Structure and Contrivance of MACHINES. as *Balance, Steelyard, Pully, Polyspast,* &c. *Wheel, Clock, Watch. Pendulum. Spring. Fusee* &c. *Clepsydra, Coach, Rota Aristotelica, Perpetual Motion* &c. *Mill. Press, Vice, Lath, Loom, Windlass,* &c. Operations of *Swimming, Diving, Flying,* &c.

ples, antecedent to such Intervention of ours; and even pursue it up to its Cause, and shew how it exists there, before it be Knowledge: And to trace the Progress of the Mind thro' the Whole, and the Order of the Modifications induced by it. This is a Desideratum, hitherto scarce attempted; but which we could not here decline entering upon, on account of its immediate Relation to the present Design. 'Tis the Basis of all Learning in general; the great, but obscure Hinge, on which the whole Encyclopædia turns.

TO

26 ARCHITECTURE, including the Construction of BUILDINGS; as *House, Temple, Church, Hall, Palace, Theatre,* &c. *Ship, Galley, Galleon, Ark, Buccentaur, Boat,* &c. *Pyramid, Mausoleum, Pantheon,* &c. *Capitol, Seraglio, Escurial,* &c. *Arch, Vault, Bridge, Monument, Tomb,* &c. Forms thereof, *Rotonda. Platform, Pinnacle,* &c. Plans, *Design, Ichnography, Profile,* &c. Parts, as *Foundation, Wall, Roof,* &c. *Door, Window, Stairs, Chimney,* &c. Orders, as *Tuscan, Doric, Corinthian,* &c. *Caryatides, Rustic, Gothic,* &c. Column, *Pilaster, Attic,* &c. Parts thereof, *Entablature, Capital, Pedestal,* &c. *Cornice, Frieze, Base,* &c. *Volute, Pediment, Modillion, Console,* &c. Mouldings, *Ogee, Tore, Astragal, Scotia. Abacus, Ovolo,* &c. Materials, as *Brick, Stone, Tyle, Slate, Shingle,* &c. *Timber, Wainscot, Glass, Lead, Plaster,* &c. *Beam, Rafter, Mortar, Nail, Hinge, Key, Lock,* &c. *Quarry, Masonry,* &c.

27 SCULPTURE, or the framing of *Statue, Figure, Ornament,* &c. in *Relievo, Creux,* &c. as *Carving. Pottery. Porcelain,* &c. Engraving, *Seal, Dye,* &c. *Etching, Cutting. Mezzo Tinto,* &c. Foundery, of *Bell, Letter, Ordnance,* &c. Coining, *Money, Medal, Medallion,* &c. *Pile, Legend,* &c. *Lapidary, Turnery, Inlaying, Vaneering, Damasqueening, Enchasing,* &c.

28 TRADES and MANUFACTURES; as *Printing, Paper-making, Book-binding,* &c. *Gilding, Japanning, Glass-making. Grinding,* &c. *Plumbery, Glaziery, Forging, Hammering,* &c. *Weaving, Bleaching, Whitening,* &c. *Fulling, Dying, Pressing, Sheering. Calendring, Tabying, Freezing,* &c. *Woollen, Silk, Linum Incombustibile,* &c. *Cloth, Serge, Taffety, Stocking,* &c. *Velvet, Tapistry, Hat,* &c. *Tanning, Currying, Tawing,* &c. *Chamoising, Chagreen, Marroquin,* &c. Making *Parchment, Glue. Gun-pouder, Smalt, Soap, Starch,* &c. *Candle, Taper, Torch,* &c. *Steel, Button, Pin, Needle, Pipe, Fan, Peruke,* &c.

29 PYROTECHNY, or *Artificial* FIRE-*Work*; including the Consideration and Use of *Gun-pouder, Match, Fusee,* &c. Of *Ordnance, Cannon, Gun, Mortar,* &c. *Carriage, Charge, Projection, Range, Point-blank, Recoil,* &c. *Petard, Carcass, Shot, Bomb, Granado,* &c. *Rocket, Star,* &c.

30 MILITARY *Art*, including the Consideration of ARMIES, *Fleets, Cavalry, Infantry,* &c. Consisting of *Regiments, Troops, Companies, Phalanx, Legion,* &c. Soldiers, *Dragoon, Grenadier, Fusileer, Cuirassier, Archer, Janisary, Spahi, Velites, Argyraspides, Gend'armery,* &c. Divided into *Squadron, Battalion, Brigade,* &c. Commanded by *General, Marshal, Bashaw, Admiral,* &c. *Lieutenant, Brigadier, Colonel, Captain, Serjeant. Major, Adjutant, Ensign, Quarter-Master. Tribune, Centurion, Primipilus,* &c. In *Battle, Siege, March, Camp,* &c. Ranged in *Line, Column,* &c. Motions, *Attack, Retreat, Halt,* &c. Evolutions, *Wheeling, Counter-wheeling,* &c. Signals, *Word, Drum, Chamade,* &c. Guards, *Garison, Piquet, Patroll, Round, Quarter, Place of Arms,* &c. *Standard, Banner, Eagle, Labarum,* &c. Their Arms, *Artillery, Carabine, Musquet,* &c. *Helmet, Buckler, Pelta, Cuirass,* &c. *Aries, Balista, Catapulta, Fundus,* &c.

31 FORTIFICATION, or the Construction of FORTRESSES; as *Citadel, Castle, Tower,* &c. *Fort, Star, Redoubt,* &c. Works, or Parts thereof, *Rampart, Bastion, Ditch, Counter-scarp, Curtain,* &c. *Ravelin, Horn-work, Crown-work,* &c. Approaches, *Trench, Sap, Mine,* &c. *Line, Parallel, Circumvallation,* &c. *Battery, Attack,* &c.

32 ASTRONOMY, or the Doctrine of the HEAVENS; Their *Circles, Ecliptic, Zodiack, Meridian, Equator, Vertical, Azimuth. Galaxy,* &c. Points, as *Pole, Zenith, Nadir,* &c. Celestial *Bodies,* viz. *Stars, Sun,* &c. Assemblage thereof, into *Sign, Constellation,* &c. Their Precession, *Culmination, Refraction. Declination, Ascension, Longitude, Latitude. Altitude, Amplitude, Azimuth.* Planets, as *Saturn, Venus, Earth. Moon, Satellite, Comet,* &c. Their *Places, Aspects, Syzygy, Conjunction, Quadrature. Diameter, Distance, Period, Revolution, Orbit, Node,* &c. Their *Station, Retrogradation, Equation,* &c. Their *Phases, Eclipse, Penumbra, Occultation, Parallax, Crepusculum, Maculæ,* &c. Observations thereof, taken with the *Quadrant, Gnomon, Micrometer, Reticula,* &c. Collected in *Catalogue, Tables,* &c. Hypotheses, or Systems thereof, *Copernican, Tychonic, Ptolemaic,* &c. Exhibited in *Sphere, Globe,* &c.

33 CHRONOLOGY, or the Doctrine of TIME; measur'd by *Year, Month, Week, Day, Hour. Age, Period, Cycle,* &c. Commencing from *Epocha, Creation, Hegira,* &c. Laid down in *Fasti, Almanack, Calendar, Julian, Gregorian,* &c. Accommodated to *Feasts, Feriæ, Easter,* &c. by means of *Epacti, Golden Number, Dominical,* &c.

34 DIALLING, including the *Furniture* and Projection of DIALS, *Horizontal, Declining, Reclining, Deinclining,* &c. *Moon-Dial, Ring-Dial, Horodictical,* &c. Instruments, as *Declinator, Analemma, Scales,* &c.

35 GEOGRAPHY, including the Doctrine of the EARTH, or GLOBE: its *Circles; Parallel, Tropic, Horizon, Axis, Poles,* &c. Its *Zones, Climates,* &c. Its *Places*; their *Longitude, Latitude, Distance, Elevation,* &c. Inhabitants, *Antipodes, Aborigines, Troglodites, Asci, Perisci,* &c. Instruments relating thereto, *Globe, Map,* &c.

36 NAVIGATION, or the Consideration of SAILING; in *Ship, Frigate, Bark,* &c. Parts thereof, *Mast, Anchor, Sails, Yards; Cordage, Capstan, Rudder, Deck,* &c. Their *Course, Rhumb,* &c. shewn by *Compass, Needle, Variation,* &c. Directed by *Steerage, Current,* &c. Distance or *Reckoning,* by *Log, Observation, Longitude, Latitude,* &c. Taken by *Fore-staff. Back-staff, Astrolabe, Nocturnal. Sinical Quadrant,* &c. Wrought by *Gunter, Chart, Mercator, Traverse,* &c. The Operations of *Sounding, Weighing, Careening.* Signals, *Buoy,* &c.

37 COMMERCE, or the Affairs of MERCHANDIZE; including, Money, *Coin, Species* &c. as *Pound, Crown, Shilling, Penny, Sterling. Ducat, Dollar, Piece of Eight. Talent, Sesterce, Shekel,* and the like. Weights, *Libra, Ounce,* &c. Measures, *Foot, Yard, Standard,* &c. Given in *Exchange, Truck, Permutation, Commutation,* &c. for *Manufacture, Spice, Drug, Woollen, Slave, Negro,* &c. *Imported, Exported, Transported, Convoy, Flota,* &c. Conditions thereof, *Tariff, Contraband, Charter-party, Freight, Average,* &c. *Customs, Duty, Tunnage, Poundage,* &c. *Bottomry, Assurance, Pike,* &c. Transacted by *Company*; as *Hans, Steel-yard, East India, Turky, Hamburg, Mississippi, South Sea, Assiento, Register. Colony, Fishery, Factory,* &c. At *Staple, Fair, Market, Bank, Burse,* &c. By *Commission, Factor, Broker,* &c. *Weighing,* paying by *Bill*, at *Usance, Acceptance, Par. Protest, Discount, Rechange,* &c. *Action, Subscription. Book-keeping,* &c.

38 ANATOMY, or the *Analysis* of ANIMAL BODIES, and their PARTS, *viz.* Bones, as *Cranium, Rib, Vertebra, Radius, Femur, Tibia. Sacrum, Pubis, Patella,* &c. Their *Articulation, Apophyses,* &c. Muscles, *Abductor, Adductor, Erector, Depressor, Deltoides, Sartorius, Cucullaris, Orbicularis, Sphincter,* &c. Their *Tendons, Fibres,* &c. Vessels, as *Artery, Aorta, Aspera, Trachea, Pulmonary,* &c. *Veins,* as *Cava, Porta, Jugular, Carotid,* &c. *Glands,* as *Pancreas, Parotides, Prostates,* &c. *Nerves; Optic, Olfactory, Auditory,* &c. *Lymphatic, Lacteal, Mesaraic, Mucilaginous,* &c. Their *Valves, Tunics, Anastomases,* &c. Their Humours, as *Chyle, Blood, Spirit, Seed, Gall, Urine, Milk, Sweat, Marrow,* &c. Membranes; *Pannicle, Cutis, Cuticula, Papilla,* &c. *Venters, Head, Meninges, Brain,* &c. *Eye, Ear, Pupil, Tympanum. Tongue, Teeth, Palate, Larynx, Glottis, Oesophagus,* &c. Viscera, *Stomach, Lungs, Heart,* &c. *Liver, Spleen, Kidney, Intestines, Bladder,* &c. Functions or Operations hereof, *Respiration, Deglutition, Digestion, Chylification, Sanguification, Circulation, Systole, Nutrition. Secretion, Excretion, Perspiration, Vomiting,* &c. Genitals, *Penis, Testicle, Clitoris, Matrix, Nympha, Hymen. Embryo, Zoophyte, Mole,* &c. *Erection, Generation, Conception, Gestation. Delivery, Lochia, Menses,* &c.

39 MEDICINE, including the Consideration of LIFE and HEALTH; Conditions thereof, *Longevity, Strength, Temperament,* &c. Means, as *Food, Drink, Exercise,* &c. Opposites, as *Death, Disease,* &c. Kinds hereof, *Chronic, Epidemic, Contagious,* &c as *Plague, Fever, Gout, Apoplexy, Epilepsy, Palsy. Pox, Polypus, Palpitation. Madness, Hydrophobia, Spasm, Hypochondriac. Phthisis, Scorbutus, Dropsy, Tympanites. Lepra, Itch, Plica, Ophthalmia, Gutta, Cataract,* and the like. *Wound, Ulcer, Cancer. Fracture, Fissure, Caries,* and the like. Symptoms, *Sign, Diagnostic, Pulse, Urine,* &c. *Prescription, Crisis, Cure,* &c. *Regimen, Diet, Medicine,* &c. Kinds hereof, *Specific, Purgative, Emetic, Diaphoretic, Diuretic, Alterative. Styptic, Astringent, Emollient, Opiate. Absorbent, Caustic, Anodyne, Sympathetic. Cardiac, Cephalic, Febrifuge. Antimonial, Chalybeat, Mercurial,* and the like. Operations, as *Evacuation, Phlebotomy, Suture, Lithotomy, Amputation, Inoculation. Salivation, Couching, Cupping, Trepanning. Touching, Tapping, Stroking, Transfusion, Castration, Circumcision,* and the like.

40 PHARMACY, or the *Preparation* and *Composition* of REMEDIES; as *Mithridate, Treacle, Hiera Picra, Laudanum, Diasenna, Turbith, Calomel,* &c. in the Form of *Electuary, Confection, Extract, Tincture, Syrup. Troche, Pill, Pouder, Lohoc, Potion, Apazem, Drops,* medicated *Ales, Wines, Waters. Unguent, Emplaster, Purge, Clyster, Suppository, Pessary, Collyrium,* &c. From *Drugs,* or *Simples*; as, *Guaiacum, Sassafras, Colocynthis, Crocus, Rhubarb, Cassia, Senna, Cortex, Styrax, Jalap, Scammony, Opium,* &c. *Fats, Claws, Horns,* &c. of *Viper, Crab, Elk,* &c. *Cantharides, Millepedes, Mummy, Usnea, Ichthyocolla,* &c. *Antimony, Orpiment, Asphaltus, Bismuth, Marcasite, Bole, Cinnabar, Mars, Venus,* &c.

41 AGRICULTURE, or the *Tillage* and Improvement of SOILS, *Clay, Sand, Earth,* &c. By the Operations of *Ploughing, Fallowing, Burning, Sembradore, Sowing, Manuring,* &c. To produce, *Corn, Hemp, Flax, Liquorice, Saffron,* &c. For *Malt, Bread,* &c. *Granary, Threshing,* &c. The Culture of *Trees, Timber,* &c. by *Planting, Lopping, Barking,* &c. For *Coppice, Park, Paddock, Hedge, Pasture,* &c.

42 GARDENING, including the *Culture* of HERBS, *Flowers, Fruits,* &c. as *Dwarf, Standard, Stone, Wall, Espalier, Sallad,* &c.

TO be a little more explicit—*Words* are the next Matter of Knowledge; I mean, of Knowledge conſider'd as it now ſtands, communicable, or capable of being tranſmitted from one to another. We ſhould have known many Things without Language; but it would only have been ſuch Things as we had ſeen or perceived our ſelves. The Obſervations of others could no way have been added to our own; but every Individual muſt have gone thro' a Courſe for himſelf, excluſive of all Advantages to, or from, Cotemporaries, Predeceſſors, or Poſterity.——'Tis evident that, in this Caſe, nothing like an *Art*, or *Science*, could ever have aroſe; not even in the Mind of the moſt ſagacious Obſerver: The little Syſtem of Things which come immediately in one Man's way, wou'd but have afforded a ſlender Stock of Knowledge; eſpecially to a Being whoſe Views were all to terminate in himſelf. Add, that, as the chief Occaſions of his Obſervation would be of the ſame kind with thoſe of other Animals; 'tis probable his Knowledge would not have been very different, whether we conſider its Quantity or Quality. 'Tis confeſs'd that all our Knowledge, in its Origin, is no other than Senſe; whence it ſhould follow, that one Being has no natural Advantage over another in its Diſpoſition for Knowledge, other than what it has in the ſuperior Number, Extent, or Acuteneſs of its Senſes.

'TIS, in effect, to Language that we are chiefly indebted for what we call *Science*. By means hereof our Ideas and Notices, tho things in their own nature merely perſonal, and adapted only to private uſe; are extended to others, to improve their ſtock: and thus, by a kind of ſecond Senſe, we get Perceptions of the Objects that are perceived by all Mankind; and are preſent, as it were by proxy, to things at all Diſtances from us: We hear Sounds made a thouſand Years ago, and ſee Things that paſs a thouſand Miles off. If the Eagle really ſees, the Raven ſmells, and the Hare hears, further and better than Man; their Senſe, at beſt, is but narrow, in compariſon of ours, which is extended, by the Artifice of Language, over the whole Globe. They ſee with their own Eyes only; we with thoſe of the whole Species.—In effect, by Language, we are upon much the ſame footing, in reſpect of Knowledge, as if each individual had the natural Senſe of a thouſand: an Acceſſion which alone muſt have ſet us far above any other Animals. But at the ſame time, this very acceſſion of a multitude of Ideas more than naturally belong'd to us, muſt have been in great meaſure uſeleſs; without certain other Faculties of ordering and arranging 'em; of abſtracting, or making one a Repreſentative of a Number; of comparing 'em together, in order to learn their Relations; and of compounding, combining 'em, *&c.* to make 'em act jointly. The Effect hereof is what we call *Diſcourſing* and *Philoſophizing:* And hence ariſe *Doctrines*, *Theories*, &c.

EVERY Word is ſuppoſed to ſtand for ſome Part, or Point of Knowledge; ſuch as do not, have no buſineſs in the Language, and ought of Conſequence to be thrown out of doors. It follows, that the Vocabulary of any Language, is repreſentative of the ſeveral Notices of the People among whom it obtains: I mean of the primary or abſolute Notices; for by the Conſtruction of theſe Words with one another, a new Set of ſecundary or relative Notices are expreſs'd.—To enter better into this, it is to be obſerv'd, that the ſeveral Objects of our Senſes, with that other Set of Things analogous hereto, the proper Objects of the Imagination, are repreſented by fixed Names *; denoting, ſome of 'em, Individuals †; others, Kinds ‡, *&c.* Now, theſe, which make the firſt or fundamental Part of a Language, 'tis obvious, are no other than a Repreſentation of the Works of Nature, as they exiſt in a kind of ſtill Life, or in a State of Independency one upon another. But in regard we do not conſider the Creation as thus quieſcent, but obſerve a great number of Mutations ariſe in the Things we are converſant among; we are hence put under a neceſſity of framing another Set of Words, to expreſs theſe Variations, and the Actions to which they are owing, with the ſeveral Circumſtances and Modifications thereof ‖. By this means, Nature is remov'd out of her dormant Conſtitution, and ſhewn in Action; and thus may occaſional Deſcriptions be framed, accommodate to the preſent State of Things.

HENCE ariſe two Kinds of Knowledge; the one *abſolute*, including the ſtanding Phænomena: the other *relative*, or *occaſional*, including what is done, or paſſes, with regard to them. The former is in ſome Senſe permanent; the latter merely tranſient, or hiſtorical. The firſt is held forth, as already obſerved, in the Vocabulary: the ſecond vague, and uncircumſcrib'd by any Bounds; being what fills all the other Books extant. In effect, this laſt, being in ſome meaſure caſual, may be ſaid to be infinite: for that every new Caſe, *i. e.* every new Application and Combination of the former, furniſhes a new Acceſſion.

IN the wide Field of Knowledge, appear ſome Parts which have been more cultivated than the reſt; either on account of the Goodneſs of the Soil, and its eaſy Tillage, or by reaſon they have fallen under the Hands of induſtrious and able Husbandmen. Theſe Spots, being regularly laid out and planted, and conveniently circumſcrib'd or fenced round, make what we call the *Arts*, and *Sciences:* And to theſe have the Labours, and Endeavours of the Men of Curioſity and Learning in all Ages, been chiefly confin'd. Their Bounds have been enlarg'd from time to time, and new Acquiſitions made from the adjoining Waſte; but ſtill the Space

The Operations of *Planting*, *Tranſplanting*, *Replanting*, *Watering*. *Engrafting*, *Inoculating*, *Pruning*, *Pinching*, *Variegating*, &c. Preventing *Diſeaſes*, *Blights*, *Gum*, &c. The Uſe and Ordering of a *Hot-bed*, *Green-houſe*, *Seminary*, *Nurſery*, *Garden*, *Vineyard*, &c. Their *Expoſure*, *Walls*, *Horizontal Shelter*, &c. *Walks*, *Graſs-Plot*, *Terrace*, *Quincunx*, *Parterre*, &c.

43 MANAGE, including the Conſideration of HORSES; their *Age* *Colour*, *Teeth*, *Hoof*, *Star*, &c. Paces, as *Amble*, *Gallop*, &c. Airs, as *Volt*, *Demivolt*, *Curvet*, *Capriole*, &c. *Aid*, *Correction*, *Hand*, *Bit*, &c. *Saddle*, *Shoe*, *Bridle*, &c. Diſeaſes, as *Halting*, *Farcy*, *Staggers*, *Scratches*, *Yellows*, &c. Operations, as *Rowelling*, *Docking*, *Gelding*, &c.——Hawk, *Hawking*, *Hood*, &c. *Reclaiming*, *Caſting*, &c. *Pip*, *Filanders*, &c.——Hound, *Hunting*, &c. *Rut*, *Stalking*, *Birdlime*, *Tramel-net*, *Bat-fowling*, &c.——Fiſh, *Fiſhing*, *Fiſhery*, &c. *Angling*, *Hook*, *Rod*, *Float*, &c. *Bait*, *Fly*, *Huxing*, &c.

44 GRAMMAR, or the Conſideration of LANGUAGE; as *Engliſh*, *Latin*, *Greek*, *Hebrew*, *French*, &c. Their *Dialect*, *Idiom*, *Patavinity*, &c. Matter thereof, *Letter*; *Vowel*, *Conſonant*, *Diphthong*, *Aſpirate*, *Character*, *Symbol*, *Hieroglyphic*, &c. *Syllable*, *Particle*, &c. *Word*; Kinds hereof, *Noun*, *Pronoun*, *Verb*, &c. *Subſtantive*, *Adjective*, &c. Their *Conſtruction*, *Concord*, *Regimen*, &c. In *Caſe*, *Nominative*, *Genitive*, &c. *Gender*, *Maſculine*, &c. *Number*, *Perſon*, *Mood*, *Tenſe*, &c. Into *Sentence*, *Phraſe*, *Period*, &c. Diſtinguiſh'd by *Point*, *Accent*, *Comma*, &c. Deliver'd by *Pronunciation*, *Writing*, *Orthography*, &c.

45 RHETORIC, or the Means of PERSUASION; as Invention, *Amplification*, *Topic*, *Place*, *Argument*. *Paſſions*, *Manners*, &c. Diſpoſition, *Exordium*, *Narration*, *Confirmation*, *Peroration*, &c. *Elocution*, *Sublime*, *Style*, *Numbers*, &c. Figures, as *Exclamation*, *Pleonaſm*, *Epiphonema*, *Apoſtrophe*, *Proſopopœia*, *Antithetis*, &c. Tropes, as *Metaphor*, *Allegory*, *Synecdoche*, *Sarcaſm*, *Hyperbole*, *Catachreſis*, &c. Action, *Geſture*, *Monotonia*, &c. Compoſitions, as *Oration*, *Declamation*, *Panegyric*, &c. *Parable*, *Eſſay*, *Dialogue*, *Hiſtory*, &c.

46 HERALDRY, or the Conſideration of COATS; conſiſting of *Field*, *Charge*, *Figure*, &c. as *Croſs*, *Chevron*, *Bend*, *Pale*, &c. with *Abatement*, *Difference*, *Quartering*, &c. Compoſed of *Colour*, *Metals*, *Points*, &c. Bore on *Eſcutcheon*, *Shield*, &c. Accompanied with *Supporters*, *Helmet*, *Creſt*, *Mantling*, *Motto*, &c. *Device*, *Emblem*, *Rebus*, *Enigma*, &c. And deſcribed by *Blazon*.

47 POETRY, including the Conſideration of VERSE; its *Meaſure*, *Feet*, *Quantity*, &c. as *Hexameter*, *Alexandrine*, *Spondee*, *Iambic*, &c. *Rhyme*, *Stanza*, &c. Compoſitions, as *Epigram*, *Elegy*, *Song*, *Madrigal*, *Hymn*, *Ode*, *Pindaric*, &c. *Eclogue*, *Satire*, *Georgic*, &c. *Anagram*, *Acroſtic*, *Burleſque*, *Macaronic*, *Leonine*, *Troubadour*, &c. Dramatic, as *Tragedy*. *Comedy*, *Hilaro-tragedia*, *Farce*, &c. Parts thereof, *Act*, *Scene*, *Protaſis*, *Epitaſis*, *Cataſtrophe*, &c. Circumſtances, *Prologue*, *Epilogue*, *Soliloquy*, *Chorus*, &c. Laws, *Unity*, *Action*, &c. Epic, its *Fable*, *Hero*, *Machines*, &c. *Characters*, *Manners*, *Sentiments*, &c. *Perſonification*, *Propoſition*, *Invocation*, *Epiſode*, &c. *Iliad*, *Odyſſee*, *Rhapſody*, &c.

* *Nouns.* † *Proper Names.* ‡ *Appellatives.* ‖ *Verbs*, *Participles*, *Adverbs*, &c.

of Ground they possess is but narrow; and there is room either to extend 'em vastly, or to lay out new ones. They shew like the *Cyclades* at a distance: *Apparent rari nantes in Gurgite vasto.*

THEY were divided, or canton'd out by their first Discoverers, into a number of Provinces, under distinct Names; and have thus remain'd for time immemorial, with little Alteration. And yet this Distribution of the Land of Science, like that of the Face of the Earth or Heavens, is wholly arbitrary and occasional; and might easily be broke thro', and alter'd, and perhaps not without advantage. Had not *Alexander* and *Cæsar* liv'd, the Division of the Globe had doubtless been very different from what we now find it; and the Case would have been the same with the World of Learning, had no such Person been born as *Aristotle.* The first Divisions of Knowledge were as scanty and ill concerted as those of the first Geographers; and for the like Reason: And tho future *Columbus's* and *Bacon's*, by opening new Tracts, have carried our Knowledge a great way further; yet the Regard we bear to the antient Adventurers, and the established Division, has made us take up with it, under all its Inconveniencies, and strain and stretch things, to make our Discoveries quadrate thereto. I do not know whether it might not be more for the general Interest of Learning, to have all the Inclosures and Partitions thrown down, and the whole laid in common again, under one undistinguish'd Name. Our Inquiries, in such case, would not be confin'd to so narrow a Channel; but we should be led to explore, and pursue many a rich Mine and Vein, now doom'd to lie neglected, because out of the way.

ART and *Science* are indeed two Words of familiar Use, and great importance; but, I doubt little understood. The Philosophers have long labour'd to explain and ascertain their Notion and Difference; but all their Explanation amounts to little more than the substituting one obscure Notion for another. Their Attempts usually terminate in some barren Definition, which rather casts Obscurity than Light on the Subject. Nor is the Reason far to seek, however it may have escap'd Notice; but evidently lies in an Abuse of Language, whereby those different Words come to be applied to Things of the same Nature; and each of 'em in their turn to Things wholly different. Whence, any Definition that can hold of 'em universally, must needs be very abstracted, and general; and may hold of almost any thing else; and of consequence can express very little of the Essence, and obvious Phænomena thereof: To come at which, we must be at the Pains of a new Investigation.

TO *SCIENCE*, then, belong such Things as Men may discover by the use of Reasoning, and Sense: Whatever the Mind descries in virtue of that Faculty whereby we perceive Things, and their Relations, is matter of Science: Such are the Laws of Nature, the Affections of Bodies, the Rules and Canons of Right and Wrong, Truth and Error, the Properties of Lines and Numbers, *&c.* *Science*, in effect, is the Result of mere Reason and Sense in their general or natural State, as imparted to all Men; and not modified, or circumstantiated by any thing peculiar in the Make of a Man's Mind, the Objects he has been conversant among, or the Ideas he has present to him. Consequently, Science is no other than a Series of Deductions, or Conclusions which every Person, endued with those Faculties, must, with a proper degree of Attention, see, nay and draw: And A SCIENCE, *i. e.* a form'd Science, is no more than a System of such Conclusions, relating to some one Subject, orderly and artfully laid down in Words, to save Others the Labour and Expence of making 'em at first hand. Thus a Person who has all the Ideas express'd in *Euclid*'s Definitions, and sees the immediate Connexion of those in his Axioms; which no Man acquainted with the Language can be supposed without; has it in his Power, with Attention and Industry, to form all the Theorems and Problems that follow: He has nothing to do but to range those Ideas orderly in his Mind, compare 'em together, one by one, in all their Changes, and put down the immediate Relations observ'd in the Comparison, *i. e.* their parity, imparity, *&c.* And after the Relations of each to each are thus got; which make a kind of primary Propositions; to proceed to combine 'em, and take down the Relations resulting from a Comparison of several Combinations. By such means, without any other Helps than Penetration and Perseverance, might he make out an infinite Number of Propositions: more by half than *Euclid* has done; there being a new Relation, *i. e.* a new Proposition, resulting from every new Combination.

TO *ART*, on the other hand, belong such Things as mere general Reason would not have attained to: Things which lie out of the direct Path of Deduction, and which required a peculiar Cast, or Byass of Mind to see or arrive at. A Man might call these the Results of particular, or personal Reason, in opposition to the former; but that such a Denomination would be thought unphilosophical. It may, perhaps, be more just to consider the Reason, here, as modified, or tinctured with something in the Complexion, Humour, or Manner of thinking of the Person*; or as restrain'd or diverted, out of its proper course, by some Views, or Notices peculiar to him.—The Difference between Art and Science, amounts to much the same as between *Wit* and *Humour*; the former whereof is a general Faculty of exciting agreeable and surprizing Pictures in the Imagination †, by the associating of Ideas, which at the same time have both a notable Diversity and a Congruity; and the latter, a particular one: The former is pure and absolute in its kind; the latter tinged with something foreign and complexional.

'TIS essential to *Art*, therefore, as to Humour, to partake of the Person from whom it proceeded; and consequently there are as many Arts, as Inventors of Methods of performing, or doing things. Hence, there is no coming at an Art, otherwise than by learning it. A Person left to his own Thought, will scarce ever hit on the same thing, unless either we suppose a marvellous Agreement between the Characters and Circumstances of the Persons; or that the Art is in great measure scientifical, and partakes but little of the Genius and Humour of the Inventor.—There is no such thing, properly speaking, as studying an Art, or learning a Science: The first, every Man beside the Inventor must be taught; the latter, every Man must find. In effect, to attain to an Art, there is some previous Knowledge requir'd, which a Man's own Reason would never have suggested; whereas a Science requires no more than clear Ideas, and close Attention. With these Helps a Man may of himself go the whole length of a Science, so far as it is properly a Science. Indeed if the Improvers, or rather Writers thereof, have gone a jot out of the common way, in compliance with their own personal Views; they have so far adulterated the Science, and put it on the footing of an Art. And to this very Cause are owing a great part of the Difficulties we meet withal in attaining the Sciences: The rest arise from want of Sense, *i. e.* of Clearness and Precision in our Perceptions, and want of Perseverance and Attention to 'em. These render Geometry it-self, little other than an Art: We want Preliminaries to it as to other Arts. And thus every Science is an Art to some People, and only to be attained, as we do mechanic Arts, by Habit, and Remembrance; instead of Contemplation and Deduction.—Reason, clogg'd and embarass'd by Genius and Complexion, can no more rise to the heights of Science, than when pure and refin'd, it can descend to the depths of Art.

* *Vid.* Bossu, Traité du Poëme Epique, l. i. c. 1.

† Locke, *on Hum. Understand.* Lib. ii. c. 11.

AN

AN Art and a Science, therefore, only differ as less and more pure: A *Science* is a System of Deductions made by Reason alone, undetermin'd by any thing foreign or extrinsic to it-self: An *Art*, on the contrary, requires a number of Data and Postulata to be furnish'd from without, and never goes any length, but at every turn it needs new ones. 'Tis the Knowledge or Perception of these Data that in one Sense constitutes the Art; the rest, that is, the doctrinal Part, is of the nature of Science; which attentive Reason alone will descry.

AN Art, in this light, appears to be a Portion of Science, or general Knowledge, consider'd, not in it-self, as Science, but with relation to its Circumstances, or Appendages. In a Science, the Mind looks directly backwards and forwards, to the Premises and Conclusions: in an Art we also look laterally, to the concomitant Circumstances. A Science, in effect, is that to an Art, which a Stream running in a direct Channel, without regard to any thing but it-self and its own progress; is to the same Stream turn'd out of its proper Course, and running in a different one dispos'd into Cascades, Jets, Cisterns, Ponds, *&c.* and serving to water Gardens, turn Mills, and other particular Purposes. In which case, the Progress of the Stream is not considered with regard to it-self, but only as it concerns the Circumstances of the Works: every one of these Works, nay each part thereof, are so many Data, which modify the Course of the Stream, and vary it from its original Habitude. 'Tis easy to trace the Progress of the former, from its Rise to its Issue; in regard it flows consequentially: But a Man ever so well acquainted with this, will never be able, of himself, to discover that of the Second, for want of Acquaintance with the Circumstances, which his Reason can never find out, in regard they depend on the Genius, Humour and Caprice of the Engineer who laid the Design.

THESE are so many different Characters, or Conditions of Art and Science: But there is a Difference between 'em prior to any of these, and of which these are only Consequences. The Origin of 'em all lies higher, in the Principle of Action or Operation above specified; namely, as the Mind is either active or passive therein. With regard to this; those Things may be said to belong to *Science* which we only see, or perceive; which flow from the Nature and Constitution of Things, by the sole Agency of the Author thereof; subservient only to His general Purposes, exclusive of any immediate Agency or Intervention of Ours: And, on the contrary, those Things belong to *Art*, wherein such Science or Perception is further modified and circumstantiated in our Mind, and directed and applied by us, to particular Purposes and Occasions of our own.——From hence arise the several Differences abovemention'd: For the Matters of Art are only *Personal*, as they are according to the Measure of the Artist's natural Faculties, in respect of Quantity and Degree; and to the Complexion and Cast of his moral Faculties, in respect of their Quality. The Perception, even of Matters of Art, is of the Nature of Science: so that thus far the two agree: And their Difference only commences from the superinducing a further Modification, in the Matter of such Perception; and the giving it a new Direction to some particular End. By means hereof, it becomes invested with a new Set of Conditions and Circumstances, wholly personal; as being all framed and adapted to the particular View and Aim of the Artist, (which is the mere Result of his particular Disposition, Humour, Manner of thinking, Situation, Occasion, *&c.*) and conducted according to his particular degree of Knowledge, and Address; which is the Effect of a particular Set of Objects, and a particular Organism of Body. In a word, in Art there is a moral View or Motive superadded to the natural Science, or Perception; which Motive is the proper Principle, or *primum Mobile* of Art: Perception is its Matter; and some Member of the Body its Organ or Instrument. And from such new Principle, *&c.* arise a new Set of secundary Perceptions, analogous to the natural and primary ones. The whole, therefore, ends in this, That Science arises from a natural Principle, Art from a moral one; or even, as moral Matters are also in one Sense natural, Science may be said to be of divine Original; Art, of human.

FROM this View may appear the deficiency of that established Definition of Art; *Ars est habitus mentis cum recta ratione operativus*; A habit of the Mind operative according to right Reason: which is evidently taken from a partial Consideration of the Subject. If it be the Character or Condition of Art to proceed according to right Reason; then, the more and purer this Reason, the more perfect the Art. But, in a great part of the Arts, Reason appears to have very little to do; and the less, as those Arts are in greater Purity and Perfection.——Thus it is in Poetry; a Man that would undertake an Ode, or an Epic Poem on the strength of his Reason, would be miserably out: All his Efforts would never carry him above the humble Sphere of Versification, where he must be contented to wait for an Impulse of another kind. So far is Reason from leading the way, that it can scarce follow at a distance, so as to keep in sight. The Principle of Motion is evidently something other than Reason; otherwise, the greatest Philosophers would be the best Poets, and *vice versâ*. On the contrary, most of us know of People very weak in Reason, who yet are powerful in Poetry: The Poetical Talent we have seen follow some People to *Bedlam*, others it has conveyed thither; and, which is still more, some People have first found it there. Poetry is found an Appendage of one kind of Lunacy, and accordingly passes among Physicians for a Symptom thereof; nor is it to be question'd, but, upon a Computation, *Moorfields* might number double the Poets with any other Spot of the like Dimensions in the Kingdom.——Let not this pass as any Reflection upon the Poets: A Spice of Madness is not so unreputable a thing as some imagine; and a Man that is seated on that Bench, finds himself in the best Company in the World. Some of the greatest Philosophers, Poets, Prophets, and Legislators; I might have said Divines, Fathers, and Asceticks too, of all Ages, are confessedly his Assessors. 'Tis remarkable with what Respect and Awe the Antients treated People suspected to be touch'd: The very Names they call'd 'em by import the utmost Veneration, and place 'em, as it were, at the Threshold of *Jupiter* *. One of their most common Appellations, *Numine afflati*, is at the same time the most just and philosophical that can be thought of. In effect, a Share of Fury and Enthusiasm, is held by them a *sine quâ non*, a Circumstance absolutely necessary to become any thing extraordinary; and hence so many Proverbial Expressions to that Purpose: "No great Genius *sine aliqua mixtura* "*dementiæ*; No great Man *sine aliquo afflatu Divino*, &c."——We may add, that the Poets themselves have an hundred times expressly attributed all their greater, and happier Thoughts, to Enthusiasm, Extasy, and Fury; and they do it implicitly almost in every Piece they write: it being their standing Practice, to take a formal leave of Reason, at first setting out, and call a Muse for their future Guide: which, to talk out of the Poetical Style, is as much as to say, They resign themselves over to the Conduct of Genius and Imagination, which they now find strong and prevalent in 'em. Thus inspired, a new Scene of Objects arises; Castles on Castles: They see things invisible to other Eyes, that is, the Phænomena of their own Fancy, which exist no where else. For tho what one Man's Reason perceives, all others, equally good and perfect, will perceive; even tho it have no Existence but what that Perception gives it: yet it is not so with Imagination, which is a personal Thing, arising from the particular Disposition or Organism, which is different in every two Persons; whereas Reason springs from the general one, which is the same in the whole Species.——From such prevalency of the Imagination, arises what we call Poetry, ΠΟΙΕΣΙΣ, q. d. *making*, *feigning*, *inventing*; which is common

* Θεομάντεις, ἐνθουσιασταί, ἐνθεαστικοί, θεόληπτοι, ἔνθεοι κάτοχοι, Ecstatici, Phrenetici, Pythii, Siderii, &c.

to

to all Men in a greater or leſs degree: Philoſophers have a little of it, the Poets a great deal, but the Lunaticks ſcarce any thing elſe.

IT may look ſtrange to ſay that the Principle is preciſely of the ſame kind in 'em all. We are uſed to conſider it, in the two firſt, as Conſtitution; in the latter as Diſeaſe: In the one 'tis perpetual; in the other only occaſional: In the one, arbitrary and uncontroulable; in the other, limited and reſtrained. The Barque, in the one caſe, drives of neceſſity, as wanting Cable and Anchor to hold her; and in the other, ſails out of choice, as finding the Wind favourable and the Voyage deſirable. But all this amounts to little more than a difference in Degree, between the Fictions of the Poet and the Lunatic: The moving Principle is the ſame in both, tho its Effects be various. If the proper Balance and Adjuſtment between the Powers of Reaſon and Imagination be wanting, yet they ſtill retain their Nature; as the Wind is the ſame whether the Pilot direct the Helm or not.----

SOME People give more ear to Authority than to Reaſon: to ſuch it may not be amiſs to obſerve, that this Doctrine is countenanc'd by the Antients; who, in ſome reſpects, ſeem to have had clearer and juſter Notions than the Moderns; as being leſs embaraſs'd with the Jargon, and Refinements of the ſcholaſtick Learning. Philoſophy, with them, was one degree more ſimple, and obvious than among us. Nature was not yet cover'd and conceal'd under ſo much Elucidation, but afforded more frequent and nearer Views of her-ſelf.----Accordingly, the Divine *Plato*, in his *Phædrus*, aſſerts, "That *Enthuſiaſm* and *Mania* are one and the "ſame thing;" and has a long, and cogent Diſcourſe, to prove that it muſt be ſo: And among the ſeveral Species of Enthuſiaſm, he expreſly ranks Poetry. In effect, Ποιητικὸν and Μαντικὸν, make two of the principal Branches in his Diviſion of Enthuſiaſm, or Inſpiration. And *Plutarch* *, tho he divide Enthuſiaſm ſomewhat differently from *Plato*; yet clearly agrees with him in making Poetry a Species of it. Nay, the moſt reſerved of all the antient Criticks, *Longinus*, declares, that "the Poet is poſſeſs'd with a kind of Enthuſiaſm; that he "believes he really ſees what he ſpeaks; and repreſents it ſo to others that they catch the Enthuſiaſm, and "ſee it likewiſe †." Add, that ſpeaking of the *Orators*, he does not ſcruple to uſe Πνεῦμα ἐνθουσιαστικὸν, as ſynonymous with Μανία.----But this Point will be conſider'd more fully hereafter.

THE Principle then of the Art of Poetry is ſomething other than Reaſon; and I know of no Art that has more of the Nature and Effence of an Art, than Poetry: Nothing that can faſhion, build, produce things, *&c.* at that rate: Sculpture, Architecture, Agriculture, *&c.* are Arts, but in a much inferiour Degree.----And yet, turning another ſide of Things forward, Poetry will ſcarce appear to have any thing of an Art in it, but rather to be all the Work of Nature; wherein human Thought and Study have the leaſt hand. It is produced by a Principle ſuperiour to that of Reaſon, *i. e.* a more immediate Action of the Author of Nature.----But the ſame may be ſaid of moſt of the other Arts; and when we ſay that Art produces Effects, we mean Nature does ſo. The Poet's Imagination may be conſidered as a Field, wherein the Author of all Things ſhews his Handy-work, by the Production of a Set of Objects which exiſted not before: New Images ariſe here, like new Plants, according to the ſettled Laws of the Creator; ſo fruitful is the Womb of Nature! New Worlds innumerable ariſe out of a ſingle old one.

THE Factive Arts, as ſome love to call 'em, *i. e.* thoſe from which permanent Effects ariſe, may be conſider'd as ſo many ſecondary or derivative Natures, rais'd by Engraftment from the old Stock, and ſpreading or projecting out from this, or that part thereof.----Here, at firſt ſight, Man appears ſomewhat in quality of Creator; the Potter's power over his Clay has been made a Shadow or Similitude of that of the Deity over his Works: and yet the Potter, at beſt, is only acceſſary or occaſional to his own Productions. Nature, that is, the Power or Principle of Action and Motion to which we owe this viſible Frame and all the Appearances and Alterations therein, acts by fixed Laws, which neceſſarily produce different Effects, according to the different Circumſtances of Things: Thus a glaſs Globe being ſwiftly revolved about its Axis, and a Hand applied to its Surface; feels hot, emits Light, attracts Bodies, *&c. i. e.* is a hot, luminous, electrical Body, tho without theſe Conditions it has none of thoſe Properties. So Gunpowder, otherwiſe a Maſs of dark, inert, motionleſs Matter; being only touched with a lighted Brand, inſtantly blazes up, and ſmokes, with Noiſe; perhaps burſts a Rock, or drives a Ball, in a parabolic Direction, and levels a Tower, or other Work. Now, nothing ariſes here but in conſequence of pre-eſtabliſh'd Laws, which import that the Globe and the Powder, whenever by any means they come under theſe or t'other Circumſtances, ſhall have theſe or t'other Effects. There are no two Bodies in Nature more different than the ſame is from it-ſelf, under the different Circumſtances of Contiguity or Non-contiguity with this or the other Body, *e. g.* a Spark of Fire. But both States are equally natural; and in effect there muſt be a Law of Nature for the one, as well as the other.----Now the Agency of Man amounts to this, that he has it in his power to put Bodies in ſuch Circumſtances as are neceſſary to bring 'em under this or that Law, or to make this or that reſpective Law take effect. And this we call *Art*; and by this means we can produce a number of things, or bring 'em into act, which otherwiſe would have remained in eternal Non-entity, or barely *in Potentia*. Man may be ſaid to create 'em, but no otherwiſe than the Apothecary creates the Bliſter, or the Gardner the Apple; *i. e.* thoſe Effects would neceſſarily have ariſen, upon the ſame Poſition of the Cantharides and the Cutis, or the Scion and Stock, if there never had been Apothecary or Gardner in the World.

WE may define the Works or Productions of Art, therefore, to be all thoſe Phænomena or Effects which would not have aroſe without the Agency or Intervention of Man. Now Man can only be ſaid to act or intervene, ſo far as what he does is of his own Source or Principle, without being moved or directed by any eſtabliſhed Law of Nature, *i. e.* ſo far as he is exempted from the Influences of any neceſſary Laws of Nature concurring, however remotely, to ſuch Effect. So that if, as ſome Philoſophers have maintained, Man were not really and truly a free Agent; there would be no ſuch thing as Art, in the Senſe here underſtood: but *Art* would only be a name given to that Syſtem or Series of Effects, to which Man is made by Nature, and in her hands, ſubſervient; and might with equal reaſon be attributed to ſuch Effects as any other natural Production, *e. g.* a Plant, or Mineral, is ſubſervient.

HAD it not been for the inſpired Writers, we ſhould not have known but that the whole Syſtem of our World is a Production of Art; the Reſult of a new Application of Things made by ſome created Being, in virtue or conſequence of ſome pre-eſtabliſh'd Laws of the Almighty. Our general Laws of Nature, and Motion, might only be particular Caſes of ſome more univerſal one; ſpecial Inſtances, emerging out of ſome more general one, which it-ſelf was not perhaps the firſt. Thus there might be an infinite Series or Subordination of Syſtems of Nature, each more univerſal, extenſive, and, as we call it, more metaphyſical, *i. e.* nearer the Source of Power and Action, than other.

SOMETHING like this, we actually ſee in our own little Syſtem: The Mineral World is ſubſervient to the Vegetable; and this to the Animal. Mineral Matters, under certain Conditions which bring them under the Laws of Vegetation, paſs into Plants; and from particular Applications of Parcels of Plants, Animal

* In Ἔρωτ.

† Περὶ ὕψους.

Substances arise. Under other Circumstances, the same Matters become subject to other Laws, (*i. e.* other Actions of the Creator, for Laws are no other) and return the way they came; Animals into Plants, and these into Minerals.----Nothing can be more simple and uniform than the whole Dispensation: A Body is only what it is, in virtue of a Law of Nature, *i. e.* of the Will of the Creator; and consequently 'tis this alone can alter it. Hence, a piece of Matter, under the different Circumstances of Motion or Rest, Contiguity with this or with that Body, falling in with new Laws; by the Concurrence and Activity thereof, becomes a Means of exhibiting different Phænomena: on occasion whereof we give it a different Denomination, and range it under a different Class of natural Things: And to the Means whereby those Circumstances are determin'd, we give the Names of *Generation*, *Corruption*, *Putrefaction*, *Fermentation*, *Vegetation*, *Animation*, *Assimilation*, *Accretion*, &c. which are all accountable for on the same Principle. 'Tis no more wonderful, a *Fungus*, with all its Furniture of Flowers, Seed, *&c.* should arise from a Mixture of Earth and Dung; than to behold so wonderful a Body as *Flame*, arise from a casual Collision of Flint and Steel; or *Air* from the mere Dissolution of a *Metal*.

WE see, then, how far Man is concern'd in the Productions of Art. Our Endeavours are contriv'd by Nature to be Means accessory to the Law's taking place, from whence the Effects are to arise. We are part of the Chain whereby the Effect is connected to the Cause. The Circumstances are in our Power on which such, and such Laws depend; and thus far we may be said to be *Active*, in the Case of Art: supposing that there is nothing higher, or further; and that the Chain ends with us; in a word, that our Agency is not subordinate, but collateral to that of the Almighty. But if there be other superior Laws which respect those same Circumstances, and which are not in our Power, *i. e.* if the Circumstances necessary to the former Law, be themselves supposed necessary Laws, and the immediate Work of Nature; our Agency will dwindle into nothing. The utmost that can be said of us in such case, is, That we are Active in respect of the one, and Passive in that of the other; which to most People may appear a kind of Contradiction.----The Statue can't be form'd, unless our Desire or Inclination concur thereto; so far its Existence depends on us: But are our Desires and Inclinations with respect thereto of our own growth; or do they arise naturally, in consequence of an Apprehension of Good, and Advantage in the Subject? That is, does any thing appear good and advantageous to us absolutely and of it self; or only what the Creator represents to us as so? And do we desire or pursue this seeming Good, from any Principle or Tendency that is in us, other than what we owe to his Laws? The Difficulty seems to amount to this; whether between our Faculties of apprehending and willing, and their respective Objects, there be any Relation which he did not create or establish?----If any alledge, that 'tis such Relation constitutes the Faculty; and therefore that the Question ends in this, Whether our Faculties are from God or our selves: *i. e.* whether they can be the Causes of themselves? I should suspect some Sophism in the Case, which at present I have not leisure to detect.

BUT having traced the Agency of Man thus far, we must be obliged here to desist; and from the *Factive Arts* resume the Consideration of the *Active* ones; *i. e.* pass from what Art does out of us, to what it is in us: or rather, from the Arts whose Source is supposed in our selves, and which proceed outwards; to those whose Source seems without us, and tend inwards: That is, from those which arise from our Observation and Reason, directing us how to minister Occasions to the Laws which obtain in the external World; to those which flow into our Imagination, and furnish Occasions to the Laws which obtain in the internal World.----An Inquiry which may perhaps carry us where the Reader little imagines; but which will afford an ample Discussion of the Principle above establish'd; and a further Insight into the Origin and Cause of Science and Art; and the Nature and Measure of our Agency and Passion therein.

WE have already spoke something concerning *Poetry*; not for its own sake, but as a proper Instance to illustrate the Nature of *Art* in. It makes the lowest Article in our *Analysis*; which, in reality, is the highest in the Scale of Art; there being a sort of progressive Rising from the Beginning of the Analysis to the End. It begins with the first Matter of Knowledge, the common Objects of our Senses; and proceeds thro' the various Modifications they undergo by the other Faculties of Imagination and Reason, till those sensible Objects become so much our own, are so assimilated to us, and as it were humaniz'd; that they are part of our selves, and obey and take Directions from our Will, and minister to all our Views and Purposes: of which, this of producing Images and making Fables, is in one Sense the highest; inasmuch as the greatest Effects here arise from the slenderest Means and Endeavours. The Poet stirs but little in the Matter; but Nature co-operates so strongly with him, that this little suffices, even to make new Worlds. In effect, the Poet seems, as it were, to sit nearer the Spring of Action than other Men; and to have only to do with the general and higher Principles thereof, which command and direct a Number of other subordinate ones, that he himself is not aware of.----What we shall say of Poetry, therefore, will hold proportionally of all the other Arts; and we have only kept to that, because the Influence or Inspiration is here confessedly the purest, and the nearest to Heaven of all others *. The Principle or Spirit of Poetry, may be said to be that of Art in general; and hence many † Authors make no scruple to make all Arts the Invention of Poets: Thus it is *Homer* is often complimented with being the Father of all Arts.----This has, indeed, an Appearance of Truth; but 'tis only an Appearance: For *Homer*, supposing him the Inventor of Poetry, or at least the best Poet; has no other Title to the Invention of other Arts, than what he derives either from a greater Share of the Spirit whereby they are produc'd, than other People; or from his having communicated that Spirit, by the Force of his Poems, thro' other People, where it has generated, and brought forth other Arts; or from the Seeds and Principles of Arts and Inventions, which his Imagination was so pregnant withal, and which he disseminated over the World, where many of 'em, by due Cultivation, have sprung up into the Form and Maturity we now see 'em.

THE Mind is allowed to be passive in respect of the Matter of the Art of *Poetry*. We need not quote the Poets to prove it: No true Poet ever question'd his Inspiration: Every body knows that their whole System is built on the Supposition. And hence the Stories of *Apollo* and the *Muses*, of *Helicon* and *Parnassus*; the Dreams of *Pindus*, and the *Aonian* Maids: with a thousand other Reveries ‡. But the Philosophers, and Criticks also, give 'em their Suffrages, and attest their Inspiration, in the strongest Terms. *Plato* has already been cited to this Purpose: He contends, at large, that all Poetry is "by immediate divine Inspiration, in the proper, and literal Sense of the Word ‖." *Aristotle* confirms it: "Ἔνθεον ἡ ποίησις, Poetry comes by divine Inspiration **." And *Plutarch* says as much of all the Branches of Enthusiasm; Poetical, Divinatory, Bacchical or Corybantical, Martial, and Erotick: to all which, he asserts, the Appellation, Ἐνθουσιαστικὸν, or Ἐνθεαστικὸν πάθος †*, equally agrees.----And not only so, but they hold the Enthusiasm communicable from one to another. It arises from the Poet, as its Centre, and is diffus'd, *in Orbem*; in a less degree of intenseness, the further it recedes from him. *Plato* asserts, that the Ῥαψῳδοὶ, or those who sung and rehears'd the Poets Works on the publick Theatres; nay, and the Spectators themselves,

* Casaub. *of Enthus.* τῆς Ὁμήρου φιλοσοφίας.
** Περὶ Ποιητικῆς.
† Vid. Rapin. Reflex. Dacier's *Homer, in Pref.* Max. Tyrius. Porphyry, Περὶ
‡ *Vid.* Pers. in Prol. ad Satyr. i.
†* In Ἔρωτ.
‖ In Dial. Ion. or περὶ τῆς Ἰλιάδ.

were

were all divinely inspir'd, in some degree: which he illustrates in the Case of a Needle touch'd by a Magnet, which communicates an attractive Property to another Needle; that, to a third; and so on, with a continual Diminution.----Nor does the Effect end here, but the Professors of other Arts, as *Sculpture*, *Criticism*, and even *Philosophy* it self, borrow their Flame and Inspiration from this Fire. Thus *Phidias* declared he was inspired to make that wonderful Statue of *Jupiter Olympus*, by the reading of *Homer*: And thus *Aristotle* may be said to have been inspired by the same Poet, to compose his immortal *Poeticks*: The like is said of *Longinus*; that he was inspired by the Muses, or with the Fire of a Poet *.

BUT after Poetry, *Rhetorick* comes nearest, and shares most of the Spirit thereof, even more than Criticism. Accordingly, *Plato*, in his Dialogue inscribed *Menon*, allows that "as we say Pythians, Prophets, and "Poets are divinely agitated; so we do Orators." Elsewhere he adds, "That they are certainly inspir'd "of God, and plainly possess'd." So *Dion. Halicarnassus* † relates, that "*Demosthenes* did plainly ἐνθουσιᾶν." And adds, that the Distemper caught so among his Audience, that "they were possess'd at second hand, "and brought to do many things against their own Reason, and Judgment:" And *Æschines*, his professed Enemy and Antagonist allows as much. I need not say that *Plutarch* relates the like of *Cicero*, in the Instance of his Oration to *Cæsar*, for *Ligarius*.

SOMETHING like this has been observed, even in the Case of *Prayer* to God: Several Hereticks are on record for possessing their Hearers that way. *Hacket*, executed for Blasphemy under Queen *Elizabeth*, is said, by the Historian, "to have ravish'd all that heard him at his Devotions; and converted many in spite of their "Teeth:" And *Sarravia* relates, the People were persuaded that "God directed his Tongue." St. *Basil* even affirms ‡, "that our Prayers are never right or acceptable, till the Ardor thereof carry us out of our selves, so "that God possess us in some extraordinary manner." And hence the learned and pious *Casaubon* establishes a new kind of Enthusiasm, which he calls *Supplicative*, or *Precatory*; as he does divers others, as Musical Enthusiasm, Mechanical Enthusiasm, *&c.* To say no more, the Author last mentioned makes no scruple to make even "the ordinary Delights and Benefits Men receive from the Harangues of Orators, Sophists, Preachers, *&c.* "the Effect of Enthusiasm and Inspiration; as being what could never arise from mere Reason." And *Plutarch*, and others, make that *Ardor* which the Soldier feels in Battle, of the same kind with that which inspir'd the Prophet, Orator, and Poet **.

WE have here little less than a System, sufficient to account for most of the Phænomena in the Animal World, on Principles of *Enthusiasm*. Reason, it may be observ'd, has here little to do; and it should seem, that Man ought rather to be defined, *Animal Enthusiasticum*, than *Animal Rationale*. And yet this is only a few, out of infinite Instances, of the immediate Agency and Inspiration of the Deity. We find the same Principle in every Art, every Invention, every Discovery, where no natural and necessary Connection is perceiv'd between the Discovery, and something known before, *i. e.* where the Reason of such Discovery, is not apprehended by any intuitive Knowledge. What has no immediate Dependance either on what we perceive by Sensation or Reason, comes by the Vehicle of Inspiration, *i. e.* of Imagination or Invention, for there it ends. The Imagination may be called the Medium of Art, as Sense is of Science. The Faculty of Reason, can make no great Discoveries; it can only advance from one Step to another, which must be ready laid to its Hand; and if these be any where interrupted or discontinued, there it is at a Stand. 'Tis, in fine, a limited Principle, subject to very narrow Bounds; whereas the Imagination seems to be indefinite, and still kept in the Creator's Hand, to be occasionally made use of for the Conduct of Mankind.

THE Truth is, when we say, such a Thing is the Effect of Enthusiasm, or Inspiration; speaking, I mean, of profane Matters; (the Inspiration, for instance, of *Scripture*, being Matter of a very different Consideration, and quite beside our present Purpose) this does not remove it out of the ordinary Course of Things: It does not put it on any other Principle, different from that whereby Causes and Effects succeed each other in the physical World. We can account for the Phænomena of the Imagination, as well as those of Sensation. They have their respective Laws, like other things; which they are subject to; and to which we have Arts, and Processes appropriated. In effect, all the Inspiration here spoke of, may be produced without any great Conjuration.-----If the Reader will not take Offence at this novel Philosophy, he may be convinc'd of it. And 1°, in the Instance of the *Musical* Kind.

ENTHUSIASM is defined, in an antient Author ††, to be "when a Person engaged in some Office of "Religion; and hearing the Sound of Drums, Trumpets, Cymbals, *&c.* becomes alienated, or transported out "of himself, and sees Things unseen to others." And what is here called *Enthusiasm*, is more significantly call'd by another *†, κακόδυστος μανία, Madness occasioned by the Sound of brazen Instruments: which coincides with the *Furor Corybanticus*, so much spoke of among the Antients.

NOW, as we do not know any immediate Correspondence or Connexion between any one Sound, and any Idea; 'tis no more strange that one Idea should be excited by it, than another. There is a Law of the Creator, whereby a certain Order and Succession of Vibrations of the Air, is arbitrarily made the Occasion of a certain Perception in our Minds; and as the Circumstances of this Vibration are alter'd, a different Idea arises: *i. e.* to every different Combination of such Circumstances, a different Idea is attach'd; to usual and ordinary Combinations, ordinary Ideas; and to unusual and extraordinary, extraordinary Ideas. And hence there is, perhaps, no Idea, no Image whatever, but may be raised by means of Sound. Now, I do not know what *Common Sense* is, unless it be, the having common Ideas. Just so far as new Perceptions are rais'd in us, in Exclusion of the old ones; we may be said to be removed out of our selves, *i. e.* we are so far got into another System; the Phænomena which now present themselves to us, being so far different, from what they were before, and even from what they would still be, to another Person in the same Place, but under other Circumstances. On this Principle, we shall scarce find any thing but might be produced by Musick; especially, when to the Force of well-adjusted Instruments, which the Antients seem to have study'd more, and understood better, than we; was added to the Solemnity of a Temple, the supposed Residence of a God, whose Statue there stood before 'em; with the awful Rites of Invocation; accompanied with furious Gesticulations, Dancings, and all the Devices that could be thought of, to unhinge the natural Sense, and Reason, which we find is but frail and precarious at best, and apt to play us false when most duly looked to. Few People are able to stand up against mere Musick; which, unassisted with any thing else, has been made to produce, and remove settled Madness; cure Fevers ‡‡; drive Persons to kill themselves, or their Friends. 'Tis not long since the *Italian* died, who had reduced the turning of People mad by his Musick, into a regular Art; which he could depend on at any time ‖.-----The Reader that has a mind to see further on this Head, may consult the Articles, SOUND, MUSICK, TARANTULA, *&c.* in the Body of the Book.

* Pope's *Essay on Criticism.*
** Ubi supra.
‡‡ Hist. de l' Acad. R. des Scien. An. 1708, & 1718.
† Περὶ τῆς Δημοσθ.
†† Ὅρος, *or Collect. of Med. Defin. ascribed to* Galen.
‡ Apud. Casaub. ubi supra, p. 274.
*† Epigr. in Anthol. Græc.
‖ Niewentiit, Rel. Philosoph. Tom. I. Contemp. 14.

2°, THE Inſpiration of *Poetry* is of a ſtiller, and purer Kind; and needs leſs Artifice and Apparatus to produce it in an Imagination naturally diſpoſed for it. The attentive Conſideration of ſome intereſting Object, uſually ſuffices to ſet it a going. And the Gentlemen of that Faculty have all Nature to chuſe out of: The fineſt Seaſons, the moſt agreeable Scenes, and the moſt moving Objects. Hence it is, that they are continually harping on "Groves, and Shades, and Gods, and Nymphs, and Darts, and Flames."----How do they riot in "Meadows trim with Daiſies pied; ſhallow Brooks, and Rivers wide: Towers and Battlements they "ſee, boſomed high in tufted Trees." Sometimes, they raiſe up "Knights, and Squires, and Maids "forlorn; or, Lover pendant on a Willow Tree, or Lady wandring by a River's Side." Then, "Tilts "and Tournaments, and Feats of Arms: Pomp, and Feaſt, and Revelry, with Maſque and antique Pageantry: "Stories of *Thebes* or *Pelops* Line; or the Tale of *Troy* divine: Of *Arthur* and *Cambuſcan* bold; of *Cambal* "and of *Algarſife*, and who took *Canace* to Wife."----If theſe fail, they have all that is gloomy, and ſolemn, and terrible in Nature at their Beck; we may now expect to ſee "the red Bolt, or forked Lightning glare." Earthquakes and Tempeſts ſeldom roar in vain: if by chance they do, the "ill-boding Raven's Croke" is ready at hand; or elſe "the far-off Curfew ſounds, o'er ſome wide watery Shore, ſwinging ſlow with ſolemn roar." And now for "baleful Ebon Shades, and ragged low brow'd Rocks:" Next enter "horrid Shapes, and "Shrieks, and Sights unholy: Gorgons, and Hydra's, and Chimera's dire." Images of things moſt moving to Senſe, readily alarm and raiſe a Commotion in the Imagination. And the new Ideas thus procured, coming to be mixed, and combined in the Imagination, with others there before; new Effects ariſe from 'em, in conſequence of the Laws of the Creator: much as intelligibly as Fire and Flame, upon mixing two chymical Liquors.

SCALIGER, in his *Poetics*, makes two Kinds of Θεοπνεύστων, or Poets divinely inſpired. The firſt, thoſe on whom the Inſpiration falls, as it were, from Heaven; without any thought or ſeeking, or at leaſt by means of Prayer and Invocation. The ſecond, thoſe in whom it is procured by the Fumes of Wine.

ALL that is required to the firſt, is only a delicate, pregnant Imagination; ſuſceptible of any feeble Impreſſions that may happen to be made in the Courſe of Things; and ready to take fire at the leaſt Spark. The Surfaces of the finer Fluids, we find, are kept in continual motion by the bare Tremor of the Atmoſphere, tho to us inſenſible: And thus the Air is never ſo ſtill, but that the Aſpin Leaf feels its Impulſe, and bends and trembles to it; when others require a ruder Guſt to move 'em: Yet theſe, too, give way in a general Storm; whole Foreſts then totter indifferently: even the Trunks of ſturdieſt Oaks, now yield like the reſt. ----And, accordingly, we read, in antient Hiſtory, of whole Nations being at once ſeiz'd with the poetical Fury. Few of the Cities of *Greece*, not even *Athens* it ſelf, with all its Philoſophy, but has one time or other labour'd under theſe epidemical Enthuſiaſms.

WE have already obſerv'd, that Invention is the Principle, or Source of Poetry. An excellent modern Poet adds *, that 'tis this which furniſhes Art with all its materials; and that without it, Judgment it ſelf can, at beſt, but ſteal wiſely.----Now, this Faculty of Invention it ſelf, is uſually no other than a Delicacy, or Readineſs of taking Hints: but even at moſt, what we are ſaid to *invent*, is only what reſults, or ariſes from ſomething already in us. There is no new Matter got by inventing: that can only come by the way of Senſe and Obſervation: All that paſſes in the other Caſe, is, that from the Memory of certain Things, *i. e.* the Compreſence of certain Ideas to the Mind; certain new Ideas ariſe, according to the Order of Things. The ſprightly Imagination is led, on various Occaſions, to compound its Ideas, and many of 'em ſo oddly and boldly, that we take its Productions for new Things; and thus think we invent 'em, becauſe they did not exiſt in us before in that form; tho the Matter or Elements thereof did. There is no more real Invention in the Poet, than in the Tapeſtry or Moſaic Worker, who ranges and combines the various colour'd Materials furniſh'd to his Hand, ſo as to make an Aſſemblage or Picture, which before had no Exiſtence.

THE Reader who has any doubt about this, need only take the firſt piece of Poetry that comes in his way, to be convinced, that all that is new and moving in it, is no other than new Compoſition or Combination of ſenſible Ideas. In the *Il Allegro* and *Il Penſeroſo*, for inſtance, two of the moſt poetical Pieces in our, or perhaps any other Language; how eaſy is it to reſolve all that is ſo magical and raviſhing, to the new, uncouth, and frequently wild and romantick Aſſemblages of Imagery. Indeed, who can contain himſelf at "——Sport which wrinkled Care derides, and Laughter holding both his Sides.——*Cynthia* peeping thro' a "Cloud, while rocking Winds are piping loud.——To hear the Lark begin her Flight, and ſinging ſtartle the "dull Night: Or the Cock with lively Din, ſcatter the Rear of Darkneſs thin: Or liſten how the Hound and "Horn, loudly rouſe the ſlumbering Morn.——Or, ſee glowing Embers thro' the Room, teach Light to "counterfeit a Gloom.——Or ſtoried Windows richly dight, caſting a dim religious Light.——Or hear *Orpheus* "ſing ſuch Notes as warbled to the String, drew Iron Tears down *Pluto*'s Cheek.——Or Verſe with many a "winding Bout, of linked Sweetneſs long drawn out, with wanton Heed and giddy Cunning, the melting Voice "thro' Mazes running; untwiſting all the Chains that tie the hidden Soul of Harmony."

PERSONIFICATION, which is of that Extent and Importance that it is uſually held the Life and Eſſence of Poetry; is a vaſt Source of new Imagery. By this, not only different Objects, but different Syſtems and Worlds, are combined and blended together; and what belongs to one Kind of Beings, Man, is attributed to every other: each Object, either of Senſe or Imagination, being occaſionally inveſted with all the Characters and Properties belonging to the human Kind. Thus, an Arrow grows *impatient*, and *thirſts* to *drink* the Blood of a Foe; or *loiters* and ſtops half way, *loth* to *carry* Death, *&c.* So an Action of the Body, *Laughter*, is above repreſented as it ſelf laughing, ready to burſt its Sides. And in the ſame Piece we have one of the Planets, the Moon, repreſented as *trick'd up* and *frounced*; and again, as *kerchief'd*, and in a decent Undreſs, and thus going a *Hunting*. To tell us, that a fine Spring Morning, attended with a gentle Gale of Wind, is very pleaſant; preſently,—"Zephyr "with Aurora playing, as he met her once a Maying, on a Bed of Violets blue, and freſh blown Roſes dipt "in Dew, fill'd her with a Daughter fair, yclep'd in Heaven *Euphroſyne*, and Mirth on Earth." How conſiſtent with the Nature of Things, that a Breath of Air ſhould lay an early Hour of the Day down; and that from a green Gown thus given, a Paſſion of the Mind ſhould in time be brought forth? In effect, the Inſpiration of the Poet amounts to little more than relating things that are naturally incongruous. He preſents new Objects, new Worlds, but 'tis only by differently combining the Parts of the old one. He does not make any thing, he only patches: He does not invent, he only tranſpoſes: Nor has he the leaſt Power to move, other than what he derives from the Novelty and Strangeneſs of his Combinations; to which nothing exiſts in the ordinary Syſtem, any thing conformable.——To ſay no more, if Invention furniſh Art; Memory furniſhes the Invention; and Senſation the Memory, where all Knowledge originally commences. And the whole Proceſs is nothing but the Action, or Operation of the Deity in a Courſe of Laws.

AS to the ſecond Kind of Poets, in whom the Inſpiration is promoted or excited by means of Wine; *Caſaubon* is perfectly frighted at it; judging it the higheſt Strain of Impiety, to ſuppoſe a Man may be divinely

* Pope *in Pref. to* Homer.

inſpir'd

inspir'd by the Fumes of Liquor.—And yet I don't know whether his Fright be not founded on a Misapprehension. If *Scaliger* or any other Person alledge, that the Juice of the Grape may be an Occasion of such an Effect, *i. e.* a Means or Condition necessary to make the Laws that concur to Invention take place; I do not see what Religion has to do here, more than in any other Enthusiasm. The use of such a Means, is no ways derogatory to the Power or Goodness of God; who still remains the Author of this, as of any other Inspiration; whether it be by Visions, by Voices, Dreams, or the like. What matters it whether the Sound of a Cymbal, or the Sight of an Image, or the Effluvia of a Liquor be the Occasion? So long as he is the Cause, what matters it what Instrument he makes use of? And of all the Blessings this Juice is made the Occasion of to us; why should it be precluded from that, which none of God's Creatures, not even the vilest, but occasionally ministers? The Antients did not think so meanly of it: they set up a God on purpose to preside over it; and it even had the largest Share in their most solemn Ceremonies of Religion.

THE Inspiration of *Orators*, bears a near Relation to that of the Poets; tho being somewhat grosser, it becomes more technical, and demands more Industry, and Art.——*Quintilian* tells us how a Rhetor is to get inspir'd *; "not by supinely lolling and gazing at the next moveable, and carelessly turning things over in his Mind; but by "imagining the Judge and the Audience present, and strongly representing to himself the Time, the Occasion," *&c.* He adds, that no body ought to pretend to be an Orator, unless he have this Art of Inspiration at command; so that he can raise it at pleasure.

WHAT has been said above, contains some of the general Principles of Enthusiasm, and their Connection with other physical Effects: and 'twill be easy to trace and pursue the same, where they appear in other Cases, and with other Circumstances. Thus the Inspiration excited by the Orator in his Audience, is resolved, by *Casaubon*, into the Musick of the Speaker, *i. e.* the Tone and Cadence of his Voice; and the Συνθεσις, or order and placing of his Words: In which last, how simple and trivial soever it may seem, all the great Masters on the Subject allow somewhat mysterious and unaccountably forcible; and accordingly make it the principal Part of Rhetorick. And yet there is nothing in the Whole, but what results from the Powers, Properties, *&c.* of the several Letters, consider'd as so many Sounds, artfully combin'd. In effect, there is some Ῥυθμὸς, or Dimension, and some Μέτρον, or Numbers in all Diction; much more in that of Oratory: And Musick it self has no Charm in it, but what it derives from those very Sources.

NOR must it be omitted, that the use of *Metaphors* contributes its share to the Effect. The Secret whereof consists in this, that they are, as it were, accommodated to the Senses; and present such Images to the Imagination, as move us most when perceived in the Way of Sensation †.

AS to that Enthusiasm felt in *Prayer*, its Cause is not far to seek. The Powers of Rhetorick, and Musick; and of a peculiar Fervour of Imagination, rais'd by an Apprehension of the Presence of God, *&c.* will go a great way. We may add, that the antient Heathens made use of Dithyrambics in all their most solemn Prayers; which *Proclus* observes, are peculiarly fit to stir up enthusiastical Dispositions. A Man that rides *Pindar*'s Horse, cannot well fail of going at a great rate.

BUT the most extraordinary and unaccountable kind of Inspiration is still behind, *viz.* that of *Prophecy, Divination, discovering of Cures by Dreams*, &c. which yet may all be produced by Art; and accordingly, have all been taught and studied like other Arts: not to say, also, practised like them, for a Livelihood. Schools and Colleges of Prophets, Divines, Augurs, *&c.* were numerous both among Jews and Gentiles; and there was little in their Discipline, but what may be resolved into what has been already said. Here, all the Means above mentioned, all the Springs of Enthusiasm, were used; and frequently combin'd together, to make the more compound and extraordinary Effect. The Sight of vast Objects, as Rocks and Mountains, wild Prospects, solitary Groves, gloomy Caves, furious Rivers, Seas, *&c.* which we find to work so strongly on the Mind, were indulged; and ‡ frequent Changes, and sudden Transitions made from one to another **. Such unusual Objects necessarily suggested unusual Ideas; which were heighten'd by proper Applications to all the other Senses. And when the Man was at length got out of the ordinary System of Thinking, into another more unusual and extraordinary, tho equally physical, or if you will, mechanical one; what he utter'd was judged all oracular: It was not his Sense, or Reason that spoke; and therefore it must be that of God himself. And among a large Train of Objects which presented themselves to him, some of 'em could not want an Analogy to Things that were really to come; at least, in the Opinion of a Person already possessed with the Notion thereof. It may be added, that the Prophesies themselves, had their Share in producing Futurity; the Events whereof partook of the Predictions, some more, others less, according to the degree of Possession of the Parties concerned in them. In effect, the Revelations still retain'd something of the Means made use of to raise 'em. Thus, if the one were either agreeable or displeasing, the other would be of the same Kind: And hence a Revelation was artificially produceable of the Complexion required: which was the very Apex of the Art. So that the Divination, when most perfect, really supposed a natural Knowledge of the Thing demanded, and was built on it.

AS to *Dreams*, &c. there was a Formula for 'em; the Circumstances whereof might be appropriated to raise in the Imagination an Idea of the Thing required.——After a number of Ceremonies, the Party was to sleep in the Temple: *Pellibus incubuit stratis, somnumque petivit.* And the Priests had not only the placing of his Body, and the strewing of his Bed; but also the Management of Odours, Sounds, *&c.* in the Night-time. So that if any natural Means were known for the Cure, here was room enough to suggest it to the Patient's Imagination, which was made accessible to 'em, and as it were put into their Hands. But, if no proper Remedy were known; as, 'tis probable, they hardly enter'd so far into the Part: yet, what was thus suggested, perhaps at random, how strongly must it operate, when inforced by the Opinion of its coming by Miracle and Inspiration? We see what the bare Presence and Assurance of a Physician will frequently do; even cure Disorders far out of the Reach of his Skill: and what an Improvement would it not be to the Faculty, to have the further Assistance of a little Shew of Religion and Ceremony?----A deal more might be said on this Head, from the Practice of EXORCISMS, AMULETS, PHYLACTERIES, *&c.* to which the Reader may turn in the Book; as also to the Articles WITCHCRAFT, EPHIALTES, *&c.*

IT appears then, that 'tis in vain that we pretend to pervert the Order of Nature. Sensation does and must inevitably precede Imagination; which cannot by any human Means come at the smallest Grain of any thing, but what passes thro' that Canal. There is no harm in saying, that such Things are of Divine Inspiration; the Mischief lies in supposing, that these are more so than others; that what appears only to the Imagination, is more of God than what appears to Sensation: which is, in effect, to say, that we have some Knowledge which we do not receive from God.

* Instit. Lib. v.

† Cicero 3. de Orat.

‡ Multos Nemora Sylvæque, multos Amnes aut Maria commovent, quorum furibunda mens, *&c.* *Cic. de Divin.*

** Livy, *relating the horrible Rites of the* Saturnalia, *says*, "*Men* "*would hereupon be taken as if mad, fall into strange fanatical Agi-* "*tations of Body, and break out into Prophesies*:" Velut mente capti, cum agitatione fanatica corporis vaticinari. Dec. iv. l. 9.

NO body can imagine, that what we have ſaid tends to exclude God, and Providence out of the World; but rather to eſtabliſh, and confirm 'em in it. So far is it from ſhewing, that the Deity has no hand in the Production of ſuch and ſuch Effects; that it ſhews, nothing elſe has any. The Whole is His; and the Agency of Man is only circumſtantial. For, what neceſſary Connexion between any of the Means here uſed, and the Effect? And in whoſe Hand but God's, could ſuch incompetent Inſtruments produce ſuch Ends? In reality, we not only confeſs his Preſence and Agency in the great and extraordinary Phænomena; but ſee and admire it every where, in the moſt ordinary ones. Nor does this imply any thing to the Diſadvantage of Reveal'd Religion; which is a Point quite foreign to the preſent Purpoſe. The Inſpiration and Prophecy we have ſpoke of is all natural, and ordinary; and does not any way preclude *the Deity* from more extraordinary, and miraculous Manifeſtations of his Will. On the contrary, if weak Man can do ſo much, acting ſubordinately to certain Laws of Nature, and by means of others; what may we not conceive of the Author of thoſe Laws, whenever in the Wiſdom of his Councils, he ſhall think fit to interpoſe: as, in the two great Diſpenſations whereof the ſacred Writings ſpeak?

BUT, if we have not made Philoſophy encroach too far on Religion; it may, perhaps, be objected, that we have made Religion of too much Concern in Philoſophy; in that we are continually recurring to the dernier Reſort, the Deity; which is held unphiloſophical.——But let it be conſider'd what it is to *philoſophize*; and whether our *Theories* amount to any thing more, than Enumerations of Laws, *i. e.* Actions, of the Creator? 'Tis certain, all the Structure and Œconomy diſcover'd by Diſſection, Microſcopes, Injection, *&c.* furniſh no more ſcientifical Account of the Origin of an Animal, than of a Spark of Fire. The uſual Syſtem of Generation amounts to no more than Augmentation; as it ſuppoſes the Animal already form'd, and only undertakes to enlarge, and ſhow how it arrives at its Bulk. An Animalcule is to be given us, either *in ſemine*, or *in ovo*, or we labour in vain; Aſſimilation being all the Generation we have any Idea of. We find our ſelves loſt and bewilder'd, when we come to think "How the dim Speck of Entity began," and here begin to confeſs, and mourn the Imperfection of our Knowledge. As if there were any Difficulty here, which did not equally obtain in every Step of the Proceſs. All the difference is, in the one Caſe we are ſenſible we only know the *What*, and in the other we alſo think we know the *How*: Which is a Deluſion: And were it not for the Paradox, one might almoſt affirm, that we know thoſe Things beſt, which we think we know the leaſt. For that here we more immediately ſee the real Cauſe, without the Cloud and Embaraſs of Occaſions, which at other times confound us. Occaſions, are Cauſes, with reſpect to us, who only act at ſecond hand; and the great Source of our Error, is, that we can't eaſily ſee thro' 'em to the real Cauſe. Whence, the greater number of Means and Occaſions we perceive; the further is the Cauſe apt to be involved, and the more Attention is required to extricate it. And by this way alone can Philoſophy lead to Atheiſm.——Our Knowledge, in effect, is all relative; it reſpects our ſelves, and our uſes, either more or leſs immediately; and is chiefly applied in the Arts, and Affairs of Life, where Occaſions are Cauſes: And hence we take a Tincture, which we carry with us thro'out; and apply, unawares, the ſame Notion when we come to philoſophize, where we are leſs intereſted, and conſequently our Knowledge purer and more abſolute. And thus we are betrayed fatally to confound *Art* with *Nature*; *First Cauſe* with *Second*; *God* with *our ſelves*: all which muſt be done, ere the Philoſopher can commence Atheiſt.

THIS not diſtinguiſhing between Cauſes and Occaſions, has produced an infinite deal of falſe Refinement; to the great detriment of our moſt obvious and palpable Knowledge. We continually over-ſhoot the Mark; and looking too far, miſs ſeeing what is cloſe to us. We are willing to leave God out of the Affair as far as we can, and only have recourſe to him when we are at a pinch. He is rarely wanted, unleſs now and then, for a Miracle, or ſo. The Deity is not to interpoſe, *niſi dignus vindice Nodus*, till we have occaſion for him; *i. e.* till the Caſe becomes ſo obvious and glaring, that the Charm is broke, and we are forced to ſee him in ſpite of all our Prejudice. The Occaſions are ſo viſibly inadequate, that our Conſcience cries out, and neceſſitates us to look to and confeſs a Cauſe.——But, tho we be well enough contented to find him at the End of the Chain; alas he muſt be alſo preſent at every Link, or the Whole will fall to pieces. He is not more concern'd in forming the original *Stamen* of a Fœtus, than in nouriſhing, aſſimilating, or bringing it at length to Light. We can as eaſily conceive the firſt Formation of a piece of unorganiz'd Matter into an Animal, as any other Production of Nature; or even, as we call it, of Art. Generation is effected after the ſame manner as other Arts; and the ſame Principles that will account for the making of a *Statue*, will account for that of a Child. If the Figure of a Man ariſe out of a Maſs of Clay; is it by any other Operation than that of Nature, which according to the Poſition of the Hand, determines the Parts of the Clay to move in this Direction, or that; according to certain Laws of Motion, and Percuſſion? And if the ſame be afterwards harden'd, upon ſtanding to the Fire; is it not by the ſame Nature acting by certain other Laws, the Set or Collection whereof makes the phyſical Proceſs called *Exhalation?* The Hand, you'll ſay, was the Occaſion. But what is an Occaſion? I doubt we have no juſt Idea to that Word; and that it implies ſomewhat of a Contradiction; at leaſt, if any thing of Cauſalty be denoted by it. Conſidering that we ſay, Light is the Occaſion of Shadow, Joy of Sorrow, and every thing of its Contrary. If a piece of Phoſphorus, upon becoming contiguous to Air, immediately begin to ſmoke, and produce Fire and Light, with all the wonderful Phænomena thereof, as Colour, Refrangibility, Reflexibility, alternate Fits of eaſy Refraction and eaſy Tranſmiſſion, have different Powers inherent in the different Sides of its Corpuſcles, be reſoluble by a Priſm into all the Appearances of a Rainbow, exhibit the Species of Objects, act on and conſume Bodies, give Senſations of Heat, Pain, *&c.* and all theſe Properties permanent, and immutable for ever; What a Syſtem of Laws, what an infinity of Springs muſt be play'd for all this? No Circumſtance whereof is in our hand, beſide that of Contiguity or Non-contiguity with the Air: which, for our own Glory, we dignify by the Name *Occaſion*, and ſuppoſe ſomething in it analogous to *Cauſe*; and thus put our ſelves in ſome meaſure on a footing with the Almighty.——We know, without Light the viſible Univerſe would ceaſe to be; and without Heat, all Motion and Action muſt be at an End: So that it may even be ſaid to be owing to Fire, that there is a World. And yet how eaſy is it to produce what thus contains in it all Things! In effect, Fire is an *Occaſion*; and contributes juſt as much to the Exiſtence of the World, as we do to that of Fire. When we are doing, we might as well go on, and make our ſelves the Cauſes or Occaſions of the Univerſe; which we are, in the very ſame Senſe, as of any one Phænomenon in it. And thus, the ſame Principle which appear'd ſo deſtructive to Religion, is found equally ſo to Philoſophy. So conſiſtent is the Nature of Things! one Error is ſubverſive of almoſt all Truth: One Wheel amiſs in the Machine of Knowledge, makes the whole a Lye.

OF this, many of the Antients ſeem to have had a juſter Notion than we; as, in effect, they may be ſaid to have had more Religion than we.——Their Mythology, which is ſuppoſed to be their Phyſics, ſpeaks of nothing elſe but God, under various Forms and Shapes, *i. e.* in various Views and Relations. The Poets, from whom it was taken, firſt perſonified God, or the firſt Cauſe; and then his Attributes. His *Power* they called *Jupiter*, which they conceiv'd as his reigning Attribute; his *Juſtice* was *Juno*, the Conſort of Power; his *Wiſdom*, *Minerva*, the Offſpring of *Jove*'s Brain*, *&c.* And thus it is they are to be underſtood, when they

* *Vid.* Boſſu, Traité du Poëme Epique, L. i. c. 2.

ſay *Jupiter* did ſo, and ſo; *Juno* perſecuted the *Trojans*; *Minerva* inſtructed *Telemachus*, &c. which ſeems to be all the Polytheiſm the Inventors were guilty of; tho after-Ages, not perceiving that this was the Work of Poetry and Fiction, abſurdly took it in another Senſe.

IN effect, the whole Phyſics of the Antients, was no other than a Theology; as all juſt Phyſics ought to be. I may even add, that the making a Difference between the two Sciences, and erecting 'em into Provinces independent of, and oppoſite to each other, has proved moſt pernicious to both; and been the great Source both of Irreligion and Ignorance; which will never be dry'd up, till the two be reſtored to each other, and laid together again. To run any length in either of 'em, without having recourſe to the other; as the generality of Authors affect to do, is downright inconſiſtency. Some of our Syſtems of Theology, one would take for pure Inſpiration thro'out; as if the Authors ſuppoſed they could know any thing of God, otherwiſe than by means of Senſe, and Phænomena: or as if Enthuſiaſm it ſelf did not pre-ſuppoſe Senſe, or could ariſe without it.——And, on the other hand, ſome Treatiſes of Philoſophy ſeem to have refined God out of the World, by whom all things in it ſubſiſt; and which, in *Seneca*'s Philoſophy, was no other than God himſelf *. They have made us an Univerſe ſo fine, that it may ſtand of it ſelf, withoutany God, *i. e.* without any Cauſe, at all: Occaſion is the higheſt Cauſation they require. This is to abſtract with a witneſs; to diſtinguiſh the Knowledge of the Cauſe from that of the Effect, and *vice versâ*: whereas there is no knowing any thing of either, other than by their Relations to each other.

I MAY add, that the further either of theſe Sciences is carried, on this footing, the more idle and extravagant it will become; and that the one tends to downright Madneſs, and the other to downright Atheiſm. On the one hand, to make a Syſtem without a God, is nothing leſs than to be a God one's ſelf: The Author's Imagination muſt ſupply the Place of a Deity, by animating the Maſs, and giving Connexion to the ſeveral Parts and Members, *i. e.* by eſtabliſhing the Relation of Cauſe and Effect, which is the very thing that denominates God. Yet even ſuch imaginary Syſtem it ſelf, cannot ariſe without God, acting by his Laws upon the Imagination, in the Courſe of Things; ſo as to produce ſuch Effect: And thus what tends moſt directly to exclude God, does at the ſame time ſuppoſe him.——And, on the other hand, to make a God without a Syſtem; that is, to give a Theology or Doctrine of God, without a Phyſiology, or that of the World, is directly to make a God, not to find one. 'Tis to make an Effect antecedent to its Cauſe: Tis to do, I am aſham'd to ſay what!

I AM afraid I may ſeem to have been too long abſent from my Subject; but it has been all along in my Eye, and a little Recapitulation will convince the Reader, that we have not wander'd far out of the way.——We have ſhewn whence all our Knowledge originally riſes: that Senſation is its only Source; that what comes this way, comes by the Agency of the Divine Being: that it is further modified in the Memory or Imagination, where new Aſſemblages are frequently made, which is called *Invention*; that it is continually altering, by the Admiſſion of new Ideas from without; but ſtill remains ſubject to the Laws impoſed by the Creator, ſo that nothing happens therein, but in conſequence of ſuch Laws.——Thus far the Mind appears merely paſſive: And thus it ſtands with reſpect to the *Matter* of all Knowledge and Art.——It remains, now, to conſider its *Form*, or that whereby ſuch Knowledge becomes *Art*, *i. e.* becomes ſubſervient to human Purpoſes, and under the Direction of human Reaſon.

HERE, therefore, a new State of the Mind, *Agency*, and a new Faculty thereof, *Reaſon*, come in play: the Foundation and Office whereof, will be aſcertain'd, by inquiring, What there is in the Artiſt's, *e. g. Homer*'s, Mind, that concur'd with his Inſpiration or Invention, to the Production of his Poem? This will be found to reſolve into, *firſt*, an Inclination, or Deſire to produce ſome Piece, in the way of a Fable, that ſhall ſtrongly repreſent the Miſchiefs of Diſcord among Confederates; and, *ſecondly*, a Knowledge of the Means neceſſary to that End, or an Acquaintance with certain Rules and Meaſures which tend to produce ſuch Effect.

THE firſt is a *Moral View* or *Motive*, which has already been laid down as the Spring or Principle of all human Action, and which is founded on the Apprehenſion of Good or Advantage to ariſe from ſuch Poem. The ſecond, *viz.* the Knowledge of the *Means*, ſtands on the common Footing of the Knowledge hitherto diſcours'd of.

THE *Means* and Meaſures of an Art, make a kind of preliminary Doctrine, neceſſary or conducive thereto, called the *Theory of the Art*; which, alſo, in one Senſe, may be conſider'd as another *Art*, diſtinct from the former: At leaſt, to come at it is the Buſineſs of another Art.——If, for inſtance, a certain Poſition, or Set of Motions of the Body, be conſtituted by Nature the Occaſion of a poetick Inſpiration; and ſuch and ſuch Images and Ideas ariſing herefrom, be conſtituted the Occaſions of ſuch and ſuch Paſſions in the Mind of a Reader, and ſuch and ſuch Views conſequent thereon, *viz.* an Averſion to Enmity, and Contention: To form an Art productive of theſe Effects, we muſt firſt ſee and obſerve ſuch or the like Effects, to ariſe from ſuch or the like Cauſes; and argue or infer, that 'tis probable theſe Motions, or theſe Images, are the Occaſions thereof: and conſider and collect the Order, Manner, and Circumſtances thereof, to form the *Art*, or *Method*.——So that we have here, as before, 1°, *Matter*, *viz.* Phænomena, firſt furniſhed by Senſation, and preſerv'd in the Memory; 2°, *Form*, ariſing from the Moral View, which led us to frame an Art, and in order thereto, to conſider and dwell on the Phænomena, compare 'em together, and infer ſomething from 'em.—It appears, therefore, that we have two Arts of Poetry, very different from each other; coming from different Cauſes, tending to different Purpoſes, and rarely found, in any degree, in the ſame Perſon. The firſt Art *Homer* has in perfection, the ſecond, *Ariſtotle*.

BUT for all their difference, the two are really of the ſame general Nature, and Kind; and only differ in point of Degree, and Subordination; as they are nearer to, or further from, the Principle of all Knowledge and Art, Senſation.——*Homer*, we have ſhewn, was inſpired: He derived his Art only from Nature acting on him in the ordinary Courſe of Things, and firſt preſenting Objects to his Senſe, then to his Imagination: And others are inſpired from him, *i. e.* derive the Inſpiration from Nature thro' his means: among whom is *Ariſtotle*. Nature, as ſhe appears to the Senſes, is *Homer*'s Subject: as ſhe ſhews her ſelf in *Homer*, is *Ariſtotle*'s; by which time the Inſpiration is grown a degree cooler, and leſs forcible, and the Ideas thus excited at ſecond hand moving the Mind leſs, it can attend more ſteadily to 'em, and perceive their Relations better. In the firſt it falls like Lightning, immediately from Heaven; the ſecond may be compared to the Reflexion of the ſame in a Mirror. The reading of *Homer*, *i. e.* the exciting and calling up his Ideas and Images, does, as it were, impregnate *Ariſtotle*'s Imagination; and tranſplant the Poet's whole Nurſery into the Philoſopher's Garden, to be further cultivated. Accordingly, *Ariſtotle* applying his Apprehenſion and Reaſon to 'em, and examining 'em cloſely on all Sides, perceives divers Relations and Analogies between 'em, which *Homer* was not aware of; and which the Warmth of his Imagination, and the quick Succeſſion of new Ideas, would not give him room to attend to. Theſe Analogies he calls *Rules*, or *Laws*; the Aſſemblage or Syſtem whereof, make what we call *Ariſtotle*'s *Art of Poetry*.

* Totum hoc quo continemur & unum eſt & Deus; & ſocii ejus ſumus & membra. Epiſt. 92.

THE

THE like Process might be observ'd in the several other Arts. Those we have hitherto chiefly kept to, have been of the symbolical Kind: we shall here give an Instance in what we call the real Kind, viz. *Architecture*. ——An *Athenian* Sculptor, then, observing an Acanthus shooting up under a Basket; is pleas'd with the Figure it presents; and taking the Hint, invents the Capital of a Column on the Model thereof: And by a number of like Steps, an entire Order gradually arose; and, in time, a whole Art.——Things thus advanced; and another Person seeing a Building framed after such manner; he attentively examines the several Members, their Forms, Proportions, *&c.* and puts 'em down in writing: And thus does another posterior Art arise. And between the two, there still remains the Subordination already observed between the Means, or Occasions of producing 'em; *i. e.* the Rules thus formed being couched in Words, or Language, supply the Office of the external Objects they were originally deriv'd from, and prove Occasions of raising Ideas or Images in the Imagination of future Artists, to be imitated in the proper Materials.

THE Arts, then, of Poetry and Architecture, come first in at *Homer*'s, and *Callimachus*'s Sense, in the simple Quality of natural Phænomena, or Objects; which meeting with other Ideas in the Memory, or Imagination, and coming to be compared and combined therewith, by the Agency of the Moral View or Principle which suggested the making of a Poem, *&c.* as advantageous and desirable; new Productions arise, *e. g.* a Poem, or a Building: which coming at length under the Cognizance and Consideration of Reason, certain Relations or Analogies are discovered therein, which tend to propagate, and produce the like at any time.——Reason returns Rules for Matter; which Rules, prove like the Philosopher's Stone, which tends to turn all Materials it is applied to, into Gold; and the Materials thus transmuted, like the pretended multiplicative Virtue of the same Gold, from every thing they are applied to, produce Rules again.

REASON, in effect, which is the last Faculty the Matter of Art arrives at, is the first from which the Form or Rules thereof, which are to propagate it, arise. In which view, Reason may be laid down as the Principle of this secondary Art, or Theory; as Imagination of the primary one, or of the Matter. We still see the Effect of the first Laws, even in the latter Art: External Objects strike the Sense and Imagination so strongly; that they reach to Reason; which, like an infinitely elastick Substance, reflects 'em back again; and thus they again grow into Objects of Sense: and so in a Circle.

THIS seems to make the two Arts differ very widely: And as Reason appears our highest Faculty, (inasmuch as 'tis this alone that tends to produce, and multiply) and accordingly, all our Knowledge appears proportionably higher and purer, as Reason is more concern'd therein: the Rules or Theory of an Art, appears of infinitely nearer Consequence than the Matter thereof. The former is in some Sense active, and, like the Almighty Mind, tends to produce new Things, new Worlds, new Systems without end; the latter is mere Passion, and ends in bare Brute Perception.

YET, *Aristotle*'s Rules, it must be observ'd, do not tend to produce Poetry; I mean, not the Matter of Poetry; but only the Form. *Aristotle*'s Art is not the Art of Poetry in that Sense; as its Rules don't tend to produce the Enthusiasm. They only give the human Part, and relate what Reason observes in the Productions of the Imagination, *i. e.* what there is in 'em that is a proper Object of this last Faculty, and comes under its Notice. In effect, Poetry is only subject to *Aristotle*'s Rules, as there is Reason, not as there is Inspiration or Invention in it.

THE Source of Poetry, we have observed, lies out of Poetry, in a higher Ground; and to turn the Stream upon us, is the Business of this other Art of Inspiration. The immediate Inspiration, is not so immediate as we might imagine. It is not the ultimate Principle of Art, but is it self subordinate to another further, or purer Art; so that we must not have only Art and Rules to produce Poetry, but also to produce the Principle thereof, Inspiration, or Invention. And the same will hold of the Rules of this last Art, themselves, which will require others; and so *in infinitum*. At least, the Series will be infinite, if we only take our selves, and our own Agency into the Account.——

TO clear up this a little farther; it is to be observed, that the Art, *e. g.* of Poetry, is not only the Result of another higher Art, as above laid down; but, as it consists of Matter and Form; these are each of 'em the Subject of a particular Art, and each of 'em require another higher Art to produce 'em.——The Means, for instance, necessary to Inspiration, or the Invention of Images, make one Art; and those for their Application to the present Purpose, another. So that the Art of Poetry resolves it self into two subordinate ones; the first of which may be called *the Art of Invention*, the other *the Art of Judgment*, or Criticism: each of which has all the Characters of the general Art; is come at like it, produces new Objects like it, and resolves like it into Matter and Form.——Nor does the Matter end here: For as each of these subordinate Arts, consists, again, of Matter and Form; each of 'em resolves lower into two other Arts: and the same may be said of each of these; and so on. So that there is really an infinite Series of Arts, previous to any one, and accessory thereto; all distinct from each other, tho all of the same general Nature and Kind, and only differing in Point of Order, or Subordinacy. They arise subordinately from the same Cause, and tend subordinately to the same End: Which Difference, or Subordination, as already noted, arises only from their greater, or less distance from the Principle of all Knowledge, Sensation.

UPON the whole, sensible Nature furnishes the Matter of them all, by means of the Imagination; and moral Nature the Form, by means, or light of Reason.——The former Proposition has been sufficiently discuss'd. It remains to inquire a little further into the latter: For, *that Reason furnishes the Means*, &c. must be further qualified, ere it be receiv'd.——Our Reason, it is to be observ'd, does not perceive any necessary and immediate Connexion between the Means, and the Effect: for there really is none. Consequently Reason cannot be the Author of 'em; in regard, the Medium is wanting whereby it could possibly attain 'em. So that they must be procured by some other Canal; which will at length be found to end in Sensation. In effect, ere we know that such Means conduce to such End, we must first have observed, or found it so by Experience. Our Memory suggests to us, that such or the like Causes, have been follow'd by such or the like Effects; which is the only Foundation we have to expect any thing from 'em on the present Occasion.——Thus, if *Homer*'s Reason direct him to retire into a Place free of Noise and Disturbance, at a time when his Mind is clear and in due Temper; and there to apply himself with Attention and Earnestness, to think on his Subject: In consequence of which Means, new Ideas and Images present themselves; some more immediately relative to the present Purpose, others less: Whence comes all this, but that *Homer* remembers, such or the like Ideas as are now wanted, to have arose upon the use of such or the like Means? And if, among the Crowd of Images, he chuses only such as are most proper, and immediately conducive to his End, and throw aside or expunge the rest; whence is this, but that he remembers such, on former Occasions, to have contributed more fully to Ends like his own; than such others? So that the whole Process appears to be little other than *Remembrance*; which, we know, resolves into Sense.

BUT,

BUT, Memory, it is to be here noted, deals only in *paſt* Things. It informs us, that on ſuch an Occaſion, ſuch Means, under ſuch Circumſtances, produced ſuch Effects: But its Notices are merely narrative, or hiſtorical; and relate only to thoſe numerical Means, Occaſion, Circumſtances, *&c.* which can never happen again. So that Memory ſpeaks nothing to the preſent Caſe; nor gives any Directions how the particular Purpoſe now in view is to be attain'd. Its Language is only this, "Such Means did produce ſuch and ſuch "Effects."----To make the Application of paſt Things to preſent, is the Office of Reaſon; which comes in where Memory ends; and ſubjoins, That "if ſuch Means have done ſo, ſuch others will now do ſo." And conſequently 'tis Reaſon that, in ſtrictneſs, preſcribes the preſent Meaſures.

OUR Inquiry now draws towards an Iſſue; and it only remains to ſhew, in what manner Reaſon attains this End, *i. e.* what farther or higher Means there are, whereby it is enabled to furniſh Meaſures for the preſent Exigent, from the Circumſtances of paſt ones?——This it effects by certain Perceptions of *Similitude* and *Diſſimilitude*, *Parity* and *Imparity*, *Congruity* and *Incongruity*, between former and preſent Means, Occaſions, *&c.* By virtue of theſe, the Mind infers, argues, or preſumes, That "inaſmuch as ſuch Means were followed by ſuch "Effect; ſuch others, by parity of Reaſon, will be followed by ſuch others:" And that "as there are ſuch "and ſuch Differences between former and preſent Occaſions and Circumſtances; there muſt be ſuch and ſuch "other correſpondent Variations in the preſent Meaſures, to keep up the Congruity." All which reſolves into that comprehenſive Word, *Analogy*.----Thus it is found, that every *Means*, every Step of an Art, includes what has been already ſhewn of the whole Art; and conſiſts of *Matter*, furniſh'd by Memory, from Senſe and Obſervation; and *Form*, furniſh'd by Reaſon, from Compariſon, and Analogy.

AND thus it is Reaſon that makes all our hiſtorical Knowledge of any ſignificancy to us. 'Tis this that makes former Caſes ſubſervient to the preſent Occaſion. We may look upon this, as the Inſtrument or Faculty of transferring; whereby the Effects of former Times and Places, are brought over to the preſent ones. Without this, Senſe would loſe its chief uſe; and Memory, with all its Copia, be no other than uſeleſs Lumber.----'Tis this Faculty alone that arranges our ſenſible Ideas into any thing of Subordinacy. Memory only preſents 'em ſuch as they firſt appear'd; wholly diſtinct all, and independent of each other; being connected by nothing but their Compreſence, or Co-exiſtence in point of Time and Place. The Eſtabliſhment of all other Relations is the Work of Reaſon; which, from theſe few ſenſible Relations, infers numerous others, *e. g.* from the Compreſence of two Things, in reſpect of Time, Place, *&c.* it concludes that ſome new Appearance perceiv'd in the one, was occaſioned by the other; and therefore, that there was ſome Power in the latter, by which this was effected, *&c.* And thus it is we come by the Relations or Perceptions of *Cauſe*, *Effect*; *Action*, *Paſſion*; *Property*, *Quality*, &c. So that, to this Faculty of Reaſon, we owe the whole Science of *Phyſicks*; which is no other than the Doctrine of Cauſes: At leaſt, the Form thereof. The Matter, *i. e.* the Senſations themſelves, being furniſhed by Senſe, conſtitute *Natural Hiſtory*, the Baſis of all Knowledge whatever.

WE are now got to the Top of all our *Natural* Faculties, *Reaſon*; and the moſt refined of all our Science, *Analogy*.----It remains to obſerve, that with this Natural Reaſon, is connected Moral Inclination. In the Caſe, for inſtance, of *Good*; to the Voice of Reaſon repreſenting a Thing as ſuch, is connected a *Deſire* or *Inclination* towards the ſame; which is the Spring or Principle of all human Action, or Operation; and commands a number of ſubordinate ones, the application of all which conſtitutes what we call the *Purſuit* of ſuch Good.

AND thus we are got to the bottom of all our moral Faculties, Deſire or *Inclination*.----Hence, as Reaſon is the End of Paſſion, or Perception; Inclination is the Beginning of Action: The one terminating in the Apprehenſion of Good, where the other commences. And again, as the Perception of Analogy is the ultimate Effect of Science; the Inclination ariſing by means hereof, is the Beginning of Art: the two being join'd, and as it were, inoſculated in ſome middle Point. And thus external or phyſical Things, come to influence or produce internal, or moral ones; thus the whole Effect of ſenſible Nature is applied to moral Nature. And thus do *Phyſics* take hold of *Ethics*; God, of Man.----Hence, moral Knowledge may be conſider'd as a kind of Medium between Perception, and Inclination; Action, and Paſſion; Science, and Art: Accordingly, it poſſeſſes a middle Region in the Orb of Knowledge; as being that by whoſe Mediation, a Communication is made between the two; and the Effects of the one imparted, or handed over to the other.

BUT, to determine the Nature and Origin of *Analogy*; and ſhew how theſe Notices or Perceptions of *Similitude*, *Parity*, &c. by means whereof Reaſon makes her Concluſions, are arrived at; and whether they ariſe in the ſame general manner as other Ideas, by the Agency of the divine Being, (the human Mind remaining wholly paſſive therein) or whether we perceive or diſcern 'em immediately, by ſome intuitive Power inherent in the Nature of the Mind; and ſo are active therein---will need a little farther Attention.

IT muſt be allow'd, then, that theſe Perceptions, Similitude, *&c.* are no proper Objects of Senſe: They do not come from without, as any part of the Matter of our Senſations: they are of no Colour, Figure, Solidity, or the like. Nor do they ſeem to ariſe immediately, and neceſſarily, upon any Objects being preſented; but rather to require ſome Action, or Operation of the Mind, to produce and give 'em being. The Truth is, they are not any immediate Objects, but reſult from a Compariſon between ſeveral; which Compariſon ſeems to be the Work of the Mind, bringing one to the other, and conſidering their Agreement and Diſagreement.

BUT, tho this bids much fairest for Action of any thing yet alledg'd; yet will the whole hereof be found to reſolve into Senſe, and Memory.----If, ſeeing a Sword run thro' a Perſon, I find he dies upon it; and ſeeing afterwards a Spear run in like manner thro' another, I conclude he will likewiſe die: Whence is this, but that in the latter Caſe, ſome of the Circumſtances of the preſent Tranſaction, do neceſſarily recal the Memory of the former ones: Since, ſo far as they were alike, they were really the ſame? Conſequently, as the Idea of Death was connected to the former; it belongs equally to the latter. In effect, in two ſimilar things, ſo far as I ſee a Similitude, ſo far I ſee the ſame thing in both. Similitude is only a Repetition: and therefore what agrees to the one, muſt, ſo far as their Similitude goes, agree to the other, for the ſame Reaſon that it does to either. Hence, if I am paſſive in *remembering* the Sword, and paſſive likewiſe in *ſeeing* the Spear; and the one be in ſome reſpects the ſame with the other: I am not active in perceiving that Sameneſs: ſince 'tis only the Perception of one thing twice over. And my knowing it to be the ſame now, is only my remembring it to be what I had ſeen before; with this difference, that the Power which firſt repreſented it to me abſolutely; does now repreſent it with this additional Circumſtance, that I had ſeen it before.

AGAIN, if I argue or conclude that what agrees to, or ariſes from one thing; will do ſo in another thing ſimilar only in ſome Circumſtances: This is founded wholly on a Preſumption, that the Agreement reaches to thoſe Points upon which the former Effect depended. So that all phyſical Cauſation, in reſpect of us, is mere Preſumption. Accordingly, the great *Regulæ philoſophandi* eſtabliſhed by Sir *I. Newton*, that "Effects of the "ſame kind, ariſe from the ſame Cauſe:" and that "Qualities which agree to all the Bodies hitherto known, "agree univerſally to all;" are at bottom only Preſumptions. Yet are they juſt phyſical Laws; and the beſt the Subject will allow of.

THUS far, therefore, we ſee but little that looks like Activity, even in the Faculty of Reaſon. But Reaſon has not been yet ſhewn in its Height. Tho it have its Origin in phyſical Matters; and ſhew it ſelf firſt in the Eſtabliſhment of Cauſes, Properties, *&c.* it reaches much higher, and is ſeen in its Perfection in Metaphyſicks; where, making its own Productions its Object, it proceeds to examine the Nature and Eſſence of ſuch Cauſe, Property, *&c.* And hence the Doctrine of Quality, Quantity, *&c.* in the General or Abſtract.——Nor does the Matter ſtop here; but the Mind ſtill proceeds to erect a new and moſt magnificent Science of Quantities, Analogies, Proportions, *&c.* hereupon: founded on this Principle, that "ſo far as a thing unknown, agrees or is like "to another thing known; ſo far is ſuch former thing, its Nature, Effects, *&c.* known:" A Science infinitely extenſive, and productive of infinite Uſes; as being that whereby Knowledge is applied, or transferr'd from one thing to another: And of infinite Certainty, as being founded on a ſelf-evident Propoſition.——It proceeds by Definitions, Axioms, *&c.* But as the Things themſelves which are its Subject, are only Abſtracts, which are but a kind of Shadows of real and ſenſible things; ſo are its Definitions, which cannot be ſaid to be Definitions in the ſame Senſe as thoſe of a Concrete, *e. g.* a Plant, an Inſtrument, or the like; inaſmuch as they do not excite any Image or Idea in the Mind. And hence that Difficulty under which the Writers of the Principles of Mathematicks labour, to give intelligible Definitions of *Unity*, *Multitude*, *Number*, *Part*, *Whole*, &c.

ITS *Axioms* are only Duplicates of ſome Propoſition, or the ſame thing expreſs'd in two manners; the one direct, the other implicit; properly call'd *Identical Propoſitions.*——Thus that Axiom, "The Whole is equal to its "Parts;" eaſily reſolves into this other, "The Whole has the Nature and Characters of a Whole:" which amounts to this, "A Whole is a Whole."

TO illuſtrate the Progreſs of the Mind in this new Scene: Suppoſe, for inſtance, a Ball, or Sphere; and let it be divided into two Parts.——Our Senſes do not inform us that the two Segments thereof are equal to the whole one: On the contrary, they repreſent them as very unequal; and 'tis Reaſon alone that finds their Equality. The Cauſe hereof, is, that the Figure, *&c.* of the divided Sphere, which are the things the Eye takes cognizance of, are very different from thoſe of the whole one; and that the Quantity or Subſtance, in which alone the Equality conſiſts, is no Object of Sight, but only of Reaſon; which informs us that the two Segments are ſtill really the whole Sphere, only exiſting with ſome variety in reſpect of Figure, Place, *&c.* Hence we find it neceſſary, *i. e.* included in the Nature and Notion of a Whole, that the Sphere be equal to its Parts; and thus, by analogy, pronounce the ſame Ratio univerſally between every Whole and its Parts, and ſo make an Axiom which is the Foundation of a new kind of univerſal Knowledge. In effect, to ſay that the whole Sphere is equal to its Parts, is no more than to ſay, the Quantity or Subſtance is not altered by any Alterations made in its Figure, Place, Number, *&c.* which is as much as to ſay, that the Subſtance is the Subſtance, the Sphere, the Sphere.

FROM ſuch Axioms it proceeds to *Theorems* and *Problems*; every one whereof is reſolvable into Theſis and Hypotheſis; each of which may be again reſolved into Axioms or Identical Propoſitions, which is called *Demonſtrating.* In fine, all Demonſtration ſuppoſes Identical Propoſitions, and turns on 'em; and its Certainty ariſes from no other Principle, but the Identity or Sameneſs of the Thing implied in ſuch Propoſitions, with the Thing expreſs'd.

IT appears then, that the whole Proceſs conſiſts in abſtracting, or ſetting aſide the ſenſible Idea that gave the firſt Occaſion, and conſidering the Relations thereof by themſelves, as if they had diſtinct, independent Exiſtences. By thus excluding the Conſideration of the phyſical *Ens*, Senſation and Imagination are of courſe excluded, with all the Action and Inſpiration annex'd to 'em; and thus is Reaſon left in full play, without any thing to ſuperſede, or divert it.——Thus we may be ſaid to make a new World, and furniſh it with a new Set of Creatures; and a new Doctrine, which is, as it were, the Shadow of the former. Metaphyſicks, and Mathematicks, in effect, are the Science of *Entia humana*, or *rationis*, as Phyſics of *Entia naturæ*, or *ſenſus.*

BUT ſuch Abſtracts, *e. g.* Quantity, Meaſure, Weight, *&c.* tho no immediate Objects of Senſe, have yet a Connexion with things which have, whereby they become of the utmoſt import in the World. There is that Relation eſtabliſhed between the Faculties of Senſe and Reaſon, that tho the Objects of the one be not cognizable by the other, yet the Communication between 'em is by the all-wiſe Creator made very near and intimate: Such Dimenſions, Weight, *&c.* are combined by him with ſuch Effects, Motions, Reſiſtances, *&c.* and prove the Occaſion of ſuch and ſuch Effects: which is the great Principle of all human Action, and all truly artificial Production in the World.

BY means of this Communication, the firſt Impulſe is brought back again from the higheſt pitch of abſtracted Mathematicks, to the firſt Objects of Senſe; from Fluxions and Differences, the fartheſt Parts of the *Pais d' infini* Reaſon has ever travell'd to, to the groſſeſt and moſt palpable Objects that ſtrike every Senſe. And thus are Action and Paſſion, Senſation and Reaſon, Art and Science, found to reciprocate, and produce each other.

HAVING thus diſcuſs'd the Nature, and Characters of *Art* and *Science*; it remains to ſettle the Notion of *a TERM of Art*; a Diction as little underſtood as any thing in Language.——Art and Science, we have obſerved, are Denominations of Knowledge under this or that Habitude; and Words are Repreſentatives of the ſeveral Parts thereof. The whole Compaſs of Words, in all their Caſes, is ſuppos'd equivalent to the whole Syſtem of poſſible Science; tho 'tis only a ſmall Part thereof that is actual, *i. e.* only a few of the poſſible Combinations are, or ever will be, made.

THE Buſineſs of Knowledge, then, is canton'd out among the Body of Words: but they don't bear equal Shares thereof. Being Creatures of our own, we have dealt with 'em accordingly; and made ſome more, others leſs ſignificant, at pleaſure: ſome ſtand for large Tracts, or Provinces; others for little Spots, or petty Diſtricts thereof. In effect, the Order wherein we attain our Knowledge, has occaſion'd us to make a kind of Sortment and Package, if I may uſe the Word, in the Matter thereof. Tho the Mind only ſees and perceives Individuals, which alone are the proper Objects thereof; yet it has a Power of combining and complicating theſe together, for its own conveniency: And hence its progreſs from Particulars to Generals; from Simple, to Complex.——Hence we come to have Words of all Orders, and Degrees; from the Simplicity of an Atom, to the Complexneſs of the Univerſe. 'Tis pleaſant to trace the Mind bundling up its Ideas, and giving Names to the ſeveral Parcels; to obſerve, for inſtance, how it proceeds from the ſimple Idea, *Thinking*, to the more complex one, *Knowledge*, thence to the more complex, *a Science*, thence farther to *Scientifical*, &c.

INDEED 'tis very few of our Words that expreſs ſingle, or ſimple Ideas. The Reaſon is, that obſerving certain Relations to obtain between the ſeveral Ideas; as, of Cauſe and Effect, Subject and Attribute, *&c.* we don't ſo much conſider them abſolutely and independently, as under ſuch Circumſtances and Relations to each other. The great Readineſs and Propenſity of the Mind to combine, and bundle up its Ideas, and thus pay, or receive 'em in Parcels, has left us very few ſimple ones; I mean, very few Names which denote only one Idea. The Words *Atom*, or *Mathematical Point*, uſually imply ſeveral Ideas; in regard, we are led to take their Attributes, and Relations, into the Conſideration of the Subject: Thus we conſider the *Atom* as hard, heavy, and inviſible; as the Principle of phyſical Magnitude; as contributing to the Conſtitution of Bodies, *&c.* Even the primary Qualities themſelves, as *hardneſs*, *heavineſs*, &c. ſimple as they are in their own Nature;

Nature; are so far combined with particular Circumstances, *e. g.* their Cause, Effects, *&c.* that their Names become none of the least complex.

NOW, what we call *a Term*, consider'd as to its Nature and Origin, is no other than "a Word which "denotes an Assemblage, or System of Ideas relating to some one Point, which the Mind artfully complicates "or associates together, for the conveniency of its own Operations." Or, "a Word which comprehends several "Ideas under a certain Relation to each other, whereby they represent some complex piece of Knowledge to "the Mind for the conveniency," *&c.* Or, "it is a Word, which holds several different Ideas combin'd toge-"ther in a Relation such as they appear'd under when the Mind first consider'd 'em as a standing Phæno-"menon, and took Measures to have 'em fix'd or retain'd in that Quality."

THE Effect of *Terms* is, that by virtue thereof, we are enabled to receive, or communicate Knowledge with more ease and dispatch; forasmuch as having proper Combinations thereof always ready made, we are saved the Necessity of beginning *de novo*, and detailing it in Individuals: much as in Arithmetick, to avoid the Embarrass of a large Number of Units, we tell by Tens, or Sixties, or Hundreds: With the like View, on some occasions, we make up certain Sums of Money in Rouleaus, or in Purses; and thus pay and receive 'em, without the Trouble of telling or enumerating the Contents.

IN this Sense of Term, we shall find little else but Terms in Language: Among *Nouns*, little beside proper Names, which indeed are out of the ordinary Case of Language, as serving occasionally to denote an hundred different Subjects. Yet even these sometimes become *Terms*; as, when any particular Ideas become constantly attach'd to 'em, *e. g.* In *Mæcenas*, *Machiavel*, *Augustus*, *Atlas*, *Bucephalus*, *Buccentaur*, *Royal Oak*, *Argo*, &c. And among Verbs, very few but are Terms, except the general ones, *to be*, *to do*, and *to suffer*. As all the others suppose these, and modify or superadd some farther Circumstance thereto; they commence Terms of course: such, for instance, is the Word *to moisten*; which, as it carries a farther meaning than the bare Act of applying a Fluid to a dry Body; and denotes, *e. g.* the *Modus* of its Effect, and the Alteration superinduced by it, *viz.* the softening, lubricating, *&c.* is a good Term. So, *to strike*, as it not only implies a certain Motion of the Arm, but this Motion, effected by the successive Contraction and Dilatation of certain Muscles, *&c.* has every thing that is essential to a Term. In the same Sense, a *Staff* is a Term as much as a *Lever*; and a *Pin*, as an *Axis in peritrochio*.

THIS may look like stretching a Point, especially to those who are used to consider Terms as Things, I know not how, quaint, and mysterious; and make a Term and a hard Word the same thing. But there is no Remedy: Complexness is the only Characteristic that will be found to hold good of 'em all; and if there be any other more specifick and distinguishing Properties in most of 'em, as we shall have occasion hereafter to shew there are, yet these, not being universal, cannot be made the Foundation of a just Philosophical Definition. They may perhaps be introduced, to good purpose, into a popular one; as they afford a more useful and adequate Knowledge of the Subject so far as they do obtain.

THUS much relates to what we may call *Terms of Knowledge*, which are one degree more simple than the Terms of an Art, or Science; and were, for that Reason, pitch'd upon to exhibit the common Nature, and Origin of both. These latter arise out of the former, by the Superaddition of some new Character, or Condition. They were before Members of the Commonwealth of Knowledge; but are now incorporated into some certain Province, or City thereof; where they become of farther Significance and Consideration than before: that is, some new Ideas and Circumstances are now taken into the Combination, which before did not belong to it.----A Term of Art, then, "is a Word that has a Meaning beyond its general, or scien-"tifical one; and this Meaning restrain'd to some one Art." Or, it is "a Word used to denote a certain "Combination of Ideas, under some peculiar Relation; retained arbitrarily in some Art, and either not used "in any other Art, or for a different Combination, or with other Relations and Circumstances."

TO make the way a little clearer to the Philosophy of a Term of Art, it is to be observ'd, that from the primary or literal Sense of Words, we frequently, by Abstraction, form a secondary, general, or philosophical one, expressing only the Quality most predominant in the former, exclusive of the particular Circumstances of the Concrete. Thus the Word *Spirit*, literally and primarily signifying *Breath*; we thence frame a more simple general meaning, and use the Word for any thin, subtil Matter whatever.----Now, Terms of Art are not immediately formed from the literal, or grammatical, but from the general, or philosophical, Acceptations of Words; which are their proper Basis, or the Ground-work they are erected on. The general or abstract Sense of some Word already established, being found to agree to something which we have occasion to give a Name to; we take the Word in that Sense, and superadd the other Incidents and Circumstances which the present Occasions furnish, thereto: which being different according to the different Matter and Subject of the Art, specify the meaning of the Term in this, or that Art. So that the Word which, to raise it to a philosophical or scientifical Sense, was generaliz'd; to form a Technical one is again particulariz'd, or appropriated, and invested with new Accidents. Which falls in with the Difference above laid down between *Art* and *Science*.

THUS, the same Word *Spirit*, which literally signifies *Breath*, and philosophically any subtil Substance, is technically brought to denote diverse other things; as, in Anatomy, a thin animal Juice secreted in the Brain, and detach'd thence thro' the Nerves for the Uses of Sensation and muscular Motion: in Chymistry, the Exhalations of Bodies expos'd to the Fire: in Theology, the third Person of the Trinity: in Metaphysicks, any incorporeal Agent, or Intelligence, *&c.* In all which, we see the same *Substratum*, *viz.* a fine subtil Substance; but this modified a great diversity of ways: each of which is susceptible, by farther Super-additions, of infinite more. And hence Legions of sorts of Spirits, both in the human Body, the Chymists Laboratories, the Hierarchy, *&c.*

THE Notion of a Term will receive some farther Light from that of a *DEFINITION*; which is, as it were, the Analysis thereof.----By *Definition* we undo, what was done in the *Term*; that is, we resolve the complex Ideas into simple ones, or restore the Ideas from their new and artificial State, to their primitive and vague one. A *Definition*, then, may be defined, "an Enumeration of the several simple Ideas couched under "any Term, in the Relation wherein they stand to one another."----We have already shewn, that Terms are Words which have peculiar and determinate Meanings, resulting from a certain Combination of Ideas; in which view, a Term may be said to be, "a Word that is capable of Definition;" *i. e.* of having its Sense explain'd, and ascertained by an Enumeration of its Properties, and Relations: by which it is distinguish'd from other Words merely grammatical, whose Meanings are general and indeterminate, and may be used with equal propriety in a thousand Cases. We can explain a Term: A Word is inexplicable: all we can do towards this, amounts not to Definition, but only to *Substitution*.

THUS the Idea attached, for instance, to the Word *Force*, is absolutely incommunicable by means of any Language; we can only try whether the Party have it not already, under another Name; to which end we may tell him 'tis *Power*, or *Energy*, or *Vigour*; if he have Ideas for any of these, he'll take in that of *Force*, by its Relation thereto; if he have not, we must proceed to try him with more, and tell him 'tis *Forza*, or *Vis*,

Vis, or *Efficacia*, or *Potentia*, &c. or 'tis Βία, or ἰσχύς, *&c.* If none of these will do, it remains to try, whether he may not have it, without any Name to it; and say, 'tis "That whereby one thing, coming in "contact with another, moves, or shakes, or breaks it," *&c.*----If by any of these means he learns what *Force* is, he does not form any new Idea: he only learns a new Name; and finds that what he calls by one Name, others call by another; or that what he had never taken the Pains to distinguish by any Name, some others have. To get the Idea, he must have recourse to Sensation, not to Language; it being a physical *Ens*, and only to be attain'd that way.

BUT the simple Idea called *Force*, being given; and coming to be afterwards modified or circumstantiated by new Accidents added thereto, and thus form'd into Terms, in this or that Art; 'tis here in the Power of Language, alone, to excite 'em; by resolving such compound Idea into its ingredient ones, which being recompounded or put together again in the manner assign'd by the Definition, gives the full adequate Import thereof.----Thus the Idea of *Force* being variously modified, and combined with other Ideas of *Centre*, *Attraction*, *Repulsion*, *Will*, *Machine*, &c. in the Words, *Central Force*, *Centripetal Force*, *Centrifugal Force*, *Necessity* or *Moral Force*, *Mechanick Power*, &c. we can, by Definition, arrive at the Meaning thereof; by having those Circumstances specified, or superadded to the Idea of Force.----In this case, there is no coming at the Idea by Sensation; in regard 'tis a Creature of our own, and does not exist any where without us, to make an Object of Sense.

HENCE appears all the diversity of Definitions; *Technical* ones, comporting only to Terms, as to *Central Force*; *Scientifical* or *Philosophical*, to Qualities, as *Forcibleness*; and *Nominal* or *Succedaneous*, belonging to simple Ideas, as *Force*.

'TIS the various Assemblage of simple Ideas denoted by common Words, that makes all the Variety of Terms; as 'tis of Simples in an Apothecary's Shop, that makes the Variety of his Medicines.---The Analogy goes farther; and it may be said that Terms, like Medicines, only differ from each other as their ingredient Ideas, and the Relations thereof do differ.----If these be not all rehearsed in the Definition, the Term or Medicine is not specified, or distinguished from some other, which may have all except that one or two omitted. Consequently, such one or two are the Characteristicks of that Term; which may be explain'd in some sort, by only enumerating those Characteristicks, and couching all the rest under that other Term. This amounts to little more than the *Substitution* abovemention'd; and yet to this is reducible all that the Schoolmen teach of *Genus*, *Species*, and *Difference*.

BESIDE simple Words, which we have observed are, in their own Nature, inexplicable; there are divers others that become accidentally so: And such are all the Data, or preliminary Principles of any Art, with respect to those who confine themselves to the Bounds of that Art. Thus, if it be demanded of an Apothecary, to define one of his Simples, e. g. *Mercury*; he must needs be at a stand, unless he be likewise versed in Minerology; by reason it is putting him to explain a Datum, which his Art does not explain, but assume; the Explication thereof lying in another Province. For the Data or Principles of any Art, are only explicable from another, *e. g.* those of *Chymistry*, *Pharmacy*, &c. from *Physicks*; *Physicks*, from *Physiology* and *Mechanicks*; *Mechanicks* from *Geometry*, &c. So that to explain *Mercury*, would to him be, in some measure, to explain a simple Idea. But ask him to define *Calomel*, and he is prepared for you; and will readily enumerate the several Ingredients, and the manner of preparing it: which is the proper pharmaceutical Definition of Calomel.

HERE it may be observed, that the Words used in the Definition of a Term, do many of 'em represent complex Ideas; and consequently ought themselves to be defin'd, if we would have the Definition compleat. The Term has usually divers subaltern ones; all which are resolvable into it, and make part and parcel of the Knowledge held forth by it. Thus, if Calomel be defined, "A medicinal Pouder precipitated from "a Solution of crude Mercury in Aqua fortis, by adding thereto a Lixivium of Sea Salt; and then purified "by repeated Ablutions in a Filtre," *&c.* The Ideas, *Pouder*, *Precipitated*, *Solution*, *Mercury*, *Aqua fortis*, *Ablution*, *Filtre*, &c. remain to be explain'd, to furnish the compleat Notion of Calomel.----But as this would be endless, and would defeat the Intention of a Definition; the Practice obtains, to suppose all other Terms known, except that particular one under Definition. By this means, we avoid the Embarrass of bringing down every Word to its Principles, or simple Ideas; and acquit our selves by bringing it to the next complex ones: Since the bringing an unknown Term to several known ones, is a kind of indirect Definition.

SUCH is the Nature of a Technical Definition, which holds good or valid for those of that Art, or Craft; who are to be supposed furnished with the necessary Data, or preliminary Notices. But to make a scientifical Definition, we must go still lower; and bring down the Words, if not to their simple Ideas, yet to general or common ones. For it is to be observed, there are great numbers of complex Ideas current among most People, which therefore may be consider'd as Data, and used as simple ones, for more conveniency sake. All technical Apparatus, then, is to be here thrown by; and instead of giving five or six hard Words for one, the general Effect, and Meanings thereof are to be made use of. Thus, Calomel may be defined "a "white Pouder, which falls down from Quicksilver dissolved in Spirit of Salt-petre, upon casting Salt therein; "and is afterwards washed, again and again, by passing fair Water thro' it," *&c.* Where, tho several of the Words be complex; yet most People, in the ordinary Course of Life, have framed the complex Ideas belonging to 'em: so that they may be consider'd as simple ones.---Yet the Definition can scarce be said to be complete, even here: The general or philosophical Sense of Words, we have observed, is form'd from the grammatical one; and consequently the Definition ought in strictness to extend thither: The Solution, to be adequate, should go as far as the Knot; the Analysis as the Synthesis.

THE Reader already begins to feel this Preface grow tiresom; and yet half the Business is still behind. When so large a Work was to follow, he perhaps imagines he should have been excused from a long Preface: and the like, probably, may the Author say; who, after so tedious a Work, cou'd not be over-fond of any supernumerary Fatigue. But, the Expediency of the Case, which sway'd and determin'd the one; may suffice to satisfy the other. Several Matters were purposely waved in the Course of the BOOK, to be treated of in the PREFACE; which appear'd the propereſt Place for such Things as have a regard to the whole Work. What has been hitherto insisted on, as well as what remains, immediately affects every Article in the Book; and tends, withal, to let a little needful Light into certain Points hitherto involved in great Obscurity. I consider a *Preface*, as a kind of Vehicle, wherewithal to convey the Reader commodiously from the *Title* into the *Book*. The Preface is a kind of Comment on the Title, the Book a Paraphrase on it: Or, if you had rather, the Book is the Title *executed*, the Preface the Title *explain'd*.

HAVING, therefore, dispatched the leading Words ART, SCIENCE, TERM, and DEFINITION; we proceed to consider the Nature of a *DICTIONARY*.------It were to be wished that the many Adventurers in Print, who publish their Thoughts under this or that Form and Denomination, would frame themselves a precise Notion of the Character and Laws thereof. There is something arbitrary, and artificial in all Writings: They are a kind of Draughts or Pictures, where the Aspect, Attitude, and Light, which the Objects are taken in, tho merely arbitrary, yet sway and direct the whole Representation. Books are, as it were,

Plans

Plans or Prospects of Ideas, artfully arranged, and exhibited, not to the Eye, but to the Mind; and there is a kind of analogous Perspective which obtains in 'em, wherein we have something not much unlike Points of Sight, and of Distance. An Author, in effect, has some particular View or Design in drawing out his Ideas; either, nakedly to represent something, or distort and ridicule it, or amplify, or extenuate, or discover, or teach, or prove, *&c.* whence arise divers kinds of Pieces, under the Names of *Histories*, *Discourses*, *Treatises*, *Essays*, *Inquiries*, *Examinations*, *Paraphrases*, *Courses*, *Memoirs*, *Burlesques*, &c. In all which, tho the Matter or Subject may be the same, the Conduct or artificial Part is very different; as much as a Still-Life from a History, or a Grotesque, or a Nudity, or a Caricatour, or a Scene-work, or a Miniature, or a Profile, *&c.* Each of these Methods of Composition has its particular Characters, and Laws; and to form a Judgment of the Things represented, from the Pictures made of them, 'tis necessary we be able to unravel, or undo what is artificial in 'em, resolve 'em into their former State, and extricate what has been added to 'em in the Representation: That is, we should know the manner thereof; whether, *e. g.* they be mere Nature, thro' this or that Medium, in a fore, or side-View, withinside or without, to be seen from above or below; or Nature rais'd and improv'd, for the better, or the worse.——The Case amounts to the same as the viewing of Objects in a Mirror; where, unless the form of the Mirror be known, *viz.* whether it be plain, concave, convex, cylindrick, or conick, *&c.* we can make no Judgment of the Magnitude, Figure, *&c.* of the Objects.

'TIS beyond my Purpose to enter into the Nature of the several Methods of Composition abovementioned. I shall only note, by the way, that the first Writers in each, mark'd and chalked out the Measures for all that came after them. The several Manners of composing amount to so many *Arts*; which, we have already shewn, are things in great measure personal, and depend on the Genius or Humour of the Inventors.

WERE we to inquire who first led up the way of *Dictionaries*, of late so much frequented; some little Grammarian, would, probably, be found at the head thereof: And from his particular Views, Designs, *&c.* if known, one might probably deduce, not only the general Form, but even the particular Circumstances of the modern Productions under that Name. The Relation, however, extends both ways; and if we can't deduce the Nature of a Dictionary from the Condition of the Author; we may the Conditions of the Author from the Nature of the Dictionary. Thus much, at least, we may say, that he was an Analyst; that his View was not to improve or advance Knowledge, but to teach, or convey it; and that he was hence led to unty the Complexions or Bundles of Ideas his Predecessors had made, and reduce 'em to their natural parity; which is all that is essential to a Dictionarist. Probably this was in the early Days of the *Phœnician* or *Egyptian* Sages, when Words were more complex and obscure than now; and mystic Symbols and Hieroglyphics obtain'd; so that an Explication of their Marks or Words, might amount to a Revelation of their whole inner Philosophy: In which Case, instead of a Grammarian, we must put perhaps a *Magus*, a *Mystes*, or *Brachman* at the head of Dictionaries. Indeed this seems the more probable; for that a grammatical Dictionary could only have place, where a Language was already become very copious, and many Synonyma's got into it; or where the People of one Language were desirous to learn that of another: which we have no reason to think could be very early, till much Commerce and Communication had made it necessary.

WHEN a Path is once made, Men are naturally disposed to follow it; even tho it be not the most convenient: Numbers will enlarge, and widen, or even make it straighter and easier; but 'tis odds they don't alter its Course. To deviate from it, is only for the Ignorant and Irregular; Persons who don't well know it, or are too licentious to keep it. And hence the Alterations and Improvements made in the several Arts, are chiefly owing to People of those Characters. There is scarce a more powerful Principle in Nature than that of Imitation, which not only leads us to do *what* we see others do, but *as* they do it. 'Tis true there are Exceptions from every Rule: there are Heteroclites, Persons in good measure exempted from the Influence of this Principle; and 'tis happy there are; witness such as *Paracelsus*, *Hobbes*, *Leibnitz*, &c. In effect, If an Art were first broached by an happy Genius, it is afterwards cultivated, on his Principles, to advantage; otherwise not: and it may wait long for the anomalous Hand of some Reformer, to set it to rights. Some of our Arts have met with such Hands, others still want 'em.

WERE we, now, to give an absolute and consistent Definition of a *Dictionary*; we should say, "It is a "Collection of Definitions of the Words of a Language."——Whence, according to the different kinds of Words and Definitions above laid down, *i. e.* according to the different Matter, and the different View wherein such Matter is considered, will arise different sorts of Dictionaries: *Grammatical*, as the common Dictionaries of Languages, which for one Word substitute another of equal import, but more obvious sense: *Philosophical*, which give the general Force or Effect of the Words, or what is common to 'em in all the Occasions where they occur: and *Technical*, which give the particular Sense attach'd to 'em in some one or more Arts.

BUT, in truth, this is a little chimerical; and is to forget what has been already said. Tho we have *Dictionaries* under all these Titles; it would perhaps be hard to find any conformable to this Partition; which is not so much taken from what really is, as what might, or should be. Dictionarists are far from considering their Subject so closely, or confining themselves to so narrow, tho direct, a Channel: They must have more room; and think themselves privileg'd by the general Quality of Lexicographers, to use all kinds of Definitions promiscuously. 'Tis no wonder they should not keep to Views which they had not, and which could only arise from Researches they never made. While the Notions of *Term* and *Art*, remain'd yet in the Rubbish they were left by the Schoolmen; those of *Definition* and *Dictionary* must needs be vague and arbitrary enough; and the Dictionarists and Expositors, profited by an Embarrass it was their Business to have remov'd. They have not only built on it, but improv'd it, by a continual varying and confounding of Views, imperfect Enumerations, *&c.*

'TIS not to be imagin'd, the Mischiefs, and Inconveniences that have arose from this single Head; the great Uncertainty it has introduc'd into Language; and the Obstacle it has been to the Improvement thereof. 'Tis certain it has, in great measure, defeated the Intention of Speech; and turn'd Knowledge which that was to be the Medium of, into Jargon and Controversy. All the Confusion of *Babel.* is brought upon us hereby; and People of the same Country, nay the same Profession, no longer understand one another.——The Effect is, that our Knowledge is grown into little other, than that of Peoples Misunderstandings or Misapprehensions of one another; which is the only kind of Knowledge that grows; and which will for ever grow: there being the Seeds already laid of such Disputes, as, according to the ordinary spreading of such things, must overshadow, and starve every thing else. If all Men meant precisely the same thing by the same Name; there would be no room for their differing, upon any Point, either in Philosophy or any thing else: There is no more possibility of seeing the Relations of Things to each other, differently; than of altering their Nature, and overturning the System. Relations of Ideas are as immutable as the Creator's Will.——Error, in effect, is no natural Production; nor is there any direct way of coming at it: We must go about for it; and find some Law of Nature, to put it in our Power. So that Error is in one sense Truth ere it takes place; only 'tis not the Truth it is taken for.

THE Weakneſs of our Reaſon, which we complain ſo much of, is in great meaſure idle; the Fault is foreign, and lies wholly in the Confuſion of Language; which would not only puzzle us, but the very Angels in Heaven, to make any thing of: Witneſs abundance of our Explications of *Trinity*, *Hypoſtaſis*, *Subſtance*, *Accident*, *Faculty*, *Liberty*, *Cauſe*, *Nature*, *Attraction*, &c. which Divines and Philoſophers fatigue themſelves ſo much about. I am confident, that were the Almighty to inſpire us with a new Language, agreeable to Things themſelves; it would amount to a Revelation; and all our Duties, and Relations would be viſible therein.---The Diſeaſe, in effect, has ſpread ſo far, that there is little hopes of ſeeing it remov'd, or even alleviated, without a new Language, formed *ex poſt facto*, from what we now perceive.----But ſomething of this will come under Conſideration hereafter; in the mean time we venture to pronounce, that "The Reformation of Science, amounts to little more than the Reformation of Language."

THERE are two Manners of writing: In the one, which we may call *Scientifical*, we proceed from Ideas and Things, to Words; that is, firſt lay down the Thing, then the Name it is called by.----This is the way of Diſcovery, or Invention; for that the Thing ought to be firſt found before it be named. In this way, we come from Ignorance to Knowledge; from ſimple and common Ideas, to complex ones.

THE other, *Didactic*, juſt the Converſe of the former; in which we go from Words, and Sounds, to Ideas, and Things; that is, begin with the Term, end with the Explanation.----This is the hiſtorical Way, or the way of Teaching and Narration; of reſolving the extraordinary Knowledge of one Perſon, into the ordinary of another; of diſtributing artificial Complications, into their ſimple Ideas: and thus razing and levelling again what Art had erected.

THE *Dictionary* comes under the latter Kind. It ſuppoſes the Advances and Diſcoveries made, and comes to explain or relate 'em. The Dictionariſt, like an Hiſtorian, comes after the Affair; and gives a Deſcription of what paſs'd. The ſeveral *Terms*, are ſo many Subjects, ſuppoſed to be known to him; and which he imparts to others, by a Detail of the Particulars thereof.----Indeed, the Analogy between a *Dictionary* and a *Hiſtory*, is cloſer than People at firſt ſight may imagine: The Dictionariſt relates what has paſs'd with regard to each of our Ideas, in the Coalitions, or Combinations that have been made thereof: His Buſineſs is to deliver the Progreſſes made in the ſeveral Parts of Knowledge under his Conſideration, by an orderly Retroſpect and Deduction of the Terms, from their preſent complex, to their original ſimple State. The Dictionary of an Art, is the proper Hiſtory of ſuch Art: The Dictionary of a Language, the Hiſtory of that Language. The one relates that ſuch an Art, or ſuch and ſuch Parts thereof, ſtand ſo and ſo; are managed ſo and ſo; and the reſult ſo and ſo: The other, that ſuch and ſuch a Word is uſed as ſynonymous to ſuch and ſuch others. The Dictionariſt is not ſuppoſed to have any hand in the Things he relates; he is no more concerned to make the Improvements, or eſtabliſh the Significations, than the Hiſtorian to atchieve the Tranſactions he relates.

THE difference between what we commonly call the *Hiſtory* of an Art, and a *Dictionary* thereof, is only circumſtantial; ariſing from the different Views of the two Authors: The one chiefly regards the Time and Order *when* each Step, each Advance, was firſt made, *i. e.* how it ſtood with reſpect to ſuch and ſuch Æras, or Periods of Time; and might more properly be called the *Chronology* of the Art: the other regarding chiefly the Object or Intention of the Art, relates its preſent Conſtitution, and *how* it proceeds to attain the End propoſed. You may add, that the former primarily conſiders what is paſt, or already advanced; the other alſo what is preſent, or remains to be done: The one tells, *e. g.* how *Mercury* finding a dead Tortoiſe on the Shore, took its Shell, added Strings to it, and made it into a Lyre: The other, how a Lyre is, or may be made. And if you will likewiſe add this, that the Hiſtory intermixes divers foreign, and accidental Circumſtances with the Diſcovery; which the Dictionary abſtracts and ſets aſide, and ſo reduces it nearer to Science: you will have the full and adequate Difference between 'em. Thus the making of the firſt Lyre is related with ſome Circumſtances which have no place in the proper Structure of the Inſtrument, and are therefore to be omitted in the Dictionary, which only takes in what belongs to the Art, or Artiſts in general; not what belongs to ſome one of 'em.

THE whole, in effect, amounts to this, that the firſt time of doing a thing, is related by the Hiſtorian with the ſeveral Particulars which in any wiſe, tho occaſionally only and remotely, affected it: Whereas the Dictionariſt, coming afterward, keeps more cloſely and ſeverely to the Point, and relates nothing but what is eſſential; that is, the firſt time, the thing is conſider'd as now ariſing; a new Production or Phænomenon, from ſome analogous Principle; and therefore we attend to the foreign Cauſes that brought it forth: whereas afterwards, we conſider it as ariſing from the pre-exiſting Theory, or Preſcriptions of Artiſts, and thus reſolve the Cauſe into the Art it ſelf.

ANY other difference which there may ſeem to be between the two; is only as to more or leſs particular; which, indeed, is a thing that embarraſſes and amuſes us on many other occaſions: Thus in mere civil Hiſtories, if one relates the Series of a Campaign, another the Bombardment of a Town, and a third the Wounding and Death of a general Officer; tho the two latter Subjects be only Parts of the former, yet the firſt will be ſaid to have compoſed a Piece of *Hiſtory*, the ſecond a Piece of *Fortification*, and the third a Piece of *Chirurgery*. And yet there is no other difference between them, than between the Geography of a Country, and the Topography of a Village, or a Hillock; the Hiſtory of a Nation, and the Biography of a ſingle Perſon.

TO ſay no more, the Dictionary of an Art ſtands in much the ſame Relation to the Hiſtory thereof; that the Hiſtory of a People, does to the Lives of all the conſiderable and active Perſons therein. Their difference is only as to the Point of Sight; the Eye being ſuppoſed ſo near in the one Caſe, as to ſee the Parts diſtinctly, and in the other ſo far off, as to take in the Whole completely: whence the one gives you all the Incidents; the other only the greater. In effect, the one is all concerted to one point of view, moſt favourable to the Whole, and the great Parts; the other to many; the Eye being ſhifted for each Part, to furniſh an adequate Repreſentation thereof. In the one Caſe, it is ſuppoſed within the Work; ſo as only to ſee thoſe Parts next it, which neceſſarily hide the reſt; in the other, 'tis without, and can only take cogniſance of thoſe which lie outwards: So that the one chiefly diſcovers how things ſtand within; the other how they ſtand with regard to the adjacent ones.

I AM afraid to keep the Reader any longer in this painful way of Diſquiſition, wherein we are obliged to dig for every ſtep we take. It would doubtleſs ſeem a more agreeable, as well as more reputable Employment, to be raiſing things on high; than thus engaged in ſinking, and working under ground: A Caſtle in the Air is an Object of Pleaſure to every body, while it laſts; and withal is eaſily rais'd, and at ſmall Expences. Your Mines and ſubterranean Matters are mere drudgery, and Pioneers work; difficult to carry on, dubious of Succeſs, and overlook'd when done. Being therefore arrived near the Surface, we take this Opportunity to quit the Courſe, and emerge to open Air.

AFTER ſo ſevere an Inquiry into the Reaſon, Nature, and Perfections of a *Dictionary*; it may prove dangerous and impolitick to ſpeak any thing about the preſent one. From the Deſign of a Dictionary in general, to the actual Performance of any particular one, the Language muſt be much altered. A Man would make fine work

work, that ſhould examine the ſeveral Dictionaries extant, by the Standard here laid down: None of them could abide ſuch a Trial; even that here offered muſt go to wrack, like the reſt.——It may be remember'd, that the Thing executed is allowed to come ſhort of the Idea conceived: The former is only a Copy of the latter, and liable to all the Imperfections incident to other Copies. A thouſand things interfere: Lexicography, being of the Nature of an Art, deviates of courſe from what pure Reaſon would preſcribe; and its Productions come to degenerate ſtill farther, by the Accidents that attend their bringing forth. The Tools, the Materials, and forty things come into the Account: the former prove out of order; the latter obſtinate, and untractable, or perhaps not eaſy to be had. In effect, the Author's Situation, his want of Leiſure or Perſeverance, his Frailties and Foibles, nay his very Perfections and all, conſpire againſt it.

INDEED, a too ſervile Attachment to the Rules and Methods of an Art, in many Caſes proves incommodious and impertinent. We know that the Rules of an Art are poſterior to the Art it ſelf; and were taken from it or adjuſted to it, after the thing it ſelf was done. An Author, therefore, is ſtill in ſome meaſure left to his own Conduct, and may conſider himſelf as inveſted with a ſort of diſcretionary Power, whereby he can diſpenſe with ſome of 'em, and go by others of his own ſuggeſting, where he apprehends it for the general advantage of the Work. The Heights of Art are never to be reach'd by the Rules, but by Genius; by reaſon the Rules were accommodated to a certain Concourſe of Circumſtances, which rarely happens twice; ſo that Laws ſhould be made *de novo* for every new Caſe, or Condition of things. While a Perſon conſiders himſelf as following at ſecond hand, the Meaſures pointed out or preſcribed by others; he will not go on with that Spirit and Alacrity, as when he follows his own Bent. He ſhould therefore conſider himſelf in the Place of the firſt Inventor, or as his Repreſentative, or Succeſſor; and therefore qualified to enact with the ſame Authority for the preſent occaſion, as he did for another.

WHEN a Law is not founded on mere Reaſon, as we have ſhewn is the Caſe in Art; the Obſervation of ſuch Law cannot be enjoined on others. It may well obtain with reſpect to the Perſon that firſt eſtabliſh'd it, as being agreeable to his perſonal Reaſon, *i. e.* accommodated to his particular Combination of Genius, Situation, and other Circumſtances; but can't extend to thoſe in whom this Combination is different. Accordingly, few Laws of Art are univerſal. Small matter by what Laws and Preſcripts a People is guided, provided they be led on to Happineſs; or by what Courſe a Veſſel ſteers, if ſhe do but make a proſperous Voyage.

WITH this View, in the preſent Work, we have taken all the Advantages the nature of the Thing would afford us; and have frequently made our ſelves Delinquents againſt ſtrict Rule, for our Reader's good.----A Dictionary, by our own Confeſſion, is to be a Hiſtory; and yet we have not kept ſo cloſe to that Form, as to abandon the Benefit of all others. In the buſineſs of Mathematicks, for inſtance, the regular way is to relate, or enumerate the ſeveral Matters belonging thereto, without inveſtigating or demonſtrating their truth: Demonſtrations, ſtrictly ſpeaking, have nothing to do in a Dictionary, no more than authentick Inſtruments, Declarations, *&c.* in a Hiſtory. To pretend to demonſtrate the ſeveral Properties and Relations, *e. g.* of *Lines*, *Angles*, *Numbers*, &c. in a Dictionary, were an Indiſcretion as great, as for an Hiſtorian to produce Certificates, and Copies of Pariſh Regiſters, of the *Births*, *Burials*, *Marriages*, &c. of the ſeveral Perſons whoſe Actions he relates.----And yet, on ſome extraordinary Occaſions, we have not forbore to give Demonſtrations; where, for inſtance, there was any thing very intereſting, or important in 'em: A Practice which Hiſtorians themſelves frequently give into; tho it be a confeſſed Irregularity, as it breaks in upon the Unity of the Narration, and accordingly gives their Work the Denomination of *Mix'd Hiſtory*.

BUT we are far from the Views of ſome Dictionariſts, who think it incumbent on 'em to demonſtrate every thing that is capable thereof. This is directly to forget their Quality; to corrupt the Integrity of the Work *mal à propos*; 'tis being licentious, and impertinent at the ſame time, and diſpenſing with the Rules to their own coſt. How dear, *e. g.* muſt a competent Demonſtration of moſt of *Euclid*'s Propoſitions be here purchaſed? Either the Reader muſt be at the Pains of picking it piecemeal from out of twenty ſeveral parts of the Book, where the Alphabet has happen'd to caſt it; or the Author muſt relinquiſh the Advantages of a Dictionary, and deliver things together, that properly belong to ſo many ſeveral places; or there muſt be a Repetition of the ſame thing a dozen times over. And for what? why, to make the *Dictionary* do the Buſineſs of an *Euclid*'s *Elements*; which it is the unfitteſt in the World for. You might with equal propriety make an ozier Baſket ſupply the Office of a Pleaſure-Boat; or a Sword-pummel that of a Portmanteau, as *Paracelſus* is ſaid to have done.

WHEN a thing has been once regularly demonſtrated, it may be aſſumed, or taken for granted: every body perhaps may be concerned in the Truth of it, but not to ſee the Truth of it. To make it a Principle to take nothing upon truſt, would be as troubleſome in the Sciences, as in Life; and we muſt remain for ever, both wretched, and ignorant. Not only Suppoſitions, but even Errors, frequently lead us to Knowledge otherwiſe inacceſſible. Mathematicians themſelves, who of all others keep moſt to Demonſtration, yet find themſelves under a frequent Neceſſity of admitting and making uſe of things as true, which they do not ſee to be ſo; and thus are ſway'd, like other People, by Authority. A Perſon who makes uſe of the Equality of the Square of the Hypothenuſe, to the Squares of the two Sides; upon the Credit of *Pythagoras*, or *Euclid*'s having demonſtrated it; does little more than what they themſelves do on many Occaſions, who aſſume and make uſe of Propoſitions they have no other evidence of, but the knowledge or remembrance of their having been demonſtrated.

THE Caſe is much the ſame with *experimenting*; which ſtands on the like footing as demonſtrating. They are both neceſſary in their kind; the latter, as it leads on our Knowledge, the former as it ſollows, and ſecures the Rear: But their uſe is to be reſtrained to theſe Purpoſes; and may be diſpens'd withal in Caſes where neither of theſe are concerned. A Perſon who would diſcover any Point in Phyſicks, or broach and eſtabliſh any Point in Mathematicks, muſt uſe 'em: But the Occaſion is in great meaſure private, and perſonal; and does not extend to the Publick in the ſame degree as the Knowledge of the Doctrines themſelves. That is, the particular means by which a thing was firſt come at, or is ſhewn to be true, do not intereſt us ſo immediately as the Knowledge of the thing it ſelf, which might have aroſe from various other means, and in other manners: A Man may know a thing in the way of *Preſumption*, of *Opinion*, of *Surmiſe*, of *Authority*, and forty other ways; which, tho all much inferior and leſs excellent than the way of *Demonſtration*, and *Certainty*; yet we are glad of 'em on many occaſions, and uſe 'em to good purpoſe. Every degree of Knowledge is valuable. It would be an unreaſonable, as well as an incommodious Sullenneſs in us, to refuſe all Light, except that of Noon-day. We find our Eaſe and Happineſs frequently depend on the doing of things by Twilight, or even Moon-light, or the ſtill more dubious Light of, perhaps, a Ruſh or a Glow-worm.

PYTHAGORAS, in all probability, was not ignorant of the Equality of the Square of the Hypothenuſe, *&c.* before he demonſtrated it; elſe, what ſhould have led him to look for the Demonſtration? And the like may be ſaid of many of Mr. *Boyle*'s Experiments. *Plato* even obſerves, that "the very putting a Queſ-"tion, implies ſome Knowledge of the thing demanded; ſince without this we ſhould not know that what is "returned is an Anſwer."

LESS

LESS might have ſufficed, to ſhew why in the Courſe of this Work we have uſually omitted the Apparatus of Demonſtrations, and Experiments; and given the Doctrines pure and uncumbred by any thing not eſſential to 'em. The Experiments, for inſtance, which led to the Theory of Light, and Colours, what would they be, but like the Scaffolding before a fine Building, which break and interrupt the Sight, and hide moſt of the Beauties of the Work? Such Scaffolding, 'tis true, would be of uſe to the Connoiſſeurs; who might have a mind to examine the Work, to meaſure the Proportions of the ſeveral Parts, and inquire whether every Stone were juſtly laid. But to the generality it would rather be an Incumbrance, much to the diſadvantage of the Work.——Yet, in the Caſe of Experiments, as of Demonſtrations, we have receded a little from ſtrict Method, in favour of ſuch as have any thing very remarkable or beautiful in 'em. For the reſt, the Reader, if his Curioſity ſerve him, is told where to have 'em at firſt hand.

IN the Caſe of Definitions, too, we do not keep inviolably to what has been above laid down; but reſerve to our ſelves the diſcretionary Right above ſpecified.——We make uſe occaſionally of all ſorts of Definitions, as they beſt ſuit our Deſign, the conveying of Knowledge. In effect, we have uſually a Regard to the degree of notoriety, importance, *&c.* of the Term, tho a Point arbitrary, and indefinite enough; and endeavour to accommodate the Explication thereto. 'Tis a Rule with us, to ſay, *Communia proprie, propria communiter*; to expreſs common Things ſo as that even the Learned may be the better for 'em; and the more abſtract and difficult, ſo as even the Ignorant may enter into 'em. Accordingly, in popular Terms we endeavour to give a technical Definition, *i. e.* to wave the general and obvious Meaning, which is ſuppoſed to be known; and enter farther into the nature of the Thing, not known: As in defining of *Milk*, &c. But in the more remote Terms, the popular and nominal Definition is alſo given, as being ſuppoſed to be here wanted.

THE literal and technical Definitions of a Term, are lame and imperfect without each other; the firſt gives its Uſe and Effect, as part of general or abſtracted Science; the ſecond, as applied to ſome particular Subject.——The literal Notion, *e. g.* of *Relation*, is that of "conformity, dependence, or compariſon of one thing to "another:" Thus much is common to *Relation*, both in Grammar, Logick, Geometry, *&c. i. e.* it expreſſes this, both when applied to *Words*, to *Propoſitions*, to *Quantities*, &c.——The technical Notion of Relation in Grammar, is "the dependence of Words in Conſtruction:" This makes the grammatical Notion of Relation, *i. e.* it limits or ties down the general abſtract Idea of *Relation*, to the particular Subject of Grammar, Words. Again, the technical Notion of *Relation*, with regard to Arithmetick, Geometry, *&c.* is "the conformity, or "dependence between two or more Lines or Numbers;" *i. e.* the Mathematicians adopting the Word into their Art, reſtrain its literal or general Meaning, to ſome particular Purpoſes of their own, *i. e.* to Quantities.

FROM the whole, it follows, that the two Kinds of Definitions differ as an Art and a Science; as general and particular Reaſon; and again, as abſtract, and concrete. And hence, from the ſeveral technical or particular Meanings, one might of themſelves run back to the general, or literal Meaning, by abſtracting; but not contrariwiſe, from the general or abſtract to the particular ones; in regard thoſe other are arbitrary, and depend on the good pleaſure of the Artiſt who firſt introduc'd them.

ACCORDING to ſtrictneſs, every Term ſhould be firſt given in its literal, or grammatical Meaning; eſpecially when the ſame is a Term in ſeveral Arts; as this helps to fill up the Series, and ſhew the orderly Derivation of the Word, *à primis naturalibus*, from the firſt ſimple Ideas that gave riſe to it, to its laſt, and utmoſt Compoſition. This is like giving the *Root* of the Family; which is certainly neceſſary to its Genealogy.—Yet we have not always kept to this Method. In ſome Words, there is a deal of the literal import of the Word preſerv'd in the Term or the technical one; as in the word *Free*, or *Freedom*: A Man who has a Notion of *Freedom* in its common or literal Senſe, will eaſily paſs on to all the particular ones, as *Free City*, *Free Port*, *Freedom of Speech*, *of Behaviour*, &c. So that in this Caſe, a literal Definition might almoſt alone ſuffice; the Word having ſuffer'd very little at the hands of Artiſts.——In other Words, the literal or primary import of the Word, is almoſt loſt in the Term: for inſtance, in the Term *Power*, in Arithmetick; which will ſcarce bear any tolerable Definition at all. Literally, the Word implies a Relation of Superiority or Aſcendency over ſomething, which in reſpect hereof is conceiv'd as weak, *&c.* According to the analogy of Language, therefore, the Arithmetical Power ſhould have ſomewhat of this relation of ſuperiority over the Root: But the Root it ſelf is alſo a *Power*: So that the Definition of Power muſt take in two oppoſite Relations, *viz.* Power and Subjection.

PERHAPS, to go in the moſt regular manner, and take up things from their Source; one ſhould begin with ſettling their Etymologies: but the great alterations Words undergo, and the great length they are run from their original Meanings, in being borrowed from one Language or Age to another, would frequently make this not only a tedious, but an uſeleſs Labour: ſo that here, too, we have uſed a diſcretionary Power, and only meddled with Etymologies where they appear'd of any ſignificance.

TO explain a Term as a Term, we uſually expreſs the Circumſtances wherewith it is attended in the Art to which it belongs, in their artful Names. This is agreeable to the manner of Artiſts, who writing of their reſpective Arts, uſe Terms as common Words, and ſuppoſe 'em to be known: and 'tis this that conſtitutes a technical Explanation; not the giving the general Effect or Force, in ſuch Words as may equally agree to all other Arts.——And yet in ſome Caſes we recede from this Rule, particularly in divers of the lower Claſs of Manual Arts, and the Structure of ſome Machines: Thus, *e. g.* in Turnery, we make no difficulty, for inſtance, inſtead of *Chuck*, to ſay a round piece of Wood, *&c.* The reaſon is, that where the ſeveral ſubordinate Terms of a Definition are themſelves explain'd in their places, we may ſuppoſe 'em underſtood; but where the Term defined is it ſelf ſo low, that we do not go lower to define the Parts couched under it; there we chuſe, as more ſcientifical, to ſubſtitute ſome more obvious Name, or the general Meaning of the Word for the Term it ſelf; and thus prefer the general or popular, to the technical Definition.

FOR it is to be obſerved, that the Dictionary has its Limits; it only carries Matters ſo low; to a certain pitch of Simplicity, where we ſuppoſe People may take 'em up, and carry 'em farther as they pleaſe. We bring 'em into their Sphere, and ſo leave 'em. So much Knowledge, *i. e.* ſuch a number of complex Ideas, as we may preſume 'em uſually to have got in the common Occurrences of Life, we are willing to ſuppoſe, as a Footing: where theſe end, our Dictionary is to begin, which is to take in the reſt.

IF at any time we explain a complex Idea, which it may be ſuppoſed moſt People have form'd; 'tis becauſe we think they don't take in all the ſimple Ideas that go to conſtitute it: as in the Caſe of *Milk*, *Blood*, or the like; where People are contented with two or three of the more obvious Properties and Phænomena, and ſlur over the reſt.——Thus in Milk, *Whiteneſs* and *Fluidity* are almoſt alone conſidered; and theſe, in the common Opinion, conſtitute *Milk*; ſo that whatever has theſe two Attributes, comes in for the denomination *Milky*. The Texture and component Parts of this Milk, the manner of that Fluid's being ſecreted, collected, *&c.* with the peculiar Properties, and Virtues reſulting from all theſe are left behind. So in Blood, 'tis enough it be *a reddiſh, pretty compact, animal Juice, when warm fluid and homogeneous*, &c. This is going a great way, and even the Dictionaries ſeldom go farther: But, for the component Parts, the *Cruor* and *Serum*; with the component Principles of theſe, *viz.* the *Oil*, *Phlegm*, &c. their Form, Properties, *&c.*

whence

whence arise the Crasis, Colour, Heat, Specific Gravity, *&c.* of Blood; Writers don't ordinarily trouble themselves.

IF, by the Artifice abovementioned, we get free of a vast load of plebeian Words, which must have greatly incumber'd us; the Grammar and Analogy of Language disengages us from a still greater number of all kinds. The various States of the same Word, consider'd as it comes under different Parts of Speech, and accordingly assumes different Terminations, increases the List of Terms immensely: as, in *Dark*, *Darkness*, *Darkning*; *Project*, *Projection*, *Projectile*, *Projective*, &c. which may either be consider'd as one and the same Word under different Habitudes; in regard there is a common Substratum of them all: or, as so many different Terms; in regard every one takes in something not contained in the other.------This Latitude we make use of occasionally; and either consider the Words this way or that, as seems most advantageous to our purpose. In some Cases, where the Alteration is merely grammatical, we content our selves to explain 'em in one state, *e. g. Shearing*; and suppose the Reader able, by Grammar to form the rest, as *Shorn*, &c. In others, where several particular Ideas are arbitrarily superadded to the Word in one Part of Speech, which do not belong to it in another, we there explain it in all: as, *Precipitate*, *Precipitant*, *Precipitation*, &c.

THIS gives an occasion to mention a strange kind of License frequently practis'd in our Language. Tho there be ordinarily a great deal of difference between the several States or Modifications of the same Word, *e. g. Reflecting*, *Reflexion*, *Reflexible*, &c. the same as between the Action and Quality, the Power and the Exercise of it in this or that Case, the Cause and the Effect; yet Authors make no difficulty of using 'em promiscuously: which would make downright Nonsense, were the Readers to keep to the strict import of the Words. But the Truth is, we are not so critical about the Matter; if the Meaning come within our reach we jump at it, and are glad to take it; without waiting to see whether it would reach us in its present Direction, or whether it might not rather fall short, or fly by us. What Confusion should we make, even in our best and clearest Writers, were we resolved not to understand 'em but according to the strict Rules of Grammar, and not indulge 'em the petty liberty of using *quid pro quo*, one part of Speech for another? In a thousand Cases, the same Idea is denoted by opposite Terms: Thus, we say, such a Medicine is good *for*, or *against* the Worms, Plague, *&c.*

IT may be urged, that as Custom has authoriz'd this latitudinarian Practice, it is become of grammatical Authority; and that as the License is known, it can't deceive us; since the Readers are led on such occasions to relax the Bands of Grammar, and annul the difference between the Parts of Speech, in order to admit one a substitute for another.——But I am afraid this expedient scarce indemnifies us from the Abuse. Besides the extraordinary embarrass of reading what is thus promiscuously wrote, 'tis not always we know when and how to supersede the strict import of an Author's Words, and make him speak Sense in his own despite. This I take to be none of the least occasions of Controversy and Dispute owing to Language, and which we may almost despair of seeing rectified, unless in a new one.

I SHALL not here enter upon the Merits and Defects of the *English Tongue*, considered as a Language: A great deal has been said on that Head by others, for which the Reader may turn to the proper Article in the Dictionary it self. This Place we reserve, not for other Peoples Notions, but our own; and what we have to add, will be chiefly as it stands with regard to *Art*, and more particularly to a *Dictionary of Arts*.

I BELIEVE none will question but we met with Difficulties enough in the Course of this Work. The very Bulk and Dimensions of it confess as much, and the Variety and Uncertainty of its Matter still more. But these were in some sort natural Difficulties, and ought to be consider'd as necessarily appendent to the very Essence of the Design; and therefore did not afflict us so much as those that rose from it at second hand, or were superadded to it, as it were, by Accident. And such was the present wild State of our Language, which alone were sufficient to have baffled the best Scheme, and broke thro' the best Measures that could be form'd.

WE have already represented *Language* as something very important; and as having a near and necessary interest in Knowledge. *Names*, we here add, are solemn things, as they are Representatives of Ideas themselves, and used on most occasions in their stead: and *Terms*, or Combinations of Ideas, are still more so; as much as complex Engines, are of farther and nicer Consideration than the simple mechanic Powers. But who would imagine this, to consider the wanton use we make of 'em; and with how little Fear, or Discretion, Words are treated among us? Every body think themselves privileg'd to alter, or set aside the old, and introduce new ones at pleasure. *England* is open to all Nations, at least in this respect; and our Traders in this Commodity, import their Wares from every Country in all security. The mercantile Humour seems to have possessed every Part of us, so that we are not only unwilling to be without the natural Produce of our Neighbours Countries, but we even envy 'em their Fashions, their Follies, and their Words. Scarce a petty Author that appears, but makes his Innovations: But when a Dictionary comes out, 'tis like an *East India* Fleet, and you are sure of a huge Cargo. The Effect is, that our Language is, and will continue in a perpetual flux; and no body knows whether he is master of it or no. The utmost he can say, is, that he had it for such a Day, exclusive of what has happen'd since.

A MAN never knows when he is at the end of the Terms, *e. g.* in Architecture. When he has got two or three Names, for some one Member, and thinks himself overstock'd, 'tis odds he has not half. 'Tis not enough he knows what it is named in the *English*; but he must likewise learn what the *French*, *Italians*, *Latins*, and *Greeks*, likewise call it, or frequently find himself at a stand. Thus it is in the Case of *Fillets*, *Lists*, *Listels*, *Reglets*, *Platbands*, *Bandeletts*, *Tænias*, and *Baguettes*; of *Chaplets*, *Astragals*, *Batoons*, and *Tores*; of *Gulas*, *Gueules*, *Doucines*, *Cimas*, *Cymatiums*, *Ogees*, and *Talons*; *Ovums*, *Ovolos*, *Echinus's*, *Quarter-rounds*, *Boultins*, &c. between which, there is no known, allowed differences; but they are either used indiscriminately, or distinguish'd arbitrarily; one Person making this distinction, and the next another, or perhaps none at all. So that if we come strictly to Dictionaries, we should have a different one for every Author.

BUT the Mischief does not end here: for as the antient Arts are in many respects different from the modern; the use of their Terms necessarily involves us in a new Confusion, and makes the same Word stand in an ancient Author for one thing, and in a modern for another. Thus it is in *Parastata*, *Orthostata*, *Anta*, &c. In effect, there is that Alteration continually making in the Language of Architecture, that there ought, in Propriety, to be a different Dictionary of it for every different Age.

THE Truth is, a fourth part of the Words in some of our popular Dictionaries, stand on no better Authority, than the single Practice of some one fanciful Author; who having an intemperate Desire to shew either his Learning or Breeding, has met with Dictionary-Writers fond enough to take his Fripperies off his hands, and expose 'em to the Publick for legitimate Goods. By such means, these Exotics have obtain'd a kind of Currency; so that a Dictionary would be thought defective without 'em. To omit even our Fopperies would be thought a Failing; and might even be esteemed by many as the most unpardonable of all.——On these accounts we have been oblig'd to temporise a little, how much soever against our Will; and thus perhaps have contributed

contributed to the ſtill farther Eſtabliſhment of a number of Words, which we had much rather have ſeen proſcribed, or baniſh'd the Land.

UPON the whole, nothing could be more deſirable than an *Index expurgatorius*, to clear the Language of our ſuperfluous Words, and Equivocals; all the modern *French* and *Italian* Terms in the ſeveral Arts, where we have *Latin* and *Greek* ones; and even all the *Latin* and *Greek* ones, where we have *Engliſh* or *Saxon* ones, equal in Sound and Significancy. I think the learned Languages ought to have the preference to the modern, becauſe every Perſon may be ſuppoſed to have read, but not to have travelled; and our Country Words I would prefer to any others, becauſe there is the moſt analogy between 'em, and they uſually retain more of the Origin and Etymology than thoſe tranſplanted from other Languages.——Such a Reform would reduce our Dictionaries to more reaſonable Dimenſions; and diſincumber the Arts from half the difficulty now to be ſurmounted in attaining 'em.

BUT, there is another Spring of Words no leſs prolifick than that hitherto ſpoke of, and which has produced a Swarm of ſpurious, miſhapen Words, which no Nation but our own would ever have own'd: I mean the Itch of coining or making *Engliſh* Words, by a ſort of analogy, from the *Latin* and *Greek* ones. This Fault the Tribe of Lexicographers have carried to a ſtrange exceſs. How muſt a Man ſtare, to ſee what deteſtable Stuff ſome late Writers of that Claſs have complimented us with: Words of their own manufacture, ſcarce fit to do any thing with, except cure Agues! Witneſs ſuch as *Scopuloſity*, *Siticulous*, *Scatebroſity*, *Sicctific*, *Pugnacity*, *Segnity*, *Sputative*, *Muſherofity*, *Mugient*, *Gracility*, *Faſtuouſneſs*, *Exuccous*; and many thouſand more, at the Reader's ſervice, to be met withal in a Dictionary which few People are without. One would almoſt wiſh the Mold deſtroyed that ſuch Groteſques were caſt in, for fear of new Impreſſions. We are already overrun with this Author's Scarecrows: but what ſhall we be when, having thus anglicis'd all the *Greek* and *Latin* Words, he proceeds to do the ſame with the *Dutch*, *Iriſh*, *Welſh*, &c. Indeed, I am the leſs angry with him, for that he has carried the Abuſe ſo far, as muſt not only ſave People from being ſeduc'd, but bring the Practice into Contempt. Such Monſters can't poſſibly live long: if they have eſcap'd the Midwife, who ought to have ſtrangled 'em ere they came to light, yet if ever they ſtir abroad they muſt infallibly be knock'd o' the head.

HOW oddly will our Practice in this reſpect look, when confronted with that of our Neighbours? One of the moſt learned Men and greateſt Critics of the laſt Age, M. *Menage*, incurr'd an infinite deal of Cenſure, for only endeavouring to introduce the ſingle word *Proſateur*: and could not ſucceed in it, notwithſtanding that a Word of that import was confeſſedly wanting in the *French*; and both the Sound and Analogy of the new Word were unexceptionable.

TO return. The different ſtate of different Arts is very remarkable. Some of 'em are refined to a degree of ſubtilty that deſtroys 'em; as Metaphyſics, and Logics: others have had no refinement or poliſhing at all, but lie waſte and over-run for want of it; as Agriculture, Heraldry, *&c.* The groſſneſs of ſome is their fault; it being ſuch as diſguſts, and forbids a delicate Mind from purſuing them: in others, their ſubtilty and nicety is their bane, as leaving nothing for a hearty Appetite to feed on. What meagre fare, for inſtance, are the School Rules, and Doctrines of *Mediums*, *Extremes?* &c. They do indeed furniſh us with Relations, and true Relations too; but theſe ſo remote from all Purpoſes of Life, that they are in great meaſure inſignificant.

'TIS certain all our Knowledge and Arts ultimately refer to the great End of Preſervation. The Faculties of the Mind, like thoſe of the Body, were not given us for the mere Exerciſe, or Gratification of 'em; but in ſubſerviency to farther purpoſes. Our Knowledge is all of the Nature of Revelation; and the divine Being reveals nothing to us for the mere vague ſake of our knowing it, but that it may miniſter to his Ends, the being and well-being of his Creatures. Our Perceptions and Notices are all Inſtruments in his hands, which he has appointed to do his work, and bring about the wonderful and adorable Ends of the Creation. They are ſecond Cauſes, or at leaſt Occaſions of what we do; and no doubt are under the Direction of him for whom we do; whoſe Glory is ſerved thereby. Tho they extend to abundance of things, yet they all centre and terminate at laſt in our Preſervation; and accordingly, as they are farther from, or nearer to this Point, they are found fainter or ſtronger: very near they are palpable and cogent; as they recede, they continually abate of their clearneſs, and evidence; and when arrived at a certain diſtance, dwindle to nothing, and are loſt. At a great height from this Centre, the Nexus or Chain whereby things are held together, and in virtue whereof we proceed from things known to things unknown, becomes inſenſible; ſo that we loſe our hold, and wander on we don't know where. Our Faculties here faulter; the Objects they meet with are inadequate to 'em; the Air grows too thin for Reſpiration. But, where we leave off, there poſſibly ſome ſuperior Order of Beings may take it up.——We have, indeed, a kind of *Comets* in the Affair of Learning, which ſeem to be got far out of the Orb; ſo that one would wonder how they came there, or what ſuſtains 'em; as alſo what they do there. Such are, mere Antiquaries, Etymologiſts, Microſcopiſts, Alchymiſts, Phyſiognomiſts, and other Searchers of Futurity: But theſe, for all their ſeeming diſtance and irregularity, do all reſpect the ſame central Point, and move by the ſame Law with others; and even anſwer very good Purpoſes to the whole.

IN effect, the ſeveral Arts have been cultivated to more or leſs purpoſe, as our Preſervation is more or leſs immediately intereſted in 'em; and by this Key one might almoſt venture to judge which Arts are capable of being carried ſtill farther, and which not.——Our Knowledge of very great and of very little things, is very imperfect, *e. g.* of very great and little Objects, Diſtances, Sounds, *&c.* And the reaſon, no doubt, is, that there is but little Relation between us and them; ſo that we are but little intereſted in the Knowledge of them. Thoſe things we have neceſſarily and immediately to do withal, are made to our reach: for the reſt, no matter, to the Creator's chief Purpoſe, what they are.

AND yet our Leiſure and Curioſity have found means of making even theſe more cognizable than otherwiſe they are: we can, in ſome meaſure, alter the eſtabliſhed Relation between our Faculties and their Objects; and make uſe of one Law of Nature, to undo or ſuperſede another.——Thus we can magnify a little Sound or little Body, or a little Diſtance, *&c.* or we can diminiſh large ones; and thus make things in ſome meaſure adequate Objects, that naturally are not ſo.

BUT there is no great advantage in this: We only, by theſe means, come at a better apprehenſion of things which Nature ſeem'd to put out of our way for no other reaſon but becauſe they did not concern us; leſt we ſhould be engaged to miſtake, and run after things that had no relation to us, to the neglect of thoſe which have.——Thus, Anatomy is really found of much leſs uſe than at firſt ſight one would imagine; as being employ'd in taking things aſunder and conſidering their Parts, which Nature chiefly intended to be conſidered and dealt with together. There is I know not what ſecret Law, whereby the Effect of a thing is, as it were, attach'd to its integral State; ſo that in proportion as you either diminiſh it, by taking from it, or enlarge it by adding to it, its Effect is alter'd, in a manner beyond what we can well account for from the bare Conſideration of Magnitude.

ABUN-

ABUNDANCE of the leſs uſeful Notices, we find, were kept back, and left to be accidentally turned up in courſe of time: ſuch as the Knowledge of Glaſſes, and their Effects. 'Twas no very important matter whether they were known or not; their uſes were not immediate. If they had, the things themſelves would have been palpable, and neceſſarily diſcovered long ago. Men lived tolerably well without knowing how many Feet a Louſe had, or how many Years a Cannon Ball would be in travelling to the Sun. The *Refrangibility* of the Rays of Light in paſſing different Mediums, which is the great Foundation of all our optic Glaſſes; ſeems only a ſecondary Property or Effect ariſing from another Power, or property of *Attraction* between the Light and the Medium; which it ſelf probably ariſes from ſome other. And there ſeems nothing abſurd in imagining that Nature did not immediately intend ſuch Refrangibility; but that it follow'd accidentally, from ſome Principle which ſhe did intend: So that the great modern Invention of Glaſſes, might be an accidental Derivation, from ſome of Nature's Redundancies. In effect, the only things left to Study and Art, may be theſe very Redundancies; the other Matters, which primarily concern us, being learnt in a more immediate manner.

NO body will take this for a Reflection on Art: 'Tis only a Panegyrick on Nature: an Illuſtration of her Goodneſs in contriving that things moſt neceſſary and uſeful, ſhould be moſt obvious, ſo as to be almoſt diſcoverable by a ſort of Inſtinct; and the other leſs immediately uſeful ones, left to be accidentally turned up in the Courſe of Experiment and Diſquiſition. We may admire her Wiſdom ſtill farther in this, that ſhe ſhou'd as it were go out of her way, and annex a ſort of Pleaſure, beyond her main Purpoſe, to the Knowledge even of things not immediately uſeful; in order to engage us to Induſtry and Activity. This ſhews that ſhe has Ends to ſerve by that very Activity; and perhaps is the beſt Demonſtration in the World of the Neceſſity we are under to purſue Knowledge; and may raiſe a Suſpicion, that this very Purſuit may poſſibly contribute to our Preſervation in ſome farther manner not yet attended to.

'TIS no wonder the School Philoſophy ſhould be carried ſuch a length; conſidering the narrowneſs of its Subject, and the great number of hands to cultivate it for ſo long a time. Its chief Employment is in aſſigning, and enumerating the Characters and Differences of our Perceptions, or internal Objects, taken as they are excited in us in the natural Courſe of things; by which it is diſtinguiſhed from the Modern, which is chiefly imployed in means to vary and modify theſe Perceptions; and thus find out farther Relations and Differences than would otherwiſe have appear'd.——The Philoſophers of the former kind are contented to take Nature as ſhe comes home to 'em; and apply their Reaſonings thereto without more ado: Thoſe of the latter, go out in queſt of her, to have more Matter to reaſon upon. The former are more contemplative, the latter more active; the former, in fine, reaſon, abſtract, and diſcourſe more; the latter obſerve, try, and relate more.

HENCE we diſcover why the Old is much more perfect in its kind than the New. The former has little to do but compare, order, methodize, *&c.* what is ready at hand; the latter has likewiſe to find; after which all the labour of the other ſtill remains. The former takes Nature in all her Simplicity; the latter adds Art to her, and thus brings Nature into conſideration in all her diverſity: the former chiefly conſiders natural Bodies in their integral State; the latter divides, and analyſes 'em: So that the former finds moſt of the principal Relations, the latter many more curious, and amuſing ones. Hence, the former haſtes to its Perfection, and can't long hold out; for that its Matter is limited: the latter can ſcarce ever arrive at it, ſince Experiments are endleſs. To ſay no more, to have Philoſophy in its perfection, we ſhould have the Order, Preciſion, and Diſtinctneſs of the Old; and the Matter, the Copia of the New.

THE modern is yet wild and unaſcertain'd. 'Tis not arrived at the Maturity of Method; the Mine is but juſt open'd, and the Adventurers are yet only ſollicitous about the Matter to ſee what it affords. Circumſtances do not yet come in courſe; and 'twill be long ere it arrive at a juſt extent to give room and leiſure for reducing it to regularity. True, the Rules and Methods of the antient, are in ſome meaſure applicable to the new, and will go a good way towards the ordering and aſcertaining of it; but the preſent Philoſophers ſeem yet too warm and ſanguine for ſuch a Buſineſs; which muſt be left to the ſucceeding Age to think about. Add, that the farther they go on to dig Materials, ſtill the more difficult will the ranging of 'em be; inaſmuch as there is but one true and juſt Order to lay them in; and the more of 'em, the more intricate that Order, and the harder to find. This a Man may be poſitive of, he never will ſee half the Experiments and Obſervations already made, laid up or uſed in a Syſtem of Phyſics.

BUT when that is done, a deal will ſtill remain, ere we have the chief uſes of it. For phyſical Knowledge, ſtrictly conſider'd, is only a Step, a Means of arriving at a higher and farther kind. Hiſtories, Obſervations, and Experiments of the Kinds, Order, Strata, *&c.* for inſtance of Foſſils, are very uſeful and laudable things, as they tend to lay in a Stock of ſenſible Phænomena, for the Mind to work upon, digeſt, and draw new Notices from, for the Improvement of our own Faculties, and the better Conduct of Life: But 'tis a Shortſightedneſs to forget this farther View, and look only to the Things themſelves. The bare Acquiſition of new Ideas is no real advantage, unleſs they be ſuch as have ſome relation to our ſelves, and are in ſome ſenſe adequate, and adapted to the Circumſtances of our Wants, and Occaſions, or capable of being made ſo. Knowledge, in the firſt State, is like Food in the Stomach, which may pleaſe and ſatisfy us, but is of no uſe to the Body till farther prepared. It muſt be brought nearer us, and made more our own, more homogeneous to our ſelves, ere it feeds us.——The modern Philoſophy is not ſo properly a Philoſophy, as the Adit or Opening of one. Its Matter has yet only undergone the firſt Concoction: we are yet only converſant about new phyſical Relations, learnt by Senſation; whereas to bring it to the Perfection requir'd, it muſt have undergone the farther Operations of Imagination, and Reaſon. Mere Phyſics, as ſuch, do not make a Philoſophy; thoſe Phyſics muſt firſt be carried up to Metaphyſics and Ethics, ere we can ſafely ſtop. So far as it is Phyſics, it is foreign to the Mind, and its Occaſions; before it affect and influence our Reaſon and Judgment, it muſt be ſubtiliz'd vaſtly, and made more ſimilar to the Metaphyſical Nature of the Mind. While Phyſics, it remains under the Direction of the Author of Nature; and proceeds wholly by his Laws, and to execute his Purpoſes: ere it come under our Direction, and become ſubſervient to our Will, it muſt have laid aſide what was active, and neceſſary in it, and become paſſive to our Reaſon, *i. e.* it muſt have been tranſfer'd from the Dominion of the Almighty's Will, or Reaſon, and brought under ours; if that do not imply a Contradiction.

TO return. Senſible Phænomena, we have already ſhewn, are the Foundation of Philoſophy: but your Edifice will neither make any Figure, nor afford any Convenience, till you have carried it one or two Stories higher. 'Tis but, as it were, the Cellaring, or Ground-work; which one would think were no very comfortable place to live and ſpend all one's time in. 'Tis one extreme, to take our Lodging as ſome of the modern Virtuoſos are contented to do, under ground; and another to reſide altogether in Garrets, as the Schoolmen may be ſaid to have done.

THE School Philoſophy, however, is of ſome farther uſe, as Matter of Hiſtory: We learn by it how People have thought, what Views have obtain'd, and in what various Manners the ſame thing has been conceiv'd; which, tho it be Knowledge as it were once removed, yet is not intirely uſeleſs. The Hiſtory of human

human Thoughts is no doubt the most valuable of all others; it being this alone that can make the Basis of a just Logic, as Physiology of a just Physics. We must know wherein People have fail'd, or fallen short, or been deceiv'd, to learn the Reasons thereof, or be able to form Rules for avoiding the like. The several Opinions that have obtain'd, may be consider'd as so many Phænomena of the human Mind, which must be consider'd and inquir'd into to find its Nature.——This alone were enough to have engaged us not to omit that part of Learning, in the present Work: tho there were not wanting other circumstantial Reasons which had also their share; as, the necessity hereof to the understanding not only of the antient Writers, but even of the modern ones, who frequently combat, remark, *&c.* upon the antient Notions. To which it may be added, that abundance of our Terms and Dictions are derived from them, and therefore could not be so compleatly understood without 'em. The Language of the antient and modern Philosophy is not very different: the chief Diversity is in the different Ideas affixed to the same Words, and the different Applications of 'em. And happy had it been for the Moderns, had they form'd a new Set of Terms adapted to their new Notions: By adopting the old ones, they have not only introduced a world of Ambiguity and Confusion; but have even lost the Credit of many of their own Discoveries, which now lie blended and buried among those of the Antients. One is at a loss to think what could induce the great Philosopher of our Age, to use the word *Attraction*, in the Sense he has done. No doubt it was originally as pertinent as any other; but the Stamp and Impression it had already taken from the Antients, made it less fit to receive a new one. It could at best but take it imperfectly; and the result was, a promiscuous Image, wherein we neither see the one nor the other, distinctly. 'Tis scarce in the Power of Imagination, totally to divest a Sound of its received Meaning, and consider it as indifferent to all things; any more than to annihilate the Characters on a piece of Paper, and consider it as a mere Blank. Accordingly, tho the great Author abovementioned explain'd over and over, in the clearest Terms, the Sense he fixed to his *Attraction*; yet Experience verifies how much he was overseen; the chief Objections against his whole System being drawn from a Misapprehension of this very Word, which keeps half the Philosophers in *Europe* still at a distance, afraid to admit a most excellent Doctrine, merely out of distrust of the Vehicle that conveys it. But this *en passant:* The Reader who desires to see farther, may turn to the Articles ATTRACTION, NEWTONIAN PHILOSOPHY, GRAVITATION, *&c.*

WHAT has been spoke of the *School Philosophy*, reminds us of *Astrology*; the Terms whereof have not been omitted in this Work.——Were it only that it has once obtain'd, is still extant in Books, and has given occasion to abundance of Terms and Phrases, adopted into other Arts; it would have a Title to be remember'd. "The History of Mens Follies, *says the inimitable* Fontenelle, makes no small part of Learning; and "unhappily for us, much of our Knowledge terminates there *." But this is not all; and they who absolutely reject all Astrology as frivolous, don't know it. Every Art and Science has its Vanities, and Foibles; even Philosophy, and Theology: and every one its good Sense, even Astrology. The heavenly Bodies have their Influences: The Foundation, therefore, of Astrology is good: but those Influences are not directed by the Rules commonly laid down, nor produce the Effects attributed to 'em: so that the Superstructure is false. Astrology, therefore, ought not to be exploded, but reformed. Indeed a Reformation would reduce it into a little compass; but this little is too much to be lost, as it now is, among that heap of Trumpery mixed with it.——We have even been careful to preserve what is just and rational, in Physiognomy, Witchcraft, and many other fanciful Arts. The time was, when Physics was not much more worthy the Study of a Man of Sense, than Astrology now is; so that one might propose an *Introductio ad sanam Astrologiam*, as a Desideratum.

THE *Preface* is now degenerated into a *Dissertation* in good earnest: at least, it has got the Length and Formality thereof, and wants only the Accuracy and Precision.——Enough has been discoursed of the general Nature, and Subject of the Work: You must now allow me to descend a little more to particular, and personal Matters; and thus end my Preface, where I might have had Precedents enough for beginning it.

I WILL at least deal honestly with my Reader, and not be caught faulty in point of Morality, whatever I may be in any thing else.——What has been said hitherto, has been on the advantageous side of my Work; and I should not have acquitted my self, should I not likewise mention what may be alledg'd on the contrary Part.——The curious Reader, then, may expect, he will here meet with Omissions, and there with Redundancies: here the Method and Œconomy are not kept to; there an Article is imperfectly treated: here, a Passage from some other Language is not sufficiently naturalized; there a Sentiment of some other Author is not sufficiently digested: There, in fine, the Author was asleep, and here the Printer.

ONE might palliate these Objections, by alledging, that "they are things not peculiar to this Work, but "extend to all of the Kind; that most of 'em are things not foreign and accidental to it, but arise of necessity, from the very Nature and form of a Dictionary; and that many of 'em, are not peculiar even to a "Dictionary, but agree to all extensive Undertakings, and are appendant to the very best Part of the Design, "its Universality:" but instead of extenuating, I had rather be guilty of inflaming, and aggravating 'em.

FOR *Errors*, they cannot be very few, considering the Hands thro' which most Parts of our Knowledge have passed, and from whom we are obliged to take our Accounts. What one Author, upon the most particular Subject, will you produce, that has not his share of 'em? and what *Argus* could possibly see, and correct the Errors in all the Authors he had to do with? *Scaliger*, in his Exercitations against *Cardan*, has shewn some twenty thousand, in one small Work; and no body imagines he has pick'd it perfectly clean. Yet *Cardan* was no ill Author. *Bayle*'s Dictionary has been called the Errata of *Morreri*; yet is not *Bayle* himself without his Errors.——The most we can say, is, that we hope there will be few found in the present Work, in comparison of others of the like kind. Many thousands we have corrected, both in the Dictionaries and other Writings we have collected from, by means of the Light which other Parts of Knowledge afforded: But after so large a Harvest, no doubt there remains a tolerable Gleaning. We flatter our selves, however, that what we have overlook'd, the Reader will frequently be enabled to correct, by the Means here afforded; and that there will be few Errors found in the Book, which the Book it self will not help to rectify.

AS to *Omissions*, there is scarce any avoiding 'em; and the more intelligent the Reader is, the more of this kind he will necessarily meet withal: they being only such in relation to his fulness. Indeed, I must own my self greatly a Debtor on this score; and tho at present insolvent, yet if the Reader will give me Credit, it shall be my endeavour to see all I owe discharged; if not in a Lump, yet by a Course of Payments.

FOR *Redundancies*, you know there cannot well be richness without 'em. After you have picked what you think fit of this kind, and laid it by; 'tis ten to one but the next Person that comes, will restore half of 'em to their places; and tax your Temerity, and want of Taste: and the next after him will go near to replace the other half.

AS to *Irregularities*, and breaches of Method, I will not claim Impunity on the Score of being the first that introduced any certain Rules, or Method into this way of writing at all: But there will be at least this Satisfaction attending my Case, that I cannot be indicted for the Breach of any Laws but my own.——Nor

* Hist. de l' Acad. R. An. 1708. p. 135.

must

muſt it be ſorgot, that I pretend to have carried the *Dictionary-Way* to a pitch hitherto little thought of: So that if I have fallen ſhort of the Mark on one ſide; it may be ſome Atonement that I have gone beyond it in another. I am ſenſible, however, there is no Point I have been more delinquent in than this one of Method; and that I am at every turn forgetting my own View. The References, and neceſſary Connexions between the Parts, which ſhould ſhew their Relation, and help the Imagination to put 'em together, are but too frequently dropt, and the Reader left without his Clue.

AS to *Jejuneneſs*, and Crudity; no doubt there muſt be a deal of that kind, conſidering the Time ſo great a Load of Fruit had to hang and ripen. Much of it was gathered ere it could poſſibly be matured; ſo that 'tis no wonder it now and then taſtes of the Wood. But ſetting aſide this; if a Man may not be allow'd to ſay a good number of indifferent things, in the Compaſs of five hundred Sheets, I know not who would be an Author.

LASTLY, as to there being little in it *new*, and of my own growth; I muſt here change my Style; and from Confeſſion, turn to Vindication.----The Work is, what it ought to be, a *Collection*; not the Produce of a ſingle Brain, for that would go but a little way; but of a whole Commonwealth. If any Perſon will undertake to write a Dictionary, even of ſome one particular Art, from his own Fund, alone; a Man may ſafely undertake to prove it good for nothing. I do not pretend to entertain my Gueſts at this rate, with juſt what my own ſcanty Barns afford: The whole Country is ranſack'd to make 'em the fuller Banquet. Call me what you will; a *Daw*, and ſay I am ſtuck over with other Peoples Feathers: with all my Heart; but it would be altogether as juſt to compare me to the *Bee*, the Symbol of Induſtry, as that of Pride. For tho I pick up my Matters in a thouſand Places; 'tis not to look gay my ſelf, but to furniſh you with Honey. I have rifled a thouſand Flowers; prickly ones many of 'em, to load your Hive. No body that fell in my way, has been ſpared; Antient nor Modern, Foreign nor Domeſtick, Chriſtian, nor Jew, nor Heathen: Philoſophers, Divines, Mathematicians, Critics, Caſuiſts, Grammarians, Phyſicians, Antiquaries, Mechanics, all are ſerved alike. The Book is not mine, 'tis every body's; the mix'd Iſſue of a thouſand Loins. The Prince of modern Authors, is pillaged to ſome purpoſe; and what Quarter then can any body elſe expect? If ever you wrote any thing your ſelf; 'tis poſſible there is ſomething in it of yours: ſo that you will at leaſt allow ſomething in it good.

NONE of our Predeceſſors can blame us for the uſe we have made of them; ſince it is their own Practice. It is a kind of Privilege attached to the Office of Lexicographer, if not by any formal Grant, yet by Connivance at leaſt. We have already aſſumed the *Bee* for our Device; and who ever brought an Action of Trover or Treſpaſs againſt that avowed Free-booter? If any body blames us, 'twill ten to one be ſome of thoſe very Drones, who are ſuſtained by our means.

'TIS idle to pretend any thing of Property in things of this Nature. To offer a thing to the Publick, and yet pretend a Right reſerved therein to one's ſelf, if it be not abſurd, yet it is ſordid. The Words we ſpeak; nay, the Breath we emit, are not more vague and common than our Thoughts, when divulged in print. You may as well prohibit People to uſe the Light that ſhines in their Eyes, becauſe it comes from your Candle: E'en clap it in a dark Lanthorn, and let us not be amuſed, and dazzled by it; if we may not be the better for good things, let's not be the worſe for the ill and indifferent ones mix'd with 'em.

WE ſee the ſame Thought, which was firſt ſtarted in one Author under a world of Crudity, borrow'd by another become farther improv'd and ripen'd; and at length tranſmitted to a third, yield Fruit in abundance. All Plants will not thrive in all Soils that will produce 'em; ſome languiſh in their Mother-Beds: whence the Gardner is under a frequent neceſſity of Replanting, Engrafting, *&c.*

TO do juſtice to a *Collection*, I mean a general and promiſcuous one; it has its Advantages. Where numbers of things are thrown precariouſly together, we ſometimes diſcover Relations among 'em, we ſhould never have thought of looking for: As, the Painter's and Sculptor's Fancy, is frequently led on to the boldeſt and moſt maſterly Deſigns, by ſomething they ſpy in the fortuitous Sketches of Chance, or Nature: inſomuch that a celebrated Author * makes no ſcruple to lay this down as the firſt Origin and Occaſion of all theſe Arts. 'Tis certain moſt of our Knowledge is empirical, the Reſult of Accident, Occaſion, and caſual Experiment: 'Tis but very little we owe to Dogmatizing and Method; which, as already obſerv'd, are poſterior Matters, and only come in play after the Game is ſtarted. 'Twas, in all probability, the hand of Chance that firſt threw Sulphur, Charcoal, and Salt-petre together; and what ſurprizing Effects have not aroſe from it; what Handle has it given to Art and Contrivance, to direct and apply this fortuitous Production?

'TIS indeed ſurprizing to conſider, what ſlender Experiments and Obſervations many of the capital Doctrines have aroſe from: The Blows of a Smith's Hammer on his Anvil, ſtruck out the Principles of Muſic; which *Guido*, a poor Friar, perfected by what he obſerved in conning over his Beads. The Inventions of *Printing*, of *Glaſs*, of the *Dipping Needle*, of *Phoſphorus*, of *Teleſcopes*, of *Taffata*, of *Antimony*, &c. are ſuppoſed to have aroſe in the like manner; as the Reader may find under their proper Articles: And how many more we know not, by reaſon the great Obſcurity of their firſt Riſe, ere they attain'd a degree of Uſefulneſs and Perfection ſufficient to be taken notice of, has buried the particular Circumſtances thereof. If we will hear the antient *Phœnicians*, and *Egyptians*, amongſt whom moſt of the Arts are ſuppoſed to aroſe; they all came from caſual Obſervations: Geometry from the Inundations of the *Nile*; the Flight of the Crane, gave occaſion to the Invention of the Rudder; the Ibis taught to adminiſter a Clyſter, *&c.* In effect, a new Obſervation in ſome Peoples Minds prepared for it, is like a Spark in a heap of Gun-pouder, which may blow a whole Mine.

WHAT Advantages may not Philoſophy derive from ſuch a Collection, or Farrago of Arts; when 'tis conſidered, that every Circumſtance, every Article of an Art, ought to be look'd upon as a Datum, a Phænomenon, or Experiment in Philoſophy; and that the leaſt of 'em may poſſibly be the Foundation of a new Syſtem?—To conſider only the *Tanning*, or *Currying* of Leather: what is the whole Proceſs, but a Series of phyſical Effects, ariſing from new applications of Body to Body? And how many Lectures will the Philoſopher have from Painting, Gardening, Agriculture, *&c.* touching *Planting*, *Engrafting*, *Pruning*, *Expoſure*, *Expreſſion*, *Walls*, &c. which might never have come in his way, but by ſuch a chance? When a thing is once ſtarted, it may be applied infinite ways, and no body knows where it will ſtop.

THRO'OUT the Whole, we have had a particular regard, both in the Choice of the ſeveral Heads, and in dwelling or amplifying upon 'em; to the extending our Views, dilating our Knowledge, opening new Tracks, new Scents, new Viſtas. We have endeavour'd not only to furniſh the Mind; but to inlarge it, and make it in ſome meaſure co-extend with the Dimenſions of all Minds, in all Ages and Places, and under all Situations and Circumſtances: as Language, in ſome meaſure, makes our Senſes do. With which view, we have given the Sentiments, Notions, Manners, Cuſtoms, *&c.* of moſt People, that have any thing new, unuſual, or hardy in 'em.

SUCH a Variety of Views, Principles, and Manners of thinking, is a ſure Remedy againſt being too violently attached to any one; and is the beſt way of preventing the making of Pedants, Bigots, *&c.* of any

* Leon Battiſta Alberti, della Statua.

kind. It may be ſaid, that every Art tends to give the Mind a particular Turn; and that the only way of maintaining it in its natural Rectitude, is by calling in other oppoſite ones, by way of Counter-ballance. Thus we find nothing more perverſe and unſufferable than a mere Mathematician, mere Critic, Grammarian, Chymiſt, Poet, Herald, or the like; and the proper Diſpoſition is only to be had from a juſt Temperament or Mixture of 'em all.

I OWN this is not the way to make a very great progreſs in any Art; but at the ſame time it is the only way to hinder out being ſpoil'd by any; and becoming Creatures rather of *Homer* or *Ariſtotle*'s making, than God's: and receiving our Taſtes, Views, Reliſhes, at ſecond hand, rather than from Nature her ſelf. This, however, is only to be underſtood with regard to perſonal Benefit. For no doubt the Publick is better provided for, by the mere Purſuers of particular Arts, than the general Appliers to all: ſince each is hereby brought to greater Perfection; and the Mixture and Temperament, wanting in the Individuals, is found in the Whole.

TO conclude, the ultimate View of a Work of this, or any other kind, ſhould be, the forming a ſound Mind, *i. e.* a Syſtem of Perceptions, and Notions agreeing to the Syſtem of Things, or in the Relation thereto, intended by its Author. The End of Learning and Study, is not the filling our Heads with other Mens Ideas; that is an Inrichment which may prove for the worſe, if it carry any ill Quality with it: Richneſs is not the chief thing aim'd at; 'tis only a Circumſtance, or Matter of a ſecondary Conſideration: Soundneſs is the firſt. There are many Manures which the Huſbandman dares not uſe, by reaſon they would corrupt the Land, at the ſame time they enriched it; and lay the Foundation of a Diſeaſe, which would in the End impoveriſh, and make it ſpend it ſelf in unprofitable Weeds. A little pure Logic, or Theology, or Chymiſtry, in ſome Peoples Heads, what Miſchief have they not produced?-----But it muſt be owned, Mens Heads are not ſo ſoon fill'd: the Memory is not ſo tenacious as we imagine; Ideas are tranſient things, and ſeldom ſtay long enough with us to do us either much good, or harm: Ten to one but what we read to-day, is forgot again to-morrow. And what chiefly makes new Ideas of any ſignificancy, is their extending and enlarging the Mind, and making it more capacious and ſuſceptible.-----But neither is this Enlargement the laſt Aim; but is chiefly of uſe, as it contributes to the increaſing our Senſibility, to the making our Faculties more ſubtil, and adequate, and giving us a more exquiſite Perception of things that occur; and thus enabling us to judge clearly, pronounce boldly, conclude readily, diſtinguiſh accurately, and to apprehend the manner and Reaſons of our Deciſions. In which view, ſeveral things may be uſeful, that are not ſo much direct Matters of Knowledge, as ſubſervient to the ſame End; for inſtance, much of the School Philoſophy, which by exerciſing and exciting the Mind, has a kind of collateral tendency to ſharpen its Faculties; and needs only be read, not retain'd, to produce its Effect.-----But neither does the Matter end here: Even this does not amount to the full and adequate End of Knowledge: This is only improving the Organ; and there muſt be ſome farther End in ſuch Improvement. No Man ſharpens his Weapon on the ſole Conſideration of having it ſharp, but to be the fitter for uſe. Briefly, then, our Faculties being only ſo many Inlets, whereby, and according to the Meaſure whereof, we receive the Intimations of the Creator's Will, or rather, the Effects of his Power and Action; all the Improvements made in 'em, have a tendency to ſubject us more entirely to his Influence and Direction; and thus make us conſpire, and move more in concert with the reſt of his Works, to accompliſh the great End of all things. In which our Happineſs and Perfection conſiſts; the Perfection of a ſingle Nature, ariſing in proportion as it contributes to that of the TO' ΠΑΝ.

ERRATA.

IN the Article *Angle*, Page 97. Column 1. Line ult. for *Centre* L, read *Centre* I.
Article Mean *Anomaly*, l. 10. inſert *Fig.* 64.
Article *Aſymptote* of a Logarithmic Curve, inſert *Fig.* 33.
Centre of Oſcillation, l. 11. for DEHB, r. DFHB.
Centripetal Force, l. 2. for *Fig.* 24. r. *Fig.* 25.
Centrobaryc, Corol. VI. for *divided into two* MD, r. *be biſected in* D, and for *m* O, r. *in* O.
Chord, p. 211. col. 2. l. 26. for *Fig.* 7. r. *Fig.* 6.
Circle, p. 221. col. 1. l. 27. for DE r. DP, and l. 36. inſert *Fig.* 7.
Circumſcribing, for *Fig.* 32. r. *Fig.* 29.
Commutation, l. 3. after *Earth* inſert *at* S, and for *Fig.* 24. r. *Fig.* 26.
Compaſſes, for *German Compaſſes* r. German *Compaſſes*.
Compoſition of Motion, l. 27. for *as far as e e*, r. *as far as t e*.
Conchilis, l. 7. for EE r. EF.
Cone, p. 300. col. 1. l. 13. for *Diameter of its Baſe*, r. *Diameters of its Baſes*.
Contact, l. 15. for *cuts* r. *touches*.
Crepuſculum, p. 344. l. penult. for *Sum of*, r. *Sun's*, and p. 345. l. 2. and 3. for, PZ *the Elevation of the Pole* PR, r. PZ *the Complement of the Elevation*, &c.
Curve, p. 361. col. 2. l. 26, and 59. for *Tab. Analyſis* r. *Tab. Geom.*
Cycloid, l. 4. for *Tab. Analyſis* r. *Tab. Geometry*.
Declinator, l. 25. for *Centre* E, r. *Centre* F.
Deſigning, l. 10. for *Fig.* 9. r. *Fig.* 15.
Diagonal, l. 77. for BS, r. BE.
Horizontal *Dial*, l. 9. for *Meridian Line* B, r. *Meridian Line* AB; and l. 16. for DC, r. DE, and l. 22. for *a* BC*d* H, r. *a b c d* H.
Eaſt *Dial*, l. 11. for AC, r. DC.
Primary *Dial*, l. 20. for EE, r. EF.
Line of *Diſtance*, for *Fig.* 10, and 11. r *Fig.* 12.
Diviſion in Lines, inſert *Tab. Geometry*, *Fig.* 17.
Eccentric, for *Fig.* 11. r. *Fig.* 1.
Equation, p. 335. col. 1. l. 15. for *given Poſition*, r. *given in Poſition*.
Flying, l. 20. for *Temporal Muſcles* r. *Pectoral Muſcles*.
Geocentric *Latitude*, l. 11. for, *e* T♀ r. *e t* ♀.
Latus Tranſverſum, for *Fig.* 5. r. *Fig.* 1. and for GLRO r. DLRO.
Logiſtic Spiral, for *Fig.* 11. r. *Fig.* 22.
Article Concave *Mirror*, Law II. after F inſert *Fig.* 34 *.
Paracentric Motion of Impetus, for *Fig.* 25. r. *Fig.* 24. and dele T.——*Paracentric* Solicitation of Gravity, dele *Fig.* 26.
Parallax of Longitude, for *Fig.* 28. r. *Fig.* 29.——*Parallax* of Aſcenſion, for 29. r. 28.
Parallelogram, l. 17. for *Fig.* 39. r. *Fig.* 41. and l. 19. for CH r. CD.
Particula Exſors, for *Augment* r. *Argument*.
Perſpective of a Triangle, l. 14. for *ſince a, b, and are the Appearances*, r. *ſince a, b, and c are the Appearances*.
Inclined *Plane*, Law IX. after AC inſert *Fig.* 58. and in the Corol. of the ſame Law inſert *Fig.* 60. and in Law XIII. for BAK r. FG.
Projectile, Law III. after *deſcribe a Parabola* dele *in a Medium uniformly reſiſting*.
Pump, Artic. Structure of a Forcing Pump, l. 1. for *in a Cylinder* r. *a Cylinder*.
Pyramid, l. 70. for DF r. DE.
Sinical *Quadrant*, l. 2. inſert *Fig.* 18.
Quadrature of the Ellipſis, l. 2. for *Circle*, r. *Curve*.
Rectangle, l. 22. for *Fig.* 41. r. *Fig.* 61.
Rectification of a Parabola, for *Conjugate Axes* r *Conjugate Semiaxes*; and after *Hyperbolic Space*, add CQMA.
Rectification of the Cycloid, l. 1. inſert *Fig.* 27.
Reduction of a Figure, l. 11. for *Fig.* 64. r. *Fig.* 65.
Refraction, l. 9. for B, r. F.
Retrogradation of the Sun, l. 2. for AN, r. AM.
Rhomb, Article I. inſert *Fig.* 19.
Screw, Art. IV. for *to be applied in* K, r. *to be applied in* D.
Sculpture in Marble, after *another Plummet like that of the Model*, inſert *Tab. Miſcellany*, *Fig.* 2.
Secant, l. 4. for *Circle* B, r. *Circle in* B.
Sector, p. 45. col. 1. l. 41. for *Lines* r. *Sines*.
Sine, p. 81. col. 1. l. 63. for *the Arch* EFC, r. *the Arch* FC.
Sine-Complement, l. 2. for AE, r. AH.
Solid Angle, l. 3. for *Fig.* 30. r. *Fig.* 31.
Star, p. 122. col. 2. l. 20. for *Fig.* 31. r. *Fig.* 7. and l. 24. for *the Star* C *deſcribing an equal Arch* CDH, r. *the Star* D *deſcribing an Arch equal to* CDH.
Triangle, p. 242. col. 2. l. 41. for AC, r. BC.

N. B. *The Figures relating to each Art are placed fronting the Name of the reſpective Art, in the Body of the Book; and are refer'd to under that Title: as, Tab.* Architecture, *Tab.* Geometry, *&c.—To each* Figure *is alſo annex'd the* Word *for whoſe Exemplification it ſerves: So that the Reader may either go from the Word to the Figure, which exemplifies it; or backwards, from the Figure, to the Word which explains it.*

A LIST of the SUBSCRIBERS.

A.

HIS Grace the Duke of *Athol*.
The Right Hon. the Lord *Abergavenny*.
The Right Hon. the Lord *Arrundale*, of *Trerice*.
Sir *Jacob Ackworth* Kt. Surveyor of the Navy.
Sir *John Anstruther* of *Anstruther*, Bar.
Thomas Archer Esq;
William Archer Esq;
Dingley Askham Esq;
Dr. *Allen*. Mr. *Asgill*.
Mr. *Oliver Acton*, Attorney at Law, seven Books.
The Rev. *James Anderson* M.A. of *Swallow-street*, *St. James's*.
Major *Seth Adams*.
Mr. *Ansdell*, Bookseller in *Leverpool*.
Mr. *Samuel Aris*, Printer.
Mr. *Eleazer Albin*, Painter.
Mr. *Abraham Ashworth* in *Durham*.

B.

THE Right Hon. the Earl of *Berkshire*.
The Rt. Hon. the Earl of *Burlington*.
The Right Hon. the Lord *Belhaven*.
The Right Hon. the Lord *Binning*.
The Right Hon. *George Baillie*, Esq;
The Hon. Mr. *Bruce*.
The Hon. *Alexander Brodie* of *Brodie*, Esq; Lord Lyon.
John Blaxland of *Grays-Inn*, Esq;
George Bagnal Esq;
Richard Backwell jun. Esq;
Samuel Buckley Esq;
Henry Barham Esq; F.R.S.
Anthony Balam Esq;
John Blackwood Esq;
John Busby Esq; F.R.S.
John Bamber, M.D. F.R.S.
The Rev. Mr. *John Benson*.
The Rev. Mr. *Bowen*.
The Rev. Mr. *Baron* of *Wanstead*.
The Rev. Mr. *Edmund Banyer*.
Dr. *Brown*.
Edward Barry M.D.
Mr. *Charles Burd*, Attorney at Law.
Mr. Alderman *Bennet* of *Cork*, 7 Books.
Mr. *John Brown* Chymist, F.R.S.
Mr. *John Beavis*.
Mr. *George Binckes* of *Covent-Garden*.
Mr. *Peter Brown*.
Mr. *William Bonner* of *Cambridge*, Bookseller.
Mr. *Nicholas Blomberg*.
Mr. *Job Bradley*, Bookseller at *Chesterfield*.
Mr. *William Brown* in *Edinburgh*.

C.

THE Most Reverend His Grace *Timothy Goodwin*, Lord Archbishop of *Cashels*.
The Right Hon. the Marquis of *Carmarthen*.
The Right Hon. the Lord *Carmichael*
The Right Hon. the Lord *Colvill* of *Culross*.
The Right Hon. the Lord *Crighton*.
Sir *Archer Croft*, of *Croft-Castle* in *Herefordshire*, Baronet.
Sir *Alexander Cuming*, Baronet.
Sir *James Colquhoun* of *Luss*, Bar.
Sir *Duncan Campbell* of *Lochnell*, Bar.
Sir *James Campbell* of *Aberruchill*, Bar.
Sir *James Campbell* of *Auchenbrook*, Bar.
The Hon. Col. *Thomas Cornwallis*.
The Hon. Col. *Charles Cathcart*, Groom of the Bedchamber to his Majesty.
The Hon. Col. *John Campbell* jun. of *Manove*.
William Cartwright Esq;
Charles Crispe of *Dornford* in *Oxfordshire*, Esq;
Anthony Collins Esq;
John Campbell of *Stackpole Court* in *Pembrokeshire*, Esq;
—— *Collins* Esq;
John Crewe jun. of *Crewe Hall* in *Cheshire*, Esq;
Henry Ludlow Coker Esq;
John Clarke Esq;
Colin Campbell Esq;
Henry Cunningham Esq;
Daniel Campbell of *Shawfield*, Esq;
James Cockburn Esq;
Robert Cunyngham of *St. Christophers*, Esq;
The Rev. *Robert Camell* L.L.D. Rector of *Bradwell* in *Suffolk*.
The Reverend Dr. *Clarke*.
The Rev. Mr. *Joseph Charles*, Rector of *Swaffham* in *Norfolk*.
The Rev. Mr. *Joseph Collett*.
The Rev. Mr. *John Colson*, F. R. S. seven Books.
William Cockburn M.D. F.R.S.
Cadwallader Colden of *New York*, M.D.
Mr. *S. Cranmer* of *London*, Goldsmith.
Mr. *John Currier*. Mr. *Crotty*.
Mr. *W. Cossley* of *Bristol*, Bookseller.
Mr. *R. Clements* of *Oxford*, Bookseller.
Mr. *J. Carlos*, Bookseller in *Norwich*.
Mr. *John Christian*.
Mr. *John Cook* of *Sherborn*.
Mr. *John Carpenter*.
Mr. *Joseph Crew*.
Mrs. *Martha Clayton*, Bookseller in *Manchester*.

D.

HIS Grace the Duke of *Devonshire*.
The Right Hon. *James* Earl of *Derby*.
The Right Hon. the Earl of *Dundonald*.
The Right Hon. the Lord *Edward Drummond*.
The Hon. Lieut. Gen. *Robert Dalzeel*.
The Hon. Col. *Charles Dubourgay*.
George Drummond Esq;
Montague Gerrard Drake Esq;
George Dickins of *Leverpool*, M.D.
James Douglas, M.D. F.R.S.
Thomas Dutton Gent.
The Reverend *William Derham* M.A. Canon of *Windsor*, and F.R.S.
The Rev. Mr. *William Dormer*.
Mr. *James Deacon* of the Customhouse.
Mr. *William Doughty*, Attorney at *Grantham*.

E.

THE Rt. Hon. Sir *Robert Eyre*, Lord Chief Justice of the Common Pleas.
Sir *Gilbert Elliot*, Baronet.
Sir *Joseph Eyles* Kt.
John Ecton Esq;
Mrs. *Everard* in *Newport* in the *Isle of Wight*.

F.

THE Rt. Hon. the Lord *Foley*.
The Hon. Mr. Justice *Fortescue*.
William Freke Esq;
Coulson Fellowes Esq;
Mr. *Benjamin Fuller*.
Mr. *Abraham Fowler* of *London*, Goldsmith.
Mr. *Daniel De Foe*, jun.

G.

THE Right Hon. the Earl of *Galloway*.
The Right Hon. the Lord Viscount *Gallway*.
The Right Hon. the Lord *Glenorchy*.
Sir *William Gordon*, Bar.
Sir *Archibald Grant*, Bar.
The Hon. *James Grant* of *Grant*, Esq;
Thomas Graham Esq; Apothecary to his Majesty.
Nicholas Graham of *Gartmore*, Esq;
Alexander Gordon of *Pitlurg*, Esq;
John Godfrey, of *Norton Court* in *Kent*, Esq;
William Gibbons, of the *Middle Temple*, Esq;
John Green Esq;
Joseph Gascoigne Esq;
R. Graham Esq;
Roger Gale Esq;
Edmund Glenister Esq;
The Reverend Mr. *Gerard de Gols*, Rector of *Sandwich*.
The Rev. *John Geale* M.A. Vicar of *Bishops-Lydeard* in *Somersetshire*.
Randolph Greenway jun. of *Thavies Inn*, Gent.
Capt. *Alexander Geddes*.
Mr. *Thomas Gell*.
Mr. *Francis Gibson*.
Mr. *Francis Gore*.

H.

HIS Grace the Duke of *Hamilton*.
The Right Hon. the Earl of *Heynford*.
The Rt. Hon. the Earl of *Haddington*.
The Right Hon. the Countess of *Hartford*.
Sir *Charles Hotham*, Bar.
Sir *Harry Houghton*, Bar.
Sir *James Hall* of *Dunglass*, Bar.
Sir *Thomas Bruce Hope*, Bar.
His Excellency Major Gen. *Hunter*, Governor of *Jamaica*.
His Excellency Col. *John Hope*, Governor of *Bermudas*.
The Hon. Col. *Samuel Horsey*.
The Hon. *Phil. Howard* of *Norfolk*, Esq;
John Hedworth Esq;
Maurice Hunt Esq;
Edward Harley jun. Esq;
Charles Hyett Esq;
William Hucks Esq;
Hewer Edgley Hewer Esq;
Tempest Holmes Esq; Commissioner of the Navy.
Henry Harington, of *Kelston* in *Somersetshire*, Esq;
The Rev. *Daniel Hill* D.D.
The Rev. *Stephen Hales*, B.D. F.R.S.
The Rev. Mr. *William Hyde*, Vicar of *Sutton* in *Lincolnshire*.
The Rev. Mr. *John Husband*, Vicar of *Tottenham-High-Cross*.
The Rev. Mr. *Edward Henwood*.
The Rev. Mr. *John Henley*.
The Rev. *John Higgate* M.A.
William Hillary of *Rippon*, M.D.
Mr. *William Hird* of *Woodhouse*.
Mr. *Benjamin Holloway* of *Winchester*.
Mr. *Henry Hicks* of *Covent-Garden*.
Mr. *John Hulls*.
Mr. *John Howard*, Surgeon.

I.

SIR *Henry Innes* of *Innes*, Baronet.
Sir *Thomas Jones*, Kt. Register for the County of *Middlesex*.
The Hon. *James Johnston* Esq;
John English Esq; Assistant Master of the Ceremonies.
Philip Jones Esq; *York* Herald at Arms.
Charles Jennens Esq;
Charles Jennens jun. Esq;
William Jones Esq;
Thomas Jones Esq;
William Johnson Esq;
Pelham Johnston M.D.
The Rev. Mr. *James Jones*, Rector of *Cound*.

The

The Rev. *William Johnston*, Rector of *St. Andrews* in *Jamaica*.
Martin Innys of *Briſtol*, Gent.
Mr. *Edward Jones* of *Briſtol*, Merch.
Mr. *Jeremy Innys* of *Briſtol*, Merch.
Mr. *Stephen Theodore Janſſen* of *London*, Merchant.
Mr. *Michael Johnſon* of *Litchfield*.

K.

THE Right Hon. *Gerard de Courcy*, Lord *Kingſale*.
The Hon. Mr. *Kreienberg*.
Thomas Knight Eſq;
Thomas Kennedy Eſq; Collector of the Cuſtoms at *Exeter*.
Abel Kettelbey of the *Middle Temple*, Eſq;
Mr. *J. Knowlton* of *Leighton Beaudeſart*.
Mr. *Moſes Kendall*.
Mrs. *Kennon*.

L.

THE Right Hon. the Earl of *Lauderdale*.
Sir *Berkley Lucy*, Baronet.
Richard Lely Eſq;
Richard Lyddell Eſq;
Henry Lawtôn of *Lincolns-Inn*, Eſq;
Corbyn Lygon of *Maddersfield* in *Worceſterſhire*, Eſq;
The Reverend Mr. *Luſkin*.
Mr. *Lunde* of *Briſtol*.
Mr. *William Laurie* of *Bridgwater*.
Mr. *Richard Liſett*, Attorney at Law.
Mr. *James Logan* of *Penſylvania*.
Mr. *James Leake*, Bookſeller in *Bath*.
Mr. *J. Leech*, Bookſeller in *Knutsford*.
Mr. *S. Lobb*, Bookſeller in *Chelmsford*.
Mrs. *Lomax*.

M.

HIS Grace the Duke of *Montague*.
HisGrace the Duke of *Montroſe*.
His Excellency *Alexander* Earl of *Marchmont*, his Majeſty's Ambaſſador Extraordinary and Plenipotentiary to the Congreſs at *Cambray*.
The Right Hon. the Earl of *Macclesfield*.
The Right Hon. the Lord *Middleton*.
The Right Hon. the Lord *Minto*.
His Excellency *John Montgomery* Eſq; Governor of *New York*.
Dr. *John Burchard Menckenius*, Counſellor to the King of *Poland*, and Profeſſor at *Leipſick*, F.R.S.
Sir *George Markham*, Baronet.
Sir *John Mitchel* of *Weſt-ſhore*, Bar.
Sir *Richard Manningham* M.D. F.R.S.
The Hon. *Samuel Molyneux* Eſq;
The Hon. *Thomas Maynard* Eſq;
The Hon. Col. *Robert Monro*.
Morgan Morgan of *Llaurumny* in *Monmouthſhire*, Eſq;
John Maine Eſq; of the Cuſtom-houſe.
Alexander Murray of *Broughton*, Eſq;
William Macdowall Eſq;
William Morgan Eſq;
John Mulcaſter of *Whitehall*, Eſq;
John Manley Eſq; of the Cuſtomhouſe.
William Morrice Eſq;
Thomas Maſter of *Cirencester*, Eſq;
George Mitchell Eſq;
The Rev. Dr. *Middleton*, of *Cambridge*
The Reverend Dr. *Robert Maxwell*.
The Reverend Mr. *John Maxwell*.
Colin Mac Laurin, M.A. Profeſſor of Mathematicks at *Edinburgh*, F.R.S.
Mr. *John Machin*, Profeſſor of Aſtronomy at *Greſham College*.
Robert Michel, M. A.
Mr *John Baptiſt Meyer*, Merchant.
Mr. *Richard Moore* of *Hull*, 7 Books.
Mr. *Philip Miller*, of the Phyſick-Garden, *Chelſey*.
Mr. *John Markham*, Apothecary.
Mr. *Collet Mawwood*.
Mr. *John Mitton*.
Mr. *John Chriſtopher Martini*.

N.

THE Rt. Hon. the Lord *Napier*.
The Hon. Governor *Nicholſon*.
Gawen Harris Naſh Eſq;
Ralph Noden Eſq;

O.

THE Right Honourable the Earl of *Oxford*.
The Right Hon. the Earl of *Orrery*.
John Orlebar of the *Middle Temple*, Eſq;
The Reverend Mr. *George Osborne*.
Mr. *Thomas Ollyff*.
Mr. *John Owen* of *Hemſtead*.

P.

THE Rt. Hon. the Earl of *Portmore*.
The Rt. Hon. the Lord *Primroſe*.
Sir *John Pryce*, Baronet.
Sir *Thomas Parkins* of *Bunny* in *Nottinghamſhire*, Baronet.
Sir *Robert Pollock* of *Pollock*, Baronet.
Sir *Robert Pye*, Baronet.
The Honourable Mr. Juſtice *Powys*.
John Pringle of *Hanning*, Eſq;
John Porter Eſq;
Richardſon Pack of *Bury St. Edmonds*, Eſq;
Edward Paulet Eſq;
David Papillon Eſq;
John Powel, M. D.
The Reverend Dr. *George Pye*.
The Reverend Mr. *John Pitcairne* of *Great Yarmouth*.
Mr. *William Pepys*.
Mr. *Chriſtopher Pinchbeck*, Clockmaker.
Mr. *Samuel Pratt*.
Mr. *James Pratt*.

Q.

HIS Grace the Duke of *Queensberry*.

R.

HIS Grace the Duke of *Roxburgh*.
Sir *Thomas Renton*, Baronet.
Philip Ronayne Eſq;
Thomas Robinſon of *Rookby Park* in *Yorkſhire*, Eſq; F.R.S.
Richard Reynolds of the *Inner Temple*, Eſq.
John Rogers Eſq;
The Rev. Mr. Archdeacon *Ruſſel*.
The Reverend Dr. *Rundle*.
Dr. *Robinſon*.
Mr. *John Martin de Rhon*.
Mr. *James Rocke* of *London*, Goldſmith.
Mr. *John Robarts*.
Mr. *Thomas Reddal* of *Everſholt* in *Bedfordſhire*.

S.

THE Rt. Hon. the Earl of *Stairs*.
The Right Hon. the Earl of *Strafford*.
The Right Hon. the Earl of *Stafford*.
The Right Hon. the Lord *Somerville*.
The Right Hon. the Lord *St. John*.
The Right Hon. the Lord *St. John de Bletſoe*.
The Right Hon. the Lord *Southwell*.
Sir *Philip Sydenham*, Baronet.
Sir *Robert Smyth*, Baronet.
Sir *George Sanders*, Kt. Commiſſioner of the Victualling Office.
Sir *Walter Senſerf*.
Sir *John Smith*.
Sir *Conrad Sprengell*, M. D. F.R.S.
Alexander Steuart, M.D F.R.S.
James Steuart of *Torrence*, Eſq;
Thomas Skeffington of *Skeffington* in *Leiceſterſhire* Eſq;
Thomas Salt Eſq;
William Singleton Eſq.
John Stephens Eſq;
Samuel Strode of *Punsborne* in *Hertfordſhire*, Eſq;
William Scourfield jun. of *Moat* in *Pembrokeſhire*, Eſq;
Thomas South Eſq;
James Smith Eſq;
Dr. *Iſaac de Sequera Samuda*, F.R.S.
Dr. *John George Steigertahl*, F.R.S.
Peter Short of *Lindfield* in *Suſſex*, Gent.
John Skinner of the *Poultrey*, Gent.
John Silk Gent.
William Symmonds Gent.
Mr. *John Seaſle*, Proctor in Doctors Commons.
Mr. *George Smith*, Clerk of the City Works.
Mr. *John Stone*, Apothecary.
Mr. *Joſeph Stevens* of *High Wickham*.
Mr. *Thomas Sharret*.
Mr. *Robert Salter*.
Mr. *Jonas Sedgley*.

T.

THE Right Honourable the Lord *Trevor*, Lord Privy Seal.
The Right Hon. the Marquis of *Tweedale*.
The Right Honourable the Earl of *Tankerville*.
The Right Hon. the Lord Viſcount *Torrington*.
The Right Hon. the Lord *Tarbat*.
The Right Hon. *Richard Tighe*, Eſq; one of the Privy Council in *Ireland*.
The Honourable *Thomas Trevor*, Eſq;
The Honourable *John Trevor*, Eſq;
Cholmley Turner of *Kirkleatham*, Eſq;
Edmund Turner Eſq;
John Topp of the *Inner Temple*, Eſq;
John Thornhill Eſq;
John Threſher of the *Middle Temple*, Eſq;
William Triggs of the *Inner Temple*, Eſq;
Richard Taylor Eſq;
Brook Taylor L.L.D. F.R.S.
Mr. *Thomas Bacon Townſend*.

V.

GEorge *Venables Vernon* Eſq;
Mr. *Richard Vicke*, Watchmaker to his Majeſty.

W.

THE Rt. Hon. the Earl of *Wemys*.
Sir *Anthony Weſcombe*, Bar.
The Hon. Sir *Thomas Wentworth*, of *Wentworth Houſe Yorkſhire*, Kt. of the *Bath*.
Sir *George Walter*, Kt.
The Hon. *Thomas Willoughby* Eſq;
Knox Ward Eſq; Clareoeieux King of Arms.
John Warburton Eſq; *Somerſet* Herald at Arms, and F.R.S.
George Wynne of *Leefwood*, Eſq;
Thomas Weſtern Eſq;
Edward Webb of *Grays-Inn*, Eſq;
John Williams Eſq;
Francis Wollaſton Eſq;
Granville Wheler Eſq;
William Walter Eſq;
John Wigan M.D.
William Woodford M.D.
Mr. *Weſton*, of the Academy at *Greenwich*.
Mr. *Thomas Watts*, of the Academy in *Tower-ſtreet*.
Mr. *Samuel Warner*, Mathematician.
Mr. *William Weſt* of *Covent-Garden*.
Mr. *Elijah Waring* of *Whitney*.
Mr. *John Wagborn*, Bookſeller in *Durham*.
Mr. *Richard Warner*.
Mr. *Thomas Warren*, Bookſeller in *Birmingham*.

THIS Dictionary making 512 Sheets and an half, is reckon'd to the Subſcribers at *Four Guineas*, tho it comes to ſomething more at 2 *d. per* Sheet, according to the Propoſals; without computing the Cuts, which are all given in.

CYCLOPÆDIA:

OR AN

UNIVERSAL DICTIONARY

OF

ARTS and SCIENCES.

A

A, A Vowel, and the first Letter of the *English* Alphabet. See LETTER, VOWEL, and ALPHABET; *where what relates to A, consider'd in each of those Capacities, is deliver'd.*

The Grammarians will needs have *A* the first Letter in all Languages; and some of 'em assign a natural Reason for it, *viz.* that it is the most simple, and the easiest pronounc'd of all articulate Sounds. To confirm this, *Jul. Scaliger* observes, that *A* is the first Sound Nature puts forth at the crying or smiling of Infants; and that it needs no other Motion to form it, but a bare opening of the Lips. See VOICE.

Covarruvias, refining on this Sentiment of *Scaliger*, observes, very gravely, that the first Sound put forth by Boys is *A*; but that Girls first put forth E; each pronouncing the initial Letter of the Name of the first Parent of its respective Sex. Dr. *Littleton*, setting *Adam* aside, makes the one speak the final, and the other the initial Letter of the Name of the Mother of Mankind, *EvA*.

But 'tis in vain that Authors compare the *A* of the *English*, *Latin*, *French*, &c. with the *Aleph* of the *Hebrews*, or the *Eliph* of the *Arabs*. Those two Letters have no Conformity with our *A*, except in this, that they are the first of their several Alphabets. What sets 'em far asunder, is, that these Oriental *A*'s are not Vowels. See VOWEL.

Some Criticks take the Hebrew *Aleph* to be neither Vowel, nor Consonant, but what the Grammarians call an *Aspirate*, or *pneumatic* Letter; like the H in the *Latin* and our Language: adding, that S. *Jerom* appears to have had the same Thought, who probably learnt it from the *Jews* of the School of *Tiberias*. But the Jesuits *de Trevoux* give the thing another Turn: Those Fathers have prov'd that the Hebrew *Aleph*, Arabic *Eliph*, and Syriac *Oleph*, are real Consonants; and that the same holds of all the other Aspirates. This is a Paradox in Grammar; but 'tis not the less true for being a Paradox. See ASPIRATE, and CONSONANT.

Of all the Letters, *A* is observ'd to be that which dumb Persons are soonest taught to pronounce. The Reason is, that it does not depend on the Muscles, and other Organs of the Mouth, and Tongue, which are generally wanting in Mutes; but on those of the Throat and Nose, which they commonly have. See DUMBENESS.

This first, simplest Sound, yet serves us to express most of the Movements of the Soul. 'Tis so much the Language of Nature, that upon all sudden and extraordinary Occasions, we are necessarily led to it, as the Instrument readiest at hand. With this we speak our Admiration, Joy, Anguish,

A

Aversion, Apprehension of Danger, &c. Where the Passion is very strong, we frequently heighten the *A*, by adding an Aspirate, *Ah*. See INTERJECTION.

'Tis observ'd of the *English* Pronunciation, that we speak the *a* with a slenderer, and more puny Sound than any of our Neighbours: Ordinarily, 'tis scarce broad enough for a French *e* Neuter; and comes far short of the gross *a* of the *Germans*, which wou'd make our *au*, or *aw*, or *o*. In some Words, however, as *talk*, *wall*, *stall*, &c. the *a* is broad, and deep enough. But this, 'tis observ'd, may not be the mere Sound of *a*; but the Effect of the antient Orthography, which, as low as Q. *Elizabeth*, added an *u* to the *a*, and wrote *taulk*, &c.

The *Romans* laid a mighty Stress on their *a*; and distinguish'd exactly, both in writing and speaking, when it was long, and when short. To denote it long, they first wrote it double, *Aala*, for *Ala*; which not being enough, they inserted an *h* between 'em, *Ahala*: At length they fell to the common long Accent ā*la*, or *Ala*. See ACCENT.

A was one of the Numeral Letters among the Antients, and signify'd 500. With a Dash atop, $\bar{A}$, it stood for 5000. See CHARACTER.

Baronius gives us a Set of antient Technical Verses, wherein the Numeral Value of each Letter of the Alphabet is express'd; whereof this is the first.

Possidet A numeros quingentos, ordine recto.

But we shall here observe, once for all, that it was not strictly among the Antients that this Use of Numeral Letters had place, as is commonly suppos'd. *Isidore Hispalensis*, an Author of the VIIth Century, affirms it expressly: *Latini autem Numeros ad Litteras non computant.* The Usage was really introduc'd in the Days of Barbarism. M. *du Cange*, explaining what that Usage was, at the beginning of each Letter of his *Glossary*, the generality of Dictionary-Writers, who take it from him, mistake him. The account, they all say, is found in *Valerius Probus*: whereas *du Cange* says no such thing; but only that it is found in a Collection of Grammarians, among whom are *Valerius Probus*, and *Petrus Diaconus*. *Habetur verò illud cum Valerio Probo, Paulo Diacono*, (it should rather have been *Petro*) *& aliis qui de numeris scripserunt, editum inter Grammaticos antiquos.* See NUMERAL.

A is also us'd in the *Julian* Calendar, as the first of the seven Dominical Letters. See DOMINICAL.

It had been in use among the *Romans* long before the Establishment of Christianity, as the first of the eight *Nundinales Litteræ*; in imitation whereof it was, that the Dominical Letters were first introduc'd. See NUNDINAL.

A is also an Abbreviature, us'd in divers Arts, and with divers Intentions. See ABBREVIATURE. Thus,

Among *Logicians*, *A* is us'd to denote an universal Affirmative Proposition; according to the Verse,

Asserit A, negat E, verùm generaliter Ambæ.

Thus, in the first Mood, a Syllogism consisting of three universal Affirmative Propositions, is said to be in *Bar-ba-ra*; the *A* thrice repeated, denoting so many of the Propositions to be universal, &c. See MOOD, BARBARA, &c.

Among the *Romans*, *A* was us'd in the giving of Votes, or Suffrages. When a new Law was propos'd, each Voter had two wooden Ballots put in his Hand; the one mark'd with a Capital *A*, signifying *Antiquo*, q. d. *Antiquam volo*; and the other with *V.R.* for *Uti rogas*. Such as were against the Law passing, cast the first into the Urn, as who should say, *I refuse it*, *I antiquate it*; or I like the antient Law, and desire no Innovation. See SUFFRAGE, CENTURY, &c.

In the Trials of Criminal Causes, the same Letter *A* denoted *Absolution*: whence *Cicero*, *pro Milone*, calls *A*, *Littera salutaris*, a Saving Letter. Three Ballots were distributed to each Judge, mark'd with the Letters, *A* for *Absolvo*, *C* for *Condemno*, and *N. L.* for *Non Liquet*, It is not clear. From the Number of each cast into the Urn, the Prætor pronounc'd the Prisoner's Fate. If they were in equal number, he was absolv'd. See ABSOLUTION, CONDEMNATION, &c.

In the antient *Inscriptions* of Marbles, &c. *A* occasionally stands for *Augustus*, *Ager*, *Aiunt*, &c. When double, it denotes *Augusti*: and when triple *Auro*, *Argento*, *Ære*. *Isidore* adds, that when it occurs after the Word *Miles*, it denotes him young. See INSCRIPTION.

On the Reverse of antient *Medals*, *A* denotes 'em struck by the City *Argos*. And among the later Coins, the same Letter is the Mark of *Paris*. See MEDAL, COIN, MONEY, &c.

Among *English* Writers, *A* is ordinarily us'd for *Anno*, as *A.D. Anno Domini*; for *Artium*, as *A.M. A.B.* &c. See CHARACTER.

Among Physicians, $\bar{a}$ or $\overline{aa}$, is us'd in Prescription for *Ana*; to denote an equal Portion of divers Ingredients, whether in respect of Measure or Weight. See ANA.

Thus, ℞ *Sal. Volat. Oleos. Tinct. Croc.* $\overline{aa}$ ℥ss. expresses *Sal Volatile Oleosum, and Tincture of Saffron, of each half an Ounce.*

The same $\bar{a}$ or $\overline{aa}$ is also us'd in the like Sense, without expressing any limited Quantity or Weight: Thus, $\bar{a}$ or $\overline{aa}$ *P.Æ.* denotes simply, *equal Parts* of the Ingredients there mention'd.

Lastly, among Chymists, *A A A* signify an *Amalgama*, or the Operation of *Amalgamating*. See AMALGAMATION.

ABACTOR, a barbarous *Latin* Word, retain'd in our Dictionaries as a Law-Term, tho never yet naturaliz'd, nor its Idea agreed on.

Literally, it imports the same with *Abigeus*, or as others write it, *Abigevus*, or *Abigens*; form'd of *Abigo*, I drive away, *q. d. a Driver of Cattle.*

Technically, it is us'd to denote a *Thief*; but with something particular in the manner of his Crime, to distinguish it from *Furtum*, or common Theft. 'Tis generally suppos'd to be one who steals, or drives off Cattel by Herds, or great Numbers: Thus *Bracton*, L. iii. c. 6. *Si quis suem surripuit, fur erit; & si quis gregem, Abigevus.* See THEFT.

Others will have *Abactors* to be strictly those who drive off Cattel openly, and by main Force. In the former Sense, the Act of *Abaction* amounts to the *Abigeat*, and in the latter to the *Rapina* of the Civilians.

But the Distinction between *Fur* and *Abactor* has now no place among us.

So, among the antient Physicians, *Abactus* was us'd for a Miscarriage procur'd by Art, or force of Medicines; in contradistinction to *Abortus*, which is Natural. But the Moderns know no such distinction. See ABORTION.

ABACUS, among the Antients, was a kind of Cupboard, or Buffet. See BUFFET.

In this Sense *Livy*, describing the Luxury into which the *Romans* degenerated after the Conquest of *Asia*, says, They had their *Abaci*, Beds, &c. plated over with Gold. *Dec.* IV. *Lib.* ix.

The Word is *Latin*, but form'd from the *Greek*, ἄβαξ; which among that People signify'd the same thing. *Guichart* goes higher: He derives ἄβαξ, from the *Hebrew* אבך, *extolli*, to be elevated, rais'd; and supposes its primary Signification to be a *high Shelf*, or other Convenience for things to be laid upon out of the way.

ABACUS was particularly us'd among the Mathematicians, for a little Table strew'd o'er with Dust, on which they drew their Schemes and Figures. And hence the

ABACUS *Pythagoricus*, a Table of Numbers, contriv'd for the ready learning of the Principles of Arithmetic; denominated from its Inventor *Pythagoras*.

Hence also, from an Agreement in point of Use, the Names *Abacus* and *Abaco*, are us'd among the *English* and *Italians* for an *Alphabet*, or A B C, &c.

The *Abacus Pythagoricus* was, in all probability, no other than what we call *Multiplication-Table*. See TABLE.

Ludolfus and *Wolfius* give us Methods of performing Multiplication without the help of the *Abacus*; but they are too operose in ordinary Cases for Practice. See MULTIPLICATION.

ABACUS, in Architecture, is the uppermost Member of the Capital of a Column; serving as a kind of Crowning, both to the Capital and the whole Column. See COLUMN.

Dr. *Harris*, and the rest of the Dictionary-Writers, make the *Abacus* to be the Capital it self; which is altogether as just, as to make the Crown of the Head the whole Head. See CAPITAL, and CROWNING.

Vitruvius, and others after him, who give the History of the Orders, tell us, the *Abacus* was originally intended to represent a square Tile laid over an Urn, or rather over a Basket. An *Atheman* old Woman happening to place a Basket thus cover'd over the Root of an Acanthus; that Plant shooting up the following Spring, encompass'd the Basket all around, till meeting with the Tile, it curl'd back in a kind of Scrolls. An ingenious Sculptor passing by, took the Hint, and immediately executed a Capital on this Plan; representing the Brick by the *Abacus*, the Leaves by the Volutes, and the Basket by the Vase, or Body of the Capital. Such was the Rise of the first regular Order. See ORDER, ACANTHUS, VOLUTE, CORINTHIAN, &c.

There is some difference in the Form of the *Abacus* in different Orders. In the *Tuscan*, *Doric*, and antient *Ionic*, it is a flat, square Member, well enough representing its original Tile; whence the *French* call it *Tailloir*, Trencher. See TUSCAN, DORIC, and IONIC.

In the richer Orders it has lost its native Form; its four Sides, or Faces, being arch'd, or cut inwards; with some Ornament, as a Rose, or other Flower, or Fishes Tail in the middle of each Arch. See CORINTHIAN, and COMPOSITE; see also FLOWER, &c.

But some Architects take other Liberties in the *Abacus*, both in respect of its Name, Place, and Office. Thus, in the *Tuscan* Order, where it is the largest and most massive, as taking up one third of the height of the whole Capital, it is sometimes call'd the *Die* of the Capital.——In the *Doric* 'tis not always the uppermost Member of the Capital; a Cymatium being frequently placed over it.—In the *Ionic*, some make it a perfect Ogee, and crown it with a Fillet. See DIE, CYMATIUM, OGEE, &c.

Add, that the *Abacus* is not constantly restrain'd to the Capital of the Column; *Scamozzi* using the Name for a concave Moulding in the Capital of the *Tuscan* Pedestal. See PEDESTAL.

ABAFT, in the Sea Language, denotes the *Stern*, or Hind-part of a Vessel; call'd also *Aft*. See AFT.

The Stern, strictly speaking, is only the Outside; *Abaft* includes both inside and out. See STERN.

ABALIENATIO, in the *Roman* Law, is a Term scarce us'd in any *English* Writer; tho our Dictionaries would pass it for *English*. Indeed, it is not very common among the *Latins*. The usual Term among them was *Alienatio*; and in our Language *Alienation*. See ALIENATION.

ABAPTISTON, or ANABAPTISTON, a Name antiently given to an Instrument in Chirurgery, by the modern Writers call'd *Trepan*, *Modiolus*, *Terebra*, *Terebellum*, and *Trafine*. See TREPAN, MODIOLUS, &c.

The Word is a mere Stranger in our Language. It seems to be one of those Exoticks imported by the Dictionaries; and never taken notice of but by themselves.

ABARTICULATION, in Anatomy, is represented by *Blanchard*, and other Lexicographers after him, as synonymous with *Diarthrosis*: but the Definition they give of it, does not quadrate with that Notion.

'*Abarticulation*, or *Dearticulation*, say they, is a good 'Constitution of the Bones, whereby they become dispos'd 'to move strongly and readily.' But what this should mean, it were hard precisely to say. See DIARTHROSIS.

ABASING, literally denotes the taking a thing down, or bringing it lower.

In this Sense the Word is us'd at Sea; where, *to abase* a Flag, is to lower, or take it in, as a Token of Submission and Inferiority. See FLAG.

By an Ordonnance of *Philip* II. King of *Spain*, the Captains are peremptorily enjoin'd, rather to perish than *abase* the Royal Flag.

ABASED, *Abaisse*, in Heraldry, is applied to the Vol, or Wings of Eagles, &c. when the Tip, or Angle looks downward toward the Point of the Shield; or when the Wings are shut: The natural way of bearing 'em being spread, with the Tip pointing to the Chief, or the Angles. See VOL.

A Chevron, a Pale, Bend, &c. are also said to be *abased*, when their Points terminate in, or below the Centre of the Shield. See CHEVRON, PALE, &c.

Again, an Ordinary is said to be *abased*, when below its due Situation. Thus, the Commanders of the Order of *Malta*, who have Chiefs in their own Arms, are oblig'd to *abase* 'em under those of the Religion.

ABATEMENT,

ABATEMENT, in Heraldry, something added to a Coat-Armour, to diminish its proper Value and Dignity, and note some dishonourable Action, or Stain in the Character of the Person who bears it. See ARMS.

'Tis a little controverted among Authors, whether Heraldry allows of any such thing as regular *Abatements*. *Leigh* and *Guillim*, without any Scruple as to their Reality, give us several Kinds.

Abatements, according to the last of those Writers, are either made by Reversion or Diminution.

Reversion is either turning the whole Escutcheon upside-down; or the adding another Escutcheon, inverted, in the former.

Diminution, is the blemishing any part by adding a Stain, or Mark of Diminution: Such are a *Delf*, a *Point Dexter*, a *Point Champaign*, a *Plain Point*, a *Goar Sinister*, and a *Gusset*. See each under its proper Article, DELF, *Point* DEXTER, GOAR, GUSSET, *&c.*

It may be added, that these Marks must always be either Tawny, or Murrey; otherwise, instead of Diminutions, they become Additions of Honour. See TAWNY, MURREY, *&c.*

The last Editor of *Guillim* discards the whole Notion of *Abatements*, as a Chimera. He alledges, that no one Instance is to be met withal of such Bearing; and that it implies a Contradiction to suppose it. Arms, being *Insigna Nobilitatis & Honoris*, cannot admit of any Mark of Infamy, without ceasing to be Arms, and becoming Badges of Disgrace; which all would covet to lay aside. Add, that as no hereditary Honour can be actually diminish'd; so neither can the Marks thereof. Both, indeed, may be forfeited; as in the Case of Treason, where the Escutcheon is totally revers'd, to intimate a total Suppression of the Honour.

Some Instances, however, are produc'd to the contrary by *Colombiere*, and others. But these, tho they may shew some extraordinary Resentments of Princes for Offences committed in their Presence, do not amount to a Proof of such Custom or Practice; much less authorize the Being of particular Badges in the Hands of inferior Officers, as Kings at Arms.

ABATEMENT, in Law, is us'd for the defeating or overthrowing of a thing, as a Writ, Appeal, or the like.

Thus, the *Abatement of a Writ*, is the frustrating, or setting it aside, by some Exception alledg'd and made good against it. Such Exception may be taken either to the Matter, as insufficient; or to the Allegations, as uncertain, *e. g.* where one of the Parties or a Place are misnam'd; or to some Variation between the Writ and Record; or to the Uncertainty of the Writ, Count, or Declaration; or to divers other Particulars. Upon any of which, the Defendant may pray that the Writ, or Plaint, may *abate*; *i. e.* that the Plaintiff's Suit may cease for that time. See WRIT.

So we read in *Staundford*, 'The Appeal *abates* by Covin: that is, the Accusation is defeated by Deceit.——In the old *Nat. Brev.* To *abate* a Castle, or Fortlet, is interpreted, to beat it down.

ABATEMENT is also an irregular Entry upon Lands, or Tenements, left vacant by their former Possessor, and not yet laid hold of by the next Heir.

As he that puts out the Possessor is said to *disseize*; so he that interposes, or steps in between the former Possessor and his Heir, is said to *abate*. See DISSEISIN.

Coke on Littleton distinguishes between *Abatement* and *Intrusion*; but the new Book of Entries renders *Abatement* by *Intrusio*. See INTRUSION.

ABBESS, the Superior of an *Abbey*, or Convent of Nuns. See ABBEY, and CONVENT.

The *Abbess* has the same Rights, and Authority over her Nuns, that the Abbots regular have over their Monks. See ABBOT.

The Sex indeed does not allow her to perform the Spiritual Functions annex'd to the Priesthood, wherewith the Abbot is usually invested; but there are Instances of some *Abbesses*, who have a Right, or rather a Privilege, to commission a Priest to act for 'em. They have even a kind of Episcopal Jurisdiction, as well as some Abbots, who are exempted from the Visitation of their Diocesans. See EXEMPTION.

F. *Martene*, in his Treatise of the *Rites of the Church*, observes, that some *Abbesses* have formerly confess'd their Nuns. He adds, that their excessive Curiosity carry'd 'em such lengths, that there arose a necessity of checking it.

S. *Basil*, in his Rule, allows the *Abbess* to be present with the Priest at the Confessions of her Nuns. See CONFESSION.

ABBEY, or ABBY, a Monastery, or Religious House, govern'd by an Abbot, or Abbess. See ABBOT, *&c.*

Abbies differ from *Priories*, in that the one are under the Direction of an Abbot, and the other of a Prior: but Abbot and Prior (we mean a *Prior Conventual*) are the same thing; and only differ in Name. See PRIOR.

Fauchet observes, that in the early Days of the *French* Monarchy, Dukes and Counts were call'd *Abbots*, and Duchies and Counties *Abbies*. Many Persons of the prime Quality, without any Concern in the Monastic Life, took the same Quality; even some of their Kings are mention'd in History under the Title of *Abbots*. *Philip* I. *Louis* VI. and afterwards the Dukes of *Orleans*, are call'd *Abbots* of the Monastery of S. *Agnan*. The Dukes of *Aquitain* were call'd *Abbots* of the Monastery of S. *Hilary*, at *Poictiers*; and the Earls of *Anjou* of S. *Aubin*, &c.

One third of the best Benefices in *England* were antiently, by the Pope's Grant, appropriated to *Abbies*, and other Religious Houses; which, upon their Dissolution under King *Henry* VIII. became Lay-Fees: 190 such were dissolv'd of between 200 *l.* and 35000 *l.* yearly Revenue, which at a Medium amounted to 2853000 *l. per Annum*.

ABBOT, or ABBAT, the Chief, or Superior of an *Abbey*, of the Male Kind. See ABBEY, and ABBESS.

The Name *Abbot* is originally *Hebrew*, where it signifies *Father*. The *Jews* call Father in their Language *Ab*; whence the *Chaldees* and *Syrians* form'd *Abba*; and thence the *Greeks* ἄββας, which the *Latins* retain'd, *Abbas*; and hence our *Abbot*, the French *Abbe*, &c.

St. *Mark* and St. *Paul* use the Syriac *Abba* in their *Greek*; by reason it was then commonly known in the Synagogues, and the primitive Assemblies of the Christians; adding to it, by way of Interpretation, the Word *Father*, Ἀββᾶ ὁ πατήρ, *Abba, Father*, q. d. *Abba, that is to say, Father*.

The Name *Ab* and *Abba*, which at first was a Term of Tenderness and Affection, in the *Hebrew* and *Chaldee*, became at length a Title of Dignity and Honour. The *Jewish* Doctors affected it; and one of their most antient Books, containing the Sayings, or Apothegms of divers of 'em, is entitled, *Pirke Abbot*, or *Avoth*, i. e. Chapter of the Fathers.

'Twas in allusion to this Affectation, that Jesus Christ forbad his Disciples to call any *Man* their *Father on Earth*: which Words S. *Jerom* turns against the Superiors of the Monasteries of his Time, for assuming the Title of *Abbots*, or Fathers.

The Name *Abbot*, then, appears as old as the Institution of Monks it self. See MONK.

The Governors of the primitive Monasteries assum'd indifferently the Names *Abbots* and *Archimandrites*. See ARCHIMANDRITES.

They were really distinguish'd from the Clergy, tho frequently confounded with 'em, because a Degree above Laymen. S. *Jerom*, writing to *Heliodorus*, says expressly, *Alia Monachorum est Causa, alia Clericorum*. See CLERGY, PRIEST, *&c.*

In those early Days, the *Abbots* were subject to the Bishops, and the ordinary Pastors. Their Monasteries being remote from Cities, built in the farthest Solitudes, they had no share in Ecclesiastical Affairs. They went on Sundays to the Parish-Church with the rest of the People: or, if they were too remote, a Priest was sent 'em to administer the Sacraments; till at length they were allow'd to have Priests of their own Body.

The *Abbot*, or Archimandrite himself was usually the Priest: but his Function extended no farther than to the Spiritual Assistances of his Monastery; and he remain'd still in obedience to the Bishop.

There being among the *Abbots* several Persons of Learning, they made a vigorous Opposition to the rising Heresies of those Times; which first occasion'd the Bishops to call 'em out of their Desarts, and fix 'em about the Suburbs of Cities; and at length in the Cities themselves: from which Æra their Degeneracy is to be dated.

The *Abbots*, now, soon wore off their former Plainness and Simplicity, and began to be look'd on as a sort of little Prelates. In time they would be Independent of the Bishop; and became so insupportable, that some severe Laws were made against 'em at the Council of *Chalcedon*: This notwithstanding, in time, many of 'em carry'd the Point of Independency; and got the Appellation of *Lord*, with other Badges of the Episcopate, particularly the *Mitre*.

Hence arose new Species and Distinctions of *Abbots*, *Mitred*, and *not Mitred*; *Crozier'd*, and *not Crozier'd*, *Oecumenical*, *Cardinal*, &c.

Mitred ABBOTS, were those privileg'd to wear the Mitre; and having, withal, a full Episcopal Authority within their several Precincts. Among us, these were also call'd *Abbots sovereign*, and *Abbots general*; and were Lords of Parliament. Of these Sir *Edward Coke*, *de Jur. Eccles.* reckons 27 in *England*, beside two Mitred Priors. See PRIOR.

The rest, who were *not mitred*, were subject to the Diocesan.

Peré Hay, a *Benedictine* Monk, in his Book entitled *Astrum Inextinctum*, maintains, that the *Abbots* of his Order have not only an Episcopal, but even a Papal Jurisdiction; *Potestatem quasi Episcopalem, imo quasi Papalem*; and as such can confer the lower Orders of Deacon and Subdeacon. See ORDER.

When the *Abbots* first assum'd the Mitre, the Bishops made heavy Complaints of their Privileges being invaded by the

the Monks; and were particularly offended, that in Synods and Councils there was no Distinction between 'em. On this Occasion, Pope *Clement* IV. order'd, that the *Abbots* should only wear their Mitres embroider'd with Gold, and leave Jewels to the Bishops. See MITRE.

Crozier'd ABBOTS, are those who bear the *Crozier*, or Pastoral Staff. See CROZIER.

There are some *Crozier'd* and not *Mitred*; as the *Abbot* of the *Benedictine* Abbey at *Bourges*: and others, both the one and the other.

Among the *Greeks*, some even took the Quality of *Oecumenical Abbots*, or *Universal Abbots*, in Imitation of the Patriarch of *Constantinople*. See OECUMENICAL.

Nor have the *Latins* been much behind 'em in that respect: The *Abbot* of *Cluny*, in a Council held at *Rome*, assum'd the Title of *Abbas Abbatum*, *Abbot of Abbots*; and Pope *Calixtus*, gave the same *Abbot* the Title of *Cardinal Abbot*. See CLUNY.

To say nothing of other *Cardinal Abbots*, thus denominated from their being the principal *Abbots* of Monasteries, which came to be separated.

Abbots, again, are now chiefly distinguish'd into *Regular*, and *Commendatory*.

ABBOTS *Regular*, are real Monks, or Religious, who have taken the Vows, and wear the Habit of the Order. See REGULAR, RELIGIOUS, VOW, &c.

Such are all *Abbots* presum'd to be; it being expresly provided by the Canons, that none but a Monk have the Command over Monks.

ABBOTS *in Commendam*, are Seculars; tho they have undergone the Tonsure, and are oblig'd by their Bulls to take Orders when they come of Age. See SECULAR, TONSURE, &c.

Tho the Term *Commendam* insinuates, that they have only the Administration of their Abbies for a Time; yet do they hold, and reap the Fruits of 'em for ever; as well as the *Regular Abbots*.

Their Bulls give 'em a full Power *tam in Spiritualibus, quam in Temporalibus*. And yet, 'tis true, that the *Commendatory Abbots* do not perform any Spiritual Offices; nor have they any Spiritual Jurisdiction over their Monks. So that the Phrase *in Spiritualibus*, is rather something of the *Roman* Stile, than a Reality.

Some of their best Canonists rank the *Commendam* in the Number of Benefices, *inter titulos Beneficiorum*. 'Tis no more than a Canonical Title, or Provision to enjoy the Fruits of a Benefice: But as such Provisions are contrary to the antient Canons, none but the Pope, by dispensing with the old Law, can grant 'em. See COMMENDAM, BENEFICE, &c.

Our own History speaks very little of these *Commendatory Abbots*; and 'tis probable the Practice never prevail'd much among us. Hence, many of our Writers have been led into the Mistake, of supposing that all *Abbots* are Monks. Of this we have a remarkable Instance, at which many of our Countrymen have stumbled, in that Dispute about the Inventor of the Lines for transforming of Geometrical Figures, call'd by the *French* the *Robervallian Lines*. Dr. *Gregory*, in the *Philosophical Transactions*, *Anno* 1694. rallies the *Abbot Galloys*, who held the Abbey of S. *Martin de Cores*, *in Commendam*, with being a Monk: 'The good Father, says 'he, imagines we are return'd into that fabulous Age where-'in a Monk might be allow'd to say what he pleas'd.' Which Passage the *Abbot* takes hold of, and returns the Raillery, with Interest, on the Doctor, in the *Memoirs de l'Academ. Anno* 1705.

The Ceremony whereby *Abbots* are created, is properly call'd *Benediction*; or sometimes, tho abusively, *Consecration*. See BENEDICTION, and CONSECRATION.

It antiently consisted in cloathing him with the Habit call'd *Cuculla*, Cowl; putting the Pastoral Staff in his Hand, and the Shoes call'd *Pedales*, or *Pedules*, on his Feet. These Particularities we learn from the *Ordo Romanus* of *Theodore* Archbishop of *Canterbury*.

The Title *Abbot* has also been given to certain Bishops, by reason their Sees had originally been Abbeys; and that they were even elected by the Monks: Such are those of *Catanea* and *Montreal*, in *Sicily*. See BISHOP.

The same Appellation is extended to the Superiors or Generals of some Congregations of Regular Canons; as that of S. *Genevieve* at *Paris*. See CANON, GENEVIEVE, &c.

ABBOT is also a Title bore by several Magistrates, and other Lay-Persons. Among the *Genoese*, one of their principal Magistrates was call'd the *Abbot of the People*.

In *France*, particularly about the Time of *Charlemaign*, there were several Lords and Courtiers, who having the Inspection of certain Abbeys committed to them, were styl'd *Abba-Comites*, or Abbey-Counts. See ABBEY, COUNT, &c.

ABBREVIATURE, or ABBREVIATION, a Contraction of a Word, or Passage; made by dropping some of the Letters, and substituting certain Marks, or Characters in their Place. See SYMBOL.

Lawyers, Physicians, &c. use abundance of *Abbreviatures*; partly for the sake of Expedition, and partly for that of Mystery. A *List of the principal Abbreviatures in the several Arts and Faculties, see under the Article* CHARACTER.

Of all People, the Rabbins are the greatest Dealers in this way; their Writings are unintelligible, without an Explication of the *Hebrew Abbreviatures*. The *Jewish* Authors and Copists don't content themselves to *abbreviate* Words, like the *Greeks* and *Latins*, by retrenching some of the Letters, or Syllables thereof; but they frequently take away all but the initial Letter. Thus, ר stands for *Rabbi*, and א stands for אל, ארזכי or אמר according to the Place it is found in.

But what is more, they frequently take the initial Letters of several succeeding Words, join 'em together, and adding Vowels to 'em, make a barbarous sort of Word, representative of all the Words thus abridg'd. Thus, *Rabbi Schelemoh Jarrhi*, in the Jargon of the *Hebrew Abbreviature*, is call'd *Rasi*; and *Rabbi Moses ben Maiemon*, *Rambam*. And thus again, מכוא is put for מתן בסתר יכפה אף *Donum in abdito evertit Iram*.

Mercerus, *David de Pomis*, *Schindler*, *Buxtorf*, &c. have given Explications of this sort of Ciphers. The most copious Collection of *Roman Abbreviations*, is that of *Sertorius Ursatus*, at the End of the *Marmora Arundelia*; *Sertorii Ursati Equitis de Notis Romanorum Commentarius*.

The Word is deriv'd from the Latin *brevis*, of the *Greek* βραχὺς, *Short*.

ABBREUVOIR, or ABREVOIR, in Masonry, the Joint, or Jonctture of two Stones; or the Interstice, or Space left between 'em to be fill'd up with Mortar. See STONE, MORTAR, MASONRY, &c.

The Word is *French*, and literally denotes *a Watering-place*.

ABBROACHMENT, an obsolete Term in some of our antient Law-Books, for the Act of ingrossing, or buying up a Commodity by Wholesale, in order to sell it off by Retail. See FORESTALLING.

ABBUTALS, among Law-Writers, denote the Buttings or Boundings of a piece of Land; expressing on what other Lands, Highways, or the like, the several Extremes thereof do *abut*, or terminate. Thus, in *Croke*, the Plaintiff is said to fail in his *Abbutals*, *i. e.* in setting forth how the Land is bounded.

In strictness, 'tis only the extreme Corners are said to *abut*; the Sides are said to be *adjacent*. *Latera autem nunquam aiunt* Abuttare; *sed terram proximam adjacere*. Camden.

The Word is apparently form'd of the French *abouter*, to terminate upon. Tho *Camden* advances another Etymology. ——'They who have wrote of Limits, say, that certain 'Hillocks of Earth, term'd *Botentines*, were placed there-'in, by way of Marks: whence, perhaps, our *Buttings*, and 'Boundings.

ABDICATION, the Act whereby a Magistrate, or Person in Office renounces and gives up the same, for himself, and his Heirs. See RENUNCIATION.

Abdication is frequently confounded with *Resignation*; but, strictly speaking, there is a difference: *Abdication* being done purely and simply; whereas Resignation is done in favour of some third Person. See RESIGNATION.

In this Sense, *Diocletian*, and *Charles* V. are said to have *abdicated* the Crown; *Philip* IV. of *Spain resign'd* it. The Parliament voted King *James*'s Violation of the Laws, and his quitting the Kingdom, without providing for the due Administration of Affairs in his absence, to import an *Abdication* of the Crown.

Among the *Romans*, *Abdication* was also us'd in opposition to Adoption: Thus, a Father was said to *abdicate* his disobedient Son. See ADOPTION.

It differ'd from *Exheredation*, Disinheriting, in this Circumstance, that the *abdicated* Son was banish'd his Father's Family, and cut off from the Succession by a solemn Act, during the Father's Life: whereas Exheredation only took place in virtue of his Testament. See EXHEREDATION.

ABDOMEN, in Anatomy, the *lower Belly*; or that Part of the Body between the Hips and the Diaphragm. See BODY.

Anatomists divide the Body into three Regions, or Venters; the Head; the Thorax, or Breast; and the *Abdomen*, or Belly, absolutely so call'd; being the lowest Part of the Trunk. 'Tis separated from the Thorax by the Diaphragm, and reaches to the *Ossa pubis*. See VENTER.

It is called *Abdomen*, from the Latin *abdo*, I hide; by reason that in its Cavity are wrapp'd up and conceal'd many of the principal *Viscera*, *viz.* the *Stomach*, *Omentum*, *Intestines*, *Liver*, *Spleen*, *Bladder*, &c. See STOMACH, OMENTUM, INTESTINES, &c.

The *Abdomen* is lined internally with a thin, soft Membrane; which investing all the *Viscera* abovemention'd, contains and keeps 'em in their Place, call'd the *Peritonæum*: upon a Rupture or Dilatation whereof, they are apt to fall, and form those Tumors call'd *Hernias*. See PERITONÆUM, and HERNIA.

It is cover'd and defended with five Pair of Muſcles; which not only defend the *Viſcera*, but by their alternate Relaxations, and Contractions in Reſpiration, promote the Action of Digeſtion, and the Extruſion of the *Fæces* and Urine. By their Contraction, the Cavity of the *Abdomen* is ſtraighten'd, and promotes the deſcent of the Contents of the *Viſcera* thro' the Inteſtines. They are the proper Antagoniſts to the Sphincters of the *Anus* and Bladder, and forcibly expel the Excrements of thoſe Parts, as alſo the *Fætus* in Parturition. See RESPIRATION, DIGESTION, EXCRETION, DELIVERY, &c.

Theſe Muſcles are the *Obliqui Deſcendentes*, and *Aſcendentes*, *Linea alba*, *Recti*, and *Pyramidales*; ſee each under its proper Article, OBLIQUUS, RECTUS, PYRAMIDALIS, &c.

The *Abdomen* is ſubdivided into three leſſer Regions, or Cavities: the uppermoſt, call'd the *Epigaſtric*, commences from the Diaphragm and *Cartilago Enſiformis*, and terminates two Fingers breadth above the Navel: The ſecond, call'd the *Umbilical*, begins where the former ends, and terminates two Fingers breadth below the Navel: The third, call'd the *Hypogaſtric*, deſcends as low as the *Os Pubis*. See EPIGASTRIC, UMBILICAL, and HYPOGASTRIC.

Each of theſe Subdiviſions, the more accurate Writers divide further into three Parts; a middle, and two lateral ones, the *Hypochondriums*. The middle part of the Umbilical, is call'd the *Umbilicus*, or Navel; and its lateral Parts the *Lumbi*, Loins: The Middle of the Hypogaſtric, is call'd the *Hypogaſtrium*; and its Sides the *Ilia*, or Flanks. See each under its proper Place, EPIGASTRIUM, HYPOCHONDRIUM, UMBILICUS, LUMBI, &c.

ABDUCTION, in Logick, a kind of Argumentation, by the *Greeks* call'd *Apogoge*; wherein, the greater Extreme is evidently contain'd in the Medium, but the Medium not ſo evidently in the leſſer Extreme as not to require ſome further Medium, or Proof to make it appear.

Thus, in the Syllogiſm, *All whom God abſolves are free of Sin; but God abſolves all who are in Chriſt: Therefore, all who are in Chriſt are free of Sin.* The Major is evident; but the Minor, or Aſſumption is not ſo, without ſome other Propoſition to prove it; as, *God took Satisfaction for Sin in the Suffering of Jeſus Chriſt.*

It is call'd *Abduction*; becauſe, from the Concluſion, it *draws us on* to prove the Propoſition aſſumed.

ABDUCTOR, or ABDUCENT, in Anatomy, a Name common to ſeveral Muſcles, whoſe Action is the withdrawing, opening, or pulling back the Parts they are fix'd to. See MUSCLE.

The Name is *Latin*, compounded of *ab*, from, and *duco*, I draw: Their Antagoniſts are call'd *Adductores*. See ADDUCTOR.

ABDUCTOR *Auricularis*, or *of the little Finger*, ariſes from the Annular Ligament, and the third and fourth Bones of the *Carpus* in the ſecond Rank; and is inſerted externally into the firſt Bone of the little Finger: it ſerves to draw that Finger from the reſt. See FINGER.

In ſome Subjects it appears divided into two or three Muſcles, conſiſting of ſo many different Series of Fibres.

ABDUCTOR *Indicis*, or *of the fore Finger*, ariſes from the inſide of the Bone of the Thumb, and is inſerted into the firſt Bone of the fore Finger, which it draws from the reſt towards the Thumb.

ABDUCTOR *minimi digiti manus*. See ABDUCTOR *Auricularis*.

ABDUCTOR *minimi digiti pedis*, or *of the little Toe*, ariſes from the outſide of the *Os Calcis*, near the exterior Bone of the *Metatarſus*, and is inſerted laterally into the outſide of the ſecond Bone of that Toe, which it pulls from the reſt.

ABDUCTOR *Pollicis*, call'd alſo *Thenar*, ſprings from the Annular Ligament, and firſt Bone of the *Carpus*; from whence paſſing to the Thumb, it makes that fleſhy Body called *Mons Lunæ*: It draws the Thumb from the Fingers.

ABDUCTOR *Pollicis pedis*, or *of the great Toe*, ſprings from the inſide of the *Os Calcis*, and the greater *Os Cuneiforme*; and is inſerted into the outſide of the exterior *Os Seſamoideum pollicis*: It ſerves to draw the great Toe from the reſt. See TOE.

ABDUCTOR *Oculi*, or *of the Eye*, is one of the four *Recti*, or ſtrait Muſcles, ariſing from the bottom of the Orbit, and ſpread over the firſt proper Tunic; ſerving to draw the Eye towards the outer Canthus. See EYE, and RECTI.

ABECEDARY, ABCEDARY, or ABECEDARIAN, ſomething Alphabetical, or belonging to the Alphabet. See ALPHABET.

Among the Antients, the Term *Abecedarius* was peculiarly applied to thoſe Compoſitions wherein the initial Letters of each Strophe, or ſometimes even of each Verſe, follow'd the Order of the Alphabet.

Such, in Holy Scripture, are the CXVIIIth Pſalm, and the Lamentations of *Jeremy*: from which it ſhould ſeem, as if the *Hebrews* had been the Inventors of this Kind of Poetry; contrived, no doubt, to aſſiſt the Memory.

ABELIANS, ABELONIANS, ABELOITES, a Sect of Hereticks in *Africa*, not far from *Hippo*, cotemporary with S. *Auguſtin*. See HERETICK.

What diſtinguiſh'd 'em, was, that they made it a Duty to marry, and yet liv'd with their Wives in a profeſs'd Continence, without having any commerce together.

Theſe Hereticks, inconſiderable in themſelves, (for they were confin'd to a little compaſs, and laſted not long;) are become conſiderable, by the great Pains the Learned have taken to aſcertain the Principle they went upon, and the Reaſon of the Denomination.

Some will have 'em to have built on that Text of St. *Paul*, 1 *Cor.* vii. 29. *Let they that have Wives be as though they had none.* A late Writer concludes, that they regulated their Marriage on the Foot of the terreſtrial Paradiſe; alledging, that there was no other Union between *Adam* and *Eve*, but that of Hearts. He adds, they had likewiſe an Eye to the Practice of *Abel*, whom they held to have been married, but never to have known his Wife: and from him they deriv'd their Name.

Another Author obſerves, that it was a Tradition current throughout the Eaſt, That *Adam* conceiv'd ſo much Sorrow for the Death of *Abel*, that he was 130 Years without having to do with *Eve*. This, he ſhews, was the Sentiment of the *Jewiſh* Doctors; from whom the Fable was tranſmitted to the *Arabs*: And hence it was, according to *Gigeus*, that תאבל *Thabala*, in *Arabic*, came to ſignify, to *abſtain from one's Wife*. He concludes, that he is the moſt miſtaken Perſon in the World, or the Story had reach'd *Africa*, and given occaſion both to the Sect, and the Name.

'Tis true, the Rabbins do hold, that *Adam*, after the Death of *Abel*, remain'd a long time without any uſe of Marriage; and till the Time when he begot *Seth*: but to ſay that this was 130 Years is a manifeſt Error, and contrary to their own Chronologies, which place *Seth*'s Birth in the 130th Year of the World, or of *Adam*'s Life; as may be ſeen in their two *Seder Olams*.

Abarbanel ſays, it was 130 Years after *Adam*'s Fall; as believing, with the other Rabbins, that *Cain* and *Abel* were conceiv'd immediately after *Adam*'s Tranſgreſſion. But, ſay others, be this as it will, whether a Continence on occaſion of the Fall, or of *Abel*'s Death; 'twas the Continence of *Adam*, not of *Abel*, that theſe Hereticks imitated; who, on this footing, ſhould have been call'd *Adamites*, rather than *Abelians*.

In effect, 'tis more than probable, they took their Name from *Abel*, for no other Reaſon, but becauſe they had no Iſſue more than *Abel*: Not that he lived in Continence after Marriage; but becauſe he was kill'd before he had married.

ABETTER, or ABETTOR, in Law, one who incites, incourages, or ſets another on to perform ſomething criminal; or ſome way ſeconds and aſſiſts him in the Performance itſelf.

Thus, they who procure others to ſue out falſe Appeals of Felony, or Murder againſt Men, to render 'em infamous, are particularly denominated *Abettors*.

So, *Abettors in Murder*, are ſuch as adviſe or procure a Murder to be committed, or are acceſſory thereto. See MURDER.

There are *Abettors* in Felony, but not in Treaſon: the Law looking on all thoſe concern'd in Treaſon as Principals. See TREASON.

ABEYANCE, or ABBAYANCE, an obſolete Law-Term, whoſe preciſe Signification is not eaſily gather'd; having been out of date as long ago as *Littleton*'s Days.

That Author gives it, as his Senſe of the Word, that to be *in Abeyance* is to be in the *Entendement*, *Remembrance*, & *Conſideration de la Loy*: In which Senſe, ſays he, the Right of Fee-ſimple is ſaid to be *in Abeyance*.

He adds, *Tiel Choſe & Tiel Droit qui eſt dit en divers Livres etre en* Abeyance *eſt a tant a dire en latine, Talis res vel tale rectum quæ vel quod non eſt in homine ad tunc ſuperſtite, ſed tantummodo eſt, & conſiſtit* in Conſideratione & Intelligentia Legis; & *quod alii dixerunt, talem rem, aut tale rectum fore* in Nubibus.

Sir *Edward Coke* obſerves, that among the antient Lawyers, things that are *in poſſe* only, and not *in eſſe*, are ſaid to be *in Abeyance*; q. d. *yet undetermin'd, and only in Expectation.—Quæ nondum ſunt definitæ, aut ſententiâ comprobatæ ſed ſunt adhuc in expectatione.*

This he confirms from the Etymology of the Word, from the *French* or *Flemiſh Bayer*, or *Beer*, to gape or wait for any thing with a longing Deſire.

Dr. *Harris*, improving ſomewhat on his Authorities, ſays, *Abeyance* ſignifies a Thing's being only *in poſſe*, and not *in actu*. Thus, adds he, when the Parſon of a Church dies, and the Church becomes void, the Fee is *in Abeyance*; becauſe it is not determin'd who ſhall ſucceed him.

In this Sense, our *Abeyance* may be compar'd to the *Hereditas Jacens* of the Civilians. 'Tis a Principle in Law, That of every Land there is a Fee-simple, or it is *in Abeyance*. See FEE-*Simple*.

AB-INTESTATE, in Law, the Heir of a Person who died intestate, and yet had the Power of making a Testament. See INTESTATE; and HEIR.

ABISHERSING, an antient Law-Term, denoting a being free, or exempt, from all Amerciaments for Transgressions of any kind. See AMERCIAMENT.

This Word, in a Charter or Grant, gives the Proprietor not only the Forfeitures, and Amerciaments of all others for Transgressions committed within his Fee; but also exempts him from all such controul by any within that Compass.

According to *Spelman*, it originally signifies a Forfeiture, or Amerciament; and should rather be wrote *Misbersing*, *Mishering*, or *Miskerring*.

ABJURATION, a solemn Renunciation, or Recantation of an Error, Heresy, or false Doctrine. See RECANTATION.

The Word is form'd of the Latin *Abjurare*; which in *Cicero*, and other *Roman* Writers, signifies the denying a thing upon Oath. Thus, *Abjurare creditum*, was to forswear a Debt, or to deny the owing it upon Oath, *&c.*

So, in our own Laws, *To* abjure *a Person*, is to renounce all Authority or Dominion of such a Person. Thus, by the Oath of *Abjuration*, a Person binds himself not to own any Regal Authority in the Person call'd the Pretender, nor ever to pay him the Obedience of a Subject. See OATH, ALLEGIANCE, *&c.*

ABJURATION is also us'd in our antient Customs, for a sworn Banishment for Life; or an Oath taken, to forsake the Realm for ever. See BANISHMENT.

This, in some Cases, was admitted from Criminals in lieu of Death. The Devotion for the Church was so warm, from the Time of *Edward* the Confessor to the Reformation, that if a Man having committed Felony, could recover a Church or Church-yard before he were apprehended, it was an Asylum from which he could not be brought to take his Trial at Law; but confessing his Crime to the Justices, or Coroner, and *abjuring* the Kingdom, he was at liberty. See ASYLUM.

After *Abjuration*, a Cross was given him, which he was to carry in his Hand thro' the Highways, till he was got out of the King's Dominion; which was call'd the *Banner of Mother-Church*. *Plac. Hil.* 26. *Edw.* III.

In time, *Abjuration* dwindled into a perpetual Confinement of the Prisoner to the Sanctuary; wherein, after *abjuring* his Liberty and free Habitation, he was allow'd to spend his Life. By Stat. 21 *Jac.* I. all use of Sanctuaries, and consequently of *Abjuration* is taken away. See SANCTUARY.

ABLACTATION, in Gardening, a Method of Engrafting, more usually call'd *Inarching*, or *Grafting by approach*. See GRAFTING.

Ablactation is only practicable where the Stock to be grafted on, and the Tree from which the Graft is to be taken, stand so near, that the Branch or Cyon may be applied, without cutting off. Hence, 'tis chiefly used on Plants that grow in Cases; as Orange, Lemon, Pomgranate, Vines, Jessamins, *&c.* The Season is *April*. To perform it, the usual Method is to take the Branch intended for the Graft, and pare it away, both the Rind and Wood, the length of three Inches; then, paring likewise the Stock, so that they may join closely to each other, they bind 'em together, and cover 'em over with Clay, or Grafting-Wax. As soon as they are found well incorporated together, the Head of the Stock is to be cut off four Inches above the Binding; and the Spring following, the Graft: leaving the Stock to subsist by it self.

Or, the Operation may be done, by cutting off the Head of the Stock at first, and leaving the Top a little sloped, and applying the Graft thereto, as in Shoulder-Grafting. But this Method is not found equally successful.

The Word originally signifies the *weaning* a Child from the Breast; being form'd of *ab*, from, and *lac*, Milk.

ABLAQUEATION, a Name used by the antient Writers of Agriculture, for an Operation in Gardening, whereby Earth is dug from about a Vine, or other Fruit-Tree, and its Roots laid bare, to expose 'em more to the Sun, Rain, and Air, in order to promote its Fecundity. See FRUIT-*Tree*.

ABLATIVE, in Grammar, the sixth Case of Nouns. See CASE.

The *Ablative* is opposite to the Dative; the first expressing the Action of taking away, and the latter that of giving. See DATIVE.

The Word is *Latin*, form'd *ab auferendo*, taking away. *Priscian* also calls it the *Comparative* Case; as serving, among the *Latins*, for comparing, as well as taking away.

The *Ablative* scarce answers to the just Idea of a Case; at least, it is the most vague of all others. 'Twill be shewn in its Place, that the *English*, and other modern Tongues, have properly no such thing as *Cases*: but even in the antient Languages, from which the Notion of Cases is borrow'd, the *Ablative* is only a sort of Supernumerary, or Supplement to the Cases.

The five proper Cases not being found sufficient to express all the Relations of Things to each other recourse was had to an expedient; *viz.* the putting a Preposition before some of the other Cases; and this made the *Ablative*. See PREPOSITION.

It may be added, that in the plural Number, the *Ablative* is still more obscure; as being only the Dative repeated.

In *English*, we have no precise Mark whereby to distinguish the *Ablative* from other Cases; and we only use the Term in analogy to the *Latin*. Thus, in the two Phrases, *The Magnificence of the City*, and *He spoke much of the City*; we say, that *of the City* in the first is Genitive, and in the latter *Ablative*: by reason it would be so, if the two Phrases were express'd in *Latin*.

ABLUENTS, *Abluentia*, in Medicine, a Name some Authors give to those Remedies, better known under the Name of *Diluters*, and *Abstergents*. See DILUTER, and ABSTERGENT.

ABLUTION, in Antiquity, a Religious Ceremony, in use among the *Romans*; being a sort of purifying, perform'd by washing the Body, ere they enter'd on Sacrifice. See SACRIFICE.

Sometimes they wash'd their Hands and Feet, sometimes the Head, and oftentimes the whole Body: For which purpose, at the Entrance into their Temples were plac'd Vessels made of Marble Triumphant (as *Du Choul* calls it) fill'd with Water.

This Custom, without doubt, they learnt from the *Jews*; since we read in Scripture, that *Solomon* plac'd at the Entry into the Temple which he erected to the true God, a great Laver, which the Holy Text calls a Sea of Brass, where the Priests wash'd themselves before they offer'd Sacrifice; having beforehand sanctify'd the Water, by throwing into it the Ashes of the Victim that was slain in Sacrifice.

ABLUTION, among the modern *Romanists*, is understood of the little Drop of Water and Wine, which they take after the Communion, to wash down and facilitate the Digestion of the Host.

The same Term also signifies that which serves to wash the Hands of the Priest who consecrated it.

ABLUTION, in Pharmacy, is a Preparation divers Remedies undergo, by washing 'em in Water, or some other Fluid, proper to cleanse and free 'em of their Impurities. See LOTION.

The Word is sometimes also used, tho with less Propriety, for the washing, or infusing of certain Medicines in Water, to freshen 'em, and dissolve their Salts; call'd *Dulcifying*. See DULCIFYING.

ABOLITION, the Act of undoing, destroying, or throwing a Thing out of use.

Thus, in our Laws, the *Abolition* of a Law, Statute, or Custom, is the abrogating or repealing it. See ABROGATION, REPEALING, STATUTE, *&c.*

So, the Leave given by the King or Judge, to a criminal Accuser, to desist from further Prosecution of the Accused, is peculiarly called *Abolition*.

The Word is form'd of the *Latin* Abolere, *ita extinguere & delere, ut ne* oleat *quidem*.

ABOMASUS, ABOMASUM, or ABOMASIUM, in Comparative Anatomy, one of the Stomachs, or Ventricles of Animals of the ruminating Kind. See RUMINATING.

Beasts that chew the Cud are found to have four Stomachs; *viz.* the *Rumen*, or *Magnus Venter* or *Stomach*, properly so call'd, the *Reticulum*, *Omasus*, and Abomasus. See RUMINATION, *&c.*

The *Abomasus*, popularly call'd the *Maw*, is the last; being the Place wherein the Chyle is form'd, and from which the Food descends immediately into the Intestines.

It is full of Leaves like the *Omasus*; but its Leaves have this particular to 'em, that beside the Membranes they consist of, they contain a great number of Glands not found in any of the rest. See OMASUS, *&c.*

'Tis in the *Abomasus* of Calves and Lambs, that the Rennet or Earning is form'd, wherewith Housewives turn or curdle their Milk. See RENNET.

ABORIGINES, or ABORIGENES, in Geography, a Name sometimes given to the primitive Inhabitants of a Country, or those who had their original therein; in contradistinction to Colonies, or new Races of Inhabitants, deriv'd from elsewhere. See COLONY.

The Term *Aborigines* is famous in Antiquity: Tho now an Appellative, 'twas originally a proper Name, given only to certain People of *Italy*; and both the Reason and Origin of it are greatly disputed among the Learned: The principal Opinions with regard thereto may be reduc'd to four.

The first is that of *Aurelius Victor*, who will have 'em called *Aborigines*, q. d. *Abeorigines*, Vagabonds; of *ab*, and *erro*, I wander here and there; and maintains, that they

they were the *Scythians* who came and settled in *Italy*. To this Sentiment *Festus* adheres.

2d, S. *Jerom* says, they were called *Aborigines*, as having no beginning; of *ab*, and *origo*, original; *i. e.* as being originally of that Country, and not a Colony deriv'd from elsewhere: or, as *Halicarnasseus* explains it, διὰ τὸ γενέσεις τοῖς μετ' αὐτὸς ἄρξαι as being Chiefs, or Leaders of the Race that inhabited that Country. Of this Opinion *Virgil* seems to be *Æneid.* L. VII. ver. 177.

Saturnusque Senex Janique bifrontis imago
Vestibulo adstabant, aliique ab origine *Reges.*

For, according to the Remark of *Servius*, *ab origine Reges*, here stands for *Aboriginum Reges*. To which it may be added, that *Pliny*, L. IV. calls the *Tyrians*, *Aborigines Gadium*, the *Aborigines of Cadix*; as being the Founders thereof.

3dly, *Dion. Halicarnasseus* takes 'em to have been called *Aborigines*, Ἀβοριγῖνες, from their inhabiting the Mountains; as who should say, Ἀπὸ ὄρεσι, *à Montibus*: Which Notion seems favour'd by *Virgil*, *Æneid.* L. VIII. ver. 321.

Is genus indocile ac dispersum montibus altis
Composuit, Legesque dedit.

Lastly, Others hold, that *Cham*, the *Saturn* of the *Egyptians*, having gather'd together divers wandring Nations, conducted 'em into *Italy*, and that these were the *Aborignes*. *Livy* affirms, they came from *Arcadia*, under the Conduct of *Oenotrus* Son of *Lycaon*. *Genebrard* will have 'em the *Phænicians*, or *Canaanites* expell'd by *Joshua*.

ABORTION, in Medicine, an immature Exclusion of the *Fœtus*; or the Delivery of a Woman with Child, before the legitimate Term; popularly call'd *Miscarriage*. See DELIVERY, *&c.*

This may happen at any time of Pregnancy; but if before the second Month after Conception, it is properly call'd a *false Conception*. See CONCEPTION.

We have Instances of *Abortions* by the way of the Mouth, the *Anus*, the Navel, *&c.* See FOETUS, EMBRYO, *&c.*

The usual Causes of *Abortion*, are immoderate Evacuations, violent Motions, sudden Passions, Frights, *&c.* Other Causes are the largeness and heaviness of the *Fœtus*, Irritations of the Womb, Relaxation of the Ligaments of the *Placenta*, Weakness, and want of Nourishment in the *Fœtus*; excess of eating, long fasting or waking, the use of Busks for the Shape, offensive Smells, violent Purgatives; and, in the general, any thing that tends to promote the Menses.

The Symptoms usually preceding, are a Fever, either continual or intermitting; Pain in the Loins and Head, heaviness in the Eyes, a bearing down and Constriction of the Abdomen. When the Time of Miscarriage is just at hand, the Pains are much the same as those in Labour. See DELIVERY.

Abortion is dangerous where the Time of Pregnancy is far advanc'd so that the *Fœtus* must be large, where the Cause is very violent, the Patient strongly convulsed, a large Hemorrhage precedes or ensues, the *Fœtus* is putrify'd, *&c.* Under other Circumstances it rarely proves mortal.

The Treatment is to be adapted to the particular Symptoms and Circumstances: If the Patient be Plethoric, as soon as the first Symptoms discover themselves, a Vein is to be open'd: In case of Flooding, recourse is to be had to proper Astringents; or if those fail, to Fomentations, Injections, and Suffumigations: If a *Tenesmus* attend, Rhubarb is to be us'd; and if there be an habitual Laxity of the Uterine Vessels, Guaiacum.

ABORTION is also used where the Child dies in the Womb; tho it remain there many Years, or even as long as the Mother lives.

ABORTIVE, something come before its due time, or before it has arriv'd at its Maturity and Perfection. See ABORTION.

F. *Jerom Florentius* has an express Treatise of the Baptism of *Abortives*, or *abortive* Children. His Aim is to shew that an *Abortive* may, and ought to be baptiz'd, at what Time or Term soever it come into the World; by reason the precise Time when the *Fœtus* begins to be animated is not known. There are several curious and uncommon Things in this Work, which is intitled *Homo dubius, sive de baptismo Abortivorum.* Lugd. 1674. 4to.

ABORTIVE *Velom*, is that made of the Skin of an *abortive* Calf. See VELOM.

ABRACADABRA, an Inscription, antiently used as a Charm or Spell, for the curing of several Diseases, and driving out Devils. See CHARM, PHYLACTERY, *&c.*

The Author of this piece of Superstition, who is said to have lived under the Emperor *Adrian*, form'd the Name from that of the Deity he adored, *Abrasax*, or *Abraxas*; whom he made God-paramount; having several petty Divinities under him, and particularly seven Angels who presided over the seven Heavens; and to whom he attributed 365 Virtues or Powers, the Number of Days in the Year; with other idle Reveries.

This ΑΒΡΑΖΑΞ S. *Jerom* will have to be the same God whom the *Persians* and other Heathens worship'd under the Name *Mitra*; which is warranted by some antient Grave-stones. 'Tis added, that most of the Fathers ascribe the Fable of the God Ἀβεγοάξ, to *Basilides* and his Followers, a Branch of *Gnostics*. See BASILIDIANS.

The *Gnostics*, 'tis known, supposed wonderful Virtues in Numbers; and accordingly, this same *Abraxas*, or rather *Abrasax*, was thus denominated, as including or comprehending the Power or Virtue of 365 dependent Intelligences: which Number is express'd by the *Greek* Letters of the Word; it being the Custom of the *Greeks* to express their Numbers by the Letters of their Alphabet: The Value of those in the present Word are thus;

Α	Β	Ρ	Α	Ζ	Α	Σ
1.	2.	100.	1.	60.	1.	200.

which added together make the Number 365.

Abracadabra still continues in use and esteem among some superstitious People, who pretend to do Wonders hereby in the Cure of Agues and Fevers. The manner of preparing this extraordinary Medicine, they have been at the Pains to describe in the following Verses.

Inscribas chartæ quod dicitur Abracadabra
Sæpius & subter repetas, mirabile dictu;
Donec in angustum redigatur littera conum.

That is, 'The Word is first to be wrote at length, *Abracadabra*; then, under that *Abracadabr*; and in the third 'Line *Abracadab*, &c.

ABRASION, is sometimes used among Medical Writers for the Act of wearing away the natural *Mucus* which covers the Membranes, and particularly those of the Stomach and Intestines, by sharp corrosive Medicines, or Humors. See STOMACH, and INTESTINES.

The Word is compounded of the Latin *ab*, and *rado*, I shave, or scrape off.

ABRENUNCIATION. See RENUNCIATION.

ABRIDGMENT, a Summary, or Contraction of a Discourse; wherein, the less material Things being more briefly insisted on, the whole is brought into a lesser Compass. See EPITOME.

The *Abridgments* of the *Philosophical Transactions*, of *Mr.* Boyle's *Philosophical Works*, &c. are Works very useful in their kind: Tho there is a very great Fault in the former of these; the Authors having taken upon 'em entirely to omit a vast Number of such Papers and Discourses as were not so much to their own Taste; which is not the Nature of an *Abridgment*, but of a Florilege, Analecta, or Excerpta.

ABRIDGMENT *of a Count*, or *Declaration*, in Law, is particularly used for the making it shorter, by subtracting some of its Substance. See DECLARATION.

Thus, a Man is said to *abridge his Plaint*, in Assize, or a Woman her Demand in an Action of Dower, when, having put any Lands therein which are not in the Tenure of the Tenant or Defendant; and Non-Tenure, or the like, is pleaded to that Land in Abatement of the Writ; they are brought to *abridge*, *i. e.* to desist from and leave that Parcel out of the Demand; and pray that the Tenant may answer to the rest, to which he has not yet pleaded any thing.

Tho the Demandant bath *abridg'd* his Plaint or Demand; yet the Writ still remains good for the rest. The Reason is, that such Writs run in general, and do not specify Particulars.

ABROGATION, the Act of annulling or repealing a Law, or of abolishing or setting aside the Authority thereof. See LAW, REPEAL, *&c.*

The Word, in this Sense, is borrow'd from the Civil Practice of the *Romans*. Among that People, to propose a Law to the People for their Approbation, was call'd *Rogare Legem*: hence, to abolish it was call'd *Abrogare*; to take something from it, *Derogare*; to add a Clause to it, *Subrogare*; and to limit or restrain it, *Obrogare*.

ABSCESS, in Medicine and Chirurgery, a Tumor arising on divers Parts of the Body, and tending to Suppuration. See TUMOR, SUPPURATION, *&c.*

Abscesses arise from Collections of peccant Humours in the internal Parts of the Body; and are also called *Imposthumes*. See IMPOSTHUME.

Their Name *Abscess* comes from the *Latin* Verb *abscedere*, to depart, or remove to another Place; in allusion to the morbid Humors being deriv'd from elsewhere.

Abscesses arise oftenest in Women after Delivery; and tho dangerous in themselves, yet appear to be the Crisis of the Disease that gave rise thereto. For the Cure, if they cannot be *discuss'd*, *i. e.* be carried off by proper artificial Evacuations, as Phlebotomy, Purging, *&c.* with the use of Calomel between whiles, and gentle perspirative Fotus's, Liniments and Cataplasms; recourse is to be had to the contrary Method, and they must be brought to Suppuration. When

When the Matter is fully ripen'd, they are to be open'd with a Lancet or Caustick, and their Cure attempted by Digestives and Incarnatives. See RIPENER, DIGESTIVE, INCARNATIVE, &c.

ABSCISSE, ABSCISSA, in Conics, a Part of the Diameter, or transverse Axis of a Conic Section, intercepted between the Vertex or some other fix'd Point, and a Semiordinate. See CONIC *Section*.

Such are the Lines AP, AP, &c. (Tab. *Conics*, Fig. 20.) intercepted between the Vertex A and the Semiordinates PM, PM, &c.

They are called *Abscisses* of the Latin *Abscindo*, I cut off; as being Parts cut off from the Axis. Others call 'em *Sagittæ*, Arrows. See SAGITTA.

In the Parabola, the *Absciss* is a third Proportional to the Parameter and Semiordinate; and the Parameter a third Proportional to the *Absciss* and Semiordinate. See PARABOLA, SEMIORDINATE, &c.

In the Ellipsis, the Square of the Semiordinate is equal to the Rectangle of the Parameter into the *Abscisse*, subtracting another Rectangle of the same *Abscisse*, into a fourth Proportional to the Axis, Parameter, and *Abscisse*. See ELLIPSIS.

In the Hyperbola, the Squares of the Semiordinates are to each other as the Rectangles of the *Abscisse* into another Line, compos'd of the *Abscisse* and the transverse Axis. See HYPERBOLA.

ABSENT. See PRESENT.

ABSOLUTE, is understood of something that is free, or independent of another. Hence, as there are various ways wherein one thing may be consider'd as *free* in respect of another, there arise divers sorts of *Absolutes*.

Absolute, *e. g.* sometimes imports a Thing which does not include the Idea of Relation to another; in which Sense it stands oppos'd to *Relative*.

Thus, *Man* is an *absolute* Term; and, on the contrary, *Creature* and *Father* are Relatives, the one referring to Creator, the other to Children. See RELATIVE.

In the like Sense, the Schoolmen hold *Absolute* to imply a Thing's not being *in ordine ad*, in order to any other Thing. Thus, Man, Tree, &c. are *Absolutes*; and every other Thing which has any real Existence which it does not owe to another.

In this Sense too, the Terms of a Proposition are said to be taken *absolutely*; that is, without Relation to each other.

Thus, Man, consider'd *absolutely*, and in himself, is an *Absolute* Reasonable Creature.

Sometimes, *Absolute* denotes a being free from Restriction, Limitation, or Modifications; in which Sense, say the Schoolmen, it stands oppos'd to a *τι secundum quid*. Thus, a Prince is said to be *Absolute*, when his Will is his Law; or when he is no way restrain'd or tied down by any Laws of his Country. And thus a Thing is said to be *absolutely* and simply good.

Sometimes, again, *Absolute* denotes a Thing's being free from Conditions: In which Sense it stands oppos'd to Conditional. See CONDITIONAL.

Thus, the Decrees of God are said to be *Absolute* with respect to Men. The rigid *Calvinists* maintain *absolute* unconditional Predestination and Reprobation. A Priest does not forgive Men's Sins *absolutely*, but on Condition of Repentance and Amendment. In this Sense also, we say, an *Absolute* Promise, an *Absolute* Proposition, &c.

The Divines frequently use *Absolute* in a still further Sense, *viz.* in opposition to Declaratory: Thus, the Church of *Rome* holds that the Priest can forgive Sins *absolutely*; the Protestants say, only declaratively and ministerially. See DECREE, ABSOLUTION, &c.

Again, *Absolute* is sometimes used in respect of *Cause*; and denotes a Thing's being without any Cause. In which Sense, God alone is *absolute*.

ABSOLUTE *Number*, in Algebra, is the known Quantity which possesses one entire Side or Part of an Equation; being the Rectangle, or Solid whose Root or Value is to be found. See EQUATION, and ROOT.

Thus, in the Equation $aa + 16a = 36$, the *Absolute Number* is 36; which is equal to *a* multiplied by it self, added to 16 times *a*.

This is what *Vieta* calls *Homogeneum Comparationis*.

ABSOLUTE *Equation*, in Astronomy, is the Sum of the Optic and Eccentric Equations. See EQUATION.

Ablative ABSOLUTE, is a Diction detach'd, and independent of the rest of the Discourse; neither governing, nor being governed of any other Thing. See ABLATIVE.

This is frequent among the *Latins*; in Imitation of whom, the modern Languages have likewise adopted it: *Deleto exercitu*: The Army being cut to pieces. *All things consider'd*, Reason will appear the best Guide in Matters of Religion.

ABSOLUTE *Place*. } See { PLACE.
ABSOLUTE *Space*. } See { SPACE.
ABSOLUTE *Motion*. } See { MOTION.

ABSOLUTELY, ABSOLUTE, in Philosophy, and Theology. See ABSOLUTE.

In Grammar, we say, A Word is taken *absolutely*, *Absolute sumptus*, when it has no Regimen, or Government. Thus, in the Phrase *We shou'd pray without ceasing*; the Word *pray* is taken *absolutely*, as it governs nothing.

In Geometry, *Absolutely* is taken for entirely, compleatly. Thus, we say, such a thing is *absolutely* round; in contra distinction from what is only partly so, as a Spheroid, Cycloid, &c.

ABSOLUTION, ABSOLUTIO, in the Civil Law, &c. a definitive Sentence, whereby a Person accused of any Crime, &c. is acquitted, and declared Innocent.

Among the *Romans*, the ordinary Method of pronouncing Judgment was this: After the Cause had been pleaded on both sides, the Pretor used the Word *Dixerunt*, *q. d.* they have said what they had to say. Then, three Ballots were distributed to each Judge; one mark'd with the Letter *A.* for *Absolution*; another with *C.* for Condemnation; and a third with *N. L. non liquet*, it is not clear, to require respite of Judgment: and according as the Majority fell of this or that Mark, the Accused was *absolved* or condemn'd, &c. If he were *absolved*, the Pretor dismiss'd him with *Videtur non fecisse*, or *nihil in eo damnationis dignum invenio*.

When the Votes are equally divided on the Sides of *Absolution* and Condemnation, the Accused is *absolved*: This Procedure is supposed to be founded on the Law of Nature. Such is the Sentiment of *Faber* on the 125th Law. *de Div. Reg. Jur.* of *Cicero*, *pro Cluentio*; of *Quintilian*, *Declam.* 254; of *Strabo*, Lib. IX.

ABSOLUTION, in the Canon Law, is a Juridical Act, whereby a Priest, as a Judge, and in virtue of a Power given him by Jesus Christ, remits the Sins of such as appear to have the Conditions requisite thereto.

The *Romanists* hold *Absolution* a Part of the Sacrament of Penance: The Council of *Trent*, Sess. XIV. cap. iii. and that of *Florence*, in the Decree *ad Arminos*, declare the Form or Essence of the Sacrament to lie in the Words of *Absolution*, *I absolve thee of thy Sins*.

This *Formula* of *Absolution* in the *Romish* Church is Absolute; in the *Greek* Church, Deprecatory; and in the Churches of the Reformed, Declarative. *Arcuvius*, indeed, contends that the *Greek Formula* is absolute; and that it consists in these Words, *Mea mediocritas habet te venia donatum*. But the Instances he produces are either no *Formula's* of *Absolution*, or only of *Absolution* from Excommunication.

ABSOLUTION is chiefly used in the Reformed Churches for a Sentence whereby a Person who stands excommunicated, is releas'd or freed from the same. See EXCOMMUNICATION.

In the Church of *Scotland*, if the Excommunicated shew real Signs of godly Sorrow, and if upon Application to the Presbytery a Warrant be granted for his *Absolution*, he is brought before the Congregation to confess his Sin, and express his Sorrow, as often as the Presbytery shall think meet: When the Congregation is satisfy'd of his Penitence, the Minister puts up a Prayer, desiring Jesus Christ who has instituted the Ordinance of Excommunication, (*i. e.* of binding and loosing the Sins of Men on Earth) with a Promise of ratifying the righteous Sentence above, to accept of this Man, to forgive his Disobedience, &c. This done, he pronounces the Sentence of *Absolution*; by which his former Sentence is taken off, and the Sinner is again receiv'd into Communion.

In the Church of *Rome* there are divers other Political *Absolutions*; as *Absolutio à sævis*, which is necessary where a Person has been concern'd in seeing Sentence of Death executed on a Criminal, or has any other way disqualify'd himself for the holding of a Benefice.

Absolutio ad Cautelam, is that granted to a Person who has lodg'd an Appeal against a Sentence of Excommunication. It being a Maxim in the Papal Jurisprudence, that the Sentence stands good notwithstanding any Appeal; this sort of *Absolution* is sometimes granted till the Issue of his Appeal be known: by means hereof, some Articles, at least, of his Excommunication are taken off; insomuch that Persons may converse with him without danger: And beside, in Case of Death, this Sentence is supposed to stand him in some stead.

ABSORBENTS, in Medicine, Remedies which by the Softness or Porosity of their component Parts, become proper to sheath the Asperities of sharp pungent Humors; or to imbibe or dry away, as with a Sponge, superfluous Moistures.

Such are the Testaceous Pouders, Hartshorn, Coral, Crabs Eyes and Claws, calcin'd Bones, burnt Ivory, &c.

Absorbents are the same with what we otherwise call *Driers* and *Sweetners*.

The Term *Absorbent* is frequently confounded with *Alcaly*; Alcalies having, really, the Effect of *Absorbents* with respect to Acids. See ACID, and ALCALY.

ABSTEMIOUS, is properly understood of such Persons as refrain absolutely from Wine. *Pliny* more expresly says, *Vini abstemius*; and *Apuleius*, *Invinius*.

In the Religious Sense of the Word, they are said to be *Abstemious*, who in the Sacrament of the Supper cannot partake of the Cup, by reason of some natural Aversion to the Liquor. The Bishop of *Meaux* pleads the Example of the *Abstemious*, in behalf of excluding the Laity from Communion under that Kind.

The *Roman* Ladies, in the first Ages of the Republick, were all enjoin'd to be *Abstemious*; and that it might appear whether or no they kept up to the Injunction, it was one of the Laws of the *Roman* Civility, that they should kiss their Freinds and Relations whenever they accosted them.

The Word seems form'd of *abs* and *temetum*, an old Word signifying *Wine*.

ABSTERGENTS, or Abstersive *Medicines*, a Class of Remedies, whose Effect is to abrade and wipe away such mucous Particles as they meet in their Passage; and thus cleanse the Parts of viscid or impure Adhesions, and carry off the morbid Matter of Wounds, Ulcers, *&c.* See Medicine, Mundificative, *&c.*

Abstergents are more usually call'd among Physicians *Detergents*. See Detergent.

Abstergents are of the Genus of Balsamicks; and only differ in their degree of Subtilty and Efficacy, from Vulneraries. See Balsamick, and Vulnerary.

The principal Simples in the Class of Detergents, are the Leaves of *Wormwood*, *Garlick*, *Leeks*, *Capers*, *Scurvygrass*, *Fumitory*, *Liverwort*, *Tansy*, and *Vervain*; *Bitter Almonds*, *Figs*, *Jujebs*, *Raisins*, *Dates*, *Juniper-Berries*; *Gum Ammoniac*, *Balsam of Capivi*, *Balm of Gilead*, *Tacamahaca*, *Sapo*; *Turpentines*; *Barberries*, *Liquorice*, *Turmeric*, *Madder*, *Parmasitty*, *Mummy*, *Sulphur*, *Salt*, *Mercury*, and *Native Cinnabar*.——Most of which the Reader will find particularly describ'd under their proper Articles.

The Word *Abstergent* is compounded of the Latin *abs*, from; and *tergo*, I wipe.—Whence, also, *Abstersion* is sometimes used for the mechanical Act of *Tersion*, or Wiping. See Tersion.

ABSTINENCE, *Abstinentia*, the Habit of restraining or containing one's self from some Pleasure, or Enjoyment. See Pleasure.

The Word is compounded of the Latin *abs*, from; and *teneo*, I hold.

The *Jews* were oblig'd to *abstain* from their Wives at certain Seasons.—The same is enjoin'd in the Apostolical Constitutions, on all fast and meagre Days; and the Church of *England* recommends certain Days of Fasting and *Abstinence*.—The Great Fast, says St. *Augustin*, is to *abstain* from Sin. See Fast.

The antient *Athletæ* liv'd in a perpetual *Abstinence* from all kind of sensible Pleasure, to render their Bodies more robust and hardy. See Athleta.

Abstinence is particularly used for a spare Diet, or a slender parsimonious use of Food. See Food, and Diet.

The Physicians relate Wonders of the Effects of *Abstinence* in the Cure of many Disorders, and the protracting the Term of Life.—The Noble *Venetian*, *Corraro*, after all imaginable means had proved vain, so that his Life was despair'd of at 40; recover'd and liv'd to near 100, by mere dint of *Abstinence*: as he himself gives the Account.

'Tis indeed surprizing to what a great Age the primitive Christians of the East, who retir'd from the Persecutions into the Desarts of *Arabia* and *Egypt*, lived, healthful and chearful, on a very little Food: *Cassian* assures us, that the common Rate for twenty four Hours was twelve Ounces of Bread, and mere Water: with this St. *Anthony* lived 105 Years; *James* the Hermit, 104; *Arsenius*, Tutor of the Emperor *Arcadius*, 120; St. *Epiphanius* 115; *Simeon Stylites* 112; and *Romualdus* 120.

Indeed, we can match, nay out-do these Instances of Longævity, at home: *Buchanan* writes, that one *Lawrence* preserv'd himself to 140 by force of Temperance and Labour; and *Spotswood* mentions one *Kentigorn*, afterwards call'd St. *Mougah* or *Mungo*, who lived to 185 by the same means.—Other Instances see under the Article Longævity.

In effect, most of the Chronical Diseases, the Infirmities of old Age, and the short Lives of *Englishmen*, are owing, according to Dr. *Cheyne*, to Repletion; and may be either cured, prevented, or remedied, by *Abstinence*. See Repletion, Evacuation, *&c.*

Among the Brute Creation, we see extraordinary Instances of long *Abstinence*.—'Tis the natural Course for divers Species to pass four, five, or six Months every Year without either eating or drinking: Accordingly, the Tortoise, Bear, Dormouse, Serpent, Swallow, Fly, *&c.* are observ'd regularly to retire, at those Seasons, to their respective Cells and hide themselves, some in the Caverns of Rocks, or Ruins; others dig Holes under Ground; others get into the Woods, and lay themselves up in the Clefts of Trees; others bury themselves under Water, *&c.* See Migration, Passage, *&c.*

In effect, several Species of Birds, the whole Tribe almost of Insects, and many among the other Tribes, are able to subsist all Winter, not only without Food, but many of 'em without Respiration too.—This furnishes an admirable Instance of the Wisdom of the Creator. The proper Food of these Creatures, especially the Insect-Tribe, being now wanting; there is a Provision for 'em to live without it. When the Fields are divested of their flowery Furniture, when the Trees and Plants are stripp'd of their Fruits; what would become of such Animals as are subsisted by the Produce of the Spring, and Summer? And when the Air is grown rigid and chilly with Frost, what would become of those many tender Species which are impatient of Cold? To prevent the total Destruction and Extirpation of many Species of Animals; the Author of Nature has provided, that Creatures thus bereav'd of their Food, should be likewise impatient of Cold; to lead 'em thus to shelter themselves out of the way of Danger; and that when there arrived, the natural Texture and Viscidity of the Blood, should dispose it, by a further degree of Cold, to lag and stagnate in the Vessels: so that the Circulation stopping, and the Animal Functions being in great measure suspended; there is no sensible Waste or Consumption of Parts, but they remain in a kind of drousy neutral State, between Life and Death; till the warm Sun revive both them and their Food together, by thawing the congealed Juices both of such Animals and Vegetables. See Heat.

'Tis more than probable, that all Motion of the Animal Juices is extinct in Flies and other Insects, when thus asleep; in that, tho cut in pieces they do not awake, nor does any Fluid ooze out at the Wound; unless some extraordinary degree of Warmth have been first applied to unbind the Ice.—The Sleep of such Animals is little else than a real Death; and their Waking, a Resurrection.—For if Life do not consist in a Circulation of the Blood, we don't know what it consists in.——Animals thus asleep, therefore, are rather said to be alive potentially than actually; much as an Embryo is before Conception, or Incubation. See Life, Sleep, Blood, Circulation, Fœtus, *&c.*

Hence 'tis no wonder that Tortoises, Dormice, Bears, *&c.* are found as fat and fleshy after some Months *Abstinence* as before.—Sir *G. Ent* weigh'd his Tortoise several Years successively, at his going to Earth in *October*, and his coming out again in *March*; and found that of 4 Pounds 4 Ounces, he only used to lose about 1 Ounce. *Philosoph. Transact.* N° 194.

Indeed, we have Instances of Men passing several Months as strictly *abstinent* as other Creatures.—The Records of the *Tower* mention a *Scotchman* imprison'd for Felony, and strictly watch'd in that Fortress for six Weeks; in all which time he took not the least Sustenance: for which he had his Pardon. The *Ephem. German.* speak of one *Martha Taylor*, who by a Blow on the Back fell into such a Prostration of Appetite, that she took no Sustenance beside a few Drops with a Feather for thirteen Months: But this was a morbid and unnatural Case, for she slept but little all the Time.—We may add the Instance of *S. Chilton* of *Timsbury* near *Bath*, who in the Years 1693, 1694, 1695, slept sometimes four Months, and sometimes above six together, with very little Food; and six Weeks without any more than a little Tent, convey'd with a Quill into his Mouth thro' a hole in his Teeth. *Philosoph. Transact.* N° 304.

It is to be added, that in most Instances of long *Abstinence* related by Naturalists, there were apparent Evidences of a Texture of Blood and Humours, much like that of Summer-Beasts, and Insects.—Tho it is no improbable Opinion, that the Air it self may furnish something for Nutrition. 'Tis certain, there are Substances of all Kinds, Animal, Vegetable, *&c.* floating in the Atmosphere; which must be continually taken in by Respiration. And that an animal Body may be nourish'd thereby, is evident in the Instance of Vipers, which if taken when first brought forth, and kept from every thing but Air, will yet grow very considerably in a few Days. So the Eggs of Lizards are observed to increase in Bulk, after they are produced, tho there be nothing to furnish the Increment but Air alone; after the like manner, as the Eggs or Spawn of Fishes grow, and are nourish'd with the Water. See Air, and Water.——And hence, say some, it is, that Cooks, Turn-spit Dogs, *&c.* tho they eat but little, yet are usually fat. See Nutrition, Perspiration, *&c.*

ABSTRACT, Abstractum, in Philosophy, that which is separated from some other thing, by an Operation of the Mind called *Abstraction*. See Abstraction.

An Abstract *Idea*, is some simple Idea, detach'd and separated from any particular Subject, or Complex Idea; for the sake of viewing and considering it more distinctly, as it is in it self, its own Nature, *&c.* See Idea, Simple, Complex, *&c.*

Thus, Magnitude and Humanity are *Abstracts* when consider'd in themselves, and without being attach'd to any par-

ticular Body, or Perſon; tho they cannot have any real Subſiſtence without ſuch Subjects, nor the Subjects without them.

Thus, alſo, *Whiteneſs* is an *Abſtract*, or *abſtract* Term; inaſmuch as it does not denote any one white Object, but that Colour or Idea in the general, wherever found. See General.

From the Knowledge of *Abſtracts* we arrive at that of *Concretes*, which is the oppoſite Term; Concrete denoting a General or *Abſtract* Idea's being attach'd to ſome particular Subject, or conſider'd as combin'd with ſome other Ideas; as, *great* Houſe, *white* Wall. See Concrete.

The School Philoſophers define an *Abſtract Term* from the Simplicity of its Signification.—*Abſtracts*, according to them, expreſs only the Forms of Things, or Attributes of Things, diſtinct from the Subjects whereof they are Forms or Attributes: as, *Juſtice*, *Crookedneſs*, &c.—They diſtinguiſh 'em into divers Kinds; *Metaphyſical*, as Humanity; *Logical*, as Whiteneſs; and *Phyſical*, as Life, in reſpect of an Animal.

All our ſimple Ideas, ſays Mr. *Locke*, have *abſtract*, as well as concrete Names; as, *Whiteneſs*, *white*; *Sweetneſs*, *ſweet*, &c.

The like alſo holds in our Idea of Modes, and Relations; as, *Juſtice*, *juſt*; *Equality*, *equal*; &c.

But as to our Ideas of Subſtances, we have very few *abſtract* Names at all—Thoſe few that the Schools have forged, as *Animalitas*, *Humanitas*, &c. hold no Proportion with the infinite Number of Names of Subſtances; and could never get admittance into common Uſe, or obtain the Licence of publick Approbation: which ſeems to intimate a Confeſſion of Mankind, that they have no Ideas of the real Eſſences of Subſtances; ſince they have not Names for ſuch Ideas.

It was only the Doctrine of Subſtantial Forms, and the Confidence of miſtaken Pretenders to a Knowledge they had not, which firſt coined, and then introduced *Animalitas*, *Humanitas*, and the like; which yet went very little farther than their own Schools, and could never get to be current among underſtanding Men. See Substance.

But the Reality and Exiſtence of all *Abſtract* Ideas, and of any ſuch Faculty in the Mind as *Abſtraction*, has of late been controverted. See the Article Abstraction.

In effect, if there were any ſuch Things as *Abſtracts*, *Abſtract Qualities*, &c. we don't ſee how they could be deſtroy'd; they muſt be permanent and immutable: For that which deſtroys the white warm Flame, cou'd not reach the Whiteneſs or the Warmth: That which deſtroys the figured, moving, ſolid Ball, could not hurt the Figure, Motion, Solidity, *&c.*—*Abſtract Ideas*, in fine, ſeem to tend to Subſtantial Forms. See *Subſtantial* Form.

Abstract is alſo extended to divers other Things, in reſpect of their Purity, Simplicity, Subtility, *&c.*——In this Senſe, we ſay,

Abstract *Mathematicks*, are thoſe Branches of Mathematical Learning, which conſider Quantity and its Affections, ſimply, and abſolutely. See Quantity, and Mathematicks.

Such are *Arithmetic*, *Algebra*, *Geometry*, *Trigonometry*, and *Analyticks*. See Arithmetic, Algebra, Geometry, *&c.*

They are thus denominated, in oppoſition to *Mixt* Mathematicks; where the ſimple and abſtracted Properties and Relations of Quantity deliver'd in the former, are applied to ſenſible Objects; and by that means become intermix'd with Phyſical Conſiderations——Such are *Hydroſtatics*, *Optics*, *Navigation*, &c. where Water, Light, *&c.* are concern'd.

In the like Senſe ſome Authors ſpeak of *Abſtract Numbers*; meaning no more thereby than Numbers, or Aſſemblages of Unities, conſider'd in themſelves, and not applied to denote any Collections of particular ſorts of Things. See Number.

Abstract is alſo uſed in Matters of Literature, for a compendious View, or Epitome of a larger Work. See Epitome.

An *Abſtract* is ſuppoſed to be a degree ſhorter, and more ſuperficial than an Abridgment. See Abridgment.

ABSTRACTION, an Operation of the Mind, whereby we ſeparate Things naturally conjunct, or exiſting together; and form and conſider Ideas of Things thus ſeparated. See Abstract.

The Faculty of *Abſtracting*, ſtands directly oppoſite to that of Compounding—By Compoſition we conſider thoſe Things together, which in reality are not join'd together in one Exiſtence. And by *Abſtraction*, we conſider thoſe Things ſeparately and apart, which in reality do not exiſt apart. See Composition.

Abſtraction is chiefly employ'd theſe three ways—Firſt, when the Mind conſiders any one Part of a Thing, in ſome reſpects diſtinct from the Whole; as a Man's Arm, without the Conſideration of the reſt of his Body.

Secondly, when we conſider the Mode of any Subſtance, omitting the Subſtance it ſelf; or when we ſeparately conſider ſeveral Modes which ſubſiſt together in one Subject. See Mode.

This *Abſtraction* the Geometricians make uſe of, when they conſider the Length of a Body ſeparately, which they call a Line; omitting the Conſideration of its Breadth and Depth.

Thirdly, it is by *Abſtraction* that the Mind frames general or univerſal Ideas; omitting the Modes and Relations of the particular Objects whence they are form'd.—Thus, when we would underſtand a thinking Being in general, we gather from our Self-conſciouſneſs what it is to Think; and omitting the Conſideration of thoſe Things which have a peculiar Relation to our own Mind, or to the human Mind, we think of a thinking Being in general.

Ideas fram'd thus, which are what we properly call *Abſtract Ideas*, become general Repreſentatives of all Objects of the ſame Kind; and their Names applicable to whatever exiſts conformable to ſuch Ideas.—Thus, the Colour that we receive from Chalk, Snow, Milk, *&c.* is a Repreſentative of all of that Kind; and has a Name given it, *Whiteneſs*, which ſignifies the ſame Quality, wherever found or imagin'd. See General.

'Tis this laſt Faculty, or Power of *Abſtracting*, according to Mr. *Locke*, that makes the great Difference between Man and Brutes; even thoſe latter muſt be allowed to have ſome ſhare of Reaſon: That they really reaſon in ſome Caſes, ſeems almoſt as evident as that they have Senſe; but 'tis only in particular Ideas. They are tyed up to thoſe narrow Bounds; and do not ſeem to have any Faculty of enlarging them by *Abſtraction*. *Eſſay on Human Underſtanding*, L. III. c. 3.

Such is the Doctrine of *Abſtract Ideas*, under the Improvements of that excellent Author.——In effect, 'tis the ſtanding Opinion, that the Mind has ſuch a Power or Faculty of framing *Abſtract Ideas* or *Notions* of Things; and on ſuch very Ideas do a great part of the Writings of Philoſophers turn. Theſe are ſuppoſed in all their Syſtems; and without them there would be nothing done.—They are more eſpecially reputed the Object of Logick and Metaphyſicks, and all that paſſes under the Notion of the moſt *abſtracted* and *ſublime* Learning.

Yet has a late eminent and ingenious Author, Dean *Berkeley*, conteſted the Reality of any ſuch Ideas; and gune a good way towards overturning the whole Syſtem, and conſequently towards ſetting our Philoſophy on a new footing.

The Qualities or Modes of Things, 'tis on all hands agreed, do never really exiſt apart, and ſeparated from all others; but are conſtantly mix'd and combin'd together, ſeveral in the ſame Object.—But, ſay the Philoſophers, the Mind being able to conſider each Quality ſingly, or *abſtracted* from other Qualities with which it is united, does by that means frame to it ſelf *Abſtract Ideas*, of a different Nature and Kind from the ſenſible ones.

For an Example hereof, The Eye perceiving an Object extended, coloured, and moved, reſolves this Compound Idea, into its ſimple, conſtituent ones; and viewing each by it ſelf, excluſive of the reſt, frames *Abſtract Ideas* of *Extenſion*, *Colour*, and *Motion* themſelves, or in their own Nature.—Not that it is poſſible for ſuch Colour and Motion to exiſt without Extenſion; but only that the Mind can frame to it ſelf, by *Abſtraction*, the Idea of Colour excluſive of Extenſion; and of Motion, excluſive both of Colour and Extenſion.

Again, ſay the ſame Philoſophers, the Mind having obſerv'd that in the particular Extenſions perceived by Senſe, there is ſomething common, and alike in all; and ſome other things peculiar; as this, or that Figure or Magnitude, which diſtinguiſh them one from another; it can conſider apart, or ſingle out by it ſelf, what is common; making thereof a general abſtract Idea of Extenſion, which is neither *Line*, *Surface*, nor *Solid*, nor has any *Figure* or *Magnitude*, but is an Idea entirely preſcinded from 'em all.——So, likewiſe, by leaving out of the ſeveral Colours perceived by Senſe, that which diſtinguiſhes them from one another, and only retaining what is common to all, it makes an Idea of Colour in the *Abſtract*, which is neither *red*, nor *blue*, nor *white*, &c.—After the ſame manner, by conſidering Motion abſtractedly, both from the Body moved, and from the Figure it deſcribes, and all particular Directions, and Velocities; an *Abſtract* Idea of Motion is framed, which equally correſponds to all Motions whatever.

They add, that as the Mind frames *Abſtract* Ideas of Qualities or Modes; ſo does it, by the ſame Faculty, attain *Abſtract* Ideas of the more compound Beings, which include many coexiſtent Qualities.——For an Example—Having obſerv'd that *Peter*, *James*, *John*, &c. reſemble each other in Shape, and other Qualities; we can leave out of the Complex Idea we had of *Peter*, *James*, &c. that which is peculiar to each, retaining only what is common to all, and ſo make an *Abſtract* Idea, wherein all the Particulars equally partake.

partake.—And thus it is we are supposed to come by the *Abstract* Idea of *Man*, or of *Humanity*, or *Human Nature*; wherein there is indeed included Colour, because no Man but has some Colour, but it is neither *white*, nor *black*, nor *brown*; because there is no one particular Colour wherein all Men partake. So likewise there is included Stature, but then it is neither *tall*, nor *low*, nor yet *middle Stature*, but something *abstracted* from all these: And so of the rest.

Farther yet, there being a general Variety of other Creatures, which partake in some Parts, but not all, of the Complex Idea of Man; the Mind leaving out those Parts which are peculiar to Men, and retaining those only which are common to all living Creatures, frames the Idea of *Animal*; which *abstracts* or participates not only of all Men, but all Birds, Beasts, Fishes, and Insects.

The constituent Parts of such *Abstract Idea* of Animal, are Body, Life, Sense, and spontaneous Motion.—By *Body*, is meant, Body without any particular Shape, or Figure; there being no one common to all Animals; without Covering, either of Hair, of Feathers, or Scales: nor yet naked; Hair, Feathers, Scales, and Nakedness, being the distinguishing Properties of particular Animals, and for that Reason left out of the *Abstract* Idea. Upon the same Account, the spontaneous Motion must be neither walking, nor flying, nor creeping; it is nevertheless a Motion—But what that Motion is, it is not easy to conceive.

'I will not affirm, *says Dr.* Berkeley, that other People 'have not this wonderful Faculty of *abstracting* their Ideas; 'but I am confident I have it not my self.—I have, indeed, a Faculty of imagining, or representing to my self 'the Ideas of Things I have perceived, and of variously 'compounding or dividing them: I can imagine a Man with 'two Heads, or the upper Parts of a Man join'd to the Body of a Horse. I can consider the Hand, the Eye, the 'Nose, each by it self, *abstracted* or separated from the rest 'of the Body—But then, whatever Hand or Eye I imagine, it must have some particular Shape and Colour.—So, 'again, the Idea of a Man I frame to my self, must be 'either of a white, or a black, or a tawny, a strait or a 'crooked, a tall, or a low, or a middle-siz'd Man.

'I cannot by any Effort of Thought conceive the *Abstract* Idea above described; and it is equally impossible 'for me to form the *Abstract Idea* of Motion, distinct from 'the Body moving, and which is neither swift nor slow, 'curvilinear, nor rectilinear.—And the like may be said of 'all other *abstract* general Ideas whatever.'

Since all things that exist are only Particulars, 'Whence, '*says Mr.* Locke, is it, that we come by general Words, 'expressive of a thousand Individuals?' His Answer is, 'Terms only become general, by being made the Signs of 'abstract and general Ideas;' so that the Reality of *Abstract* Ideas, should follow from the Reality of General Words.——But this is a Deception.—A Word becomes General, by being made the Sign, not of an *abstract* general Idea, but of several particular ones; any one of which it indifferently suggests to the Mind.—For an Example, when I say that *Whatever has Extension is divisible*; the Proposition is to be understood of Extension in general: not that I must conceive any *abstract* general Idea of Extension; which is neither Line, Surface, nor Solid, neither great nor small, *&c.*

To make this more evident, Suppose a Geometrician to be demonstrating a Method of dividing a Line in two equal Parts: In order hereto, he draws, for instance, a black Line, an Inch long; and this, which in it self is a particular Line, is nevertheless, with respect to its Signification, general; since it represents all Lines whatever: So that what is demonstrated of this one, will hold of all others—And as that particular Line becomes general by being made a Sign; so does the Name *Line*: And as the former owes its Generality, not to its being the Sign of an *abstract* or general Line, but of any or all particular right Lines that may possibly exist; so must the latter derive its Generality from the same Cause. See General *Term*.

Mr. *Locke*, speaking of the Difficulty of forming *Abstract Ideas*, says; 'And does it not require some Pains 'and Skill to form the general Idea of a Triangle, which 'yet is none of the most *abstract* and comprehensive; for 'it must be neither Oblique, nor Rectangular; neither Equilateral, Isosceles, nor Scalenous; but all, and none of 'these, at once.'——'Now, let any Man look into his 'Thoughts, and try whether he has, or can attain to an 'Idea of a Triangle, correspondent to this Description.'

From the Notion of *Abstract Ideas*, Dr. *Berkeley* endeavours to shew, it was, that Bodies first came to be supposed to have an Existence of their own, out and independent of the Mind perceiving 'em.—Can there be a greater Strain of *Abstraction*, says he, than to distinguish the Existence of sensible Objects from their being perceiv'd, so as to conceive them existing unperceiv'd. See Body, and External *World*.

We shall only add, that *abstracting*, on the common System, is no more than generalizing: 'tis making one thing stand for an hundred, by omitting the Consideration of the Differences between 'em: It is taking several Differents, *i. e.* different Combinations, setting aside the Peculiarities in each, and considering only what is found alike in all.——Thus it is that I say, *I love my Friend, love my Mistress, love my self, my Bottle, my Book, my Ease*, &c.—Not that it is possible I should have the same Sensation with respect to so many different sorts of things, things that stand in such different Relations to me; but only that there appearing something in them all that bears a resemblance to the rest, in some Circumstances or other, I chuse to call 'em all by one Name, *Love*. For if I consider the Tendency of the Effects of them all, I shall find they lead me very different ways to very different Actions: and there is not more resemblance between the Causes than between the Effects: All the Analogy there is between them, is a sort of Pleasure or Satisfaction, arising upon the Application of the particular Object to its proper Organ, or Sense.——The *Abstract Idea* of Love, then, will terminate in the Idea of Pleasure: But, 'tis certain, there can be no Idea of Pleasure, without a thing pleasant to excite it. Any other *Abstract Idea* of Pleasure, will amount to no more than a View or Perception of the Circumstances wherewith our Pleasures have been attended: But these are mere Externals, foreign to the pleasurable Sensation it self; which nothing but an Object applied in such and such a manner, can excite.—To suppose an Idea of Pleasure produced obliquely, by any other than the proper Cause, is as absurd as to suppose an Idea of Sound, produced without a sonorous Object. The Mind has no Power of making any Ideas, call 'em what you will, whether *Abstract*, or Concrete; or General, or Particular: Its Activity goes no farther than to the perceiving of such as are presented to it: So that its Action is really no other than a degree of Passion. See Sense.

ABSTRUSE, denotes something to be deep hidden, or far-removed from the common Apprehensions, and ways of conceiving; in opposition to what is obvious and palpable.

In this Sense, Metaphysicks is an *abstruse* Science; the new Doctrine of Infinites is an *abstruse* Point of Knowledge; that few People attain to.—The Word is of *Latin* Original, *Abstrusus*; form'd of *abs*, from, and *trudo*, I thrust; *q. d.* being far off, and out of reach.

ABSURD, Absurdum, a thing that thwarts, or goes contrary to our common Notions and Apprehensions. See Absurdity.

Thus, a Proposition would be *absurd*, that should affirm, that two and two make five; or that should deny 'em to make four. See Proposition.

The Logicians have a way of proving the Truth of a Proposition, by shewing the contrary is *absurd*. See Truth.—This they call

Reductio ad Absurdum, or *arguing ex Absurdo*: See Reduction.

ABSURDITY, Absurdities, is a kind of Error, or Offence against some evident, and generally allowed Truth, or Principle. See Error, Maxim, *&c.*

The greatest of all *Absurdities* is the *Contradiction*. See Contradiction.

The Schoolmen make two Species of *Absurdities*—The one, απλῶς, which contradicts the common Sense of Mankind; the other τινὶ, which gives the Lye to some one or more Philosophers; *e. g. Aristotle*.—The latter sort may be a real Truth.

ABSYNTHIUM, *Wormwood*, a Medicinal Plant, of considerable Efficacy in quality of a Bitter and Stomachic. See Stomachic, *&c.*

There are divers Kinds hereof enumerated by Botanists; at least 30. Those which obtain in Medicine, are, 1°, the *Roman* or small, call'd also *Pontic*; used as a Stomachic, Astringent, Discutient, and to prevent Putrefaction.—*Etmuller* says, there is not a chronic Distemper in which it is not serviceable.—A Conserve of the *Roman Absynthium* is now also much used.

2°, The *common* or large *Wormwood*, bitterer much than the former, and antiently used not only as a Stomachic and a Destroyer of Worms, but also a Detergent; and prescrib'd against the Jaundice and Dropsy: But it is now grown into disuse in those Intentions, as being prejudicial to the Eyes; and is now chiefly retain'd as an Ingredient in some of the Officinal Compositions; and particularly some cephalick distill'd Waters. See Water.

Its Infusion in Wine, makes what they call *Vinum Absynthites*. See Wine.—The Pharmacopeias also mention an Extract of *Absynthium*, *Extractum Absynthii*; and a Syrup of *Absynthium*, *Syropus de Absynthio*.

Some will have this to yield the *Semen Sanctum*, or *Santonicum*, i. e. *Wormseed*; but *Matthiolus* affirms the contrary. See Santonicum.

The Word is compounded of the Privative Particle α, and πιστον, *potable*; *q. d.* not potable.

ABUNDANCE, *Copia*, *Plenty*. See Fertility, Cornucopia, &c.

Abundance, when carried to an Excess, is a Fault, call'd *Redundance*, *Exuberance*, &c. See Redundance, Exuberance, &c.

The Author of the *Dictionaire Oeconomique* gives divers Manners or Secrets of producing *Abundance*; an *abundant* Crop of Wheat, Pears, Apples, Peaches, &c. See Fecundity.

ABUNDANT *Numbers*, are those whose Quota-Parts added together, exceed the Number it self whereof they are Parts. See Number.

Thus, the Number 12 is *abundant*, its Quota-Parts 1, 2, 3, 4, and 6, amounting to 16.—In opposition to *Abundant Numbers* stand *Defective* ones. See Defective.

ABUSE, an irregular Use of a thing; or something introduced contrary to the proper Order, and Intention thereof.

The Business of Reformations, Visitations, &c. is to correct *Abuses* secretly kept into Discipline, &c.—*Constantine* the Great, by introducing Riches into the Church, laid the Foundation for those numerous *Abuses* which the succeeding Ages groaned under.

Self-Abuse, is a Phrase used by some late Writers for the Crime of Self-Pollution. See Pollution.——*Nero* is said to have frequently *abused Britannicus*.

In Grammar, to apply a Word *abusively*, or in an *abusive* Sense, is to misapply or pervert its meaning. See Catachresis.

A Permutation of Benefices, without the Consent of the Bishop, is deem'd *abusive*, and consequently null.

ABUTALLS, or Abutals. See Abuttals.

ABYSS, Abyssus, a profound, and as it were, bottomless Gulph, or Cavern. See Gulf.

The Word is *Greek*, αβυσσος; compounded of the Privative α, and βυω, *I enter*, *reach*; *q. d.* something impenetrable, or not to be fathom'd.

In Scripture, the Word *Abyss*, αβυσσος, is used by the Septuagint, for the Waters which God created at the Beginning with the Earth, which encompass'd it round; and which our Translators render the *Deep*. Thus it is that Darkness is said to have been on the Face of the *Abyss*.—The same Word is also used for that immense Cavern in the Earth where God collected all these Waters on the third Day; which in our Version is render'd the *Sea*; and elsewhere the *Great Deep*.

Dr. *Woodward* has let some Light into this great *Abyss*, in his *Natural History of the Earth*.——He asserts, That there is a mighty Collection of Waters inclosed in the Bowels of the Earth; constituting a huge Orb in the interior or central Parts of it; and over the Surface of this Water, he supposes the Terrestrial *Strata* to be expanded.—This, according to him, is what *Moses* calls *the great Deep*, and what most Authors render *the great Abyss*.

That there is such an Assemblage of Waters lodged in the Depths of the Earth, is confirmed by abundance of Observations. See Earth, Deluge, &c.

The Water of this vast *Abyss*, he asserts, does communicate with that of the Ocean, by means of certain *Hiatus's*, or Chasms passing betwixt it and the bottom of the Ocean: And this and the *Abyss* he supposes to have one common Centre, around which the Water of both is placed; but so, that the ordinary Surface of the *Abyss* is not level with that of the Ocean, nor at so great a distance from the Centre as the other, it being for the most part restrained and depressed by the *Strata* of Earth lying upon it; but wherever those *Strata* are broken, or so lax and porous that Water can pervade them, there the Water of the *Abyss* doth ascend, fills up all the Clefts and Fissures into which it can get admittance; and saturates all the Interstices and Pores of the Earth, Stone, or other Matter all around the Globe, quite up to the Level of the Ocean. See Strata, Fossil, &c.

ACACIA, in Medicine, an inspissated Juice, of a Shrub of the Thorn kind; used as an Astringent. See Astringent.

There are two Kinds, the *Vera* and *Germanica*.

The *Acacia Vera*, is brought from the *Levant*; and supposed to be the Juice of the Pods of a large thorny Tree, growing in *Egypt* and *Arabia*.—Some Naturalists will have it the same Plant that yields the Gum Arabick.

It is very austere and binding; and on that account good against Fluxes.—Chuse that of a tan-colour, smooth, and shining; and an astringent disagreeable Taste.—It is, or should be, an Ingredient in the *Theriaca Andromachi*.

The *German Acacia* is a Counterfeit of the former; being made of the Juice of unripe Sloes, boil'd to the Consistence of a solid Extract; and put up in Bladders, like the former.—It is distinguish'd from it chiefly by its Colour, which is as black as that of *Spanish* Liquorice.—It is used as a Substitute to the true *Acacia*.

Acacia, among Antiquaries, is a kind of Roll, resembling a Bag; seen on Medals in the Hands of several of the Consuls and Emperors, from the Time of *Anastasius*.

Authors are not agreed either about the Use of this Roll, or about the Substance whereof it consists; some taking it for a plaited Handkerchief, which the Person who presided at the Games threw out as a Signal for their beginning; whilst others rather imagine it intended to represent a Roll of Memoirs, or Petitions. See further under the Article Roll.

ACADEMICKS, Academici, Academists, a Sect of antient Philosophers, founded by *Plato*; and called, also, the *Academy*. See Academy.

The *Academicks*, in the later Ages, have taken the Name of *Platonists*. See Platonist.

The great Dogma of the *Academicks* was this: *Unum scio, quod nihil scio*; 'I know this one thing, that I know 'nothing.'——Accordingly, they pleaded, that the Mind ought always to remain undetermin'd and in Suspence; as having nothing to determine on but bare Probability or Verisimilitude, which is as likely to lead into Error as Truth. See Probability, Truth, Error, &c.

It must be added, that *Plato*, in thus recommending it to his Disciples to distrust and doubt of every thing; had it not so immediately in View to leave 'em fluctuating, and in continual Suspence between Truth and Error; as to guard against those rash precipitate Decisions which young Minds are so liable to, and put 'em in a Disposition to enable 'em the better to secure themselves from Error, by examining every thing without Prejudice.

M. *des Cartes*, has adopted this same *Acatalepsia*, or Principle of Doubting; but, it must be allow'd, he makes a very different use of it.—The *Academicks* doubted of every thing, and were resolved still to doubt: *Des Cartes*, on the contrary, sets out with doubting of every thing; but declares he will not always doubt; and that he only doubts at first, that his Determinations afterwards may be the surer. See Cartesianism.

'In *Aristotle*'s Philosophy, say the Followers of *Des Cartes*, there is nothing doubted of; every thing is accounted 'for, and yet nothing is explain'd, otherwise than by barbarous unmeaning Terms, and dark confused Ideas: 'Whereas *Des Cartes* makes you even forget what you 'knew before: but from your new affected Ignorance, leads 'you gradually into the sublimest Knowledge.'——Hence they apply to him what *Horace* says of *Homer*.

Non Fumum ex Fulgore, sed ex fumo dare Lucem
Cogitat, ut speciosa dehinc miracula prodat
Antiphatem, Scyllamque & cum Cyclope Charybdim.

'Tis thus the *Cartesians* talk: But we may add, that long before their Master, *Aristotle* himself had said, that to know a thing well, a Man must first have doubted of it; and that 'tis with doubting all our Knowledge must begin. See Peripatetic, Pyrrhonian, Sceptic, &c.

Academics, or rather Academists, is also used among us for the Members of the modern *Academies*, or instituted Societies of learned Persons. See Academy.

ACADEMY, Academia, in Antiquity, a fine Villa, or Pleasure-House, situate in one of the Suburbs of *Athens*, about a Mile from the City; which gave the Denomination to the Sect of *Academists*. See Academick.

It took its Name, *Academy*, from one *Academus* or *Ecademus*, a Citizen of *Athens*, to whom it originally belong'd; and who used to have Lectures, and Assemblies of learned Men therein.—He lived in the Time of *Theseus*.

Some, mistakenly, derive its Name and Origin from *Cadmus* the *Phœnician*, as being the first who introduc'd Learning, and the use of Letters among the *Greeks*.

The *Academy* was further improved and adorn'd by *Cymon*, with Fountains, Trees, shady Walks, &c. for the Convenience of the Philosophers and Men of Learning, who here met to confer, dispute, &c.—It was also the Burying-Place of illustrious Persons, who had deserv'd well of the Republick.

Here it was that *Plato* taught his Philosophy; and from him, all publick Places destin'd for Assemblies of the Learned and Ingenious, have been since call'd *Academies*.

Sylla sacrific'd the delicious Groves and Walks of the *Academy*, planted by *Cymon* to the Laws of War; and employ'd those very Trees to make Machines wherewith to batter the City.

Cicero had a Villa, or Country Retirement near *Puzzuoli*, which he call'd by the Name *Academia*; where he used to entertain his Philosophical Friends.—'Twas here, says Dr. *Harris*, he compos'd his *Academical Questions*, and his Books *de Officiis*, *de Amicitia*, and *de Natura Deorum*.

Academy is also used for a Sect of Philosophers, called the *Academicks*. See Philosopher, and Academick.

We usually reckon three *Academies*, or Sects of *Academicks*; tho some make five.—The *Antient Academy*, was that whereof *Plato* was the Chief. See Platonism.

Arcesi-

Arcesilaus, one of his Successors, introducing some Alterations into the Philosophy of this Sect, founded what they call the *Second Academy*.

The Establishment of the *third*, call'd also the *New Academy*, is attributed to *Lacides*, or *Carneades*.

Some Authors add a fourth, founded by *Philo* and *Carmides*; and a fifth by *Antiochus*, called the *Antiochan*, which temper'd the *Antient Academy* with Stoicism. See STOICISM.

The *Antient Academy* doubted of every thing; and went so far as to make it a Doubt, whether or no they ought to doubt.—'Twas a sort of Principle with them, never to be sure or satisfy'd of any thing; never to affirm or deny any thing either for true or false.—In effect, they asserted an absolute *Acatalepsia*. See ACATALEPSIA.

The *New Academy* was somewhat more reasonable; they own'd several things for Truths, but without attaching themselves to any with entire Assurance.——These Philosophers had found, that the ordinary Commerce of Life and Society was inconsistent with the absolute and universal Doubtfulness of the *Antient Academy*: and yet, 'tis evident, they themselves looked upon things rather as probable, than as true and certain; by this Amendment, thinking to secure themselves from those Absurdities into which the *Antient Academy* had fallen. See DOUBTING, *&c.*

See also further in the *Academical Questions* of *Cicero*; where that Philosopher explains and unravels the Sentiments of those who in his Days call'd themselves Followers of the *new* and *old Academy*, with great Clearness and Address.

ACADEMY is particularly used among the Moderns, for a regular Society or Company of learned Persons; instituted under the Protection of a Prince, for the Cultivation and Improvement of Arts, or Sciences. See SOCIETY.

Some Authors confound *Academy* with University; but, tho much the same in *Latin*, they are very different things in *English*.—An University is, properly, a Body composed of Graduates in the several Faculties; of Professors, who teach in the publick Schools; of Regents or Tutors, and Students who learn under them, and aspire likewise to Degrees. See UNIVERSITY.

Whereas an *Academy* is not intended to teach, or profess any Art, such as it is, but to improve it: 'Tis not for Novices to be instructed in, by those that are more knowing; but for Persons of distinguish'd Abilities to confer in, and communicate their Lights and Discoveries to each other for their mutual Benefit.

The first *Academy* we read of, was establish'd by *Charlemaign* at the Motion of *Alcuin*: It was composed of the chief Wits of the Court, the Emperor himself being a Member.—In their *Academical* Conferences, every Person was to give an account of what antient Authors he had read; and each even assumed the Name of some antient Author whom he affected most, or some celebrated Person of Antiquity. *Alcuin*, from whose Letters we learn these Particulars, took that of *Flaccus*, the Sirname of *Horace*: a young Lord, named *Angilbert*, took that of *Homer*: *Adelard*, Bishop of *Corbie*, was called *Augustin*: *Riculfe*, Bishop of *Mentz*, was *Dametas*; and the King himself, *David*. See SCHOOL.

This lets us see a Mistake in some modern Writers, who relate, that it was in Conformity with the Genius of the learned Men of those Times, who were great Admirers of *Roman* Names, that *Alcuin* took the Name of *Flaccus Albinus*.

Most Nations have now their *Academies*, *Russia* not excepted: But, of all Countries, *Italy* bears the Bell in this respect.——We have but few in *England*.—The only one of Eminence is called by another Name, *viz.* the *Royal Society*: An Account whereof, see under the Article ROYAL *Society*.

Beside this, however, we have a *Royal Academy* of Musick; and another of Painting; establish'd by Letters Patent, and govern'd by their respective Directors.

The *French* have flourishing *Academies* of all Kinds, establish'd at *Paris*; mostly by the late King.

Royal ACADEMY *of Sciences*, for the Improvement of Physicks, Mathematicks, and Chymistry; was first set on foot in *1666*, by Order of the King, tho without any Act of Royal Authority issued for that End.—In the Year *1699*, it had as it were a second Birth; the same Prince, by a Regulation dated the 26th of *January*, giving it a new form, and putting it on a new and more solemn Footing.

In Virtue of that Regulation, the *Academy* was to be composed of four Kinds of Members, *viz. Honorary*, *Pensionary*, *Associates*, and *Eleves*.—The first Class to consist of ten Persons; and the rest of twenty each.—The *Honorary Academists* to be all Inhabitants of *France*; the *Pensionaries* all to reside at *Paris*; eight of the *Associates* allowed to consist of Foreigners; and the *Eleves* all to live at *Paris*.—The Officers, to be a *President*, named every Year by the King, out of the Class of Honorary *Academists*; and a *Secretary* and *Treasurer*, to be perpetual.

Of the Pensionaries, three to be Geometricians, three Astronomers, three Mechanicks, three Anatomists, three Chymists, three Botanists; the remaining two, Secretary and Treasurer.——Of the twelve Associates, two to apply themselves to Geometry, two to Astronomy, two to Mechanicks, two to Anatomy, two to Botany, and two to Chymistry.—The Eleves to apply themselves to the same kind of Science with the Pensionaries they are attach'd to; and not to speak, except when called thereto by the President.—No Regular or Religious to be admitted, except into the Class of Honorary *Academists*: Nor any Person to be admitted, either for Associate or Pensionary, unless known by some considerable printed Work, some Machine, or other Discovery.—Further, no Person to be allowed to make use of his Quality of *Academist*, in the Title of any of his Books, unless such Book have been read to, and approved by the *Academy*.

The Meetings of the *Academy* were appointed to be held twice a-week, on *Wednesdays* and *Saturdays*, in the King's Library: (Tho soon after, they were removed to a more commodious Apartment in the *Louvre*) And to last, at least, two Hours, *viz.* from Three to Five. At the Beginning of every new Year, each Pensionary to be oblig'd to declare in Writing what Work he intends chiefly to prosecute that Year; and the rest to be invited to do the same. All the Observations the *Academists* bring to the Meeting to be left in Writing, in the Hands of the Secretary; who is to enter the Substance of what passes at each Assembly in a Register: and at the End of every Year, to publish the History, or Transactions of the *Academy* for that Year.

No Person, not a Member, to be present at their ordinary Meetings; unless such as are introduced by the Secretary, to propose some new Machine or Discovery; tho their publick Meetings, twice a-year, shall be open to every body.

To encourage the Members to continue their Labours, the King engages not only to pay the ordinary Pensions; but even to give extraordinary Gratifications, according to the Merit of their respective Performances: furnishing, withal, the Expence of the Experiments, and other Inquiries necessary to be made—Their Motto, *Invenit & perfecit*.

In the Year 1716, the Duke of *Orleans*, then Regent, made an Alteration in their Constitution; augmenting the Number of Honoraries, and of Associates capable of being Foreigners, to twelve; admitting Regulars among such Associates; suppressing the Class of Eleves, and establishing, in lieu thereof, a new Class of twelve *Adjuncts*, to the six several Kinds of Sciences cultivated by the *Academy*: and, lastly, appointing a Vice-President, to be chose yearly by the King, out of the Honorary Members; and a Director and Sub-director out of the Pensionaries.

Their Secretary, M. *de Fontenelle*, has oblig'd the Publick with 28 elegant Volumes of the Productions of this illustrious Body; under the Title of *Histoire de l'Academie Royale*, &c. *avec les Memoires de Mathematique & de Physique tirez des Registres*, &c.

ACADEMY *of Painting*, was establish'd fifty Years ago, under the Cardinal *Mazarin*, first Protector thereof; and the Chancellor *Seguier*, Vice-Protector.

It consists of a Director, a Chancellor, four Rectors, a Treasurer, twelve Professors; Adjuncts to the Rectors and Professors; Counsellors; a Secretary; a Professor for Anatomy, and another for Geometry, and Perspective.

Persons are here admitted either in Quality of Painters or Sculptors.—The Painters are admitted according to their respective Talents; there being a Distinction made between those who work in History, and those who only paint Portraits, or Landskips, or Beasts, or Fruits, or Flowers, or paint in Mignature; or only Design; or Engrave; or Carve, *&c.*

ACADEMY *of Medals and Inscriptions*, was erected for the Study and Explanation of antient Monuments; and to consecrate great and memorable Events to Posterity, by similar Monuments; as Medals, Relievo's, Inscriptions, *&c.*

ACADEMY *of Politicks*, is composed of six Persons, who meet on certain Days each Week at the *Louvre*, in the Chamber where the Papers relating to foreign Affairs are lodg'd.—Here they peruse such Papers as are put in their Hands, by order of the Secretary for foreign Affairs, who acquaints the King with the Progresses they make, and the Capacities of each, that his Majesty may employ them accordingly.

French ACADEMY, establish'd for the Improvement and Refining of the Language. See FRENCH, and LANGUAGE.

ACADEMY *of Musick*, is no other than the Managers and Directors of the Opera. See OPERA.

The *French* have also considerable *Academies* in most of their great Cities; as, at *Montpelier*, a *Royal Academy of Sciences*, on the like Footing as that at *Paris*; being as it were a Counterpart thereof: At *Tholouse*, an *Academy* under the Denomination of *Lanternists*: Others at *Nismes*, *Arles*, &c.

The Royal Spanish ACADEMY, is an *Academy* establish'd at *Madrid*, on the Model of the *French Academy*.——

The Design was laid by the Duke *d'Escalona*; and approv'd of by the King in 1714, who declar'd himself Protector thereof.—It consists of 24 *Academists*; including the Director and Secretary.

Its Device is a Crucible on the Fire, with this Motto, *Limpia, fija, y da esplendor.*

ACADEMY *of the Naturæ Curiosi*, in *Germany*, was first founded in 1652, by M. *Bauch* a Physician; and taken in 1670 under the Protection of the Emperor *Leopold*.

There are other *Academical* Institutions at *Berlin*, and other Parts of the North; several of which having distinguish'd themselves by their Journals, Ephemerides, &c. the Reader will find an Account of 'em under the Article JOURNAL.

Italy, alone, has more *Academies* of note than all the rest of the World; not a City but surpasses a Set of learned Persons for an *Academy*, which to them seems an essential Part of a regular Constitution.—*Jarckius* has given us a Specimen of their History, printed at *Leipsic*, in 1725; and gives us, withal, to expect a fuller and more perfect Account from several learned Persons, who have been long 'employ'd about the same; as *Krausius*, Professor of Eloquence at *Leipsic*; *Hyacinth. Gimma*, and *Mich. Richeyus*.

Jarckius's Account goes no further than those of *Piedmont*, *Ferrara*, and *Milan*; in which last City he reckons 25: But he adds a List of all the rest, to the Number of 550.—The Names of most of 'em are very curious.

The *Academists*, *e.g.* of Boulogne, are called *Abandonati*, *Ansiosi*, *Otiosi*, *Arcadi*, *Confusi*, *Difettuosi*, *Dubbiosi*, *Impatienti*, *Inabili*, *Indifferenti*, *Indomiti*, *Inquieti*, *Instabili*, *Della notte*, *Piacere*, *Sitienti*, *Sonnolenti*, *Torbidi*, *Vespertini*.——Those of Genoa, *Accordati*, *Sopiti*, *Resuegliati*: Of Gubio, *Addormentati*: Of Venice, *Acuti*, *Allettati*, *Discordanti*, *Disgiunti*, *Disingannati*, *Dodonei*, *Filadelfici*, *Incruscabili*, *Instancabili*: Of Rimini, *Adagiati*, *Entrapeli*: Of Pavia, *Affidati*, *Della Chiave*: Of Fermo, *Raffrontati*: Of Molisa, *Agitati*: Of Florence, *Alterati*, *Humidi*, *Furfurati*, *Della Crusca*, *Del Cimento*, *Infocati*: Of Cremona, *Animosi*. Of Naples, *Ardiri*, *Infernati*, *Intronati*, *Lunatici*, *Segreti*, *Sirenes*, *Sicuri*, *Volanti*: Of Ancona, *Argonauti*, *Caliginosi*: Of Urbino, *Assorditi*: Of Perugia, *Atomi*, *Eccentrici*, *Insensati*, *Instipidi*, *Unisoni*: Of Tarentum, *Audaci*: Of Macerata, *Catenati*, *Imperfetti*: Of—— *Chimærici*: Of Sienna, *Cortesi*, *Gioviali*, *Trapassati*: Of Rome *Delfici*, *Humoristi*, *Lyncei*, *Fantastici*, *Illuminati*, *Incitati*, *Indisposiri*, *Insecondi*, *Malencolici*, *Negletti*, *Notti Vaticane*, *Notturni*, *Ombrosi*, *Pellegrini*, *Sterili*, *Vigilanti*: Of Padua, *Delii*, *Immaturi*, *Ordati*: Of Trepano, *Difficili*: Of Bresse, *Dispersi*, *Erranti*: Of Mutina, *Dissonanti*: Of Recanatum, *Disuguali*: Of Syracuse, *Ebrii*: Of Milan, *Eliconii*, *Faticosi*, *Fenici*, *Incerti*, *Nascosti*: Of Candia, *Extravaganti*: Of Pesaro, *Eterocliti*: Of Comachio, *Fluttuanti*: Of Arezzo, *Forzati*: Of Turin, *Fulminales*: Of Reggio, *Fumosi*, *Muti*: Of Cortona, *Humorosi*: Of Bari, *Incogniti*: Of Rossano, *Incuriosi*: Of Brada, *Innominati*, *Pigri*: Of Acis, *Intricati*: Of Mantua, *Invaghiti*: Of Agrigento, *Mutabili*, *Offuscati*: Of Verona, *Olympici*, *Uranii*: Of Viterbo, *Ostinati*: Of —— *Vagabondi*.

ACADEMY, is also used among us for a kind of Collegiate School, or Seminary; where Youth are instructed in the Liberal Arts, and Sciences; in a private way. See SCHOOL, SEMINARY, COLLEGE, &c.

The Nonconformist Ministers, &c. are many of them bred up in such private *Academies*; as not relishing the common University-Education.

ACADEMY is also used in speaking of the Schools of the *Jews*: *i. e.* those where the Rabbins or Doctors instruct the Youth of their Nation in the *Hebrew* Tongue; explain to 'em the Talmud; teach 'em the Cabbala, &c. See RABBIN, CABBALA, &c.

The *Jews* have had of these *Academies*, ever since their Return from the *Babylonish* Captivity.

The *Academies* of *Tiberias* and *Babylon* are celebrated. See TIBERIAS, MASSORETES, TALMUD, &c.

ACADEMY is particularly understood of a *Riding-School*; or a Place where young Gentlemen are taught to ride the great Horse, with other suitable Exercises; as Fencing, &c. See EXERCISE.

This is what *Vitruvius* calls *Ephebeum*. See GYMNASIUM, GYMASTIC, &c.

The Duke of *Newcastle* will have the Art of Riding to have had its Origin in *Italy*; and the first *Academy* of this sort to have been establish'd at *Naples*, by *Frederic Grison*; who, he adds, was the first that wrote on the Subject; which he did like a true Cavalier, and a great Master.—*Henry* VIII. says the same Author, call'd over two *Italians*, Disciples of *Grison*, into *England*; who soon stock'd the Nation with *Ecuyers*, or Riding-Masters.

He adds, that the greatest Master *Italy* ever produc'd, was a *Neapolitan*, *Pignatelli* by Name; that *La Broue* tid under him five Years; *Pluvinel* nine; and *S. Antoine* many Years: and that these three *Frenchmen* fill'd *France* with *French* Masters; which till then had known none but *Italians*.

The Ground set apart in an *Academy*, for riding, is call'd the *Manage*; having usually a Pillar in the Centre, and other Pillars, placed two by two, at the Sides. See MANAGE, and PILLAR.

ACADEMY, or ACADEMY-*Figure*, in Painting, is a Drawing or Design made after a Model, with a Crayon or Pencil.—Or the Copy of such a Draught. See DESIGN.

ACANACEOUS, among Botanists, a Term applied to a Class of Plants, popularly known under the Name of the *Thistle Kind*. See THISTLE, and CARDUUS.

The Word is form'd of the *Greek* ακαζω, *Acuo*, I sharpen; in regard of the Prickles they are beset withal.

ACANTABOLUS, or ACANTHABOLUS, a Surgeon's Instrument; called also *Volsella*.

'Tis shaped like a Pair of Pincers; and is used to take out any prickly Substance that shall chance to stick to the Oesophagus or Gullet; or the Fragments of corrupted Bones, Hair; or any thing that by chance remains in a Wound.

The same Term, *Acantabolus*, is also used for an Instrument wherewith People pull out the Hairs from their Eyebrows, &c.

It is form'd from the *Greek* ἄκανθα, *Spina*, and βάλλω, *jacio*, I throw away.

ACANTHA, among some Anatomists, is applied to the hind, or posterior Protuberances of the *Vertebræ* of the Back; forming what we call the *Spina Dorsi*. See VERTEBRA, and SPINA.

ACANTHUS, in Architecture, an Ornament in the *Corinthian* and *Composite* Orders; being the Representation of the Leaves of an Acanaceous Plant, in the Capitals thereof. See CAPITAL, and LEAVES.

It takes its Name from ἄκανθος, the Name given the Plant among the *Greeks*, as being prickly, or of the Thistle Kind. The *Latin* Botanists call it *Brancha Ursina*, Bears-foot, from some supposed resemblance it bears thereto; or *Brancha Hircina*, by reason its Leaves bend and twist somewhat like a Goat's Horns.

There are two Kinds of the Plant *Acanthus*, one whereof grows wild, and is full of Prickles; the other grows in Gardens, and is by *Virgil* called *Mollis*, in regard it is soft, and without any Prickles.—The *Greek* Sculptors adorn'd their Works with the Figure of the latter; as the *Gothic* did with that of the former, which they represented not only in their Capitals, but also in other Ornaments.

The Garden *Acanthus*, is the most dented; bearing a good deal of resemblance to Parsley, or Smallage: And thus it is we find it represented in the *Composite* Capitals of *Titus*, and *Septimius Severus* at *Rome*.

These Leaves make the principal Character and Distinction of the two rich Orders from the rest: and their different Number and Arrangement does also distinguish the two Orders from each other. See ORDER; see also CORINTHIAN, and COMPOSITE.

The Origin and Occasion of the Ornament, see under the Article ABACUS.

ACATALECTIC, ACATALECTUS, in the antient Poetry, a Term applicable to such Verses as have all their Feet and Syllables; and are in no wise defective at the End. See VERSE, and FOOT.

As, on the contrary, *Catalectic* Verses are those which end too hastily, and with a Syllable short. See CATALECTIC.

The Words come from λήγω, *desino*; whence καταλληκτικός, *which wants something at the End*; and the Privative α being prefix'd ἀκατάληκτος, *which wants nothing at the End*.

In the following Strophe of *Horace*, the two first Verses are *Acatalectic*, and the last Catalectic.

Solvitur acris hyems, grata vice
Veris & Favoni:
Trahuntque siccas machinæ carinas——

ACATERY, in the King's Houshold, a kind of Check betwixt the Clerks of the Kitchen and the Purveyors. See PURVEYOR, CLERK, HOUSHOLD, &c.

The Officers of the *Acatery*, are a Sergeant, two Joint-Clerks, and a Yeoman of the Salt-Stores.

ACATALEPSIA, ACATALEPSY, in Philosophy, *Incomprehensibleness*; or the Impossibility of comprehending or conceiving a thing. See COMPREHENSION.

The *Pyrrhonians* and *Sceptricks*, and even the Antient Academy, asserted an absolute *Acatalepsia*: All human Science or Knowledge, according to them, weot no further than to Appearances and Verisimilitude. See PYRRHONIAN, SCEPTIC, and ACADEMY.

They

They declaimed much against the Senses; and charg'd them with a principal Hand in seducing and leading us into Error. See SENSE, ERROR, TRUTH, FALSHOOD, DOUBTING, &c.

The Word is a Compound of the Privative α, and καταλαμβανω, *deprehendo*, I find out; of κατα, and λαμβανω, *Capio*, I take. See CATALEPSIS.

ACCAPITUM, in our antient Law-Books, signifies Relief to the Chief Lord.—Hence also,

ACCAPITARE, to pay Relief to the Chief Lord. See RELIEF.

ACCEDAS *ad Curiam*, is a Writ which lies for him who has received false Judgment, or fears Partiality, in a Court-Baron, or Hundred Court; being directed to the Sheriff.—The like Writ lies also for him that has received such Judgment in the County-Court; and is called *de Falso Judicio*.

The *Accedas ad Curiam* lies also for Justice delayed, as well as falsly given; and is a Species of the Writ *Recordari*. See RECORDARI.

ACCEDAS *ad Vice-comitem*, is a Writ directed to the Coroner, commanding him to deliver a Writ to the Sheriff; who having a Pone deliver'd to him, suppresses it. See PONE.

ACCELERATED *Motion*, in Mechanicks, is a Motion which receives continual Increments, or Accessions of Velocity. See MOTION.

If the Accessions of Velocity be equal in equal Times; the Motion is said to be *uniformly accelerated*. See ACCELERATION.

The Motion of falling Bodies is an *accelerated Motion*: And supposing the Medium they fall thro', *i. e.* the Air, void of Resistance; the same Motion may be also consider'd as *uniformly accelerated*. See DESCENT, &c.

For the Laws of ACCELERATED Motion, see MOTION.

ACCELERATION, in Mechanicks, the Increase of Velocity in a moving Body. See VELOCITY, and ACCELERATED *Motion*.

Acceleration stands directly opposed to *Retardation*, which denotes a Diminution of Velocity. See RETARDATION.

ACCELERATION is chiefly used in Physicks, in respect of falling Bodies, *i. e.* of heavy Bodies tending towards the Centre of the Earth by the Force of Gravity. See GRAVITY, and CENTRE.

That Natural Bodies are *accelerated* in their Descent, is evident from various Considerations, both *à priori* and *posteriori*.—Thus, we actually find, that the greater Height a Body falls from, the greater Impression it makes, and the more vehemently does it strike the subject Plane, or other Obstacle.

Cause of the Acceleration *of Falling Bodies.*

Various are the Systems and Opinions which Philosophers have produced to account for this *Acceleration*.—Some attribute it to the Pressure of the Air: The farther, say they, a Body falls, the greater Load of Atmosphere is of consequence incumbent on it: and the Pressure of a Fluid, is in proportion to the perpendicular Altitude of the Column thereof.—Add, that the whole Body of the Fluid pressing in innumerable right Lines, which all meet in a Point, *viz.* the Centre; that Point, by the meeting of those Lines, sustains, as it were, the Pression of the whole Mass: Consequently, the nearer a Body approaches thereto, the Effect or Pressure of more united Lines must it sustain. See AIR, and ATMOSPHERE.

But what overturns this Account, is, that as the Pressure of the Air downwards increases; so, by the known Laws of Staticks, does the Resistance, or the Force wherewith the same Fluid tends to repel, or drive the Body upwards again. See FLUID.

Others insist, that the incumbent Air is the grosser and more vaporous, the nearer the Earth; and fill'd with more heterogeneous Particles, which are not true elastick Air: and hence, say they, a descending Body, meeting continually with less Resistance from the Elasticity of the Air, and having the same Force of Gravity still acting on it, must necessarily be *accelerated*. See ELASTICITY.

But what overturns all Accounts where the Air or Atmosphere are concern'd, is, that the *Acceleration* holds *in Vacuo*, and even more regularly than in Air. See VACUUM.

The *Peripatetic* Account is worse than this: The Motion of heavy Bodies downwards, say they, arises from an intrinsick Principle, which makes 'em tend to the Centre, as their proper Seat, or Element, where they would be at rest: Hence, add they, the nearer Bodies approach thereto, the more is their Motion intended. See ELEMENT, QUALITY, &c.

The *Gassendists*, on the other hand, hold that the Earth emits a sort of attractive Effluvia, innumerable Threads whereof continually ascend and descend; which Threads, proceeding like Radii from a common Centre, divaricate the more, the further they go: So that the nearer a heavy Body is to the Centre, the more of these magnetic Threads it receives; and hence the more is its Motion *accelerated*. See EFFLUVIA, and MAGNETISM.

But this is refell'd by an easy Experiment: for if a Ball be let fall out of the lowest Window of a high Tower, and also out of the highest; the *Acceleration* will be the same in both Cases, notwithstanding the greater Vicinity to the Centre in the one, than in the other Case.

The *Cartesians* account for the *Acceleration*, from the repeated Pulses of a subtil etherial Matter, which is continually acting on the falling Body, and impelling it downwards. See CARTESIANISM, ÆTHER, ELEMENT, MATTER, SUBTILE, &c.

After all, the Cause of *Acceleration* is nothing mysterious; the Principle of Gravitation, which determines the Body to descend, determining it to be *accelerated* by a necessary Consequence. See GRAVITATION.

For, suppose a Body let fall from on high: the primary Cause of its beginning to descend, is, doubtless, the Power of Gravity; but when once the Descent is commenced, that State becomes in some measure natural to the Body; so that if left to it self, it would persevere in it for ever, even tho the first Cause should cease; as we see in a Stone cast with the Hand, which continues to move, after it is left by the Cause that gave it Motion. See *Law of* NATURE.

But, beside the Propensity to descend impress'd by the first Cause, and which of it self were sufficient to continue the same degree of Motion once begun, *in infinitum*; there is a constant Accession of subsequent Efforts of the same Principle, Gravity, which continues to act on the Body already in Motion, in the same manner as if it were at rest.

Here, then, being a double Cause of Motion, and both acting in the same Direction, *viz.* directly towards the Centre of the Earth; the Motion they jointly produce must necessarily be greater than that of one of 'em.—And the Velocity thus increas'd, having the same Cause of Increase still persisting, the Descent must necessarily be continually *accelerated*.

For, supposing Gravity, whatever it be, to act uniformly on all Bodies, at equal Distances from the Earth's Centre; and that the Time in which a heavy Body falls to the Earth, be divided into equal Parts infinitely small: let this Gravity incline the Body towards the Earth's Centre, while it moves, in the first infinitely small Part of the Time of its Descent; if after this, the Action of Gravity be suppos'd to cease, the Body would proceed uniformly on towards the Earth's Centre, with a Velocity equal to the Force of the first Impression.

But, now, since the Action of Gravity is here supposed still to continue; in the second Moment of Time, the Body will receive a new Impulse downwards, equal to what it received at first; and thus its Velocity will be double of what it was in the first Moment: in the third Moment it will be triple; in the fourth quadruple, and so on continually: For the Impression made in one Moment, is not at all alter'd by what is made in another; but the two are, as it were, aggregated, or brought into one Sum.

Wherefore, since the Particles of Time are supposed infinitely small, and all equal to one another; the Impetus acquir'd by the falling Body, will be every where as the Times from the Beginning of the Descent.—And hence, since the Quantity of Matter in the Body given, continues the same; the Velocity will be as the Time in which it is acquir'd.

Further, the Space pass'd over by a moving Body in a given Time, and with a given Velocity, may be consider'd as a Rectangle made by the Time and the Velocity.——Suppose A, (Tab. *Mechanicks*, Fig. 62.) a heavy Body descending, and let A B represent the Time of its Descent; which Line suppose divided into any Number of equal Parts, A C, C E, E G, &c. representative of the Intervals, or Moments of the given Time.—Let the Body descend thro' the first of those Divisions, A C, with a certain equable Velocity arising from the proposed Degree of Gravity: this Velocity will be represented by A D; and the Space pass'd over, by the Rectangle C A D.

Now, as the Action of Gravity in the first Moment produced the Velocity A D, in the Body before at rest; in the second Moment, the same will produce in the Body so moving, a double Velocity, C F; in the third Moment, to the Velocity C F will be added a further degree, which together therewith, will make the Velocity E H, which is triple of the first, and so of the rest. So that in the whole Time A B, the Body will have acquir'd a Velocity B K.—Again, taking the Divisions of the Line, *e. g.* A C, C E, &c. for the Times, the Spaces gone thro' will be the Areas or Rectangles, C D, E F, &c. So that in the whole Time A B, the Space described by the Moveable, will be equal to all the Rectangles, *i. e.* to the dented Figure A B K.

Such would be the Case, if the Accessions of Velocity only happen'd in certain given Points of Time, *e. g.* in C, in E, &c. So that the Degree of Motion should continue the same till the next Period of *Acceleration* come up.——If the Divisions or Intervals of Time were supposed less,

e. g.

e. g. by half; then the Dentures of the Figure would be proportionably smaller; and it would approach so much the nearer to a Triangle.—If they were infinitely small, *i. e.* if the Accessions of Velocity were supposed to be made continually, and in every Point of Time, as is really the Case; the Rectangles thus successively produced will make a just Triangle, *e. g.* A B E, (Fig. 63.)——Here, the whole Time A B, consisting of the little Portions of Time A 1, A 2, &c. and the Area of the Triangle A B E, of the Sum of all the little triangular Surfaces answering to the Divisions of the Time: The whole Area or Triangle expresses the Space moved thro' in the whole Time A B; and the little Triangles A *i f*, &c. the Spaces gone thro' in the Divisions of Time *a* 1, &c.

But these Triangles being similar, their Areas are to one another, as the Squares of their homologous Sides A B, A 1, &c. and consequently, the Spaces moved, are to each other as the Squares of the Times.

Laws of Acceleration.

Hence we easily infer the great Law of *Acceleration*, viz. "That a descending Body uniformly *accelerated*, describes, "in the whole Time of its Descent, a Space which is just "half of what it would have described in the same Time, "with the *accelerated* Velocity it has acquir'd at the End "of its Fall."

For, the whole Space the falling Body has moved thro' in the Time A B, we have already shewn, will be represented by the Triangle A B E; and the Space the same Body would move thro' in the same Time, with the Velocity B E, will be represented by the Rectangle A B E F.—But the Triangle is known to be equal to just half the Rectangle.—Therefore, the Space moved, is just half of what the Body would have moved with the Velocity acquir'd at the End of the Fall.

Coroll.——Hence, 1°, we gather, that the Space moved with the last acquired Velocity B E, in half the Time A B; is equal to that really moved by the falling Body in the whole Time A B.

2°, If a falling Body describe any given Length in a given Time, in double that Time it will describe four times that Length; in thrice the Time, nine times, &c. and universally, if the Times be in Arithmetical Proportion, 1, 2, 3, 4, &c. the Spaces described will be 1, 4, 9, 16, &c.

3°, The Spaces described by a falling Body, in a Series of equal Moments or Intervals of Time, will be as the unequal Numbers 1, 3, 5, 7, 9, &c.—And since the Velocities acquir'd in falling are as the Times; the Spaces will also be as the Squares of the Velocities; and both Times and Velocities in a subduplicate Ratio of the Spaces.

The Motion of a Body ascending, or impell'd upwards, is diminish'd or retarded from the same Principle of Gravity acting in a contrary Direction, in the same manner as a falling Body is *accelerated*. See Retardation.

A Body thus projected upwards, rises till it has lost all its Motion; which it does in the same Time that a Body falling would have acquir'd a Velocity equal to that wherewith the Body was thrown up.

And hence, the same Body thrown up, will rise to the same height, from which, falling, it would have acquir'd the Velocity wherewith it was thrown up.

And hence, the Height which Bodies thrown up with different Velocities do ascend to, are to one another as the Squares of those Velocities.

Acceleration *of Bodies on inclined Planes.*—The same general Law obtains here, as in Bodies falling perpendicularly: The Effect of the Plane is, to make the Motion slower; but the Inclination being every where equal, the Retardation rising therefrom will proceed equally in all Parts, at the Beginning and the Ending of the Motion.—The particular Laws, see under the Article *Inclined* Plane.

Acceleration *of the Motion of Pendulums.*—The Motion of pendulous Bodies is *accelerated* in their Descent; but in a less Ratio than that of Bodies falling perpendicularly. *See the Laws thereof under the Article* Pendulum.

Acceleration *of the Motion of Projectiles.* See Projectile.

Acceleration *of the Motion of compressed Bodies*, in expanding or restoring themselves. See Compression, Dilatation, Tension, Fibre, &c.

That the Motion of compress'd Air, expanding it self by its Elasticity to its former Dimensions, is *accelerated*, is evident from various Considerations. See Air, Elasticity, &c.

Acceleration is also applied in the antient Astronomy, in respect of the Fixed Stars.—This *Acceleration* was the Difference between the Revolution of the *Primum Mobile*, and the Solar Revolution; which was computed at 3 Minutes, and 56 Seconds. See Star, Primum *Mobile*, &c.

ACCELERATOR *Urinæ*, a Muscle of the Penis, by some made a Pair of Muscles; thus call'd from its Office in expediting the Discharge of the Urine and Semen. See Muscle, Penis, &c.

It arises tendinous from the upper and fore-Part of the Urethra; but soon grows fleshy, passes under the *Os Pubis*, and incompasses the Bulb of the cavernous Body of the Urethra.—Both sides of this Muscle meet in a middle Line, corresponding to the Seam in the Skin over it; and continue so united, the space of two Inches; after which, it detaches two fleshy Elongations, which become thin Tendons at their Terminations on the cavernous Bodies of the Penis.

Its upper Part covering the Bulb, when in Action, straightens the Veins which pass thro' it from the *Corpus Cavernosum* of the Urethra; and hinder the Reflux of the Blood in an Erection; and by the repeated Contractions of this upper Part, drives the Blood in the Bulb towards the Glans. See Erection.

The two Elongations compress the Channel of the Urethra, and so force out the contain'd Seed, or Urine; whence the Muscle takes its Name. See Urine, and Seed.

ACCENSION, Accensio, in Physicks, the Act of *Kindling*, or setting a Body on Fire. See Fire, Fuel, Heat, &c.

Accension, on other Occasions, is called *Inflammation*, *Ignition*, *Conflagration*, &c. See Ignition, Inflammation, Conflagration, &c.

Accension stands opposed to *Extinction*. See Extinction.

The Word is form'd of the Latin *Accendo*, I kindle.

ACCENSUS, a *Roman* Officer, whereof there were two Kinds.

The first, were Officers of the Magistrates; that is, of the Consuls, Pretors, Proconsuls, &c. who had their Name, *Accensi*, *ab acciendo*; their principal Employment being to call Assemblies of the People, and summon People to appear in Court.

The other Order of *Accensi*, were a kind of supernumerary Soldiers, kept on foot, to be ready to supply the Place of those who were kill'd or wounded in Battel.—And these, according to *Asconius Pedianus*, because they were added to the proper Number, were called *Accensi*, *quia adcensebantur*, or *accensebantur*, i. e. *ad censum adjiciebantur*.

ACCENT, Accentus, a certain Inflection of Voice; or a peculiar Tone and manner of Pronunciation, contracted from the Country or Province where a Person was bred. See Voice, and Pronunciation.

In this Sense, we say, the *Welch* Tone or *Accent*, the Northern *Accent*, the *Gascoign Accent*, *Norman Accent*, &c. See Tone, &c.

The Word is form'd of the Latin *Accentus*; compounded of *ad*, and *cano*, I sing.

Accent is also a Tone or Modulation of the Voice, frequently used as a Mark of the Intention of the Speaker; and giving a good or an evil Signification to his Words.

One may give Offence with the softest and most soothing Words imaginable, by a proper Management of the *Accent*, and manner of rehearsing them.—The *Accent* frequently gives a contrary Sense to what the Words themselves naturally imported. See Word, Figure, &c.

The *Accent*, properly, has only to do with high and low.—Tho the modern Grammarians frequently also use it in respect of loud and soft, long and short; which confounds *Accent* with *Quantity*. See Quantity.

The Difference between the two may be conceiv'd from that which we observe between the Beat of a Drum, and the Sound of a Trumpet: the former expresses every thing belonging to loud and soft, and long and short; but, so long as there is a μονοτονία in the Sound, there is nothing like *Accent*.

Accent is also used in Grammar, for a Character placed over a Syllable, to mark the Accent, *i. e.* to shew it is to be pronounced in a higher or a lower Tone, and regulate the Inflexions of the Voice in reading. See Character, Tone, Voice, &c.

We usually reckon three grammatical *Accents* in ordinary use, all borrow'd from the *Greeks*, viz. the *Acute Accent*, which shews when the Tone of the Voice is to be raised; and is expressed thus (′). See Acute.

The *Grave Accent*, when the Note or Tone of the Voice is to be depressed; and is figur'd thus (`). See Grave.

The *Circumflex Accent* is composed of both the Acute and the Grave; it points out a kind of Undulation of the Voice, and is expressed thus (^). See Circumflex.

The Word *Accent* is also applied, somewhat abusively, to the Characters which mark the Quantities of Syllables; or the Time the Voice is to dwell on them. See Time.

The spurious Accents answer to the Characters of Time in Musick; as *Crotchets*, *Quavers*, &c.—The genuine *Accents* answer to the musical Notes, *Sol*, *fa*, &c. See Note, &c.

Such are, the *long Accent*, which shews that the Voice is to stop on the Vowel, and is expressed thus (¯).

The

The *short Accent* shews that the Time of Pronunciation ought to be short, and is marked thus (˘).

Some even rank the *Hyphen*, *Diastole*, and *Apostrophe*, among *Accents*. See HYPHEN, DIASTOLE, and APOSTROPHE.

The *Hebrews* have a Grammatical, a Rhetorical, and a Musical *Accent*; tho the first and last seem, in effect, to be the same; both being comprized under the general Name of *Tonic Accents*, because they give the proper Tone to Syllables: as the Rhetorical *Accents* are said to be *Euphonic*; inasmuch as they tend to make the Pronunciation more sweet and agreeable.

There are four *Euphonic Accents*, and twenty five *Tonic*, of which some are placed above, and others below the Syllables; the *Hebrew Accents* serving not only to regulate the Risings and Fallings of the Voice, but also to distinguish the Sections, Periods, and Members of Periods in a Discourse; and to answer the same Purposes with the Points in other Languages. See POINT.

Their *Accents* are divided into *Emperors*, *Kings*, *Dukes*, &c. each bearing a Title answerable to the Importance of the Distinction it makes.—Their Emperor rules over a whole Phrase, and terminates the Sense compleatly; answering to our Point.—Their King answers to our Colon; and their Duke to our Comma.—The King, however, occasionally becomes a Duke, and the Duke a King, as the Phrases are more or less short.——It must be noted, by the way, that the Management and Combination of these *Accents* differs in *Hebrew* Poetry from what it is in Prose.

The Use of these Tonic or Grammatical *Accents* has been much controverted; some holding that they distinguish the Sense, while others maintain that they are only intended to regulate the Musick or Singing; alledging, that the *Jews* sing rather than read the Scriptures in their Synagogues.

The Truth seems here to be between the two Opinions; for tho we are inclined to think, that the primary Intention of these *Accents* was to direct the Singing; yet the Singing seems to have been regulated according to the Sense; so that the *Accents* seem not only to guide the Singing, but also to point out the Distinctions.—Tho it must be confess'd, that many of these Distinctions are too subtil and inconsiderable; nor can the modern Writers, or the Editors of old ones, agree in the Matter; some of them making twice as many of these Distinctions as others.

The *Hebrew Accents*, in effect, have something common with those of the *Greeks* and *Latins*; and something peculiar to the *Hebrew*.—What they have in common, is, that they mark the Tones; shewing how the Voice is to be rais'd and sunk on certain Syllables. What they have peculiar, is, that they do the Office of the Points in other Languages. See POINTING.

Be this as it will, 'tis certain the antient *Hebrews* were not acquainted with these *Accents*; so that, at best, they are not *Jure divino*.—The Opinion which prevails among the Learned, is, that they were invented about the VIth Century, by the *Jewish* Doctors of the School of *Tiberias*, called the *Massoretes*. See MASSORETES.

The learned *Hennin*, affirms 'em to be of *Arabic* Invention; and to have been adopted and transfer'd thence into the *Hebrew* by the *Massoretes*: He adds, that they were first brought to their degree of Perfection, by Rabbi *Juda Ben David Chiug*, a Native of *Fez*, in the XIth Century. —'Tis indeed possible, the *Jews* might borrow their Points from the *Arabs*; but how they should have their *Accents* from 'em is hard to conceive, the *Arabic* Language having no such thing as *Accents*, either in Prose or Verse.

The same *Hennin* makes the Arab *Alchahil Ebn Ahmed*, who lived about the Time of *Mahomet*, the great Improver of the *Arabic Accents*.—The chief ground of the Opinion, is, that this Writer is said to have been the first who reduced Poetry into an Art; marking the Measures and Quantities of the Verses, by the *Latins* call'd *Pedes*, and by us, *Feet*.—Add, that the Share *Hennin* gives Rabbi *Juda* of *Fez*, in compleating the *Hebrew Accents*, is chiefly founded on the common Opinion, that this Rabbin was the first Grammarian among the *Jews*. But the Opinion is erroneous; there having been a *Hebrew* Grammar compos'd by R. *Saadias Gaon*, many Years before R. *Juda*. In M. *Simon*'s Critical History of the Old Testament, we have a Catalogue of *Hebrew* Grammars; at the Head of which is this of R. *Saadias*: M. *Simon*, on this Occasion, observes, "That "after the *Jews* of *Tiberias* had added Points and *Accents* "to the Text of the Old Testament, the Doctors of the "other Schools began to do the like in their Copies, which "were afterwards imitated by the rest."

As to the *Greek Accents*, now seen both in the manuscript and printed Books, there has been no less Dispute about their Antiquity and Use, than about those of the *Hebrews*. —*Isaac Vossius*, in an express Treatise *de Accentibus Græcanicis*, endeavours to prove them of modern Invention; asserting, that antiently they had nothing of this Kind but a few Notes in their Poetry, which were invented by *Aristophanes* the Grammarian, about the Time of *Ptolemy Philopater*; and that these were of musical, rather than grammatical Use, serving as Aids in the singing of their Poems; and very different from those introduced afterwards.

He adds, that *Aristarchus*, a Disciple of *Aristophanes*, improved on his Master's Art; but that all they both did only tended to facilitate Youth in the making of Verses.—— The same *Vossius* shews from several antient Grammarians, that the manner of writing the *Greek Accents* in those Days, was quite different from those used in our Books.

Hen. Christ. Hennin, in a Dissertation published to shew that the *Greek* Tongue ought not to be pronounced according to the *Accents*, espouses the Opinion of *Vossius*, and even carries the Matter still further.—He thinks that *Accents* were the Invention of the *Arabians*, about nine hundred Years ago; and that they were only used in Poetry; that they were intended to ascertain the Pronunciation of the *Greek*, and to keep out that Barbarism which was then breaking in upon them; that the antient *Accents* of *Aristophanes* were perfectly agreeable to the genuine *Greek* Pronunciation, but that the modern ones of the *Arabs* destroy it.

Wetstein, *Greek* Professor at *Basil*, in a learned Dissertation, endeavours to prove the *Greek Accents* of an older standing.—He owns that they were not always form'd in the same manner by the Antients; but thinks that Difference owing to the different Pronunciation which obtain'd in the several Parts of *Greece*.

He brings several Reasons *à priori* for the Use of *Accents*, even in the earliest Days; as that they then wrote all in capital Letters, equidistant from each other, without any Distinction either of Words or Phrases; which without *Accents* could scarce be intelligible: and that *Accents* were necessary to distinguish ambiguous Words, and to point out their proper meaning; which he confirms from a Dispute on a Passage in *Homer*, mention'd by *Aristotle* in his *Poeticks*, Chap. V. Accordingly, he observes, that the *Syrians*, who have tonic, but no distinctive *Accents*, have yet invented certain Points, placed either below or above the Words, to shew their Mood, Tense, Person, or Sense. See further in his *Dissertatio Epistolica de Accentuum Græcorum Antiquitate & Usu*. Basil, 1686.

ACCENT, in Musick, is a Modulation of the Voice, to express a Passion. See PASSION.

Every Bar or Measure is divided into *accented* and *unaccented* Parts. See MEASURE.

The *Accented* Parts are the Principal; being those intended chiefly to move and affect: 'Tis on these the Spirit of the Musick depends. See BAR, and MUSICK.

The Beginning and Middle; or the beginning of the first half of the Bass, and the beginning of the latter half thereof, in common Time; and the beginning, or first of the three Notes in triple Time; are always the *accented* Parts of the Measure. See TIME.

In Common Time, the first and third Crotchet of the Bar are on the *accented* Part of the Measure.—In Triple Time, where the Notes always go by three and three, that which is in the middle of every three is always *unaccented*; the first and last *accented*. But the *Accent* in the first is so much stronger, that in many Cases the last is accounted as if it had no *Accent*. See COMPOSITION.

The Harmony is always to be full, and void of Discords in the *accented* Parts of the Measure. See HARMONY.—— In the *unaccented* Parts this is not so necessary; Discords here passing without any great Offence to the Ear. See DISCORD, COUNTERPOINT, &c.

ACCEPT. See ACCEPTANCE, and ACCEPTATION.

ACCEPTANCE, ACCEPTIO, ACCEPTATIO, in Matters of Law, an agreeing or consenting to some Act already done; which, without such Consent, might have been undone, or render'd invalid.

The *Acceptance* of a Donation, is necessary to its Validity; is a Solemnity essential thereto.—*Acceptance*, say the Civilians, is the Concurrence of the Will or Choice of the Donee, which renders the Act compleat; and without which the Donor may revoke his Gift at pleasure. See DONATION, &c.

In Beneficiary Matters, the Canonists hold, that the *Acceptance* should be signify'd at the same time with the Resignation; & *non ex intervallo*. See RESIGNATION.

In Common Law, *Acceptance* is particularly used for a tacit kind of Agreement to what has been done by another. —If Baron and Feme, seiz'd of Land in Right of the Feme, make a joint Lease, or Feoffment by Deed; reserving Rent: The Baron dying, and the Feme receiving the Rent; such Receipt is deemed an *Acceptance*, and shall make the Lease good: So that she shall be barr'd from bringing the Writ *Cui in Vita*. See CUI *in Vita*.

In the *Romish* Theology, the manner of receiving or admitting the Pope's Constitutions; or the Act whereby they are receiv'd, is also call'd *Acceptance*. See CONSTITUTION, BULL, &c.

There are two Kinds of *Acceptances*; the one solemn, the other tacit.

The *Solemn Acceptance* is a formal Act, whereby some Error or Scandal which the Pope condemns, is expressly condemn'd by the Acceptor.—Infinite Disputes and Dissentions have been rais'd in the Catholick World, especially in *France*, on occasion of the *Acceptance* of the Constitution *Unigenitus*: Many of the *French* Prelates still refuse to *accept* it.

When a Constitution has been solemnly *accepted* by those it more immediately relates to; it is supposed to be tacitly *accepted* by all the other Prelates in the Christian World, who have cognizance thereof: and this Acquiescence is what they call *Tacit Acceptance*.

In this Sense, *France*, *Poland*, &c. tacitly *accepted* the Constitution against the Doctrine of *Molinos*, and the *Quietists*.—And *Germany*, *Poland*, &c. tacitly *accepted* the Constitution against *Jansenius*. See MOLINIST, JANSENIST, &c.

ACCEPTANCE, in Commerce, is particularly understood in respect of Bills of Exchange.—To *accept a Bill* of Exchange, is to sign, or subscribe it; and thereby become principal Debtor of the Sum contain'd therein; with an Obligation to pay, or discharge it at a Time prefix'd. See BILL *of Exchange*.

The *Acceptance* is usually perform'd by him on whom the Bill is drawn; upon its being presented to him by the Person in whose behalf it was drawn, or his Order.—While the Acceptor is Master of his Signature, *i. e.* ere he have return'd the *accepted* Bill to the Bearer, he may erase his *Acceptance*: But not after he has once deliver'd it. See EXCHANGE.

Bills payable at Sight are not to be *accepted*; as being to be acquitted at their first presenting; or, in defect of Payment, to be protested.—In Bills drawn for a certain Number of Days after sight, the *Acceptance* must be dated; in regard the Time is to be accounted therefrom.—The Form of this *Acceptance*, is, *Accepted such a Day*, and then the Signature.

Bills drawn payable on a Day named, or at Usance, or double Usance, need not be dated; Usance being reckon'd from the Date of the Bill it self. See USANCE.—On these 'tis sufficient to write, *Accepted*, and the Signature.

If the Bearer of a Bill be contented with an *Acceptance* to be paid in twenty Days after Sight, where in the Bill it self only eight Days are express'd; he runs the Risque of the twelve additional Days: So that if the Acceptor fail, he has no Remedy against the Drawer. And if the Bearer content himself to receive a less Sum than is express'd, in part; he is to stand the Chance of the rest. See PROTEST, ENDORSEMENT, &c.

ACCEPTATION, or ACCEPTION, in Grammar, the *Signification* of a Word; or the Sense wherein it is taken and receiv'd. See WORD, &c.

Such a Word has several *Acceptations*.—In its first and most natural *Acceptation*, it denotes, &c.

ACCEPTILATION, in the Civil Law, an Acquittance given without receiving any Money: or a Declaration of the Creditor, in favour of the Debtor, signifying, that he is satisfy'd for his Debt, or that he forgives it him, and will make no further Demands.

ACCEPTION, or ACCEPTATION. See ACCEPTATION.

ACCEPTOR, *of a Bill of Exchange*, the Person who *accepts* the Bill. See ACCEPTANCE.

The *Acceptor* becomes personal Debtor by the Acceptance; and is obliged to pay it, tho the Drawer fail before it become due. See EXCHANGE.

ACCESS, literally signifies, Easiness of Approach, or Entrance. See ACCESSIBLE.

Such a Person has *Access* to the Prince: A Man of easy *Access*: The *Access* on that side was very difficult, by reason of Rocks, &c.

The Word is of *Latin* Original, *Accessus*, or *Accessio*; form'd of *Accedo*, I come to.

ACCESS, in Medicine, a Fit, or Return of some periodical Disease. See DISEASE, and PERIODICAL.

Thus, we say, an *Access* of the Gout, an Ague, or an Intermitting Fever, &c. See GOUT, AGUE, *Intermitting* FEVER, &c.

Authors frequently confound *Access* with *Paroxysm*; but they are different things. See PAROXYSM.

ACCESSIBLE, something that may be approached; or, that *Access* may be had to. See ACCESS, and APPROACH.

Such a Place, a Fortress, is *Accessible* from the Sea-ward, *i. e.* the Passage to it is practicable. See FORTIFICATION, and FORTIFIED *Place*.

ACCESSIBLE *Height*, or *Distance*, in Geometry, &c. is either that which may be mechanically measur'd by the Application of a Measure to it; or it is a Height whose Base and Foot may be approach'd to; and a Distance measured thence on the Ground. See HEIGHT, DISTANCE, &c.

With the Quadrant, &c. we can take Altitudes both *Accessible* and Inaccessible. See ALTITUDE, QUADRANT, &c.

Surveying, includes the Measuring, Plotting, &c. both of *Accessible* and Inaccessible Distances. See SURVEYING.

ACCESSION, is particularly used for the Act whereby a thing *accedes*, *i. e.* joins or unites it self to something existing before. See ACCESSORY.

Thus, we say, the *Accession* of a Governour to a Government, &c.—The first of *August* is observ'd in Memory of the King's *Accession* to the Crown of *Great Britain*.—This Sense of the Word coincides with INAUGURATION.

The Term is also used for the Act of engaging, and becoming a Party in a Treaty before concluded between other Powers; on the same Footing and Conditions as if originally comprehended in the Treaty it self.—The *Accession* of the States General to the Treaty of *Hanover*; of the Czarina to the Treaty of *Vienna*, &c. See TREATY.

ACCESSORY, or ACCESSARY, something that *accedes*, or is added to another more considerable thing, or arises as a natural Consequence therefrom. See ACCESSION.

In this Sense, the Word stands opposed to *Principal*. See PRINCIPAL.

ACCESSORY, or ACCESSARY, in Common Law, is chiefly used for a Person guilty of a felonious Offence; not principally, but by Participation; as, by Advice, Command, or Concealment. See FELONY.

There are two Kinds of *Accessories*; *before the Fact*, and *after* it.—The first is he who commands or procures another to commit Felony, and is not present himself; for if he be present, he is a Principal. See PRINCIPAL.

The second, is he who receives, assists, or comforts any Man that has done Murder or Felony, whereof he has Knowledge.

A Man may also be *accessory* to an *Accessory*, by aiding, receiving, &c. an *Accessory* to Felony.

An *Accessory* in Felony shall have Judgment of Life and Member as well as the Principal, who did the Felony; but not till the Principal be first attainted and convict, or outlaw'd thereon.——Where the Principal is pardoned without Attainder, the *Accessory* cannot be arraigned; it being a Maxim in Law, *Ubi non est principalis, non potest esse Accessorius*. But if the Principal be pardoned, or have his Clergy after Attainder, the *Accessory* shall be arraign'd.

In the lowest and highest Offences there are no *Accessories*; but all are Principals: as in *Riots*, *Routs*, *Forcible Entries*, and other Trespasses, which are the lowest Offences.—So also in the highest Offence, which is High Treason, there are no *Accessories*. See TREASON.

Accessories in Petty Treason, Murder, and Felony, are not to have their Clergy.—There can be no *Accessory* before the Fact in Manslaughter; because that is sudden and unprepensed. See MANSLAUGHTER.

Accessory by Statute, is such a one as abets, advises, aids, or receives one that commits an Offence made Felony by Statute. See STATUTE.

ACCESSORY *Nerves*, or ACCESSORIUS *Willisii*, or *Par accessorium*, in Anatomy, a Pair of Nerves, which arising from the Medulla in the *Vertebræ* of the Neck, ascends and enters the Skull, and passes out of it again, with the *Par vagum*, wrap'd up in the same common Integument therewith; and after quitting the same, is distributed into the Muscles of the Neck, and Shoulders. See NERVE, PAR *Vagum*, &c.

In its Ascent towards the Head, it receives Branches from each of the first five Pair of Cervical Nerves, near their rise from the Medulla; and sends forth Twigs to the Muscles of the Larynx, Gula, &c.—Uniting with a Branch of the Intercostal, it forms the *Plexus Ganglioformis*. See PLEXUS.

ACCIDENCE, ACCIDENTIA, a Name used for a little Book, containing the first Elements or Rudiments of the *Latin* Tongue. See GRAMMAR.

ACCIDENT, ACCIDENS, in Philosophy, something additional, or superadded, to Substance; or not essentially belonging thereto, but capable, indifferently, either of being or not being in it, without the Destruction thereof. See SUBSTANCE.

Some will have the Word compounded of *ad aliud cadens*, *q. d.* falling or belonging to another; others suppose it form'd *ab accidendo*, happening casually.

The Schoolmen distinguish three Kinds of *Accidents*; *Verbal*, *Predicable*, and *Predicamental*.

Verbal ACCIDENT, *Accidens Verbale*, stands opposed to *Essence*; and in this Sense, the Adjuncts to a thing, tho Substances themselves, are denominated *Accidents* thereof. See ADJUNCT.

Thus, the Clothes a Man has on, tho real Substances, yet, as they are not essential, but adventitious, or accessory to his Existence, are *Accidents*. See ESSENCE.

Pre-

Predicable ACCIDENT, *Accidens Prædicabile*, is used in opposition to *Proper*.—Such is any common Quality; as, Whiteness, Heat, Learning, or the like. See QUALITY.

Thus, a Man may be sick or well; and a Wall white or black; yet the one be still a Man, and the other a Wall.

These are call'd in the Schools *Predicable Accidents*; because usually laid down and explain'd in the Doctrine of *Predicables*. See PREDICABLE.

Predicable Accidents may either be taken in the Abstract, as *Whiteness*, *Learning*; or in the Concrete, *White*, *Learned*. See ABSTRACT, and CONCRETE.

If taken in the Abstract, as is done by *Porphyry*; the *Accident* is defined as above, that which may either be present or absent, without the Destruction of its Subject.

If it be taken in the Concrete; *Accident* is usually defin'd by the Schoolmen, to be something capable of being *predicated* contingently, of many, in respect of Quality.—— As *Learning*, which may probably be *predicated* of You, He, &c.

Predicamental ACCIDENT, *Accidens Prædicamentale*; which alone properly answers to the Idea of an *Accident*; is a *Mode*, or Modification of some created Substance, inhering or depending thereon, so as not to be capable of subsisting without the same. See MODE.

In this Sense, *Accident* is opposed to *Substance*.—Whence, as Substance is defined a thing that subsists of it self, and the Substratum of *Accidents*; so an *Accident* is said to be that *cujus esse est inesse*: And therefore *Aristotle*, who usually calls Substances simply ὄντα, *Entities*, *Beings*; commonly calls *Accidents*, ὄντ ὄντα, *Entities of Entity*; as requiring some Substance wherein to reside, as their Subject of Inhesion.

An *Accident*, then, has an immediate and essential Dependence on its Substance; both as to its Production, its Continuation, and its Effects: It arises or is deduced from its Subject, is preserved or subsisted by it; and can only be affected by what alters or affects the Subject.

The Schoolmen, however, will not have *Accidents* to be mere Modes of Matter, but Entities really distinct from it; and, in some Cases, separable from all Matter.——But the Notion of real *Accidents* and Qualities is now exploded. See QUALITY.

Aristotle and the Peripateticks make nine Kinds or Classes of *Predicamental Accidents*; others contract 'em into a less Number. See PREDICAMENT, and CATEGORY.

Absolute ACCIDENT, is a Term used in the *Romish* Theology, for an *Accident* which subsists, or may possibly subsist, at least miraculously, and by some supernatural Power, without a Subject.

Such, they contend, are the *Accidents* of the Bread and Wine in the Eucharist; *e. g.* the Colour, Flavour, Figure, &c. thereof, which remain after the Substances they belong'd to are changed into other Substances of Flesh, &c. See EUCHARIST, SPECIES, TRANSUBSTANTIATION, &c.

This Absurdity has been very stifly maintain'd by many of their Casuists; and even decreed by some of their Councils.—The Eucharist, say they, being a Sacrament, *i. e.* a Visible Sign of an Invisible Grace; 'tis necessary there be something sensible therein: Now, this cannot be the Substance, that being destroy'd or transubstantiated; and therefore must be *Accidents*.—Add, that in every Conversion there must be something of the former Nature remaining after the Change; otherwise it would be no more than a simple Substitution of one thing for another: As, then, nothing of the Substance remains, it must be *Accidents*.—— Hence, the Council of *Constans* condemns the following Proposition, which is the second of *Wickliff*, as Heretical: *The* Accidents *of Bread do not remain without a Subject in the Sacrament*. Sess. VIII.

Some of the Fathers seem to give Countenance to the same Opinion.—S. *Basil*, in his VIth Homily on the Creation, observes that Light, or rather Brightness, the Splendor of Light, τὸ φωτ ἡ λαμπρότης, is a thing distinct from its Subject, as Whiteness is from a white Body; and that it existed in the Beginning, without this Subject; having been created four Days before.

The *Cartesians*, to a Man, combat the Notion of *Absolute Accidents*, it being their Doctrine, that the Essence of Matter consists in Extension; and that *Accidents* are only Modifications thereof, in no wise distinct from it: An *Accident* without a Subject must be a Contradiction.—And hence, *Cartesianism* is branded as contrary to the Faith. See CARTESIANISM.

Various Expedients have been invented by the *Cartesians*, to account for Transubstantiation, &c. without the Hypothesis of *Absolute Accidents*.—Some hold, that the usual Impressions are made on the Sense by the immediate Agency of God; and without any thing remaining of the former Nature. Others ascribe the whole to heterogeneous Matters contain'd in the Pores of the Bread, &c. which remaining unalter'd by the Transubstantiation, produce the same Sensations as the Bread produced.

ACCIDENT is also popularly used for a Contingent Effect; or something produced casually, and without any Foreknowledge or Destination thereof in the Agent that produced it. See CHANCE, FORTUNE, &c.

Per ACCIDENS, is frequently used among Philosophers to denote what does not follow from the Nature of a Thing, but from some *accidental* Quality thereof: In which Sense, it stands opposed to *per se*, which denotes the Nature and Essence of a Thing. See PER *se*.

Thus, Fire is said to burn *per se*, or consider'd as Fire, and not *per accidens*: But a piece of Iron, tho red hot, only burns *per accidens*, by a Quality *accidental* to it, and not consider'd as Iron.

ACCIDENT, in Heraldry, is an additional Note, or Mark in a Coat-Armour, not necessarily belonging thereto, but capable either of being retain'd or omitted, without altering the Essence of the Armour.—Such are *Abatements*, *Differences*, and *Tincture*. See ABATEMENT, TINCTURE, and DIFFERENCE.

ACCIDENTAL, something of the Nature of an *Accident*; or, that is not essential to its Subject, but indifferent thereto. See ACCIDENT, and ESSENTIAL.

Thus, Whiteness is *Accidental* to Marble; and Heat, to Iron.

ACCIDENTAL *Point*, in Perspective, is a Point in the horizontal Line, where Lines parallel to one another, tho not perpendicular to the Picture or Representation, meet. See POINT, PERSPECTIVE, &c.

ACCIDENTAL *Dignities*, and *Debilities*, in Astrology, are certain casual Dispositions and Affections of the Planets, whereby they are supposed to be either strengthen'd or weaken'd, by their being in such a House of the Figure, &c.

ACCLAMATION, a confused Noise, or Shout of Joy, by which the Publick express their Applause, Esteem, or Approbation of any thing.

These were formerly used in Churches, as well as Theatres; and the Bishops and other Ecclesiastical Officers, were elected by the *Acclamations* of the People.—But their principal Use has always been at the solemn Entries of Princes and Heroes; where they are usually attended with good Wishes, Prayers, Vows, &c. See VOW.

Antiquity has handed down to us several Forms of *Acclamations*; as, *Dii te nobis servent, vestra salus, nostra salus*: 'The Gods preserve you for us; your Safety, our 'Safety.'——*In te omnia, per te omnia habemus, Antonine.* 'In you, *Antoninus*, and by you, we have every thing.' ——*Lampridius* relates, that at the Entry of *Severus*, the People cried out, *Salve Roma, quia salvus Alexander*. 'Oh 'Rome, be safe; since *Alexander* is safe.'——M. *Brisson*, in his Treatise of *Formula's*, enumerates various sorts of *Acclamations*, used by the Senate, the Army, &c.

The *Hebrews* used to cry *Hosanna*.—The *Greeks*, *Agathe Tuche*, that is, Good Fortune. See HOSANNA.

ACCLIVIS, in Anatomy, a Muscle, otherwise called *Obliquus Ascendens*. See OBLIQUUS *Ascendens*.

ACCLIVITY, the Steepness, or Slope of a Line or Plane inclined to the Horizon; reckon'd upwards. See *Inclined* PLANE.

The Ascent of a Hill is an *Acclivity*; the Descent of the same a *Declivity*. See DECLIVITY.

Some Writers of Fortification, use *Acclivity* for *Talus*. See TALUS.

The Word is compounded of the Latin *ad*, and *clivus*, Hill, Eminence.

ACCOLA, properly denotes an Husbandman who came from other Parts to till the Land, *Eo quod adveniens terram colat*; by which he is distinguish'd from *Incola*. *ff.* Accola *non propriam, propriam colit incola terram*. Du Fresne.

ACCOLADE, a Ceremony anciently used in the conferring of Knighthood. See KNIGHT.

The *Accolade* consisted in the King's laying his Arms about the young Knight's Neck, and embracing him; in token of Friendship.—After the *Accolade*, the Prince giving him a little Blow on the Shoulder with the Flat of a Sword, he forthwith enter'd into the Profession of Arms.

The Word is *French*, and literally denotes an Embrace, or Hugging; being form'd of *ad*, and *col*, Neck.

ACCOMMODATION, in Philosophy, the Application of one thing, by Analogy, to another. See ANALOGY.

Thus, to know a thing by *Accommodation*, is to know it by the Idea of a similar thing refer'd thereto.

A Prophecy of Scripture is said to be fulfill'd various ways; *Properly*, as when a thing foretold comes to pass; and *Improperly*, or *by way of Accommodation*, when an Event happens to any Place or People, like to what fell out some time before to another.——Thus, the Words of *Isaiah*, spoke to those of his own Time, are said to be fulfill'd in those who liv'd in our Saviour's; and are *accommodated* to them: *Ye Hypocrites, well did* Isaias *prophesy of you*, &c. which same Words, St. *Paul* afterwards *accommodates* to the *Jews* of his Time.—This Method of explaining Scripture by *Accommodation*, serves as a Key for solving some of the Difficulties relating

relating to the Prophecies. See TYPE, PROPHECY, &c.

On many Occasions, a Man finds it expedient to translate by *Accommodation*: Thus, the Word *Librarius*, Scrivener, may be translated, by *Accommodation*, a *Printer*; as it originally signifies those who made it their Business to furnish Copies of Books, before the Invention of Printing.

ACCOMMODATION, is also used for an amicable Agreement, or Composition between the two contending Parties.——The Process is grown so intricate and perplex'd, that there is no Hopes of getting out of it but by an *Accommodation*.

Accommodations are frequently effected by means of Compromise and Arbitration. See COMPROMISE, and ARBITRATION.

ACCOMPANYMENT, something attending, or added as a Circumstance to, another; either by way of Ornament, or for the sake of Symmetry, or the like. See CIRCUMSTANCE.

The Musick, in Dramatic Performances, should only be a simple *Accompanyment*.—The Organists sometimes apply the Word to several Pipes which they occasionally touch to *accompany* the Treble; as the Drone, Flute, &c.

In Heraldry, the *Accompanyments* are all such things as are applied about the Shield, by way of Ornament; as the *Belt*, *Mantling*, *Supporters*, &c. See ESCUTCHEON, SHIELD, &c.

A Thing is also said to be *accompanied*, *acompagne*, when there are several Bearings or Figures about some one principal one; as a Salteer, Bend, Fess, Chevron, or the like.

ACCOMPLICE, *Complice*, one that has a hand in a Business; or is privy in the same Design or Crime with another. See ACCESSORY, PRIVY, &c.

ACCOMPLISHMENT, the entire Execution, Atchievement, or fulfilling of something propos'd, or undertaken.

The *Accomplishment* of the Prophecies of the Old Testament, in the Person of our Saviour, is the great Mark of his being the Messiah. See PROPHECY.

There are two ways of *accomplishing* a Prophecy; *directly*, and by *Accommodation*. See ACCOMMODATION.

The Reverend Mr. *Sykes* has a particular Inquiry into the Meaning of those Words us'd by the Evangelist, *That it might be fulfill'd*, or accomplished, *which was spoke by the Prophets*: where he shews, that the Word πληρωθῇ, *fulfill'd*, does not necessarily refer to a Prediction of a future Event *accomplish'd*; but frequently a mere Accommodation of Words, borrow'd from some other Author, and accommodated to the present Occasion. See TYPE.

ACCORD, in Musick, is more usually call'd *Concord*. See CONCORD.

The Word *Accord* is *French*, form'd, according to some, from the Latin *ad cor*; but others, with more probability, derive it from the French *Corde*, a String, or Cord; on account of the agreeable Union between the Sounds of two Strings struck at the same time. See CHORD.

Whence also some of the Consonances in Musick come to be called *Tetrachord*, *Hexachord*, &c. which are a *fourth*, and a *sixth*. See TETRACHORD, &c.

M. *Carre*, in the Memoirs of the Royal Academy of Sciences, lays down a new general Proposition, of the Proportion which Cylinders are to have, in order to form the *Accords* or Consonances of Musick. And it is this—That the solid Cylinders, whose Sounds yield those *Accords*, are in a triplicate and inverse Ratio of that of the Numbers which express the same *Accords*.

Suppose, *e. g.* two Cylinders, the Diameters of whose Bases and Lengths, are as 3 to 2; 'Tis evident their Solidities will be in the Ratio of 27 to 8, which is the triplicate Ratio of 3 to 2: We say, that the Sounds of those two Cylinders will produce a Fifth, which is express'd by those Numbers; and that the biggest and longest will yield the grave Sound, and the smallest the acute one.—And the like of all others. See SOUND, GRAVITY, and ACUTENESS.

ACCORD, in Law, is an Agreement between two, at the least, to satisfy an Offence that the one hath committed against the other; whether it be a Trespass, or such like thing, for which he hath agreed to satisfy him.—This, if executed, becomes a good Bar in Law to any Suit to be brought for the same Matter.

ACCOUNT, or ACCOMPT, a *Calculus*, or Computation of the Number of certain things. See CALCULUS, and NUMBER.

There are various Ways of *accounting*; as, by Enumeration, or setting one by one; and by the Rules of Arithmetick, Addition, Subtraction, &c. See ARITHMETIC, ADDITION, SUBTRACTION, &c.

We *account* Time by Years, Months, &c. The *Greeks accounted* it by Olympiads; the *Romans* by Indictions, Lustres, &c. See TIME, YEAR, OLYMPIAD, &c.——We *account* Distances by Miles, Leagues, &c. See MILE, LEAGUE, DISTANCE, &c. see also COMPUTATION.

Money of ACCOUNT, is an imaginary sort of Species, contrived for the facilitating and expediting the taking and keeping of *Accounts*.—Such are *Pounds*, *Angels*, &c. See MONEY *of Account*; see also POUND, &c.

ACCOUNT is also a Relative Term, used in respect of a Company, or Society, when two or more Persons have receiv'd, or disburs'd for each other; or when this has been done by their Order or Commission. See COMPANY, COMMISSION, FACTORAGE, &c.

ACCOUNT, or ACCOUNTS, is also used collectively, for the several Books or Registers which Merchants keep of their Affairs, and Negotiations. See BOOK-KEEPING, &c.

Hence, to make out an *Account*; to pass one's *Accounts*, &c.——Bankrupts are oblig'd to surrender their *Accounts*. See BANKRUPT, &c.

ACCOUNT, or ACCOMPT, in a Legal Sense, is a particular Detail, or Enumeration deliver'd to a Court, a Judge, or other proper Officer or Person, of what a Man has receiv'd or expended on the Behalf of another, whose Affairs he has had the Management of———.

In the Remembrancer's Office in the Exchequer, are enter'd the States of all the *Accounts* concerning the King's Revenue, for Customs, Excise, Subsidies, &c. See REMEMBRANCER; see also REVENUE, CUSTOM, EXCISE, &c.

The great *Accounts*, as those of the Mint, Wardrobe, Army, Navy, Tenths, &c. are called *Imprest Accounts*. See IMPREST.

All *Accounts* which pass the Remembrancer's Office, are brought to the Office of the Clerk of the Pipe. See PIPE; see also TALLY, CLERK, AUDITOR, &c.

ACCOUNT, in Law, is particularly used for a Writ which lies where an Agent, Steward, or other Person, who ought to render an *Account*, refuses to give his *Account*. See STEWARD.

Chamber of ACCOUNTS, in the *French* Polity, is a sovereign Court, of great Antiquity, wherein the *Accounts* relating to the King's Revenue are deliver'd in, and register'd. See CHAMBER.

This answers pretty nearly to the Court of Exchequer in *England*. See EXCHEQUER.

There are Presidents of *Accounts*, Masters of *Accounts*, Correctors of *Accounts*, &c.

ACCOUNTANT, or ACCOMPTANT, a Person, or Officer appointed to keep or make up the *Accounts* of a Company, Office, Court, or the like. See ACCOUNT.

There are *Accountants* in the Custom-house, the Excise, &c. See EXCISE, and CUSTOM-HOUSE.

The ACCOUNTANT-*General of the Court of Chancery*. See CHANCERY.

ACCOUNTING- or ACCOMPTING- or COUNTING-*House*. See COUNTING-*House*, GREEN-*Cloth*, &c.

ACCOUTREMENT, an antient Term, used for an *Habillement*; or a part of the Apparatus, and Furniture of Soldier, Knight, or even a Gentleman. See HABILLEMENT.

The Word is *French*; form'd from the antient *German*, *Kuster*.——In some Cathedrals in *France*, *e. g.* at *Baycux*, the Name *Coutre* is given to the Sacristan, or Officer who has the Care of furnishing and setting out the Altar, in the Church; call'd in *German Kuster*, νεώκορος.

ACCRETION, the Growth or Increase of an organical Body, by the Accession of new Parts. See NUTRITION.

Accretion is of two Kinds; the one, consisting in an external Apposition of new Matter.

This is what we otherwise call, *Juxtaposition*; and 'tis thus, Stones, Shells, &c. are supposed to grow. See STONE, and SHELL.

The other is by some fluid Matter received into proper Vessels, and gradually brought to adhere or grow to the Sides thereof.

This is what we call, *Introsusception*; and 'tis thus Plants and Animals are nourish'd. See PLANT, and ANIMAL; see also NUTRITION.

ACCRETION, ACCREMENT, in the Civil Law, a vague or vacant Portion of Ground, join'd or united with Grounds held or possess'd by another.—A Legacy given to two Persons jointly, *tam re quam verbis*, falls wholly to him that survives the Testator, by Right of *Accretion*.

Alluvion is another Species of *Accretion*. See ALLUVION.

ACCRUE, or ACCREW, denotes something to fall by way of Accession, or Accretion, to another. See ACCRETION, and ACCESSION.

ACCUBITOR, an antient Officer of the Emperors of *Constantinople*; whose Business was to lie near the Emperor.

The Word is *Latin*, form'd of the Verb *Accumbo*, I lie by; whence *Accubatio*, that State or Posture of the Body when we sit, and at the same time lean backwards.

ACCUMULATION, the Act of *heaping*, or amassing several things together.—The Word is compounded of *ad*, and *cumulus*, heap.

The Lawyers speak of an *Accumulation* of Titles; as, when a Person claims Lands, a Benefice, or the like, in Virtue of several Titles, or Pretensions of different Kinds; *e. g.* by Death, by Resignation, &c.

In a like Sense, we read of *Accumulative* Treason, &c. See TREASON.

ACCURSED, something that lies under a Curse, or under a Sentence of Excommunication. See ANATHEMA, EXCOMMUNICATION, &c.

ACCUSATION, ACCUSATIO, in the Civil Law, the intenting a criminal Action against any one, either in one's own Name, or that of the Publick. See ACTION, and CRIMINAL.

By the *Roman* Law, there was no publick *Accuser*, for publick Crimes; every private Person, whether interested in the Crime or not, might *accuse*, and prosecute the *Accused* to Punishment or Absolution.

But the *Accusation* of private Crimes was never received, excepting from the Mouths of those who were immediately interested in them.—None but the Husband could *accuse* his Wife of Adultery. See ADULTERY.

Indeed, it was not properly an *Accusation* except in publick Crimes; in private ones it was call'd simply *Action*, or intenting an Action, *intendere Actionem*, or *litem*. See ACTION.

Cato, the most innocent Person of his Age, had been *accused* 42 times; and absolved 42 times. See ABSOLUTION.

When the Accused *accuses* the Accuser, it is called *Recrimination*; which is not admitted till the *Accused* has been first purg'd. See RECRIMINATION.

By the cruel Laws of the Inquisition, the Accused is forced to accuse himself of the Crime objected to him. See INQUISITION.

It has formerly been the Custom in some Parts of *Europe*, where the *Accusation* was very heavy, either to decide it by Combat, or at least to make the Accused purge himself by Oath; which, however, was not admitted, excepting a certain Number of his Neighbours and Acquaintance swore together with him. See DUEL, COMBAT, OATH, PURGATION, &c.

ACCUSATIVE, in Grammar, the fourth *Case* of Nouns that are declined. See CASE, and NOUN.

Its Use may be conceived from this, That all Verbs which express Actions that pass from the Agent, as, to *beat*, to *break*, &c. must have Subjects to receive those Actions: for, if I beat, I must beat something; so that a Verb evidently requires after it a Noun, or Name, to be the Subject or Object of the Action express'd. See VERB.

Hence, in all Languages which have Cases, the Nouns have a Termination which they call *Accusative*; as, *amo Deum*, I love God; *Cæsar vicit Pompeium*, *Cæsar* overcame *Pompey*.

In *English*, we have nothing to distinguish this Case from the Nominative, but as we ordinarily place Words in their natural Order, it is easily discover'd, the Nominative constantly preceding, and the *Accusative* following the Verb.—Thus, when we say, the Prince loves the Princess, and the Princess loves the Prince: The Prince is the Nominative in the first, and the *Accusative* in the last; and the Princess the *Accusative* in the first, and the Nominative in the second. See NOMINATIVE.

ACEPHALUS, or ACEPHALOUS, something without a Head. See HEAD.

The Word is composed of the Privative α, and κεφαλη, *Caput*, Head.

Pliny represents the *Blemmyes* as a Headless or *Acephalous* Nation. See BLEMMYES.—*Acephalous* Worms are frequent. See WORM, and VERMES.

ACEPHALUS is more frequently applied, in a figurative Sense, to those destitute of a Leader, or Chief.

Thus, the Name *Acephali* is sometimes applied to such Priests or Bishops, as are exempted from the Discipline and Jurisdiction of their ordinary Bishop or Patriarch. See EXEMPTION, PRIVILEGE, PECULIAR.

Anastasius the Library-Keeper, calls this Exemption from the Jurisdiction of a Patriarch, *Autocephalia*. See PATRIARCH.

We find a great Number of Canons of Councils, Capitulars of Princes, &c. against *Acephalous Clerks*, &c.

In our antient Law-Books, the Term is also used for those poor People who had no proper Lord; as holding nothing in Fee, either of King, Bishop, Baron, or other Feudal Lord. *L. Hen.* I.

In Ecclesiastical History, *Acephali* frequently occurs as the Denomination of divers Sects: Particularly, — 1°, Of those who in the Affair of the Council of *Ephesus*, refused to follow either St. *Cyril*, or *John* of *Antioch*.—2°, Of certain Hereticks of the Vth Century, who at first follow'd *Peter Mongus*; but afterwards abandon'd him, upon his subscribing to the Council of *Chalcedon*; they themselves sticking to the Errors of *Eutyches*.—3°, Of the Adherents of *Severus* of *Antioch*; and of all in general who refused to admit the Council of *Chalcedon*.

Some will have the Word properly to denote *Hesitator*; and suppose it applied on this Occasion, by reason they stood neuter, or dubious, hesitating about coming into the Council: But the former Opinion is the more probable; *Acephalous* being never used in the latter Sense.

In some Writers, the *Acephalous* Hereticks are called *Acephalites*, *Acephalitæ*.

ACERB, ACERBUS, a compound Taste, consisting of sour, with the Addition of a degree of Roughness. See TASTE.

Such is the Taste of all Fruits before they are ripe. See FRUIT, MATURITY, &c.

The Physicians usually make *Acerb* an intermediate Savour between Acid, Austere, and Bitter. See ACID, &c.

All Matters which come under this Denomination are Astringent. See ASTRINGENT.

ACERRA, in Antiquity, a kind of Altar, erected near the Gate of a Person defunct, among the *Romans*; whereon his Friends and Familiars daily offer'd Incense, till the time of his Burial. See ALTAR, FUNERAL, &c.

ACETABULUM, in Antiquity, a little Vase or Cup, used at Table; to serve up things proper for Sauce, or Seasoning: much after the manner of our Salts, and Vinegar-Cruets. See VASE, and VESSEL.

Hence, *Agricola*, in his Treatise of *Roman* Measures, L. I. takes the Name to have been form'd from *Acetum*, Vinegar; as supposing it principally destin'd to serve Vinegar on.

ACETABULUM is also used for a *Roman* Measure, in use chiefly in Medicine, for liquid Matters. See MEASURE.

The *Acetabulum* contain'd a Cyathus and a half, as is proved by *Agricola*, from two Verses of *Fannius*; who speaking of the Cyathus, says, it weighs ten Drachms; and the *Oxubaphus* or *Acetabulum*, 15.

Bis quinque hunc faciunt Drachmæ, si appendere tentes,
Oxybaphus fiet si quinque addantur ad illas.

Binet, in his Treatise of Weights and Measures prefix'd to his Translation of *Pliny*, makes the *Acetabulum* of Oil weigh two Ounces and two Scruples; the *Acetabulum* of Wine, two Ounces, two Drachms, a Grain, and a third of a Grain; and the *Acetabulum* of Honey, three Ounces, three Drachms, a Scruple, and two Siliquæ. See CYATHUS, COTYLE, &c.

ACETABULUM, is also used in Anatomy, for a deep Cavity, in certain Bones, appointed for the Reception of the large Heads of other Bones, in order to their Articulation. See BONE, and ARTICULATION.

Thus, the Cavity of the *Ischium*, or Huckle-Bone, which receives the Head of the Thigh-Bone, is called *Acetabulum*, *Cotyla*, or *Cotyloides*. See ISCHIUM, FEMUR, COTYLE, &c.

The *Acetabulum* is lined and tipp'd round with a Cartilage, whose circular Margin is called *Supercilium*.—In its bottom lies a large mucilaginous Gland. See MUCILAGINOUS, &c.

ACETABULUM is also used by Anatomists in the same Sense with *Cotyledon*. See COTYLEDONES.

ACETARIA, a Salade. See SALADE.

The Word is form'd of *Acetum*, Vinegar; in regard that Fluid is commonly used for the Seasoning thereof.

ACETOUS, something relating to *Acetum*, or Vinegar. See ACETUM, and VINEGAR.

Thus, we say, an *Acetous* Taste; *Acetous* Qualities, &c. Wine, and all vinous Liquors, are render'd *Acetous* by exciting their Salts, and tempering or abating their Sulphurs. See WINE, and VINOUS.

The Chymists mention divers *Aceta*, or *Acetous* Liquors; as, *Acetum Alcalizatum*; made of distill'd Vinegar, with the Addition of some Alkaline, or Volatile Salt. See ALKALI.——*Acetum Philosophorum*, a sour kind of Liquor; made by dissolving a little Butter of Antimony in a great deal of Water. *Boyle*.

ACETUM, in Medicine, &c. the same with *Vinegar*; the Properties, Uses, and Preparation whereof, see under the Article VINEGAR.

The Word is pure *Latin*; form'd of *Aceo*, I am sharp. See ACID.

There are several Medicines in the Shops, whereof this Liquor is the Basis; as, *Acetum Distillatum*, distill'd Vinegar; chiefly used in other Preparations for Dissolution, and Precipitation. See DISTILLATION, DISSOLUTION, PRECIPITATION, &c.

Spiritus Aceti, Spirit of Vinegar; made by drenching Copper Filings or Spittle Dust with distill'd Vinegar, then evaporating it till the Fumes of the Vinegar cannot be smelt; the Saturation and Evaporation to be again repeated, till the Metal be satiated; which being then distill'd, the Spirit comes over.——Its Qualities and Uses are much the same with those of the former, only more powerful.

Acetum Rosarum, Vinegar of Roses; made of Rose-buds infused in Vinegar 40 or 50 Days; the Roses then press'd out, and the Vinegar preserv'd.—It is chiefly used by way of Embrocation on the Head and Temples, in the Head-ach.

After the same manner is made *Acetum Sambucinum*, Vinegar of Elders; *Acetum Anthosatum*, Vinegar of Rosemaries, &c.

The *German* Dispensatories abound with medicated Vinegars, chiefly aim'd against pestilential Diseases: but they are not used among us.—The College retains some of 'em, as the *Acetum Theriacale Norimbergense*, but it is never prescrib'd.

ACHAT, in our Law-*French*, signifies a Contract, or Bargain.

Purveyors were by Act of Parliament 36 *Ed.* III. ordain'ed to be thenceforth called *Achators*. See PURVEYORS.

ACHE, or ACH, a painful Ailment in any part of the Body. See PAIN, and DISEASE.

Aches are either Scorbutick, Rheumatick, owing to violent Strains, or the like.

Head-ACH. See HEAD-*Ach*, and CEPHALALGY.

ACHERNER, or ACHARNER, in Astronomy, a Constellation of the first Magnitude in the Sign *Pisces*.—Its Longitude, Latitude, &c. See under the Article PISCES.

ACHILLES, a Name which the Schools give to the principal Argument alledg'd by each Sect of Philosophers in their behalf. See SECT.

In this Sense, we say, this is his *Achilles*; that is, his Master-Proof: Alluding to the Strength and Importance of *Achilles* among the *Greeks*.

Zeno's Argument against Motion, is peculiarly term'd an *Achilles*.—That Philosopher made a Comparison between the Swiftness of *Achilles*, and the Slowness of a Tortoise; whence he argu'd, that a slow Moveable that precedes a swift one by ever so small Distance, will never be outrun by it. See MOTION.

The antient Botanists gave the Name *Achillæa* to several Plants; one of which is said to be the same with our Millefolium; and took its Name from *Achilles*, who, having been the Disciple of *Chiron*, first brought it into use for the Cure of Wounds and Ulcers.

The Tendon of ACHILLES, *Corda Achillis*, is a large Tendon, form'd by the Union of the Tendons of the four Muscles of the Foot, called *Extensores*. See TENDON, and FOOT.

It is so called, because the fatal Wound whereby *Achilles* is said to have been slain, was given there.

ACHILLEIS, or ACHILLEID, a celebrated Poem of *Statius*, wherein he proposed to deliver the whole Life and Actions of that Hero. See POEM.

It only takes in his Infancy, the Poet being prevented from proceeding, by Death.

The *Achilleid* is of the Heroic or Epic Kind; but extremely faulty in the Plan, or Fable. See FABLE, &c.

'Tis a Point controverted among the Criticks, whether the whole Life of a Hero, *e.g.* of *Achilles*, be a proper subject Matter of an Epic Poem. See EPIC, and HEROIC.

ACHOR, ACHORES, in Medicine, the third Species or Degree of a *Tinea*, or Scald Head. See TINEA.

Achores are a sort of spreading Ulcers, which break the Skin into a Number of little Holes, out of which oozes a viscid Humour.—*Achores* only differ from *Favi* in this, that their Holes are smaller.

ACHRONICAL, in Astronomy, is applied to the *Rising* of a Star when the Sun sets; or the *Setting* of a Star when the Sun rises. See RISING, and SETTING.

The *Achronical Rising* of *Mars*, who is then found to be nearer the Earth than the Sun, has been one great Occasion of exploding the antient *Ptolemaic* System, which places the Sun in the Centre of the World, and *Mars* beyond the Sun. See EARTH, MARS, &c.

The *Achronical* is one of the three Poetical Risings and Settings of the Stars. See POETICAL.

The Word comes from the *Greek* α and χρόνος, Time.

ACID, ACIDUM, any thing which affects the Tongue with a Sense of Sharpness, and Sourness. See TASTE.

Acids are usually divided into *manifest* and *dubious*.

The *Manifest Acids*, are those above defined, which impress the Idea sensibly.—Such are *Vinegar*, and its Spirit; the Juices of *Citrons*, *Oranges*; Spirit of *Nitre*, Spirit of *Alumn*, Spirit of *Vitriol*, Spirit of *Sulphur per Campanam*, Spirit of *Sea Salt*, &c. See VINEGAR, NITRE, VITRIOL, ALUMN, SULPHUR, &c.

Dubious Acids, are those which do not retain enough of the *Acid* Nature to give sensible Marks thereof on the Taste, but agree with the *Manifest Acids* in some other Properties, sufficient to refer 'em to the same Class.—Hence it appears that there are some Characters of *Acidity* more general than that of the sharp Taste; tho 'tis that Taste is chiefly regarded in the Denomination.

The great and general Criterion, then, of *Acids*, is, that they make a violent Effervescence, when mix'd with another sort of Bodies, called *Alkalies*. See EFFERVESCENCE.

Yet is not this Property alone universally to be depended on, to determine a Body an *Acid*, without the joint Consideration of the Taste, and the Changes of Colour producible in other Bodies thereby. — To distinguish *dubious Acids* from Alcalies, mix 'em with a blue Tincture of Violets: If they turn it red, they are of the *Acid* Tribe; if green, Alkaline. See ALKALY.

Acids are all of the Tribe of Salts; and compose a particular Species thereof, called *Acid Salts*. See SALT.

Add, that the *Acid* Salts are all found to be volatile; by which they are distinguish'd from the rest, which are either fix'd, or at least have a urinous, instead of an *acid* Taste. See VOLATILE, FIX'D, and URINOUS.

Some late Chymical Philosophers have even made it very probable, that 'tis the *Acid* is the saline Part or Principle in all Salts.—They consider it as a subtile, penetrating Substance, diffused thro' the several Parts of the Globe; which, according to the different Matters it happens to be united withal, produces different Kinds of Bodies: If it meets a fossil Oil, it converts it into Sulphur; if it be received into the *Lapis Calcarius*, it coagulates with it, and becomes Alumn; with Iron it grows into green Vitriol; with Copper, into blue Vitriol, &c.

Of this Sentiment is Sir *I. Newton*.—'In decompounding 'Sulphur, *says that Author*, we get an *Acid* Salt, of the 'same Nature with Oil of Sulphur *per Campanam*; which 'same *Acid* abounding in the Bowels of the Earth, unites 'sometimes with Earth, and thus makes Alumn; sometimes 'with Earth and Metal, and makes Vitriol; and sometimes 'with Earth and Bitumen, and thus compounds Sulphur.' *Opticks*.

In effect, all our native Salts, tho without any Mixture from Art, are yet found to be real Mixtures; and their Composition and Decomposition is easily made.—'As many as they 'are, they may be all reduced, according to M. *Homberg*, 'to three Kinds, *viz. Salt-petre*, *Sea-Salt*, and *Vitriol*; 'each whereof has its several Species. Of the Combina'tion of these with different oily Matters, are all the other 'Salts produced. By the Analyses we have made of 'em, 'they all appear to be composed of an aqueous, an earthy, a sulphurous, and an *acid* Part; but the *Acid* we 'hold the pure Salt: This makes our Chymical Principle 'Salt, the common Basis of all Salts; and which, antecedent to its Determination to any particular Species, appears 'to be one similar, uniform Matter, tho never found alone, 'but always accompany'd with some sulphureous Mixture or 'other; which determines it to some one of the three sorts 'of Fossil Salts abovemention'd.' *Mem. de l'Acad. R. des Sciences*. An. 1708. See PRINCIPLE.

The *Acid*, accompany'd with its determining Sulphur, never becomes sensible to us, except when lodg'd either naturally in some earthy Matter, or artificially in an aqueous one.—In the first Case, it appears under the Form of a crystalliz'd Salt; as Salt-petre, Sea Salt, &c. In the second, it appears in form of an *Acid* Spirit; which, according to the Determination of the Sulphur accompanying it, is either Spirit of Nitre, or Spirit of Salt, or Spirit of Vitriol.

What is here spoke of the three simple fossil Salts, may be equally applied to all the compound Salts of Vegetables and Animals, with this difference, that the latter have always a larger Proportion of the earthy Matter than the simple ones, when in form of a concrete Salt; and a larger Proportion of the aqueous Matter, when in form of an *acid* Spirit.—And hence we account for two important Phænomena; 1°, That the *acid* Spirits of Animal and Fossil Salts, are always weaker, and less penetrating, as well as lighter in Weight, than those of the Fossil Salts: 2°, That after a vehement Distillation, they leave a larger quantity of earthy Matter behind them than the Fossil do.

The Salt naturally contain'd in Plants, may be consider'd as a Mixture of Earth, Oil, a little Water, and an *acid* Salt: This last Ingredient being separated from the Plant with a vehement Fire, shoots into a new Salt, which sometimes retains an *acid* Taste, as in the Tartar of Wine; sometimes it assumes a Sweetness, as in Sugar; sometimes is bitter, as in Quinquina; and sometimes almost insipid, as in Sage. This, M. *Homberg* calls the essential Salt of the Plant; which, by a gentle Distillation, resolves into an insipid Water, an *acid* Liquor, and a ruddy fetid one; containing part of the *acid* Salt, and part of the fetid Oil of the Plant: of the Combination of which, is composed a particular Kind of fetid Salt, smelling like Urine, called the Volatile Salt or Volatile Alcaly Salt of the Plant: And the Caput Mortuum remaining, being reduc'd into Ashes, is separated by Lixiviation into one Part of fix'd Alcaly Salt, and another of insipid Alcaline Earth.—Add, that the essential Salt always dissolves entirely in Water, even the earthy Part join'd with it. But if the same Salt have been robb'd, by means of Fire, of a great part of its *Acid*; the earthy Part will not wholly dissolve, but a Sediment of insipid Earth, indissoluble in Water, will be found at bottom; to which, if an *acid* Spirit be added, it then becomes entirely dissoluble in Water: Whence it may be fairly concluded, that the other Part of the Ashes, before dissolved in the Water, and which after Evaporation appears in form of a fix'd lixivial Salt, was only dissolved by Virtue of the *Acid* it contain'd; or as having retain'd enough of the *Acid* to effect a Dissolution.

Again, when the Earth of the Plant, satiated with its *Acid*, becomes a crystalliz'd Salt; no more of the same *Acid* can be introduc'd into it: whereas the lixivious Salt drawn from

from the Aſhes, does not cryſtallize, but ſtill greedily imbibes the *Acid* Spirits.

Hence it may be probably concluded, that the Lixivious, or fix'd Alcaly Salt, is no other than the Earth of the Plant, which, notwithſtanding the Violence of the Fire, has retain'd a little Portion of its *acid* Salt, ſufficient to diſſolve it in Water; ſtill reſerving a ſufficient Number of *Loculi* or Pores, to lodge the firſt *Acid* that ſhall offer it ſelf, in lieu of that driven out of it by the Fire.——And as the Name *Alcaly* is only given to a Salt, in reſpect of its imbibing and retaining an *Acid* preſented to it, in order to the producing a cryſtalliz'd Salt; the Lixivious Salts of Plants may be ſaid to be more or leſs Alcaline, as they abſorb more or leſs of the *Acid*; or, which amounts to the ſame, as they contain more or fewer Vacuities to be fill'd with *Acids*.

An Alcaly, after it has been fully ſatiated with one ſort of *Acid*, will yet ſometimes admit and retain part of another *Acid*: This is chiefly obſerved where a Vegetable *Acid* has been received firſt, and a Foſſil one is offer'd after. And it ſeems owing to this, That the Vegetable *Acid* having undergone a greater degree of Fermentation in the Body of the Plant, is become rare and pervious, in reſpect of the more ſolid and weighty Particles of the Mineral *Acid*; which therefore force a way in.

The ſame is always the Caſe, where an *Acid* appears an Alcaly with reſpect to another *Acid*; that is, where, of two *Acid* Spirits, one whereof has a Mixture of ſome Alcaly; the rarer of the two having poſſeſs'd the Pores of the Alkaly, is compreſs'd by the other denſer *Acid*.——Thus, a Pin-cuſhion, tho ever ſo full of Cotton, will admit a good Number of Pins.

Now, urinous Salts are Alkalies as well as the Lixivious Kind, *i. e.* they greedily imbibe *Acids*, retain 'em, and together with 'em compoſe Salts which cryſtallize.—But their Volatility ſeems to make it plain, that they are not, like the former, a Compoſition of a mere earthy Matter, with a little *Acid*; in regard a mere Earth can never become Volatile by ſuch Admixture. Yet is there a great deal of Reaſon to imagine, that their Compoſition is no other than a Part of the ſame Matter, which would have produced the Lixivious Salt, intimately mix'd with a deal of the fetid Oil of the Plant; and that the Oil is the ſole Cauſe of the Volatility of theſe Salts.

M. *Homberg*, in his *Eſſai du Sel principe*, makes three Claſſes of *Acid* Salts, correſponding to the three Species of Sulphurs wherewith the primitive *Acids* may be combined.

The firſt Claſs conſiſts of ſuch as contain an Animal, or a Vegetable Sulphur, which amount nearly to the ſame.—To this Claſs belong all the diſtill'd *Acids* of Plants, Fruits, Woods, *&c.* which muſt neceſſarily retain part of the Oil of the Plant, which is their Sulphur. To this Claſs alſo belongs Spirit of Nitre; as being a Subſtance procur'd from the Excrements of Animals, *&c.*

The ſecond Claſs is of thoſe which contain a bituminous Sulphur.—Such are Vitriol, common Sulphur, and Alumn; which are all uſually procur'd from a Mineral Stone, wherein Bitumen is the prevailing Ingredient.

The third is of ſuch as contain a more fix'd Mineral Sulphur, approaching the Nature of a metalline one.—Such are the *Acids* drawn from Sea Salts and Sal Gemma's; the latter of which is chiefly found in Places near Mines of Metals, and the former probably ariſes from Rocks, or Veins of Sal Gemmæ running into the Sea, and there diſſolved.

From the peculiar Nature and Properties of the Sulphur thus accompanying the ſeveral Kinds of *Acid* Salts, their different Phænomena and Effects are to be accounted for.—*See the Article* SALT.

The *Acids* of Animals are doubtleſs chiefly derived from Plants, in the ordinary way of Food, and Nutrition; and thoſe of Plants, again, from thoſe of Minerals. So that there ſhould ſeem to be but one Spring of *Acidity*: The Diverſities ariſe from what happens to 'em in paſſing thro' the organiz'd Bodies of Plants and Animals. Hence it is, that Plants and Animals eſpecially, yield a very volatile Alkaly Salt; whereas, the Salts of Minerals are found altogether *acid*, and much more fix'd and concrete; tho 'tis the ſame Matter in both Caſes, under different aſſumed Forms.

Thus, the younger *Lemery* argues, that as Animals feed on Plants, and reciprocally, in the Inſtance of Salt-petre, *&c.* Plants feed on Animals; inaſmuch as their Vegetation is excited by Manure; it happens, that what was real Salt-petre in Plants, becomes only a nitrous Sal Ammoniac in Animals, and *vice verſa*.—The ſame Author accounts for this double Metamorphoſis, by ſuppoſing that the nitrous Principle remains the ſame in both Caſes, and in both Caſes is attach'd to the ſame Matrix, with this only difference, that the Matrix becomes more earthy in Plants, and by that means, fix'd; and in Animals, loſes its earthy Parts, and aſſumes other oily ones, which render it volatile. *Mem. de l'Acad.* An. 1717.

As to the Manner wherein Acids *act on Alcalies, the great Number of little Bubbles produced during their Action*, and the *Heat ariſing thereupon*.——M. *Homberg* explains it thus.—The Matter of Light, which he ſuppoſes to be the chymical Principle, Sulphur, and to poſſeſs the whole Extent of the Univerſe; is kept in a perpetual Motion by the continual Impulſes which the Sun and Fix'd Stars give it: But this Motion, happening on ſome Occaſions to be ſlacken'd, may be retriev'd again, and augmented by the near Approach of Flame, which that Author ſuppoſes the only Matter capable of giving Motion to Light.—This Motion of Light cannot proceed, without continually ſtriking againſt the ſolid Bodies, and even paſſing thro' all the porous ones, it meets in its way. See SULPHUR, and FIRE.

Suppoſe, now, *Acids* to be little, ſolid, pointed Bodies, ſwimming at liberty in an aqueous Fluid, and kept in continual Motion, by the repeated Impulſes of the Matter of Light; and Alcalies, to be ſpongious Bodies, whoſe Pores have formerly been fill'd with the Points of *Acids*, and which ſtill retain the Dents or Impreſſions thereof, and are ready to receive the like Points when driven within 'em. 'Tis eaſy to conceive, that if ſome of thoſe porous Alcalies float in the ſame Liquor wherein the ſolid *Acids* float; theſe latter, being impell'd by the Matter of Light, will enter the Cavities of the former, which are framed as it were on purpoſe for their Reception; and that they will do it the more readily, if the Motion of the Matter of Light, wherewith they are impell'd, have been accelerated by external Heat.

This Introduction of *Acids* into the Body of Alcalies, is, in all appearance, effected with a great Velocity and a deal of Friction; inaſmuch as it produces ſo conſiderable a degree of Heat: And as the Pores of the Alcalies were before fill'd with an aerial Matter, which is now expell'd by the Points of the *Acids*; that Air is put in Motion, and produces the Bubbles, which are ſo much the more ſenſible, as the Heat accompanying the Action is the greater. See AIR, and HEAT.

Sir *I. Newton* accounts for the Effects of *Acids* in a different manner, *viz.* from the great Principle of Attraction. See ATTRACTION.

'The Particles of *Acids*, he obſerves, are of a ſize 'groſſer than thoſe of Water, and therefore leſs volatile; 'but much ſmaller than thoſe of Earth, and therefore much 'leſs fix'd than they.—They are endu'd with a very great 'attractive Force, wherein their Activity conſiſts; it being 'by this that they affect and ſtimulate the Organ of Taſte; 'and by this alſo, that they get about the Particles of Bo'dies, either of a metalline or ſtony Nature, and adhere 'cloſely to 'em on all ſides; ſo as ſcarce to be ſeparable 'from them by Diſtillation or Sublimation: and when thus 'gather'd about the Particles of Bodies, by the ſame Power 'they raiſe, diſjoin, and ſhake them one from another; 'that is, diſſolve 'em.' See DISSOLUTION.

'By their attractive Force, alſo, wherewith they ruſh to'wards the Particles of Bodies, they move fluid ones, and 'excite Heat; ſhaking aſunder ſome Particles, ſo as to turn 'them into Air, and generate Bubbles: and hence all vio'lent Fermentation; there being in all Fermentation a la'tent *Acid*, which coagulates in Precipitation.' See FERMENTATION.

'*Acids*, alſo, by attracting Water as much as they do the 'Particles of other Bodies, occaſion the diſſolv'd Particles 'readily to mingle with Water, or ſwim or float in it; after 'the manner of Salts: And as this Globe of Earth, by the 'Force of Gravity, attracting Water more ſtrongly than it 'does ligbter Bodies, cauſes thoſe Bodies to aſcend in Wa'ter, and go upwards from the Earth; ſo, the Particles of 'Salts, by attracting the Water, mutually avoid and recede 'from one another as far as they can; and are thus diffus'd 'throughout the whole Water.

'The Particles of Alcalies conſiſt of earthy and *acid* 'Parts united together; but theſe *Acids* have ſo great an 'attractive Force, that they can't be ſeparated therefrom by 'Fire; and that they even precipitate the Particles of diſ'ſolv'd Metals, by attracting from them the *acid* Particles, 'which before had diſſolv'd, and kept them in Solution.' See PRECIPITATION.

'If theſe *acid* Particles be join'd with earthy ones, in a 'ſmall Quantity; they are ſo cloſely retain'd by the latter, as 'to be quite ſuppreſs'd and loſt, as it were, in them; ſo that 'they neither ſtimulate the Organ of Senſe, nor attract Wa'ter; but compoſe Bodies which are not *acid*, *i. e.* fatty and 'ſweet Bodies; as Mercurius Dulcis, Brimſtone, Luna Cor'nea, *&c.*—From the ſame attractive Force in theſe *acid* 'Particles thus ſuppreſs'd, ariſes that Property of fat Bodies, 'that they ſtick or adhere to almoſt all Bodies, and are ea'ſily inflammable.—Thus, the *Acid* that lies ſuppreſs'd in 'ſulphureous Bodies, by more ſtrongly attracting the Particles 'of other Bodies (earthy ones for inſtance) than its own; 'promotes a gentle Fermentation, produces and cheriſhes 'natural Heat, and carries it on ſo far ſometimes, as to the 'Putrefaction of the Compound; Putrefaction ariſing hence, 'that the *acid* Particles which have long kept up the Fer'mentation, at length inſinuate into the little Interſtices that

'lie

'lie between the Particles of the first Composition; and 'so intimately uoiting with those Particles, produce a new 'Mixture or Compound, which cannot be return'd into its 'original form.' See PUTREFACTION.

'Water has no great dissolving Force, because there is 'but a small Quantity of *Acid* in it; for whatever strongly 'attracts, and is strongly attracted, may be reputed an *A*-'*cid*: But in such things as are dissolved in Water, the Dis-'solution is slowly perform'd, and without any Effervescence.' See WATER, and MENSTRUUM.

'When these *Acids* are applied to the Tongue, or any 'excoriated Part of the Body; leaving the subtile Earth 'wherewith they were before united, they rush into the 'Sensory, act there as Menstruums, and disjoin its Parts; 'thus causing a painful Sensation.'

The illustrious Author, it must be own'd, here carries the Notion of *Acidity* a great length: Dissolution, according to him, is only effected by Attraction, and is proportional to the degree of attractive Power in the Dissolvent; but all Bodies which attract much are *Acids*, on his Principle; and consequently all powerful Menstruums must belong to that Class.—And yet Spirit of Urine, which readily dissolves Iron or Copper, even in the Cold, is allow'd an Alcaly; and accordingly makes 'a vehement Conflict with Aqua fortis. Boyle's *Imperfect. of Chym. Doct. of Qual.*

Some chymical Philosophers, in the last Century, endeavour'd to derive the Qualities of Bodies, and the other Phænomena of Nature, from the Consideration of *Alcaly and Acid*. See ALKALY.

It has been a Point much controverted among the Physicians, whether or no there be any sincere *Acid* in human Blood? The generality stand for the Negative; and all Mr. *Boyle*'s Experiments, in his *History of Blood*, seem to give the thing on that side.——But the accurate M. *Homberg* has at last turn'd the Scale the other way; and shewn, by repeated Experiments, that an *Acid*, or what is commonly call'd so, and judg'd such by the Change of Colour it causes in a Tincture of Violets, may be drawn from the Blood of all Animals in general, and human Blood in particular. *Mem. de l'Acad. Roy. des Sciences.* An. 1712.

Hence, and from the careful Analyses that Author has made of the Flesh and Excrements of divers Animals, particularly Man; he infers, that the *Acid*, or Sea Salt of the Aliment taken into the Bodies of Animals; is not destroy'd therein, but passes into the Substance of 'em: the superfluous Portion being return'd unalter'd along with the Excrements. See BLOOD, DIGESTION, &c.

Acids are prescrib'd in Medicine, as Coolers, Antifebrifics, Antiscorbutics, Diaphoretics, Alexipharmicks, &c. See SCURVY, PLAGUE, &c.

'*Acids*,' Mr. *Boyle* observes, 'not only disturb the Body 'while they continue sensibly *acid*; but in many Cases cre-'ate Distempers, whereof they should seem the Remedies. '—The they be reputed to have an incisive and resolutive 'Virtue, and accordingly are prescribed to cut tough 'Phlegm, and dissolve coagulated Blood: yet there are 'some *Acids* which must evidently coagulate the animal 'Fluids, and produce Obstructions, with all their Train of 'Consequences.—Thus, it is known, that Milk readily cur-'dles with Spirit of Sea Salt, &c.' See COAGULATION.

ACID *Salts*. } See ACID.—See also SALT, and SPI-
ACID *Spirits*. } RIT.—See also PRINCIPLE.

ACIDITY, ACIDITAS, ACOR, the Quality which constitutes, or denominates, a Body, *Acid*; or that Sensation of Sharpness and Acrimony which *Acids* excite upon the Taste. See ACID, QUALITY, TASTE, &c.

A little Vitriol leaves an agreeable *Acidity* in Water.—Vinegar and Verjuice have different sorts of *Acidity*.

The Predominancy of *Acidities* in the Body, and their ill Effects, in coagulating the Blood, &c. is prevented by either repelling and mortifying them with Lixivious or Urinous Salts; or sheathing and absorbing 'em, with Alcalious Bodies.—Thus, Minium destroys the *Acidity* of Spirit of Vinegar; Lapis Calaminaris that of Sea Salt, &c. See ABSORBENT, &c.

ACIDULÆ, in Natural History, a Species of Mineral Waters, which discover a degree of *Acidity* to the Taste. See WATER.

Acidulæ are native Waters, impregnated with Particles of some acid Mineral; as Vitriol, Alumn, Nitre, or Salt. See WATER.

Sometimes there is also a vinous Flavour join'd with the Acid; by which they become peculiarly denominated *Vinous Waters*. See VINOUS.

The Class of *Acidulæ* are usually very cold; whence some Authors define *Acidulæ* to be all such Mineral or Medicinal Waters as are not hot. See BATH, &c.

The Physicians also frequently include Chalybeat or Ferruginous Waters, under the Class of *Acidulæ*. See CHALYBEAT, and FERRUGINOUS.

The Word is a Diminutive of *Acidum*; which is form'd from the *Greek* ακὶς, *Point, Edge*; in regard the Points of acid Substances prick and vellicate the Tongue.

We sometimes also meet with *Acidulated*, *q. d.* something wherein acid Juices have been put, in order to give it a Coolness, and Briskness.

ACINI, in Botany, small Grains, growing in Bunches; after the manner of Grape-stones.

The Word is *Latin*, and literally signifies *Grape-stone*.

Hence, Anatomists have called some Glands of a similar Formation, *Acini Glandulosi*. See GLAND.

ACINIFORMIS *Tunica*, the same with the *Tunica Uvea* of the Eye. See UVEA.

ACME, the *Height*, or Top of any thing.

The Word is *Greek*, ακμὴ, *Point, Tip*; of ακμαζω, *vigeo*, I flourish.

Acme is more especially us'd to denote the Height of a Distemper; which is divided into four Periods by some Institution-Writers.

1°, The *Arche*, the Beginning, or first Attack.—2°, *Anabasis*, the Growth.—3°, *Acme*, the Height.—And, 4°, *Paracme*, which is the Declension of the Distemper. See DISEASE.

ACOEMETES, ACOEMETI, a Name given to certain Monks in the antient Church, who flourish'd particularly in the East; and who were thus called, because they had Divine Service continually, and without Interruption, perform'd in their Churches.

The Word is *Greek*, ακοιμητος, form'd of the Privative α, and κοιμαω, *I lay down*, or *sleep in Bed*.

The *Acoemetes* divided themselves into three Bodies, each of which officiated in their Turn, and relieve'd the others: So that their Churches were never silent, Night nor Day.

Nicephorus mentions one *Marcellus* as the Founder of the *Acoemetes*; whom some modern Writers call, *Marcellus* of *Apamea*.—In *Bollandus* we have "the Life of St. *Alexan*-"*der*, Institutor of the *Acoemetes*, who were unknown before "him," says the Author of the Life, a Disciple of St. *Alexander*. This Saint, according to *Bollandus*, lived about the Year 430. He was succeeded by *Marcellus*.

The *Stylites* were also called *Acoemetes*. See STYLITES.

There are a kind of *Acoemetes* still subsisting in the *Romish* Church; the Religious *of the Holy Sacrament*, coming properly enough under that Denomination; in regard they keep up a perpetual Adoration, some or other of them praying before the Sacrament, Day and Night. See SACRAMENT.

ACOLYTHES, ACOLYTHI, in Antiquity, a Term applied to such Persons as were *steady and immoveable in their Resolutions*.

For this Reason, the Stoicks were called *Acolythes*; in regard, nothing could shake or alter their Resolves. See STOICK.

Among Ecclesiastical Writers, the Term *Acolythes* is peculiarly applied to those young People, who, in the primitive Times, aspir'd to the Ministry; and for that Purpose, continually attended the Bishops: Which Assiduity occasion'd their being called *Acolythes*.

In the *Romish* Church, there are a sort of *Acolythi* yet in being; but their Functions are different from those of their first Institution. They are such as have only receiv'd the first of the four less Orders, whose Business is to light the Tapers, carry the Candlesticks and the Incense-Pot, to prepare the Wine and Water, &c. See ORDER, &c.

At *Rome* there were three Kinds of *Acolythes*, viz. *Palatini*, who waited on the Pope; *Stationarii*, who served in Churches; and *Regionarii*, who, together with the Deacons, officiated in other Parts of the City. See STATIONARII, DEACONS, &c.

The Word is derived from the *Greek* ἀκολουθεῖν, *to follow*.

ACONITE, ACONITUM, a Plant, famous among the Antients, both in quality of a Poison, and a Remedy. See POISON.

The antient Botanists give the Name *Aconite* to several Plants of different Kinds.—One Species they called *Lycoctonum*, Λυκοκτόνον, *Wolfs-bane*; or Κυνοκτόνον, *Dogs-bane*; from its Effects: Of this they had likewise their Divisions; as the *Napellus*, thus called *à Napo*, because its Root resembled the Turnip-Kind: another called *Anthora*, *Anti-Thora*, *q. d.* good against Disorders of the *Thora*.

The whole Class of *Aconites* is held extreamly caustick and acrimonious, in Virtue whereof they produce mortal Convulsions, or Inflammations which end in Mortification; with which the Antients were so surprized, that they were afraid to touch 'em: And hence a thousand superstitious Precautions about the manner of gatheriog them.—Their Roots are held of service in Malignant Fevers; and accordingly make an Ingredient in some Orvietans, and other Alexipharmic Compositions.

Aconite is said to take its Name from *Acona*, a City in *Bithynia*, where it grows in great abundance: tho it is also found

found in other Places, particularly the Mountains about *Trent*. Some derive its Name from ακανεν, *a Rock naked or bare of Earth*, whereon the Plant readily thrives.——It was also called μυοκτόνος; as killing Mice with its bare smell, according to *Pliny*.—The Poets feign it to have arose from the Foam of the Dog *Cerberus*, when *Hercules* drag'd him out of Hell.

The Antients used this Plant against the Sting of the Scorpion, which is said to be deaden'd by the Touch of the *Aconite*, and restor'd to its Vigour by that of Hellebore.——*Theophrastus* relates, that they had a way of preparing it in those Days, so as it should only destroy at the End of one or two Years.—Arrows dipt in its Juice prove mortal wherever they wound.—The *Indians* use *Aconite*, corrected in Cows Urine, with good success against Fevers. *Letr. Edif. & Cur.*

ACONTIAS, a Name used by some Authors, for a sort of Comet, or Meteor, whose Head appears round or oblong, and its Tail very long and slender, resembling a Javelin. See Comet, and Meteor.

It takes its Denomination from a Serpent thus call'd, frequent in *Calabria* and *Sicily*; where it is also named *Saetrene*, by reason of its flying at Passengers like an Arrow; in order to which, it winds it self up a Tree, to spring thence with the greater Violence. For the like Reason, the *Greeks* call it *Acontias*, of ακωντιον, *a Dart*, or *Arrow*.

ACOPUM, a Fomentation, of warm and emollient things, to allay the Sense of Wearinesse, occasion'd by too violent Labour or Exercise. See Fomentation, Bathing, &c.

The Word is compounded of the Privative α, and κοπος, *labor*.

ACORN, *Glans*. See Fruit, Seed, Sowing, &c.

ACORUS, a Medicinal Plant, of the Rush or Flag Kind; frequently confounded by the Antients, and also by the modern Apothecaries, with the *Calamus Odoratus*. See Calamus.

There are two Species of *Acorus*; the *Verus*, or *true*, and the *false*.—They are distinguish'd by this, that from the middle of some of the Leaves of the former, there arises a longish Cluster of an Infinity of little Flowers, the Thickness of the little Finger, and resembling Macropiper, or Long Pepper.—The *false Acorus* is the common Sword-grass.

'Tis only the Root of the *Acorus* that is used in Physick; and 'tis this we usually call *Acorus*.—The *true* is brought from *Lithuania* and *Tartary*: It is knotty, reddish without, and white within; as thick as the little Finger, and half a Foot long.

It is spicy and bitterish; and used in Cephalic and Stomachic Compositions.—It is also an Ingredient in the *Theriaca Andromachi*.

Some rank Galangals as a Species of *Acorus*. See Galangals.

ACOUSTICKS, Acoustica, the Doctrine or Theory of Sounds. See Sound.

Acousticks is what we otherwise call *Phonicks*. See Phonicks.

Acousticks, or Acoustica, or Acoustic *Medicines*, are Remedies against the Imperfections and Disorders of the Ear; or of the Sense of Hearing. See Ear, and Hearing.

The Word is form'd of the *Greek* Ακοὴ, *Hearing*.

Acoustic is particularly applied to *Instruments* used by those who are slow of Hearing; to supply that Defect.

Dr. *Hook* says, it is by no means impossible to hear the lowest Whisper that can be made, to the Distance of a Furlong; and that he knows a way of hearing any Person speak thro' a Stone-Wall three Foot thick. See Whispering-*Place*, and Echo.

Acoustic *Nerve*. See Auditory *Nerve*.

ACQUEST, or Acquist, is understood, in a legal Sense, of Goods, or Effects, immoveable, not descended or held by Inheritance; but acquired, either by Purchase or Donation. See Goods.

The Word is *French*; form'd of the Verb *Acquerir*, to acquire.—The *French* Laws make a deal of difference between *Acquests*, and hereditary Effects. The Civil Law allows none. See Heir, Hereditary, &c.

The Word is also popularly used for Conquest, or Places acquired by the Sword.

ACQUIETANDIS *Plegiis*, a Writ lying for a Surety against the Creditor that refuses to acquit him after the Debt is paid. See Surety.

ACQUIETARE, in our antient Law-Books, signifies to pay the Debts of a Person deceas'd; as the Heir those of his Father, &c.

ACQUISITION, properly signifies an *Acquest*. See Acquest.

ACQUITTAL, a Discharge, Deliverance, or setting free of a Person from the Guilt or Suspicion of an Offence.——The like Discharge in Civil Concerns, is called an *Acquittance*. See Acquittance.

Acquittal is of two Kinds; *in Law*, and *in Fact*.—When two are appealed or indicted of Felony, one as Principal the other as Accessory; the Principal being discharg'd, the Accessory is by Consequence also freed: In which Case, as the Accessory is acquitted *by Law*, so is the Principal *in Fact*. See Accessory.

Acquittal is also used, where there is a Lord Mesn, and Tenant, and the Tenant holds Lands of the Mesn, and the Mesn holds over of the Lord Paramount: Here, the Mesn ought to *acquit* the Tenant of all Services claimed by any other for the same Lands; the Tenant being to do Service to the Mesn only, and not to divers Lords for one Parcel of Land. See Mesn, and Service.

ACQUITTANCE, or Quittance, a Release, or Discharge in Writing, of a Sum of Money, or other Duty which ought to be paid or done. See Receipt.

The Verb *Acquit*, the Participle *Acquitted*, and the Noun *Acquittal*, do also signify a Discharge from an Offence objected.—In this Sense, we meet with *Acquitted* by Proclamation. See Acquittal.

ACRASIA, ακρασια, is used by some Writers in Physick, for the Excess or Predominancy of one Quality above another; either in a Mixture, or in the Constitution of a human Body. See Crasis, Temperament, Constitution, &c.

ACRE, a Quantity of Land, containing four square Roods, or 160 square Poles. See Measure; see also Rood, and Perch.

By a Statute of 31 *Eliz.* it is ordain'd, That if any Man erect a new Cottage, he shall add four *Acres* of Land to it. See Cottage.

To find the Quantity of Acres *in a Piece of Ground*, &c. See Surveying.

The Word is form'd from the Saxon *Acher*, or *Acker*, Field; of the Latin *Ager*. Tho *Salmasius* derives it from *Acra*, used for *Akena*, a Land-Measure among the Antients, containing 10 Feet.

The Kingdom of *England* contains by Computation 39038500 *Acres*: The United Provinces 4382000, &c. See Political *Arithmetick*.

ACREME, a Term sometimes used in antient Law-Books, for ten Acres. See Acre.

ACRIBEIA, a Term purely *Greek*, Ακριβεια, literally denoting an exquisite or delicate Accuracy; sometimes used in our Language for want of a Word of equal Significancy.

ACRIDOPHAGI, in the antient Geography, a Nation of People said to feed on Locusts.—The Word is compounded of the *Greek* ακρις, *Locust*, and φαγω, *I eat*.

The *Acridophagi* are represented as a People of *Ethiopia*, inhabiting near the Desarts.—In the Spring they made Provision of a large kind of Locusts, which they salted, and kept for their standing Food all the Year: They lived to forty Years of Age, then died of a sort of winged Worms generated in their Bodies. See St. *Jerom* against *Jovinian*, L. II. and on St. *John*, C. 4. *Diodor. Sicul.* L. III. c. 3. and 29; and *Strabo*, L. XVI.—*Pliny* also speaks of *Acridophagi* in *Parthia*; and St. *Jerom* in *Libya*.

Tho the Circumstances of these People be fabulous; yet may the *Acridophagia* be true; and to this Day they eat Locusts in some Parts of the East.—And hence, St. *John* the Baptist is said to have lived on Locusts, ακρίδες, and wild Honey, *Matt.* c. 3. v. 4. See Honey.

Yet is the rendering of ακρίδες by *Locusts*, as the *English* Translators have done, much controverted.—*Isidore* of *Pelusium*, in his 132d Epistle, speaking of this Food of St. *John*, says, They were not Animals, but the Tops of Herbs; and even charges those who understood 'em otherwise of Ignorance: But St. *Augustin*, *Beda*, *Ludolphus*, and others, are of a different Sentiment. Accordingly, the Jesuits of *Antwerp* reject with Contempt the Opinion of the *Ebionites*, who for ακρίδες put εγκρίδες, *a delicious Diet prepared of Honey and Oil*; that of some other Innovators, who read ἀμαρίδες, or καρίδες, *Sea-Crabs*; and that of *Beza*, who reads ἀκρίδες, *wild Pears*.

ACRIMONY, *Asperity* or *Sharpness*, expresses a Quality in Bodies, by which they corrode, destroy, or dissolve others. See Corrosion, &c.

Salts are only caustick in Virtue of their *Acrimony*. See Salt, Caustic, &c.——The *Acrimony* of the Bile is supposed the Cause of divers Disorders. See Bile.—A Catarrh is a Defluxion of *Acrimonious* Humour. See Catarrh, Defluxion, Rhume, &c.

ACROATICKS, a Name given to *Aristotle*'s Lectures in the more difficult and nice Parts of Philosophy; to which none but Scholars and Friends were admitted. See Aristotelian, &c.

ACROMION, Acromium, in Anatomy, the upper Process of the *Omoplata*, or Shoulder-Bone. See Omoplata.

The Word is derived from ἄκρος, *summus*, and ὦμος, *Humerus*, *q.d.* the Extremity of the Shoulder; and not from Anchor, on account of any resemblance in Figure which the *Acromion*

mion bears to an Anchor, as *Dionis* has imagin'd.

Some have thought the *Acromion* to be of a Nature different from that of other Bones; in regard, during Infancy, it appears to be no more than a Cartilage, which ossifies by little and little, and about the Age of twenty Years becomes hard and firm, like a common Bone. See BONE, and OSSIFYING.

ACROSPIRE, in Natural History, &c. the same with *Plumule*. See PLUMULE; see also ACROSPIRED.

ACROSPIRED, is used in respect of Barley; which, in the Operation of making Malt, is apt, after *coming*, or sprouting at the lower, or Root-End, to become *Acrospired*, *i.e.* to sprout also at the upper, or Blade-End. See MALT.

ACROSTICK, a kind of Poetical Composition, the Verses whereof are disposed in such manner, as that the initial Letters make up some Person's Name, Title, or a particular Motto. See POEM, and POETRY.

The Word is derived from the *Greek* ἄκρος, *summus*, that which is at one of the Extremes, and στίχος, *Versus*.

There are also *Acrosticks*, where the Name or Title is in the middle, or some other Part of the Verse.—And others which go backwards; beginning with the first Letter of the last Verse, and proceeding upwards.

Some Refiners in this trifling way, have even gone to *Pentacrosticks*; where the Name is to be repeated five times. See PENTACROSTICK.

The Name *Acrosticks* is also applied by some Authors to two antient Epigrams in the first Book of the *Anthology*; the one in honour of *Bacchus*, the other of *Apollo*: each consists of 25 Verses; the first whereof is the Proposition or Argument of the whole, and the other 24 composed of four Epithets, beginning each with the same Letter; and thus following in the Order of the 24 Verses of the *Greek* Alphabet: So that the first of the 24 Letters comprehends four Epithets beginning with α; the second as many, with β; and so of the rest, to ω; which makes 96 Epithets for each God. See EPIGRAM.

ACROTERIA, or ACROTERS, in Architecture, little Pedestals, usually without Bases, placed at the Middle, and at the two Extremes of Frontispieces, or Pediments; and serving to support Statues. See PEDESTAL, and STATUE.

Those at the Extremes ought to be half the Height of the Tympanum; and that in the Middle, according to *Vitruvius*, one eighth Part more. See PEDIMENT, &c.

ACROTERIA sometimes also signify Figures, whether of Stone or Metal, placed as Ornaments, or Crownings, on the Tops of Temples, or other Buildings. See CROWNING.

Sometimes it also denotes those sharp Pinacles, or spiry Battlements, which stand in ranges about flat Buildings, with Rails and Ballusters. See PINNACLE, and BATTLEMENT.

The Word, in its original *Greek*, signifies the Extremity of any Body; as the Tip of a Rock, &c.

ACT, ACTUS, in Physicks, an effective Exercise or Application of some Power, or Faculty. See ACTION.

In this Sense, the Word *Act*, stands opposed to *Power*, *Potentia*, which is the Capacity of *acting*. See POWER, and POTENTIA.

Tho the Word *Act*, properly and primarily, be only applicable where the Power might exist without being drawn forth into *Act*; yet the Schoolmen extend it further; defining it by the Presence of any Power or Perfection, even tho it could not be absent.—In this Sense, God himself is said to be a most pure *Act*; in regard his Perfections are always and necessarily present. And thus, Form is call'd an *Act*; inasmuch as the Presence hereof compleats the Power and Perfection of Matter.—Form, say some, is Matter reduced into *Act*. See MATTER, and FORM.

Even Existence is termed an *Act*; by reason when this is given a Being, nothing further is wanted. See PERFECTION, and EXISTENCE.

In this Sense, the *Greeks* call *Act*, ἐντελέχεια, a Term denoting an actual Possession of Perfection, by the *Latins* render'd *Perfectihabia*. See ENTELECHEIA.

Metaphysicians give various Divisions of *Act*, *viz.* into *Infinite*, as the *Act* of Creating; and *Finite*, as the *Act* of Moving.—*Transient*, or those exercis'd in other Beings, as Heating; and *Immanent*, which remain in their own Subject, as Thinking.—*Elicit*, and *Commanded*, &c. See ELICIT, &c.

ACT, in Logick, is particularly understood of an Operation of the Mind. See OPERATION.

Thus, to Discern and Examine, are *Acts* of the Understanding: To Judge and Affirm, are *Acts* of the Will. See UNDERSTANDING, WILL, LIBERTY, JUDGMENT, &c.

There are Voluntary *Acts*, and Spontaneous ones which seem produced without the Privity or Participation of the Soul. See VOLUNTARY, and SPONTANEOUS.

ACT, in a Legal Sense, is an Instrument, or other Matter in Writing; of use to declare or justify the Truth of a thing.——In this Sense, Records, Decrees, Sentences, Reports, Certificates, &c. are call'd *Acts*.—Authentick *Acts*; Solemn *Acts*, &c.

ACTS, in the Plural, denote the publick Deliberations, and Resolutions of an Assembly, Senate, Council, Convocation, or the like; enter'd in a Register. See REGISTER, &c.

Acts of Parliament are particularly denominated *Statutes*. See PARLIAMENT, and STATUTE.

The *Acts* of the Royal Society are called *Transactions*; those of the Royal Academy of Sciences at *Paris*, *Memoires*: Those of the Societies of *Berlin*, *Leipsic*, &c. simply *Acts*, *Acta Eruditorum*, &c. See SOCIETY, ACADEMY, TRANSACTION, JOURNAL, &c.

The *Acts* of the antient Councils were called *Canons*. See CANON.

The Edicts and Declarations of the Council of the *Roman* Emperors, were called *Consistory Acts*, *Acta Consistorii*.

Clerk of the ACTS, is an Officer of the Navy. See CLERK, and NAVY.

ACTS are also Matters of Fact transmitted to Posterity in certain authentick Books, and Memoirs.—In this Sense, we say, the *Acts of the Apostles*, *Acts of the Martyrs*, &c.

The *Acts of* Pilate *relating to* Jesus, is a false and suppositious Relation of our Saviour's Trial before *Pilate*; impiously fram'd by the Enemies of Christianity; and fill'd with the blackest Blasphemy.——The Emperor *Maximin*, by a solemn Edict, order'd it to be sent into all the Provinces of the Empire; and enjoin'd the Schoolmasters to teach and explain it to their Scholars, and make 'em learn it by heart.

The Piece was wrote with so much Carelessness or Ignorance, that our Saviour's Death was therein referred to the IVth Consulate of *Tiberius*, that is, to the VIIth of his Empire; which is eleven Years before our Saviour's Passion, and five before *Pilate* was made Governor of *Judea*. See *Eusebius*, L. IX. c. 4. and 6. *Ruffin.* L. I. c. 5, &c.

The true and genuine *Acts* of *Pilate*, were sent by him to *Tiberius*, who reported 'em to the Senate; but were rejected by that Assembly, because not immediately address'd to them: as is testified by *Tertullian*, in his *Apol.* C. 5, and 20, 21. *Euseb. Hist.* L. II. c. 2. *Justin Martyr*, &c.

There are also spurious *Acts of the Apostles* composed in *Hebrew* by one *Abdias*; translated into *Greek* by his Disciple *Eutropius*; and thence into *Latin*, by *Julius Africanus*. *Wolffgang Lazius* publish'd the Piece in 1551, from a Manuscript near 700 Years old; supposing it an authentick Work.—A Disciple of *Manes*, named *Leucius*, or *Seleucus*, is also said to have composed *Acts of the Apostles*, towards the Close of the IIId Century.

There have formerly appear'd numerous other Pieces in this Way; as, the *Acts of St.* Thomas, the *Acts of St.* Andrew, the *Acts of St.* Paul *and* Thecla, the *Acts of St.* Matthew, *Acts of St.* Peter, *Acts of St.* John, *Acts of St.* Philip; all which have been declared Apocryphal.—The last were the Production of the Heretick *Peucius*: Those of St. *Thecla* were the Work of a Priest in *Asia Minor*, whom St. *John* degraded for his Offence.

ACT, in the Universities, is a Thesis maintain'd in publick, by a Candidate for a Degree; or, to shew the Capacity and Proficiency of a Student. See THESIS, DEGREE, &c.

The Candidates for the Degree of Batchelor and Master of Arts, are to hold *Philosophy Acts*; those for Batchelor of Divinity are to keep *Divinity Acts*, &c. See UNIVERSITY, DOCTOR, BATCHELOR, &c.

At *Oxford*, the Time when the Masters or Doctors compleat their Degrees, is also called the *Act*; which is held with great Solemnity: At *Cambridge* they call it *Commencement*. See COMMENCEMENT.

ACT *of Faith*, or AUTO *de Fe*, is a solemn Day held by the Inquisition, for the Punishment of Hereticks, and the Absolution of the Innocent Accused. See INQUISITION.

They usually contrive the *Auto* to fall on some great Festival; that the Execution may pass with the more Awe and Regard.

The Criminals are first led to Church; where their Sentence is read to 'em, either of Condemnation or Absolution.—Those condemned to Death, are here surrender'd up by the Inquisitors to the Secular Power, with an earnest Intreaty that no Blood may be shed.—If they persist in their supposed Errors, they are burnt alive.

ACTS, in Poetry, are certain Divisions, or principal Parts in a Dramatic Poem, contrived to give a Respite or Breathing-time, both to the Actors and Spectators. See DRAMA, TRAGEDY, and COMEDY.

In the Interval between the *Acts*, the Theatre remains empty, and without any Action visible to the Spectators; tho 'tis supposed all the while there is one passing out of sight. See ACTION.

'Tis not however, purely for the sake of the Respite, that these *Acts* are observ'd; but to give Affairs a greater degree of Probability, and render the Intrigue more affecting. For the Spectator who sees the Action prepared that is to pass in the Interval, cannot forbear acting, in his Imagination,

the Part of the absent Actors; by which means, he is the more agreeably surprized, when a new *Act* coming upon the Stage, he sees the Effects of that Action, which before he could but guess at. See PROBABILITY, &c.

To this it may be added, that Authors contrive to have the most dry and difficult Parts of the Drama transacted between the *Acts*; that the Spectators may have no Notion of these, excepting what their Fancy presents them with at a distance; and that nothing may appear upon the Stage, but what is natural, probable, and entertaining.

The antient *Greek* Poets were unacquainted with this Division of a Play into *Acts*; tho their Episodes or Chorus's serv'd almost the same Purpose. See EPISODE, and CHORUS.

'Tis true, they consider'd their Pieces as consisting of certain Parts or Divisions, which they called *Protasis*, *Epitasis*, *Catastasis*, and *Catastrophe*: But there were no real Divisions or Interruptions answering to 'em in the Representation. See PROTASIS, EPITASIS, &c.

'Twas the *Romans* who first introduced *Acts* into the Drama; and in *Horace*'s Time, the Five *Acts* were grown into a Law, as appears by the Verse,

Neu brevior quinto, neu sit productior, actu.

This Law stands unrepeal'd to this Day; tho it seems to draw its Force from the Authority of *Horace*, rather than that of Reason or Nature.—All Plays are held irregular that have either more or fewer. See FARCE.

Some indeed have asserted, that every just Action consists of five distinct Parts; and have undertaken to mark out the precise Share of the Action, which each of the five *Acts* ought to bear.

The first, say they, is to propose the Matter or Argument of the Fable, and to shew the principal Characters.—The second to bring the Affair or Business upon the Carpet.—The third to furnish Obstacles and Difficulties.—The fourth either points a Remedy for those Difficulties, or finds new in the Attempt.—The fifth puts an end to all by a Discovery.

Be this as it will, 'tis certain, on the Principles of that great Master of the Drama, *Aristotle*, we may have a just and regular Play, tho only divided into three *Acts*.

The *Acts* are subdivided into *Scenes*. See SCENE.

ACTIA, in Antiquity, ACTIAN *Games*, *Ludi* ACTIACI, solemn Games, instituted, or according to some only restored, by *Augustus*, in memory of the Victory over *Anthony* at *Actium*. See GAME.

Some will have 'em held every third Year; but the more common Opinion, is that they only return'd every fifth, and were celebrated in honour of *Apollo*.

By the way, it is a gross Oversight in some Authors, to imagine that *Virgil* insinuates 'em to have been instituted by *Æneas*; from that Passage *Æn.* III. v. 280.

Actiaque Iliacis celebramus littora Ludis.

'Tis true, the Poet there alludes to the *Actian* Games; but he only does it by way of Compliment to *Augustus*, to attribute that to the Hero from whom he descended, which was done by the Emperor himself: As is observed by *Servius*.

ACTIAN *Years*, *Anni* ACTIACI, were a Series of Years, commencing from the Æra of the Battle of *Actium*; called the Æra of *Augustus*. See YEAR, and EPOCHA.

ACTION, ACTIO, in Physicks, the Production of an *Act*, or the manner of an *active* Cause. See ACT, and ACTIVE.

The Idea of *Action* is so familiar to us, that a Definition may as easily obscure as explain it.——Some Schoolmen, however, attempt to express its Nature by "A Manifestation of the Power or Energy of a Substance; made either "within, or without it."——Thus, say they, when the Mind *acts*, what does it more, than perceive a vital Power exerting it self; as, in reality, the several *Actions* of the Mind, are no other than so many Indications of its Vitality.

'Tis a Point controverted among the Schoolmen, whether or no *Action*, thus taken, be a thing distinct both from the Agent, and the Term or Effect.—The Modists stand for the Affirmative, and the Nominalists assert the Negative.

These latter observe, that the *Action* may be consider'd two ways, Entitatively and Connotatively.—*Action Entitatively* taken, is what we call a Cause, or what may act: *Action Connotatively* consider'd, is the same Cause, only consider'd as acting, or connoting the Effect it produces. Now, say they, a Cause may be without an *Action*, connotatively taken, *i. e.* may be consider'd as not producing an Effect.; but cannot be without it entitatively, for that would be to be without it self. Hence they conclude, that the Cause differs from the *Action* connotatively, not entitatively taken; and the Agent is the Cause of the *Action*, consider'd connotatively, not entitatively.

Actions are divided, with respect to their Principle, into *Univocal*, where the Effect is of the same Kind with the Cause; as the Production of Man by Man: and *Equivocal*, where it is different; as the Production of Frogs by the Sun. See UNIVOCAL, and EQUIVOCAL; see also GENERATION, &c.——And again, into *Vital*; as Nutrition, Respiration, the *Action* of the Heart, &c. See NUTRITION, RESPIRATION, HEART, &c.——And *not Vital*; as Heating. See VITAL, HEAT, &c.

With respect to their Subject, *Actions* are divided into *Immanent*; which are receiv'd within the Agent that produced them: as are all vital Actions, Cogitation, &c. See THINKING, WILLING, &c.——And *Transient*, which pass into another. See TRANSIENT, &c.

In respect of Duration, *Actions* are again divided into *Instantaneous*, where the whole Effect is produced in the same Moment; as the Creation of Light: And *Successive*, where the Effect is produced by degrees; as Corruption, Fermentation, Putrefaction, Dissolution, &c. See FERMENTATION, PUTREFACTION, DISSOLUTION, &c.

The *Cartesians* resolve all Physical *Action* into Metaphysical: Bodies, according to them, do not *act* on one another; the *Action* all comes immediately from the Deity: The Motions of Bodies, which seem to be the Cause, being only the Occasions, thereof. See OCCASIONAL *Cause*.

'Tis one of the Laws of Nature, that *Action* and *Reaction* are always equal, and contrary to each other. See REACTION, and NATURE.

For the Actions of Powers, &c. See POWER, WEIGHT, MOTION, RESISTANCE, FRICTION, &c.

For the Laws of the Action of Fluids, &c. See FLUID, SPECIFIC *Gravity*, &c.

ACTION, in Ethicks, or *Moral* ACTION, is a Voluntary Motion, of a Creature capable of distinguishing Good and Evil; whose Effect, therefore, may be justly imputed to the Agent. See MORAL.

A Moral *Action* may be more fully defined to be whatever a Man, consider'd as endued with the Powers of Understanding and Willing, and with respect to the End he ought to aim at, and the Rule he is to regard in acting; resolves, thinks, does, or even omits to do; in such manner as to become accountable for what is thus done or omitted, and the Consequences thereof. See OFFICE.

The Foundation, then, of the Morality of *Actions*, is, that they are done Knowingly and Voluntarily. See UNDERSTANDING, and WILL.

All Moral *Actions* may be divided, with respect to the Rule, into *Good* and *Evil*. See GOOD, and EVIL.

ACTION, in Oratory, is an Accommodation of the Person of the Orator to his Subject; or, a Management of the Voice and Gesture, suited to the Matter spoken or deliver'd. See ORATORY.

Action makes one of the great Branches or Divisions of Rhetorick, as usually taught. See RHETORICK.

The Antients usually call it *Pronunciation*. See PRONUNCIATION.

Action is a collateral or secondary Method of expressing our Ideas; and is susceptible of a kind of Eloquence as well as the primary.—It is an Address to our external Senses; which it endeavours to move, and bring into its Party, by a well-concerted Motion and Modulation, at the same time that the Reason and Understanding are attack'd by force of Argument. Accordingly, *Tully* very pertinently calls it *Sermo Corporis*, the Discourse of the Body; and *Corporis Eloquentia*, the Eloquence of the Body—The *Roman* Mimes and Pantomimes, we read, had such a Copia in this kind, such a Compass even of mute *Action*, that Voice and Language seem'd useless to 'em: They could make themselves understood to People of all Nations; and *Roscius*, the Comedian, is particularly fam'd, as being able to express any Sentence by his Gestures, as significantly and variously as *Cicero* with all his Oratory. See MIME, PANTOMIME, &c.

Quintilian gives us a System of the Rules of *Action*; taken not only from the Writings of the antient Orators, but from the best Examples' of the *Forum*. See his *Institut. Orat.* L. XI. c. 3. *de Pronuntiatione*.

The Force and Effect of *Action*, at least as practis'd among the Antients, appears to be very great; scarce any thing was able to withstand it. What we usually attribute to Eloquence, was really the Effect of the *Action* only, as some of the greatest Masters in that way have frankly acknowledg'd.—*Demosthenes* expressly calls it, "the Beginning, the Middle, and the End of the Orator's Office;" and *Cicero* professes, that "it does not so much matter "what the Orator says, as how he says it." *Neque tantum refert qualia sunt quæ dicas, quam quomodo dicantur.* De Orat.—Hence, the great *Greek* Orator is represented as practising and adjusting his *Action* in the Glass: *Demosthenes grande quoddam intuens speculum componere* Actionem *solebat. Quintil.*

Every Part of the Body is by them lifted into the Service, and marshall'd in its proper Place: The Hand, the Eye, Head, Neck, Sides, Cheeks, Nostrils, Lips, Arms, Shoulders, &c.——*Præcipuum in Actione*, Caput *est*.——*Cum gestu concordet*, & Lateribus *obsequatur*. Oculi, Lachrymæ, Super-

Supercilium, Genæ, Ruhor.—*Non Manus solum sed & Nutus.—Dominetur autem maxime* Vultus.—*Quin & in Vultu* Pallor.—Nares, Labia—Dentes, Cervix, Humeri, Brachia. ——Manus *vero, sine quibus trunca esset Actio.*—Quintil. *ubi supra.*

The Hand is Master of a whole Language, or set of Signs, it self.—Even every Finger is laid down by the Antients as having its distinct Office; and hence the different Names they still bear, *Pollex, Index,* &c. See FINGER, *&c.*

By such a Multitude of Rules and Observances, 'tis no wonder some of the Orators of those, as of our Days, were perverted more than profited.—Rules only tend to perfect the *Action*, which must have its Origin from another Source, *viz.* Nature, and good Sense: Where those are deficient, Rules will sooner make an Ape than an Actor. *Eloquentiæ*, says *Cicero, sicut & reliquarum rerum fundamentum, sapientia.*—And hence we find the great Masters abovemention'd continually softning, and even unsaying, and calling People off from the intemperate use of their own Rules.—*Nullæ argutiæ Digitorum, Non ad numerum Articulum Cadens. Cicero* even assures us, he was a whole Year in learning to keep his Hand within his Gown. *Pro Cæl.*—The same Author, recommending a Motion of the whole Body, says, the Orator should make more use of his Trunk than of his Hand; *Trunco magis toto se ipse moderans, & virili laterum flexione.* Brut.

Walking, *incessus*, is sometimes recommended as highly deserving to be cultivated; but *Cicero* will scarce allow it to be used at all. It seems, some of the active Orators of that Time had render'd it ridiculous; one of whom was pleasantly ask'd by *Flavius Virginius, How many Miles he had declamed? Cassius Severus*, when he perceiv'd an Orator given to walking, used to cry out for a Line to be drawn round him, to keep him within Bounds.—The Orator *Tityus* improved Walking into a sort of Dancing; and 'tis hence, as we are told by *Quintilian*, that the Dance *Tityus* took its Name.——*Junius* rallied his Father *Curio*'s incessant Libration, or tossing from one side to another, by asking *who that was, haranguing in a Ferry-boat?* And to the like Effect was that of *C. Sicinius*, when *Curio* having spoke with his usual Bustle near *Octavius*, who by reason of his Infirmities, had divers Liniments and Plaisters on his Limbs; *You can never be enough thankful*, Octavius, *to your good Collegue, who has saved you this Day from being eaten by the Flies.*——*Demosthenes*, being naturally apt to be too busy, and especially with his Shoulders, is said to have reform'd himself by speaking in a narrow Pulpitum, and hanging a Spear pointed just over his Shoulders; that if in the Heat of his Discourse he should forget himself, the Puncture might remind him.

After all, 'tis a Point will bear being controverted, Whether *Action* ought to be practis'd and encourag'd at all? A thing that has so much command over Mankind, 'tis certain, must be very dangerous; since it is as capable of being turn'd to our Disadvantage, as our Advantage. 'Tis putting a Weapon in the Hands of another, which, if he pleases, he may make use of to subdue and enslave us: And accordingly, History is full of the pernicious Uses made thereof.—For this Reason, Eloquence and *Action* are generally discourag'd in the modern Policy; and both the Bar and the Pulpit, are brought to a more frigid way of Delivery.

Perhaps the Foundation of all *Action* may be vicious, and immoral.—Voice and Gesture, we know, will affect Brutes; not as they have Reason, but as they have Passions: So far as these are used in a Discourse, therefore, it does not regard an Assembly of Men, more than it would a Herd of Quadrupeds: That is, their whole Effort is spent not on the Rational Faculties, which are out of the Question, but on the Animal ones, which alone they endeavour to possess and actuate, independent of Reason.—Nay more, our Reason and Judgment it self is intended to be byass'd and inclined by them; *Action* being only used as an indirect way of coming at the Reason, where a direct and immediate one was wanting, *i. e.* where the Judgment cannot be taken by the proper means, Argument; it is to be taken indirectly, by Circuition, and Stratagem.

The natural Order of things, then, is here inverted: Our Reason, which should go before, and direct our Passions, is drag'd after 'em: Instead of coolly considering, and taking cognizance of things; and according to what we perceive therein, raising our selves to the Passions of Grief, Indignation, or the like: We are attack'd the other way; the Impression is to be carried backwards, by Virtue of the natural Connection there is between the Reason and the Passions: And thus the Helm, the Principle of our Actions, is taken out of our own Hand, and given to another.

The Case is much the same here, as in Sensation and Imagination: The natural and regular way of arriving at the Knowledge of Objects, is by Sense; an Impression begun there is propagated forward to the Imagination, whereon Image is produced, similar to that which first struck on the Organ.—But the Process is sometimes inverted; in Hypochondriack, Lunatick, and other delirious Cases; the Image is first excited in the Imagination; and the Impression thereof communicated back to the Organs of Sense: By which means, Objects are seen, which have no Existence. See IMAGINATION.

To say no more, *Action* does not tend to give the Mind any Information about the Case in hand; is not pretended to convey any Arguments or Ideas which the simple Use of Language would not convey. But is it not that we should form our Judgments upon? And can any think help us to make a just Judgment, beside what some way enlarges our Understanding? When *Cicero* made *Cæsar* tremble, turn pale, and let fall his Papers; he did not apprize him of any new Guilt which *Cæsar* did not know of: The Effect had no Dependance on *Cæsar*'s Understanding; nor was it any thing more than might have been produced by the unmeaning Sounds of a musical Instrument duly applied. Logs of Timber and Stone have often trembled on the like Occasions. See PASSION, MUSICK, *&c.*

ACTION, in Poetry, is an Event, either real or imaginary, which makes the Subject of an Epick or Dramatick Poem. See EPIC, TRAGEDY, *&c.*

The *Action* of a Poem coincides with the *Fable* thereof; it being the usual Practice, not to take any real Transaction of History, but to feign or invent one; or at least, to alter the Historical Fact, so as to render it in good measure fictitious. See FABLE.

F. *Bossu* has two Chapters, *Of Real Action*, the Recitals whereof are Fables: and of *Feign'd Action* the Recitals whereof are Historical.

The Criticks lay down four Qualifications, as necessary to the Epick and the Tragick *Action*: The first, *Unity*; the second, *Integrity*; the third, *Importance*; and the fourth, *Duration*.

For the *Unity* of the *Epic Action*. See UNITY, *&c.*

This Unity is not only to exist in the first Draught, or Model of the Fable, but in the whole episodiz'd *Action*. See EPISODE.

In order to the *Integrity* of the *Action*, 'tis necessary, according to *Aristotle*, that it have a Beginning, Middle, and End. —If the three Parts of a Whole, seem too generally denoted by the Words, Beginning, Middle, and End; *Bossu* interprets 'em more expressly, thus; The Causes and Designs of a Man's doing an *Action*, are the *Beginning*; the Effects of these Causes, and the Difficulties met withal in the Execution of those Designs, are the *Middle* of it; and the unravelling and extricating of those Difficulties, the *End* of the *Action*.

The Poet, says *Bossu*, should so begin his *Action*, that, on one hand, nothing should be farther wanting for the Understanding of what he afterwards delivers; and, on the other, that what thus begins require after it a necessary Consequence. The End is to be conducted after the like manner, only with the two Conditions transpos'd; so that nothing be expected after it, and that what ends the Poem be a necessary Consequence of something that went before it. Lastly, the Beginning is to be join'd to the End by a Middle; which is the Effect of something that went before it, and the Cause of what follows.

In the Causes of an *Action*, one may observe two opposite Designs; the first, and principal, is that of the Hero: The second comprehends all their Designs, who oppose the Pretensions of the Hero. These opposite Causes do also produce opposite Effects, *viz.* the Endeavours of the Hero to accomplish his Design, and the Endeavours of those who are against it.—As the Causes and Designs are the Beginning of the *Action*; so those contrary endeavours are the Middle of it, and form a Difficulty, Plot, or Intrigue, which makes the greatest Part of the Poem. See INTRICUE, KNOT, PLOT, *&c.*

The Solution or clearing up of this Difficulty, makes the Unravelling. See UNRAVELLING.

The Unravelling of the Plot or Intrigue, may happen two ways; either with a Discovery, or without. See DISCOVERY.

The several Effects which the Unravelling produces, and the different States to which it reduces the Persons, divides the *Action* into so many Kinds.—If it change the Fortune of the principal Person; it is said to be with a *Peripetia*; and the *Action* is denominated *Implex*, or *Mix'd*: If there be no Peripetia, but the Unravelling be a mere passing from Trouble to Repose; the *Action* is *Simple*. See PERIPETIA; see also CATASTROPHE.

For the *Duration* of the Epic *Action*, *Aristotle* observes, it is not so limited as that of the Tragic *Action*; the latter is confined to a natural Day; but the Epopea, according to that Critick, has no fix'd Time.—In effect, Tragedy being full of Passions, and consequently of Violence, which cannot be supposed to last long, requires a shorter time: and the Epic Poem, being for the Habits which proceed more slowly, requires a longer time either for 'em to take hold, or to be rooted up: And hence the Difference between the Epic and Dramatic *Action*, in point of Duration.

Bossu

Bossu lays it down as a Rule, that the more vehement the Manners of the principal Personages are, the less Time ought the *Action* to last: Accordingly, the *Action* of the *Iliad*, containing the Anger and Passion of *Achilles*, &c. holds but 47 Days; whereas that of the *Odyssee*, where Prudence is the reigning Quality, lasts eight Years and a half: and that of the *Æneid*, where the prevailing Character of the Hero is Piety and Mildness, nearly seven Years. See ILIAD, ÆNEID, and ODYSSEE; see also MANNERS, PASSIONS, &c.

As to the *Importance* of the Epic *Action*, there are two ways of providing for it: The first, by the Dignity and Importance of the Persons. This way alone *Homer* makes use of; there being, otherwise, nothing great and important in his Models, but what might have happen'd to ordinary Persons. The second, by the Importance of the *Action* itself; such as the Establishment, or Downfal of a Religion, or a State; which is *Virgil's Action*, and in which he has much the Advantage of *Homer*.

Bossu mentions a third way of making the *Action* important, *viz.* by giving a higher Idea of the Personages, than what the Readers conceive of all that is great among Men.—This is done by comparing the Men of the Poem with the Men of the present Time. See HERO; see also CHARACTER, &c.

ACTION is also used in Painting and Sculpture, for the Posture of a Figure; or the *Action* it is supposed to be in; express'd by the Disposition of its Parts, or the Passion appearing in its Face. See ATTITUDE, EXPRESSION, &c.

In the Manage, *the* ACTION *of the Mouth*, denotes the Agitation of the Horse's Tongue and Mandible, or his Champing on the Bit; discoverable by a white ropy Foam thereon.——This, with the Masters, passes for a Sign of Health, Vigour, and Mettle.

ACTION, in Law, is defined a Right of demanding, and pursuing in a Court of Judicature, what is any Man's due. See RIGHT, COURT, JUSTICE, &c.

Or, *Action* is any kind of Process which a Person enters for the Recovery of his Right. See CAUSE, and PROCESS.

Actions are divided, by *Justinian*, into two general Kinds; *Real*, or those against the *Thing*; and *Personal*, or those against the *Person*.—For whoever brings an *Action*, either does it against one obnoxious to him, in respect either of Contract, or of Offence: in which Case arise *Actions* against the Person, which require the Party to do, or give something: Or, he does it against one not obnoxious, yet with whom a Controversy is risen touching some Matter; as, if *Caius* hold a Field, which *Julius* claims as his Property, and brings his *Action* for the same. See the *Instit.* L. IV. Tit. 4. where the principal *Actions* introduc'd by the *Roman* Law, are summarily explain'd.

In Common Law, from the two Classes of Real and Personal *Actions*, arises a third, called a *Mix'd Action*; which regards both the Person and Thing.

Personal ACTION, is that which one Man hath against another, on account of a Contract for Money or Goods; or of an Offence done by him, or some other Person, for whose Fact he is answerable. See PERSONAL.

Real ACTION, is that whereby the Demandant claims Title to Lands or Tenements, Rents or Commons, in Fee-simple, Fee-tail, or for Life. See REAL.

Real Actions are subdivided into *Possessory*, which lie for Lands, &c. of his own Possession, or Seisin; and *Ancestrel*, of the Seisin or Possession of his Ancestor. See ANCESTREL.

But *Real Actions*, formerly so numerous and considerable, as Writs of Rights, of Entry, &c. with their Appendixes, as Grand Cape, Petit Cape, Receipt, View, Aid-Prayer, Voucher, Counter-plea of Voucher, Counter-plea of Warranty, and Recovery of Value, are now much out of use; by reason of the usual Admixture of personal Matters therewith, which change 'em into *Mix'd Actions*.

Mixed ACTION, is that laid indifferently for the Thing detained, or against the Person of the Detainer; being thus called, because it has a mixed Respect, both to the Thing, and to the Person. See MIX'D.

Others better define it, a Suit given by Law to recover the Thing demanded, and Damages for the Wrong done.

Such is Assize of Novel Disseisin, which, if the Disseisor make a Feoffment to another, the Disseisee shall have against the Disseisor, and the Feoffee, or other Ter-tenant; to recover not only the Land, but Damages also.—And the like in *Action* of Waste, *Quare impedit*, &c. See ASSIZE, &c.

ACTIONS are also divided into *Civil* and *Penal*.—*Civil Action*, is that which only tends to the Recovery of what, by reason of a Contract, or other like Cause, is a Man's due.—As, if a Man by *Action* seek to recover a Sum of Money formerly lent, &c. See CIVIL.

Penal Action, aims at some Penalty upon the Party sued; either corporal or pecuniary. See PUNISHMENT, MULCT, &c.

Such is the *Action* of *Legis Aquiliæ*, in the Civil Law: And with us, the next Friends of a Man feloniously slain, or wounded, shall pursue the Law against the Offender, and bring him to condign Punishment. See APPEAL.

ACTION is also distinguish'd, as it lies for the Recovery either of the simple Value of the Thing challeng'd; or of the double, triple, quadruple, &c.

Thus, a *Decies tantum* lies against Embracers; and against Jurors that take Money for their Verdict, of either, or both Parties. See DECIES *tantum*, EMBRACERS, &c.

To this Class also belong all *Actions* on a Statute, that punishes an Offence by Restitution, or Fine proportionable to the Transgression.

ACTION, again, is divided into *Prejudicial*, called also *Preparatory*; and *Principal*.

Prejudicial Action, is that which arises from some Question, or doubtful Point in the Principal one.

As, if a Man sue his younger Brother, for Land descended from his Father; and it be objected, he is a Bastard: This Point of Bastardy must be tried, before the Cause can proceed: Whence the *Action* is termed *Prejudicialis, quia prius judicanda*.

ACTION, again, is either *Ancestrel*, or *Personal*.—*Ancestrel Action*, is that which we have by some Right descending from our Ancestor.—*Personal Action*, in this Sense, is that which has its Beginning in and from our selves.

There is also *Action Ancestrel Droitural*, and *Action Ancestrel Possessory*. Coke's *Inst.*

ACTION *upon the Case*, *Actio super Casum*, is a general *Action*, given for the Redress of a Wrong done any Man without force, and not especially provided for by Law. See CASE.

This, of all others, is now most in use.—Where there arises an Occasion of Suit, that neither has a fit Name, nor certain Form already prescrib'd; the Clerks of the Chancery, anciently, conceived a proper Form of *Action* for the thing in question; which the Civilians call *Actionem in factum*, and we, *Action upon the Case*.

ACTION *upon the Statute*, *Actio super Statutum*, is an *Action* brought against a Man, upon an Offence against a Statute whereby an *Action* is given that did not lay before. See STATUTE.

Thus, where one commits Perjury to the Prejudice of another, he who is damaged shall have a Writ *upon the Statute*, and a Cause accordingly.

ACTION *Popular*, only differs from an *Action upon the Statute*, in that, where the Statute gives the Suit or *Action* to the Party griev'd, or otherwise to one single Person certain, it is called *Action upon the Statute*; and where the Authority is given by the Statute to every one that will so sue, it is an *Action Popular*. See ACCUSATION.

ACTION is also divided into *Perpetual* and *Temporal*.

Perpetual Action, is that whose Force is not determin'd by any Period of Time.

Of this Kind were all Civil *Actions* among the antient *Romans*, *viz.* such as arose from Laws, Decrees of the Senate, and Constitutions of the Emperors; whereas *Actions* granted by the Prætor died within the Year.

We have also *Perpetual* and *Temporary Actions* in *England*; all being perpetual, which are not expressly limited.

So also divers Statutes give *Actions*, on Condition they be pursued within the Time prescribed.—Thus, the Statute of 1 *Edw.* VI. gives *Action* for three Years after the Offences committed, and no longer; and the Statute of 7 *Hen.* VIII. c. 3. does the like for four Years; and that of 31 *Eliz.* c. 5. for one Year, and no more.

But, as by the Civil Law no *Actions* were so perpetual, but that by Time they might be prescrib'd against; so, in our Law, tho *Actions* be called Perpetual, in Comparison of those that are expressly limited by Statute; yet is there a Means to prescribe against *Real Actions*, after five Years, by a Fine levied, or a Recovery suffer'd. See PRESCRIPTION; see also FINE, RECOVERY, and LIMITATION *of Assize*.

ACTION *of a Writ*, is when a Person pleads some Matter, whereby he shews, that the Plaintiff had no just Cause to have the Writ he brought, tho it be possible he might have another Writ or *Action* for the same Matter.—Such Plea is called, *a Plea to the Action of the Writ*.

When by the Plea it appears, that the Plaintiff has no Cause of any *Action* for the thing demanded; it is called, *a Plea to the Action*.

ACTION, in Affairs of Commerce, or ACTION *of a Company*, is a Part or Share in the Company's Stock, or Capital, which consists of a Number of such *Actions*. See COMPANY, and CAPITAL.

Thus, the Capital of a Company, which has three hundred *Actions* of a thousand Livres each; consists of three hundred thousand Livres.

Hence, a Person is said to have *four* or *six Actions* in such Company, if he have contributed to the Capital, and be interested therein, for four or six thousand Livres.

Actions, in *France* and *Holland*, amount to the same with *Shares*, or *Subscriptions* in *England*. See SUBSCRIPTION, BUBBLE, &c.

ACTION is also an Obligation or Instrument, which the Directors of such Companies deliver to those who pay Money into their Stock. See ACTIONARY, BANK, &c.

The *Actions* are always rising, and falling; according as the Company's Credit gains or loses. The smallest Whisper of an approaching War or Peace, true or false, shall frequently occasion a considerable Alteration therein. In the Year 1719, the *French* Company of the West, since called the *India Company*, arrived at such an immense degree of Credit; that in six Months time, its *Actions* rose to eighteen hundred *per Cent.* a pitch no other Company ever came near.

In 1672, the *Actions* of the *Dutch East-India* Company were at six hundred and fifty *per Cent.* which was the highest they were ever known at.—But the War with *France* then coming on; they fell 250 *per Cent.* in a few Months. After the Peace of *Nimeguen*, they rose again; and in 1718 were almost 600 *per Cent.*

The *French* have three Kinds of *Actions*.—*Simple*, which are entitled to a Share in all, both the Profits and Losses of the Company.—*Rentieres*, entitled only to a Profit of two *per Cent.* sure; for which the King is Security.—And *Interested Actions*, which claim the two *per Cent.* secur'd by the King; and are also to share the Excess of the Dividend with the simple *Actions*.

There were several other Kinds of *Actions* introduc'd by the Brokers, in the busy Days of the *Rue Quinquempoix*, which have since dropt into Oblivion; as *Mother Actions*, *Daughters*, *Grand-mothers*, *Grand-daughters*, &c.

To *Melt or Liquidate an Action*, is to sell, or turn it into Money, &c.

ACTIONARY, or ACTIONIST, a Term frequent in our News-Papers; denoting the Proprietor of an *Action*, or Share in a Companies Stock. See ACTION.

ACTIVE, ACTIVUS, something that communicates Motion, or Action to another. See ACTION.

In this Sense, the Word stands opposed to *Passive*. See PASSIVE.

Thus, we say, an *Active* Cause, *Active* Principles, &c. See CAUSE.

The Quantity of Motion in the World, Sir *I. Newton* shews, must be always decreasing, in Virtue of the *Vis Inertiæ*, &c. So that there is a necessity for certain *Active Principles* to recruit it: Such he takes the Cause of Gravity to be, and the Cause of Fermentation. Adding, that we see but little Motion in the Universe, except what is owing to these *active* Principles. See MOTION, GRAVITATION, FERMENTATION, &c.

ACTIVE *Principles*, in Chymistry, are those which are supposed to *act* of themselves, and do not need to be put in action by others. See PRINCIPLE.

Salt, Sulphur, and Mercury, are usually consider'd by the Chymists as *Active* Principles; and Phlegm and Earth, as Passive ones. See SALT, &c.

M. *Homberg*, and some late Chymists after him, only make one *Active* Principle, *viz. Sulphur*, or Fire; which they take to be the Source or Principle of all the Motion and *Action* of the Universe. See SULPHUR, and FIRE.

The Term *Active Principles*, says Dr. *Quincy*, has been used to express some Divisions of Matter, that are, by some particular Modifications, comparatively *active*, in respect of others; as, *Spirit*, *Oil*, and *Salt*, whose Parts are better fitted for Motion, than those of Earth and Water; but with how much Impropriety, will easily appear.

For, in a strict Sense, all Motion in Matter is rather Passion; and there is no *Active* Principle, unless we call so that known Property of Gravitation, on which the *Newtonian* Philosophy is founded; which is a mutual Inclination of Bodies towards one another, in proportion to the Quantity of Matter, in all Bodies: so that let them exist under what Modifications soever, there can be no Alteration made of this universal Property.—Hence, the Division of Matter into what, for Distinction-sake, may be called *Spirit*, does not give it any Properties inconsistent with this general Law. See MATTER, MOTION, &c.

ACTIVE, in Grammar, is somewhat that has an *active* Signification, and serves to explain, or denote an Action. A *Verb Active*, a *Conjugation Active*, &c. an *Active Participle*, &c. See PARTICIPLE, CONJUGATION, &c.

Verbs ACTIVE, are such as do not only signify Doing or Acting, but have also Nouns following 'em, to be the Subject of the Action or Impression. See VERB.

Thus, *to love*, *to teach*, are *Verbs Active*; because we can say, *to love a thing*, *to teach a Man*.

Verbs Neuter also signify an Action; but are distinguish'd from *Verbs Active*, in that they cannot have a Noun following 'em.—Such are, *to sleep*, *to go*, &c. See NEUTER.

Some Grammarians, however, make three Kinds of Verbs *Active*: The *Transitive*, where the Action passes into a Subject different from the Agent; *Reflected*, where the Action returns upon the Agent; and *Reciprocal*, where the Action returns mutually upon the two Agents who produced it. See TRANSITIVE, &c.

ACTIVITY, the Power of *Acting*, or the *Active* Faculty. See FACULTY, &c.

The *Activity* of Fire exceeds all Imagination.—The *Activity* of an Acid, a Poison, &c.—Bodies, according to Sir *I. Newton*, derive their *Activity* from the Principle of Attraction.

The *Sphere of Activity* of a Body, is the Space which surrounds it, so far as its Efficacy or Virtue extends to produce any sensible Effect. See SPHERE, EFFLUVIA, &c.

ACTOR, in Dramatic Poetry, one who represents some Person or Character upon the Theatre. See PERSON, and CHARACTER.

Tragedy, in its Original, only consisted of a simple Chorus, who sung Hymns in honour of *Bacchus*. See TRAGEDY, and CHORUS.

Thespis was the first who took upon him to introduce a *Persona*, or *Actor*; who was to ease the Chorus, by reciting the Adventures of some of their Heroes.

Æschylus finding a single Person tiresome, thought to entertain the Audience more agreeably by the Introduction of a second Person, who should converse and make Dialogue with the first. He likewise dress'd his *Actors* a little more decently than they had been before; and put them on the Buskin. See BUSKIN.

Sophocles finding the two Persons of *Æschylus* too few for the Variety of Incidents, added a third; and here the *Greeks* stopp'd; at least, we don't find in any of their Tragedies, above three Persons in the same Scene: tho in their Comedies, they took a further Liberty.

The Moderns have brought a much greater Number of *Actors* upon the Stage.—This heightens the Trouble, and Distress that should reign there; and makes a Diversity, in which the Spectator is sure to be interested.

Horace speaks of a kind of secondary *Actors* in his Time, whose Business was to imitate the first; and lessen themselves, to become better foils to their Principals. We have little Notion how these subalterm *Actors* behaved. See MIME, PANTOMIME, &c.

ACTUAL, something real, and effective; or that exists truly and absolutely. See REAL, EXISTENCE, &c.

In Philosophy, we say, *Actual Heat*, or *Cold*; in opposition to Virtual or Potential. See POTENTIAL, &c.

Actual Heat, consider'd actively, is the Act of producing Heat: Passively taken, it is the Quality whereby a Body is denominated *Hot*.—Virtual or Potential Heat, actively taken, is the Power or Faculty of producing Heat; passively taken, it should be the Power or Faculty of being heated, or of receiving *Actual Heat*. See HEAT, COLD, &c.

In Theology, we say, *Actual Grace*; in opposition to *Habitual Grace*. See HABITUAL.

Actual Grace, is that which God gives us, to make or enable us to act, to do some Action.—*Habitual Grace* is sanctifying Grace, a Habit of Charity, or a Habit inherent in the Soul, which renders us agreeable to God, and Objects of eternal Recompence. See GRACE.

So, *Actual Sin* is used in Opposition to *Original Sin*. See SIN.

Actual Sin is that committed knowingly, by a Person arrived at Years of Discretion. Original Sin is that we contract by Descent, as being Children of *Adam*. See ORIGINAL.

ACTUATE, to bring into Act; or put a thing in Action. See ACT, aad ACTION.

Thus, an Agent is said by the Schoolmen to *actuate* a Power, when it produces an Act in a Subject.—And thus the Mind may be said to *actuate* the Body.

ACUTE, *Sharp*, something that terminates in a Point, or an Edge; disposed either for piercing, or cutting. See POINT, EDGE, &c.

In this Sense, the Word usually stands opposed to Obtuse. See OBTUSE.

ACUTE *Angle*, is that which is less than a right Angle; or which does not subtend 90 Degrees. See ANGLE.

Such is the Angle A E C, (Tab. *Geometry*, Fig. 86.)

ACUTE-*Angle Triangle*, is that whose three Angles are all *acute*, called also an *Oxygonous Triangle*. See TRIANGLE.

Such is the Triangle A C B, (Tab. *Geometry*, Fig. 68.)

ACUTE-*Angular Section*, of a Cone, was used by the antient Geometricians for the Ellipsis. See ELLIPSIS, and CONE.

ACUTE, in Musick, is understood of a Sound, or Tone which is sharp, or shrill, or high, in respect of some other. See SOUND.

In this Sense, the Word stands opposed to *Grave*. See GRAVE.

Sounds consider'd as *Acute* and Grave, that is, in the Relation of Gravity and *Acuteness*, constitute what we call *Tune*,

Tune, the Foundation of all Harmony. See TUNE, CONCORD, and HARMONY.

ACUTE *Accent*, in Grammar, is that which denotes a Syllable to be pronounced with a high or *acute* Tone of Voice. See ACCENT.

The *Acute Accent*, is a little Line, or Virgula, placed over the Vowel, a little sloping or inclined in its Descent from right to left; as, ′.—It is not used either in *English* or *Latin*: the *French* indeed retain it; but 'tis only to mark the Close or Masculine *é*.

In the antient *Greek* Manuscripts, the *Acute Accent* stoops a great deal more, than in the modern Writings or Editions.

ACUTE *Disease*, is that which terminates, or comes to its Period, in a few Days; or, as the Physicians express it, *cito & cum periculo terminatur*. See DISEASE.

In this Sense, the Word stands opposed to *Chronical*.——All Diseases which hold above forty Days, are reputed Chronical. See CHRONICAL.

Dr. *Quincy* thinks an *Acute Disease* may be defined, that which is attended with an increased Velocity of Blood. See BLOOD, CIRCULATION, HEART, PULSE, &c.

Acute Diseases are the more dangerous, in that, beside the Violence of the Symptoms, if there be not time to empty the *Primæ Viæ*, 'tis very difficult to stop their Progress, and save the Patient. *Trev.*

Acute Diseases are usually divided into those properly called *Acute*; and those, which by reason of the Vehemence of the Symptoms, are called *Most Acute*.

ACUTENESS, in Musick, &c. that which constitutes or denominates a Sound, &c. *acute*. See ACUTE.

There is no such thing as *Acuteness* and *Gravity*, absolutely so called; they are only Relations; so that the same Sound may be either *Acute* or *Grave*, according to that other Sound they refer or are compared to. See RELATION.

The Degrees of Gravity and *Acuteness*, make so many Tones, or Tunes of a Voice, or Sound. See TONE, TUNE, VOICE, &c.

For the Cause and Measure of Gravity and Acuteness, see GRAVITY, INTERVAL, &c.

ADAGE, ADAGIUM, a Proverb, or popular Saying. See PROVERB, &c.

Erasmus has made a large and valuable Collection of *Greek* and *Roman Adages*, from their Poets, Orators, Philosophers, &c.

Adage, Proverb, and Paræmia are the same thing; but differ from Gnomes, Sentences, and Apothegms. See GNOME, SENTENCE, APOTHEGM, &c.

The Word is compounded of *ad*, and *agor*, according to *Scaliger*, *Quod agatur ad aliud significandum*, because made to signify some other thing.

ADAGIO, in Musick, one of the Words used by the *Italians*, to denote a Degree or Distinction of Time. See TIME.

The *Adagio* expresses a slow Time; the slowest of any, except *Grave*. See ALLEGRO.

The Triple $\frac{3}{2}$ is ordinarily *Adagio*. See TRIPLE.

ADALIDES, in the *Spanish* Policy, are Officers of Justice, for Matters touching the Military Forces.

In the Laws of King *Alphonsus*, the *Adalides* are spoke of, as Officers appointed to guide and direct the Marching of the Forces in time of War.—*Lopez* represents 'em as a sort of Judges, who take Cognizance of the Differences arising upon Excursions, the Distribution of the Plunder, &c.

ADAMANT, ADAMAS, in Natural History, &c. an antient Name for a Precious Stone, by us called a *Diamond*. See DIAMOND.

ADAMI *Pomum*, ADAM's *Apple*, in Anatomy, a little Prominence in the middle of the *Cartilago Scutiformis*. See POMUM *Adami*.

ADAMITES, ADAMITÆ, a Sect of antient Hereticks, who took upon them to imitate the Nakedness of *Adam*; as if Man had been reinstated in his original Innocence.

They assisted in the Temples naked, and had to do with Women in publick.

Prodicus was their Author, according to the Account given by *Theodoret*.—They were, in reality, a Branch sprung out of the *Carpocratians* and *Basilidians*. See CARPOCRATIAN, and BASILIDIAN.

This Sect is said to have started up a-fresh in the XVth Century, under *Picard*, their Leader; who pretended to re-establish the Laws of Nature, which, according to him, consisted in two things, *viz.* Community of Women, and Nakedness.—These last walked naked in the publick Places; whereas the former only put off their Clothes in their Assemblies.—*Jovet* speaks of *Adamites* in *England*.

Præ ADAMITES. See PRÆ *Adamites*.

The Criticks explain the Name *Adam*, אדם from whence these Terms arise, variously; some by *Earth*, others by *Red*, others by *Acquiescence*.——Some of the *Greek* Interpreters explain it Cabalistically: According to them, the *A* signifies ἀνατολὴ, *East*; *D*, δύσις, *West*; *A*, ἄρκτος, *North*; and *M*, μεσημβρία, *South*; as being King of the four Quarters of the World: or, in that he was to people it; or that he was a little World, μικρόκοσμος.

ADAPTING. See ACCOMMODATION.

We say, to *adapt*, or fit a Recipient to the Capital, &c. See RECIPIENT, ALEMBIC, &c.

ADDER-*Stung*, is used in respect of Cattel, when stung with any kind of venomous Reptiles; as Adders, Scorpions, &c. or bit by a Hedg-hog, or Shrew.

ADDICE, or ADZE, a sharp Tool, of the Ax-kind, but different from the common Ax.—It is made crooked, and by that means more convenient for cutting the hollow side of any Board, or Timber; being what the Coopers generally make use of for that Purpose.

ADDICTIO, ADDICTION, in the *Roman* Law, a Transferring, or passing over Goods to another; whether by Sentence of a Court, or in the way of Sale, to him that bids most for 'em. See ALIENATION.

The Word stands opposed to *Abdictio*, or *Abdication*. See ABDICATION, &c.

It is form'd of *Addico*, one of the stated Words used by the *Roman* Judges, when they allow'd the Delivery of the Thing or Person on whom Judgment had pass'd.

Hence, Goods thus adjudg'd by the Prætor, to the right Owner, were called *Bona addicta*; and Debtors deliver'd up in like manner to their Creditors, to work out their Debt, were called, *Servi Addicti*.

ADDICTIO *in Diem*, denoted the adjudging of a thing to a Person for a certain Price; unless by such a Day the Owner, or some other Person gave more for it.

The Word is also used for taking an Administration, and paying the Debts of the Deceased. See ADMINISTRATION.

ADDITAMENT, ADDITAMENTUM, a thing added to another. See ADDITION.

Additaments, in Physick and Chymistry, are Things superadded to the ordinary Ingredients of any Composition.

ADDITION, the Act of joining one thing to another; or of augmenting a thing, by the Accession of others thereto. See AUGMENTATION, and ACCESSION.

In Matters of Holy Scripture, 'tis forbid to make any *Addition* to the Text, for fear of corrupting and altering the Sense.—In Physicks, we say, that Natural Bodies are form'd by the *Addition* or Aggregation of Parts. See AGGREGATION, ACCRETION, &c.

ADDITION, is also used for the *Additament*, or the thing added it self.—In the new Editions of Books, Authors use to make *Additions*; they frequently make needless *Additions*, in lieu of retrenching Superfluities and Impertinencies.

'Tis an Axiom, that if to equal Quantities you add unequal ones; the Excess of the Wholes, will be the same as the Excess of the *additional* Parts.

ADDITION, in Arithmetick, is the first of the four fundamental Rules, or Operations of that Art. See RULE, and ARITHMETICK.

Addition consists in finding the Amount of several Numbers, or Quantities severally added one to another.——Or, *Addition* is the Invention of a Number, from two or more homogeneous ones given, which is equal to the given Numbers taken jointly or together. See NUMBER.

This Number, thus found, is called the *Sum*, or Aggregate of the Numbers given. See SUM.

The Character of *Addition* is +, which we usually express by *Plus*. Thus 3+4 denotes the Sum of 3 and 4; and is read 3 *plus* 4. See CHARACTER.

To add any given Numbers together.

The *Addition* of simple Numbers is easy. Thus it is readily perceiv'd that 7 and 9, or 7+9 make 16, and 11+15 make 26.

In longer, or compounded Numbers, the Business is perform'd by writing the given Numbers in a Row, downwards; Homogeneous under Homogeneous, *i.e.* Units under Units, Tens under Tens, &c. and singly collecting the Sums of the respective Columns.

To do this, we begin at the bottom of the outmost Row or Column, to the right; and if the Amount of this Column do not exceed 9, we write it down at the Foot of the same Column: If it do exceed 9, the Excess is only to be wrote down, and the rest reserv'd to be carried to the next Row, and added thereto; as being of the same Kind, or Denomination.

Suppose, *e.g.* the Numbers 1357 and 172, were given to be added; write either of them, *v. gr.* 172, under the other, 1357; so, as the Units of the one, *viz.* 2, stand under the Units of the other, *viz.* 7, and the other Numbers of the one, under the correspondent ones of the other, *viz.* the Place of Tens under Tens, as 7 under 5; and that of Hundreds, *viz.* 1, under the Place of Hundreds of the other, 3.—Then, beginning, say, 2 and 7 make 9; which write underneath; also 7 and 5 make 12; the last of which two Numbers, *viz.*

1357
172
——
1529

viz. 2. is to be written, and the other 1, reserved in your Mind to be added to the next Row, 1 and 3: then say, 1 and 1 makes 2, which added to 3 make 5; this write underneath, and there will remain only 1, the first Figure of the upper Row of Numbers, which also must be writ underneath; and thus you have the whole Sum, *viz.* 1529.

So, to add the Numbers 87899+13403+885+1920 into one Sum, write them one under another, so as all the Units make one Column, the Tens another, the Hundreds a third, and the Places of Thousands a fourth, and so on.—Then say, 5 and 3 make 8, and 8+9 make 17; write 7 underneath, and the 1 add to the next Rank; saying, 1 and 8 make 9, 9+2 make 11, and 11+9 make 20; and having writ the 0 underneath, say again, 2 and 8 make 10, and 10+9 make 19, and 19+4 make 23, and 23+8 make 31; then, reserving 3, write down 1 as before, and say again, 3+1 make 4, 4+3 make 7, and 7+7 make 14, wherefore write 4 underneath; and lastly, say 1+1 make 2, and 2+8 make 10, which in the last Place write down, and you will have the Sum of them all.

87899
13403
1920
885
104107

Addition *of Numbers of different Denominations*, for instance, of Pounds, Shillings, and Pence, is perform'd by adding or summing up each Denomination by it self, always beginning with the lowest; and if after the *Addition*, there be enough to make one of the next higher Denomination, for instance, Pence enough to make one or more Shillings; they must be added to the Figures of that Denomination, that is, to the Shillings; only reserving the odd remaining Pence to be put down in the Place of Pence.—And the same Rule is to be observ'd in Shillings, with regard to Pounds.

For an instance, 5 Pence and 9 Pence make 14 Pence; now in 14 there is once 12, or a Shilling, and two remaining Pence; the Pence, set down; and reserve 1 Shilling to be added to the next Column, which consists of Shillings. Then 1 and 8 and 2 and 5 make 16: the 6 put down, and carry the 1 to the Column of Tens; 1 and 1 and 1 make three Tens of Shillings, or 30 Shillings; in 30 Shillings there is once 20 Shillings, or a Pound, and 10 over: write one in the Column of Tens of Shillings, and carry 1 to the Column of Pounds; and continue the *Addition* of Pounds, according to the former Rules.

l.	*s.*	*d.*
120	15	9
65	12	5
9	8	0
195	16	2

Addition *of Decimals*, is perform'd after the same manner as that of Whole Numbers; as may be seen in the following Example. See also Decimal.

630.953
51.0807
305.27
987.3037

Addition *of Vulgar Fractions*, see under the Article Fraction.

Addition, in Algebra, or the Addition *of Species*, is perform'd by connecting the Quantities to be added, by their proper Signs; and also by uniting into one Sum, those that can be so united. See Quantity, Species, &c.

Thus, a and b make $a+b$; a and $-b$ make $a-b$; $-a$ and $-b$ make $-a-b$; $7a$ and $9a$ make $7a+9a$; $-a\sqrt{ac}$ and $b\sqrt{ac}$ make $-a\sqrt{ac}+b\sqrt{ac}$, or $b\sqrt{ac}-a\sqrt{ac}$; for it is all one in whatever Order they be written.

But, particularly, 1°, *Affirmative Quantities of the same Species or Kind, are united by adding the prefix'd Numbers whereby the Species are multiplied.* See Positive.

Thus, $7a+9a$ make $16a$. And $11bc+15bc$ make $26bc$. Also $3\frac{a}{c}+5\frac{a}{c}$ make $8\frac{a}{c}$; and $2\sqrt{ac}+7\sqrt{ac}$ make $9\sqrt{ac}$; $6\sqrt{ab-xx}+7\sqrt{ab-xx}$ make $13\sqrt{ab-xx}$. And in like manner $6\sqrt{3}+7\sqrt{3}$ make $13\sqrt{3}$. Again, $a\sqrt{ac}+b\sqrt{ac}$ make $\overline{a+b}\sqrt{ac}$, by adding together a and b, as Numbers multiplying $\sqrt{ac}$. And so $\frac{\overline{2a+3c}\sqrt{3axx-x^3}}{a+a}+\frac{\overline{3a}\sqrt{3axx-x^3}}{a+x}$ make $\frac{\overline{5a+3c}\sqrt{3axx-x^3}}{a+x}$ since $2a+3c$ and $3a$ make $5a+3c$.

2°, *Affirmative Fractions, which have the same Denominator, are added together by adding their Numerators.*

Thus, $\frac{2}{5}+\frac{3}{5}$ make $\frac{5}{5}$, and $\frac{2ax}{b}+\frac{3ax}{b}$ make $\frac{5ax}{b}$; and thus $\frac{8a\sqrt{cx}}{2a+\sqrt{cx}}+\frac{17a\sqrt{cx}}{2a+\sqrt{cx}}$ make $\frac{25a\sqrt{cx}}{2a+\sqrt{cx}}$, and $\frac{aa}{c}+\frac{bx}{c}$ make $\frac{aa+bx}{c}$. See Fraction.

3°, *Negative Quantities are added after the same manner as Affirmative.* See Negative.

Thus, -2 and -3 make -5; $-\frac{4ax}{b}$ and $-\frac{11ax}{b}$ make $-\frac{15ax}{b}$; $-a\sqrt{ax}$ and $-b\sqrt{ax}$ make $\overline{-a-b}\sqrt{ax}$.

When a Negative Quantity is to be added to an affirmative one; the Affirmative must be diminish'd by a Negative one.

Thus, 3 and -2 make 1; $\frac{11ax}{b}$ and $-\frac{4ax}{b}$ make $\frac{7ax}{b}$; $-a\sqrt{ac}$ and $b\sqrt{ac}$ make $\overline{b-a}\sqrt{ac}$.

And note, that when the negative Quantity is greater than the Affirmative, the Aggregate or Sum will be Negative. Thus, 2 and -3 make -1; $-\frac{11ax}{b}$ and $\frac{4ax}{b}$ make $-\frac{7ax}{b}$; and $2\sqrt{ac}$ and $-7\sqrt{ac}$ make $-5\sqrt{ac}$.

Addition *of Irrational Quantities.*—If they be of different Denominations, reduce 'em to the same Denomination; and if they be then commensurable, add the Rational Quantities without the Vinculum; and to their Sum prefix the Radical Sign.—The rest as in the *Addition* of Rationals.

Thus, we shall find $\sqrt{8}+\sqrt{18}=2\sqrt{2}+3\sqrt{2}=5\sqrt{2}=\sqrt{50}$. On the contrary, $\sqrt{7}$ and $\sqrt{5}$ being incommensurable, their Sum will be $\sqrt{7}+\sqrt{5}$.

Addition, in Law, is that Name, or Title which is given to a Man, over and above his proper Name and Sirname; to shew of what Estate, Degree, or Mystery he is; and of what Town, Village, or Country.

Additions of Estate, or Quality, are Yeoman, Gentleman, Esquire, and such like. See Yeoman, Gentleman, Esquire, &c.

Additions of Degree, are those we call Names of Dignity; as, *Knight*, *Lord*, *Earl*, *Marquiss*, and *Duke*. See Knight, Lord, Duke, &c.

Additions of Mystery, are such as *Scrivener*, *Painter*, *Mason*, &c.

Additions of Place, are, of *Thorp*, of *Dale*, of *Woodstock*.—Where a Man hath Houshold in two Places, he shall be said to dwell in both; so that his *Addition* in either may suffice.

Knave was antiently a regular *Addition*. See Knave.

By Stat. 1 *Hen.* V. it was ordained, that in Suits or Actions where Process of Outlawry lies; such *Additions* should be made to the Name of the Defendant, to shew his Estate, Mystery, and Place where he dwells; and that the Writs, not having such *Additions*, shall abate, if the Defendant take Exception thereto; but not by the Office of the Court.—The Reason of this Ordinance was, that one Man might not be troubled by the Outlawry of another; but by reason of the certain *Addition*, every Person may bear his own Burden. See Chop-*Church*.

ADDOUBORS, in Law. See Redubbors.

ADDUCENT *Muscles*, or Adductors, are those which bring forward, close, or draw together, the Parts of the Body whereto they are annexed. See Muscle.

The Word is compounded of *ad*, to, and *duco*, I draw, or bring to.

Adducents, or *Adductors*, stand opposed to *Abducents* or *Abductors*. See Abducent, and Abductor.

ADDUCTION, in Anatomy, the Motion or Action of the *Adducent* Muscles. See Adducent, and Adductor.

ADDUCTOR *Oculi*, a Muscle of the Eye; so called, because it inclines its Pupil toward the Nose. See Eye.

It is also called *Bibitorius*; because it directs the Eye toward the Cup in drinking. See Bibitory.

Adductor *Pollicis*, is a Muscle of the Thumb, which arises tendinous, and ascends obliquely towards a broad Termination, at the superior Part of the first Bone of the Thumb.—Its Office is to bring the Thumb near the Fore-finger. See Finger.

Adductor *Pollicis Pedis*, called also *Antithenar*, is a Muscle of the great Toe, which arises from the inferior Part of the *Os Cuneiforme tertium*, and is inserted into the internal Part of the *Ossa Sesamoidea* of the great Toe; which it draws nearer the rest.

Adductor *Indicis*, is a Muscle of the Fore-finger, arising from the inside of the Bone of the Thumb, and inserted into the first Bone of the Fore-finger, which it draws towards the Thumb.

Adductor *minimi digiti Pedis*. See Transversalis *Pedis*.

ADELING, or Ethling, from the Saxon *Ædelan*, *q. d. Nobilis*; a Title of Honour among the *English Saxons*, properly belonging to the Successor, or Heir Apparent of the Crown. See Prince, &c.

King *Edward* the Confessor being without Issue, and intending to make *Edgar*, to whom he was great Uncle by the Mother's side, his Heir; first called him his *Adeling*.

Now, Antiquaries observe, that it was usual for the *Saxons* to join the Word *Ling* to the Christian Name, which signify'd a Son, or the Younger; as *Edmundling* for the Son of *Edmund*: so that *Adeling* signify'd the *Son of a King*. See King.

ADEMPTION, Ademptio, in the Civil Law, the Revocation of a Grant, Donation, or the like.

The *Ademption* of a Legacy, may be either *Expreſs*; as when the Teſtator declares in form, that he revokes what he had bequeathed: Or *Tacit*, as when he only revokes it indirectly, or implicitly.

ADEPS, in Anatomy, a Species of *Fat*, found in the Cavities of the Abdomen. See Fat.

The *Adeps* differs from the common *Fat*, called *Pinguedo*; in that it is thicker, harder, and of a more earthy Subſtance. See Pingedo.

The *Adeps* is much the ſame with what we call *Sevum*, *Suet*, or *Leaf*. See Sevum.

Adeps is alſo uſed by the Phyſicians, as a general Name for Fat of either Kind.

The *Adeps Anſeris*, Gouſe's Fat; *Adeps Canis*, Fat of a Dog; *Adeps Hominis*, Fat of a Man; *Adeps Viperæ*, Vipers Fat; and *Adeps Urſi*, Bears Fat, are all uſed in Medicine, in quality of Ripeners, or Drawers; as being of a penetrating Nature, and thereby ſuited to diſſolve and rarify the Tumors, and bring 'em as it were to Maturity. See Ripener.

The ſpecific Virtues aſcribed to certain of 'em, do not ſeem well warranted. See Fat, Viper, &c.

ADEPTS, Adepti, a Denomination given to the Proficients in Alchymy; particularly thoſe who pretend to the Secrets of the Philoſopher's Stone, and the Univerſal Medicine. See Alchymy, Philosopher's *Stone*, Transmutation, Elixir, &c.

Ripley, *Lully*, *Paracelſus*, *Helmont*, *Hollandus*, *Centivoglio*, &c. are the Principal among the *Adepti*. See Chymistry.

The Word is Latin, *Adeptus*, form'd of the Verb *adipiſcor*, I obtain.

'Tis a ſort of Tradition among the Alchymiſts, that there are always twelve *Adepti*; and that their Places are immediately ſupplied by others, whenever it pleaſes any of the Fraternity to die, or tranſmigrate into ſome other Place, where he may make uſe of his Gold; for that in this wicked World it will ſcarce purchaſe 'em a Shirt.——*Harris*.

ADEQUATE, Adæquatum, ſomething equal to, or co-extended with, another; and filling the whole Meaſure and Capacity thereof. See Equality.

In this Senſe, the Word ſtands oppoſed to *Inadequate*. See Inadequate.

Adequate *Ideas*, or *Notions*, are ſuch Images or Conceptions of an Object, as perfectly repreſent it, or anſwer to all the Parts and Properties of it. See Idea.

M. *Leibnitz* defines an *Adequate Notion*, to be that of whoſe ſeveral Characters we have diſtinct Ideas.—Thus, a Circle being defined a Figure bounded by a Curve Line which returns into it ſelf, and whoſe Points are all equally diſtant from a certain intermediate Point therein: Our Notion of a Circle is *adequate*, if we have diſtinct Ideas of all theſe Circumſtances, *viz.* a Curve returning upon it ſelf, a middle Point, an Equality of Diſtance, &c. See Notion, Definition, &c.

All Simple Ideas are *adequate* and perfect; and the Faculty, be it what it will, that excites them, repreſents them entire. See Simple *Idea*.

The Ideas of Modes are likewiſe *adequate*, or perfect; except of thoſe Modes which occaſionally become Subſtances: for when we ſpeak of Modes ſeparately exiſting, we only conſider them ſeparate from the Subſtance by way of Abſtraction. See Mode, Accident, &c.

All Abſtract Ideas are alſo *adequate* and perfect; ſince they repreſent all that Part of the Subject which we then conſider.—Thus, the Idea of Roundneſs is perfect, or *adequate*, becauſe it offers to the Mind all that is in Roundneſs, in general. See Abstract.

Of the ſame Kind are all Ideas, of which we know no Original or external Object really exiſting out of them; by occaſion of which they were excited in us, and of which we think them the Images.—Thus, when a Dog is before us, it is the external Object without us which raiſes the Idea in our Mind; but the Idea of an Animal in general, has no external Object to excite it: 'tis created by the Mind it ſelf, and muſt of Neceſſity be *adequate*, or perfect. See Abstraction.

On the contrary, the Ideas of all Subſtances are inadequate and imperfect, which are not form'd at the Pleaſure of the Mind, but gather'd from certain Properties, which Experience diſcovers in them. See Substance.

This is evident, in regard our Knowledge of Subſtances is very defective; and that we are only acquainted with ſome of their Properties: Thus, we know that Silver is white, that it is malleable, that it melts, &c. but we do not know what further Properties it may have; and are wholly ignorant of the inward Texture of the Particles whereof it conſiſts.—Our Idea of Silver therefore, not repreſenting to the Mind all the Properties of Silver, is *inadequate* and imperfect.

ADESSENARII, a Sect in Religion, who hold that Jeſus Chriſt is really preſent in the Euchariſt; but in a manner different from what the *Romaniſts* hold. See Eucharist, &c.

The *Adeſſenarii*, call'd alſo *Impanatores*, are divided into four different Opinions touching the Point.—Some hold that the Body of Jeſus Chriſt is in the Bread; others, that it is about the Bread; others, that it is with the Bread; and laſtly, others, that it is under the Bread. See Impanation.

The Name *Adeſſenarii* was firſt framed by *Prateolus*, from the Latin Verb *adeſſe*, to be preſent.

ADFECTED *Equation*. See Equation.

ADHESION, Adherence, in Phyſicks, the State of two Bodies which are join'd or faſten'd to each other, either by the mutual Interpoſition of their own Parts; or the Compreſſion of external Bodies. See Cohesion, and Nexus.

The Word is compounded of the Latin *ad*, and *hæreo*, I ſtick or cleave to.

Anatomiſts ſometimes obſerve *Adheſions* of the Lungs to the Sides of the Thorax, the Pleura, and Diaphragma, which give occaſion to various Diſorders. See Lungs, Pleura, Pleuriſy, Phthiſis, Peripneumony, &c.

The *Adheſion* of two poliſh'd Planes, or two Hemiſpheres, is a Phænomenon urg'd in behalf of the Weight and Preſſure of the Atmoſphere. See Atmosphere.

The Schoolmen diſtinguiſh two Kinds of Certitude: the one of Speculation, which ariſes from the Evidence of the Thing; and the other of *Adheſion*, which has nothing to do with Evidence, but ariſes purely from the Importance of the Matter, and the Intereſt we have in its Truth. See Certitude, Teſtimony, Truth, Evidence, &c.

ADJACENT, or Adjoining, ſomething contiguous, or ſituate near another. See Contiguous.

The Word is compounded of *ad*, to, and *jacere*, to lie.

Adjacent *Angle*. See Angle.

ADIAPHORISTS, Adiaphoristæ, Adiaphorites, a Name given in the XVIth Century to the moderate *Lutherans*, who adher'd to the Sentiments of *Melancton*; and afterwards to thoſe who ſubſcrib'd the Interim of *Charles* V. See Lutheran.

The ſame Name might alſo be applied to thoſe now called *Indifferentiſts*. See Indifferentist.

The Word is originally *Greek*, ἀδιάφορος, *indifferent*.

ADIAPHOROUS, Adiaphorus, *q. d. Indifferent*, or *Neutral*; a Name given by Mr. *Boyle* to a Kind of Spirit diſtill'd from Tartar and ſome other Vegetable Bodies; and which is neither Acid, Vinous, nor Urinous; but in many reſpects different from any other ſort of Spirit. See Spirit; ſee alſo Neutral.

ADJECTIVE, *Noun* Adjective, or Adnoun, in Grammar, a Kind of Noun joined with a Noun Subſtantive either expreſs'd or underſtood, to ſhew its manner of being, that is, its Qualities or Accidents. See Noun, &c.

The Word is form'd of the Latin *adjicere*, to add to; as being to be added to a Subſtantive, without which it has no preciſe Signification at all.

Father *Buffier* defines *Adjective* in a new manner, and ſets it in a Light different from that of other Grammarians.——Nouns, according to him, are Subſtantives, when the Objects which they repreſent are conſider'd ſimply, and in themſelves, without any regard to their Qualities: On the contrary, they are *Adjectives*, when they expreſs the Quality of an Object. See Quality.

Thus, when I ſay ſimply, a Heart; the Word *Heart* is a Subſtantive, becauſe none of its Qualities are expreſs'd; but when I ſay a generous Heart, the Word *generous* is an *Adjective*; becauſe it adds a Quality or Attribute to the Heart.

Adjectives, then, ſeem to be nothing elſe but Modificatives.—In effect, the End of an *Adjective* being only to expreſs the Qualities of an Object; if that Quality be the Object it ſelf whereof we ſpeak, it becomes a Subſtantive; *e.g.* If I ſay, *this Book is good*; *good*, here, is an *Adjective*: But if I ſay, *Good is always to be choſen*, 'tis evident *Good* is the Subject I ſpeak of; and conſequently, *Good* there is a Subſtantive.

On the contrary, it often happens in other Languages, and ſometimes in our own, that a Subſtantive becomes an *Adjective*; as for inſtance, in theſe Words, *the King*, *Hero as he is*, *remembers he is a Man*: Where the Word *Hero*, tho ordinarily a Subſtantive, is yet apparently an *Adjective*.

From this new Idea of an *Adjective*, it appears that many of the Nouns which, in the common Grammars, are accounted Subſtantives are really *Adjectives*, and *vice verſa*; Grammar, in this and a thouſand other Inſtances depending upon Cuſtom. See Substantive.

AD *Inquirendum*, a Writ Judicial, commanding Inquiry to be made of any thing touching a Cauſe depending in the King's Court, for the better Execution of Juſtice; as of Baſtardy, and ſuch like. See Writ.

ADJOINING, Adjunctio, in Philoſophy, &c. See Adjunct, and Adjunctio.

ADJOINING is particularly us'd for the Associating of a Person to another; or appointing him a Collegue, or *Adjunct*. See ADJUNCT, &c.

ADJOURNMENT, the putting off a Court, or Meeting; and appointing it to be kept at another Time, or Place. See COURT, &c.

In this Sense, we meet with the Phrase *Adjournment in Eyre*, for an Appointment of a Day when the Justices in Eyre intend to sit again. See JUSTICE, EYRE, &c.

Adjournments of Parliament differ from Prorogations. See PROROGATION.

Each House has the Privilege of *adjourning* it self. See PARLIAMENT.

The Word is form'd of the Latin *ad*, to, and the French *jour*, Day; *q. d. to another Day*.

ADIPOSA, or ADEPOSA *Membrana*, in Anatomy, is a Membrane investing the Body, immediately under the Cutis; supposed to be the Basis of the Fat, which is lodg'd in the Spaces between its Fibres, and in peculiar Cells form'd herein. See FAT, CUTIS, CELL, &c.

Anatomists are divided as to the Reality of this Membrane; most of the later Writers taking it to be no other than the exterior Membrane of the *Membrana Carnosa*, or *Musculorum Communis*. See MEMBRANE, CARNOSA, &c.

Vasa ADIPOSA, *Fat-Vessels*, make a Part of the Substance of the Omentum, or Caul. See OMENTUM.

ADIPOSE *Cells*, *Cellulæ* ADIPOSÆ, or *Loculi* ADIPOSI. See CELLULÆ *Adiposæ*.

ADIPOSE *Ducts*, *Ductus* ADIPOSI. See DUCTUS *Adiposi*.

Malpighi starts a Doubt whether the *Adipose Ducts* may not be propagated from the Fibres which abound in the Spleen; or those Fibres from them?——As also, whether there be not a yet undiscover'd Communication between the Omentum and the *Membrana Adiposa*.

ADIT, ADITUS, the Shaft, or Entrance into a Mine, Quarry, or the like. See MINE, QUARRY, &c.

ADJUDGE, in Law.—When a determinate Sentence is pass'd in the Behalf of any one, the Case is said to be *adjudged* for him. See SENTENCE.

We have various Collections of Decrees, Reports, *Adjudg'd* Cases, &c. See COMMON *Law*.

ADJUDICATION, the Act of *adjudging*; or of giving any thing by Sentence, Decree, or Judgment. See ADJUDGED, and JUDGMENT.

The Word is particularly used for the Addiction or Consigning a thing sold by Cant, Auction, or the like, to the highest Bidder. See ADDICTIO.

ADJUNCTIO, a mere external joining, or adding of one thing to another. See ADDITION.

All *Adjunction* implies a Subordination.—The *Adjunct* is for the sake of the Thing it is join'd to, not contrarywise; as, the Clothes for the Man; not the Man for the Clothes.—Whatever is a Part of a thing, cannot be called an *Adjunct* of it. See ADJUNCTS.

There are various Species of *Adjunction*; viz. *Adhesion*, *Apposition*, *Adjacency*, *Accubation*, *Incubation*, *Imposition*, *Assession*, &c. See ADHESION, APPOSITION, &c.

ADJUNCT, ADJUNCTUM, in Philosophy, something added to a Being from without. See ADJUNCTIO.

Or, an *Adjunct* is an Additament or Accession to a thing, not essentially belonging to it, but only accidental thereto. See ACCIDENT.

There are two Kinds of *Adjuncts*; the one, a Substance (whether Spirit or Body) accidentally superadded to another, as its Subject.—Such is Water in a Spunge, or Vessel, and the Soul in the Body. See SUBSTANCE.

The second an Attribute, or Mode, accidentally likewise superadded to a Substance; whether Body or Spirit.—Such is Figure in a Body, Knowledge in the Mind, &c. See MODE.

Some divide *Adjuncts* into *Absolute*; which agree to the whole thing, without any Limitation: Thus, Passions are *Absolute Adjuncts* of a Man.—And *Limited*; which only agree to their Subject, in respect of some certain Part thereof: Thus, Man only thinks, consider'd as to his Mind; only grows, as to his Body, &c.

In Ethicks, we usually reckon seven *Adjuncts*, popularly call'd *Circumstances*; *Quis*, *quid*, *ubi*, *quibus auxiliis*, *cur*, *quomodo*, *quando*. See CIRCUMSTANCE.

ADJUNCTS, in Rhetorick and Grammar, are certain Words or Things added to others; to amplify the Discourse, or augment its Force. See AMPLIFICATION, &c.

Such are Adjectives, Attributes, and Epithets, which are added to Substantives, Subjects, &c. to express their Nature, Qualities, Accidents, &c. See ADJECTIVE, ATTRIBUTE, EPITHET, &c.

Arguments drawn from *Adjuncts*, are Supplements or Inforcements of the Proof arising from the Circumstances of the Fact. See CIRCUMSTANCE, &c.

ADJUNCT, is also used in Civil Concerns, for a Collegue, or Fellow-Officer, associated to another, to assist him in his Ministry, to share the Functions thereof, or even have an Eye to his Actions. See COLLEGUE.

AD *Jura Regis*, is a Writ that lies for the King's Clerk, against him that sought to eject him, to the Prejudice of the King's Title in right of his Crown. See WRIT.

ADJURATION, a Part of Exorcism, wherein the Devil is commanded, in the Name of God, to depart out of the Body of the Possessed, or to declare something. See EXORCISM, POSSESSION, &c.

The Word is *Latin*, form'd of *adjurare*, to adjure; of *ad*, and *juro*, I swear. See CONJURATION.

ADJUTANT, an Officer in the Army, whose Business is to *aid* or assist the Major. See MAJOR.

Adjutant is the same that we otherwise call *Aid Major*. See AID *Major*.

The Term is sometimes also used for an *Aid de Camp*. See AID *de Camp*.

The Word is form'd of the Latin *adjutare*, to help, assist.

ADJUTORIUM, in Anatomy, a Bone of the Arm; so called, as being useful in lifting it up. See BONE, and ARM.

ADMEASUREMENT, ADMENSURATIO, a Writ which lies for the bringing those to Reason, or Mediocrity, that usurp more than their Share. See WRIT.

This Writ lies in two Cases; the one termed *Admeasurement of Dower*, *Admensuratio Dotis*, where the Widow of the Deceased holds more from the Heir or his Guardian, on account of her Dower, than of right belongs to her. See DOWER.

The other *Admeasurement of Pasture*, *Admensuratio Pasturæ*, which lies between those who have common of Pasture appendant to their Freehold, or common by Vicinage, in case any of them surcharge the Common with more Cattle than they ought. See COMMON.

ADMINICLE, ADMINICULE, ADMINICULUM, a Term used in some antient Statutes, for Aid, Help, or Support. See AID, &c.

In the Civil Jurisprudence, *Adminiculum* signifies the Beginning of a Proof; an imperfect Proof; a Circumstance or Conjecture, tending to form or fortify a Proof.

Among Antiquaries, the Term *Adminicules* is applied to the Attributes, or Ornaments wherewith *Juno* is represented on Medals. See ATTRIBUTE.

ADMINISTRATION, the Government, or Direction of Affairs; parricularly the Exercise of distributive Justice. See GOVERNMENT, and JUSTICE.

Indolent Princes confide the *Administration* of publick Affairs to their Ministers. See MINISTER.

Civil Wars are usually rais'd on Pretence of *Male-Administration*; or of Abuses committed in the Exercise of Justice. See WAR.

ADMINISTRATION, in Law, signifies the disposing of a Man's Goods, or Estate, that died intestate, or without any Will; with an Intent to give an Account thereof. See ADMINISTRATOR, INTESTATE, &c.

Instruments, or Powers of *Administration*, are taken out in the Prerogative Court. See PREROGATIVE.

ADMINISTRATION is sometimes also used for the Direction of the Affairs of a Minor, a Pupil, a Lunatick, or the like. See MINOR, PUPIL, TUTOR, &c. see also GUARDIAN.

ADMINISTRATION is also used in respect of Ecclesiastical Functions.—The Parson has the *Administration* of the Sacraments in his Parish. See PARSON, PARISH, &c.—The *Administration* of the Sacrament is prohibited to Persons excommunicate. See EXCOMMUNICATION.

In Beneficiary Matters, they distinguish two Kinds of *Administration*; *Temporal*, which relates to the Temporalties of a Benefice, Diocese, &c. and *Spiritual*, to which belong the Power of excommunicating, &c. See TEMPORALTY, &c.

ADMINISTRATOR, in Law, he to whom the Ordinary commits the *Administration* of the Goods of a dead Man, in default of an Executor. See ADMINISTRATION, WILL, EXECUTOR, &c.

An Action lies for or against an *Administrator*, as for an Executor; and he shall be accountable to the Value of the Goods of the Deceas'd, and no further.——Unless there be Waste or other Abuse chargeable on him.

If the *Administrator* die, his Executors are not *Administrators*; but the Court is to grant a new Administration.—If a Stranger, who is neither *Administrator* nor Executor, take the Goods of the Deceased, and *administer*; he shall be charged and sued as an Executor, not as an *Administrator*.

If a Woman have Goods thus committed to her Charge, or Administration, she is called *Administratrix*.

ADMIRAL, ADMIRALIUS, ADMIRALLUS, a great Officer, who commands the Naval Forces of a Kingdom or State; and before whom all Causes are cognizable, relating to the Sea. See NAVY, SEA, &c.

Authors are divided about the Origin and Denomination of this important Officer, whom we find eſtabliſh'd, with ſome Variation, in moſt Kingdoms that border on the Sea.——Some borrow it from the *Greeks*; the Captain of the Seas, under the Emperors of *Conſtantinople*, being called *Amiralius* or *Almiralis*, of αλμυρ⊖, *Salme*; or αλμη, *Salt Water*, and αρχ⊖, *princeps*; in regard his Juriſdiction lay on the Sea, which the *Latins* call *Salum*.—But it is to be obſerv'd, that this Officer had not the ſupreme Adminiſtration of Naval Affairs; that immediately belong'd to the *Dux Magnus*, or grand General; to whom the *Amiralius* was ſubordinate, in Quality of *Protocomes*, firſt Count, or Aſſociate. See COMES.

Others derive the Name from the Arabic *Amir* or *Emir*, Lord; and the *Greek* αλιος, *Marine*: and accordingly, we frequently find *Emir* in *Zonaras*, *Cedrenus*, *Nicetas*, and other *Greeks* of that Time, uſed in the Senſe of a Commander.—Add, that in the Life of St. *Peter Thomaſius*, we meet with *Admiratus Jeruſalem*, for the Governor of *Jeruſalem*, under the Soldan of *Egypt*. And hence, ſome will have both the Name and the Dignity of Oriental, and even *Sarazen* Extraction: As, in effect, there are no Inſtances of *Admirals* in this Part of *Europe*, before the Year 1284; when *Philip* of *France*, who had attended St. *Louis* to the Wars againſt the *Sarazens*, created an *Admiral*.

To ſay no more, *Du Cange* aſſures us, that the *Sicilians* were the firſt, and the *Genoeſe* the next after 'em, who gave the Denomination *Admiral* to the Commanders of their Naval Armaments; and that they took it from the Sarazen or Arabic *Amir*, a general Name for any commanding Officer. —The firſt *Admiral* we read of in our *Engliſh* Affairs, was under *Edward* I.

The *Lord High* ADMIRAL *of England*, in ſome antient Records called *Capitaneus Mariniorum*, is Judge or Preſident of the *Court of Admiralty*. See ADMIRAL's *Court*.

He takes Cognizance, by himſelf, his Lieutenant, or Deputies, of all Crimes committed on the Sea, or the Coaſts thereof; and all the Civil and Marine Tranſactions relating thereto: As alſo of what is done in all great Ships, riding in any great River, beneath the Bridges thereof next the Sea.

Antiently, the *Admiral* had alſo Juriſdiction in all Cauſes of Merchants and Mariners; not only on the Sea, but in all foreign Parts.——We have had no *High Admiral* for ſome Years; the Office being put in Commiſſion, or under the Adminiſtration of the Lords *Commiſſioners of the Admiralty*. See COMMISSION.

ADMIRAL is alſo uſed for the Commander in Chief of a ſingle Fleet, or Squadron. See FLEET.

Thus, we ſay, the *Admiral* of the Red; *Admiral* of the White; and *Admiral* of the Blue. See SQUADRON, NAVY, &c.

The Term is alſo applied to all Flag-Officers: In which Senſe it includes *Vice-Admirals* and *Rear-Admirals*. See FLAG-*Officer*.

Rear-ADMIRAL. } See { REAR-*Admiral*.
Vice-ADMIRAL. } { VICE-*Admiral*.

Vice-ADMIRAL, is alſo an Officer appointed by the Lord High *Admiral*, in divers Parts of the Kingdom, with Judges and Marſhals ſubordinate to him; for the exerciſing of Juriſdiction in Maritime Affairs, within their reſpective Limits.

There are upwards of twenty *Vice-Admirals*.—From their Deciſions and Sentences, Appeal lies to the *Court of Admiralty* in *London*.

There are alſo *Admirals of the Galleys*. See GALLEY.

Monſtrelet makes mention of an *Admiral of the Archers*, or *Croſs bow-Men*.

ADMIRAL, is likewiſe the Name of the principal Veſſel of a Fleet, which carries the *Admiral* on board. See FLEET, NAVY, &c.

When two Ships of War, bearing the ſame Colours, meet in the ſame Port; that which arrived firſt, has the Title and Prerogative of *Admiral*; and the other, tho of greater Strength and Rate, ſhall only be accounted *Vice-Admiral*.— 'Tis pretty much the ſame with the Veſſels that go to *Newfoundland*: that which arrives there the firſt, taking the Title and Quality of *Admiral*, which it retains during the whole fiſhing Seaſon. See FISHERY.

ADMIRAL's *Court*, or the *High Court of* ADMIRALTY, is a Court held by the High *Admiral*; to which belongs the Deciſion of all Maritime Controverſies, Trials of Malefactors, and the like. See COURT, and ADMIRAL.

The Proceedings in this Court, in all Civil Matters, are according to the Civil Law; becauſe the Sea is without the Limits of the Common Law, and under the *Admiral*'s Juriſdiction. See CIVIL *Law*.

In Criminal Affairs, which ordinarily relate to Piracy, the Proceedings in this Court were antiently likewiſe by Information and Accuſation, according to the Civil Law; but that being found inconvenient, in regard no Perſon could be convicted without either their own Confeſſion, or an Eye-witneſs of the Fact, ſo that the greateſt Offenders often eſcap'd with Impunity: there were two Statutes made by *Henry* VIII. enacting, That Criminals ſhould henceforth be bere tried by Witneſſes and a Jury; and this by ſpecial Commiſſion from the King to the Lord *Admiral*: wherein ſome of the Judges of the Realm are always to be Commiſſioners; and the Trial according to the Laws of *England*, directed by thoſe Statutes. See JURY, TRIAL, &c.

The *Court of Admiralty*, is ſaid to have been firſt erected in 1357, by King *Edward* III.——To the Civil Law, firſt introduc'd by the Founder, were afterwards added, by his Succeſſors, particularly *Richard* I. the Laws of *Oleron*; and the Marine Uſes and Conſtitutions of ſeveral People; as thoſe of *Genoa*, *Piſa*, *Marſeilles*, *Meſſina*, &c. See OLERON, and USES.

Under this Court is alſo a Court-Merchant, or Court of Equity; wherein all Differences between Merchants are decided, according to the Rules of the Civil Law. See MERCHANT.

Between the Courts of Admiralty and Common Law, there ſeems to be *diviſum imperium*; for in the Sea, ſo far as the Low-Water Mark, is accounted *infra corpus comitatus adjacentis*; and the Cauſes thence ariſing are determinable by the Common Law: yet when the Sea is full, the Admiral has Juriſdiction there alſo ſo long as the Sea flows, over Matters done between the Low-Water Mark and the Shore. See COMMON-*Law*.

ADMIRALTY.——*Court of* ADMIRALTY, *Commiſſioners of the* ADMIRALTY, &c. See ADMIRAL, ADMIRAL's *Court*, &c.

Among the *Hollanders*, the *Five Admiralties*, are ſo many Chambers, compoſed of the Deputies of the Nobles, the Provinces, and the Towns; to whom belong the equipping out of Fleets, and the furniſhing Proviſions for 'em.

ADMIRATION, in Grammar, a Point or Character, intimating ſomething worthy to be admired or wonder'd at.— It is expreſſed thus (!). See CHARACTER.

ADMISSION, ADMISSIO, in the Eccleſiaſtical Law, the Act whereby the Biſhop, upon Examination, admits or allows a Clerk to be able, or competently qualify'd for the Office; which is done by the Formula *Admitto te habilem*. See PRESENTATION, INDUCTION, INSTITUTION, &c.

ADMITTENDO *Clerico*, is a Writ granted to him who hath recover'd his Right of Preſentation againſt the Biſhop in the Common Pleas. See PATRON.

ADMITTENDO *in Socium*, is a Writ for the Aſſociation of certain Perſons to Juſtices of Aſſize formerly appointed. See JUSTICE, and ASSIZE.

ADNATA, in Anatomy, a pretty thick white Membrane, inveſting the Ball of the Eye; called alſo *Conjunctiva*. See TUNIC, and CONJUNCTIVA.

The *Adnata* makes what we commonly call the *White of the Eye*; whence it is alſo called the *Albuginea*. See EYE, &c.

AD *Octo*, *q. d.* to the eighth Number; a Term uſed by ſome antient Philoſophers, to denote the higheſt or ſuperlative Degree; becauſe in their way of diſtinguiſhing Qualities, they reckon'd no Degree above the Eighth. See DEGREE, HUMOUR, QUALITY, &c.

ADOLESCENCE, ADOLESCENTIA, the State of Youth; or that Period of a Perſon's Age commencing from his Infancy, and terminating at his full Growth. See AGE.

The State of *Adoleſcence* laſts ſo long as the Fibres continue to grow, either in Magnitude or Firmneſs. See FIBRE, NUTRITION, &c.

It is commonly computed to be between 15 and 25, or even 30 Years of Age; tho, in different Conſtitutions its Terms are very different.—The *Romans* uſually reckon'd it from 12 to 25 in Boys; and to 21 in Girls. See PUBERTY, &c.—And yet, among their Writers, *Juvenis* and *Adoleſcens* are frequently uſed indifferently, for any Perſon under 45 Years.

The Word is form'd of the Latin *adoleſco*, I grow.—— The Fibres being arrived at the degree of Firmneſs, and Tenſion ſufficient to ſuſtain the Parts, no longer yield and give way to the Efforts of the Nutritious Matter, to extend 'em: So that their farther Accretion is ſtopp'd from the very Law of their Nutrition. See SOLID, DEATH, &c.

ADONIA, or ADONIC *Feaſts*, were antient Feaſts, inſtituted in honour of *Adonis*; and obſerved with great Solemnity among the *Greeks*, *Egyptians*, &c. See FEAST.

They were begun by the Women; who imitated the Cries and Lamentations of *Venus*, for the Death of her Paramour.—When they were well weary of this, they changed their Notes, and ſung his Praiſes; and made Rejoicings, as if he were raiſed to Life again: or rather, according to *Meurſius*, theſe two Offices made two diſtinct Feaſts, which were held at different times of the Year, the one ſix Months after the other; *Adonis* being ſuppoſed to paſs half the Year with *Proſerpine*, and half with *Venus*.——The Feaſt was alſo called *Salambon*.

ADONIC, in the antient Poetry, was a ſort of ſhort Verſe, conſiſting of a Dactyl and a Spondee; as, *Rara juventus*. See VERSE.

It

It is usually placed at the End of each Stanza of Sapphic Verses; and is so called from *Adonis*, in whose Praise it was first made. See SAPPHIC.

ADOPTION, ADOPTIO, an Act by which any one takes another into his Family, owns him for his Son, and appoints him his Heir. See FATHER, SON, &c.

The Word is derived from *adoptare*; whence came *adobare*, to make a Knight: whence also *Miles adobatus*, a Knight newly made or dubb'd; he who knighted him, being said in some Sense to *adopt* him. See KNIGHT.

The Custom of *adopting* was very familiar among the antient *Romans*, who had an express Formula for it.—They first learnt it from the *Greeks*, among whom it was called *υἱωσις*, *Filiation*. See ADOPTIVE.

As *Adoption* was a sort of Imitation of Nature, intended for the Comfort of those who had no Children; Eunuchs were not allowed to *adopt*; as being under an actual Impotency of begetting Children. See EUNUCH.

Neither was it lawful for a young Man to *adopt* an elder; because that had been contrary to the Order of Nature: but it was even requir'd, that the Person who *adopted*, should be eighteen Years elder than his *adoptive* Son; that there might at least appear a Probability of his being the natural Father.

The *Romans* had two Forms of *Adoption*; the one before the Prætor: the other at an Assembly of the People, in the Times of the Commonwealth, and afterwards by a Rescript of the Emperor.

In the first, the Natural Father address'd himself to the Prætor, declaring, that he emancipated his Son, resign'd all his Authority over him, and consented he should be translated into the Family of the *Adopter*. See EMANCIPATION.

The latter manner of *Adoption* was practis'd, where the Party to be adopted was already free; and was called *Adrogation*. See ADROGATION.

The Person adopted chang'd all his Names; assuming the Prename, Name, and Sirname of the Person who adopted him. See NAME.

They had likewise their *Testamentary Adoptions*, wherein Persons were *adopted* by the Last Will of the Deceas'd; but these were never esteem'd valid, till they had been confirm'd by the People. See TESTAMENT.

Of late Years, another Form of *Adoption* has taken place; and this is, by cutting off the Hair of a Person, and delivering it to the Father that is to adopt him. See HAIR, and TONSURE.

'Twas this way that Pope *John* VIII. adopted *Boson* King of *Arles*; which perhaps is the only Instance in History of *Adoption* in the Order of Ecclesiasticks; a Law that professes to imitate Nature, not daring to give Children to those in whom it would be thought a Crime to beget any.

M. *Boussac*, in his *Noctes Theologicæ*, gives us divers modern Forms of *Adoption*; some perform'd at Baptism; others by the Sword, &c. See BAPTISM.

ADOPTIVE, ADOPTIVUS, or ADOPTITIUS, a Person *adopted* by another. See ADOPTION.

The Emperor *Adrian* preferr'd *Adoptive* Children to Natural ones; by reason we chuse the former, but are oblig'd to take the latter at random.—*Adoptive* Children, among the *Romans*, were on the same Footing with Natural ones; for which Reason, they were either to be instituted Heirs, or expressly disinherited; otherwise the Testament was null.

M. *Menage* has publish'd a Book of Eloges, or Verses address'd to him; which he calls *Liber Adoptivus*, an *Adoptive* Book; and adds it to his other Works.—*Heinsius* and *Furstemberg* of *Munster*, have likewise published *Adoptive* Books.

ADOPTIVI, or ADOPTIANI, was an antient Sect in Religion; thus called, from the manner wherein they conceived our Saviour to be the Son of God.

They took their Rise from *Felix* of *Urgel*, and *Elipand* of *Toledo*; the latter of whom writing to the former, for an Account of his Faith in that Point; was answer'd, that according to the Use of the Language which obtains in respect of Human Nature, Jesus was not the Natural, but only the *Adoptive* Son of God.

This Opinion they both afterwards propagated, towards the Close of the VIIIth Century.—And both were convicted and condemn'd; and both abjur'd their Error.

ADORATION, the Act of rendering divine Worship or Honours, to a Being. See GOD, and WORSHIP.

The *Adoration* of Idols is called *Idolatry*. See IDOLATRY.

The *Romanists* profess a subordinate *Adoration* to Saints, Images, Relicks, the Cross, &c. See SAINT, IMAGE, RELICK, CROSS, &c.

The Word literally signifies, *to apply the Hand to the Mouth*; *Manum ad Os admovere*, *q. d.* to kiss the Hand; this being, in the Eastern Countries, one of the great Marks of Respect and Submission.

The Election of Popes is performed two ways, by *Adoration* and by Scrutiny.—In the Election by *Adoration*, the Cardinals rush hastily, as if agitated by some Spirit, and fall without more ado to the *Adoration* of some one among them, and proclaim him Pope. See CARDINAL, POPE, &c.

In the Election by Scrutiny, *Adoration* is the last thing, and follows the Election; as in the other it is the Election itself, or rather supersedes the Election. See ELECTION, and SCRUTINY.

AD *Pondus Omnium*, the Weight of the Whole; an Abbreviation among Physicians, &c. signifying, that the last prescrib'd Ingredient is to weigh as much as all the others before. See ABBREVIATURE.

AD *Quod Damnum*, a Writ directed to the Sheriff, commanding him to inquire what hurt may befal the King by granting a Fair or Market in any Town, or Place. See FAIR, MARKET, &c.

The same Writ also issues for an Inquiry to be made of what the King or other Person may suffer, by granting Lands in Fee-simple to a Convent, Chapter, or other Body Politick; by reason such Land falls into Mortmain, or a dead hand: that is, into such Condition, that the chief Lord loses all Hope of Heriots, Service of Court, and Escheats, upon any traiterous or felonious Offence committed by the Tenant: For that a Body Politick dies not, nor can perform personal Service to the King, or their Mesn Lords; as single Persons may do. See MORTMAIN.

ADRAGANT, or TRAGACANTH, a sort of Gum. See TRAGACANTH.

ADRESS, or ADDRESS, a Discourse presented to the King, in the Name of a considerable Body of his People; to express, or notify their Sentiments of Joy, Satisfaction, or the like, on some extraordinary Occasion.

Thus, we say, the Lords *Adress*, the Commons *Adress*.—*Adresses* were first set on foot under the Administration of *Oliver Cromwel*.

The Word is French, *Adresse*, form'd of the Verb *Adresser*, to send or direct any thing to a Person.—At *Paris*, their Office of Intelligence is called *Bureau d'Adresse*.

ADRESS, is also used for Dexterity. See DEXTERITY.

ADROGATION, among the *Romans*, was a kind of Adoption, only differing from it in this; That the Person here adopted was free, and consented to be adopted by another; and that it was done at the Assembly of the People, while the Commonwealth subsisted; and afterwards by a Rescript of the Emperors. See ADOPTION.

AD *Terminum qui præteriit*, is a Writ of Entry, which lies where a Man, having leased Lands or Tenements for term of Life, or Years, is, after the Term expir'd, held from them by the Tenant, or other Stranger who enjoys the same, and deforceth the Lessor.—The same Writ also lies for the Lessor's Heir.

ADVANCE-*Fosse*, or *Ditch*, is a Ditch of Water round the Esplanade, or Glacis of a Place; to prevent its being surprized by the Besiegers. See FOSSE, and GLACIS.

ADVANCE-*Guard*, or VAN-*Guard*, is the first Line or Division of an Army ranged or marching in Battle-array; or that Part which is next the Enemy, or which marches first toward them. See LINE.

The whole Body of an Army is divided into *Advance-Guard*, Arrear-Guard, and Main Body. See ARMY, &c.

The Word is sometimes also applied to a small Party of Horse, as 15 or 20, commanded by a Lieutenant, beyond and in sight of, the Main Guard.

ADVANCER, among Hunters, is one of the Starts, or Branches of a Buck's Attire, between the back Antler and the Palm. See ATTIRE, HEAD, &c.

ADVENT, ADVENTUS, in the Calendar, the Time immediately preceding Christmas; antiently employ'd in pious Preparation for the *Adventus*, or coming on, of the Feast of the Nativity. See NATIVITY, &c.

Advent includes four Sundays, or Weeks; commencing either from the Sunday which falls on St. *Andrew*'s Day, or that next after it.—But, it is to be noted, this Rule has not always obtain'd. In the *Ambrosian* Office, there are six Weeks mark'd for *Advent*; and St. *Gregory*, in his Sacramentary, allows five.

The first Week of *Advent*, in our way of reckoning, is that wherein it begins; but it was antiently otherwise, the Week next Christmas being reputed the first; and the Numeration carried backwards.

Great Austerity was practis'd in the antient Church during this Season.—At first they fasted three Days a-week; but were afterwards obliged to fast every Day: Whence the Season is frequently called in antient Writers, *Lent*, and *Quadragesima*. See LENT, and FAST.

The Courts of Justice were all shut.—Under King *John*, it was expressly declared, that *in Adventu Domini nulla Assisa capi debet*: But this was afterwards alter'd; and it was made lawful, in respect of Justice and Charity which ought at all Times to be regarded, to take Assizes of Novel Disseisin, Mort d'Ancester, and Darrein Presentment, in the Time of *Advent*, Septuagesima, and Lent. See ASSIZE.

This

This is also one of the Times, from the Beginning whereof, to the End of the Octaves of the *Epiphany*, the solemnizing of Marriage is forbid, without express Licence. See MARRIAGE; see also ROGATION.

ADVENTITIOUS, something accruing, or befalling a Person or Thing, from without. See ACCESSION, &c.

Thus, *Adventitious* Matter, is such Matter as doth not properly belong to any Body, but is casually joined to it. See ACCRETION, ADJUNCTIO, &c.

ADVENTITIOUS, in the Civil Law, is applied to such Goods as fall to a Man, either by mere Fortune, or by the Liberality of a Stranger, or by Collateral Succession. See GOODS.

The Word is used in opposition to *Profectitious*; by which are signified such Goods as descend in a direct Line, from Father to Son. See PROFECTITIOUS.

AD *Ventrem inspiciendum*, in Law. See VENTRE *inspiciendo*.

ADVENTURE, an extraordinary, and surprizing Enterprize, or Accident, either real or fictitious. See FABLE.

Novels, Romances, &c. are chiefly taken up in relating the *Adventures* of Cavaliers, Lovers, &c. See NOVEL, and ROMANCE.

The Word is *French*, and literally denotes an Event, or Accident.

Company of Merchant ADVENTURERS, was an antient Denomination of the *Hamburgh* Company. See *Hamburgh* COMPANY.

ADVERB, ADVERBIUM, in Grammar, a Particle join'd to a Verb, Adjective, or Participle, to explain their manner of acting or suffering; or to mark some Circumstance or Quality signified by them. See PARTICLE, VERB, &c.

The Word is formed from the Preposition *ad*, and *verbum*; and signifies literally a Diction *join'd to a Verb*, to show *how*, or *when*, or *where*, one is, does, or suffers: As, the Boy paints *neatly*, writes *ill*; the Book is *there*, &c.

Not that the *Adverb* is confin'd purely to Verbs; but because that is its most ordinary use.—We frequently find it join'd to Adjectives, and sometimes even to Substantives, particularly where those Substantives signify an Attribute, or Quality of the Thing spoken of, *v. g.* He is *very* sick; he acts *prudently*; he is *truly* King.

An *Adverb* is likewise join'd, sometimes to another *Adverb*, to modify its meaning, *v. g. very devoutly*, &c. Whence some Grammarians chuse rather to call them *Modificatives*; comprizing under this one general Term, both *Adverbs*, Conjunctions, Prepositions, and even Adjectives. See MODIFICATIVE.

Adverbs are very numerous, but may be reduced under the general Classes of *Adverbs of Time*, of *Place*, of *Order*, of *Quantity*, of *Quality*, of *Manner*, of *Affirmation*, of *Doubting*, and of *Comparison*.

ADVERSARIA, among the Antients, was used for a Book of Accounts, like our Journal or Day-Book; thus called, *quod adversa parte etiam scriptis impleretur*, because wrote even on the Backside.

Hence, *Adversaria* is sometimes also used among us for a *Common-place-Book*. See COMMON-*Place*.

ADVERSARY. See ANTAGONIST, OPPONENT, COMBAT, DUEL, &c.

The Word is form'd of the *Latin* Preposition *Adversus*, against; from *ad*, and *verto*, I turn to.

ADVERSATIVE, in Grammar.—A *Particle*, or *Conjunction Adversative*, is that which expresses some Difference, or Opposition between what goes before, and what follows. See CONJUNCTION.

Thus, *or* is an *Adversative*, v. g. Yes, *or* no.

ADVERTISEMENT, an Intelligence, or Information, given to Persons interested in an Affair.

The Word is form'd of the French *Avertissement*, from the Latin *Advertere*, to advert, consider, regard.

ADULT, ADULTUS, one who is come to Years of Discretion; who is enter'd upon Manhood, or the Age of Adolescence; and is old and big enough to have Understanding, and Discernment. See AGE.

The Word is formed from the Participle of the Verb *adolesco*, I grow up. See ADOLESCENCE.

The Anabaptists confer the Sacrament of Baptism upon none but *Adults*. See BAPTISM, and ANABAPTIST.

There is a notable Difference between the Proportions of Infants and *Adults*.—A Man, M. *Dodart* observes, form'd like a Fœtus, would be a Monster, and won'd scarce be acknowledg'd for one of the Species. See FOETUS, and EMBRYO.

ADULTERATION, ADULTERATIO, the Act of debasing a Medicine or other thing, with bad Ingredients; or the putting one thing for, and into another. See SOPHISTICATION.

To *adulterate* the current Coin, is a Capital Crime in all Nations. See MONEY, and COIN.

The Word is *Latin*; form'd of the Verb *Adulterare*, to corrupt by mingling something foreign to any Substance.

ADULTERINE, in the Civil Law, a Child issued from an *adulterous* Amour, or Commerce. See ADULTERY.

Adulterine Children are more odious than the illegitimate Offspring of single Persons.—The *Roman* Law even denies 'em the Title of Natural Children; as if Nature disown'd 'em. See BASTARD.

ADULTERY, ADULTERIUM, in our antient Law Books call'd ADVOWTRY, a Crime committed by married Persons, against the Faith pledged to each other in Marriage; by having carnal Commerce with some other: or even by a Person not married; by having to do with another that is. See FORNICATION, MARRIAGE, &c.

The antient *Romans* had no formal Law against *Adultery*; but both Accusation and Punishment were arbitrary.—The Emperor *Augustus* was the first who brought them into a Law; which he had the Misfortune to see executed in the Persons of his own Children.——This was the *Julian* Law.

But, tho this Law left the Accusation of *Adultery* open to every body, yet 'tis certain, *Adultery* has been always look'd upon as a private and domestick Crime, rather than a publick one; so that Strangers were seldom suffer'd to prosecute, especially where the Marriage was peaceable, and the Husband made no Complaint.

Some of the succeeding Emperors abrogated this Law, which left the Accusation of *Adultery* open to Strangers; in regard such an Accusation could not be enter'd, without setting the Husband and Wife at Variance, throwing the Children into a State of Uncertainty, and bringing Contempt and Derision upon the Husband; for as the Husband is the nearliest interested in the Matter, 'tis supposed he will examine the Wife's Actions with more Circumspection than any other: So that where he is silent, 'tis not fair any body else should speak for him. See ACCUSATION.

For this reason, the Law, in some Cases, has made the Husband both Judge and Executioner in his own Cause; and has allow'd him to revenge himself of the Injury, by taking away the Lives of the *Adulterers* whom he should apprehend in the Act.—'Tis true, where the Husband made a Trade of his Wife's Infamy, or where having seen her Shame with his own Eyes, he yet suffer'd patiently, and dissembled the Affront; in these Cases, *Adultery* became a Crime of publick Concern: and the *Julian* Law provides Punishments for such Husbands, as well as their Wives.

In most *European* Countries, at this Day, *Adultery* is not a publick Crime; and none but the Husband is suffered to intermeddle, excepting where the Scandal is very notorious.—Even the King's Advocates, Attorney, or the like, may not intermeddle.

Add, that tho the Husband who violates the Conjugal Bond be guilty of *Adultery* as well as the Wife; yet is not the Wife allow'd to accuse, or prosecute him for the same. See WIFE, HUSBAND, &c.

Socrates relates, L. V. c. 8. that under the Emperor *Theodosius*, in the Year 380, Women convicted of *Adultery* were punish'd by a publick Constupration.

Lycurgus punish'd the *Adulterer* as a Parricide.—The *Locrians* tore out his Eyes; and most of the Orientals punish him very severely.

The *Saxons* formerly burnt the *Adulteress*, and over her Ashes erected a Gibbet, whereon the *Adulterer* was hang'd.—In *England*, King *Edmond* punish'd *Adultery* as Homicide; but *Canutus* ordained the Man to be banish'd, and the Woman to have her Nose and Ears cut off.——*Qui uxoratus faciet* Adulterium, *habet Rex vel dominus superiorem; Episcopus inferiorem.* L. Hen. I. c. 12. *De* Adulterio *per totam Client. habet Rex hominem, Episcopus mulierem.* Domesday, tit. Cestre Civit.

In *Spain*, they punish'd *Adultery* by cutting off that Part which had been the Instrument of the Crime.—In *Poland*, before Christianity was establish'd, they punish'd *Adultery* and Fornication in a very particular manner: The Criminal they carried into the Market-Place, and there fasten'd him by the Testicles with a Nail; laying a Razor within his reach, and leaving him under a Necessity, either of doing Justice upon himself, or of perishing in that Condition.

At present, the Laws are much more favourable: — To Divorce, and strip the *Adulteress* of her Dower, is all her Punishment among us: In the *Romish* Countries, they also shut 'em up in Nunneries.

The *Lacedæmonians*, instead of punishing *Adultery*, permitted it, or at least tolerated it; as we are told by *Plutarch*. See CONCUBINE.

According to some of the Papal Decisions, *Adultery* renders Marriage between the two Criminals unlawful; this making what the Schools call *Impedimentum Criminis*.

The *Greeks*, and other Christians throughout the East, adhere to the Opinion that *Adultery* dissolves the Band of Marriage: So that the Husband, without more ado, may marry another.—The Council of *Trent* condemns that Opinion; and even in some measure anathematizes those who hold it. *Sess.* XXIV. *Can.* 7.

ADULTERY is also used by some fanciful Astronomers and Astrologers, for an Eclipse of the Sun, or Moon; happening in an unusual, and as they suppose, irregular manner: as in the Case of horizontal Eclipses; where, tho the Sun and Moon be diametrically opposite, yet they appear as if above the Horizon, by reason of the Refraction. See ECLIPSE, REFRACTION, &c.

ADVOCATE, ADVOCATUS, among the *Romans*, a Person skill'd in their Law, and who undertook the Defence of Causes at the Bar. See LAW.

The Word is compounded of *ad*, and *voco*, *q. d.* I call to my aid, or defence.

The *Roman Advocates* answer'd to one Part of the Office of a Lawyer among us, *viz.* the Pleading Part; for as to the giving Counsel, they never meddled with it: that being the Business of the Juris-consulti. See JURISCONSULTUS.

The *Romans*, in the first Ages of their State, held the Profession of an *Advocate* in great honour; and the Seats of their Bar were crouded with Senators and Consuls; they, whose Voices commanded the People, thinking it an Honour to be employ'd in defending them.

They were styled *Comites*, *Honorati*, *Clarissimi*, and even *Patroni*; as if their Clients were not less oblig'd to them, than Freedmen to their Masters. See PATRON, and CLIENT.

But the Bar was not then venal.—Those who aspired to Honours and Offices, took this way of gaining an Interest in the People, and always pleaded *gratis*.

But no sooner was Luxury and Corruption brought into the Commonwealth, than the Bar became a Sharer in them. —Then it was that the Senators let out their Voices for pay, and Zeal and Eloquence were sold to the highest Bidder.——To put a Stop to this Abuse, the Tribune *Cincius* procured a Law to be passed, called from him, *Lex Cincia*; where the *Advocates* were forbid to take any Money of their Clients.—*Fred. Brummerus* has publish'd an ample Comment upon this Law.

It had before been prohibited the *Advocates* to take any Presents or Gratuities for their Pleading.—The Emperor *Augustus* added a Penalty to it: notwithstanding which, the *Advocates* play'd their Parts so well, that the Emperor *Claudius* thought he did a great thing, when he oblig'd 'em not to take above eight great Sesterces, which are equivalent to 35 Pounds Sterling, for pleading each Cause.

ADVOCATE is still used in Countries where the Civil Law obtains, for those who plead and defend the Causes of Clients trusted to them. See CIVIL *Law*.

In *Scotland* they have a College, or *Faculty of Advocates*, 180 in number; appointed to plead in all Actions before the Lords of Session.——They have a Dean, Treasurer, Clerks, Examinators, and a Curator of their Library.

By the Articles of the Union, none are to be named ordinary Lords of Session, except those who have been *Advocates*, or principal Clerks of Session for five Years, &c.

In Doctors Commons, the *Advocates* are usually called *Proctors*, or *Procurators*. See PROCTOR, and PROCURATOR.

In *France*, they have two Kinds of *Advocates*, viz. *Pleading Advocates*, *Avocats Plaidants*; and *Counsel Advocates*, *Avocats Consultants*.

This Distinction was form'd with a View to the two Branches among the *Romans*, *Advocati*, and *Jurisconsulti*. —Yet there is this difference, that the Function of the Jurisconsulti, who only gave their bare Advice, was of a different Kind from that of the *Advocati*; being a sort of private and perpetual Magistrature, principally under the first Emperors; as, on the other hand, the *Advocati* never became *Jurisconsulti*. Whereas in *France*, after the *Advocates* have attain'd to Reputation and Experience enough at the Bar, they quit so busy a Province, and become as it were Chamber Council.

They have also their *Advocate General*, and King's *Advocate*, *Avocat du Roy*.

Lord ADVOCATE, in *Scotland*, is one of the Officers of State, whose Business is to give his Advice about the making and executing of Laws; to defend the King's Right, and Interest in all publick Meetings; to prosecute all Capital Crimes before the Justiciary; and concur in all Pursuits before Sovereign Courts for Breaches of the Peace; and also in all Matters wherein the King, or his Donator, has Interest.—He intents no Processes of Treason, except by Warrant of Privy Council.

The *Lord Advocate* is sometimes an ordinary Lord of Session; in which Case, he only pleads in the King's Causes: otherwise, he is at liberty to plead in all Causes.

Fiscal ADVOCATE, *Fisci* ADVOCATUS, was an Officer instituted by the Emperor *Adrian*, to defend the Cause, and Interests of the *Fiscus*, or private Treasury; in the several Tribunals where that might be concern'd. See FISCUS.

Consistorial ADVOCATE, is an Officer of the Court of *Rome*, whose Office is to plead upon the Oppositions made to the Provisions of Benefices in that Court. See PROVISION.——They are ten in number.

ADVOCATE *of a City*, or *Town*, is a Magistrate established in several Places of *Germany*, for the Administration of Justice in that City, in the Emperor's Name. See ADVOWEE.

ADVOCATE *of a Church*, or *Ecclesiastical* ADVOCATE, a Person to whom it antiently belong'd, to defend the Rights and Interests of a Church, both in a Legal and a Military Capacity; more usually called *Advouee*, or *Avowee*. See ADVOWEE.

The Word *Advocatus* or *Advowee* is still retained, for what we usually call the *Patron*, or he who has the Advowson, or Right of Presentation in his own Name. See PATRON, ADVOWSON, PRESENTATION, &c.

The Monasteries had also their *Advocates*, or *Advowees*. See MONASTERY, &c.

ADVOCATIONE *Decimarum*, a Writ which lies for the Claim of the fourth Part, or upward, of the Tithes that belong to any Church. See TITHE.

ADVOW, or AVOW, *Advocare*, in Law, to justify or maintain an Act formerly done.

Thus, if one take a Distress for Rent, or other thing, and he that is distrained sues a Replevin; the Distrainer, justifying or maintaining the Act, is said to *avow*. See DISTRESS, REPLEVY, &c.

Bracton uses the *Latin* Term *Advocare*, in the same Signification; as, *Advocatio disseisine*, L. IV. c. 26. And in *Cassaneus de Consuet. Bur. Advocare* is used in the like Sense. The Author last cited does also use the Substantive *Desavohamentum*, for a Disavowing, or refusing to *avow*.

The original Use of the Word was this.—When stoln Goods were bought by one, and sold to another, it was lawful for the right Owner to take them wherever they were found; and he in whose Possession they were found, was bound, *Advocare*, *i. e.* to produce the Seller to justify the Sale, and so on till they found the Thief.

Afterwards, the Term was applied to any thing which a Man acknowledg'd to be his own, or done by him; in which Sense, it is mentioned in *Fleta*, L. I. pars 4. *Si vir ipsum in domo sua susceperit, nutrierit & advocaverit filium suum.*

ADVOWEE, or AVOWEE, or ADVOCATE *of a Church*, was heretofore the Patron, or Defender of the Rights thereof. See ADVOCATE, PATRON, &c.

The Word is French, *Advoué*, or *Avoue*, of the Verb *Avouer*, to avow, own, acknowledge Dependence, Subjection, &c.——Whence also *Advowson*. See AVOW, and ADVOWSON.

There were also *Advowees* for Cathedrals, Abbies, Monasteries, &c.—Thus, *Charlemaign* had the Title of *Advocate* of St. *Peter's*; King *Hugh*, of St. *Riquier*; and *Bollandus* mentions some Letters of Pope *Nicholas*, by which he constituted King *Edward* the Confessor, and his Successors, *Advocates* of the Monastery at *Westminster*, and of all the Churches in *England*.

These *Advowees* were the Guardians, Protectors, and, as it were, Administrators of the temporal Concerns of the Churches, &c. and under their Authority, were pass'd all Contracts which related thereto. See GUARDIAN, &c.

It appears also, from the most antient Charters, that the Donations made to Churches, were conferr'd on the Persons of the *Advowees*.—They always pleaded the Causes of the Churches in Court, and distributed Justice for them, in the Places under their Jurisdiction.——They also commanded the Forces furnish'd by their Monasteries, &c. for the War; and even were their Champions, and stood Duels for them. See COMBAT, DUEL, and CHAMPION.

This Office is said to have been first introduc'd in the IVth Century, in the Time of *Stilico*; tho the Benedictines don't fix its Origin before the VIIIth Century. *Act. Sanct. Benedict.* S. III. P. 1. Præf. p. 91, &c.

By degrees, Men of the first Rank were brought into it, as it was found necessary, either to defend with Arms, or to protect with Power and Authority.——In some Monasteries they were called *Conservators*; but these, without the Name, had all the same Functions with *Advowees*. See CONSERVATOR.

There were also sometimes several *Sub-Advowees*, or Sub-Advocates in each Monastery, who officiated instead of the *Advowees* themselves; which, however, proved the Ruin of Monasteries; those inferior Officers running into great Abuses.

Hence, Husbands, Tutors, and every Person in general, who took upon him the Defence of another, were also called *Advowees*, or Advocates.—Hence several Cities, also, had their *Advowees*; which were establish'd long after the Ecclesiastical ones, and doubtless from their Example.—Thus, we read in History of the *Advowees* of *Augsburg*, of *Arres*, &c.

The Vidames assumed the Quality of *Advowees*; and hence it is, that several Historians of the VIIIth Century, confound the two Functions together. See VIDAME.

And

And hence also it is, that several Secular Lords in *Germany* bear Mitres for their Crests; as having antiently been Advocates of the great Churches. See MITRE, and CREST.

Spelman distinguishes two Kinds of Ecclesiastical *Advowees*.—The one, of Causes, or Processes, *Advocati Causarum*: the other, of Territory, or Lands, *Advocati Soli*.

The former were nominated by the King, and were usually Lawyers, who undertook to plead the Causes of the Monasteries.

The other, which still subsist, and are sometimes called by their primitive Name, *Advowees*, tho more usually *Patrons*, were hereditary; as being the Founders and Endowers of Churches, &c. or their Heirs. See PATRON.

In this Sense, Women were sometimes *Advocatesses*, *Advocatissæ*.—And, in effect, the Canon Law mentions some who had this Title, and who had the same Right of Presentation, &c. in their Churches, which the *Advowees* themselves had.

In a Stat. 25 *Edw.* III. we meet with *Advowee Paramount*, for the Highest Patron; that is, the King. See PARAMOUNT.

There were also *Advowees of Countries*, and *Provinces*.—In a Charter of the Year 1187, *Berthold* Duke of *Zeringhen*, is called *Advowee* of *Thureg*; and in the *Notitia* of the *Belgic* Churches, publish'd by *Miræus*, the Count of *Lovain* is stiled *Count and* Advowee *of* Brabant.——In the XIth and XIIth Centuries, we also meet with the *Advowees* of *Alsatia*, of *Suabia*, &c.

Raymond de Agiles relates, that after the Recovery of *Jerusalem* from the *Saracens*, it being proposed to elect a King thereof; the Bishops pleaded, *Non debere ibi eligi Regem, ubi Deus passus & coronatus est*, &c. That "they "ought by no means to appoint a King, in a Place where "God had suffer'd and been crown'd; but should content "themselves with electing an *Advowee*, or *Advocate of the* "*City*, to take Care of the Garrison, &c."——In effect, *Dodechin*, a *German* Abbot, who wrote a Voyage to the Holy Land in the XIIth Century, calls *Godfrey* of *Bulloign*, *Advowee of the Holy Sepulchre*.

ADVOWSON, or ADVOWZEN, *Advouerie*, *Advocatia*, or *Advocatio*, the Quality, or Office of an *Advowee*, or Advocate, &c. See ADVOWEE, &c.

ADVOWSON, or ADVOUZEN, in Common Law, signifies a Right to present to a Benefice. See PRESENTATION.

In this Sense, the Word imports as much as *Jus patronatus* in the Canon Law. See PATRONAGE.

The Reason of the Name *Advowson*, *Advocatio*, is, that antiently, those who had a Right to present to a Church, were Maintainers of it, or great Benefactors to it; and were sometimes called *Patroni*, and sometimes *Advocati*, or *Advowees*. See ADVOCATE, &c.

In the general, an *Advowson* is where a Bishop, Dean, or Chapter, and their Successors, or any Lay Patron, have a Right to present whom they please to any spiritual Benefice, when it becomes void. See VACANCY and BENEFICE, &c.

This *Advowson* is of two Kinds.—*Advowson in gross*, that is, not immediately restrained, or adhering to any Manor, as Parcel thereof.

And *Advowson appendant*, which depends on a Manor, as appurtenant to it: This *Kitchin* calls an *Incident*, which may be separated from its Subject.

Add, that as the Builders and Endowers of a Church were the Patrons of it; so those who founded any Religious House, had the *Advowson* or Patronage of it.

Sometimes the Patron had the sole Nomination of the Prelate, Abbot, or Prior; either by Investiture, (or Delivery of a Pastoral Staff) or by direct Presentation to the Diocesan: And if a free Election was left to the Religious, yet a *Conge d'Elire*, or Licence of Election, was first to be obtain'd of the Patron, and the Person elected was confirm'd by him.

If the Founder's Family was extinct, the Patronage of the Convent went to the Lord of the Manor.

ADVOWTRY. See ADULTERY.

ADUST, ADUSTUS, is applied, among Physicians, &c. to such Humours, as by long Heat become of a hot and fiery Nature. See HUMOUR.

Such is Choler supposed to be.—Melancholy is usually consider'd as black and *adust* Bile. See CHOLER, MELANCHOLY, &c.

Adust Blood, says *Blanchard*, is, when by reason of extraordinary Heat, its more subtile Parts are all evaporated, leaving the grosser, with all the Impurities therein, half torrify'd, as it were. See BLOOD.

The Word is form'd of the Latin *aduro*, I burn.

ADYTUM, Ἄδυτον, a secret or retir'd Place in the Pagan Temples, where Oracles were given, and into which none but the Priests were admitted. See TEMPLE, ORACLE, &c.

AE, or Æ, a Dipthong, or double Vowel, borrow'd from the *Greeks* and *Latins*. See DIPTHONG.

Authors are by no means agreed as to the Use of the *æ*.—Some, out of regard to Etymology, insist on its being retain'd in all Words, particularly Technical ones, borrowed from those Languages; while others, from a Consideration that it is no proper Dipthong in our Language, its Sound being no other than that of the simple *e*; contend that it ought to be entirely disused, except in Words which retain their *Latin* and *Greek* form in every thing else.

For our own part, till the Point is a little better settled, we must be contented to steer a kind of middle, or neutral Course; conforming our selves to Custom as nearly as may be.—Such Articles, therefore, as are omitted under *Æ*, the Reader will find under *E*.

ÆACEA, in Antiquity, solemn Feasts and Combats, celebrated in *Ægina*, in honour of *Æacus*; who had been their King, and who, on account of his singular Justice upon Earth, was supposed to have a Commission given him, to be one of the Judges in Hell. See FEAST, &c.

ÆCHMALOTARCHA, in Antiquity, a *Greek* Term, signifying, Chief or Leader of the Captives.

The *Jews* who refused to follow *Zorobbabel*, and return with him to *Jerusalem*, after the *Babylonish* Captivity; created an *Æchmalotarcha*, to govern them.—Not that the *Jews* themselves call'd him by this Name, as some Authors have asserted; for that People spoke *Hebrew*, or *Chaldee*, not *Greek*. But *Origen*, and others, who wrote in the *Greek* Tongue, render'd the *Hebrew* Name ראש גלות *Rosch galuth*, q. d. *Chief of the Captivity*, by a *Greek* Name of the like import, ἀιχμαλωτάρχη, form'd from ἀιχμάλωτος, of ἀιχμὴ, *a Point or Pike*, and ἀρχὴ, *Command*.

However, the *Jews* must have had Officers of this kind before the Return from *Babylon*: Witness the History of *Susannah*; the two Elders who condemn'd her, being *Æchmalotarchæ* that Year.—The *Jewish* Writers assure us, that the *Æchmalotarchæ* were only to be chosen out of the Tribe of *Judah*.

ÆDES, in Antiquity, an inferior kind of Temple, distinguished by this, that it was not consecrated by the Augurs. See TEMPLE, AUGUR, &c.

Such was the *Ærarium*, or Treasury; called *Ædes Saturni*. See ÆRARIUM.

ÆDILIS, EDILE, in Antiquity. See EDILE.

ÆGILOPS, a Tumor, or rather Ulcer, in the great Canthus or Angle of the Eye, by the Root of the Nose; either with or without an Inflammation. See EYE, TUMOR, and ULCER.

The Word, in its original *Greek*, αἰγίλωψ, signifies a *Goat's Eye*; in regard, Goats are supposed extremely liable to this Distemper.

If the *Ægilops* be neglected, it bursts, and degenerates into a Fistula, which eats into the Bone. See FISTULA.

Authors frequently use *Ægylops*, *Anchylops*, and *Fistula Lachrymalis* promiscuously: But the more accurate, after *Ægineta*, make a difference.—The Tumor, ere it becomes ulcerous, is properly called *Anchylops*; and after it has render'd the *Os Lachrymale* carious, *Fistula Lachrymalis*. See ANCHYLOPS, &c.

If the *Ægilops* be accompanied with an Inflammation; it takes its Rise from the Abundance of Blood, which the too great Plenitude discharges upon the Corner of the Eye.—If it be without an Inflammation, it is supposed to proceed from a viscous pituitous Humour, thrown upon this Part.

ÆGIPAN, in Antiquity, a Denomination given to *Pan*, and the *Panes*. See PANES.

The Word is compounded of αἴξ, αἰγὸς, *Goat*; as being represented with the Horns, Legs, Feet, &c. of that Animal.

The Antients also gave the Name *Ægipans* to a sort of Monsters mention'd by *Pliny*, *Solinus*, and *Pom. Mela*, L. I. c. 8.—*Salmasius*, in his Notes on *Solinus*, takes *Ægipan* to have signified the same in *Lybia* with *Sylvanus* among the *Romans*. See SYLVAN.

Vossius rejects the Opinion, and shews, that the *Ægipans* had not Faces like Men, as the *Sylvans* had; but like Goats. In effect, the whole upper Part of the Body resembled that Animal; and as to the lower, they painted it with a Fishes Tail. The Monster represented on some Medals of *Augustus*, by Antiquaries called *Capricornus*; appears to be the true *Ægipan*.

ÆGYPTIACUM, in Pharmacy, a kind of detersive Unguent; so called from its dusky Hue or Colour, which resembles the swarthy Complexion of the *Ægyptians*. See DETERSIVE, and UNGUENT.

It is composed of Verdigrease, Vinegar, and Honey, boil'd to a Consistence.

The Prescription is *Mesue's*.—It is chiefly used for eating off rotten Flesh, and cleansing foul Ulcers; particularly Venereal ones in the Throat, &c. It also destroys those cancerous Erosions apt to grow in Childrens Mouths.

ÆNIGMA. See ENIGMA.

ÆOLIC, or ÆOLIAN, in Grammar, the Name of one of the five Dialects of the *Greek* Tongue. See GREEK, and DIALECT.

It was first used in *Bœotia*; whence it pass'd into *Æolia*, and was that which *Sappho* and *Alcæus* wrote in.

The *Æolic* Dialect throws out all the sharp, harsh Accents; and agrees in so many things with the *Doric* Dialect, that the two are usually confounded together. See DORIC.

ÆOLIC, or ÆOLIAN *Mode*, in Musick. See MODE.

ÆOLIPILE, ÆOLIPILA, a hydraulick Instrument, consisting of a hollow metalline Ball, with a slender Neck or Pipe arising from the same; which being filled with Water, and thus expos'd to the Fire, produces a vehement Blast of Wind. See WIND.

This Instrument, *Des Cartes* and others have made use of, to account for the natural Cause and Generation of Wind. —And hence its Name, *Æolipila*, q. d. *pila Æoli*, *Æolus*'s Ball; *Æolus* being reputed the God of the Winds. See GOD.

Sometimes the Neck is made to screw into the Ball, which is the most commodious way, because then the Cavity may the more readily be filled with Water: If there be no Screw, it may be fill'd thus.—Heat the Ball red hot, and throw it into a Vessel of Water; the Water will run in at a small Hole, and fill about two thirds of the Cavity.

If, after this, the *Æolipile* be laid on, or before, the Fire; so that the Water and Vessel become very much heated; the Water being rarified into a kind of momentary Air, will be forced out with very great Noise and Violence; but it will be by Fits, and not with a constant and uniform Blast.

These Phænomena, the Reader will be easily enabled to solve, from what is shewn under the Articles, AIR, WATER, RAREFACTION, &c.

The Air or Vapour issuing out of the *Æolipile*, is found sensibly hot near the Orifice; but at a farther distance, cold; like what we observe of our own Breath: The Cause of which is controverted.—The *Corpuscularians* account for it hence, that the Fire contain'd in the rarified Vapour, tho sufficient to be felt near the Orifice, disengages it self in the Progress of the Stream; and becomes insensible ere arriv'd at the Journey's End. See FIRE.—The mechanical Philosophers, on the other hand, hold that the Vapour, at its Exit from the Ball, is endued with that peculiar Species of circular Motion, which constitutes the Quality Heat; and that the further it recedes therefrom, the more is this Motion destroy'd, by the Reaction of the contiguous Air; till the Heat at length becomes insensible. See HEAT.

Chauvin suggests some further Uses of the *Æolipile*.—1°, He thinks it might be applied instead of Bellows to blow the Fire, where a very intense heat is requir'd. 2°, If a Trumpet, Horn, or other sonorous Instrument were fitted to its Neck, it might be made to yield Musick. 3°, If the Neck were turn'd perpendicularly upwards, and prolong'd by a Tube or hollow Cylinder fitted to it, and a hollow Ball laid on the Orifice of the Tube; the Ball would be blown up, and kept fluctuating or playing up and down: As in the Stream of a Fountain. See FOUNTAIN.——And, 5°, it might serve to scent, or perfume a Room, if fill'd with perfum'd, instead of common Air.

ÆON, EON, Αἰών, q. d. *Age*; literally signifies the Duration of a thing. See AGE, and DURATION.

But some antient Hereticks have affix'd another Idea to it; in order to which, they have made use of the Philosophy of *Plato*: giving Reality to the Ideas, which that Philosopher had imagin'd in God; and even personifying them, and feigning them distinct from God, and to have been produced by him, some Male, others Female. See IDEA, and PLATONISM.

These Ideas they call *Æons*; of an Assemblage whereof they compos'd the Deity, calling it πλήρωμα, a *Greek* Word, signifying Fulness.

Simon Magus is said to have been the first Inventor of these *Æons*; which were afterwards brought to Perfection by *Valentinus*, who acknowledg'd thirty of 'em. See GNOSTICS, VALENTINIANS, &c.

ÆQUAL.	See	EQUAL.
ÆQUALITY.		EQUALITY.
ÆQUATION.		EQUATION.
ÆQUATOR.		EQUATOR.
ÆQUINOX.		EQUINOX.
ÆQUINOCTIAL.		EQUINOCTIAL.
ÆQUIPOLLENT.		EQUIPOLLENT.
ÆQUIVALENT.		EQUIVALENT.
ÆQUIVOCAL.		EQUIVOCAL.
ÆQUIVOCATION, &c.		EQUIVOCATION, &c.

ÆRA, in Matters of Chronology, signifies the same with *Epocha*; that is, any Point of Time, determin'd at Pleasure, whence to begin the Computation of the Years elapsed since. See EPOCHA.

The generality of Writers agree, that the *Æra* was originally used in respect of the manner of reckoning Time among the *Spaniards*; whose *Æra* was thirty eight Years older than the Christian Epocha, or Year of Grace.——*Peter* the fourth King of *Arragon*, was the first who abolish'd the *Spanish Æra* in his States, in the Year 1350: As did *John* I. King of *Portugal*, in 1451.

The Origin of the Word is somewhat obscure.—*Favyn* says, that in *Cicero* and *Lucilius*, the Word *Æra* is plural, and signifies the same thing with *Commentaria*, Leaves of a Book of Accounts, or a Merchant's Journal.

Others, according to the same Author, are of opinion, that *Æra* was used instead of *Hera*, for *Herus*, Master, Lord; and that it signify'd the Dominions of a Prince.

Others, according to *Isidore*, derive it from *Æs*, *Æris*; on account of the Tax of a Piece of Silver, impos'd by *Augustus* on the Heads of all the Subjects of his Empire.

Others say, that the Word is form'd from the initial Letters of the three first Words in the publick Acts, *Annus* ER*at Augusti*; but these three last Etymologies are rejected with good Reason.

ÆRARIUM, the publick Treasury of a State or People. See TREASURY.

The Temple of *Saturn* at *Rome*, being the great Treasury of the State, was first called *Ærarium*; from *Æs*, *Æris*, Brass; that being the only Money in use before the Year of *Rome* 485. *Pliny*, L. III. c. 33.—See MONEY.

The *Ærarium Militare* was a Fund of Money, destin'd for the Maintenance of several Companies of Soldiers, to be in readiness for the better Defence of the City.—It was first erected under *Augustus*, and maintained by a yearly voluntary Contribution; but that proving insufficient, the twentieth Part of all Legacies and Inheritances, except of such as fell to the next of kin or the Poor, were consign'd to this Treasury.

For the Custody hereof, three of his Lifeguard were constituted *Præfecti Ærarii*. See PRÆFECTUS.

AERIAL, AERIUS, something that consists of Air, or has a relation or resemblance to Air. See AIR.

The *Essені*, the most refined and rational Sect among the *Jews*, held that the human Soul consisted of an *Aerial* Matter. See ESSENI.

Angels or Spirits, whether Good or Evil, said sometimes to appear, are supposed to assume an *aerial* Body, in order to come sensibly. See ANGEL.

Porphyry and *Jamblicus* admit a sort of Demons or *aerial* Spirits, to which they give various Names. See DEMON, GENIUS, &c.

The Rosicrucians, and other Visionaries, fill the Atmosphere with *aerial* Inhabitants. See ROSICRUCIAN, SYLPH, GNOME, &c.

AERIAL *Perspective*, is that which represents Bodies weaken'd and, diminish'd, in proportion to their distance from the Eye. See PERSPECTIVE.

Aerial Perspective, has chiefly to do with the Colours of Objects, whose force and lustre it takes off more or less, to make 'em appear as if more or less remote. See COLOUR, and CLAIR-OBSCURE.

It is founded on this, that the longer Column of Air an Object is seen thro'; the weaker do the visual Rays emitted from it affect the Eye. See VISION.

AERIANS, AERIANI, in Antiquity, a Sect in Religion, denominated from *Aerius*; a Person alive in the Time of St. *Epiphanius*.

The *Aerians* had much the same Sentiments, in respect of the Trinity, as the *Arians*; beside which, they had some Dogmas of their own, and particularly this: That there is no difference between Priests and Bishops; but that the Priesthood and Episcopate are absolutely one and the same Order, or Dignity: An Opinion since strenuously asserted by many modern Divines. See BISHOP, PRIEST, PRESBYTER, &c.

Aerius built his Doctrine chiefly on some Passages in St. *Paul*; and, among others, that in the first Epistle to *Timothy*, Ch. IV. v. 14. where that Apostle exhorts him not to neglect *the Gift he had receiv'd by the laying on of the Hands of the Presbytery*. Here, observes *Aerius*, is no mention of Bishops; but *Timothy* evidently receiv'd his Ordination from the Presbyters or Priests.

St. *Epiphanius*, *Hær.* 75. stands up briskly for the Superiority of Bishops, against the *Aerians*.—The Word *Presbytery* in St. *Paul*, he observes, includes both Bishops and Priests; the whole Senate, or Assembly of the Ecclesiasticks of the Place: And in such an Assembly had *Timothy* been ordain'd. See PRESBYTERY.

AEROMANCY, AEROMANTIA, a Kind of Divination, perform'd by means of the Air. See DIVINATION, and AIR.

The Word is compounded of the *Greek* ἀὴρ, *Air*, and μαντεία, *Divination*. See HYDROMANCY.

AEROMETRY, AEROMETRIA, the Art of measuring the Air, its Powers and Properties. See AIR.

Aerometry

Aerometry includes the Laws of the Motion, Gravitation, Preſſion, Elaſticity, Rarefaction, Condenſation, &c. of that Fluid. See ELASTICITY, RAREFACTION, &c.

The Word *Aerometry* is but little uſed: In lieu hereof, we commonly call this Branch of Philoſophy, *Pneumatics*. See PNEUMATICS.

C. Wolfius, Profeſſor of Mathematicks at *Hall*, having reduced many of the Affections of this Fluid to geometrical Demonſtration; publiſhed *Elements of Aerometry*, at *Leipſic*, 1709, firſt in *High Dutch* and afterwards in *Latin*.—Thus is the Doctrine of the Air incorporated into the Mathematical Sciences. See MATHEMATICKS.

The Word is compounded of ἀηρ, and μετρεω, *to meaſure*.

ÆRUGO. See RUST.

ÆRUGO *Æris*, in Medicine, &c. See VERDEGREASE.

ÆRY, or AIRY, of Hawks, is what we call a Neſt in other Birds. See HAWK, and HAWKING.

ÆSCHYNOMENOUS *Plants*, among Botaniſts, are thoſe popularly called *Senſitive Plants*. See SENSITIVE.

ÆSNECY, in Law. See ESNECY.

ÆSTIMATIO *Capitis*, in our antient Law-Books. See WERE, WERELADE, WEREGILD, &c.

King *Athelſtan*, in a great Aſſembly held at *Exeter*, declared what Mulcts were to be paid *pro æſtimatione capitis*, for Offences committed againſt ſeveral Perſons according to their degrees; the *Eſtimation* of the King's Head to be 30000 *Thrymſæ*; of an Archbiſhop, or Satrapa, or Prince, 15000; of a Biſhop or a Senator, 8000; of a Prieſt, or a Thane, 2000, &c. Creſſy's *Church Hiſt.* fol. 834. *b.* and L. *Hen.* I.

ÆSTIVAL, or ESTIVAL, of or belonging to Summer. See SUMMER.

Thus, we ſay, the *Æſtival Solſtice*, &c. in oppoſition to *Brumal*. See SOLSTICE.

ÆSTUARY, ÆSTUARIUM, in Geography, an Arm of the Sea; running up a good way into the Land. See SEA.

Such is *Briſtol* Channel, many of the Firths of *Scotland*, &c.

ÆSTUARY, is ſometimes alſo uſed in Pharmacy, for a Vapour-Bath, *Balneum Vaporoſum*. See VAPOUR, and BATH.

ÆS *Uſtum*, called alſo *Crocus Veneris*, a Chymical Preparation, made of Copper cut into thin Plates, put into a Crucible with Sulphur and Salt, *ſtratum ſuper ſtratum*, and thus ſet in a hot Charcoal Fire, till the Sulphur be conſumed. See CROCUS, COPPER, VENUS, &c.

It is very deterſive; and is uſed for eating off dead Fleſh. They who make this uſe of it, are to heat it red hot in the Fire nine times; and quench it as often in Linſeed Oil. See EPULOTIC.

ÆTHER, is uſually underſtood of a thin, ſubtile Matter, or Medium, much finer and rarer than Air; which commencing from the Limits of our Atmoſphere, poſſeſſes the whole heavenly Space. See HEAVEN, WORLD, &c.

The Word is *Greek*, αἰθὴρ, ſuppoſed to be form'd from the Verb αἴθειν, *to burn, to flame*; ſome of the Antients, particularly *Anaxagoras*, ſuppoſing it of the Nature of Fire. See FIRE.

The Philoſophers cannot conceive that the largeſt Part of the Creation ſhould be perfectly void; and therefore fill it with a Species of Matter under the Denomination of *Æther*.—But they vary extremely as to the Nature and Characters of this *Æther*.

Some conceive it as a Body *ſui generis*, appointed only to fill up the Vacuities between the heavenly Bodies; and therefore confined to the Regions above our Atmoſphere.—Others ſuppoſe it of ſo ſubtile and penetrating a Nature, as to pervade the Air, and other Bodies; and poſſeſs the Pores and Intervals thereof.—Others deny the Exiſtence of any ſuch ſpecifick Matter; and think the Air it ſelf, by that immenſe Tenuity and Expanſion it is found capable of, may diffuſe it ſelf thro' the interſtellar Spaces, and be the only Matter found therein. See AIR.

In effect, *Æther*, being no Object of our Senſe, but the mere Work of Imagination, brought only upon the Stage for the ſake of Hypotheſis, or to ſolve ſome Phænomenon, real or imaginary; Authors take the Liberty to modify it how they pleaſe.—Some ſuppoſe it of an elementary Nature, like other Bodies, and only diſtinguiſh'd by its Tenuity, and the other Affections conſequent thereon: which is the *Philoſophical Æther*.—Others will have it of another Species, and not Elementary; but rather a ſort of fifth Element, of a purer, more refined, and ſpirituous Nature than the Subſtances about our Earth; and void of the common Affections thereof, as Gravity, &c. The heavenly Spaces, being the ſuppoſed Region or Reſidence of a more exalted Claſs of Beings; the Medium muſt be more exalted in proportion.—Such is the antient and *popular* Idea of *Æther*, or *Æthereal Matter*. See ÆTHEREAL.

The Term *Æther* being thus embarraſs'd with a Variety of Ideas, and arbitrarily applied to ſo many different things; the later and ſeverer Philoſophers chuſe to ſet it aſide: and in lieu thereof, ſubſtitute other more determinate ones.

Thus, the *Carteſians* uſe the Term *Materia Subtilis*; which is their *Æther*: And Sir *I. Newton*, ſometimes, a *Subtile Spirit*, as in the Cloſe of his *Principia*; and ſometimes a *Subtile* or *Æthereal Medium*; as in his *Opticks*.

The Truth is, there are abundance of Conſiderations, which ſeem to evince the Exiſtence of ſome Matter in the Air, much finer than the Air it ſelf.—There is an unknown ſomething, which remains behind when the Air is taken away; as appears from certain Effects which we ſee produced *in Vacuo*.—Heat, Sir *I. Newton* obſerves, is communicated thro' a Vacuum, almoſt as readily as thro' Air: But ſuch Communication cannot be without ſome interjacent Body, to act as a Medium. And ſuch Body muſt be ſubtile enough to penetrate the Pores of Glaſs; and may be very well concluded to permeate thoſe of all other Bodies; and conſequently be diffuſed thro' all the Parts of Space: Which anſwers to the full Character of an *Æther*. See HEAT.

The Exiſtence of ſuch Æthereal Medium being ſettled; that Author proceeds to its Properties; inferring it to be not only rarer and more fluid than Air, but exceedingly more elaſtick, and active: In Virtue of which Properties, he ſhews, that a great part of the Phænomena of Nature may be produced by it.—To the Weight, *e. g.* of this Medium, he attributes Gravitation, or the Weight of all other Bodies; and to its Elaſticity, the elaſtick Force of the Air, and of nervous Fibres, and the Emiſſion, Refraction, Reflection, and other Phænomena of Light; as alſo, Senſation, Muſcular Motion, &c.—In fine, this ſame Matter ſeems the *Primum Mobile*, the firſt Source or Spring of phyſical Action in the modern Syſtem.—*See further under the Article Subtile* MEDIUM, ATTRACTION, GRAVITATION, REFRACTION, REFLECTION, &c. ſee alſo FIBRE, *Muſcular* MOTION, &c. ſee alſo NEWTONIAN *Philoſophy*, &c.

The *Carteſian Æther* is ſuppoſed not only to pervade, but adequately to fill all the Vacuities of Bodies; and thus to make an abſolute Plenum in the Univerſe. See *Materia* SUBTILIS; ſee alſo PLENUM; ſee alſo CARTESIANISM, &c.

But Sir *I. Newton* overturns this Opinion, from divers Conſiderations; by ſhewing, that the Celeſtial Spaces are void of all ſenſible Reſiſtance: For, hence it follows, that the Matter contained therein, muſt be immenſely rare, in regard the Reſiſtance of Bodies is chiefly as their Denſity; ſo that if the Heavens were thus adequately fill'd with a Medium or Matter how ſubtile ſoever, they would reſiſt the Motion of the Planets and Comets much more than Quickſilver, or Gold. See RESISTANCE, VACUUM, PLANET, COMET, &c.

ÆTHEREAL, ÆTHEREUS, ſomething that belongs to *Æther*, or is of the Nature of *Æther*. See ÆTHER.

Thus, we ſay, the *Æthereal* Space; *Æthereal* Regions, &c.—Some of the Antients divided the Univerſe, with reſpect to the Matter contain'd therein, into *Elementary* and *Æthereal*. See UNIVERSE, and ELEMENTARY.——Under *Æther*, or the *Æthereal* World, was included all that Space above the upper Element, *viz.* Fire. This they ſuppoſed to be perfectly, homogeneous, incorruptible, unchangeable, &c. See CORRUPTION, &c.

'Twas a Point controverted among 'em, Whether or no the *Æthereal* Matter had the Property of Gravity?——Many late Philoſophers, not only at home but abroad, contend for its Gravity; and even for its being the Cauſe of Gravity in all other Bodies.—In effect, ſays *Chauvin*, Bodies do not deſcend by any inherent Principle; but by the Impulſe or Truſion of ſomething external: which can be nothing but Æther; in regard they fall *in Vacuo* as readily, nay more ſo, than in open Air: From the ſame Principle ariſes the Cohesion of Bodies, &c. *Lexic. Philoſoph. Voc. Æther*. See MEDIUM.

ÆTHEREAL *Oil*, is a fine, ſubtile Oil, approaching nearly to the Nature of a Spirit. See OIL.

Thus, the pure Liquor riſing next after the Spirit, in the Diſtillation of Turpentine, is called the *Æthereal Oil* of Turpentine. See TURPENTINE.

Some Chymiſts diſtinguiſh two Principles in Urine; the one a volatile urinous Salt, reſembling Spirit of Nitre; the other an *Æthereal Oil*, or *Sulphur*; partaking of the Nature of Spirit of Wine. *Dionis*. See URINE.

ÆTHEREAL *Heaven*. See *Æthereal* HEAVEN.

ÆTHIOPS *Mineral*, a Preparation of Mercury, made by grinding equal Quantities of crude Quickſilver and Flower of Sulphur, in a Stone or Iron Mortar; till they become incorporated into a black Pouder. See MERCURY.

It is preſcribed for the Worms, and all Crudities and Acrimony of the Humours; and is reputed infallible againſt the Itch, and other cutaneous Diſeaſes.

AETIANS, AETIANI, in Antiquity, a Sect or Branch of *Arians*, the Diſciples of *Aetius* of *Antioch*, ſirnamed the *Impious*; who, according to *Philaſtrius*, was firſt Smith, then Sophiſt, and laſtly Phyſician. See ARIAN.

The *Aetians* had divers other Denominations; as, *Pure Arians*, *Eunomians*, *Heteroufians*, *Troglodytes*. See EUNOMIANS, HETEROUSIAN, &c.

ÆTIOLOGY, Ætiologia, a Rationale, or Discourse of the Cause of a Disease. See Disease.

In this Sense, we say, the *Ætiology* of the Small Pox, of the Hydrophobia, of the Gout, the Dropsy, &c. See Hydrophobia, Pox, Gout, Dropsy, &c.

The Word is compounded of the *Greek* αιτια, *Cause*, and λογος, *Sermo*, *Discourse*.

ÆTITES, in Natural History, the *Eagle-Stone*. See Eagle-*Stone*.

The *Ætites*, or *Lapis Ætites*, is a kind of Stone, vulgarly said to be found in the Eagle's Nest; but this, as well as many of the Virtues ascrib'd to it, seem to be fabulous.—It is found under ground in several Parts: Near *Treves* in *France*, one can scarce dig a few Feet, without finding considerable Strata or Beds hereof.

'Tis usually hollow, and has a kind of Core or Kernel in it, which, upon shaking, rattles: Some have two, and others three such Cores.

It is found of various Forms, and Sizes; but its Texture or Consistence is pretty uniform; consisting of two or three Lays or Coats of a Matter resembling baked Earth: Especially the innermost.—They are originally soft, and of the Colour of yellow Oker.

Dioscorides says, it is of use in discovering a Thief; for by mixing it with his Meat, he'll be unable to swallow it.—*Matthiolus* informs us, that Birds of Prey never hatch their young without this Stone; and that they seek it as far as the *Indies*.

The Use now made of the Stone, is to assist Women in Labour; to which end, they fasten it about the Knee: it being a Tradition, that according as it is applied above or below the Matrix, it has the Faculty of retaining or excluding the Child. See Delivery.

Hence, it is sometimes directed to be bore about the Arm to prevent *Abortion*. See Abortion.

The Word is form'd of the *Greek* αετος, *Aquila*, Eagle.

AFFECTION, Affectio, in Physicks, a Quality or Property of some natural Being. See Quality, and Property.

The Schoolmen define *Affection* an Attribute proper to any Being, arising from the Essence thereof. See Attribute, Proper, &c.

Affections are distinguish'd into those of *Body*, and those of the *Mind*.

Affections *of Body*, are certain Modifications thereof; occasioned or induced by Motion; in Virtue whereof, the Body comes to be so and so disposed. See Body, Matter, Motion Modification, &c.

These are subdivided into *Primary*; as, *Quantity*, *Figure*, *Motion*, *Place*, *Quality*, and *Time*: and *Secondary*, as *Divisibility*, *Continuity*, *Impenetrability*, *Regularity*, *Health*, *Strength*, &c. See each under its proper Article.

Affections *of Mind*, are what we more usually call *Passions*. See Passion.

Mechanical Affections. See Mechanical *Affection*.

Affection is peculiarly used in Medicine, for a morbid or disorderly State of a Part.—Thus, we say, such a Part of the Body is *affected*, *i. e.* indisposed, or seized with a Disease. See Disease.

The Sick are frequently mistaken as to the Place *affected*, by means of the Consent between the several Parts, which makes a Diforder in one Part be felt in another. See Consent.

Hypocondriacal Affection, *Hysterical* Affection, &c. See Hypocondriacal, Hysteric, &c.

Affection is someimes also used in a Legal Sense, for the assigning, making over, pawning, or mortgaging a thing, to assure the Payment of a Sum of Money, or the Discharge of some other Duty or Service.—His Effects were all *affected* to his Creditors.—The Revenues of such a Benefice, of such an Hospital, are *affected* to the Payment of Pensions, to the Support of Orphans.—There are certain Duties and Privileges *affected* to certain Offices, &c.

AFFEERORS, Afferatores, in Law, are those appointed in Court-Leets, upon Oath, to settle and moderate the Fines of such as have committed Faults arbitrarily punishable, or which have no express Penalty set down by Statute. See Fine, &c.

The Word is form'd of the French *Affier*, to affirm; by reason those appointed to this Office, do affirm upon their Oaths, what Penalty they think in Conscience the Offender hath deserved.

Kitchin joins the three Words as Synonymas; *Affidati*, *Amerciatores*, *Affirares*. *Bracton* has *Affidari Mulierem*, to be betrothed to a Woman.—In the Customary of *Normandy*, the Word *Affeure*, is render'd by the *Latin* Interpreter *Taxare*, to set the Price of a thing; as *Æstimare*, *Indicare*, &c.

AFFERI, in Law. See Averia.

AFFIANCE, in Law, the plighting of Troth, between a Man and a Woman; upon an Agreement of Marriage to be had between 'em. See Marriage, and Affinity.

AFFIDATIO *Dominorum*, an Oath taken by the Lords in Parliament; thus called in the *Rot. Parl.* Hen. VI. See Oath, and Parliament.

AFFIDATUS, or Affidiatus, in our Law-Books, a Tenant by Fealty: Also a Retainer. See Tenant, and Retainer.

——Affidati *non proprie Vassali sunt sed quasi Vassali, qui in alicujus fidem & clientelam sunt recepti, recommendati dicti.* Laurentii Amalthæa. *Affidatio accipitur pro mutua fidelitatis connexione, tam in sponsaliis, quàm inter Dominum & Vassallum. Proles de* Affidata *& non Maritata, non est hæres.* MS.

AFFIDAVIT, an Oath in Writing, sworn before some Person who hath Authority to take such Oath; and made use of, and read in Court, upon Motions, but not upon Trials. See Oath, Evidence, Witness, &c.

In the Court of Chancery is an *Affidavit Office*; under the Direction of a *Master*. See Chancery, &c.

AFFINAGE, is sometimes used in antient Law-Books, for the Refining of Metals. See Refining.

AFFINITY, Affinitas, an Alliance, or Relation made between two Families, by Marriage. See Alliance, and Marriage.

In this Sense, the Word stands contradistinguish'd to Consanguinity; which is a Relation by Blood. See Consanguinity.

In the *Mosaical* Law, there are several Degrees of *Affinity*, wherein Marriage is expresly prohibited; which yet seem not at all prohibited by the Law of Nature.——Thus, *Levit.* C. XVIII. ver. 16. a Man was forbid to marry his Brother's Widow, unless he died without Issue; in which Case, it became enjoined as a Duty. So it was forbid to marry his Wife's Sister, while she was living, *v.* 18. which was not forbidden before the Law, as appears from the Instance of *Jacob*.

The antient *Roman* Law is silent on this Head; and *Papinian* is the first who mentions it; on occasion of the Marriage of *Caracalla*.—The Lawyers who came after him, stretch'd the Bonds of *Affinity* so far, that they plac'd Adoption on the same Foot with Nature. See Adoption.

Affinity, according to the modern Canonists, renders Marriage unlawful to the fourth Generation, inclusive: But this is to be understood of direct *Affinity*; and not of that which is secondary, or collateral.—*Affinis mei affinis, non est affinis meus.* See Direct, and Collateral.

It is further to be observ'd, that this Impediment of Marriage, does not only follow an *Affinity* contracted by lawful Matrimony, but also that contracted by a criminal Commerce; with this difference, that this last does not extend beyond the second Generation; whereas the other, as has been observ'd, reaches to the fourth. See Adultery, Concubine, Fornication, &c.

The Canonists distinguish three Species of *Affinity*.——The first, that contracted between the Husband and the Relations by Blood of his Wife; and between the Wife, and the Relations by Blood of her Husband. The second, between the Husband, and those related to his Wife by Marriage; and the Wife, and those so related to her Husband. The third, between the Husband, and the Relations of his Wife's Relations; and the Wife, and the Relations of her Husband's Relations.—By the IVth Council of the *Lateran*, held in 1213, it was decreed, That none but the first Kind was any real *Affinity*; the rest being mere Refinements, which ought to be set aside. *Tit. de Consang. & Affin.*

The Degrees are reckon'd after the same manner in *Affinity*, as in Consanguinity; and therefore differently in the Canon Law from what they are in the Civil Law. See Degree.

The Word is form'd of the Latin *Affinis*, Neighbour; of *ad*, and *finis*, Boundary, Limit.

The *Romanists* talk of a spiritual *Affinity*, contracted by the Sacrament of Baptism and Confirmation.——In that Church, a God-father may not contract Marriage with his God-daughter, without a Dispensation. See God-father, Baptism, &c.

AFFIRM, in Law.—To *affirm*, signifies to ratify, or confirm a former Law, or Judgment.—In the like Sense, is the Substantive *Affirmance* used. See Affirmation.

AFFIRMATION, Affirmatio, a positive Proposition, alledging the Truth of something. See Proposition, and Truth.

Affirmation is defined by the Logicians, an Act whereby we attribute one Idea to another; as supposing it to belong, or agree thereto.—As when, conceiving Perfection to agree to the Deity, we say, *God is perfect*. See Attribute.

This, on other Occasions, is called *Enunciation*, *Composition*, *Judging*, &c. See Enunciation, Composition, Judgment, &c.

Affirmation is also used in Grammar, by some late Refiners upon that Art, for what is usually call'd a Verb; in regard the Office of that Part of Speech, is to express what we *affirm*, or attribute to any Subject. See Verb.

Affir-

Affirmation, is particularly used in a Legal Sense, for a solemn Form of attesting the Truth; allow'd to be used by the Quakers, instead of an Oath, which they hold absolutely unlawful. See Quaker, and Oath.

This People, by their Refusal of all Oaths, lay liable to much Trouble; particularly for declining the Oath of Allegiance, in the Time of King *Charles* II.—But by an Act pass'd *Anno* 1689, it was decreed, That their solemn *Declaration* of Allegiance and Fidelity, should be accepted instead of an Oath. See Declaration, and Allegiance.

In 1695, they also obtained, by a Temporary Act, that their solemn *Affirmation* should be accepted in all Cases where an Oath is by Law requir'd; except in Criminal Cases, upon Juries, and in Places of Profit and Trust under the Government.——In this form:

I, A. B. *do declare, in the Presence of Almighty God, the Witness of the Truth of what I say*, &c.

This Act was afterwards continued; and at last made Perpetual.—But this Form not being such as was desir'd, and having, in reality, all the Essentials of an Oath; they applied to the Parliament for an Alteration, which they obtained *Anno* 1721: When the following Form was settled to their general Satisfaction, *viz.*

I, A. B. *do sincerely, solemnly, and truly declare, and* affirm.

Which is the Form now used, in the same manner, and under the same Limitation with the former.—Any Person deposing, upon his solemn *Affirmation*, a known Falsehood, incurs the Penalty of wilful and corrupt Perjury. See Perjury.

AFFIRMATIVE, in Logick, &c. is understood of a Proposition, or the like, which imports an *Affirmation*; or that says, A thing is. See Affirmation.

In this Sense, the Word stands opposed to Negative. See Negative.

There are universal *Affirmative* Propositions; and such, usually are the first of Syllogisms. See Universal, Syllogism, &c.

In Algebra we have also *Affirmative or Positive Quantities*. See Quantity, and Positive.

Affirmative *Sign*, or *Character*. See Character.

In Grammar, Authors distinguish *Affirmative Particles*: Such is, *Yes*. See Particle, Adverb, &c.

The Term is sometimes also used Substantively.——The *Affirmative* is the more probable side of the Question: There were so many Votes or Voices for the *Affirmative*. See Vote.

Affirmative is particularly applied in the *Roman* Inquisition, to such Hereticks as own the Errors and Opinions they are charged withal; and maintain the same in their Examination with Firmness and Resolution. See Inquisition.

AFFORCIAMENTUM, in Law. See Efforcement.

AFFORESTING, Afforestatio, the turning Ground into Forest. See Forest.

In this Sense, the Word stands opposed to *Deafforesting*. See Deafforesting.

The Conqueror, and his Successors, continued *afforesting* the Lands of the Subject, for many Reigns; till the Grievance became so notorious, that the People, of all Degrees and Denominations, were brought to sue for Relief; which was at length obtain'd, and Commissions granted to survey and perambulate the Forest, and separate all the new *afforested* Lands; and re-convert them to the Uses of their Proprietors, under the Name and Quality of *Purlieu*, or *Pourellee Land*. *See further under the Article* Purlieu.

AFFRAY, or Affrayment, in Law, an Affright put upon one, or more Persons.

This, according to the Lawyers, may be done without a Word spoke, or a Blow struck.—As, where a Man shews himself arm'd or brandishes a Weapon, it may strike a Fear into others unarm'd.

Affray is a common Injury; in which it differs from an *Assault*, which is always a particular Injury. See Assault.

AFFREIGHTMENT, or Affretament, Affretamentum, in Law, signifies the Freight of a Ship. See Freight.

The Word is form'd from the French *Fret*, which expresses the same thing.

AFFRONTE', in Heraldry, is understood of Animals bore in an Escutcheon, as facing, or with their Heads turn'd toward each other.—This is otherwise called *Confronté*.

The Word is *French*; and literally signifies the same thing.

AFILIATION. See Adoption.

Among the antient *Gauls*, *Afiliation* was a sort of Adoption only practis'd among the Great.—It was perform'd with Military Ceremonies: The Father presented a Battle-ax to the Person he was to adopt for his Son; as an Intimation that he was to preserve the Effects he thus call'd him to succeed to, by Arms.

AFRICAN *Company*. See Company.

AFRICANUS, a Quality or Sirname, given to several Persons, in respect of the Country of *Africa*. See Title, Quality, Name, Sirname, &c.

P. Cornelius Scipio had the Appellation *Africanus* bestow'd on him, from his taking and demolishing the City of *Carthage*, and thus ridding the *Romans* of so formidable an Enemy.—In some Medals we find *Scipio*'s Head on one side, with the Inscription, P. SCIPIO AFRIC; and on the other, *Scipio* in a Carr drawn by Horses; with CART. SUBACT.

Africanus is also the Sirname of a celebrated Historian and Chronologist of the IIId Century, born in *Palestine*; of whom we have nothing extant beside a few Fragments, preserv'd in *Eusebius* and *Syncellus*.—His Name was *Julius Africanus*.——Authors frequently confound him with *Sextus*, or *Cestus Africanus*.

AFTER-Birth, among Midwives, the Coat or Membranes wherein the Fœtus is enclosed, *in Utero*. See Foetus.

It is thus called, by reason it comes away some time *after* the Fœtus; by way of a second Birth, or Delivery. See Delivery.

Physicians usually call it the *Secundines*. See Secundine.—See also Heam, &c

After-*Pains*, are Pains felt in the Loins, the Groin, &c. after the Birth is brought away. See Delivery.

They seem to arise from a Distention of the Ligaments of the *Uterus* in time of Delivery; and are seldom dangerous, unless aggravated by a Detention of the Lochia.—To prevent 'em, Oil of sweet Almonds, Sperma Ceti, Capillus Veneris, &c. are usually prescribed.

After *Math*, among Husbandmen, the *After*-Grass, or second Mowings of Grass; or else Crass or Stubble cut after Corn.

AGA, in the Language of the *Mgols*, &c. signifies a *powerful Man*, or a *Lord* and *Commander*.

In this last Sense, the Term is also used among the *Turks*: Thus, the *Aga of the Janizaries*, is their Colonel; and the *Capi-Aga*, the Captain of the Gate of the Seraglio. See Janizary, Capi-Aga, &c.

The Title *Aga* is also given by way of Courtesy, to several Persons of Distinction; tho not in any Office or Command to entitle 'em to it.

On some Occasions, in lieu of *Aga*, we say, *Agassi*: Thus, the *Aga* or Governour of the Pages, is called *Capi-Agassi*; and the *Aga* or General of the Horse, *Spahilar Agassi*. See Page, Oda, Spahi, &c.

AGAI, Agio, in Matters of Commerce, a Term used, chiefly in *Holland*, and at *Venice*, for the Difference between the Value of Bank-Notes, and current Money. See Bank.

The *Agio* in *Holland* is sometimes 3, or even 4 *per Cent.* in favour of the Bank-Notes. See Discount.

AGAPÆ, in Church History, *Love-Feasts*; a Name given to certain Festivals, celebrated in the antient *Greek* Church, to keep up a Harmony and Concord among its Members. See Feast.

The Word is form'd of the *Greek* αγαπη, *Dilection*; of αγαπαω, *I love*.

In the primitive Days they were held without Scandal, or Offence; but in after-Times, the Heathens began to tax them with Impurity.—This gave occasion to a Reformation of these *Agapæ*.

The Kiss of Charity, with which the Ceremony had ended, was no longer given between different Sexes; and it was expressly forbidden to have any Beds or Couches, for the Conveniency of those who should be dispos'd to eat more at their Ease.

Notwithstanding these Precautions, the Abuses committed in them became so notorious; that they were solemnly condemn'd at the Council of *Carthage*.

Some Criticks will have it to be these *Agapæ* that St. *Paul* speaks of, 1 *Cor.* ch. XI, under the Name of the *Lord's Supper*; which, they contend, was not the Eucharist, but a Feast accompanying it; held by the Christians of those Times, in commemoration of our Saviour's instituting that Sacrament, in his Supper with the Apostles.—The Text seems to intimate, that the Feast was held before the Communion; but by an Ordinance afterwards made, they were oblig'd to communicate fasting; so that the *Agapæ* were postpon'd till the Sacrament was over.

Some Authors imagin'd this Ceremony to have been, not a Commemoration of our Saviour; but a Custom borrow'd from the Heathens: *Mos vero ille, ut referunt*, says *Sedulius* on the XIth Chapter of the Epistle to the *Corinth. de Gentili adhuc superstitione veniebat*. And *Faustus* the *Manichee* is represented in St. *Augustin*, as reproaching the Christians, with converting the Heathen Sacrifices into *Agapæ*: *Christianos sacrificia Paganorum convertisse in Agapas*.

AGAPETÆ, in Ecclesiastical History, *Well-beloved*; a Name given to certain Virgins, who in the antient Church associated themselves with Ecclesiasticks, out of a Motive of Piety and Charity.

In the primitive Days, there were Women instituted Deaconesses; who devoting themselves to the Service of the Church, took up their abode with the Ministers, and assisted them in their Functions. See DEACON.

In the Fervour of the primitive Piety, there was nothing scandalous in these Societies: But they afterwards degenerated into Libertinism; insomuch, that St. *Jerom* asks, with Indignation, *unde* Agapetarum *pestis in ecclesias introiit*? This gave occasion to Councils to suppress them.——St. *Athanasius* mentions a Priest named *Leontius*, who, to remove all occasion of Suspicion, offer'd to mutilate himself, to preserve his Companion.

AGARIC, or *Fungus* AGARICI, in Pharmacy, a kind of fungous Excrescence growing on the Trunks, and large Branches of several Trees; but chiefly on the Larch-Tree, and certain Oaks. See FUNGUS.

Dioscorides derives its Name from a Province of *Sarmatia*, called *Agaria*; whence it was first brought.—Several Authors, and among the rest, *Galen*, take it for a Root; but the common Opinion is for its being of the Mushroom kind. —It is brought from the *Levant*.

It is white, light, tender, brittle, of a bitter Taste, pungent, and a little Styptic.—This is what the Antients call'd the *Female Agaric*: As for the Male, it is usually yellowish and woody; and is generally excluded out of Physick, being only used in Dying.

Agaric was a Medicine in mighty use among the Antients; not only for the purging of Phlegm, but in all Distempers proceeding from gross Humours and Obstructions; as the Epilepsy, Madness, Asthma, &c.—Yet they complain'd, that it weaken'd the Bowels, and purg'd too violently.

They had divers Correctors for it; chiefly of the Aromatic kind: But Dr. *Quincy* says, the best way is to banish it for good, as the present Practice has almost done: for that it rather makes People sick, than purges them; being very nauseous, and but little cathartic. See PURGATIVE.

By a chymical Solution, it passes almost wholly into Oil: It yields no volatile Salt; but abounds with a sort of scaly Earth, and an acid Phlegm.

We read of *Pillulæ de Agarico*, and *Troches of Agaric*: but they are disused.

Some Authors also mention a *Mineral Agaric*; which is a whitish Stone, found in the Clefts of Rocks in *Germany*; called also *Lac Lunæ*, and by some Naturalists, *Lithomagra*, and *Stenomagra*. See LAC *Lunæ*.

AGAT, ACHATES, in Natural History, a precious Stone, partly transparent, and partly opake. See PRECIOUS *Stone*, and GEM.

The first *Agats* were said to have been found in *Sicily*, along the Banks of the River *Achates*; whence, some will have it, the Name is deriv'd.

There are various Kinds of *Agats*; which, according to their different Colours, degrees of Transparency, &c. have different Names.—The principal may be reduc'd to these four, *viz.* the *Onyx*, the *Chalcedony*, the *Black*, and the *German Agats*. See ONYX, and CHALCEDONY.

The *Agat* has ordinarily a reddish Teint; but is finely variegated with Spots and Stains; many of which seem very naturally to represent Woods, Rivers, Trees, Animals, Fruits, Flowers, &c.—*De Boot* mentions one, of the Size of a Nail, wherein a Bishop, with his Mitre, was very well represented: Turning it a little, a Man and Woman's Head were seen in its Place.

The *Sardines*, and *Sardonyx Agats*, are very valuable; the latter is of a sanguine Colour, and is divided into Zones, which seem to have been painted by Art.—*Pliny*, *Strabo*, and *Cicero* say, that *Polycrates*'s Ring was a Sardonyx. See SARDONYX.

Authors also speak of *Roman Agats*, *Egyptian Agats*, *Onyx-sardonyx Agats*, &c.—The Antients mention a red *Agat*, spotted with Points of Gold, found in *Candia*; and called *Sacred*, as being a Preservative against the Poison of Vipers, Scorpions, and Spiders.—*Pliny* has a whole Chapter of the Virtues of *Agats*.

Agat has always been esteem'd for Seals; as being a Stone that no Wax will stick to. See SEAL, ENGRAVING, &c.

The Gold Wire-drawers burnish their Gold with an *Agat*; whence the Instrument made use of on that occasion, is called *Agat*. See GOLD-*Wire*.

Mr. *Boyle* takes *Agats* to have been form'd of separate Beds, or Strata of fine Clay or Earth, brought by a petrifying Liquor to coagulate into a Stone. See GEM.——The same Author observes, that the Fire will purge away the Colours of *Agat*. He also mentions an *Agat* with a moveable Spot or Cloud in it.

AGE, the natural Duration of any thing; and particularly of the Life of Man. See DURATION, and LIFE.

The ordinary *Age* of Mankind has been occasionally varied, in such manner as to afford a fine Instance of the Wisdom of Providence. See the Article LONGÆVITY.

AGE is also used in Chronology, for a *Century*; or a System or Period of an hundred Years; called also *Seculum*. See SECULUM, and CENTURY.

An *Age* differs from a *Generation*. See GENERATION.

AGE is also understood of a certain State or Portion of the ordinary Life of Man; which is divided into four different *Ages*, viz. *Infancy*, *Youth*, *Manhood*, and *Old Age*.

Infancy, or Childhood, *Pueritia*, extends as far as the fourteenth Year. See INFANCY, and CHILDREN.

Youth, Adolescence, or the Age of Puberty, commences at 14, and ends at about 25. See YOUTH, ADOLESCENCE, PUBERTY, &c.

Manhood, or the *Virile Age*, terminates at 50. See VIRILE.

Old Age, *Senectus*, succeeds, which is the last: tho some divide this into two; reckoning it *decrepit Age* after 75. See OLD *Age*.

AGE, in Horsemanship, makes a considerable Point of Knowledge; the Horse being an Animal that remarkably shews the Progress of his Years, by correspondent Alterations in his Body. See HORSE.

We have Characteristicks from his Teeth, Hoofs, Coat, Tail and Eyes. See TEETH, HOOF, &c.

The first Year he has his *Foal's Teeth*, which are only Grinders and Gatherers: The second, the four foremost change, and appear browner and bigger than the rest: The third, he changes the Teeth next to these; leaving no apparent Foal's Teeth, but two on each side above, and two below: The fourth Year, the Teeth next to these are changed, and no Foal's Teeth are left, but one on each side above and below. At five Years, his foremost Teeth are all changed; and the Tushes on each side are compleat: those which come in the Places of the last Foal's Teeth, being hollow, and having a little black Speck in the midst; which is called the *Mark in a Horse's Mouth*, and continues till eight Years of *Age*. See MARK.——At six Years, he puts up new Tushes; near which appears a little Circle of young Flesh, at the bottom of the Tush: the Tushes withal, being white, small, short, and sharp.——At seven Years, the Teeth are all at their growth, and the Mark in the Mouth appears very plain.—At eight, all his Teeth are full, smooth, and plain, and the Mark scarce discernable; the Tushes looking yellowish.—At nine, the foremost Teeth shew longer, yellower, and fouler than before; and the Tushes become bluntish.—At ten, no Holes are felt on the inside of the upper Tushes; which till then are very sensible: Add, that the Temples begin to be crooked, and hollow.—At eleven Years, his Teeth are very long, yellow, black, and foul; but he will cut even, and his Teeth stand directly opposite to one another.—At twelve, the upper Teeth hang over the nether.—At thirteen, the Tushes are worn close to his Chaps, if he have been much ridden; otherwise they will be black, foul, and long.

2°, As to the *Hoof*.——If it be smooth, moist, hollow, and well-founding, 'tis a Sign of Youth: On the contrary, if rugged, and as it were seamed, one Seam over another, and withal dry, foul, and rusty, 'tis a Mark of *Old Age*.

3°, For the *Tail*.——Taking him by the Stern thereof, close at the setting on to the Buttock, and griping it between the Finger and Thumb; if a Joint be felt to stick out more than the rest, the bigness of a Nut, the Horse is under ten: but if the Joints be all plain, he may be fifteen.

4°, The *Eyes* being round, full, and staring; the Pits that are over 'em filled, smooth, and even with his Temples; and no Wrinkles to be seen, either under or above: is a Mark of *Youth*.

5°, The Skin being pluck'd up in any Part betwixt the Finger and Thumb, and let go again; if it return suddenly to its Place, and remain without Wrinkles, he may be argued to be young.

6°, A dark-colour'd Horse, growing grisly above the Eyebrows, or under the Main; or a whitish Horse growing meanelled, either white or black, all over; may be infallibly concluded extremely aged.

Lastly, a Horse being young, the Bars of his Mouth are soft and shallow; otherwise they are deep, and feel hard and rough.

AGE, in Hunting.—Deer, and other Beasts of Game, have different Denominations, according to their *Age*; which see under the Article HUNTING.

The first Head, called in fallow Deer, *Broches*, and in red Deer, *Pricks*, does not come till the second Year of their *Age*: The next Year, they bear four or six small Branches: the fourth Year, eight or ten; the fifth, ten or twelve; the sixth, fourteen or sixteen; the seventh Year, they bear their Heads beam'd, branch'd, and sum'd, as much as ever they will be.

The

The *Age* of a Hart, &c. is chiefly judg'd of by the Furniture of his Head. See HEAD.

The Huntsmen have several other Marks, whereby to know an old Hart without seeing him; as, the Slot, Entries, Abatures, Foils, Fewmets, Gate, and Fraying Post. See HUNTING.

AGE *of the Moon*, in Astronomy, is understood of the Number of Days elapsed since the last Conjunction, or New Moon; called also her *Quarter*. See CONJUNCTION, QUARTER, &c.

To find the Moon's AGE. See MOON.

AGE, in Chronology.——The *Age* of the World, is the Time pass'd since the Creation. See CREATION.

The several *Ages* of the World, may be reduc'd to these three grand Epocha's, *viz.* the *Age* of the Law of Nature, from *Adam* to *Moses*.—The *Age* of the *Jewish* Law, from *Moses* to Christ.—And the *Age* of Grace, from Christ to the present Year.

The first *Age*, according to the *Jews*, consisted of 2447 Years; according to *Scaliger*, of 2452; and according to *Usher*, of 2513.—The second *Age*, according to the *Jews*, consisted of 1512 Years; according to *Scaliger*. of 1508; and according to *Usher*, of 1491.—Of the third *Age*, there have elapsed 1726 Years; tho this, too, is controverted by Chronologers.

Petavius will have our Saviour to have been born four Years before the vulgar Epocha; on which footing, the current Year should be 1730; according to *Capella*, 1731; according to *Baronius* and *Scaliger*, 1728. See NATIVITY.

The *Romans* distinguish'd the Time that preceded them into three *Ages*: The *obscure* or *uncertain Age*, which reach'd down as low as *Ogyges* King of *Attica*; in whose Reign the Deluge happen'd in *Greece*.—The *fabulous*, or *heroic Age*, which ended at the first Olympiad: And the *historical Age*, which commenc'd at the Building of *Rome*. See FABULOUS, HEROIC, HISTORICAL, &c.

Among the Poets, the four *Ages* of the World, are the *Golden*, the *Silver*, the *Brazen*, and the *Iron Age*. See the *Metamorphosis* of *Ovid*, Lib. I. or rather, *Hesiod* in his Poem Ἔργα καὶ ἡμέραι, *Opera & Dies*, ver. 108, &c. He is the first that has described the four *Ages*, and the best.

The *East Indians* also reckon four *Ages* since the Beginning.—The first, which they represent as a sort of Golden *Age*, lasted, according to them 1728000 Years: In this the God *Brahma* was born; and the Men were all Giants; their Manners innocent: They were exempt from Diseases, and lived 400 Years.—In the second *Age*, which lasted 1296000, their *Rajas* were born: Vice now crept into the World; Mens Lives were fallen to 300 Years, and their Size retrench'd proportionally.—Under the third *Age*, which lasted 8064000 Years, Vice being increas'd, Men only attain'd to 200 Years.—The last *Age* is that wherein we now live, of which 4027195 Years are already gone; and the Life of Man sunk to one fourth of its original Duration.

AGE, in Law, is particularly understood of a certain State or Time of Life, wherein a Person is qualified to do something, which before, for want of Years, and consequently Discretion, they could not. See MAJOR, MINOR, &c.

There are two principal *Ages* in a Man: At fourteen, he is at the *Age of Discretion*; at twenty one Years, at *full Age*.

In a Woman, there were antiently six *Ages* observ'd: At seven Years, her Father might distrain the Tenants of his Manor for aid to marry her; for at those Years she may consent to Matrimony. *Bracton*.——At nine Years old she is dowable; for then, or within half a Year after, she is said to be able *promereri dotem & virum sustinere*. *Fleta*.——At twelve Years, she is able finally to ratify and confirm her former Consent to Matrimony.—At fourteen, she may take her Lands into her own Hands; and should be out of Ward, if she were at this *Age* at her Ancestor's Death.—At sixteen, she should be out of Ward; tho at the Death of her Ancestor she was under fourteen: The Reason is, that then she might take a Husband able to perform Knight's-Service.—At twenty one Years, she may alienate Lands and Tenements.

For a Man; at the *Age* of fourteen he may chuse his own Guardian, and claim his Lands held in Soccage. *Dyer*, fol. 162. tho *Bracton*, Lib. II. limits this to fifteen Years; with whom *Glanville* agrees.—At fourteen, a Man may consent to Marriage, as a Woman at twelve.—At fifteen he ought to be sworn to the Peace, *An.* 24 *Edw.* I. Stat. 3.——At the *Age* of twenty one, a Man was oblig'd to be a Knight, if he had twenty Pounds Land *per Annum* in Fee, or for Term of Life, *Anno* 1 *Edw.* II. Stat. 1. But this Statute is repealed, 17 *Car.* I. cap. 10.——The same *Age* also enables him to make Contracts, and manage his own Estate; which, till that time, he cannot do with Security of those that deal with him.

The *Age* of twelve Years, binds to Appearance before the Sheriff and Coroner, for Inquiry after Robberies, *Anno* 52 *Hen.* III. cap. 14.—The *Age* of twenty four Years enabled a Man to enter an Order of Religion, without Consent of Parents, *Anno* 4 *Hen.* IV. cap. 17.

AGE *Prier*, a Petition, or Motion made in Court, by one in his Minority; having an Action brought against him for Lands coming to him by Descent; requesting, that the Action may rest till he come to full *Age*.—This, the Court, in most Cases, ought to grant.

It is otherwise in the Civil Law; which obliges Children in their Minority to answer by their Tutors, or Curators. See TUTOR, CURATOR, MINORITY, PUPIL, &c.

AGEMOGLANS, or AZAMOGLANS, Children of *Tribute* rais'd every three Years by the grand Seignior, among the Christians whom he tolerates in his Dominions.

The Commissioners appointed for this Levy, take them by force, even out of the Houses of Christians; always claiming one in three, and pitching upon such as seem the handsomest, and promise to be the most handy.

These are immediately convey'd to *Gallipoli* or *Constantinople*; where they are first circumcis'd, then instructed in the *Mahometan* Faith, taught the *Turkish* Language and the Exercises of War, till such time as they become of Age to bear Arms.

Such as are not judged proper for the Army, they employ in the lowest and most servile Offices of the Seraglio; as in the Kitchen, Stables, &c.

The Word, in its Original, signifies a Barbarian's Child; that is, a Child not a *Turk*.—It is compounded of two *Arabic* Words, אגם *Agem*, and עלאם *Child*; which among the *Turks* signifies as much as *Barbarous* among the *Greeks*; the former People dividing the World into *Arabs* or *Turks*, and *Agem*; as the latter into *Greciens* and *Barbarians*.

AGENT, AGENS, in Physicks, that whereby a thing is done or effected; or that which has a Power whereby it *acts* on another; or by its Action induces some Change in another. See ACT, and ACTION.

The Word *Agent* is used promiscuously with *Efficient*; and in contradistinction to *Patient*. See EFFICIENT, PASSIVE, &c.

The Schools divide *Agents* into *Natural* and *Free*.

Natural or *Physical Agents*, are those immediately determin'd by the Author of Nature, to produce one sort of Effect; with an Incapacity to produce the contrary thereto.—Such is Fire, which only heats, and does not also cool.

Free or *Voluntary Agent*, is that which may equally do any thing, or the opposite thereof; as acting not from any Pre-determination, but from Choice.—Such is the Mind supposed to be; which may either will or nill the same thing. See PRE-DETERMINATION, LIBERTY, WILL, &c.

Natural Agents, again, are subdivided into *Univocal*; which are such as produce Effects of the same Kind and Denomination with the *Agents* themselves: and *Equivocal*, whose Effects are of a different Kind, &c. from the *Agents*. See EQUIVOCAL, and UNIVOCAL.

The Schoolmen reckon the following Circumstances necessary to the Being of an *Agent*, *viz.* That it be contiguous to the Object, distinct from it, have a Power over it, a Sphere of Activity, and a Proportion or Rate of acting.

AGENT, is also used for a Person entrusted with the Management of the Affairs of a Corporation, or private Person: In which Sense, the Word coincides with *Deputy*, *Procurator*, *Commissioner*, *Factor*, &c. See DEPUTY, PROCURATOR, COMMISSIONER, FACTOR, &c.

Among the Officers in the Exchequer, are four *Agents for Taxes*. See TAX, EXCHEQUER, &c.

AGENTS *of Bank and Exchange*, are publick Officers, establish'd in the trading Cities of *France*, to negotiate Matters between Merchants, relating to Bills of Exchange; and the buying and selling of Goods. These amount to what, among us, are called *Exchange-Brokers*. See BROKER, and EXCHANGE.

AGENT *and Patient*, in Common Law, is where a Person does, or gives something to himself; so that he is at the same time both the Doer or Giver, and the Receiver or Party it is done to.—Such is a Woman, when she endows her self with part of her Husband's Inheritance.

AGEOMETRESIA, a Term purely *Greek*, Ἀγεωμετρησία, sometimes used by *English* Writers; denoting a *Want or Defect in point of Geometry*.—*Kepler* not having taught any direct and geometrical Methods of finding certain Matters, in his Elliptic Theory; particularly, the true Anomaly, from the mean: has been charged with *Ageometresia*. See ANOMALY.

AGER *Terræ*, in antient Writers, the same with an *Acre of Land*. See ACRE.

AGGLUTINANTS, AGGLUTINANTIA, in Medicine, a Species of strengthning Remedies, whose Office and Effect is to adhere to the solid Parts of the Body, and thus recruit and supply the Place of what is wore off and wasted in the animal Actions. See MEDICINES, NUTRITION, &c.

These are most of 'em of the glutinous Kind, or such as easily form themselves into Gellies and gummy Consistences; whence the Name *Agglutinant*, which is form'd of *ad*, to, and *gluten*, glue. See GLUE, and AGGLUTINATION.

The Operation and Use of *Agglutinants*, see under STRENGTHENERS.

The principal Simples which come under this Class, are Ising-glass, Olibanum, Gum Arabic, Dragons Blood, Cassia, Sago, Vermicelli, Pulse, Comfrey, Plantain, &c. See ISING-GLASS, GUM, OLIBANUM, DRAGON'S *Blood*, CASSIA, PULSE, &c.

AGGLUTINATION, literally, denotes the Act of joining, or cementing two Bodies together, by means of a proper Gluten, or Glue. See CEMENT, GLUE, &c.

In Medicine, the Term is peculiarly used for the Addition of new Substance; or the giving a greater Consistence to the Animal Fluids, to fit 'em the more for Nourishment. See AGGLUTINANTS; see also ACCRETION, and NUTRITION.

AGGRAVATION, the Act of augmenting a Crime, or the Punishment thereof. See CRIME, and PUNISHMENT.

The Word is compounded of *ad*, to, and *gravis*, heavy, grievous.

In the *Romish* Canon Law, *Aggravation* is particularly used for an Ecclesiastical Censure, threatening an Excommunication after three Admonitions used in vain. See CENSURE.

From *Aggravation*, they proceed to *Re-aggravation*; which is the last Excommunication. See EXCOMMUNICATION.

AGGREGATE, the Sum, or Result of several things *aggregated* or added together. See AGGREGATION, and SUM.

Natural Bodies are *Aggregates*, or Assemblages of Particles or Corpuscles, bound together by the Principle of Attraction. See BODY, PARTICLE, &c.

The Word is form'd of *ad*, to, and *grex*, *gregis*, a Flock, Company.

AGGREGATION, AGGREGATIO, in Physicks, a Species of Union, whereby several things which have no natural Dependence or Connection with one another, are collected together, so as in some Sense to constitute one. See UNION.

Thus, a Heap of Sand, or a Mass of Ruins, are Bodies by *Aggregation*.

In a like Sense, they sometimes say, To be of a Company or Community by *Aggregation*.—An *Aggregation* of several Doctors to the Faculty of Laws.—In *Italy*, *Aggregations* are frequently made of Houses or Families; by Virtue whereof, they all bear the same Name, and Arms.

The Word *Aggregation*, strictly speaking, differs from *Congregation*; in that the former denotes a Coalition of several things in some Sense equal; and the latter an Accession of a less to a more considerable. See CONGREGATION.

AGGRESSOR, in Law, he, of two contending Parties, who makes the first Assault, or Attack; or who began the Quarrel, Encounter, or Difference.—In Criminal Matters, it is first enquir'd who was the *Aggressor*. See ATTACK, &c.

AGILDE, in our antient Customs, a Person so vile, that whoever kill'd him was to pay no Mulct for his Death. See ÆSTIMATIO *Capitis*.

The Word comes from the privative *a*, and the Saxon *Gildan*, *solvere*. See GILD.

AGILITY, AGILITAS, *Nimbleness*; a light and active Habitude, or Disposition of the Members, and Parts designed for Motion. See MUSCLE, and MUSCULAR.

AGILLARIUS, in antient Law-Books, a Hayward, or Keeper of a Herd of Cattle in a common Field.

AGIST, in Law.—To *agist*, signifies to take in, and feed, the Cattle of Strangers, in the King's Forest; and gather the Money due for the same. See AGISTOR.

The Word is also extended to the taking in of other Mens Cattel, in any Man's Ground; at a certain Rate *per* Week.

It is also used metaphorically for a Charge or Burden on any thing.—In this Sense, we meet with *Terræ ad Custodiam Maris Agistatæ*, *i. e.* charged with a Tribute to keep out the Sea. *Seld. Mare Claus.*—So, *Terræ Agistatæ*, are Lands whose Owners are bound to keep up the Sea-Banks. *Spelman.*

The Word is form'd of the French *Giste*, a Bed, or Lying-Place.

AGISTOR, an Officer of the Forest, who takes in the Cattle of Strangers, to feed therein; and receives for the King's Use, all such Tack-Money as becomes due upon that account. See FOREST, and AGIST.

In *English*, they are otherwise called, *Guest-takers*, or *Gist takers*, and made, by Letters Patent, to the Number of four, in every Forest, where his Majesty has any Pannage. See PANNAGE.

Their Function is term'd *Agistment*, and *Agistage*.

AGITATION, AGITATIO, properly signifies *Shaking*; or a reciprocal Motion of a Body this way and that. See MOTION.

The Prophets, Quakers, Pythian Priestesses, &c. were subject to violent *Agitations* of Body, &c. See PROPHET, QUAKER, PYTHIA, &c.

Among Physiologists, the Term is sometimes appropriated to that Species of Earthquake, call'd *Tremor*, or Trembling, *Arietatio*. See EARTHQUAKE.

Among Philosophers, it is chiefly used for an intestine Commotion of the Parts of any natural Body. See INTESTINE.

Thus, Fire is said to *agitate* the minute Particles of Bodies. See FIRE.—Fermentation, and Effervescence, are attended with a brisk *Agitation* of the Particles. See FERMENTATION, EFFERVESCENCE, and PARTICLE.

AGITATION *of Beasts in the Forest*, antiently signify'd the Drift of Beasts in the Forest. See DRIFT, and FOREST.

AGITATORS, in our *English* Affairs, were certain Officers, created by the Army in 1647, to take care of the Interests thereof.

Cromwel leagued himself with the *Agitators*, whom he found to have more Interest than the Council of War.—The *Agitators* undertook to make Proposals relating to the Reformation of Religion and the State.

AGLECTS, AGLETS, or AGLEEDS, among Florists, the Pendants hanging on the Tip-ends of Chives, and Stamina; as in Tulips, Roses, Spike-grass, &c. See CHIVE, STAMINA, &c.

AGNATI, in the Civil Law, a Term used in respect of the Male Descendents of the same Father, in different Lines. See AGNATION.

In this Sense, the Word is contradistinguish'd to *Cognati*. See COGNATI.

AGNATION, AGNATIO, in the Civil Law, the Bond of Consanguinity or Relation between the Male-Descendents of the same Father; as Cognation is the Bond of Relation between all the Descendents of the same Father, both Males and Females. See COGNATION.

The Difference, then, between *Agnation* and Cognation, consists in this, that Cognation is the universal Name, under which the whole Family, and even the *Agnati* themselves are contain'd; and *Agnation* a particular Branch of Cognation, which only includes the Descendents in the Male Line. See CONSANGUINITY.

By the Law of the Twelve Tables, Males and Females succeeded one another; according to the Order of Proximity, and without any regard to the Sex; but the Laws were afterwards chang'd in this respect, by the *Lex Voconia*; and Women were excluded from the Privileges of *Agnation*, excepting such as were within the Degree of Consanguinity, *i. e.* excepting the Sisters of him who died ab-intestate: and it was hence that the Difference between *Agnati* and *Cognati* first took its rise.

But this Difference was again abolish'd by *Justinian*, and the Females were re-instated in the Right of *Agnation*, and all the Descendent's on the Father's side, whether Males or Females, were appointed to succeed each other indiscriminately, according to the Order of Proximity.

Hence, Cognation came to take in all the Relations of the Father; and *Agnation* to be restrained to those of the Mother.

Adoptive Children enjoy'd the Privileges of *Agnation*; which was called *Civil* in their respect, in opposition to the other, which was *Natural*. See ADOPTION.

AGNOITES, or AGNOETES, a Denomination given to certain antient Hereticks, who denied that Christ foreknew the Day of Judgment.

The Word is *Greek*, Ἀγνοῖται; form'd of ἀγνοεω, *Ignoro*, I do not know.

Eulogius, Patriarch of *Alexandria*, ascribes this Heresy to certain Solitaries in the Neighbourhood of *Jerusalem*, who in defence hereof, alledg'd divers Texts of the New Testament, and among others, this of St. *Mark*, C. XIII. ver. 32. "Of that Day and Hour knoweth no Man; no "not the Angels who are in Heaven, nor the Son, but "the Father only."—The same Passage was made use of by the *Arians*; and hence the Orthodox Divines of those Days were induced to give various Explications thereof: Some alledge, that our Saviour here had no regard to his Divine Nature, but only spoke of his Human. Others understand it thus, That the Knowledge of the Day of Judgment does not concern our Saviour consider'd in his Quality of Messiah, but God only. Which is the most natural Explication.

AGNOMEN, among the *Romans*, a kind of Sirname, usually given on occasion of some particular Action, Habit, or other Circumstance of the Bearer. See NAME, and SIRNAME.

Thus, one of the *Scipio's* was named *Africanus*, and the other *Asiaticus*, from the brave Archievements which the one did in *Africa*, and the other in *Asia*.

The *Agnomen* was the third in order of the three *Roman* Names.—Thus, in *Marcus Tullius Cicero*, *Marcus* is the Prænomen, *Tullius* the Nomen, and *Cicero* the *Agnomen*. See NOMEN, PRÆNOMEN, &c.

AGNUS *Castus*, a Shrub, famous among the Antients as a Specific for the Preservation of Chastity, and the preventing of all Venereal Desires, Pollutions, &c.

The *Greeks* call'd it Ἅγνος, *Chast*; to which has since been added the Reduplicative *Castus*, q. d. *Chast*, *chast*.

The *Athenian* Ladies, who made Profession of Chastity, lay upon Leaves of *Agnus Castus*, during the Feasts of *Ceres*. See CEREALIA.

It is reputed a Cooler, and particularly of the Genital Parts; and was antiently used in Physick, to allay those inordinate Motions arising from seminal Turgescences: But it is out of the present Practice. See POLLUTION.

AGNUS *Dei*, a piece of consecrated Paste, of great service in the Church of *Rome*.

The Name literally signifies *Lamb of God*; this being supposed an Image or Representation of the Lamb of God, &c.

They cover it up with a piece of Stuff, cut in form of a Heart, and carry it very devoutly in their Processions.—The *Romish* Priests, and Religious, make a good Penny, by selling these *Agnus Dei's* to some, and presenting them to others.

The Pope consecrates fresh ones once in seven Years, the Distribution whereof, belongs to the Master of the Wardrobe; and they are receiv'd by the Cardinals with a world of Reverence, in their Mitres.—This Ceremony they pretend to derive from an antient Custom of the Church, wherein part of the Paschal Taper, consecrated on Holy Thursday, was distributed among the People, to perfume their Houses, Fields, &c. in order to drive away Devils, and to preserve them from Storms and Tempests. See PASCHAL *Taper*.

The Name *Agnus Dei*, is also popularly given to that Part of the Mass, wherein the Priest, striking his Breast three times, rehearses, with a loud Voice, a Prayer beginning with the Words *Agnus Dei*.

AGON, in Antiquity, Ἀγὼν, q. d. *Combat*; a Dispute or Contention for the Mastery, either in some Exercises of the Body, or the Mind.

There were of these *Agones*, on certain Days, in most of their Feasts, and other Ceremonies, in honour of Gods, or Heroes. See FEAST, and GAME.

There were also *Agones* establish'd expresly, and not attach'd to any other Solemnity.—Such was the *Agon Gymnicus*, at *Athens*; the *Agon Nemæus*, instituted by the *Argi* in the 53d Olympiad; the *Agon Olympius*, instituted by *Hercules*, 430 Years before the first Olympiad. See NEMÆAN, OLYMPIC, &c.

The *Romans* had also *Agones* instituted after the Example of the *Greeks*: The Emperor *Aurelian* establish'd the *Agon Solis*, *Agon* of the Sun; and *Diocletian*, the *Agon Capitolinus*, which was held every fourth Year, after the manner of the Olympic Games.—Hence, the Years, instead of Lustra, are sometimes number'd by *Agones*.

AGON was also an Officer of Sacrifice, whose Business was to strike the Victim. See SACRIFICE, and VICTIM.

The Name was derived hence, that standing ready to give the Stroke, he frequently ask'd *Agon*, or *Agone*? Shall I strike?

The *Agon* was also called *Popa*, *Cultrarius*, and *Victimarius*. See POPE.

AGONALES, in Antiquity, an Epithet given to the *Salii*, consecrated by *Numa Pompilius* to the God *Mars* sirnamed *Gradivus*. See SALII.

They were also called *Quirinales*, and *Palatini*. See QUIRINALES, and PALATINI.—*Rosinus* calls 'em *Agonenses Salii*.

AGONALIA, or AGONEA, in Antiquity, Feasts celebrated by the *Romans*, in honour of *Janus*; or, as some will have it, in honour of the God *Agonius*, whom the *Romans* used to invoke upon their undertaking any Business of importance. See FEAST.

Authors vary as to the Etymology of this Solemnity; some derive it from the Mount *Agon*, afterwards *Mons Quirinalis*, whereon it was held.—Others suppose it taken from that Ceremony in the Feast, where the Priest holding the naked Knife, and ready to strike the Victim, which was a Ram, ask'd, *Agone*? Shall I do it?—This is *Ovid's* Opinion. *Fast.* L. I. v. 319. See SACRIFICE.

AGONISTICI, in Antiquity, a Name given by *Donatus* to those of his Sect, whom he sent into the neighbouring Places, Fairs, Markets, &c. to preach his Doctrine; for which reason they were also called *Circuitores*, *Cercelliones*, *Catropitæ*, *Coropitæ*, and at *Rome*, *Montenses*.

They were called *Agonistici*, from the *Greek* ἀγὼν, *Combat*; in regard they were sent as it were to fight, and subdue the People to their Opinions.

AGONOTHETA, AGONOTHETES, in Antiquity, a Magistrate chose among the *Greeks*, to preside, and have the Superintendency of their sacred Games, or Combats; to defray the Expences thereof, and adjudge the Prizes to the Conquerors. See GAME, COMBAT, &c.

The Word is compounded of ἀγὼν, *Combat*, *sacred Sport*; and θετὴς, *he who disposes*, *appoints*, *ordains*.——Among the *Romans*, the like Officer was denominated *Athelotheta*: See ATHELOTHETA.

AGONOCLITA, or AGONOCLITES, in Antiquity, a Sect in the VIIth Century; whose distinguishing Principle it was, never to kneel, but to deliver all their Prayers standing. See GENUFLEXION.

The Word is compounded of the Privative Particle α, γόνυ, *Knee*, and κλίνω, *I bend*.

AGONY, AGONIA, the Extremity of Pain, or a Disease; when Nature makes her last Effort, or Struggle, to throw off the Evil that oppresses her. See PAIN, DISEASE, and DEATH.

The Word is form'd from the *Greek* ἀγὼν, *Certamen*, Combat; this being a kind of Strife, between Life and Death.

AGORONOMUS, in Antiquity, a Magistrate of *Athens*, establish'd for the Maintenance of good Order, and Policy in the Markets; the Inspection of the Weights, Measures, &c.

The *Agoronomus* was much the same with the *Curule Ædile* among the *Romans*. See EDILE.

The Word is compounded of the *Greek*, ἀγορὰ, *Market*, and νεμεῖν, *to distribute*.—*Aristotle* distinguishes two Kinds of Magistrates, the *Agoronomi*, who had the Intendance of the Markets; and the *Astynomi*, who inspected the Buildings.

AGRARIAN, in the *Roman* Jurisprudence, a Denomination given to such Laws as relate to the Partition, or Distribution of Lands. See LAW.

The Word is form'd of the Latin *Ager*, Field.

The AGRARIAN *Law*, *Lex* AGRARIA, absolutely, and by way of Eminence so call'd, was a celebrated Law, published by *Spurius Cassius*, about the Year 268, for the Division of the Lands taken from the Enemy.—Those other two in the *Digest*, the one publish'd by *Cæsar*, and the other by *Nerva*, only relate to the Limits or Boundaries of Grounds; and have no Relation to that of *Spurius Cassius*.

There are fifteen or twenty *Agrarian Laws*, whereof, the principal are, The *Lex Apuleia*, made in the Year of *Rome* 653; the *Lex Babia*; the *Lex Cassia*, in the Year 267; the *Lex Cornelia*, in the Year 673.; the *Lex Flaminia*, in the Year 525; the *Lex Flavia*; the *Lex Julia*, in the Year 691; the *Lex Licinia*, in 377; the *Lex Ælia Licinia*; the *Lex Livia*; the *Lex Marcia*; the *Lex Rubria*, made after the taking of *Carthage*; two *Sempronian* Laws, in the Year 620; the *Lex Servilia*, in 690; the *Lex Thoria*; and the *Lex Titia*.

AGREEMENT, AGREAMENTUM, in Law, is defined by *Plowden*, a joining or putting together of two or more Minds in any thing done, or to be done.

Of this there may be three sorts.—The first, an *Agreement* executed at the Beginning; mention'd in the Stat. of 25 *Edw.* III. which says, 'That the Goods bought by 'Forestallers, being thereof attainted, shall be forfeited to 'the King; if the Buyer thereof have made *Gree* with 'the Seller:' Where the Word *Gree*, otherwise called *Agreement executed*, signifies Payment for the Things, or Satisfaction.

The second is, where one does an Act, and another *agrees* or assents thereto, afterwards. See ASSENT.

The third is, when both Parties at one time are *agreed* that such a thing shall be done in time to come; which is *Executory*, in regard the thing is to be done afterwards. See CONTRACT.

AGRESSES, or OGRESSES, in Heraldry, the same as *Pellets*, or *Balls*. See OGRESSES.

AGRICULTURE, the Art of tilling or cultivating the Earth, in order to render it fertile, and make it bear Plants, Trees, Fruits, &c. See EARTH, SOIL, CULTURE, PLANT, FRUIT, SEED, &c.

The principal and most general Operations in *Agriculture*, are *Manuring*, *Ploughing*, *Fallowing*, *Sowing*, *Harrowing*; as also, *Reaping*, *Mowing*, &c. See the Articles MANURE, PLOUGHING, FALLOWING, SOWING, &c.

To the Operations of *Agriculture* do also belong the Management of the Productions of particular Countries; as *Hops*, *Hemp*, *Vines*, *Tobacco*, *Saffron*, *Liquorice*, *Woad*, &c. See HOPS, HEMP, TOBACCO, SAFFRON, GLYCIRRHIZA, WOAD, &c.

To the same Art belong *Planting*, *Transplanting*, *Pruning*, *Engrafting*; the Culture of *Forests*, *Timber*, *Copses*, &c. See PLANTING, TRANSPLANTING, PRUNING, ENGRAFTING, TIMBER, TREE, &c.

Even *Gardening*, or Horticulture it self, is only a Branch of *Agriculture*. See GARDEN, and GARDENING.

The Word is form'd of the Latin *Ager*, Field, and *cultura*, of *colo*, I till.—Among the Antients, it is frequently called *Georgica*. See GEORGICKS.

We forbear to say any thing about the Antiquity or Usefulness of this Art: Every Reader's Imagination will supply that Defect.——It has been cultivated by many of the greatest Men among the Antients; as Emperors, Dictators, and Consuls; and has been treated of by some of their greatest

greatest Authors: *Virgil* for instance, *Cato*, *Varro*, and *Columella*.

The later Authors on *Agriculture*, are *Palladius Constantinus*, *Cæsar*, *Baptista Porta*, *Heresbachius*, and *Agricola*, in *Latin*; *Alphonso Herrara*, in *Italian*; *Stephens*, *Liebaut*, *de Serre*, *de Croiscens*, *Bellon*, and *Chomel*, in *French*; and *Evelyn*, *Mortimer*, *Switzer*, *Bradley*, and *Lawrence*, in *English*. See GEOPONICK.

AGRIPPA, a Name applied, among the Antients, to Children deliver'd in an unusual, or irregular manner. See DELIVERY.

They were called *Agrippæ*, quasi *ægre parti*.

AGRYPNIA, Αγρυπνια, a Watching, or dreaming Slumber. See COMA, WATCHING, SLEEP, &c.

AGUE, a periodical Disease, consisting in a cold shivering Fit, succeeded by a hot one; and going off in a Diaphoresis, or Sweating. See DISEASE.

If the Coldness and Shivering be inconsiderable, and only the hot Fit felt; the Disease is called an *Intermitting Fever*. See FEVER.

According to the Periods or Returns of the Fits, the Disease is either a *Quotidian*, *Tertian*, or *Quartan Ague*, or *Fever*. See QUOTIDIAN, TERTIAN, QUARTAN, &c.

The next Cause of Agues, seems to be an obstructed Perspiration, or whatever by overloading the Juices, retards their Motion, or occasions a Lentor in the Blood.—The Symptoms are Heaviness and Reaching; a weak, slow Pulse; Coldness, and Shivering, felt first in the Joints, thence creeping over the whole Body; Pain in the Loins, and an involuntary Motion of the under Jaw.

A *Vernal Ague* is easily cur'd; but an *Autumnal* one is more obstinate, especially in aged and cachectical Persons; if complicated with a Dropsy, Peripneumony, &c. dangerous.—When an *Ague* proves fatal, it is usually in the cold Fit.

The Cure is usually begun with an Emetic of Ipecacuanha, an Hour before the Access; and compleated with the Cortex Peruvianus, administer'd in the Interval between two Fits; and continued at times, to prevent a Relapse. See CORTEX.

Dr. *Quincy* endeavours to account for the Effect of the Bark, from the Irregularity, Asperity, and Solidity of its Particles, which fit it to break those Viscidities in the Juices whereby the Capillaries were obstructed, and to draw up the Solids into a Tension, sufficient by the vigorous Vibrations ensuing thereon, to prevent any future Accumulation thereof.—The first Intention, he observes, is answer'd, by giving the Blood a greater Momentum; and the second, by its corrugating the Nerves, and rendering the Contractions of the Vessels more brisk and forcible.—Hence also its Effects upon such as are apt to sweat immoderately.

AID, or AIDE, *Auxilium*, literally denotes the Help, Succour, or Assistance, which any Person lends another, when too weak to do, or avoid something. See ASSISTANT.

The Word is *French*, form'd, according to M. *Menage*, from the Italian *Aitare*; and that from the Latin *Adjutare*, whence the Spanish *Adjutant*.

AID, in Law, is when a Petition is made in Court, for the Calling in of *Help* from another Person interested in the Matter in Question; who, 'tis probable, may not only strengthen the Party's Cause, who thus prays for *Aid*, but also prevent a Prejudice arising to his own Right.

This is called *Aid Prier*, or *Aid Prayer*: But this Course of Proceeding is now much disused.

A City or Corporation, holding a Fee-farm of the King, may *Pray in Aid* of him; if any thing be demanded of them relating thereto.

The *Aid Prier*, is sometimes also used in the King's behalf, to prevent any Proceeding against him till his Council be call'd, and heard what they have to say for avoiding the King's Prejudice, or Loss.

AID *de Camp*, an Officer in an Army, whose Business is to attend the general Officers, and receive and carry their Orders, as occasion requires.

When the King is in the Field, he usually appoints young Volunteers of Quality to carry his Orders, who are called the King's *Aids de Camp*.

AID *Major*, or *Adjutant*, is an Officer, whose Business is to ease the *Major* of part of his Duty; and to perform it all in his Absence. See MAJOR, and ADJUTANT.

Some Majors have several *Aid-Majors*.—Each Troop of Guards has but one Major, who has two *Aid-Majors* under him; or more, according as the Business requires. See TROOP, and GUARD.

Every Regiment of Foot hath as many *Aid-Majors* as it contains Battalions.—When the Battalion is drawn up, the *Aid-Major*'s Post is on the Left, beyond all the Captains, and behind the Lieutenant-Colonel. See REGIMENT, BATTALION, &c.

AID, *Auxilium*, in our antient Customs, a Subsidy or Sum of Money due to the Lord, from his Tenants, on certain Occasions. See SUBSIDY, SERVICE, &c.

It differ'd from a *Tax*, which is imposed at any time when wanted; whereas the *Aid* could only be levied where it was Customary, and where the particular Occasion fell out. See TAX.

Such was the *Aid de Relief*, due from the Tenants in Fee, upon the Death of the Lord Mesn, to his Heir; towards the Charge of a Relief of the Fee, of the superior Lord. See RELIEF, FEE, LORD, &c.

Such also was the *Aid Chevel*, or *Capital Aid*, due by Vassals, to the chief Lord, or the King, of whom they held *in Capite*. See VASSAL.

Of this there are three Kinds.—The first, of Chivalry; or, as they call'd it, *Par fitz Chevalier*, towards making his eldest Son a Knight, when arrived at the Age of 15 Years: The second, of Marriage, or *Par fille marier*, towards marrying his eldest Daughter.—Both these, with all Charges incident thereto, are taken away by Stat. 12 *Car.* II. See TENURE, CAPITE, &c.—Some will have 'em to have been first establish'd in *England*, by *William* the Conqueror; and afterwards transferr'd to *Normandy*: But the more common Opinion is, that the Conqueror brought 'em with him: The third was of *Ransom*, due when the Lord was taken Prisoner. See RANSOM.

In some Provinces there was a fourth kind of *Aid*; due whenever the Lord should undertake an Expedition to the Holy Land. See CROISADE, &c.

We also read of *Aids* paid the Lord, when he was minded to purchase any Land or Tenement. These were only granted once in his Life.——*Aids* for the Repairing and Fortifying of Castles, Seats, &c.

These *Aids*, or Contributions, were at first imposed by the Lord or King, at what Rate he pleas'd; but by a Stat. 3d *Edw.* I. a Restraint was laid on common Persons being Lords, and they were tied down to a fix'd Proportion: By a subsequent Statute, the same Rate was extended even to the King.

They seem to have been first establish'd with a View to the Clients and Freedmen of antient *Rome*, who made presents to their Patrons towards his Daughter's Fortune, as also on his Birth-day, and other solemn Occasions. See PATRON, and CLIENT.——Accordingly, *Bouteiller* relates, that in his Time, they depended on the Courtesy and Good-will of the Vassals; for which Reason they were called, *Droits de Complaisance*.

The Bishops also received *Aids* from their Ecclesiasticks, called *Synodales*, and *Pentecostals*. They were to be paid at the Time of their Consecration; or when they had a King to entertain; or when call'd by the Pope to his Court, or to a Council; as also when they went to receive the *Pallium*. See SYNODALES, &c.

Add, that the Archdeacons exacted *Aids* from the Clergy of their Jurisdiction. See PROCURATION, &c.

AIDS are also used in Matters of Polity, for any extraordinary Taxes or Impositions occasionally levied by the King and Parliament, upon the Subjects; to support the Charges of the Government, when the ordinary Revenue proves short. See SUBSIDY.

AIDS, in the Manage, are Helps or Assistances, which the Horseman contributes towards the Motion or Action requir'd of the Horse; by a discrete use of the Bridle, Caveson, Spur, Poinson, Rod, Calf of the Leg, and Voice. See BRIDLE.

Such a Horse knows his *Aids*, answers his *Aids*, takes his *Aids* with Vigour, &c.—The *Aids* are made use of, to avoid the Necessity of Corrections.—The same *Aids*, given in a different manner, become Corrections. See CORRECTION.

The *Aids* used to make a Horse go in Airs, are very different from those requir'd in going upon the Ground. *Newcastle*.

The inner Heel, inner Leg, and inner Rein, are called *inner Aids*.—The outer Heel, outer Leg, &c. are *outer Aids*.

AIGLETTE, in Heraldry. See EAGLET.

AIGUE *Marine*, in Natural History. See AQUA *Marina*.

AIGUISCE, or AIGUISSEE, or ECUISCE, in Heraldry, a Term applied to a Cross, when its four Ends are sharpen'd, so however as to terminate in obtuse Angles. See CROSS.

The Cross *Aiguisée* differs from the Cross Fitchee, in that the latter goes tapering by degrees to a sharp Point; whereas only the Ends of the former are taper'd. See FITCHEE.

AILE, in Law, a Writ which lies where the Grand-father, or Great Grand-father called *Besaile*, was seized of Lands or Tenements in Fee-simple, on the Day he died; and a Stranger abates or enters the same Day, and dispossesseth the Heir. The Word is form'd of the *French Aieul*, *Avus*, Grand-father.

AIR, Aer, in Physicks, a thin, fluid, transparent, compressible, and dilatable Body; surrounding the terraqueous Globe to a considerable Height. See Earth, and Terraqueous.

Air was consider'd by some of the Antients as an Element; but then, by *Element* they understood a different thing from what we do. See Element.

'Tis certain, that *Air*, taken in the popular Sense, is far from the Simplicity of an Elementary Substance; tho there may be something in it, which bids fair for the Appellation. —Hence, *Air* may be distinguish'd into *Vulgar*, or *Heterogeneous*; and *Proper*, or *Elementary*.

Vulgar or Heterogeneous Air, is a Coalition of Corpuscles of various Kinds, which together constitute one fluid Mass, wherein we live and move, and which we are continually receiving and expelling by Respiration.—The whole Assemblage of this, makes what we call the *Atmosphere*. See Atmosphere.

Where this *Air* or Atmosphere terminates, there Æther is supposed to commence; which is distinguish'd from *Air*, in that it does not make any sensible Refraction of the Rays of Light, which *Air* does. See Æther, and Refraction.

The Substances whereof *Air* consists, may be reduced to two Kinds, *viz.* 1°, The Matter of Light, or Fire, which is continually flowing into it from the heavenly Bodies. See Fire.—To which, probably, may be added the Magnetical Effluvia of the Earth. See Magnetism.

2°, Those numberless Particles, which in form either of Vapours, or dry Exhalations, are rais'd from the Earth, Water, Minerals, Vegetables, Animals, *&c.* either by the solar, subterraneous, or culinary Fire. See Vapour, and Exhalation.

Elementary Air, or Air, properly so call'd, is a certain subtile, homogeneous, elastick Matter; the Basis, or Fundamental Ingredient of the Atmospherical *Air*, and that which gives it the Denomination.

Nature and Production of Air.

The peculiar Nature of this *aerial* Matter, we know but little of; what Authors have advanced concerning it being chiefly conjectural. We have no way of examining it apart, or separating it from the other Matters it is mix'd with; and consequently no way of ascertaining with Evidence what belongs to it abstractedly from the rest.

Dr. *Hook*, and some others, will have it to be no other than the *Æther* it self; or that fine, fluid, active Matter, diffused thro' the whole Expanse of the Celestial Regions; which coincides with Sir *Isaac Newton's Subtile Medium*, or *Spirit*. See Æther, Medium, and Spirit.

In this View it is supposed a Body *sui generis*, ingenerable, incorruptible, immutable, present in all Places, in all Bodies, *&c.*

Others, considering only its Property of Elasticity, which they account its essential and constituent Character; suppose it mechanically producible; and to be no other than the Matter of other Bodies alter'd, so as to become permanently elastick.—Mr. *Boyle* gives us several Experiments, which he made " for the Production of *Air*; taking Pro" duction for the obtaining a sensible Quantity thereof, from " Bodies wherein it did not appear either at all, or in so " great Plenty."——Among the several Ways of doing this, ' the fittest for Practice,' he observes, ' are Fermentation, ' Corrosion, Dissolution, Decomposition; the boiling of Wa' ters and other Fluids; and the mutual Action of Bodies, ' especially saline ones, upon each other.' *Hist. of Air.*—He adds, ' that various solid and mineral Bodies, unsuspect' ed of Elasticity, being plunged in corrosive unelastick ' Menstrua, will, by a proper Comminution of their Parts ' in the Conflict, afford a considerable Quantity of perma' nently elastick *Air*.' *Ubi supra.*

Of the same Opinion is Sir *I. Newton*; ' The Particles of ' dense, compact, and fixed Substances, cohering by a strong ' attractive Force, are not separable without a vehement ' Heat, or perhaps not without Fermentation; and such ' Bodies being at length rarified by such Heat or Fermen' tation, become true permanent *Air*.' *Opticks.*—' Thus, the same Author adds, ' Gunpouder generates *Air* by Ex' plosion.' *Ibid.*

We have here, therefore, not only the Materials whereof *Air* should be made; but the Means of doing it: with regard to which, the *Air* is divided into *Real* or *Permanent*; and *Apparent* or *Transient*.—For, that all which appears to be *Air* does not continue such, is evident from the Instance of an Æolipile; the Water of which being sufficiently rarefy'd by the Fire, rushes out in a sharp whistling Blast, perfectly resembling *Air*, while the Motion lasts; but soon loses that resemblance, especially in the Cold, and returns by Condensation into its original Water: And the same may be observed of Alcohol of Wine, and other subtile and fugitive Spirits, rais'd by Distillation.—Whereas *real Air* is not reducible by any Compression, Condensation, or the like, into any other Substance beside *Air*. See Æolipile.

Water, then, tho it may put on an *aerial* Nature for a-while, yet is not capable of persisting therein: And the same may be said of other Fluids.—The furthest they can go, is to become Vapour; which is the Matter of the Fluid render'd much rarer, and put in a brisk Motion.——For a Substance to become *permanent Air*, it must be of a fixed Kind: otherwise, it is not capable of undergoing the Alteration necessary to be induced in it; but gives way and flies off too soon. So that the Difference between *Permanent* and *Transient Air*, amounts to the same as that between Vapour and Exhalation; the one, *e. g.* being dry, the other moist, *&c.* See Vapour, and Exhalation.

We can go a little further yet.—This elastick Property of *Air*, is supposed by many Philosophers, to depend on the Figure of its Corpuscles, which they suppose to be ramous: Some will have 'em so many minute Floculi, resembling Fleeces of Wool; others conceive 'em roll'd up like Hoops, and curled like Wires, or Shavings of Wood, or coil'd like the Springs of Watches; and endeavouring to restore themselves in Virtue of their Texture: so that to produce *Air*, must be to produce such a Figure and Disposition of Parts; and those Bodies only are proper Subjects, which are susceptible of such Disposition; which, Fluids, from the smoothness, roundness, and slipperiness of their Parts, are not. See Fluid.

But Sir *I. Newton* puts the Thing another way; such a Texture he thinks by no means sufficient to account for that vast Power of Elasticity observed in *Air*, which is capable of diffusing into above a Million of times more Space than it before possess'd.—But, as all Bodies are shewn to have an attractive and a repelling Power; and as both these are stronger in Bodies, the denser, more solid and compact they are: Hence it follows, that when by Heat, or any other powerful *Agent*, the attractive Force is surmounted, and the Particles of the Body separated so far as to be out of the Sphere of Attraction; the repelling Power commencing thence, makes 'em recede from each other with a strong Force, proportionable to that wherewith they before coher'd; and thus they become *permanent Air*.——Hence, says the same Author, it is, that as the Particles of *permanent Air* are grosser, and arise from denser Bodies, than those of *Transient Air*, or Vapour: true *Air* is more ponderous than Vapour; and a moist Atmosphere lighter than a dry one. *Opticks*, p. 371, *&c.* See Attraction, Repulsion, *&c.*

But, after all, there may still be Reason to doubt, whether the Matter thus produced from solid Bodies have all the Properties of *Air*; and whether such *Air* be not transient, as well as that from humid ones; tho not to that degree.——Mr. *Boyle* argues, from an Experiment made in the *Air*-Pump with lighted Match; that those light and subtile Fumes into which the Fire it self shatters dry Bodies, have no such Spring as *Air*; since they were unable to hinder the Expansion of a little *Air*, included in a Bladder they surrounded. *Phys. Mech. Exper.*——Yet, in some subsequent Experiments, by dissolving Iron either in Oil of Vitriol and Water, or in Aqua-fortis; a large *aerial* Bubble was produced, which had a real Spring; so as to hinder the surrounding Liquor from regaining its Place; and which, by the Application of a warm Hand, readily dilated it self like other *Air*, and broke into the Liquor in several succeeding Bubbles; and even thro' the Liquor into the open *Air*. *Ubi supra.*

The same excellent Person further assures us, he procured a really elastick Substance from divers other Matters; as Bread, Grapes, Must, Ale, Apples, Peas, Beef, *&c.* and from some Bodies by only burning 'em *in Vacuo*, particularly Paper, Hartshorn, *&c.* which yet, upon further Examination, was so far from being pure *Air*, that Animals inclosed in it, not only could not respire it without harm; but even died sooner than *in Vacuo*, where there was nothing like *Air*. *Phys. Mechan. Exper.*

We may here add an Observation of the Members of the Royal Academy of Sciences at *Paris*; which imports, that the Property of Elasticity is so far from constituting *Air*; that *Air* is render'd more elastick by the Admixture of some other Matters along with it, than it is in its Purity.—Thus, from some Experiments of M. *de la Hire* at *Paris*, and of M. *Stancari* at *Boulogne*, M. *Fontenelle* assures us, that *Air* moisten'd with Water, is considerably more elastick, and expands further, than when pure.—M. *de la Hire* even found the moist *Air* eight times more elastick than the dry. *Hist. de l'Acad.* An. 1708.

But it must not be omitted, that Dr. *Jurin* explains the Experiments another way; and endeavours to shew, that the Conclusion does not necessarily follow from 'em. *Append. ad Varen. Geogr.*

Thus much for *Air* consider'd in it self.——But such *Air*, we have observ'd, no where exists in its Purity.—That wherewith we are concern'd, and whose Properties and Effects are chiefly consider'd, is acknowledg'd by Mr. *Boyle* to be the most heterogeneous Body in the Universe: *Boerhaave* even shews it to be an universal Chaos, or Colluvies of all the Kinds of created Bodies.—Whatever Fire can volatilize is found in the *Air*; but there is no Body that can withstand the Force of Fire. See FIRE, VOLATILITY, BURNING-GLASS, &c.

Hence, for instance, the whole Fossil Kingdom must necessarily be found therein: For all of that Tribe, as Salts, Sulphurs, Stones, Metals, &c. are convertible into Fume, and thus capable of being render'd part of the *Air*.—Gold it self, the most fix'd of all natural Bodies, is found to adhere close to the Sulphur in Mines; and thus to be raised along with it. See GOLD, &c.

2°, All the Parts of the Animal Kingdom must also be in the *Air*: For, beside the copious Effluvia continually emitted from their Bodies, by the vital Heat, in the ordinary Course of Perspiration; by means whereof an Animal, in the Course of its Duration, impregnates the *Air* with many times the Quantity of its own Body, (See PERSPIRATION, EFFLUVIA, &c.) Beside this, we find that any Animal when dead, being exposed to the *Air*, is in a little time carried wholly off, Bones and all. So that the Whole of what before was an Animal, *e. g.* a Man, an Ox, or the like, is now in the *Air*.

By the way, it may be noted what huge Swarms of the grosser excrementitious Matters of Animals must swim in the *Air*: At *Madrid*, we are assured, they have no Necessary Houses; and that they always make a Jakes of their Streets overnight: yet does the *Air* imbibe the Filth as fast as 'tis laid; insomuch, that there is no increase of any fetid smell.

3°, As to Vegetables, nothing of that Class can be supposed wanting; since we know that all Vegetables by Putrifaction become volatile; even the earthy or vascular Part, in time follows the rest. See VEGETABLE, PLANT, &c.

Of all the Effluvia floating in this grand Ocean the Atmosphere; one of the principal, are the Saline. These, Authors commonly conceive, as chiefly of the nitrous Kind; but there is no doubt but that there are of all the sorts, Vitriolick, Aluminous, Sea Salt, &c. See SALT, NITRE, &c.

Mr. *Boyle* even observes, that there may be many compounded Kinds of Salts in the *Air*, which we have not on Earth; arising from different saline Spirits, fortuitously meeting and mixing together.—Thus, the glass Windows of antient Buildings are sometimes observ'd to be corroded, as if they had been Worm-eaten; tho none of the Salts abovemention'd have the Faculty of corroding Glass.

The Sulphurs, too, must make a considerable Article in the *Air*; on account of those many Volcanoes, Grottos, Caverns, and other Spiracles chiefly affording that Mineral, dispersed thro' the Globe. See SULPHUR, VOLCANO, &c.

And the Associations, Separations, Attritions, Dissolutions, and other Operations of one sort of Matter upon another, may be consider'd as a Source of numerous other neutral or anonymous Bodies, unknown to us.

Air, in this general Sense, is one of the most considerable and universal *Agents* in all Nature; being concern'd in the Production of most of the Phænomena relating to our World.—Its Properties and Effects, including a great Part of the Researches and Discoveries of the modern Philosophers, have some of 'em been reduced to precise Laws and Demonstrations; in which form they make a Branch of Mathematicks, called *Pneumaticks*, or *Aerometry*. See MATHEMATICKS, PNEUMATICKS, and AEROMETRY.

Mechanical Properties and Effects of AIR.

1°, *Fluidity*.——That the *Air* is a Fluid, is evident from the easy Passage it affords to Bodies thro' it; as in the Propagation of Sounds, Smells, and other Effluvia: For this argues it a Body whose Parts give way to any Force impress'd, and in yielding, are easily moved among themselves; which is the Definition of a Fluid. See FLUID.—See also SOUND, &c.

They who, with the *Cartesians*, make Fluidity consist in a perpetual intestine Motion of the Parts, find *Air* also answers to that Character: Thus, in a darkned Room, where the Species of external Objects are brought in by a single Ray; they appear in a continual Fluctuation; and thus even the more accurate Weather-Glasses are observ'd never to remain a moment at rest. See WEATHER-*Glass*.

The Cause of this Fluidity of *Air*, is attributed by some late Philosophers to the Fire intermix'd therewith; without which, they imagine, the Atmosphere would harden into a solid, impenetrable Mass.—And hence, the greater the Degree of Fire therein, the more fluid, moveable and pervious the *Air*: And thus, as the degree of Fire is continually varying; according to the Circumstances and Position of the heavenly Bodies; the *Air* is kept in a continual Reciprocation. See FIRE.

Hence, in good measure, it is, that on the Tops of the higher Mountains; the Senses of Smelling, Hearing, &c. are found very feeble. See MOUNTAIN.

II°, *Weight*, or *Gravity*.——That the *Air* is heavy, follows from its being a Body; Weight being an essential Property of Matter. See WEIGHT, and GRAVITY.

But we have infinite Arguments of the same from Sense, and Experiment: Thus, the hand, applied on the Orifice of a Vessel empty of *Air*, soon feels the Load of the incumbent Atmosphere.—Thus, glass Vessels, exhausted of their *Air*, are easily crush'd to pieces by the Weight of the *Air* without. So, two small hollow Segments of a Sphere, exactly fitting each other, being emptied of *Air*, are press'd together with a Force equal to 100 Pound, by the Pondus of the ambient *Air*.

Further, a Tube close at one end, being filled with Mercury, and the other End immerged in a Bason of the same Fluid; and thus erected: The Mercury in the Tube will be suspended to the Height of about 30 Inches above the Surface of that in the Bason. The Reason of which Suspension, is, that the Mercury in the Tube cannot fall lower, without raising that in the Bason; which being press'd down with the Weight of the incumbent Atmosphere, cannot give way, unless the Weight of the Mercury in the Tube, exceeds that of the *Air* out of it.—That this is the Case, is evident hence; that if the whole Apparatus be included in an Air-Pump; in proportion as the *Air* is exhausted from the same, the Mercury falls: and gradually letting in the *Air* again, the Mercury reascends to its former height.—This makes what we call the *Torricellian Experiment*. See TORRICELLIAN.

To say no more, we can actually weigh *Air*: For a Vessel, full even of common *Air*, by a very nice Balance, is found to weigh more than when the *Air* is exhausted; and the Effect is proportionably more sensible, if the same Vessel be weigh'd full of condensed *Air*, and void of *Air*. See WEIGHING, and HYDROSTATICAL *Balance*.

The Weight of *Air* is continually varying, according to the different degree of Heat, and Cold.—*Ricciolus* estimates its weight to that of Water, to be as 1 to 1000; *Mersennus* as 1 to 1300, or 1 to 1356; *Galileo* only makes it as 1 to 400.—Mr. *Boyle*, by a more accurate Experiment, found it about *London*, as 1 to 938; and thinks, all things consider'd, the Proportion of 1 to 1000 may be taken as a Medium; for there is no fixing any precise Ratio, since not only the *Air*, but the Water it self, is continually varying. Add, that Experiments made in different Places necessarily vary, in regard of the different Heights of the Places, and the different Consistences of *Air* arising therefrom. Boyle, *Phys. Mechan. Exper.*

It must be added, however, that by Experiments made since before the Royal Society; the Proportion of *Air* to Water was, first, found as 1 to 840; then, as 1 to 852; and a third time, as 1 to 860. *Phil. Transf.* N° 181.——And lastly, by a very simple and accurate Experiment of the late Mr. *Hawksbee*; the Proportion was settled as 1 to 885. *Phys. Mechan. Exper.*——But these Experiments being all made in the Summer Months, when the Barometer was 29 Inches ½ high; Dr. *Jurin* thinks, that at a Medium between Heat and Cold, when the Barometer is 30 Inches high; the Proportion between the two Fluids, may be taken as 1 to 800.

Air, then, being heavy and fluid; the Laws of its Gravitation, or Pressure, may be inferr'd to be the same as in other Fluids; consequently, its Pressure must be as its perpendicular Altitude. See FLUID.

This is also confirmed by Experiment.—For, removing the Torricellian Tube to a more elevated Place, where the incumbent Column of *Air* is shorter; a proportionably shorter Column of Mercury is sustained; it being found to descend at the Rate of one fourth of an Inch, for every 100 Foot of Ascent. See LEVELLING.

On this Principle depends the Structure and Office of the Barometer. See BAROMETER.

From hence, also, it follows, that the *Air*, like all other Fluids, must press equally every way.—Which is confirm'd by what we observe of soft Bodies sustaining this Pressure without any Change of Figure; and brittle Bodies, without their breaking; tho the Pressure upon 'em be equal to that of a Column of Mercury 30 Inches high, or a Column of Water of 32 Foot.—'Tis obvious, that no other Cause can preserve such Bodies unchanged, but the equable Pressure on all Sides, which resists as much as it is resisted. And hence, upon removing or diminishing the Pressure on one side only; the Effect of the Pressure is soon perceiv'd on the other.

For the Quantity and Effect of this Pressure of the Atmosphere on the human Body. See ATMOSPHERE.

From this Gravity of the *Air*, consider'd with its Fluidity, several of its Uses and Effects are deducible.—And, 1°, by means hereof, it closely invests the Earth, with all the

Bodies on it; and constringes and binds 'em down with a Force amounting, according to the Computation of M. *Paschal*, to 2232 Pounds weight, upon every square Foot, or upwards of 15 Pounds upon every Inch square.—Hence, it prevents, *e.g.* the Arterial Vessels of Plants and Animals, from being too much distended by the Impetus of the circulating Juices, or by the elastick Force of the Air so plentifully lodg'd in the Blood.—Thus, we see, in the Operation of Cupping, that upon a Diminution of the Pressure of the *Air*, the Parts of the Body grow tumid; which necessarily alters the manner of the Circulation thro' the Capillaries, *&c.*

The same Cause hinders the Juices from oozing and escaping thro' the Pores of their containing Vessels: This is experienc'd by such as travel up high Mountains, who, in proportion as they ascend, find themselves grow more and more relaxed; and at length fall into a spitting of Blood, and other Hemorrhages; by reason of the *Air* not sufficiently binding up the Vessels of the Lungs.—The like is observ'd of Animals inclos'd in the Receiver of an *Air*-Pump, who, as the *Air* is taken from 'em, swell, vomit, drivel, dung, urine, sweat, *&c.* See VACUUM.

2°, The Mixture of contiguous Bodies, especially fluid ones, is chiefly owing hereto.—Hence many Liquids, as Oils and Salts, which readily and spontaneously mix in *Air*, upon taking that away, remain quietly in their State of Separation.

3°, It determines the Action of one Body upon another.—Thus, the Fire which burns Wood immediately goes out, and its Flame dissipates upon removing the *Air*; by reason something is theo wanting to press the Corpuscles of Fire against those of the Fuel, and prevent the too speedy Diffusion of the Flame. The same is observed of Aqua Regia, and Gold; that Menstruum ceasing any longer to operate on the Metal, after the *Air* is taken away. And upon the same determining Power of the *Air* it is, that *Papin*'s Digestor is built. See DIGESTOR.

Hence also it is, that on the Tops of high Mountains, as on the Pike of *Teneriffe*, the most savoury Bodies, as Pepper, Ginger, Salts, Spirit of Wine, *&c.* have no sensible Taste; for want of their Particles being press'd upon the Tongue, so as to enter its Pores, but instead thereof, being dissipared and blown away by its heat. The only thing that there retains its Savour, is Canary Wine, which is chiefly owing to its unctuous Quality; in Virtue whereof, it adheres closely to the Part, and is not easily blown away.

From this Principle of Gravity chiefly arise our *Winds*; which are only *Air* put in Motion by some Alteration in the Equilibrium thereof. See WIND.

III°, *Elasticity*,—or a Power of yielding to an Impression by contracting its Dimensions; and, upon removing or diminishing the impressive Cause, returning to its former Space or Figure.——This elastick Force is accounted the distinguishing Property of *Air*; the other Properties hitherto enumerated being common to it with other Fluids.

Of this Power we have numerous Proofs.—Thus, a blown Bladder being squeez'd in the Hand; we find the included *Air* sensibly resist; so as upon ceasing to compress, the Cavities or Impressions made in its Surface, are readily expanded again, and fill'd up.

On this Property of Elasticity, the Structure and Office of the Air-*Pump depends.* See AIR-*Pump*.

This Nisus or Endeavour to expand, every Particle of *Air* always exerts; and thus strives against an equal endeavour of the ambient Particles; whose Resistance happening by any means to be weaken'd, it strait diffuses into an immense Extent.—Hence it is, that thin glass Bubbles, or Bladders, full of *Air*, and exactly closed; being included in the exhausted Receiver of an *Air*-Pump, burst, by the Force of the included Air. So a Bladder quite flaccid, containing only the smallest Quantity of Air; swells in the Receiver, and appears quite full. And the same Effect is found, by carrying the flaccid Bladder to the Top of an high Mountain.

This Power does not seem to have any Limits assign'd it; nor does it appear capable, by any Means whatever, of being destroy'd or diminish'd.—Mr. *Boyle* made several Experiments, with a View to discover how long *Air*, brought to the greatest degree of Expansion he could reduce it to in his *Air*-Pump, would retain its Spring; and could never observe any sensible Diminution; even tho this poor thin *Air* was clog'd some Months with a Weight which one would wonder how it should support a Moment.

Yet, Mr. *Hawksbee*, by a later Experiment, has shewn, that the Spring of the *Air* may be so disturb'd by a violent Pression, as to require some time to return to its natural Tone.

The Weight or Pressure of the *Air*, it is obvious, has no dependence on its Elasticity; but would be the same, whether the *Air* had such Property or not.—But the *Air*, in being elastick, is necessarily affected by the Pressure, which reduces it into such a Space, as that the Elasticity which re-acts against the compressing Weight, is equal to that Weight. See COMPRESSION.

In effect, the Law of this Elasticity, is, that it increases as the Density of the *Air* increases; and the Density increases, as the Force increases wherewith it is press'd. Now, there must necessarily be a Balance between the Action and Re-action; *i. e.* the Gravity of the *Air*, which tends to compress it, and the Elasticity of the *Air* which endeavours to expand it, must be equal. See DENSITY, REACTION, *&c.*

Hence, the Elasticity increasing or diminishing universally as the Density increases, or diminishes, *i. e.* as the Distance between the Particles diminishes or increases; 'tis no matter whether the *Air* be compress'd, and retain'd in such Space by the Weight of the Atmosphere, or by any other means: It must endeavour, in either Case, to expand with the same Force.——And hence, if *Air* near the Earth be pent up in a Vessel, so as to cut off all Communication with the external *Air*; the Pressure of the inclosed *Air* will be equal to the Weight of the Atmosphere. Accordingly, we find Mercury sustained to the same Height, by the elastick Force of *Air* inclosed in a glass Vessel, as by the whole atmospherical Pressure.—See further under the Article ELASTICITY.

On the same Principle may *Air* be *artificially condensed.* See CONDENSATION *of Air.*

And hence *the Structure of the Wind-Gun.* See WIND-*Gun.*

Dr. *Halley* asserts, in the *Philosoph. Transactions*, that from the Experiments made at *London*, and by the *Academy del Cimento* at *Florence*, it may be safely concluded, that no Force whatever is able to reduce *Air* into eight hundred times less Space than what it naturally possesses on the Surface of our Earth. In answer to which, Monsieur *Amontons*, in the Memoirs of the *French* Academy, maintains, that there is no fixing any Bounds to its Condensation; that greater and greater Weights will still reduce it into less and less compass; that it is only elastick in Virtue of the Fire it contains; and that as 'tis impossible ever absolutely to drive all the Fire out of it, 'tis impossible ever to make the utmost Condensation.

The *Dilatation* of the *Air*, by Virtue of its elastick Force, is found to be very surprizing; and yet, Dr. *Wallis* suggests, that we are far from knowing the utmost it is capable of.—In several Experiments made by Mr. *Boyle*, it dilated first into nine times its former Space; then into 31 times; then into 60; then into 150. Afterwards, it was brought to dilate into 8000 times its Space; then into 10000, and even at last into 13679 times its Space: and all this by its own expansive Force, without any help of Fire.

On this depends the Structure and Use of the Manometer. See MANOMETER.

Hence, it appears, that the *Air* we breathe, near the Surface of the Earth, is compress'd by its own Weight into at least the 13679th Part of the Space it would possess *in Vacuo*.—But if the same *Air* be condensed by *Art*; the Space it will take up when most dilared, to that it possesses when condensed; will be, according to the same Author's Experiments, as 505000 to 1. See DILATATION.

Hence, we see how wild and erroneous was that Observation of *Aristotle*, that *Air*, render'd ten times rarer than before, changes its Nature, and becomes Fire.

M. *Amontons*, and others, we have already observed, take the Rarefying of *Air* to arise wholly from the Fire contain'd in it; and hence, by increasing the Degree of Heat, the Degree of Rarefaction may be carried still further than its spontaneous Dilatation. See HEAT.

On this Principle depends the Structure and Office of the Thermometer. See THERMOMETER.

M. *Amontons* first discover'd that *Air*, the denser it is, the more it will expand with the same degree of Heat. See DENSITY.

On this Foundation, the same ingenious Author has a Discourse, to prove "that the Spring and Weight of the *Air*, "with a moderate degree of warmth, may enable it to "produce even Earthquakes, and other of the most vehement Commotions in Nature."

According to the Experiments of this Author, and M. *de la Hire*, a Column of *Air* on the Surface of the Earth, 36 Fathoms high, is equal in weight to three Lines Depth of Mercury; and it is found, that equal Quantities of *Air* possess Spaces reciprocally proportional to the Weights wherewith they are pressed: The Weight of the *Air*, therefore, which would fill the whole Space possessed by the terrestrial Globe, would be equal to a Cylinder of Mercury, whose Base is equal to the Surface of the Earth, and its Height containing as many times three Lines, as the Atmospherical Space contains Orbs equal in weight to that of 36 Fathoms, whereof the Experiment was made.—Hence, taking the densest of all Bodies, *e.g.* Gold, whose Gravity is about 14630 times greater than that of *Air* in our Orb, it is easy to compute, that this Air would be reduced to the same Density as Gold, by the Pressure of a Column of Mercury 14630 times 28 Inches high, *i. e.* 409640 Inches: since the Bulks of *Air*, in that Case, would be in the reciprocal Ratio of the Weights wherewith they are pressed. This 409640 Inches, there-

therefore, expresses the height at which the Barometer must stand, where the *Air* would be as heavy as Gold, and the Number $\frac{2^{11631}}{4^{9}5^{2}8^{2}4^{0}}$ Lines, the Thickness to which our Column of 36 Fathoms of *Air*, would be reduced in the same place.

Now, we know, that 409640 Inches, or 43528 Fathoms, is only the 74th Part of the Semidiameter of the Earth: and when you are past that, whatever Matters there be, they must be heavier than Gold: 'Tis not improbable, therefore, that the remaining Sphere of 6451538 Fathoms Diameter, may be full of dense *Air*, heavier, by many degrees, than the heaviest Bodies among us.—Hence, again, as it is proved, that the more *Air* is compressed, the more does the same degree of Fire increase the Force of its Spring, and render it capable of so much the greater Effect; and that, for instance, the Heat of boiling Water increases the Spring of our *Air*, beyond what it ordinarily is, by a Quantity equal to one third of the Weight wherewith it is pressed: We may infer, that a degree of Heat, which in our Orb can only produce a moderate Effect, may have a very violent one in such lower Orb; and that as there may be many degrees of heat in Nature, beyond that of boiling Water, 'tis probable there may be some, whose Violence, thus assisted by weight of the *Air*, may be sufficient to tear sunder the solid Globe. *Mem. de l'Acad.* An. 1703.

This elastick Power of the *Air*, is the second great Source of the Effects of this important Fluid.—In virtue hereof, it insinuates into the Pores of Bodies, carrying with it this prodigious Faculty of expanding; and that so easy to be excited: whence it must necessarily put the Particles of the Bodies it is mix'd withal, into perpetual Oscillations. In effect, the Degree of Heat, and the *Air*'s Gravity and Density, and consequently its Elasticity and Expansion, never remaining the same for two Minutes together; there must be an incessant Vibration, or Dilatation and Contraction, in all Bodies. See VIBRATION.

This Reciprocation we observe in several Instances, particularly Plants, the Tracheæ or *Air*-Vessels whereof, do the Office of Lungs: For the contained *Air* alternately expanding and contracting, as the Heat increases or diminishes, by turns presses the Vessels, and eases 'em again; and thus promotes a Circulation of their Juices. See VEGETABLE, CIRCULATION, &c.

Hence, we find, that no Vegetation or Germination will proceed *in Vacuo*.—Indeed, Beans have been observed to grow a little tumid therein; which has led some to attribute that to Vegetation, which was really owing to no other than the Dilatation of the *Air* within 'em. See VEGETATION, GERMINATION, &c.

From the same Cause it is, that the *Air* contain'd in the Bubbles in Ice, by its continual Action, bursts the Ice: And thus Glasses and other Vessels frequently crack, when their contained Liquors are frozen. Thus, also, entire Columns of Marble sometimes cleave in the Winter time, from some little Bubble of included *Air*'s acquiring an increased Elasticity.

From the same Principle arises all Putrefaction and Fermentation; neither of which will proceed, even in the best disposed Subjects, *in Vacuo*. See PUTREFACTION, and FERMENTATION.

In this we have a singular Instance of the wonderful Efficacy of *Air*, that it can change the two Kingdoms, and convert Vegetable Substances into Animal, and Animal into Vegetable. See ANIMAL, &c.

In effect, all natural Corruption and Alteration seems to depend on *Air*; and Metals, particularly Gold, only seem to to be durable and incorruptible, in Virtue of their not being pervious to *Air*.—Accordingly, Names slightly wrote in the Sand, or Dust, on the Tops of high Mountains, have been known to remain 40 Years, without being in the least alter'd or effaced. See CORRUPTION, ALTERATION, &c.

Effects of the peculiar Ingredients of the AIR.

Air not only acts by its common Properties of Gravity, and Elasticity, but there are numerous other Effects, arising from the peculiar Ingredients whereof it consists.

Thus, 1°, it not only dissolves and attenuates Bodies by its Pressure and Attrition; but as a Chaos, containing all Kinds of Menstruums, and consequently having wherewithal to dissolve all Kinds of Bodies. See DISSOLUTION.

'Tis known, that Iron and Copper readily dissolve, and become rusty in *Air*, unless well defended with Oil.—*Boerhaave* assures us, he has seen Pillars of Iron so reduced by *Air*, that one might crumble 'em to Dust between the Fingers; and for Copper, it is converted by the *Air* into a Substance much like the Verdegrease produced by Vinegar. See IRON, COPPER, VERDEGREASE, &c.

Mr. *Boyle* relates, that in the Southern *English* Colonies, the great Guns rust so fast, that after a few Years lying in the *Air*, large Cakes of Crocus Martis may be easily beat off 'em.—*Acosta* adds, that in *Peru* the *Air* dissolves Lead, and considerably increases its weight.—Yet Gold is generally esteem'd indissoluble by *Air*; being never found to contract Rust, tho exposed ever so long. The Reason hereof is, that Sea Salt, which is the only Menstruum capable of acting on Gold, being very difficult to volatilize; there is but a small Proportion of it in the Atmosphere. In the Chymists Laboratories, where Aqua Regia is preparing; the *Air* becoming impregnated with an unusual Quantity of this Salt; Gold contracts a Rust like other Bodies. See GOLD, &c.

Stones also undergo the common Fate of Metals.——Thus, *Purbeck* Stone, whereof *Salisbury* Cathedral consists, is observed gradually to become softer, and moulder away in the *Air*; and the like Mr. *Boyle* relates of *Blackington* Stone. See STONE.——He adds, that *Air* may have a notable Operation on Vitriol, even when a strong Fire could act no further on it. The same Author has even found the Fumes of a sharp Liquor to work more suddenly and manifestly on a certain Metal, when sustained in the *Air*, than the Menstruum it self did which emitted those Fumes, on those Parts of the Metals it cover'd.

2°, *Air volatilizes* fix'd Bodies.—Thus Sea Salt being first calcined, then fused by the Fire, and when fused exposed to the *Air* to liquify; when liquified set to dry again, then fused again; and, the Operation thus repeated: will by degrees be almost wholly evaporated; nothing remaining but a little Earth behind. See VOLATILITY, VOLATILIZATION, &c.

Helmont mentions it as a mighty Arcanum in Chymistry, to render fixed Salt of Tartar volatile: but the thing is easily effected by *Air* alone; for if some of this Salt be exposed to the *Air* in a Place replete with acid Vapours, the Salt draws the Acid to it self, and when saturated therewith, is volatile. See TARTAR, &c.

3°, *Air* also *fixes* volatile Bodies.——Thus, tho Nitre or Aquafortis readily evaporate by the Fire; yet, if there be any putrified Urine near the Place, the volatile Spirit will be fix'd, and fall down in form of Aqua secunda. See FIXITY.

4°, Add, that *Air* brings many quiescent Bodies into Action, *i. e.* excites their latent Powers.—Thus, if an acid Vapour be diffused thro' the *Air*, all the Bodies whereof that is a proper Menstruum, being dissolved thereby, are brought into a State proper for Action. See SALT, &c.

In Chymistry, not only the Presence or Absence of the *Air*, but even its being barely open, or inclosed, is of great consequence.—Thus, Camphire fired in a close Vessel, runs wholly into Salts; whereas, if during the Process, the Cover be removed, and a Candle applied, the whole flies off in Fume. So to make Sulphur inflammable, it requires a free *Air*: in a close Cucurbit, it may be sublimed a thousand times without kindling. Sulphur being put under a glass Bell, and a Fire applied, rises into Spirit of Sulphur *per Campanam*: But if there be the least Chink whereby the included *Air* communicates with the Atmosphere, it immediately kindles. So an Ounce of Charcoal, inclosed in a Crucible well luted, will remain without loss for fourteen Days in the intensest Heat of a melting Furnace; tho the thousandth Part of the Fire in open *Air*, will presently turn it into Ashes.—*Helmont* adds, that the Charcoal remains all that while without any Alteration of its black Colour; but that if the minute *Air* is let in, it falls instantly into white Ashes. The same holds of the Parts of all Animals and Vegetables; which can only be calcined in open *Air*: In close Vessels they never become any other than black Coals. See CALCINATION, COAL, &c.

The *Air* is liable to abundance of Alterations, not only in respect of its Mechanical Properties, Gravity, Density, &c. but also in respect of the Ingredients it consists of.——Thus, in Places abounding with Marcasites, a fretting vitriolick Salt is observed to predominate in the *Air*, which rots the Hangings, and is often seen lying on the Ground in a whitish Efflorescence.—At *Fashlun* in *Sweden*, noted for Copper Mines, the mineral Exhalations affect the *Air* so sensibly, that their Silver Coin is frequently discoloured in their Purses; and the same Effluvia change the Colour of Brass.—Mr. *Boyle* was assured by a Gentleman who possess'd some Ground wherein there were several Veins of Metals, and other Minerals, that he had frequently seen Pillars of Fumes ascending thence; some having no Scent, some an ill one, and some few a good one.—In *Carniola*, *Campania*, &c. where there are Mines of Sulphur, the *Air* at times becomes very unwholesom; whence frequent epidemick Diseases, &c.—'Tis added, that the Mines near the Cape of *Good Hope*, emit such horrible Fumes from the Arsenic that abounds there, that no Animal can live near them; so that such as have at any time been opened, were obliged to be immediately closed again.

The Effluvia of Animals also have their Effect in varying the *Air*; as is evident in contagious Diseases, Plagues, Murrains, and other Mortalities which are spread by the *Air*. See PLAGUE.

The like is obſerved in Vegetables.——Thus, a good Part of the Clove-Trees which grew ſo plentifully in the Iſland of *Ternate*, being fell'd at the Solicitations of the *Dutch*, in order to heighten the Value of that Fruit; ſuch a Change enſued in the *Air*, as ſhew'd the ſalutary Effect of the Effluvia of the Clove-Trees, and their Bloſſoms: the whole Iſland, ſoon after they were cut down, becoming exceeding ſickly. This, a Phyſician who had been upon the Spot, and from whom Mr. *Boyle* had the Relation; attributed to the noxious Steams of a Volcano there; the ill Quality whereof, had been corrected by the aromatick Effluvia of thoſe ſpicy Bloſſoms.

The *Air* is alſo liable to Alterations from the Seaſon of the Year.—Thus, few ſubterraneous Effluvia are emitted in the Winter; by reaſon the Pores are lock'd up by the Froſt, or cover'd by Snow; the ſubterraneous Heat being all the while at work, and preparing a Fund, to be diſcharged the enſuing Spring.—Hence it is, that if the ſame Seed be ſown in the ſame Soil, in Autumn and Spring, and the degree of Heat be the ſame, a very different Effect will be found; and for the like Reaſon, Rain-Water gather'd in the Spring, is found to have a peculiar Virtue in reſpect of Corns; which being ſteep'd therein, afford a much larger Quantity of Spirits than otherwiſe.—Hence alſo, we ſee why a very ſevere Winter, is uſually follow'd by a wet Spring and fruitful Summer; and *vice verſa*.

Again, from the Winter's Solſtice to the Summer's, the Sun's Rays growing ſtill more and more perpendicular; their Impulſe on the Earth's Surface becomes more and more powerful; by which the Glebe or Soil is more and more relaxed, ſoften'd and putrified; till he arrives at the Tropic: where, with the Force of a chymical Agent, he reſolves the ſuperficial Parts of the Earth into their Principles, Water, Oil, Salt, &c. which are all ſwept into the Atmoſphere.

And hence we conceive the Nature of Meteors, which are either Collections of ſuch Effluvia, or Diſperſions thereof. See METEOR.——Theſe Meteors, too, have conſiderable Effects on the *Air*; and thus Thunder is known to put Liquors upon fermenting afreſh.

In effect, whatever alters the Degree of Heat; will make a proportionable Alteration in the Matter of the *Air*. Mr. *Boyle* ſuggeſts ſomething further on this Head, *viz.* that the Salts, &c. which in a warm State of Weather were kept in a Fluor, and mix'd together, ſo as to be in a Condition to act conjunctly; upon a Remiſſion of the Warmth, may loſe their Fluidity and Motion, ſhoot into Cryſtals, and thus ſeparate again.

The Height or Depth of the *Air* makes a further Alteration; the Exhalations being few of 'em able to aſcend above the Tops of high Mountains, as appears from thoſe Plagues, where the Inhabitants of one ſide of a Mountain have all periſh'd, without the leaſt Diſorder on the other ſide.

Nor muſt Drought and Moiſture be denied their Share in varying the State of the Atmoſphere.——At *Guinea*, the Heat with the Moiſture, conduce ſo much to Putrefaction, that the pureſt white Sugars are often full of Maggots; and their Drugs ſoon loſe their Virtue, and many of them grow Verminous. 'Tis added, that in the Iſland of St. *Jago*, they are obliged to expoſe their Sweetmeats daily to the Sun, to exhale the Moiſture they had contracted in the Night, which would otherwiſe occaſion 'em to putrify.

On this Principle depends the Structure and Office of the Hygrometer. See HYGROMETER.

Theſe Diverſities in the *Air*, are found to have an Influence on the Operations, Experiments, &c. of Philoſophers, Chymiſts, and other Operators.

Thus, 'tis very difficult to procure Oil of Sulphur *per Campanam* in a clear dry Atmoſphere, its Parts being then ſo ready to eſcape into the *Air*: But in a thick, moiſt *Air*, the Oil comes in abundance.—So, all Salts melt eaſieſt in a cloudy *Air*; and when melted, act moſt forcibly. And all Separations ſucceed beſt in ſuch Weather.—If Salt of Tartar be expoſed in a Place where any acid Spirit is floating in the *Air*, it will imbibe the ſame; and of fixed become volatile. Hence, the Experiments made of Salts at *London*, where the *Air* is plentifully impregnated with Sulphur exhaled from Sea-Coal, prove different from thoſe made on the ſame Subjects in other Parts of the Kingdom, where Wood, Torf, &c. are the uſual Fuel. Hence alſo, metalline Utenſils, &c. ruſt much ſooner at *London*, than in other Parts, where there are fewer acid corroſive Corpuſcles in the *Air*; and Fermentation, which is eaſily raiſed and carried on in a Place free of Sulphur, is impracticable in Places where ſulphurous Exhalations abound.—If pure well-fermented Wine be carried into a Place where the *Air* is repleniſh'd with the Fumes of new Wine then fermenting; it will begin to ferment afreſh. So Salt of Tartar ſwells, and as it were ferments, when carried into a Place where Spirit of Nitre, Vitriol, or Sea Salt is preparing.—'Tis Matter of common Obſervation among Brewers, Diſtillers, Vinegar-makers, &c. that at the Time when thoſe ſeveral Plants uſe to be in flower, the reſpective Juices ferment, and the Proceſs ſucceeds the beſt.—Add, that Stains cauſed by vegetable Juices, are obſerved to be beſt taken out of Linen, at the Time when the ſeveral Plants that afford them are in their Prime. This, Mr. *Boyle* obſerves, has been experienc'd in the Stains of Juice of Quinces, Hops, &c. which latter, eluding all the endeavours that could be uſed to get it out, has vaniſh'd of it ſelf the next Hop-ſeaſon.

After all, ſome of our more curious and penetrating Naturaliſts, have obſerved certain Effects of *Air*, which do not appear to follow from any of the Properties, or the Materials above recited.—On this View, Mr. *Boyle* has compoſed an expreſs Treatiſe of *Suſpicions about ſome unknown Properties of the* Air.—The Phænomena of Fire and Flame *in Vacuo*, ſeem, according to him, to argue ſome odd unknown vital Subſtance diffuſed thro' the *Air*, on Account whereof that Fluid becomes ſo neceſſary to the Subſiſtence of Flame: but whatever this Subſtance be, it ſhould ſeem by its ſudden waſting or ſpoiling, that the Quantity thereof is very inconſiderable, in proportion to the Bulk of *Air* it impregnates with its Virtue; in regard, when the Flame can no longer ſubſiſt in it, the *Air*, upon Examination, is not found to have undergone any Alteration in any of its Properties. See FLAME.

Other Inſtances to countenance ſuch Suſpicions, are, the Appearance and Growth of Salts in many Bodies; which either afford 'em not at all, or not in that plenty, unleſs expoſed to the *Air*. Mr. *Boyle* mentions ſome Marcaſites dug from under ground, which being kept in a dry Room, were ſoon cover'd over with a vitriolick Efflorescence, and in a little time, by the Operation of the *Air* on 'em, were in great part crumbled into a Pouder exceeding rich in Copperas; tho they had probably lain many Ages entire under ground: So, the Earth or Ore of Allom, and many other Minerals, robb'd of their Salt, Metals, or the like, will in tract of time recover 'em; and the like is obſerved of the Cinders of Sea-Coal at the Iron Works. See MINE, METAL, IRON-WORKS, ASHES, &c.

Mr. *Boyle* adds, that ſome Lime in old Walls has in time gained a large Efflorescence of a nitrous Nature, from which Salt-petre was procurable. Add, that the Colcothar of Vitriol is not naturally corroſive, nor can any Salt be procured from it, even by the Affuſion of Water; but being expoſed a-while to the *Air*, it yields a Salt, plentifully. See COLCOTHAR.

The Exiſtence of ſuch hidden Properties, is alſo argued, from the Acceſs of the *Air* rendering Antimonial Medicines emetick, and diſpoſed to produce Faintings and Heartburnings; and from its ſpeedy corrupting and mouldering of Trees dug from under ground, which had for Ages remain'd firm, and almoſt impervious to the Ax. See ANTIMONY, and SUBTERRANEOUS.

To ſay no more, the Silks in *Jamaica*, if expoſed to the *Air*, ſoon rot; even while they preſerve their Colour: whereas, if kept from the *Air*, they hold both their Firmneſs and Dye: And the ſable Taffety worn at *Braſil*, becomes in a few Days of an iron-grey Colour in the *Air*; but in the Shops preſerves its Hue: And ſome Leagues beyond *Parigua*, white People ſoon grow tawny; but as ſoon recover their native Colour, upon removing out of that Quarter.——Theſe, out of a great Number of Inſtances tending the ſame way, may convince us, that notwithſtanding all the Diſcoveries hitherto made concerning *Air*, there ſtill remains a Field for future Inquiries.

AIR, in Medicine, &c. makes one of the ſix Non-Naturals. See NON-*Natural*, HEALTH, DISEASE, &c.

From Obſervations on Bleeding in Rheumatiſms, and after taking Cold, 'tis evident, the *Air* can enter with all its Qualities, and vitiate the whole Texture of the Blood, and other Juices. See BLOOD.

From the Palſies, Vertigoes, and other nervous Affections cauſed by Damps, Mines, &c. 'tis evident *Air* thus qualified can relax and obſtruct the whole nervous Syſtem. See DAMP, &c.——And from the Cholicks, Fluxes, Coughs, and Conſumptions produced by damp, moiſt, and nitrous *Air*, 'tis evident it can corrupt and ſpoil the noble Organs, &c.——*See further under the Article* ATMOSPHERE.

Innate AIR, is a fine *aerial* Subſtance, ſuppoſed by ſome Anatomiſts to be incloſed in the Labyrinth of the inner Ear, and to miniſter to the due Conveyance of Sounds to the Senſory. See LABYRINTH, SOUND, and HEARING.

But the Exiſtence of ſuch *Innate Air*, has of late been called in queſtion, and even diſproved. See EAR.

AIR, in Muſick, ſignifies the *Melody*, or the Inflection of a Muſical Compoſition. See MELODY.

The Word is alſo uſed for a Song it ſelf. See SONG.

AIRS, in Horſemanſhip, the artificial or practiſed Motions of a manag'd Horſe. See HORSEMANSHIP.

Such are the *Demi-volt*, *Curvet*, *Capriole*, *Croupade*, *Balotade*, and *Step and Leap*. See DEMIVOLT, CURVET, CAPRIOLE, SALT, &c.

Some Authors take *Airs* in a more extensive Sense; and divide 'em into *low*, and *high*.

The *low Airs* include the Natural Paces, as Trotting, Walking, Galloping, and Terra-a-Terra. See PACE, TROT, GALLOP, &c.

The *high*, or *rais'd Airs*, are all such Motions as rise higher than the Terra-a-terra; as the *Demivolt*, *Curvet*, &c.

AIR PUMP, a Machine, by means whereof the *Air* may be exhausted out of proper Vessels. See AIR.

The Use and Effect of the *Air-Pump*, is to make, what we popularly call, a *Vacuum*; which, in reality, is only a Degree of Rarefaction sufficient to suspend the ordinary Effects of the Atmosphere. *See the Article* VACUUM.

By this Machine, therefore, we learn, in some measure, what our Earth would be without an Atmosphere; and how much all Vital, Generative, Nutritive, Alterative Power, depend thereon. See ATMOSPHERE.

The Principle on which it is built, is the Elasticity of the *Air*; as that on which the common or Water-Pump is founded, is the Gravity of the same *Air*. See PUMP.

The Structure of the *Air-Pump* is, in it self, more simple even than that of the Water-Pump.—The latter supposes two Principles, Gravity and Elasticity likewise: So that the Water-Pump must first be an *Air-Pump*, *i. e.* must ratify the *Air* ere it raise the Water.—In effect, Water being a dormant unelastick Fluid, needs some external Agent to make it ascend; whereas *Air* ascends in Virtue of its own elastick Activity: its natural Tendency is, to separate and leave a Vacuum; and all that remains to Art, is to prevent the ambient *Air* from supplying the Place of what thus spontaneously flies away.

To say no more, to make Water ascend, the Force wherewith it is press'd downwards, is either to be diminish'd or increas'd in one Part, more than another; like a Balance in Equilibrio, one of whose Scales may be made to rise, either by diminishing its own weight, or increasing that of the other: the Water, therefore, recedes from the common Centre of Gravity, by the very Power wherewith it tends towards it, indirectly or secondarily applied; for that two similar centripetal Forces being made to act contrary to each other, what the one over-balances the other, must have the Effect of a Centrifugal Force.—Whereas, the Principle whereby *Air* rarifies or diminishes, does not respect the Centre of the Earth, but the Centres of its own Particles; being no other than a certain implanted Power, whereby they immediately tend to recede from each other. See REPELLING *Power*.

The Invention of this noble Instrument, to which the present Age is indebted for so many fine Discoveries; is ascribed to *Otto de Guerick*, the celebrated Consul of *Magdeboyrg*; who exhibited his first publick Experiments therewith, before the Emperor and the States of *Germany*, at the breaking up of the Imperial Diet at *Ratisbon*, in the Year 1654.

Dr. *Hook* and M. *du Hamel*, indeed, ascribe the Invention to Mr. *Boyle*; but that ingenious Author frankly confesses *de Guerick* to have been beforehand with him. Some Attempts, he assures us, he had made upon the same Foundation, before he knew any thing of what had been done abroad: but the Information he afterwards receiv'd from *Schottus*'s *Mechanica Hydraulico-Pneumatica*, published in 1657, wherein was an Account of *de Guerick*'s Experiments, first enabled him to bring his Design to any thing of Maturity.—From hence, with the Assistance of Dr. *Hook*, after two or three unsuccessful Trials, arose a new *Air-Pump*; more easy and manageable than the *German* one: and hence, or rather from the great Variety of Experiments that illustrious Author applied it to, the Engine came to be denominated, the *Machina Boyleana*.

Structure and Use of the AIR-PUMP.

The Basis or essential Part in the *Air-Pump*, is a metalline Tube, answering to the Barrel of a common Pump, or Syringe; having a Valve at the bottom, opening upwards: and a moveable Piston or Embolus, answering to the Sucker of a Pump, furnish'd likewise with a Valve opening upwards.—The whole, duely fitted to a Vessel, as a Recipient. See EMBOLUS, VALVE, and RECIPIENT.—See also SYRINGE.

The rest, being only Circumstances chiefly respecting Conveniency, has been diversified and improved from time to time, according to the several Views and Address of the Makers.—That of *Otto de Guerick* being less artless, laboured under several Defects, in respect of the Force necessary to work it, which was very great; and the Progress very slow: beside that it was to be kept under Water; and allow'd of no Change of Subjects for Experiments.

Mr. *Boyle*, by degrees, removed several of these Inconveniences; and alleviated others: but still the Working of his Pump was laborious, by reason of the Pressure of the Atmosphere, a great part of which was to be removed at every Exsuction, after a Vacuum was nearly arrived at.—But this Inconvenience has been since removed by Mr. *Hawksbee*, who by adding a second Barrel and Piston to the former, to rise as the other fell, and fall as it rose; made the Pressure of the Atmosphere on the descending one, of as much service as it was of disservice in the ascending one.

Some of the *Germans* have also brought the *Air-Pump* to do the opposite Office of a Condenser: But this is not to make the Instrument so much better, as more complex. See CONDENSER.

The Structure of the Air-Pump, as now made among us, with all its Advantages, is represented in Tab. *Pneumaticks*, Fig. 16.

It consists of two brazen Barrels or Cylinders, represented by *a a a a*; which communicate with each other by a Canal passing between them at *d d*; and with the Receiver *o o o o*, by means of the hollow Wire *b b*, one End whereof opens into the Canal of Communication, and the other into a like Canal *n n*; which penetrating the Plate *i i i i*, opens into the Receiver.

Within the Cylinders are two Emboli, or Suckers made of Brass, and fitted with Cork and Leather to the Cavities of the Barrels, so as exactly to fill the same; each being furnish'd with its Valve, and terminating at top in a Rack *c c*, by which it is to be work'd.

At the bottom of either Barrel is another Valve; by which the *Air* may pass out of the communicating Canal *d d*, and consequently out of the hollow Wire and the Receiver it self, into the Cylinder, below the Piston; from whence by the Valves of the Piston it may proceed into the upper Space of the Cylinder, and thus into the open *Air*.

For the Application of this Mechanism.——The Winch *b b* being turn'd upward and downward; its Spindle *f*, catching by its Teeth into the Racks, will raise and depress the two Pistons, alternately.—Now, the Consequence of depressing a Piston, is, that the *Air* before inclosed between it and the bottom of the Cylinder, being thus crowded into a less compass, will, by its elastick Force, which now exceeds the Pressure of the Atmosphere, push up the Valve of the Piston, and thus escape; till what little remains be of the same Density with the external *Air* incumbent on the Valve.

This done, and the same Piston being again raised in its turn, from the bottom of the Cylinder to the top; the little *Air* before left, will of necessity expand it self, so as to possess the whole Space of the Cylinder thus deserted by the Piston: Upon which, its Force or Pressure upon the Valve at the bottom of the Cylinder, being now inconsiderable; the other, denser *Air* of the Receiver, hollow Wire, and Canal of Communication, by their superior elastick Force, will lift up the Valve, and thus pass into the Cylinder of rarified *Air*, till both be of the same degree of Density.

And thus is the *Air* in the Receiver diminish'd at each Elevation of the Piston, by the Quantity of a Cylinder full; abating for what little remain'd between the depress'd Piston, and the bottom: So that by thus repeating the Operation again and again; the *Air* in the Receiver is at length rarified to such degree, that its Density does not exceed the thin *Air* remaining in the Cylinder when the Piston is raised: which done, the Effect of the *Air-Pump* is at an end; the Valve cannot now be open'd, or if it could, no *Air* would pass it; there being a just Equilibrium between the *Air* on each side.

To judge of the Degree of Exhaustion, there is added a Gage, *l l*; consisting of a Tube, whose upper Orifice communicates with the Receiver; the lower being immerged in a Bason of Mercury, *m m*.—Hence, the *Air* in the Tube rarifying as fast as that in the Receiver; in proportion as the Exhaustion advances, the Mercury will be raised by the Pressure of the Column of external *Air*, prevailing over that of the Column of *Air* included; till the Column of *Air*, and Mercury together, become a Balance to that of the external *Air*. When the Mercury is thus risen to the same Height as it stands in the Barometer, which is indicated by the Scale of Inches added to the Gage; the Instrument is a just Torricellian Tube; and the Vacuum may be concluded to be as perfect as that in the upper End of the Barometer. See BAROMETER, and TORRICELLIAN.

To let *Air* again into the exhausted Receiver, the Cock *n* is to be turn'd; which makes a Communication with the external *Air*; upon which the *Air* rushing impetuously in, the Mercury in the Gage immediately subsides into the Bason.

To the *Air-Pump* belongs a large Apparatus of other Vessels, accommodated to the divers Kinds of Experiments. See APPARATUS.

Laws of Rarefaction in the Receiver of an Air-Pump.

1°, For the Proportion of *Air* remaining at any time in the Receiver, we have the following general Theorem.—

—*In*

'*In a Vessel exhausted by the* Air-Pump, *the primitive* '*or natural* Air *contained therein, is to the* Air *remaining,* '*as the Aggregate of the Capacity of the Vessel and of the* '*Pump,* (*i. e.* the Cylinder left vacant in an Elevation 'of the Piston, with the Wire and other Parts between the 'Cylinder and Receiver) *rais'd to a Power whose Exponent* '*is equal to the Number of Strokes of the Piston, to the* '*Capacity of the Vessel alone raised to the same Power.*'

M. *Varignon* gives an Algebraical Demonstration of this Theorem, in the *Memoires de l'Acad. R.* An. 1705. p. 397, but it may be also demonstrated pneumatically, thus:——Calling the *Air* remaining after the first Stroke, the *first Residual*; that after the second, the *second Residual*, &c. and remembering that the *Air* in the Receiver is of the same Density as that in the Cylinder, when the Piston is raised: it is evident, that the Quantity of *Air* in the Receiver, is to the Quantity of *Air* in the Cylinder, Wire, *&c.* as the Capacity of the Receiver to that of the Cylinder, *&c.* and consequently, the Aggregate of the *Air* in the Receiver and the Cylinder, *i. e.* the whole primitive *Air*, is to the *Air* in the Vessel alone, *i. e.* to the first Residual *Air*, as the Aggregate of the Capacity of the Receiver and the Cylinder, to the Capacity of the Receiver alone.—After the same manner may it be proved, that the Quantity of first residual *Air*, is to the second Residual, as the Aggregate of the Capacity of the Receiver and Cylinder, to the Capacity of the Vessel alone. And the same Proportion does the second Residual bear to the third, and so of the rest.——Hence, the Product of the primitive *Air* into the first, second, third, fourth, *&c.* Residuals, is to the Product of the first Residual into the second, third, fourth, fifth, *&c.* as the Product of the Capacity of the Receiver and Cylinder together, multiplied as oft into it self as the Number of Strokes of the Piston contains Units; to the *Factum* arising from the Capacity of the Receiver alone, multiplied so often by it self: That is, As the Power of the Aggregate of the Capacity of the Receiver and Cylinder together, whose Exponent is the Number of Strokes of the Piston, to the Capacity of the Vessel alone, raised to the same Power.—Consequently the primitive *Air* is to the last Residual, in the Ratio of those Powers. *Q. E. D.*

2°, The Number of Strokes of the Piston, together with the Capacity of the Receiver and Cylinder with the Wire, *&c.* being given; to find the Ratio of the primitive *Air* to the *Air* remaining.

Subtract the Logarithm of the Capacity of the Receiver, from that of the Sum of the Capacity of the Receiver and the Cylinder; then, the Remainder being multiplied by the Number of Strokes of the Piston, the Product will be a Logarithm, whose Natural Number shews how oft the primitive *Air* contains the Remainder requir'd.

Thus, if the Capacity of the Receiver be 460, that of the Cylinder 580, and the Number of Strokes of the Piston 6; the primitive *Air* will be found to the remaining *Air*, as $146\frac{4}{10}$ to 1.

For, suppose the Capacity of the Vessel $= v$; that of the Cylinder and Vessel together, $= a$; the Number of Strokes of the Piston $= n$; and the remaining *Air* $= 1$. Since the Primitive is to the remaining *Air* as a^n to v^n; the primitive *Air* will also be to the remaining *Air*, as $a^n : v^n$ to 1. Consequently, if the remaining *Air* be 1, the Logarithm of the primitive *Air* is $a - v \times n$.

3°, The Capacity of the Receiver and the Barrel being given; to find the Number of Strokes of the Piston required to rarify the *Air* to a given Degree.

Subtract the Logarithm of the remaining *Air* from the Logarithm of the primitive *Air*; and the Logarithm of the Capacity of the Receiver, from the Logarithm of the Aggregate of the Capacity of the Receiver and Cylinder; then, dividing the former Difference by the latter, the Quotient is the Number of Strokes requir'd.

Thus, if the Capacity of the Cylinder be supposed 580; that of the Receiver 460; and the primitive *Air* to the remaining *Air*, as 1464 to 10: The Number of Strokes required will be found to be 6.

Beside the Effects, and Phænomena of the *Air-Pump*, recounted under the Articles VACUUM, AIR, *&c.* we may add some others; which, related at large, make the Substance of Mr. *Boyle's Phys. Mech. Exper.* As,—That the Flame of a Candle usually goes out in a Minute, tho it sometimes lasts two, but the Wieck thereof continues ignited after; and even emits a Smoke, which ascends upwards.—That a kindled Charcoal is totally extinguish'd in about five Minutes, tho in open *Air* it remain alive half an Hour; and that it goes out by degrees, beginning from the Top and the Outsides.—That red-hot Iron is not affected by the Absence of the *Air*; and yet that Sulphur or Gunpowder will not be lighted thereby, but only fused.—That a Match, after lying seemingly extinct *in Vacuo*, a long time; revives again upon the Re-admission of the *Air*.—That a Flint and Steel strike Sparks of Fire as copiously *in Vacuo* as out of it; and that the Sparks move in all Directions, upwards, downwards, *&c.* here, as in the *Air*.—That Magnets and Magnetick Needles, are the same *in Vacuo* as in *Air*.—That Smoke in an exhausted Receiver, the Luminary being extinct, gradually settles to the Bottom in a darkish Body, leaving the upper part clear and transparent; and that inclining the Vessel sometimes on one side, and sometimes on another, the Fume keeps its Surface horizontal, after the Nature of other Fluids.—That the Syphon does not run *in Vacuo*.——That Water freezes *in Vacuo*.—That Heat may be produced by Attrition in the exhausted Receiver.——That Camphire will not take fire *in Vacuo*; and that Gunpowder, tho some Grains of a Heap be kindled by a Burning-glass *in Vacuo*, will not give Fire to the contiguous Grains.——That Glow worms lose their Light, in proportion as the *Air* is exhausted; and at length become totally obscure: but upon the Re-admission of *Air*, presently recover it all.—That Vipers and Frogs swell much *in Vacuo*, but will live an Hour and half, or two Hours; and tho seemingly stark dead in that time, come to Life again in some Hours in the *Air*.—That Snails survive ten Hours; and Efts or Slow-worms, two or three Days; Leaches five or six.—That Oysters will remain alive *in Vacuo* 24 Hours without harm.—That the Heart of an Eel taken out of the Body, continues to beat *in Vacuo*, more nimbly than in *Air*; and this for a good part of an Hour.—That warm Blood, Milk, Gall, *&c.* undergo a considerable Intumescence, and Ebullition *in Vacuo*.—That a Mouse, or other Animal, may be brought, by degrees, to survive longer in a rarified *Air*, than naturally it does.—That *Air* may retain its usual Pressure, after it is become unfit for Respiration.—That Silk-Worms Eggs will hatch *in Vacuo*, &c.

AIRY, or AIRIE, of Hawks. See AERY.

AIRY *Triplicity*, among Astrologers, the Signs of *Gemini*, *Libra*, and *Aquarius*. See TRIPLICITY.

AISIAMENTA, in Law. See EASEMENTS.

AJUSTING. See ACCOMMODATION.

AJUTAGE, in Hydraulicks, part of the Apparatus of an artificial Fountain, or *Jet d'Eau*; being a sort of Tube, fitted to the Mouth or Aperture of the Vessel; thro' which the Water is to be play'd, and by it determin'd into this or that Figure.

'Tis chiefly the Diversity in the *Ajutages*, that makes the different Kinds of Fountains.—And hence, by having several *Ajutages* to be applied occasionally, one Fountain comes to have the Effect of many.

The various sorts of Ajutages, *their Structure, Application*, &c. *see under the Article* FOUNTAIN.

The Word is *French*, form'd of the Verb *Ajouter*, to adjust.

AKOND, an Officer of Justice in *Persia*, who takes cognizance of the Causes of Orphans, and Widows; of Contracts, and other Civil Concerns.—He is Head of the School of Law, and gives Lectures to all the subaltern Officers; he has his Deputies in all the Courts of the Kingdom, who, with the second Sadra, make all Contracts.

AL, an *Arabick* Particle, prefix'd to Words to exalt or give them a more emphatical Signification.—As, in *Al*chymy, *Al*gebra, *&c.*

AL, or ALD, in our antient Customs, signifies as much as *old*, *antient*.—This, being prefix'd to the Names of Places, expresses their Antiquity; as *Aldborough*, *Aldgate*, &c.

ALA, a *Latin* Term, literally signifying *Wing*. See WING.

ALA is also used in Anatomy, for several Parts of the Body, which bear some resemblance to the Figure of a Wing. Thus, the Lobes of the Liver are sometimes called *Alæ*. See LOBE.

The soft, spongious Bodies in the *Pudendum Muliebre*, usually called the *Nymphæ*, are also denominated *Alæ*. See NYMPHÆ.

The two Cartilages of the Nose which form the Nostrils, are also called *Alæ*. See NOSE, and NOSTRIL.

And the same Denomination is given to the Top of the Auricle. See AURICLE, and EAR.

ALA is also used in Botany, for the Angle which the Leaves, or the Stalks or Pedicles of the Leaves, form with the Stem or Branches of a Plant from which they arise. See LEAVE, *&c.*

This Angle is usually acute, and always directed upwards.—The same Name is occasionally applied to the Angle form'd by the Branches themselves, with the Stem; which is also observed to be very regular and uniform. See BRANCH.

ALÆ, in the Military Art, are the two Extremes of an Army, ranged in form of Battle. See WING, ARMY, *&c.*

ALABASTER, ALABASTRIDES, in Natural History, a kind of Stone, softer than Marble, yet harder than Plaister of Paris. See STONE.

It is found of all Colours; some extremely white and shining, which is the most common; some red, like Coral; and other called *Onyx* from its Colour, which resembles that of the Onyx, tho very different from it in Nature. See ONYX.

Alabaster cuts very smooth and easy, and is much us'd among Sculptors for little Statues, Vases, Columns, &c. See Statue, Foundery, &c.

They sometimes also employ it like Plaister of Paris: in order to which, they burn and calcine it; after which, mixing it up with Water to a thin Consistence; it is cast into a Mould, where it readily coagulates into a firm Body. See Plaister.

Alabaster, Mr. *Boyle* observes, being finely pouder'd, and thus set in a Bason over the Fire; will, when hot, assume the Appearance of a Fluid, by rolling in Waves, yielding to the smallest Touch, and emitting Vapour; all which Properties it loses again, on the Departure of the Heat, and discovers it self a mere incoherent Pouder. See Fluid, and Fluidity.

Some derive the Word from the Latin *albus*, because of the Whiteness of this Stone.—Others, from the Greek ἀλάβασγρ, which they form from the Privative α and λαμβάνω, *capio*; this Stone being too smooth and slippery for the Hand to fasten hold of it.

The *Alabaster* Box of precious Ointment, mention'd in St. *Matthew* XXVI. 7. *Mark* XIV. 3. and *Luke* VII. 37. has given the Criticks and Interpreters some Pain.—To suppose it a Vase of *Alabaster*, does not seem consistent with its breaking so easily, as is intimated by St. *Mark*.

F. *Kircher*, in his *Oedip. Ægyp.* notes, that *Alabaster*, *Alabastrum*, was not only used for a Vase of odoriferous Liquor, but also for an *Egyptian* Measure, containing nine *Kosti*, or *Egyptian* Pounds; amounting, according to his Computation, to 24 *Roman* Sextaries, or Pounds. See Measure, Weight, &c.

ALABASTRA, in a Plant, are those little green Leaves which compass in the bottom of the Flower. See Calyx, &c.

ALAISEE, in Heraldry. See Humetty.

A-LA-MIRE, in Musick. See Note, and Gamut.

ALAMODE, a sort of Silk, or Taffety. See Stuff, Silk, Taffety, &c.

ALANORARIUS, in our antient Customs, a Keeper or Manager of Spaniels, or Setting-Dogs, for the Sport of Hunting, Hawking, &c. See Hunting, and Hawking.

The Word is form'd from the Gothic *Alan*, a Greyhound.

ALARES, in Antiquity, are supposed by some Authors to have been a kind of Militia, or Soldiery among the *Romans*; so called from *Ala*, a Wing, because of their Lightness and Swiftness in the Combat.

Others make them a People of *Pannonia*: but others, with more probability, take *Alares* for an Adjective or Epithet; and apply it to the *Roman* Cavalry; because plac'd in the two Wings, or *Alæ* of the Army; for which Reason, a Body of Horse was called *Ala*. See Wing, Cavalry, &c.

Alares *Musculi*, in Anatomy. See Pterygoides.

ALARM, a Signal given by Shouts, or by Instruments of War, for the Soldiers to take to their Arms, at the unexpected Arrival of an Enemy.

The Word is form'd from the French *à l'arme*, to your Arms.

Alarm-*Post*, is the Ground appointed to each Regiment, by the Quarter-Master-General, for them to march to, in case of an *Alarm*.

In a Garison, the *Alarm-Post* is the Place where every Regiment is order'd to draw up, on all Occasions. See Place.

ALB, Albe, Alba, antiently called *Camisia*, a Robe or Vestment of white Linen, hanging down to the Feet; wherein the *Romish* Priests perform divine Service.

The *Alb* corresponds to the Surplice among us.—It takes its Name from its Colour, *albus*, white.

ALBA *Firma*, or Album, was a yearly Rent, payable to the Chief Lord of a Hundred; so called, because paid wholly in white Money, or Silver, and not in Corn, which was called *Black Mail*.

ALBIGENSES, a Sect or Party of Reformers about *Tholouse*, and the *Albigeois*, in *Languedoc*; who, in the XIIth Century, became remarkable for their opposition to the Discipline and Ceremonies of the Church of *Rome*. See Reformation.

They were also known by various other Names; as, the *Petrobrussians*, *Arnoldists*, *Cathares*, *Patarins*, *Publicans*, *Tisserans*, *Bons-hommes*, *Passagers*, &c.

'Tis pretended, they received their Opinions from *Bulgaria*; which having been infected by the *Paulicians* of *Armenia*, diffused the same into *Italy*, *Germany*, &c. and that *Peter Bruys* was the first that brought 'em into *Languedoc*, about the Year 1126. See Petrobrussian.

The *Romanists* tax them with abundance of heterodox Opinions; as, for instance, that there are two Gods, the one infinitely Good, and the other infinitely Evil: That the good God made the invisible World, and the Evil one that which we live in; and the rest of the *Manichean* Tenets. See Manichee.

But this seems rather one of those pious Frauds allowed particularly in that Church, which esteems it a kind of Merit to blacken Hereticks.

However this be, the *Albigenses* grew so formidable in a little time, that a Holy League or Croizade was agreed upon among the Catholicks; and War denounc'd against them, the Pope himself raising the first Standard.—In 1229, a Peace was struck up, and an Inquisition establish'd at *Tholouse*, from which time they dwindled by little and little, till the Times of the Reformation; when such of them as were left, fell in with the *Vaudois*, and became conformable to the Doctrine of *Zuinglius*, and the Discipline of *Geneva*. See Vaudois.

ALBUGINEA, in Anatomy, the outermost Coat or Tegument of the Eye; called also the *Adnata*, *Conjunctiva*, &c. See Adnata, Conjunctiva, &c.

It takes the Name *Albuginea*, from its Whiteness; it being this that forms what we call the *White of the Eye*. See Eye.

The same Term is also applied to the Membrane immediately encompassing the Testicle. See Testicle, and Scrotum.

ALBUGO, or Album *Oculi*, the same with the *Albuginea*, or *White of the Eye*. See Eye, Albuginea, &c.

Albugo is also a Disease of the Eye; otherwise called *Leucoma*, and popularly, *Pin and Web*. See Leucoma, and Pin.

The *Albugo* is a whitish Speck or Film, growing, say some Authors, on the Cornea; and obstructing the Sight.—Others, more justly, place the *Albugo* on the *Albuginea*; by this distinguishing it from the *Pterygium*, which is a similar Speck on the Cornea. See Pterygium.

It oftenest arises as a Scar, after an Inflammation or Ulcer in the Part; particularly in the Small Pox.—The Cure is the same as in the *Pterygium*.

ALBUM *Græcum*, or *Stercus Canis Officinale*, Dogs white Dung, is a Medicinal Drug, in the present Practice, used with Honey, to cleanse and deterge, chiefly in Inflammations of the Throat; and that principally outwardly, as a Plaister.

ALBUMEN *Ovi*, the White of an Egg. See Egg.

It is used in Medicine, as being of a glutinous or binding Nature, on which Account it is often mixed with Bole Armoniac, &c. to prevent any strained Part from rising into a Tumor, and restore it to its Tone or Elasticity.—It is also an Ingredient in some Mixtures for consolidating fresh Wounds, and preventing too great a Loss of Blood.

ALBURN *Colour*, Brown. See Auburn.

ALCADE, or Alcalde, or Alcaid, in the *Spanish* Policy, a sort of Judge or Minister of Justice, answering to a Provost. See Provost.

The *Spaniards* borrow their *Alcade* from the Saracen *Alcaid*. See Alcaid.

ALCAICKS, in the antient Poetry, a Name common to several Kinds of Verses; thus called from the Poet *Alcæus*, the Inventor thereof. See Verse.

The first Species of *Alcaicks*, consists of two Dactyls and two Trochees: As,

Exilium impositura cymbæ.

There is another Kind, consisting of five Feet, of which the first is a Spondee or Iambick; the second an Iambick; the third a long Syllable; the fourth a Dactyl; the fifth a Dactyl or Amphimacer: As these of *Horace*,

Omnes eodem cogimur, omnium
Versatur urna, serius, ocius
Sors exitura,——

Besides these two Kinds of Verses, which are call'd *Alcaick Dactylics*, there is a third sort, called simply *Alcaick*; whereof the first is an Epitrite, the second and third Choriambus's, and the fourth a Bacchius; as,

Cur timet flavum Tiberim | tangere? cur | olivum?

The Alcaick *Ode*, consists of four Strophes, each of which contains four Verses; the two first are *Alcaick* Verses of the second Kind; the third an Iambick Dimeter Hypercatalectick, *i. e.* of four Feet and a long Syllable: As,

Sors exitura, & nos in æternum.

The fourth is an *Alcaick* of the first Kind.——The entire *Alcaick* Strophe is as follows:

Omnes eodem cogimur, omnium
Versatur urna, serius, ocius
Sors exitura, & nos in æternum
Exilium impositura cymbæ.

ALCAID,

ALCAID, the Governour of a City in *Barbary*. See ALCADE.

The Jurisdiction of the *Alcaid* is sovereign, both in Civil and Criminal Concerns; and Fines and Punishments lie wholly at his Door.—The Word is form'd of the Particle *Al*, and the Verb ראל *kad*, or *akad*, to govern, rule, administer.

ALCALI, ALCALY, or rather ALKALY. See ALKALY.

ALCALIZATION, or ALKALIZATION, *Alcalizatio*, in Chymistry, the Act of impregnating a Liquor with an *alcaline* Salt. See ALKALY.

This is done either to make it a better Dissolvent, for some particular Purposes; or to load the Phlegm, so as it may not rise in Distillation, whereby the spirituous Parts may go over more pure. See DISSOLUTION, DISTILLATION, SPIRIT, &c.

ALCANTARA.——*Order of* ALCANTARA, was an antient Military Order, denominated from a City of that Name in the Kingdom of *Spain*. See KNIGHT, ORDER, &c.

Alphonsus IX. having recover'd *Alcantara* from the *Moors*, in the Year 1212; committed the Custody and Defence thereof, first, to the Knights of *Calatrava*; and, two Years afterwards, to the Knights of the Pear-Tree, another Military Order, instituted in 1170, by *Gomez Fernand*, and approved by Pope *Alexander* III. under the Rule of St. *Benedict*: upon which they changed their Name, and took the Denomination of *Knights of Alcantara*.

After the Expulsion of the *Moors*, and the Taking of *Granada*; the Sovereignty of the Order of *Alcantara*, and that of *Calatrava*, were settled in the Crown of *Castile*, by *Ferdinand* and *Isabella*. See CALATRAVA.

In 1540, the Knights of *Alcantara* sued for leave to marry; which was granted 'em.

ALCHYMY, or ALCHEMY, a higher or more refined kind of Chymistry, employ'd in the more mysterious Researches of the Art. See CHYMISTRY.

The Word is compounded of the *Arabic* Particle of Augmentation, *Al*, and the Latin *Chymia*, Egyptian *Kemia*, or *Greek* χημια, *Chymistry*.

The Name *Alchymy* is of no long standing: The first time it occurs, is in *Julius Firmicus Maternus*, an Author who lived under *Constantine* the Great, and who in his *Mathesis*, C. XV. speaking of the Influences of the Heavenly Bodies, affirms, "that if the Moon be in the House of "*Saturn*, at the Time a Child is born, he shall be skill'd "in *Alchymy*."

The great Objects or Ends pursued by *Alchymy*, are, 1°, The making of Gold; which is attempted three different ways: by Separation; by Maturation; and by Transmutation; which last is to be effected by means of what they call the *Philosopher's Stone*. See GOLD.—See also TRANSMUTATION, PHILOSOPHER'S *Stone*, &c.

With a View to this End, *Alchymy*, in some antient Writers, is also called ποιητικη, *Poetice*, Poetry; and χρυσοποιησις, *Chrysopoetice*, *q. d.* the Art of making Gold.—And hence also the Artists themselves are called ποιηται, *Poets*, *Makers*, and χρυσοποιηται, *Gold-makers*.

2°, An Universal Medicine, adequate to all Diseases. See ELIXIR.

3°, An Universal Dissolvent, or Alkahest. See ALKAHEST.

4°, An Universal Ferment; or a Matter which being applied to any Seed, shall increase its Fecundity to Infinity: If, *e. g.* it be applied to Gold, it changes the Gold into the Philosopher's Stone of Gold; if to Silver, into the Philosopher's Stone of Silver, *i. e.* into a Matter which transmutes every thing into Silver; if to a Tree, the Result is the Philosopher's Stone of the Tree, which transmutes every thing it is applied to into Trees, &c.

The Origin and Antiquity of *Alchymy* are much controverted.—If regard may be had to Legend and Tradition, it must be as old as the Flood; nay, *Adam* himself is represented by the *Alchymists* as an Adept. A great part, not only of the Heathen Mythology, but of the *Jewish* and Christian Revelations, are supposed to refer hereto: Thus, *Suidas* will have the Secret of the Philosopher's Stone couch'd in the Fable of the *Argonauts*; others find it in the Books of *Moses*, &c.

But, if the Æra of the Art be examin'd by the Monuments of History; it will lose a deal of this fancied Antiquity.—The learned *Dane*, *Ol. Borrichius*, has taken immense Pains to prove it known to the antient *Greeks* and *Egyptians*. *Her. Conringius*, on the contrary, with equal Address, undertakes to shew its Novelty.

In effect, not one of the antient Poets, Philosophers, or Physicians, from *Homer* till 400 Years after Christ, mention any such thing.—The first Author who speaks of making Gold, is *Zosimus* the *Panopolitan*, who lived towards the Beginning of the Vth Century, and who has an express Treatise, περι της ιερας τεχνης τ χρυσου και τ αργυρου ποιησεως, *Of the divine Art of making Gold and Silver*, still extant in Manuscript in the *French* King's Library. The next is *Æneas Garæus*, another *Greek* Writer, towards the Close of the same Century, in whom we have the following Passage: "Such as are skill'd in the Ways of Nature, can take Silver "and Tin, and changing their Nature, turn 'em into Gold." The same Writer tells us, he was "wont to style himself "χρυσιχους, *Gold-finder*, and χημευτης, *Chymist*."——Hence we may gather, there was some such Art in being in that Age; but, as neither of these Authors relate how long it had been known before, their Testimony will not carry us back beyond the Age wherein they liv'd.

Nor do we find any earlier, plainer Traces of the Universal Medicine: not a Syllable of any such thing in all the Physicians and Naturalists, from *Moses* to *Geber* the *Arab*, who is supposed to have lived in the VIIIth Century. In that Author's Work, intitled, *The Philosopher's Stone*, mention is made of "a Medicine which cures all Lepras:" This Passage some Authors suppose to have given the first Hint of the Matter; tho *Geber* himself, perhaps, meant no such thing: For, by attending to the *Arabick* Stile and Diction of this Author, which abounds in Allegory, it appears highly probable, that by *Man* he means Gold, and by Lepras or Diseases, the other Metals, which are all impure in comparison of Gold.

Suidas accounts for this total Silence of Authors in respect of *Alchymy*, by observing, that *Diocletian* procured all the Books of the antient *Egyptians* to be burnt; and that it was in these the great Mysteries of Chymistry were contained. —*Conringius* calls this History in question, and asks how *Suidas*, who lived but 500 Years before us, should know what happen'd 800 Years before him? To which *Borrichius* answers, that he had learnt it of *Eudemus*, *Helladius*, *Zosimus*, *Pamphilus*, &c. as *Suidas* himself relates.

Kircher asserts, that the Theory of the Philosopher's Stone is deliver'd at large in the Fable of *Hermes*; and that the antient *Egyptians* were not ignorant of the Art, but declined to prosecute it. They did not need to transmute Gold, they had ways of separating it from all kind of Bodies, from the very Mud of the *Nile*, and Stones of all Kinds. But, he adds, these Secrets were never wrote down or made publick, but confined to the Royal Family, and handed down traditionally from Father to Son.

The chief Point advanced by *Borrichius*, and on which he seems to lay the greatest Stress, is the Attempt of *Caligula*, mention'd by *Pliny*, for procuring Gold by Distillation from Orpiment. *Hist. Nat.* L. XXXIII. c. 14.—But this, it may be observed, makes very little for that Author's Pretensions; there being no Transmutation, no Hint of any Philosopher's Stone, but only a little Gold extracted or separated from the Mineral. See ORPIMENT.

The principal Authors in *Alchymy*, are *Geber*, Friar *Bacon*, *Ripley*, *Lully*, *John* and *Isaac Hollandus*, *Basil Valentine*, *Paracelsus*, *Van Zuchten*, and *Centivoglio*.

ALCMANIAN, the Name of a kind of Verse, compos'd of three Dactyls and a long Syllable; as,

Munera, lætitiamque Dei.

ALCOHOL, or rather ALKOOL, in Chymistry, an *Arabic* Term, chiefly understood of the purest Spirit of Wine, raised or rectify'd by repeated Distillations to its utmost Subtility, and Perfection; so that if Fire be set thereto, it burns wholly away, without leaving the least Phlegm or Fæces behind. See SPIRIT, DISTILLATION, RECTIFICATION, &c.

The Word *Alcohol* is sometimes also used for a very fine, impalpable Pouder. See POWDER.

The Word is form'd from the *Arabic* or *Hebrew* קאל *Kaal*, to lessen, attenuate, subtilize.

ALCORAN, the *Mahometan* Gospel; or the Revelations, Prophecies, &c. of the Impostor *Mahomet*. See MAHOMETANISM.

The Word *Alcoran* is *Arabick*, and literally denotes either Reading, or Collection; but 'tis in the first of these Senses that the *Alcoran* of *Mahomet* seems best understood; *Mahomet* purposing to have his Book call'd *Reading*, by way of Eminence; in imitation of the *Jews* and Christians, who call the New and the Old Testament *Writing*, *Scripture*, הכתוב *Books*, τα βιβλια, on the same account. See SCRIPTURE, and BIBLE.

The *Mussulmen* also call it אלפרקאן *Alpharkan*; from the Verb פרק *Pharaca*, to *distinguish*: either by reason it makes the Distinction between what is true, and false, or between what is lawful to do, and what not; or else on account of its containing the Divisions, or Heads of the Law: in which, again, they imitate the *Hebrews*, who give divers Books the like Name פרקים *Perakim*, q. d. *Capita*, *Capitula*, Chapters, Heads; *e. g.* the פרקי אבות *Capita Patrum*; פרקיר אליעזר *Capitula Rabbi* Eliezer. Lastly, the *Alcoran* is also denominated *Alzechr*, Advertisement, or Remembrance; as serving to retain or retrieve the Knowledge of the Law.

'Tis the common Opinion among us, that *Mahomet*, assisted by one *Sergius*, a Monk, compos'd this Book; but

the *Mussulmans* believe it as an Article of their Faith, that the Prophet, who they say was an illiterate Man, had no hand in it; but that it was given him by God, who, to that end, made use of the Ministry of the Angel *Gabriel*; that however it was communicated to him by little and little, a Verse at a time, and in different Places, during the Course of 23 Years.—' And hence, *say they*, proceeds ' that Disorder and Confusion visible in the Work;' which, in truth, is so great, that all their Doctors have never been able to adjust it. For *Mahomet*, or rather his Copist, having put all these loose Verses promiscuously in a Book together, it was impossible ever to retrieve the Order wherein they were deliver'd.

These 23 Years which the Angel employ'd in conveying the *Alcoran* to *Mahomet*, are of wonderful Service to his Followers; inasmuch as they furnish them with an Answer to such as tax them with those glaring Contradictions wherewith the Book is full: those Contradictions they piously father upon God himself; alledging, that in the Course of so long time, he repeal'd and alter'd several Doctrines and Precepts, which the Prophet had before receiv'd of him.

M. *d'Herbelot* thinks it probable, that when the Heresies of the *Nestorians*, *Eutychians*, &c. had been condemn'd by Oecumenical Councils; many Bishops, Priests, Monks, *&c.* being driven into the Desarts of *Arabia* and *Egypt*, furnish'd the Impostor with Passages, and crude ill-conceiv'd Doctrines out of the Scriptures: And it was hence, that the *Alcoran* became so full of the wild and erroneous Opinions of those Hereticks.

The *Jews*, also, who were very numerous in *Arabia*, contributed their Quota to the *Alcoran*; nor is it without some Reason that they boast, twelve of their chief Doctors to have been the Authors of this detestable Work.

The *Alcoran*, it is to be observ'd, while *Mahomet* lived, was only kept in loose Sheets: His Successor, *Abubeker*, first collected 'em into a Volume, and committed the keeping thereof to *Hapksa*, the Widow of *Mahomet*, in order to be consulted as an Original. And there being a good deal of Diversity between the several Copies already dispersed thro'out the Provinces; *Ottoman*, Successor of *Abubeker*, procur'd a great Number of Copies to be taken from that of *Hapksa*; at the same time suppressing all the others not conformable thereto.

The chief Differences, then, in the present Copies of this Book, consist in the Points; which were not in use in the Time of *Mahomet* and his immediate Successors, but were added since, to ascertain the Reading; after the Example of the *Massoretes*, who put the like Points to the *Hebrew* Text of Scripture. See POINT.

The Work is divided into *Surates*, or Chapters; and the Surates subdivided into little Verses, which are all composed in a broken interrupted Style, resembling Prose rather than Verse.—— The Division into Surates is but of a late standing: The usual Number of 'em is 60.

There are seven principal Editions of the *Alcoran*; two at *Medina*, one at *Mecca*, one at *Coufa*, one at *Barsora*, one in *Syria*, and the Common or Vulgate Edition. The first contains 6000 Verses; the others surpassing this Number by 200, or 236 Verses: But the Number of Words and Letters is the same in all, *viz.* 77639 Words, and 323015 Letters. See MASSORETES.

The Number of Commentaries on the *Alcoran*, is so large, that the bare Titles would make a huge Volume.—*Ben Oschair* has wrote the History thereof, intitled, *Tarikh Ben Oschair*. The principal among 'em are *Reidhaori Thaalebi*, *Zamalkschari*, and *Bacai*.

Beside the *Alcoran*, which is the Basis of the *Mahometan* Faith, they have also a Book containing their Traditions, which they call *Sonna*. See SONNA, TRADITION, MAHOMETANISM, *&c.*

The *Mahometans* have a positive Theology, built on the *Alcoran* and Tradition; as well as a Scholastical one, built on Reason.—They have likewise their Casuists, and a kind of Canon Law; wherein they distinguish between what is of divine, and what of positive Right.

They have their Beneficiaries too, Chaplains, Almoners, and Canons, who read a Chapter every Day out of the *Alcoran* in the Mosques; and have Prebends for so doing.—The Hatib of the Mosque, is what we call the Parson of the Parish; and the Scheics are the Preachers, who take their Text out of the *Alcoran*.

Among the *Persians*, *Alcoran* likewise signifies a kind of Tower, or Steeple; very high and narrow; surrounded without by two or three Galleries, one over another; whence their Moravites or Priests repeat their Prayers thrice a Day, with a very loud Voice; making the Tour of the Gallery all the while, that they may be the better heard all around.

ALCOVE, in Building, a part of a Chamber, separated by an Estrade, or Partition of Columns, and other corresponding Ornaments; in which is placed a Bed of State, and sometimes Seats, to entertain Company.

The Word is deriv'd from the Spanish *Alcoba*; and that from the Arabick *Elcanf*, a Cabinet or sleeping Place; or from *Elcobat*, a Tent.

ALCYON. See HALCYON.

ALDEBARAN, an *Arabian* Name, for a fixed Star of the first Magnitude, in the Head of the Sign or Constellation *Taurus*, or the Bull; and hence popularly called *the Bull's Eye*.

Its Longitude, Latitude, *&c.* *see among the rest of the Constellation* TAURUS.

ALDERMAN, an Associate to the Mayor or Civil Magistrate of a City or Town, for the better Administration thereof. See CITY, TOWN, *&c.*

The *Aldermen* are an Order of Magistrates, in our Cities, and most of the municipal or incorporate Towns; who form a kind of Council, and regulate Things relating to the Policy of the Place.—They sometimes also take Cognizance of Civil and Criminal Matters; but very rarely, and only in certain Cases.

Their Number is not limited; but in some Places more, in some less, from 6 to 26.

Out of these are annually elected the *Mayors* or chief Magistrates of Places; who, at the Expiration of their Mayoralty, return again into the Body of the *Aldermen*, whose Delegates they were before. See MAYOR.

The 26 *Aldermen* of *London*, preside over the 26 Wards of the City. See WARD.

When any of 'em die, the Wardmote return two, out of which the Lord Mayor and *Aldermen* chuse one.

All the *Aldermen* that have been Lord Mayors, and the three eldest *Aldermen* who have not yet arriv'd at that Dignity, are by Charter, Justices of the Peace.

Formerly, there were also *Aldermen* of the Merchants, of Hospitals, of Hundreds, *&c.* See SENATOR.

ALDERMAN, among our antient *Saxon* Ancestors, was one of the three Orders or Degrees of Nobility. See NOBILITY.

Ætheling was the first, *Alderman* the second, and *Thane* the lowest. See ÆTHELING, and THANE.

The *Alderman* was the same as our Earl or Count; which Appellation, after King *Athelstane*'s Time, took place in lieu of *Alderman*. See EARL, and COUNT.

In the Time of King *Edgar*, *Alderman* was also used for a *Judge*, or *Justice*.—In this Sense, *Alwin* Son of *Ethelstane*, is stiled *Aldermannus totius Angliæ*; which *Spelman* interprets, *Justiciarius Angliæ*.

Thomas Elhensis, in the Life of St. *Ethelred*, interprets *Alderman* by Prince, or Count; *Egelwinus qui cognominatus est* Alderman, *quod intelligitur princeps sive comes.*—*Matthew Paris*, in lieu of *Alderman*, uses the Word *Justiciarius*; and *Spelman* observes, that it was the *Norman* Kings, who, instead of the *Saxon Alderman*, introduc'd the Word *Justice*.

The Word in its original, is compos'd of *Alder*, Senior or Elder, and *Man*.

ALE, a popular, or *Beverage* Drink, made from Malt. See MALT, and DRINK.

For the Method of Brewing Ale, see BREWING.

Ale is chiefly distinguish'd from Beer, another potable Liquor made from the same Ingredients, by the Quantity of Hops used therein; which is greater in Beer, and therefore renders the Liquor bitterer, and fitter to keep. See BEER, HOPS, *&c.*

The Brewers also distinguish *Pale* or *Fine Ale*, *Brown Ale*, &c.——*Their several Properties, Effects*, &c. *see under the Article* MALT-*Liquor*.

The *Zythum* and *Curmi* mentioned by *Tacitus*, as the Beverage of the antient *Germans*, are supposed by *Matthiolus* to correspond to our *Ale* and Beer.

ALE, *Cerevisia*, is also a Denomination given to divers medicated Liquors, or Diet-Drinks, whereof *Ale* is the Basis, or Vehicle. See DIET-*Drink*.

The medicated Wines, Waters, and *Ales*, make a large Article in our Dispensatories. See WINE, WATER, *&c.*

Such are the *Cerevisia Oxydorica*, for the Eyes; *Cerevisia Anti-Arthritica*, against the Gout; *Cerevisia Cephalica*, for the Head; *Cerevisia Epileptica*, &c.

Gill ALE, is prepared by infusing the dry Leaves of *Hedera Terrestris*, *i. e.* Ground-Ivy, in Malt-Liquor; which hereby becomes impregnated with the Virtues of the Simple; and is therefore reputed Absterfive, and Vulnerary; good in Disorders of the Breast, and against Obstructions of the Viscera.

Dr. Butler's *Purging* ALE, is prepared of Polypody, Sena, Sarsaparilla, Aniseeds, Scurvygrass, Agrimony, and Maidenhair, put up in a Bag, and hung in a Vessel of *Ale*.

We also meet in some Dispensatories with *Syrop of Ale*, made by boiling that Liquor to a Consistence; used against Obstructions in the Kidneys, *&c.*

ALE-*Berry*, is *Ale* boil'd with Bread and Mace; sweetned, strain'd, and drank hot.

ALE-*Measure*. See MEASURE.

Ale-*Conner*, an Officer in the City of *London*, whose Business is to inspect the Measures of the Publick Houses.—There are four of them, and they are chosen by the Common-Hall of the City. See Measure.

Ale-*Silver*, a Rent or Tribute yearly paid to the Lord Mayor of *London*, by those who sell *Ale* within the City.

Ale-*Taster*, is an Officer appointed, and sworn in every Court-Leet, to look that there be a due Size and Goodness of Bread, *Ale*, and Beer, sold within the Jurisdiction of the Leet. See Assize, &c.

ALECTORIA, in Natural History, a Stone sometimes found in the Stomach, Liver, or rather Gall-Bladder of old Cocks. See Stone.

It is ordinarily of the Figure of a Lupine, and seldom exceeds the Bigness of a Bean.—It has abundance of Virtues attributed to it, but most of them are fabulous.

The Word is deriv'd from ἀλέκτωρ, *a Cock*.

ALECTOROMANTIA, an antient Kind of Divination, perform'd by means of a Cock. See Divination.

This Art was in use among the *Greeks*; and the manner of it was this.—A Circle was made on the Ground, and divided into 24 equal Portions, or Spaces; in each of which Spaces was written one of the Letters of the Alphabet, and upon each of these Letters was laid a Grain of Wheat.

This done, a Cock was turn'd loose into the Circle, and careful Observation made of the Grains he peck'd.—The Letters corresponding to those Grains, were afterwards form'd into a Word; which Word was to be the Answer desired.

'Twas thus that *Libanius* and *Iamblichus* sought who should succeed the Emperor *Valens*; and the Cock eating the Grains answering to the Spaces ΘΕΟΔ, they concluded upon *Theodore*, but by a Mistake instead of *Theodosius*.

The Word comes from the *Greek* ἀλεκτωρ, *a Cock*, and μαντία, *Divination*.

ALEMBICK, or Limbeck, a Chymical Vessel, consisting of a Matrass, fitted with a roundish Head, perforated in a sloping Tube, for the condensed Vapours to pass thro' in Distillation. See Cucurbit, and Distillation.

Alembick is popularly understood of the whole Instrument of Distillation with all its Apparatus; but in the proper Sense of the Word, it is only a Part hereof, *viz.* a Vessel usually of Copper, whereto a concave, globular, metalline Head is closely luted; so as to stop the rising Vapours, and direct them into its Rostrum or Beak.

The Heat of the Fire raising the volatile Parts of the Subject, exposed in the bottom of the Vessel; they are received into its Head, where they are condens'd, either by the Coldness of the ambient Air, or by Water externally apply'd; and become a Liquor, which runs out at the Beak into another Vessel, called the *Recipient*. See Recipient.

The Head or Capital of the *Alembick*, is sometimes incompassed with a Vessel full of cold Water, by way of Refrigeratory; tho this Intention is now more commonly answered by a *Serpentine*. See Refrigeratory, Serpentine, &c.

There are divers Kinds of *Alembicks*: An *Open Alembick*, where the Capital and Cucurbit are two separate Parts; a *Blind Alembick*, or Blind Head, where the Capital is sealed Hermetically upon the Cucurbit, &c.

The Word is form'd of the *Arabick* Particle *Al*, and the *Greek* ἄμβιξ, a sort of earthen Vessel, mention'd by *Athenæus*, and *Hesychius*. Tho, *Matthæus Silvaticus*, in his *Pandect Medicinæ*, asserts the Word *Alembick* to be *Arabick*, and that it literally denotes the upper Part of a distilling Vessel.

ALEXANDRINE, or Alexandrian, in Poetry, the Name of a kind of Verse, which consists of twelve and thirteen Syllables alternately; the rest or Pause being always on the sixth Syllable. See Verse.

It is said to have taken its Name from a Poem on the Life of *Alexander*, intitled, the *Alexandriad*; written, or at least transtated into this kind of Verse by some *French* Poets: tho others will have it denominated from one of the Transtators, *Alexander Paris*.

This Verse is thought by some very proper in the Epopea, and the more sublime Kinds of Poetry: for which Reason it is also called *Heroic Verse*. See Heroic.

It answers in our Language to the *Hexameters* in the *Greek* and *Latin*.—*Chapman*'s Transtation of *Homer*, consists wholly of *Alexandrines*.

ALEXIPHARMIC, in Medicine, expresses that Property which a Remedy, either simple or compound, hath to resist, or destroy every thing of a poisonous Nature: For the Antients had a Notion, that there was Poison in all malignant Diseases, and in the generality of those whose Cause is unknown. See Poison.

Alexiterial, *Cardiac*, *Antidote*, *Alexipharmic*, and *Counterpoison*, are all Terms of the same Signification. See Antidote, Counterpoison, &c.

Alexipharmics are ordinarily divided into such as are general; and those more particular, supposed only to combat some particular Disease.—But this Division is founded more on Speculation than Experience.

Alexipharmic Medicines, contain a great Number of volatile Parts, and such as render fluid the Mass of Blood. The greatest part of them are aromatick, and pungent to the Taste. See Aromatic.——Among the rest, it is true, there are some acid Plants and Juices; but these are only reckon'd in the Number, on account of their Use in malignant, colliquative Fevers.

Alexipharmics chiefly act by exciting or increasing a Diaphoresis, or Perspiration; by which the noxious Matter is thrown off. See Diaphoretics, Perspiration, &c.

Alexipharmics, whether simple or compound, are also esteemed Preservatives against malignant, and pestilential Fevers: But they are to be used with Caution; some being only proper in Condensations, and others in Colliquations of the Blood. See Preservative, Plague, &c.

The Word is derived from the *Greek* ἀλέξω, *arceo*, to drive out, or expel; and φάρμακον, *Venenum*, Poison.

Alexipharmic *Waters*, &c. See Water, &c.

ALEXITERIAL, in Medicine, a Term of the same import with *Alexipharmic*. See Alexipharmic.

It is form'd from the *Greek* ἀλέξω, *arceo*, I drive away, or *Opitulor*, I assist.

ALFET, antiently signified the Cauldron in which boiling Water was put, for the Accused to plunge his Hand in up to the Elbow, by way of Trial or Purgation. See Water.

ALGAROT, or Algarel, in the *Arabian* Chymistry, a Pouder prepared of Butter of Antimony; being in reality no more than the Regulus of that Mineral, dissolv'd in Acids, and separated again by means of several Lotions with lukewarm Water, which imbibes those Acids. See Regulus.

This is also called *Mercurius Vitæ*, or simply *Emetic Pouder*.—It purges violently both upwards and downwards. See Antimony.

By collecting all the Lotions, and evaporating two third Parts, what remains is a very acid Liquor, called *Spirit of Philosophical Vitriol*.

ALGEBRA, a Method of resolving Problems by means of Equations. See Problem, and Equation.

Some Authors define *Algebra* the Art of solving all Problems capable of being solv'd: But this is rather the Idea of *Analysis*, or the *Analytic Art*. See Analysis.

The *Arabs* call it, the *Art of Restitution and Comparison*; or, the *Art of Resolution and Equation*.—*Lucas de Burgos*, the first *European* who wrote of *Algebra*, calls it, the *Rule of Restoration and Opposition*.—The *Italians* call it, *Regula Rei & Census*, that is, the Rule of the Root and the Square; the Root with them being called *Res*, and the Square *Census*.—Others call it *Specious Arithmetick*; others *Universal Arithmetick*, &c.

Menage derives the Word from the *Arabic Algebra*, which signifies the setting of a broken Bone; supposing that the principal Part of *Algebra* is the Consideration of broken Numbers.——Others rather borrow it from the *Spanish Algebrista*, a Person who re-places dislocated Bones; adding, that *Algebra* has nothing to do with Fraction; in that it considers broken Numbers as if they were entire, and even expresses its Powers by Letters, which are incapable of Fraction.

Some, with M. *d'Herbelot*, are of Opinion, that *Algebra* takes its Name from *Geber*, a celebrated Philosopher, Chymist, and Mathematician, whom the *Arabs* call *Giaber*; and who is supposed to have been the Inventor.—Others, from *Gefr*, a kind of Parchment, made of the Skin of a Camel, whereon *Ali* and *Giafar Sadek* wrote in mystick Characters the Fate of *Mahometanism*, and the grand Events that were to happen till the End of the World.—But others, with more probability, derive it from *Gebr*, a Word whence, by prefixing the Particle *Al*, we have formed *Algebra*, which is pure *Arabic*, and properly signifies the Reduction of broken Numbers to a whole Number.

However, the *Arabs*, it is to be observed, never use the Word *Algebra* alone, to express what we mean by it; but always add to it the Word *Macabelah*, which signifies *Opposition and Comparison*.—Thus, *Algebra-Almocabelah*, is what we properly call *Algebra*.

Algebra is a peculiar kind of Arithmetick, which takes the Quantity sought, whether it be a Number, or a Line, or any other Quantity, as if it were granted; and by means of one or more Quantities given, proceeds by consequence, till the Quantity at first only suppos'd to be known, is found to be equal to some Quantity or Quantities which are certainly known, and consequently it self is known. See Quantity, and Arithmetic.

Algebra is of two Kinds, *viz. Numeral*, and *Literal*.

Numeral, or *Vulgar* Algebra, is that of the Antients, which only had place in the Resolution of Arithmetical Questions.—In this, the Quantity sought is represented by some Letter or Character; but all the given Quantities are express'd by Numbers. See Number, and Numerous.

Literal,

Literal, or *Specious* ALGEBRA, or the *New* ALGEBRA, is that wherein the given or known Quantities, as well as the unknown, are all expressed or represented by their Species, or Letters of the Alphabet. See SPECIES, and SPECIOUS.

This eases the Memory and Imagination of that vast Stress or Effort, requir'd to keep the several Matters necessary for the Discovery of the Truth in hand present to the Mind: For which Reason this Art may be properly denominated *Metaphysical Geometry*.

Specious Algebra, is not, like the Numeral, confin'd to certain Kinds of Problems; but serves universally for the Investigation or Invention of Theorems, as well as the Solution and Demonstration of all kinds of Problems, both *Arithmetical*, and *Geometrical*. See THEOREM, &c.

The Letters used in *Algebra*, do each separately represent either Lines or Numbers, as the Problem is Arithmetical or Geometrical; and together, they represent Planes, Solids and Powers more or less high, as the Letters are in a greater or less Number.—For instance, if there be two Letters, ab, they represent a Rectangle, whose two Sides are expressed, one by the Letter a, and the other by b; so that by their mutual Multiplication, they produce the Plane ab. Where the same Letter is repeated twice, as aa, they denote a Square.—Three Letters, abc, represent a Solid, or a rectangled Parallelopiped, whose three Dimensions are expressed by the three Letters abc; the Length by a, the Breadth by b, and the Depth by c: so that by their mutual Multiplication they produce the Solid abc.

As the Multiplication of Dimensions is expressed by the Multiplication of Letters, and as the Number of those may be so great as to become incommodious; the Method is, only to write down the Root, and on the right hand to write the Index of the Power, that is, the Number of Letters whereof the Power to be expressed does consist; as, a^2, a^3, a^4, a^5: the last of which signifies as much as a multiplied five times into it self; and so of the rest. See POWER, ROOT, EXPONENT, &c.

For the Symbols, Characters, &c. *used in* Algebra, *with their Application*, &c. *see the Articles* CHARACTER, QUANTITY, &c.

For the Method of performing the several Operations in Algebra, *see* ADDITION, SUBTRACTION, MULTIPLICATION, &c.

As to the Origin of this Art, we are much in the dark.—The Invention is usually attributed to *Diophantus*, a *Greek* Author, who wrote thirteen Books, tho only six of 'em are extant, first published by *Xylander*, in 1575; and since commented on and improved by *Gasper Bachet*, of the *French Academy*; and since by M. *Fermat*.

And yet *Algebra* seems to have been not wholly unknown to the antient Mathematicians, long before the Age of *Diophantus*: We see the Traces, the Effects of it in many Places; tho, it looks as if they had designedly concealed it.—Something of it there seems to be in *Euclid*, or at least in *Theon* upon *Euclid*, who observes that *Plato* had begun to teach it.—And there are other Instances of it in *Pappus*, and more in *Archimedes* and *Apollonius*.

But the Truth is, the Analysis used by those Authors is rather Geometrical than *Algebraical*; as appears by the Examples thereof which we find in their Works: So that we make no scruple to say, that *Diophantus* is the first, and only Author among the *Greeks* who has treated of *Algebra* professedly.

This Art, however, was in use among the *Arabs* much earlier than among the *Greeks*. And 'tis said the *Arabs* too borrow'd it from the *Persians*, and the *Persians* from the *Indians*.—'Tis added, that the *Arabs* carried it into *Spain*; whence, some are of opinion, it pass'd into *England*, before *Diophantus* was known among us.

The first who wrote on the Subject in this part of the World, was *Lucas Pacciolus*, or *Lucas de Burgos*, a Cordelier; whose Book, in *Italian*, was printed at *Venice* in 1494.—This Author makes mention of one *Leonardus Pisanus*, and some others, of whom he had learnt the Art; but we have none of their Writings.—He adds, that *Algebra* came originally from the *Arabs*; and never mentions *Diophantus*: which makes it probable, that that Author was not yet known in *Europe*.—His *Algebra* goes no further than Simple and Quadratick Equations. See QUADRATIC, &c.

After *Pacciolus* appear'd *Stifelius*, a good Author; but neither did he advance any further.

After him, came *Scipio Ferreus*, *Cardan*, *Tartalea*, and some others; who reach'd as far as the Solution of some Cubick Equations.—*Bombelli* follow'd these, and went himself a little further.—At last came *Nonnius*, *Ramus*, *Schoner*, *Salignac*, *Clavius*, &c. who all of them took different Courses, but none of them went beyond Quadraticks.

About the same time, *Diophantus* was first made publick; whose Method is very different from that of the *Arabs*, which had been follow'd till then.

In 1590, *Vieta* enter'd on the Stage, and introduc'd what he call'd his *Specious Arithmetick*, which consists in denoting the Quantities, both known and unknown, by Symbols or Letters.—He also introduced an ingenious Method of extracting the Roots of Equations, by Approximation; since much facilitated by *Raphson*, in his *Analysis Æquationum*.

Vieta was follow'd by *Oughtred*, who in his *Clavis Mathematica*, printed in 1631, improved *Vieta*'s Method; and invented several compendious Characters, to shew the Sums, Differences, Rectangles, Squares, Cubes, &c.

Mr. *Harriot*, another *Englishman*, cotemporary with *Oughtred*, left several Treatises at his Death; and among the rest, an *Analysis*, or *Algebra*, which was printed in 1631; where *Vieta*'s Method is brought into a still more commodious form, being that which obtains to this Day.

In 1657, *Des Cartes* publish'd his Geometry, wherein he made use of the Literal Calculus and the *Algebraick* Rules of *Harriot*; and as *Oughtred* in his *Clavis*, and *Marin. Ghetaldus*, in his Books of Mathematical Composition and Resolution publish'd in 1630, applied *Vieta*'s Arithmetick to Elementary Geometry, and gave the Constructions of Simple and Quadratick Equations; so *Des Cartes* applied *Harriot*'s Method to the Higher Geometry, explaining the Nature of Curves by Equations, and adding the Constructions of Cubic, Biquadratic, and other higher Equations.

Des Cartes's Rule for constructing Cubic and Biquadratic Equations, was further improved by *Tho. Baker*, in his *Clavis Geometrica Catholica*, publish'd in 1684; and the Foundation of such Constructions, with the Application of *Algebra* to the Quadratures of Curves, Questions *de maximis* and *minimis*, the Centrobaryc Method of *Guldinus*, &c. was given by *R. Slusius*, in 1668; as also by *Fermat*, in his *Opera Mathematica*; *Roberval*, in the *Mem. de Mathem. & de Physique*; and *Barrow*, in his *Lect. Geomet.*——In 1708, *Algebra* was applied to the Laws of Chance and Gaming, by *R. de Montmort*; and since by *de Moivre*, and *James Bernoulli*.

Thus much for the Progress of *Algebra*.—The *Elements of the Art* were compiled and publish'd by *Kersey* in 1671; wherein the Specious Arithmetick, and the Nature of Equations are largely explain'd, and illustrated by variety of Examples: The whole Substance of *Diophantus* is here deliver'd; and many Things added concerning Mathematical Composition and Resolution, from *Ghetaldus*. The like has been since done by *Prestet* in 1694; and by *Ozanam* in 1703.—But these Authors omit the Application of *Algebra* to Geometry; which Defect is supplied by *Guisnee* in a *French* Treatise expressly on the Subject, publish'd in 1704; and *l'Hopital* in his Analytical Treatise of the Conic Sections, in 1707.—The Rules of *Algebra* are also compendiously deliver'd by Sir *I. Newton*, in his *Arithmetica Universalis*, first publish'd in 1707; which abounds in choice Examples, and contains several Rules and Methods invented by the Author.

Algebra has been also applied to the Consideration and Calculus of Infinites; from whence a new and very extensive Branch of Knowledge has arose, call'd the *Doctrine of Fluxions*, or *Analysis of Infinites*, or the *Calculus Differentialis*. See FLUXIONS.——The Authors on this Subject, see under the Article ANALYSIS.

ALGEBRAICAL, something that relates to *Algebra*. See ALGEBRA.

In this Sense, we say, *Algebraical* Characters, or Symbols. See CHARACTER.

ALGEBRAICAL *Curve*, is a Curve, wherein the Relation of the Abscisses to the Semiordinates, may be defined by an *Algebraical* Equation. See CURVE.

These are also called *Geometrical Lines*. See GEOMETRICAL *Lines*.

Algebraical Curves stand contradistinguish'd to Mechanical or Transcendental ones. See MECHANICAL, and TRANSCENDENTAL.

ALGEBRAICAL *Solution*. See RESOLUTION.

ALGENEB, in Astronomy, a Fixed Star of the second Magnitude, on the right side of *Perseus*.—Its Longitude, Latitude, &c. *see among the rest of the Constellation* PERSEUS.

ALGOL, or *Medusa's Head*, a Fixed Star of the third Magnitude, in the Constellation *Perseus*.——Its Longitude, Latitude, &c. *see under the Article* PERSEUS.

ALGORISM, a Term used by some *Arabick* Authors for the practical Operation of the several Parts of Specious Arithmetick, or Algebra. See ALGEBRA.——Sometimes it is also used for the Practice of common Arithmetick, by the ten numeral Figures. See ARITHMETICK.

ALGORITHM, an *Arabic* Term, which some Authors, and especially the *Spaniards*, make use of to signify the Doctrine of Numbers. See NUMBER.

Algorithm is properly the Art of numbering truly, and readily; and comprehends the six Rules of common Arithmetick.—It is sometimes called *Logistica Numeralis*. See ARITHMETICK, RULE, &c.

In this Sense, we say, the *Algorithm* of Integers, the *Algorithm* of Fractions, the *Algorithm* of Surds, &c. See FRACTION, SURD, &c.

TAB. ALGEBRA.

Fig. 1. Construction

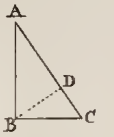


Fig. 2. Construction

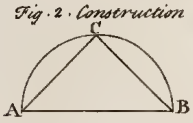


Fig. 3 & 4 Construction

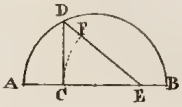


Fig 6. Equation

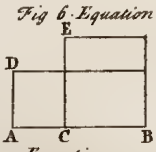


Fig 7. Equation

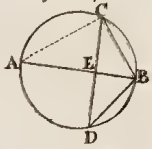


Fig. 8. Equation

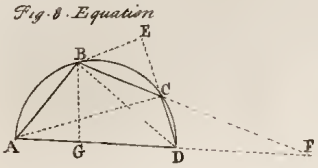


Fig 8. Equation

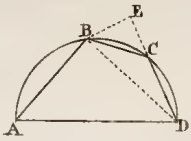


Fig. 9. Equation

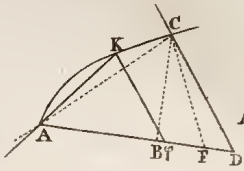
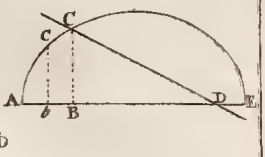


Fig. 10. Equation



TAB. ANALYSIS

Fig 1 Conchilis

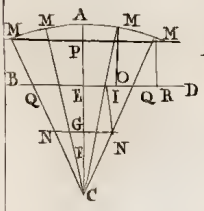


Fig. 2 Conchilis

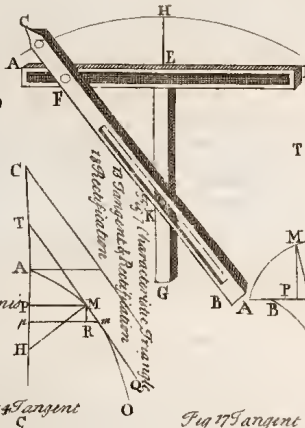


Fig. 26 Quadrature

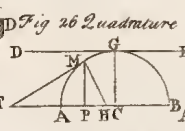


Fig. 4 Maximis & Minimis

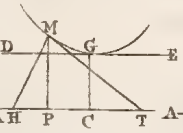


Fig. 5. Maximis & Minimis

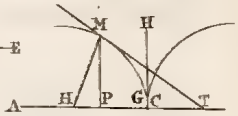


Fig. 6. Maximis & Minimis

Fig 15 Tangent

Fig 14 Tangent

Fig 9 Cisoid

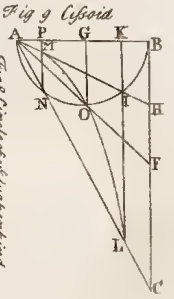


Fig 8 Circle of the higher kind

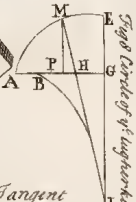


Fig. 13 Sea to Lighthouse

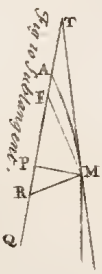


Fig. 12. Osculum Radius

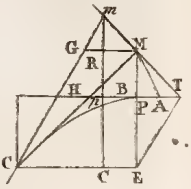


Fig 24 Tangent

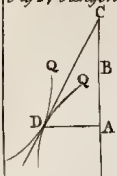


Fig 16 Tangent

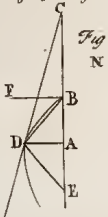


Fig 17 Tangent

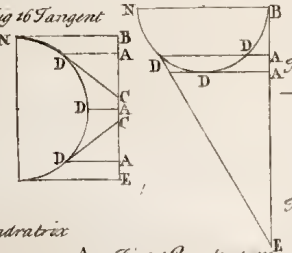


Fig 19 Rectification

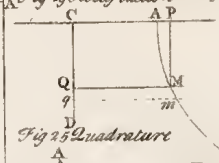


Fig 20 Rectification

Fig 21 Quadratrix

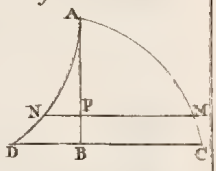


Fig 22 Logistic Curve and Quadratrix

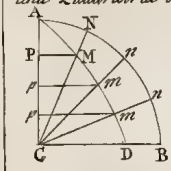


Fig 23 Quadratrix

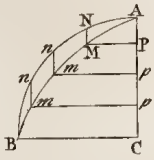


Fig 24 Quadrature

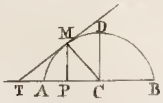


Fig 25 Quadrature

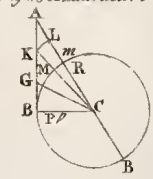


Fig 27 Quadrature

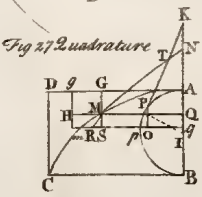


Fig 28 Quadrature

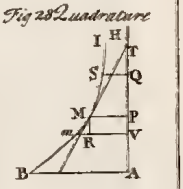


Fig 3 Locus

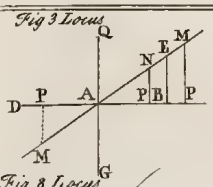


Fig 4 Locus

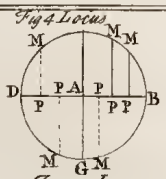


Fig 5 Locus

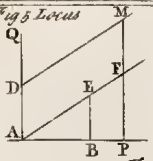


Fig 6 Locus

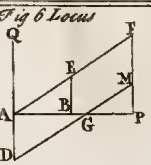


Fig 7 Locus

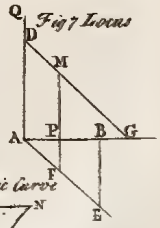


Fig 8 Locus

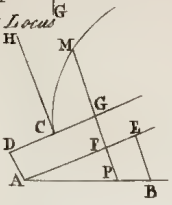


Fig 9 Locus

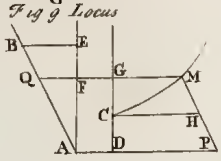


Fig 10 Locus

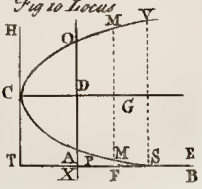
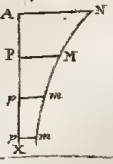


Fig 11 Logistic Curve



ALGUAZIL, in the *Spanish* Policy, a Serjeant or Officer, who arrests People, and executes the Magistrate's Orders. See SERJEANT, &c.

ALHANDAL, a Term in the *Arabian* Pharmacy.—The Troches of *Alhandal*, *Trochisci Alhandalæ*, are a kind of Troches, composed of Colocynthis, Bdellium, and Gum Tragacanth. See TROCHE.

They are esteemed good Purgatives, and are used on divers Occasions. See PURGATIVE.

The Word is formed of the Arabic *Handel*, or *Handhal*, a Name for Colocynthis. See COLOCYNTHIS.

ALHIDADE, or ALIDADE, the Index or Label of an Astronomical, or Geometrical Instrument, for taking of Heights or Distances.—The *Alhidade* is a kind of Ruler, moveable on the Centre of the Instrument; and carrying the Sights. See INDEX, SIGHTS, &c. See also ASTROLABE, THEODOLITE, &c.

The Word is *Arabic*, where it signifies the same thing.—In *Greek* and *Latin*, it is called Διόπτρα, *Dioptra*, and *Linea Fiduciæ*, Fiducial Line.

ALIEN, in Law, a Person born out of the King's Allegiance, and consequently not capable of inheriting Lands in *England*, till naturaliz'd by Act of Parliament. See NATURALIZATION.

Of these there are two Kinds, *viz. Alien-Friends*, who are of those Countries which are at peace and league with us; and *Enemies*, who are of Countries at war with us.

A Man born out of the Land, so it be within the Limits of the King's Obedience beyond the Seas; or of *English* Parents out of the King's Obedience, so the Parents at the Time of the Birth be of such Obedience, is no *Alien*, but a Subject of the King: Stat. 2. 25 *Edw.* III. commonly called the Statute *De natis ultra mare*.

Add, that if one born out of the King's Allegiance come and dwell in *England*; his Children begotten here are not *Aliens*, but Denizens. See DENIZEN.

ALIEN *Priories*, were those Cells of Monks, formerly established in *England*, which belonged to foreign Monasteries. See PRIORY, ABBY, MONASTERY, &c.

ALIENATION, ALIENATIO, in Law, the Act of making a thing another Man's; or the altering, and transferring the Property and Possession of Lands, Tenements, or other Things, from one Man to another. See TRANSFERRING, POSSESSION, &c.

To *alienate*, or *alien*, *in Mortmain*, is to make over Lands or Tenements to a Religious Community, or other Body Politick. See MORTMAIN.

To *alienate in Fee*, is to sell the Fee-simple of any Land, or other incorporeal Right. See FEE.

Crown-Lands are only *alienable* under a Faculty of perpetual Redemption. See REDEMPTION.

The Council of *Lateran*, held in 1123, forbids any Clerk to *alienate* his Benefice, Prebend, or the like. See PREBEND, &c.

ALIENATION-*Office*, is an Office to which all Writs of Covenants and Entry, upon which Fines are levied and Recoveries suffer'd, are carried; to have Fines for *Alienation* set and paid thereon. See COVENANT, RECOVERY, FINE, &c.

ALIFORMES *Processus*, in Anatomy, the Prominences of the *Os Cuneiforme*. See CUNEIFORME.

ALIFORMES *Musculi*, a Pair of Muscles, arising from the *Pterygoide* Bone, and ending in the Neck of the lower Jaw, towards the internal Seat of the Head. See PTERYGOIDES, &c.

They are thus called from the Latin *Ala*, Wing, and *Forma*, Shape; as resembling Wings.

ALIMENT, ALIMENTUM, *Food*, in a physical Sense, is whatever may be dissolved and turn'd into Chyle, by the Liquor of the Stomach, or the Natural Heat; so as to be afterwards converted into Blood, for augmenting the Body, or repairing the continual Expence of Parts. See FOOD, CHYLE, BLOOD, NUTRITION, &c.

The Word is *Latin*, form'd of the Verb *Alere*, to nourish.

ALIMENTARY, ALIMENTAL, something that relates to *Aliment*, or Food. See FOOD.

The antient Physicians hold that every Humour consists of two Parts; an *Alimentary*, and an Excrementitious one. See HUMOUR, and EXCREMENT.

ALIMENTARY *Duct*, *Ductus Alimentalis*, is a Name given, by Dr. *Tyson* and some others, to that Part of the Body thro' which the Food passes, from its Reception into the Mouth, to its Exit at the Anus; including the Gula, Stomach, and Intestines. See DUCTUS *Alimentalis*, STOMACH, &c.

Alimentary Duct is sometimes also understood of the Thoracic Duct. See THORACIC *Duct*.

ALIMENTARII *Pueri*, &c. in Antiquity, were certain Children maintained and educated by the Munificence of the Emperors, in a sort of publick Places, not unlike our Hospitals. See HOSPITAL.

Trajan was the first that brought up of these *Alimentary Boys*. He was imitated by *Adrian*. *Antoninus Pius* did the same for a Number of Maids, at the Solicitation of *Faustina*: And hence, in some Medals of that Empress, we read PUELLÆ FAUSTINIANÆ.—*Alexander Severus* did the like, at the Request of *Mammæa*; and the Maids thus educated were called *Mammeanæ*.

ALIMONY, ALIMONIA, in Law, antiently signify'd *Nourishment*, or *Maintenance*; but in a more modern Sense, denotes that Portion, or Allowance which a married Woman sues for, upon any occasional Separation from her Husband, wherein she is not charged with Elopement or Adultery. See WIFE, DOWER, &c.

This was antiently called *Rationabile Estoverium*, Reasonable Maintenance, and was recoverable in the Spiritual Court; but now only in Chancery.

ALIQUANT *Part*, is that which will not measure or divide any Number exactly, but some Remainder will still be left.—Or, an *Aliquant* Part, is that which being taken any Number of times, is always either greater or lesser than the Whole. See PART, MEASURE, &c.

A Table of Aliquant Parts *of a Pound, see under the Article* MULTIPLICATION.

Thus, 5 is an *Aliquant Part* of 12; for being taken twice, it falls short, and when taken three times it exceeds 12.

ALIQUOT *Part*, is such Part of any Number, or Quantity, as will exactly measure it, without any Remainder.—Or, it is a Part, which being taken a certain Number of times, becomes equal to the Whole, or Integer. See PART, &c.

Thus, 3 is an *Aliquot Part* of 12; because being taken four times, it will just measure it.

The Word is form'd of the Latin *Aliquoties*, any number of times.

A Table of Aliquot Parts *of a Pound, see under the Article* MULTIPLICATION.

ALKAHEST, or ALCAHEST, in Chymistry, an universal Menstruum or Dissolvent, wherewith some Chymists have pretended adequately to resolve all Bodies into their first Matter. See MENSTRUUM, DISSOLVENT, MATTER, &c.

Those two eminent Adepts, *Paracelsus* and *Helmont*, expressly declare, that there is a certain Fluid in Nature, capable of reducing all sublunary Bodies, as well homogeneous as mixed, into their *Ens primum*, or Original Matter whereof they are compos'd; or into an uniform equable and potable Liquor, that will unite with Water and the Juices of our Bodies, yet retain its seminal Virtues; and if mixed with it self again, thereby be converted into pure elementary Water.—Whence they also imagin'd, it would at length reduce all Things into Water. See WATER.

This Declaration, seconded by the Asseveration of *Helmont*, who religiously swears himself possessed of the Secret, has excited the succeeding Chymists and Alchymists to the Pursuit of so noble a Menstruum. Mr. *Boyle* was so fond of it, that he frankly acknowledges he had rather have been Master thereof than of the Philosopher's Stone. See ALCHYMY.

Indeed, 'tis not difficult to conceive, that all Bodies might originally arise from some first Matter, which was once in a fluid Form.—Thus, the primitive Matter of Gold is, perhaps, nothing more than a ponderous Fluid, which from its own Nature or a strong Attraction between its Parts, afterwards acquires a solid Form. See GOLD.——And hence, there does not appear any Absurdity in the Notion of an universal *Ens*, that resolves all Bodies into their *Ens genitale*.

The *Alkahest* is a Subject that has been canvassed by an infinite Number of Authors; as, *Pantaleon*, *Philalethes*, *Tachenius*, *Ludovicus*, &c.——*Boerhaave* says, a Library might be collected out of 'em. *Weidenfelt*, in his Treatise *de Secretis Adeptorum*, has given us all the Opinions that have been entertained about it.

The Term *Alkahest* is not peculiarly found in any Language: *Helmont* declares he first observed it in *Paracelsus*, as a Word that was unknown before the Time of that Author, who in his second Book, *De viribus Membrorum*, treating of the Liver, has these Words: *Est etiam* Alkahest *liquor, magnam hepatis conservandi & confortandi*, &c. "There is also the Liquor *Alkahest*, of great efficacy in "preserving the Liver; as also in curing hydropical and all "other Diseases arising from Disorders of that Part. If it "have once conquer'd its like, it becomes superior to all "other hepatick Medicines; and tho the Liver it self "were broken and dissolved, this Medicine should supply "its Place."

'Tis this single Passage of *Paracelsus*, that excited the succeeding Chymists to an Inquiry after the *Alkahest*; there being but one other indirect Expression about it in all his Works.

Now it being a frequent Practice with this Author to transpose the Letters of his Words, and to make use of Abbreviations, and other ways of Concealment; as in Tartar, which he would write *Sutratar*; for *Nitrum*, *Mutrin*, &c. 'tis supposed *Alkahest* may be a Word thus disguis'd.—Hence

Hence some imagine it formed of *Alkali est*; and accordingly, that it was the Alkaline Salt of Tartar volatiliz'd. This seems to have been *Glauber*'s Opinion; who indeed performed surprizing things with such a Menstruum upon Subjects of all the three Kingdoms.

Others will have it the *German* Word *Algeist*, q. d. wholly spirituous, or volatile: Others are of Opinion, that *Alkahest* is taken from *Salts-geist*, which signifies Spirit of Salt; for the Universal Menstruum, 'tis said, is to be wrought from Water; and *Paracelsus* himself calls Salt the Centre of Water, wherein Metals ought to die, &c.—In effect, Spirit of Salt was the great Menstruum he used on most Occasions.—The Commentator on *Paracelsus*, who gave a *Latin* Edition of his Works at *Delft*, assures that the *Alkahest* was Mercury, converted into a Spirit.—*Zwelfer* judg'd it to be a Spirit of Vinegar rectify'd from Verdigrease.—And *Starkey* thought he discover'd it in his Soap.

There have been some synonymous and more significant Words used for the *Alkahest*.—The elder *Helmont* mentions the *Alkahest* by the compound Name of *Ignis-aqua*, Fire-Water: But he here seems to mean the circulated Liquor of *Paracelsus*; which he terms *Fire*, from its Property of consuming all things; and *Water*, on account of its liquid form.——The same Author calls it *Ignis-gehennæ*, infernal Fire; a Word also used by *Paracelsus*: He also intitles it 'Summum & felicissimum omnium salium, the principal 'and most successful among Salts, which having obtained 'the highest degree of Simplicity, Purity, and Subtility, 'alone enjoys the Faculty of remaining unchanged and un-'impaired by the Subjects it works on, and of dissolving 'the most stubborn and untractable Bodies, as Stones, Gems, 'Glass, Earth, Sulphur, Metals, &c. into real Salt, equal 'in weight to the Matter dissolved; and this with as much 'ease as hot Water melts down Snow.'—'This Salt, *continues he*, by being several times cohobated with *Paracelsus's Sal circulatum*, loses all its Fixedness; and at length 'becomes an insipid Water, equal in quantity to the Salt 'it was made from.'

Helmont is express that this Menstruum is intirely the Product of Art, and not of Nature.—'Tho, *says he*, a ho-'mogeneal Part of elementary Earth may be artificially con-'verted into Water, yet I deny that the same can be done 'by Nature alone; for no natural Agent is able to trans-'mute one Element into another.' And this he offers as a Reason why the Elements always remain the same.—It may let some light into this Affair, to observe that *Helmont*, as well as *Paracelsus*, took Water for the universal Instrument of Chymistry, and Natural Philosophy; and Earth for the unchangeable Basis of all Things: That Fire was designed as the efficient Cause of all Things; that seminal Impressions were lodged in the Mechanism of Earth; and that Water, by dissolving and fermenting with this Earth, as it does by means of Fire, brings every thing to light; whence originally proceeded the Animal, Vegetable, and Mineral Kingdoms; even Man himself being thus at first created, agreeably to the account of *Moses*.

The great Character or Property of the *Alkahest*, we have observed, is to dissolve, and change all sublunary Bodies; Water alone excepted.—The Changes it induces proceed thus: 1°, The Subject exposed to its Operation, is converted into its three Principles, Salt, Sulphur, and Mercury; afterwards, into Salt alone; which then becomes volatile; and at length is wholly turned into insipid Water.—The manner of Application is by touching the Body proposed to be dissolved, *e. g.* Gold, Mercury, Sand, or the like, once or twice with the pretended *Alkahest*; and if the Liquor be genuine, the Body will be converted into its own Quantity of Salt.

2°, It does not destroy the seminal Virtues of the Bodies dissolved thereby.—Thus, Gold is, by its Action, reduced to a Salt of Gold; Antimony to a Salt of Antimony; Saffron to a Salt of Saffron, &c. of the same seminal Virtues, or Characters with the original Concrete.—By seminal Virtues, *Helmont* understands those Virtues which depend upon the Construction or Mechanism of a Body, and which make it what it is. Hence, an actual and genuine *Aurum potabile* might readily be gained by the *Alkahest*, as converting the whole Body of Gold into a Salt, retaining its seminal Virtues, and being withal soluble in Water.

3°, Whatever it dissolves, may be render'd volatile by a Sand-heat; and if after volatilizing the Solvend, it be distill'd therefrom, the Body is left pure insipid Water, equal in quantity to its original self, but deprived of its seminal Virtues.—Thus, if Gold be dissolved by the *Alkahest*, the Metal first becomes Salt, which is potable Gold; but when the Menstruum is distilled therefrom, 'tis left mere Elementary Water. Whence it appears, that pure Water is the last Production or Effect of the *Alkahest*.

4°, It suffers no Change or Diminution of Force by dissolving the Bodies it works on, and therefore sustains no Reaction from them; being the only immutable Menstruum in Nature.

5°, 'Tis incapable of Mixture, and therefore remains free from Fermentation and Putrefaction; coming off as pure from the Body it has dissolved, as when first put thereon; without leaving the least Foulness behind.

ALKALY, ALKALI, or ALCALY, in Chymistry, a Name originally given, by the *Arabians*, to a Salt extracted from the Ashes of a Plant called *Kali*; and by us Glass-wort, because used in the making of Glass. See KALI, and GLASS.

Afterwards, the Term *Alkaly* became a common Name for the lixivious Salts of all Plants; that is, for such Salts as are drawn by Lotion from their Ashes. See LIXIVIOUS, and ASHES.

And hence, again, in regard the original *Alkaly* was found to ferment with *Acids*; the Name has since become common to all volatile Salts, and all terrestrial Substances which have that Effect. See ACID.

ALKALY, then, in its modern extensive Sense, is any Substance, which being mixed with an Acid, an Ebullition and Effervescence ensues thereon. See EFFERVESCENCE, &c.

And hence arises the grand Division of Natural Bodies into the two opposite Classes of *Acids* and *Alkalies*. See ACID.

Boerhaave scarce takes this Circumstance to be enough to constitute any determinate Class of Bodies.—In effect, *Alkalies* are not of one similar homogeneous Nature: but there are two several sorts.

The first obtain'd from Vegetable and Animal Substances, by Calcination, Distillation, Putrifaction, &c. such are Spirit of Urine, Spirit of Hartshorn, Salt of Tartar, &c.—The second are of the terrestrial Kind; as Shells, Bole, &c.

The two Species, *Boerhaave* observes, differ widely from each other; having scarce any thing in common, but their being effervescible with Acids.—The one is a Class of native, fixed, scentless, insipid, mild, astringent, fossil Bodies: The other a Set of such as are volatile, odorous, sapid, caustick, aperitive, and procured by Art.

Hence, adds the same Author, mere Effervescence with Acids, must be allow'd to be of it self insufficient to determine the Nature of an *Alkaly*: and that such a Name, which properly denotes a caustick fiery Substance, should not be affixed to any mild and gentle Body, as Chalk, &c. but other Properties and Considerations are to be taken in, and particularly their Taste, manner of procuring, and the Change of Colour they produce in Bodies.

With regard to this last Circumstance, those Liquors which being pour'd on Syrup of Violets, change it of a green Colour, are *Alkalies*; as those which turn it red, Acids.—Thus Oil of Tartar turns it of a kindly green; and Oil of Vitriol of a Carmine red: And if to the Syrup thus made red by Oil of Vitriol, Oil of Tartar be pour'd, it turns that part wherewith it comes in contact, green; leaving the rest red: and the like holds of Oil of Vitriol, pour'd on Syrup made green by Oil of Tartar.

To the like effect M. *Homberg* observes, that 'a mere heat 'and bubbling arising upon the Admixture of a Body with 'an Acid, does not seem an adequate Criterion of the *Alka-'line* Nature; since distill'd Oils of all kinds are found to do 'thus much; and many of 'em with more vehemence than '*Alkalies* themselves, so as sometimes even to take fire, which '*Alkalies* never do.'

To the Definition and Character of an *Alkaly* therefore, M. *Homberg* adds this Circumstance; 'that after the Action, 'the Mixtures coalesce and shoot into a Salt, or saline Mat-'ter.'—This excludes the Oils above mention'd; which do not, after Effervescence, unite with the Acids into a saline Substance, but rather compose a resinous one.

All lixivious Salts have these Characters of *Alkaly*.—And not only lixivious, but also all urinous Salts; which are constantly found to imbibe Acids with great eagerness, and after Ebullition, to unite and crystallize with 'em. See URINOUS *Salt*.

Hence we have two Kinds of *Alkaly Salts*, viz. *Fix'd*, or *Lixivious Alkalies*; and *Volatile*, or *Urinous* ones. See SALT; see also FIX'D, VOLATILE, &c.

But beside *Alkaly Salts*, there are an Infinity of other Bodies, not saline; which answer to the Characters of *Alkaly*, *i. e.* produce much the same Effects with Acids, as the *Alkaly Salts* above mention'd.——And these *alkaline* Matters are in other respects of different Natures.

Some, *e. g.* are merely *Earthy*; as Quick-lime, Marble, Seal'd Earths, &c.—Others are *Metalline*; among which, some have their peculiar and appropriate Acids to act on 'em, as Gold, Tin, and Antimony, which only dissolve with Aqua Regia; Silver, Lead, and Mercury, with Aqua fortis; and the others with other sorts of Acids, as Iron, Copper, Zink, Bismuth, &c.——There are others of the Animal Class; consisting, 1°, Of stony Matters found in the Viscera of certain Species; as the Calculus humanus, Bezoards, Crabs Eyes, &c.——2°, Testaceous Matters and Shells; as Pearls, Oyster-shells, Cuttle-fish Bones, the Shells or Coats of Lobsters, Crabs, &c.—3°, The Parts of Animals, which

which by length of time, or ſome other Cauſe, are become ſtony, or even earthy; as the foſſil Unicorn's Horn, &c.—Laſtly, almoſt all Stone Marine Plants, as Coral, &c.

After all, the *Alkaline* Property does not appear to be native, but rather producible by Art.—This Opinion ſeems to have been firſt ſtarted by *Helmont*: before him, it was the ſtanding Opinion, that Fix'd *Alkalies* pre-exiſted in mix'd Bodies; and were only ſeparated or extricated from the Parts of the Compound. *Helmont* advanced, that they did not thus pre-exiſt in their *alkaline* Form, but were Productions of the Fire, by whoſe violent Action, part of the Salt which in the Concrete is all volatile, lays hold of ſome part of the Sulphur of the ſame Body; and both melting together, are fixed into an *Alkaly*: which Fixation he exemplifies, by what happens when Salt-petre and Arſenick, tho both volatile, being expoſed to the Fire, are flux'd by the Operation thereof, and made to fix each other.

Some late Chymiſts, and particularly M. *Geoffroy*, carry the Point ſomething further, and aſſert, that all *Alkaly Salts* whatever, both Fix'd and Volatile, are wholly the Effect of Fire; in that before any Action of the Fire, they did not pre-exiſt in the Mixt wherein they afterwards appear'd. See Fire.

Notwithſtanding all the ſeeming Oppoſition and Hoſtility between Acids and *Alkalies*, they may be converted into one another; at leaſt, Acids are convertible into *Alkalies*; as is ſhewn at large by M. *Geoffroy* in a Diſcourſe expreſs, in the *Mem. de l'Acad.* An. 1717, where the Nature and Origin of *Alkalies* is excellently explain'd.

Alkaly Salts, according to this Author, are only Acids concentrated in little Moleculeſ of Earth, and united with certain Particles of Oil, by means of Fire.

When an Acid, which we conceive in the general as a ſmall, ſolid, pointed Spiculum, happens to be abſorb'd or concentrated in a proper Portion of Earth; the whole becomes denominated a *Saline*, *Compound*, *Neutral*, or *Intermediate Salt*; by reaſon the Acid, thus incloſed in a Sheath, cannot excite the ſame Savour as when diſengag'd therefrom; and yet excites a ſaline Taſte: and for this reaſon is compound, &c.

Now, Fire is the only Agent capable of diſengaging the Acid, from the Earth it is thus inveſted withal. Upon this, the Acid being lighter than the Earth, riſes, and evaporates; leaving the Earth at the bottom of the Veſſel; which for this Reaſon is called *Fix'd*, in contradiſtinction to the Acid, which is *Volatile*. This Earth, thus bereav'd of its Acid, is left with its Pores open and empty, which before were fill'd; and withal, in ſuſtaining the Action of Fire, it neceſſarily retains ſome of the Particles thereof, which give it an acrimonious Taſte, that mere Earth could never have.—From this Taſte it is called *Salt*; and from its Pores being open, and thus diſpoſed to admit and imbibe new Acids, it is called *Alkaly Salt*. See Earth, Salt, &c.

Now, it is not to be imagin'd, that an Earth which has once been impregnated with Acids, can ever be perfectly diveſted thereof; there will ſtill remain ſome, tho much leſs than before. So that an *Alkaly* may be conceived as only a too ſmall Quantity of Acid, incloſed in too large a Quantity of Earth.

The viſible and ſenſible Fire is not the only Agent capable of ſeparating Acids from their Earth; Fermentation has the ſame Effect, in virtue of that pure active Fire produced or concern'd therein. *Alkalies*, therefore, are the Production, either of the one, or the other Fire; and the ſame may be ſaid of the Acids diſengag'd therefrom; it being the Diſ-union of the Parts of the ſame Salt occaſion'd by Fire, that yielded both the Acids as well as the *Alkalies*. All the Difference is, that the *Alkaly* imbibes and retains certain Corpuſcles of the Fire, whereas nothing foreign is ſuperadded to the Acid.

On this Principle every Acid is volatile, and every *Alkaly* ſhould be fix'd, if the *Alkaly* were only Earth: But, in regard the little *Acid* ſtill remaining in the *Alkaly*, may be united with a Portion of Oil, as well as a Portion of Earth; and Oil is known to be volatile; the Compound, that is, the *Alkaly*, muſt be volatile, in caſe the Oil prevail therein.

In this Caſe, the *Alkaly* is found to have a ſtrong, penetrating, urinous Taſte and Smell; and is what we call a *Volatile urinous Alkaly Salt*.

Theſe things well conſider'd; it will be eaſy to aſſign what muſt enſue upon the Separations, or new Unions of the Parts of a Mixt.

An *Acid*, 'tis evident, may become an *Alkaly*, in that after having been ſeparated from its Matrix, it may be reſtored in a ſmall Quantity to another Matrix, either wholly earthy or earthy and oleaginous.—In the firſt Caſe, it will become a *Fix'd Alkaly*; in the ſecond, it may be, a *Volatile Alkaly*, if in the ſuppoſed Matrix the Proportion of Oil prevail over that of Earth; and in this Caſe it will be *urinous*.

Again, what before was a fix'd *Alkaly*, may become Volatile and Urinous, by depoſiting or letting go part of its Earth, and taking Oil in its ſtead.

Theſe Tranſmutations are not found equally eaſy and practicable in the three different Kinds of Mixts, or the three Kingdoms; by reaſon of the Diverſity of Circumſtances that muſt concur thereto.—They are much the moſt rare and difficult in the Mineral Realm; by reaſon, no doubt, that the Parts of Minerals are more cloſely ty'd together, and have, as it were, leſs play. The only inſtance Chymiſtry hath hitherto produced, of a Mineral Acid's being converted into a Fix'd *Alkaly*, is in the Operation of fixing Salt-petre.

The Vegetable Kingdom, it is obſerv'd, furniſhes a large Quantity of fix'd *Alkaly* Salt; and a little volatile *Alkaly*: The Animal Kingdom, on the contrary, affords a deal of volatile *Alkaly* Salt, and but little fix'd. The Foſſil Kingdom affords a very little native fix'd *Alkaly* Salt, as the *Egyptian* Natrum, and the Salts procured by Lotion from ſaline Earth about *Smyrna* and ſome other Places of the Eaſt; and the Chymiſts have alſo found a Method of converting Nitre into a fix'd *Alkaly*: But no body hath hitherto produced a volatile *Alkaly* from the Acids of the Mineral Kingdom.—And yet, if Acid Salts of the Vegetable Kind be convertible either into fixed or volatile *Alkalies*, why may not Mineral Acids be ſuſceptible of the ſame Change? ſince Vegetable Acids are originally no other than Mineral ones: For, from whence but the Earth ſhould Plants derive their acid Juice?

In effect, M. *Geoffroy* has at length ſhewn the Operation feaſable, by an actual Transformation of the ſame Acid, Nitre, into a volatile urinous *Alkaly*. See the *Mem. de l'Acad.* ubi ſupra. See alſo Salt-petre, &c.

By the way, it is to be noted, that the Inſtance of *Egyptian Natrum* or Nitre, furniſhes an Objection againſt the general Aſſertion of all *Alkalies* being artificial, or produced by Fire: Mr. *Boyle*, who had ſome of this Salt ſent him by the *Engliſh* Ambaſſador at the *Porte*; found that Vinegar would work briſkly on it, even in the Cold; "Whence, *ſays he*, it appears, that the *Egyptian* Nitre, "acknowledg'd to be a native Salt, and made only by the "Evaporation of the ſuperfluous Water of the *Nile*, is yet "of a lixivious Nature, or at leaſt abounds with Particles "that are ſo, tho produced without any precedent Incineration, and the Matter of it expoſed to no Violence of the "Fire, to make it afford an *Alkaly*." *Producib. of Chym. Princip.*——He adds, "However, he does not know any "other Body in Nature, except this, wherein the *Alkaline* "Properties are not produced." *Ibid.*—And proceeds to give Inſtances of *Alkalies* being made from Sea Salt, and other Acids; and ſhews, "how the ſame Body, without "the Addition of any other Salt, may by varying the manner of the Fire's Application, be made either to afford "little elſe than Acids, or a greater or leſs Quantity of *Alkaly*." *Id. ibid.*

For the Theory of the Operation of Acids upon Alkalies. See Acid.

Hypotheſis of Alkaly *and Acid.*

Tachenius, and *Sylvius de la Boe*, follow'd by the Tribe of vulgar Chymiſts, ſtrenuoſly aſſert Sal *Alkaly* and Acid to be the only univerſal Principles of all Bodies; and by means hereof, account for the Qualities of Bodies, and the reſt of the Phænomena of Nature; particularly thoſe in the Animal Oeconomy.—In a word, *Alkaly* and Acid are ſubſtituted in the ſtead of Matter, and Motion. See Principle, Element, &c.

Mr. *Boyle* attacks this Hypotheſis with great force of Argument.—In effect, 'tis at beſt but precarious to affirm, that Acid and *Alkaline* Parts are found in all Bodies.

When the Chymiſts ſee Aqua fortis diſſolve Filings of Copper, they conclude, that the acid Spirits of the Menſtruum meet in the Metal with an *Alkaly*, upon which they work; but how unſafe a way of arguing this is, appears hence, that Spirit of Urine, which is allowed a volatile *Alkaly*, and accordingly makes a great Conflict with Aqua fortis, readily diſſolves Filings of Copper, and more genuinely than the acid Liquor.—So, when they ſee the Magiſtery of Pearl or Coral, prepared by dropping Oil of Tartar into the Solution of thoſe Bodies made with Spirit of Vinegar; they aſcribe the Precipitation to the fixed *Alkaly* of the Tartar, which mortifies the Acidity of the Spirit of Vinegar: whereas, the Precipitation would no leſs enſue, if, inſtead of the *alkalizate* Oil of Tartar, that ſtrong Acid, Oil of Sulphur *per Campanam*, were uſed.

It may alſo be doubted, whether it be juſt to ſuppoſe, that when an Acid is diſcover'd in a Body, the Operation of that Body on another, abounding with an *Alkaly*, muſt be the Effect of a Conflict between thoſe two Principles.—For, an acid Body may do many things, not ſimply as an Acid, but on account of a Texture or Modification, which endows it with other Qualities as well as Acidity. Thus, when the Chymiſts ſee an acid Menſtruum, as Aqua fortis, Spirit of Salt, Oil of Vitriol, &c. diſſolve Iron, they preſently aſcribe the Effect to an Acidity in the Liquors; tho well dephlegmed urinous Spirits, which they hold to have a great Anti-

tipathy to Acids, will readily diſſolve crude Iron even in the Cold.

Further, the Patrons of this Hypotheſis, ſeem arbitrarily to have aſſigned Offices to each of their two Principles, as the Chymiſts do to each of their *tria prima*; and the Peripateticks to each of their four Elements.——But 'tis not enough to ſay, that an Acid, for inſtance, performs theſe things, and an *Alkaly* thoſe; and that they divide the Operations and Phænomena of natural Bodies between them: Aſſertions of ſuch moment ought not to be received, without further Proof. Indeed, the very Diſtribution of Salts into Acids and *Alkalies*, has ſomewhat arbitrary in it; there being not only ſeveral things wherein the Acids agree with *Alkalies*, but alſo ſeveral things wherein each differs from itſelf.—To ſay nothing of the Diverſity of fix'd and volatile *Alkalies* abovemention'd; ſome, as Salt of Tartar, will precipitate the Solution of Sublimate into an Orange-tawny; others, as Spirit of Blood and Hartſhorn, precipitate ſuch a Solution into a milky Subſtance; and Oil of Tartar very ſlowly operates upon Filings of Copper, which Spirits of Urine and Hartſhorn will readily diſſolve in the Fire. And among Acids themſelves the difference is no leſs; for ſome of them will diſſolve Bodies that others will not: and this even where the Menſtruum that will not diſſolve the Body, is reputed much ſtronger than that which does; as dephlegmated Spirit of Vinegar will diſſolve Lead reduced to minute Parts in the cold, which is an Effect that Chymiſts expect not from Spirit of Salt. Nay, one Acid will precipitate what another has diſſolved, and *è contra*; as, Spirit of Salt will precipitate Silver out of Spirit of Nitre. Add, the Properties peculiar to ſome particular Acids, as that Spirit of Nitre or Aqua fortis, diſſolves Camphire into an Oil, and coagulates common Oil into a conſiſtent Subſtance like Tallow; and tho it will both corrode Silver, Copper, Lead, and Mercury, and keep them diſſolved, it quickly lets fall almoſt the whole Body of Tin.

'Tis no wonder that the Definitions given of Acid and *Alkaly* ſhould be inaccurate and ſuperficial; ſince the Chymiſts themſelves do not ſeem to have any determinate Notion of ſure Marks, whereby to know them diſtinctly.—For, to infer, that, becauſe a Body diſſolves another, which is diſſoluble by this or that known Acid, the Solvent muſt alſo be Acid; or to conclude, that, if a Body precipitates a diſſolved Metal out of a confeſſedly acid Menſtruum, the Precipitant muſt be an *Alkaly*, is precarious: ſince Filings of Spelter will be diſſolved by ſome *Alkalies*, *viz.* Spirit of Sal Ammoniack, *&c.* as well as by Acids; and Bodies may be precipitated out of acid Menſtrua, by other Acids, and by Liquors wherein there appears not the leaſt *Alkaly*. Add, that a Solution of Tin-glaſs, made in Aqua fortis, would be precipitated both by Spirit of Salt, and by common Water.—Nor does that other Criterion of Acids and *Alkalies*, *viz.* the Heat, Commotion, and Bubbles excited upon their being put together, appear more determinate; ſince almoſt any thing fitted variouſly and vehemently to agitate the minute Parts of a Body, will produce heat in it.—Thus, tho Water be neither an Acid nor an *Alkaly*, it will quickly grow very hot, not only with the highly acid Oil of Vitriol, but with the *alkalizate* Salt of Tartar. See HEAT.

Neither is the Production of Bubbles, tho accompany'd with a hiſſing Noiſe, a certain Sign; ſuch Production not being a neceſſary Effect of Heat, excited by Conflict, but depending on the peculiar Diſpoſition of the Bodies put together, to extricate, produce, or intercept Particles of Air.—Hence, as Oil of Vitriol, mix'd in a due Proportion with fair Water, may be brought to make the Water very hot, without exciting Bubbles: ſo Mr. *Boyle* has found, that *alkalizate* Spirit of Urine, drawn with ſome kinds of Quick-lime, being mixed with Oil of Vitriol moderately ſtrong, would afford an intenſe heat, whilſt it produced either no manifeſt Bubbles at all, or ſcarce any; tho the urinous Spirit was ſtrong, and in other Trials operated like an *Alkaly*: and tho with the Spirit of Urine made *per ſe*, in the common way, Oil of Vitriol will produce a great hiſſing, and a multitude of conſpicuous Bubbles. On the other ſide, ſome acid Spirits, as of Verdegreaſe, made pure, poured on Salt of Tartar, will frequently make a Conflict, and produce a large froth; tho not accompany'd with any manifeſt heat. See EBULLITION.

Many make the Taſte the Touchſtone whereby to try Acids and *Alkalies*: But there is a multitude of Bodies, wherein we can ſo little diſcern by the Taſte which of the Principles is predominant, that one would not ſuſpect there was a Grain of either of them therein: Such are Diamonds, moſt Gems, and many ignobler Stones; Gold, Silver, Mercury, *&c.* There are alſo Bodies abounding with acid or *alkalizate* Salts; which either have no Taſte, or a quite different one from that of the chymical Principles.—Thus, tho Venice-glaſs be in great part compoſed of a fix'd *Alkaly*, it is inſipid on the Palate: And Cryſtals of Silver and Lead, made with Aqua fortis, and containing numerous acid Particles of the Menſtruum, manifeſt nothing of Acidity in the Mouth; the latter having a ſaccharine Sweetneſs, and the former an extreme Bitterneſs. And even in Vegetable Subſtances of a manifeſt Taſte, 'tis not eaſy to know by that, whether it be the Acid or the *Alkaline* Principle which predominates in 'em: As, in the eſſential Oils of Spices, and the groſs empyreumatical Oils of Wood; and even in Alcohol of Wine, which ſome contend to be an Acid, and others, an *Alkaly*. *Imperfect. of Chym. Doct. of Qual.*

ALKALIZATE, or ALKALINE *Bodies*, among Chymiſts, are ſuch as have their Pores naturally ſo formed, that they are fit to be pierced, and put into Motion by the Points of an Acid poured upon them. See ALKALY.

ALKEKENGI, a Medicinal Fruit, produced by a Plant of the ſame Denomination, and popularly called *Winter-Cherry*.

The Plant bears a near reſemblance to Solanum or Night-ſhade; whence it is frequently called in *Latin* by that Name, with the Addition or Epithet of *Veſicarium*.—It is ſometimes alſo called *Halicacabum*.

The Fruit is celebrated for its lithontriptic Quality; and preſcribed to cleanſe the Urinary Paſſages of Gravel, and other Obſtructions. Its deterſive Quality alſo recommends it againſt the Jaundice, and other Diſorders of the Viſcera.

The *Trochiſchi Alkekengi*, prepared from it, are but little preſcrib'd in the modern Practice. See TROCHE.

ALKERMES, in Medicine, *&c.* a Term borrow'd from the *Arabs*.—The *Confection of Alkermes*, is a celebrated Remedy, of the Form and Conſiſtence of a Confection; whereof the Kermes Berries are the Baſis. See CONFECTION, and KERMES.

The other Ingredients, as preſcribed by the College, are Pippin-Cyder, Roſe-Water, Sugar, Ambergreaſe, Muſk, Cinnamon, Aloes Wood, Pearls, and Leaf Gold.—But the Sweets are uſually omitted.

It is much uſed as a Cordial; eſpecially, ſays Dr. *Quincy*, among Female Preſcribers, and in complaiſance to them: But that Author decries its Value in that Intention, and thinks it ought only to be regarded as a Sweetner.

ALLANTOIS, ALLANTOIDES, in Anatomy, a third Coat or Membrane of a Fœtus, inveſting part thereof, in manner of a Scarf, or Collar, extending from the *Cartilago Xiphoides*, to the bottom of the Hips. See FOETUS.

The *Allantois* makes part of the *Secundine*.—It is conceived as an urinary Tunic, placed between the Amnion and Chorion, which by the Navel and Urachus receives the Urine that comes out of the Bladder. See SECUNDINE, and URINE.

'Tis a Point controverted among Anatomiſts, whether the *Allantois* be found in Man.—M. *Drelincourt*, Profeſſor of Anatomy at *Leiden*, in an expreſs Diſſertation on this Membrane, maintains it peculiar to the Ruminating Kind. See RUMINANT.

Dr. *Hale*, on the contrary, has given an accurate Deſcription of the human *Allantois*; and aſſign'd the Reaſon why thoſe who believed its Exiſtence had not before fully found it out; and alſo an anſwer to thoſe who yet deny its reality. See *Philoſoph. Tranſact.* N° 271.

The Word is derived from ἀλλᾶς, *Farcimen*, a Gut, and εἶδος, *Forma*, Shape; becauſe, in many Brutes, it is in the Shape of a Gut-pudding: but in Man, and ſome others, it is round.—It is likewiſe called *Farciminalis*.

ALLEGATION, the Citation, or Quotation of an Authority, Book, Paſſage, *&c.* to make good any Point, or Aſſertion. See QUOTATION, CITATION, AUTHORITY, *&c.*

ALLEGIANCE, the legal Faith and Obedience, which every Subject bears to his Prince. See KING, FEALTY, *&c.*

This was antiently called *Ligence*; from the Latin *Ligare*, and *Alligare*, to bind, *q. d. Ligamen fidei*. See LIEGE.

Oath of ALLEGIANCE, is an Oath given in *England* to the King, in quality of a Temporal Prince or Sovereign; to diſtinguiſh it from the Oath given to him as Primate, or ſupreme Head of the Church, which is called the *Oath of Supremacy*. See OATH; ſee alſo KING, and SUPREMACY.

In this Senſe, the Word *Allegiance* comes from the Latin *ad Legem*.—The Quakers are diſpenſed with not taking the Oath of *Allegiance*; and in lieu thereof are only enjoin'd a Declaration. See DECLARATION.

ALLEGORY, ALLEGORIA, a Figure in Rhetorick, whereby we make uſe of Terms which in their proper Signification, mean ſomething elſe than what they are here intended to denote: Or, it is a Figure, whereby we ſay one thing, expecting it ſhall be underſtood of another, to which it alludes. See FIGURE, ALLUSION, *&c.*

An *Allegory* is properly a Series, or Continuation of *Metaphors*. See METAPHOR.

Such is that beautiful *Allegory* in *Horace*, Lib. I. Od. 14.

O Navis, referent in mare te novi
Fluctus, &c.

Where the *Ship*, ſtands for the *Republick*; *Waves*, for *Civil War*; *Port* for *Peace* and Concord; *Oars* for *Soldiers*; *Mariners* for *Magiſtrates*, &c.

The

The Old Teſtament is ſuppoſed by many to be a perpetual *Allegory*, or typical Repreſentation of the Myſteries of the New. See TYPE.

In effect, *Allegory* has a good Share in moſt Religions.—The *Jews*, we know, abound with 'em: *Philo Judæus* has three Books, *Of the Allegories* in the Hiſtory of the Six Days. See HEXAMERON.

Nor are the Heathens without *Allegories* in their Religion: it may even be ſaid, that the Uſe hereof is of a much earlier ſtanding in the *Gentile*, than in the *Jewiſh* World.—Some of their Philoſophers undertaking to give a Rationale of their Faith, and to ſhew the Reaſon and Scope of their Fables, and the antient Hiſtories of their Gods; found it neceſſary to put another Conſtruction on 'em, and maintain, that they ſignify'd ſomething very different from what they ſeem'd to expreſs.—And hence came the Word *Allegory*: for a Diſcourſe that in its natural Senſe, ἄλλο ἀγορεύει, ſignifies ſomething other than what is intended by it, makes what we properly call an *Allegory*.

This Shift they had recourſe to, in order to prevent People from being ſhock'd with thoſe Abſurdities which the Poets had introduced into their Religion; and to convince the World, that the Gods of *Greece* had not been thoſe vile Perſons which their Hiſtories repreſented them to be. By this means, the Hiſtory, as well as the Religion of *Greece*, was at once converted into *Allegory*; and the World left to ſeek for them both in a Heap of Fables, few of which have been ſolved to any purpoſe to this Day. See MYTHOLOGY.

The *Jews* finding the Advantages of this way of explaining Religion; made uſe of it to interpret the Sacred Writings, ſo as to render 'em more palatable to the Pagans.

The ſame Method was adopted by the primitive Writers of Chriſtianity. See ALLEGORICAL.

ALLEGORICAL, ſomething containing an *Allegory*. See ALLEGORY.

The Divines find divers Senſes in Scripture; a Literal, a Myſtical, and an *Allegorical* Senſe. See MYSTIC, *&c.*

The Prophecies, in particular, deliver'd in the Old Teſtament, are ſaid to be many of 'em accompliſh'd in the New; not in their primary and literal, but in their ſecondary, or *Allegorical* Senſe. See PROPHESY.

The Fathers, and other antient Interpreters of Scripture, are almoſt all *Allegoriſts*; as *Origen*, *Clemens Alexandrinus*, St. *Auguſtin*, *Gregory Nazianzen*, &c. See further under the Article TYPE.

ALLEGRO, in Muſick, a Word uſed by the *Italians* to denote one of the ſix Diſtinctions of Time. See TIME.

Allegro expreſſes a very quick Motion, the quickeſt of all excepting *Preſto*.

The uſual ſix Diſtinctions ſucceed each other in the following Order, Grave, Adagio, Largo, Vivace, *Allegro*, and Preſto.

It is to be obſerved, that the Movements of the ſame Name, as *Adagio* or *Allegro*, are ſwifter in Triple than in Common Time.—The Triple $\frac{3}{4}$ is uſually *Allegro*, or *Vivace*; the Triples $\frac{6}{4}$, $\frac{6}{8}$, $\frac{9}{4}$, $\frac{12}{8}$, are moſt commonly *Allegro*. See TRIPLE.

ALLELUJAH. See HALLELUJAH.

ALLEMAND, ALMAIN, a kind of grave, ſolemn Muſick, where the Meaſure is good, and the Movement ſlow. See MUSICK, SONG, MEASURE, *&c.*

ALLER *Good*, in our antient Writers.—The Word *Aller* ſerves to make the Expreſſion of ſuperlative Signification. So, *Aller Good* is the greateſt Good. Sometimes it is wrote *Alder*.

ALLERION, or ALERION, in Heraldry, as ſort of Eaglet, without either Beak, or Wings. See EAGLET.

The *Allerion* appears much the ſame with the *Martlet*, except that the Wings of the former are ſhut, and they are repreſented, as it were, Paſſant; whereas the *Allerion* is ſpread, and is repreſented In pale. Add, that among our Heralds, the Martlet has a Beak. See MARTLET.

The Name is *French*; and is ſaid to have been introduced for the Word *Eaglet*: 'Tis added, that the Practice of calling Eaglets, *Allerions*, and of repreſenting 'em ſpread, without Feet and Beaks, is not above an hundred Years old. Hence, *Menage* derives the Word from *Aquilario*, a Diminutive of *Aquila*.

ALLEU, or ALLODE, in our antient Cuſtoms. See ALLODIAL.

ALLEVIARE, in old Records, to levy or pay an accuſtomed Fine or Compoſition. See LEVY.

ALLEVIATION, the Act of *alleviating*, *i. e.* of allaying, or eaſing any Grievance: as a Pain, Diſeaſe, *&c.* See PALLIATING; ſee alſo PAIN, *&c.*——The Word is compounded of *ad*, and *levis*, Light.

ALLEY, in Gardening, a ſtrait parallel Walk, border'd or bounded on each hand with Trees, Shrubs, or the like. See GARDEN, WALK, EDGING, *&c.*

Alleys are uſually laid either with Graſs or Gravel. See GRASS-*Walk*, and GRAVEL-*Walk*.

An *Alley* is diſtinguiſh'd from a *Path*, in this; that in an *Alley* there muſt always be room enough for two Perſons, at leaſt, to walk a-breaſt: So that it muſt never be leſs than five Feet in breadth; and there are ſome who hold that it ought never to have more than fifteen.

Counter-Alleys, are the little *Allies* by the Sides of the great ones.—A *Front-Alley*, is that which runs ſtrait in the Face of a Building.—A *Tranſverſe-Alley*, that which cuts the former at right Angles.—A *Diagonal-Alley*, that which cuts a Square, Thicket, Parterre, *&c.* from Angle to Angle.—A *Sloping-Alley*, is that which either by reaſon of the Lowneſs of the Point of Sight, or of the Ground, is neither parallel to the Front, nor to the Tranſverſe *Alleys*.

An *Alley in Zigzag*, is that which has too great a Deſcent, and which, on that account, is liable to be damaged by Floods; to prevent the ill Effects whereof, it has Platbands of Turf running acroſs it from Space to Space, which help to keep up the Gravel. This laſt Name is likewiſe given to an *Alley* in a Labyrinth, or Wilderneſs, form'd by ſeveral returns of Angles, in order to render it the more ſolitary and obſcure, and to hide its Iſſue.

Alley in Perſpective, is that which is larger at the Entrance than at the Iſſue; to give it a greater Appearance of length.

Alley of Compartiment, is that which ſeparates the Squares of a Parterre.

The Word *Alley* is derived from the *French* Verb *Aller*, to go; the ordinary uſe of an *Alley* being for a Walk, Paſſage, or Thorow-fare from one Place to another.

ALLIANCE, the Union or Connection of two Perſons, or two Families, by means of Marriage; called alſo *Affinity*. See MARRIAGE, and AFFINITY.

The Law of the Twelve Tables forbids all *Alliance* between Perſons of unequal Rank and Condition.—And in *Portugal*, we are told, the Daughters of the Nobility are prohibited to *ally* with ſuch as have never been in the Wars.

The Word is form'd of the Latin *ad ligatio*, *q. d.* a tying together.

ALLIANCE is alſo extended to the Leagues, or Treaties of Peace concluded between ſovereign Princes and States, for their mutual Safety and Defence. See TREATY, LEAGUE, *&c.*

The *Triple Alliance* between *England*, *Holland*, and *Sweden*, is famous.—So is the *Quadruple Alliance*, between *England*, *Holland*, the Emperor, and King of *France*.

In this Senſe, we ſay, *Allies*, for Confederates: The King and his *Allies*; the *Allies* of the Treaty of *Hanover*, &c. See CONFEDERATE.

ALLIGATION, in Arithmetick, a Rule or Operation, whereby Queſtions are reſolved, relating to the Mixture of divers Commodities or Ingredients together, with the Value, Effect, *&c.* thereof. See RULE, MIXTURE, *&c.*

The Word is form'd of the Latin *Alligare*, to tie together; by reaſon, perhaps, of a ſort of Vincula, or circular Ligatures, ordinarily uſed to connect the ſeveral Numbers together.

Alligation is of two Kinds, *Medial* and *Alternate*.

ALLIGATION *Medial*, is when from the ſeveral Quantities and Rates of divers Simples given, we diſcover the mean Rate of a Mixture compounded out of 'em.

The ſeveral Caſes hereof, will come under the following Rules.

The Quantity of the Ingredients, and the Prices of each being given; to find the Price or Value of ſome part of the Mixture.——Multiply the Ingredients ſeverally by their own Prices, and divide the Sum of thoſe Products by the Sum of the Ingredients; the Quotient anſwers the Queſtion.

The Prices of the ſeveral Ingredients, and the Sum paid or received for the Mixture being given; to find what quantity of each was bought or ſold.——Divide the Sum paid or received, by the Sum of the particular Prices; the Quotient is the Anſwer.

The Ingredients of a Mixture being given, to augment or diminiſh the Mixture proportionally.—Sum up the Ingredients; then ſay, As that Sum is to the Augmentation or Diminution, ſo is the Quantity of each Parcel of the Mixture, to the Quantity of the Mixture deſired.

The Nature, Quality, &c. of the ſeveral Ingredients of a Mixture being given, to find the Temperament or Degree of Fineneſs reſulting from the Whole.—Place the ſeveral Quantities of the Mixture in Rows; againſt which place orderly their ſeveral Qualities of Fineneſs; and multiply each Quantity by its own Quality or Degree of Fineneſs: then, as the Sum of the Quantities is to their Products, ſo is Unity, to the Quality or Fineneſs of the Mixture.

The Quantities of a Mixture being given; to find the particular Quantities of any Ingredient in any part of the Mixture.——If the Mixture be of only two Things, ſay, As the Total of the Ingredients in the Compoſition, is to the Part of the Mixture propoſed; ſo is the Quantity of the Ingredient propoſed in the whole Compoſition, to the Quantity of the Ingredient in the Part deſired.—If the Mixture conſiſt of more Ingredients, repeat the Work for each.

Given the Total of a Mixture, with the whole Value, and the Values of the ſeveral Ingredients; to find the ſeveral

Quantities mixed, tho unequally.——Multiply the Total of the Mixture by the least Value, subtract the Product from the total Value; and the Remainder is the first Dividend: Then take the said least Value from the greatest valued Ingredient, and the Remainder is the first Divisor. The Quotient of this Division shews the Quantity of the highest-pric'd Ingredient, and the other is the Complement to the Whole. And when more Ingredients than two are in the Composition, the Divisors are the several Remains of the least Value, taken from the other: The Dividends are the Remains left upon the Divisions, till none remain there; which will be one short of the Number of Ingredients: and this defective Ingredient is to be supplied as a Complement; and in Division, no more must be taken in every Quotient, than that there may remain enough for the other Divisors; and the last to leave nothing remaining. See DIVISION.

ALLIGATION *Alternate*, is when the Rates or Qualities of divers Simples are given; and the Quantity of each is required necessary to make a Mixture of the given Rate or Quality.

Alligation Alternate, shews the due Proportion of several Ingredients; and counter-changes the Places of such Excesses or Differences as arise between the mean Price and the Extremes; ascribing that to the greater Extreme, which proceeds from the lesser; and contrarily.

The Rules which obtain in *Alligation Alternate*, are as follow.

Every greater Extreme to be linked with one lesser.

If either of the Extremes be single, and the other Extremes plural; the single Extreme to be linked to all the rest.

If both greater and lesser Extremes be not plural, they may be linked so diversly, that several Differences may be taken, and a Variety of Answers be made to the Question, yet all true: But if one of the Extremes be single, there can be but one Answer.

The Numbers being linked, take the Difference of each from the mean or common Price; and place this difference against the Number it is linked to, alternately.

Every Number linked with more than one, must have all the Differences of the Numbers it is linked to, set against it.

Those Differences resolve the Question, when the Price of every of the Ingredients is given without their Quantities; and the Demand is to mix them so as to sell a certain Quantity at a mean Rate.

But when the Quantity of one, with the Price of all the Ingredients is given; and the Demand is to know the Quantities of the other Ingredients; then, the Rule of Three is to be used.

And when the Price of every Ingredient is given, without any of their Quantities, and the Demand is to make up a certain Quantity to be sold at a mean Rate; then all the Differences added together will be the first Number in the Rule of Three; the whole Quantity to be mixed the second Number; and each Difference apart the several third Numbers: And so many Sorts mixed, so many Operations of the Rule of Three. See RULE *of Three*.

We shall add an Example, wherein both the Kinds of *Alligation* have place.——Suppose a Mixture of Wine of 119 Quarts, required to be made of Wines of the following Prices 7 *d.* 8 *d.* 14 *d.* and 15 *d. per* Quart; and so, as that the Whole may be afforded at 12 *d. per* Quart.

Having linked 8 to 14, and 7 to 15, and counterchang'd their Difference from the common Price, 12 *d.* the Sum of their Difference is found to be 14; by which dividing 119, the Quotient is $8\frac{7}{14}$, or $8\frac{1}{2}$, or for convenienty in Operation, $\frac{17}{2}$.

		Quarts.
8 } 2	$\frac{17}{2} + 2 = \frac{34}{2} =$	17
14 } 3	$\frac{17}{2} + 4 = \frac{68}{2} =$	34
7 } 4	$\frac{17}{2} + 3 = \frac{51}{2} =$	$25\frac{1}{2}$
15 } 5	$\frac{17}{2} + 5 = \frac{85}{2} =$	$42\frac{1}{2}$
14		119

ALLIOTH, in Astronomy, a Star in the Tail of the Great Bear, whose Observation is much used at Sea. See STAR.

Its Longitude, Latitude, &c. see among the rest of URSA *Major*.

To find the Latitude, or Elevation of the Pole by this Star. See LATITUDE, and POLE.

ALLOCATION, ALLOCATIO, the admitting, or allowing of an Article in an Account; and passing it as such. See ACCOUNT.

The Word is form'd of the Latin *Alloco*.

ALLOCATION is also an Allowance made upon an Account; used in the Exchequer. See ALLOCATIONE.

ALLOCATIONE *Facienda*, a Writ directed to the Lord Treasurer and Barons of the Exchequer, upon the Complaint of some Accountant; commanding them to allow him such Sums as he hath in execution of his Office lawfully expended.

ALLODIAL, ALLODIAN, in antient Customs.——*Terra* ALLODIA, or ALLODIAL *Land*, is that whereof a Person has the absolute Property; or which he holds without paying any Service or Acknowledgment to any Superior Lord. See PROPERTY, &c.

Such an Inheritance is *Allodial*, *i. e.* not subject to any Charge, Service, &c. See FREE *Land*.

In this Sense, *Allodial* stands opposed to *Feudal*, or *Beneficiary*. See FEE, BENEFICE, &c.—See also ALLODIUM.

ALLODIUM, ALLODE, ALLODUS, or ALLEUD, Land held of a Man's own Right.—*Bollandus* explains *Allodium*, to be *Prædium, seu quævis possessio libera jurisque proprii, & non in Feudum Clientelari onere accepta.* See ALLODIAL.

After the Conquest of the *Gauls*, the Lands were divided in two manners, *viz.* into Benefices, *Beneficia*; and *Allodia*.

Benefices, consisted in Lands given by the King to his Officers and Soldiers; either for Life, or for a Time fixed. See BENEFICE.

Allodes, or *Alleuds*, were such Lands as were left in Property to the antient Possessors.—The 62d Title of the *Salic* Law, is, *De Allodis*; where the Word signifies Hereditary Lands, or those derived from a Man's Ancestors. Whence, *Allodium* and *Patrimonium* are frequently used indiscriminately. See PATRIMONY.

In the antient Capitulars of *Charlemaign* and his Successors, we find *Allode* constantly opposed to Fee; but, toward the Period of the second Race of Kings, it lost the Prerogative; the Feudal Lords obliging the Proprietors of *Allodial* Lands to hold of them for the future. The same Change also happened in *Germany*, &c. See TENURE.

The Usurpation of the Feudal Lords over the *Allodial* Lands, went so far, that they were almost all either subjected to 'em, or converted into Fees: Whence the Maxim, *Nulla Terra sine Domino*, No Land without a Lord.

The Origin of the Word is infinitely controverted. *Cassineuve* says, it is almost as obscure as the Head of the *Nile*. Few of the *European* Languages, but one Etymologist or other has derived it from.

ALLONGE, in Fencing, a Thrust, or Pass at the Enemy. See PASS, GUARD, &c.

The Word is *French*, form'd of the Verb *Allonger*, to lengthen out a thing by piecing another to it.

ALLOTTING, or ALLOTMENT *of Goods*, in Matters of Commerce, is when a Ship's Cargo is divided into several Parts, to be bought by divers Persons, whose Names are wrote on as many Pieces of Paper, which are apply'd by an indifferent Person to the several *Lots* or Parcels; by which means, the Goods are divided without Partiality; every Man having the Parcel which the *Lot* with his Name on, is appropriated to.

ALLOY, or ALLAY, in Matters of Coinage, &c. a Proportion of a baser Metal, mingled with a finer, or purer. See METAL, MIXTURE, &c.

Such is the Quantity of Copper mingled with Gold, in the Coining of Species of that Metal. See GOLD, MONEY, &c.

The Intention of *Alloy*, is to give the Gold a due hardness, that it may not waste with wearing; and to increase its Weight, so as to countervail the Charges of Coinage. See SEIGNEURAGE.

Gold that has more of this, than it ought to have; is said to be of a *coarser* or *greater Alloy*, or below Standard. See STANDARD.

The Proportion of *Alloy* for Gold used in our Mints, is about a 12th Part. See COINING.

The Word seems derived from the French, *Loy*, Law; in regard the *Alloy* is fix'd by Law.

ALLUM, or ALUM, *Alumen*, a kind of Mineral Salt, of an acid Taste, leaving in the Mouth a Sense of Sweetness accompany'd with a considerable Degree of Astringency. See SALT.

The antient Naturalists allow of two sorts of *Allum*; the one *Native*, the other *Factitious*.—The Natural is found in the Island of *Milo*, being a kind of whitish Stone, very light, friable and porous; and streak'd with Filaments resembling Silver.

The Factitious *Allum*, is prepared in different manners, according to the different Materials whereof it is made.

Allum is of divers Kinds, *Red*, *Roman*, *Citron*, *Plumose*, *Saccharine*, and *Burnt*. The three last of which, are not proper native *Allums*.

England, *Italy*, and *Flanders*, are the Countries where the *Allum* is principally produced.—The *English Allum*, called also *Roche-Allum*, *Allumen Rupeum*, is made from a bleuish mineral Stone, frequent in the Hills in *Yorkshire* and *Lancashire*. This Stone they calcine on a Hearth or Kiln; then steep it successively in several Pits of Water: then boil it for about 24 Hours: Lastly, letting it stand for about two Hours; the Impurities subside, and leave a pure Liquor; which, removed into a Cooler, and some Urine added to it, begins,

begins, in three or four Days, to gather into a Mass; which being taken out, washed, and melted over again, is fit for use.

The Mineral Stone, before it is calcined, being exposed to the Air, will moulder in pieces, and yield a Liquor whereof Copperas may be made; but being calcined it is fit for *Allum*.—As long as it continues in the Earth, or in Water, it remains a hard Stone.—Sometimes a Liquor will issue out of the Side of the Mine, which by the Heat of the Sun is turned into a Natural *Allum*.

In the *Allum*-Works at *Civita Vecchia*, the Process, as described by M. *Geoffroy*, is somewhat different.—The Stone, which is of a ruddy hue, being calcined, they boil and dissolve the Calx in Water; which imbibing the Salt, *i. e.* the *Allum*, separates it self from the useless Earth. Lastly, leaving the Water thus impregnated with Salt to stand for some Days, it crystallizes of it self, like Tartar about a But, and makes what they call *Roche* or *Roman-Allum*.

At *Solfatara*, near *Puzzuoli*, is a considerable oval Plain, the Soil whereof is wholly saline; and so hot, that the Hand cannot long bear it.—From the Surface hereof, in Summer-time, there arises a sort of Flour, or saltish Dust; which being swept up, and cast into Pits of Water at the bottom of the Plain; the Heat of the Ground, without any other Fire, evaporates the Water, and leaves an *Allum* behind.

Allum dissolves in Water, and what remains undissolved at bottom, is a sort of Calx, which dissolves readily enough in Oil, or Spirit of Vitriol.—And hence there arises some doubt, whether *Allum*, as it does not leave an Earth behind, does properly belong to the Class of Salts.—Mr. *Boyle* assures us, that *Allum* Ore robb'd of its Salt, does in tract of Time recover it again in the Air. See AIR.

The *Swedish Allum* is made of a Mineral which contains a great deal of Sulphur and Vitriol, not to be taken away but by Calcination or Distillation. The Matter remaining in the Iron Vessels used in separating the Sulphur from the Mineral, being exposed to the Air for some time, becomes a kind of blueish Ashes, which they lixiviate, crystallize, and convert into *Allum*.

The Word *Allum* comes from the *Greek* ἅλς, *Salt*; or perhaps from the Latin *Lumen*, Light; because it adds a Lustre to Colours.

Allum is of some use in Medicine, in quality of an Absorbent; but being apt to excite Vomiting, is not much used inwardly, and rarely without some smooth Aromatick, as a Corrector.—'Tis used outwardly in astringent Lotions, and is an Ingredient in several Dentifrices.

It is a principal Ingredient in Dying and Colouring; neither of which can be well performed without it.—It serves to bind the Colour upon the Stuffs, and has the same Uses there, that Gum-water and glutinous Oils have in Painting. It likewise disposes Stuffs to take the Colour, and adds a degree of Briskness and Delicacy to it; as we see visibly in Cochineal, and the Grain of Scarlet.

The Effects of *Allum* seem owing to its styptick, or astringent Quality, by which it binds the finer Parts of Colours together, and prevents their exhaling. Hence also it preserves Paper that has been dipp'd in its Water, from sinking when wrote upon. See COLOUR, DYING, &c.

Saccharine ALLUM, bears a near resemblance to Sugar.—It is a Composition of common *Allum* with Rose-water, and Whites of Eggs, boil'd together to the Consistence of a Paste, and thus moulded at pleasure. As it cools, it grows hard as Stone.

Burnt ALLUM, *Alumen Ustum*, is *Allum* calcined over the Fire, and thus render'd whiter, more light, and easily pulveriz'd.

Plumose ALLUM, *Alumen Plumosum*, is a sort of saline, mineral Stone, of various Colours, most commonly white bordering on green; resembling *Venetian* Talc, except that instead of Scales, it rises in Threads or Fibres, resembling those of a Feather; whence its Name, from *Pluma*, Feather.

Some will have this to be the *Lapis Amianthus* of the Antients. See AMIANTHUS.

ALLUMINOR, or ENLUMINOR, or ILLUMINER, one who by Trade colloureth, or paints upon Paper or Parchment. See COLOUR, PAINTING, &c.

ALLUSION, ALLUSIO, in Rhetorick, a Figure whereby something is applied to, or understood of, another, by reason of some Similitude of Name, or Sound.

Camden defines *Allusion* a dalliance, or playing with Words like in Sound, but unlike in Sense; by changing, adding, or subtracting a Letter, or two; whence Words resembling one another, become applicable to different Subjects.

Thus the Almighty, if we may use sacred Authority, chang'd *Abram, i. e.* high Father, into *Abraham, i. e.* Father of many.—Thus the *Romans* play'd on their tippling Emperor *Tiberius Nero*, by calling him *Biberius Mero*: and thus in *Quintilian* the four Fellow *Placidus*, is call'd *Acidus*.

Allusions come very near to what we popularly call *Puns*. See PUN.

The Word is form'd of the Latin *ad*, and *ludere*, to play.

ALLUVION, ALLUVIO, in the Civil Law, an Accession or Accretion made along the Sea-shore, or the Banks of large Rivers, by means of Tempests or Inundations. See ACCRETION, &c.

The Civil Law places *Alluvion* among the lawful means of Acquisition; and defines it to be a latent imperceptible Accretion.——Hence, where any considerable Portion of Ground is torn away at once, by an Inundation; and join'd to some neighbouring Estate; this is not acquired by right of *Alluvion*, but may be claim'd again by the former Proprietor.

The Word is form'd of the Latin *Adluo*, I wash to; compounded of *ad*, and *lavo*, I wash.

ALMACANTARS, ALMACANTARAS, or ALMACANTARATS, in Astronomy. See ALMUCANTARS.

ALMACANTARS *Staff*. See ALMUCANTARS *Staff*.

ALMAGEST, the Name of a celebrated Book, composed by *Ptolemy*; being a Collection of many of the Observations and Problems of the Antients, relating both to Geometry and Astronomy.

In the Original *Greek* it was called σύνταξις μεγίστη, q. d. *Greatest Construction*, or *Collection*: Which last Word *Megiste*, join'd to the Particle *Al*, gave occasion to its being called *Almageste* by the *Arabians*, who translated it into their Tongue about the Year 800, by Order of *Maimon*, Caliph of *Babylon*.—The *Arabic* Word is *Almaghesti*.

Riccioius has also publish'd a Reformed Astronomy, which he intitles, after *Ptolemy*, the *New Almagest*; being a Collection of antient and modern Observations in Astronomy. See ASTRONOMICAL *Observation*.

ALMANACK, or EPHEMERIS, a Calendar or Table, wherein are set down the Days, and Feasts of the Year, the Course of the Moon, &c. See CALENDAR, YEAR, DAY, MONTH, MOON, &c.

The Original of the Word is much controverted among Grammarians.—Some derive it from the *Arabick* Particle *Al*, and *Mana*, to count.—Others, and among them *Scaliger*, rather derive it from *Al*, and μηνὸς, the Course of the Months: Which is contradicted by *Golius*, who advances another Opinion; He says, that throughout the East, 'tis the Custom for Subjects, at the Beginning of the Year, to make Presents to their Princes; and among the rest, the Astrologers present them with their Ephemerides for the Year ensuing; whence those Ephemerides came to be called *Almanha*, i. e. *Handsels*, or New-Years Gifts. See EPHEMERIDES.

To say no more, *Verstegan* writes the Name *Almon-ac*; and makes it of *Saxon* Original: Our Ancestors, he observes, used to carve the Courses of the Moon of the whole Year upon a square Stick, or Block of Wood, which they called *Al-monaght*, q. d. *Al-moon-heed*.

The modern *Almanack* answers to the *Fasti* of the antient *Romans*. See FASTI.

The Necessaries for making an Almanack, *the Reader will find under the Article* CALENDAR.

Henry III. of *France*, very prudently decreed by an Ordonnance of 1579, that 'No *Almanack-Maker* should presume to give Predictions relating to Civil Affairs, either 'of States or private Persons, in Terms either express or 'covert.' See ASTROLOGY.

In the *Philosoph. Collect.* we have a perpetual *Almanack*, described by Mr. *R. Wood*.

ALMANDIN, or ALBANDIN, a Precious Stone, of the Ruby Kind; something lighter and softer than the Oriental Ruby: and as to Colour, partaking more of that of the Granat than the Ruby. See RUBY, GRANAT, &c.

It is rank'd among the richest of Stones; and takes its Name from *Albana*, a City of *Caria*, whence *Pliny* says it is brought. See PRECIOUS *Stone*.

ALMARIA, for *Armaria*, in our antient Records, the Archives of a Church, or the like. See ARCHIVE.

ALMERY. See AMBRY.

ALMOIN, in Law. See FRANK-*Almoin*.

ALMOND, *Amygdala*, a kind of Fruit, inclosed with a thick Stone, and under a thin Skin. See FRUIT.

The *Almond* is the Produce of a pretty tall Tree, resembling a Peach Tree; frequent in *Germany*, *France*, and the neighbouring Countries; as also in *Barbary*, &c.—Its Flowers are pentapetalous, and ranged in the Rose manner: The Pistil becomes a fleshy Fruit, containing a Seed, which is the *Almond*; and which drops out when the Fruit is arrived at Maturity.

Almonds are chiefly of two Kinds, *Sweet* and *Bitter*.

The *Sweet Almonds*, *Amygdalæ Dulces*, are of a soft, grateful Taste; and are reputed cooling, healing, emollient, and nutritive: are much prescribed in Emulsions, and found of good effect in all Disorders from cholerick and acrimonious Humours.—The *Oil of Sweet Almonds*, drawn without Fire, is a safe and useful Remedy in nephritick Pains. It is also of good repute for Costiveness and Gripes in Children.

For the manner of procuring the Oil of Sweet Almonds, *see the Article* Oil.

Bitter Almonds, *Amygdalæ Amaræ*, are held aperient, detersive, and diuretick; and on those Accounts commended in Obstructions of the Liver, Spleen, Uterus, &c.—Some esteem 'em good to take off the Effects of Drunkenness. Accordingly, *Plutarch* relates, that *Drusus*'s Physician, a stout Drinker, took down at every Cup five *Bitter Almonds*, to allay the Heat and Fumes of the Wine.

The express'd *Oil of Bitter Almonds*, is much used to soften and deterge the Wax out of the Ear.—Some affirm, that *Bitter Almonds* bruis'd, kill or stupify Fowl; so that they may be taken with the Hands: which, they say, is a Secret practis'd among the *Bohemians*: And that the Husks remaining after the Oil is express'd, have the same Effect.

The Word *Almond* comes from the French *Amande*; which *Menage* derives from the Latin *Amandala*, a Term occurring in the Capitulars of *Charlemaign*: Others rather derive it from the *Greek* ἀμύγδαλον, which signifies the same thing.

Almonds give the Denomination to a great Number of Preparations in Confectionry, Cookery, &c. whereof they are the Basis; as *Almond* Cakes, *Almond* Cream, Crisp'd *Almonds*, *Almond* Milk, *Almond* Paste, *Almond* Snow, &c.

Almonds *of the Throat*, called also *Tonsillæ*, and improperly *Almonds of the Ears*. See Tonsil.

They are two round Glands, placed on the Sides of the Basis of the Tongue, under the common Membrane of the *Fauces*, with which they are covered. See Gland, Tongue, &c.

Each of 'em has a large oval Sinus, which opens into the Fauces; wherein are contain'd a great Number of lesser ones, which discharge thro' the great Sinus a mucous and slippery Matter into the Fauces, Larynx, and Oesophagus, for the moistening and lubricating of those Parts. See Larynx, &c.

When the Oesophagus Muscle acts, it compresses the *Almonds*; and as they are subject to Inflammation, they frequently are the Occasion of what the common People call a *sore Throat*. See Oesophagus, Raucedo, &c.

Almond, or Alman-*Furnace*, is a peculiar kind of Furnace, used in Refining; to separate all kinds of Metals from Cinders, parts of Melting-Pots, Tests, Bricks, &c. See Furnace, and Refining.

The *Almond-Furnace*, called also the *Sweep*, is usually six Foot high, four wide, and two thick; built of Brick, and having a Hole in the middle of the Top, eight Inches over; which grows narrower towards the bottom, where, on the Fore-part it ends in a Point, encompass'd with a Semicircle of Iron, to keep the melted Metal.—About the middle of the Back, there is another Hole, to receive the Nose of a pair of Bellows, which require the continual Strength of two Men to work.

The Matter, then, on which the Operation is to be perform'd, being beat small, they kindle Charcoal in the Furnace, to anneal it; and when hot, they throw in two or three Shovelfuls of Coals to one of the foremention'd Stuff; and so proceed during the whole Work, putting Lay upon Lay of one and the other. After eight or ten Hours the Metal begins to run; and when the Receiver below is pretty full, they lade it out with an Iron Ladle, and cast it in Sows, in Cavities, or Forms made with Ashes.

ALMONER, antiently also wrote Almner, or Aumonier, an Officer in a King's or Prince's Houshold, whose business is to distribute *Alms* to the Poor. See Alms.

The *Lord Almoner*, or *Lord High Almoner*, is an Ecclesiastical Officer, who has the Forfeiture of all Deodands, and the Goods of *Felo's de se*, which he is to dispose of to the Poor. See Deodand.

He had likewise, by an antient Custom, a Privilege to give the first Dish from the Royal Table, to whatsoever poor Person he pleased, or, instead thereof, an *Alms*, in Money.

He also distributes daily to 24 poor Men, nominated by the Parishioners of the Parish adjacent to the King's Place of Residence, to each, 4 *d.* in Money, and an Alms of Bread and Small Beer; each Person first repeating the Creed and the Lord's Prayer, in presence of one of the King's Chaplains, deputed by the Lord *Almoner* to be his *Sub-Almoner*; who is also to scatter new-coin'd Two-pences in the Towns and Places thro' which the King passes in his Progress.

He has also the Charge of several poor Pensioners to the Crown, below Squirs; consisting of such as have spent their Youth, and become superannuated in the King's Service; or the Widows of such Houshold Servants as died poor, and were not able to provide for their Wives and Children, whom he duly pays.

Under the Lord *Almoner* is a *Sub-Almoner*, a *Yeoman*, and *two Grooms of the Almonry*, chosen by his Lordship.

ALMONRY, or Aumry, the Office or Lodgings of the *Almoner*; also the Place where the *Alms* are given.

ALMS, *Eleemosyna*, something given out of Charity or Liberality, to the Poor. See Charity, Almoner, &c.

The *Romanists* also extend the Term to what is given to the Church, or other pious Uses.—Hence, what the Church holds on this footing, is called *Tenure in Alms*; for according to *Rastal*, *Alms*, or *Tenure in Alms*, is Tenure by Divine Service. See Tenure, and Service.

The Ecclesiasticks were antiently subsisted wholly on *Alms*. See Clergy, Tithe, &c.

The *Alms* of the primitive Christians were divided into three Parts; one whereof belong'd to the Bishops, another to the Priests, and a third to the Deacons and Subdeacons. —Sometimes they divided 'em into four; the last whereof went to the Poor, and the Repairing of Churches.

Chrodedang, Bishop of *Metz*, in the VIIIth Century, enjoins, in the 42d Chapter of his Rule, that a Priest to whom any thing was offer'd for saying of Mass, or for Confession; or a Clerk for singing of Psalms, or Hymns; should not receive it on any other Condition than as *Alms*.

M. *Tillemont* observes, upon the *Theodosian* Code, p. 257. that from the IVth Century there were Women employ'd to collect *Alms* for the Prisoners. In all probability these were the Deaconesses of the Churches. See Deaconess.

St. *Paul*, in his second Epistle to the *Corinthians*, C. IX. explains the manner of collecting *Alms* in the Assemblies of the primitive Christians.——This Practice they had borrow'd from the *Jewish* Synagogue, where it still obtains. *Leon de Modena* describes it in the 1st Book of the *Ceremonies and Customs* of those of his Nation, C. XIV.

The *Jews* call *Alms*, *Tsedeka*, *i. e.* Justice.—The Evangelists and Apostles have also given it the same Appellation in the New Testament.

ALMSFEOH, or Almespeoh, among our *Saxon* Ancestors, *Alms-Money*; that is Peter-pence, antiently paid in *England* on the first of *August*; called also *Romefeoh*, *Romescot*, and *Heorthpening*. See Peter-*Pence*.

ALMS-*House*, a House built by a Person in a private Capacity, and endow'd with a Revenue, for the Maintenance of a certain Number of poor, aged, or disabled People. See Hospital.

ALMUCANTARS, Almacantaras, or Almucantarats, in Astronomy, are Circles parallel to the Horizon, imagin'd to pass thro' all the Degrees of the Meridian. See Circle, and Horizon. See Parallel.

As the Meridians pass thro' the several Degrees of the Equator; the *Almucantars* pass thro' those of the Meridian of any Place. See Meridian.

The *Almucantars* are the same Thing with regard to the Azimuths and Horizon, that the Parallels are with regard to the Meridians and Horizon.

They serve to shew the Height of the Sun and Stars; and are described on many Quadrants, &c. being also called *Parallels of Altitude*. See Parallel *of Altitude*.

The Word is form'd of the Arabic *Almocantharat*.

Almucantars-*Staff*, is an Instrument usually made of Pear-tree or Box, with an Arch of 15 Degrees; chiefly used to take Observations of the Sun, about the Time of its rising and setting; in order to find the Amplitude, and consequently the Variations of the Compass. See Amplitude, and Variation.

ALNAGE, or Aulnage, *q. d. Ell-measure*; the measuring of woollen Manufactures with an Ell; and the other Functions of the *Alnager*. See Alnager.

The Word is *French*; form'd of *Aune*, or *Alne*, an Ell. See Ell.

All our Laws relating to the *Alnage*, Sir *J. Child* observes, contribute nothing to the well making of our Manufactures, but are rather chargeable, and prejudicial thereto.

ALNAGER, Aleneger, or Aulneger, q. d. *a Measurer by the Ell*; signifies a sworn publick Officer, who, by himself or Deputy, is to look to the Assize of woollen Cloth made thro' the Land, *i. e.* the Length, Width, and Work thereof; and to the Seals for that purpose ordained. See Alnage, Cloth, &c.

There are now three Officers relating to the *Alnage* or Regulation of Cloth; all which were antiently compriz'd in one Person.—These bear the distinct Names of *Searcher*, *Measurer*, and *Alnager*.

A Duty being imposed on woollen Cloths, for the Maintenance of an Office to look to that Manufacture, and the Loyalty, as they call it, of the Stuffs produced therein; the *Alnager*, who had the Direction of the whole, is now become only the Collector of that Duty or Subsidy granted to the King: tho he still holds the antient Denomination, because the Collection of that Subsidy was committed to him. —Nor was he abridg'd of his Measuring and Searching, till by his own neglect it was thought proper to separate the two Offices. So that there is now a peculiar Measurer, distinct from the *Alnager*, or Collector, to allow the Assize of the Length and Breadth of every Cloth made in *England* and *Wales*.

ALOES, Aloe, in Medicine and Pharmacy, the inspissated Juice of a ferulaceous Plant of the same Name; much used as a purgative Remedy. See Purgative.

The *Aloe*-Plant grows in divers Parts of the *East* and *West-Indies*; and is also found in some Countries of *Europe*, as *Spain*, and particularly the Mountains of *Siera Morena*. ——Its Leaves are green, very thick, hard, and prickly; yielding a kind of Cotton, whereof Laces may be made. Out of the middle of the Leaves arises a Stem, which bears the Flower, and the Fruit, the Seed whereof is very light and hemispherical.

Dioscorides, *Pliny*, and the antient Naturalists, seem only to have been acquainted with one Species of *Aloes*; which is the *Aloe Vulgaris* above described: But the late Travels into *Asia*, *Africa*, and *America*, have occasion'd the Discovery of forty more sorts, unknown to Antiquity. Mr. *Bradley* assures us, he has seen above sixty several Kinds in the Physick-Garden at *Amsterdam*. So that *Aloe* is now become the Denomination of a Genus.—Among the Number, however, there are not above twelve that yield the purgative Juice above mentioned.

The Juice or Extract of *Aloes*, is usually distinguish'd into three Kinds.—The first, which is called *Succotrine* as being brought from *Succotra*, is the purest and most transparent; being friable, inodorous, black in the Lump, but of a beautiful yellow Colour when bruis'd.—It is brought in Skins from the *Levant* and *East Indies*.

The second is called *Hepatic*, because of its Liver-colour: It is resinous, smells like Myrrh, has a yellow Colour when pounded, and is brought from *China*.—Some confound this with the following sort; as, in effect, there are but two sorts commonly known in our Shops.

The third is the most impure, the blackest, and the strongest.—It was formerly used by the *Indians* to pitch their Vessels withal: and is of little Use among us, excepting for Horses and Cattle; for which reason it is call'd *Caballine*, *i. e.* Horse-*Aloes*.

Besides these, some mention another kind of *Aloes* prepared in *Barbadoes*, and brought over in large Gourds: but most Writers make this the Caballine kind.

Some have imagin'd, that these differences of *Aloes* were owing only to the greater, or less Putification of the Juice: But this is a Mistake; it having been found that no Dissolutions, how often soever repeated, will change Hepatic into Succotrine, nor Caballine into Hepatic *Aloes*.

The manner of preparing *Aloes* is very easy, there being nothing to do but to cut the Leaves of the Plant, and to expose the Juice that spontaneously oozes out of them to the Sun, till it becomes of a proper Consistence.

Aloes is extremely bitter, and purgative; externally applied, either in Substance or Tincture, it prevents Putrefaction and Gangrene.—Its Bitterness makes it so nauseous, that it is rarely used in liquid Forms, but is generally made into Pills, whereof half a Dram is an ordinary Dose.—Scarce any of the Officinal Pills are without this in their Composition. See Pill.

Its cathartick Virtue, is best employ'd in watery, cold, and corpulent Constitutions, as it heats and attenuates; being bad for thin and hectick Constitutions. It is accounted efficacious in promoting the Menses; and is also good to destroy Worms.

M. *Boulduc*, by his Analysis of *Aloes*, has found that the Succotrine scarce contains half the Resin or sulphurous Part, but one third more of the saline Part, found in the Hepatic. Hence the Succotrine comes to be preferable for internal Uses, and the Hepatic for external.

Aloe *Rosata*, is a Preparation of the *Aloes* Juice, made by dissolving it in Juice of Damask Roses, and evaporating it to the Consistence of a Paste. Then, more Juice is added, and the Evaporation repeated, again and again.—This is held a gentler and safer Cathartick than the *Aloes* alone.

Aloes is also a kind of fragrant *Indian* Wood; thus called from its exceeding Bitterness, which resembles that of the *Aloes* Juice.

This *Aloes*, called also *Agallochum*, is infinitely valued; and divers strange Fables have been invented as to the Origin of the Tree that yields it: Some feign that it grew in Paradise, and was only convey'd to us by means of the Rivers overflowing their Banks, and sweeping off the Trees in their way. Others suppose it to grow on inaccessible Mountains; where it is guarded by certain wild Beasts, &c. —The *Siamese* Embassadors to the Court of *France*, in 1686, who brought a Present of this Wood from their Emperor, first gave the *Europeans* any consistent Account of it.

The Tree grows in *China*, *Lao*, and *Cochinchina*; and is much about the Size and Figure of our Olive Trees.—The Trunk consists of three sorts of Wood, very different in Colour, and Properties: Immediately under the Bark it is black, compact, and heavy, call'd by the *Portugueze*, *Pao d'Aquila*, *q. d.* Eagle-Wood. That next under this, is of a Tan-colour, light and veiny, resembling rotten Wood; and called *Calambou*.

The Heart, or innermost part, is called *Tambac*; and more valued by the *Indians* than Gold it self. It affords a very strong, but agreeable smell; and is used as a Perfume; and is withal held a sovereign Remedy against the Palsy, Deliquiums, Weaknesses, &c.

'Tis the *Calambou* alone that is known among us.—It is brought in small bits of a very fragrant scent; especially when cast on the Fire, where it melts like Wax. The best is of a blackish purple Colour, and so light as to swim on Water: It is hot and drying; and esteem'd a great Strengthener of the Nerves.

Some pharmaceutical Writers make a Distinction between *Aloes*, *Lignum Aloes* and *Xylo Aloes*; which may amount to the three Orders of Wood abovemention'd. Tho among us they are the same thing.

ALOETICS, Medicines wherein *Aloes* is the chief and fundamental Ingredient. See Aloes.

The Word is form'd of *Aloe*, which is further derived from ἅλς, the *Sea*, or *Salt*; that Plant being chiefly found near the Sea-Coasts.

ALOGII, or Alogians, a Sect of antient Hereticks; who denied that Jesus Christ was the Eternal Word. See Arian.

Theodore of *Byzantium*, by Trade a Currier, having apostatiz'd, under the Persecution of the Emperor *Severus*; to defend himself against those who reproach'd him therewith, said; That it was not God he denied, but only Man. Whence his Followers were called in *Greek* ἄλογοι, in regard they rejected the *Word*; from the Privative α, and λόγος, *Verbum*.

ALOOF, a Sea Term, signifying as much as, keep your Luff: being a Word of Command from him that conns, to the Man at the Helm, to keep the Ship near the Wind, when she fails upon a Quarter-wind. See Conner, &c.

ALOPECIA, or Alopecby, in Medicine, &c. a Falling of the Hair, from what Cause soever that arise. See Hair.

The Word is form'd from ἀλώπηξ, *Vulpes*, a Fox; whose Urine, it is said, will occasion Baldness; or because such a Disease is common to that Creature.

ALPHA, the Name of the first Letter of the *Greek* Alphabet. See Letter, and Alphabet.

The *Alpha*, in Composition, denotes, sometimes, *Privation*, in the same Sense with ἄτερ, *without*; sometimes *Augmentation*, as ἄγαν, *much*; and sometimes *Union*, as ἅμα, *together*.

It was also used as a Letter of Order, to denote the *first*; and of Number, to signify *one*; but when it was a numerical Letter, a little Stroke, or an acute Accent was drawn above it thus 'A, to distinguish it from the A, which was a Letter of Order.

The Word is originally *Hebrew*, and comes from אלף *Alaph*, which signifies *to learn*; whence אלוף *the Leader or first of a Company*. In this Sense, the *Hebrews* call the first Letter of their Alphabet *Aleph*, the Syrians *Olaph*, the Arabs *Eluph*, and the Greeks *Alpha*. See A.

Alpha and *Omega*, in the Divine Writings, signify the Beginning and the End; and therefore the Hieroglyphick of God is form'd of these two Letters, A and Ω.

ALPHABET, the several Letters of a Language, disposed in their natural or accustom'd Order. See Letter, and Language.

The Word is form'd from the Names of the two first Letters of the Greek *Alphabet*, *Alpha*, *Beta*; which were borrow'd from those of the Hebrew, *Aleph*, *Beth*. See Alpha, &c.

In the English *Alphabet* we reckon 26 Letters, *viz. a b c d e f g h i j k l m n o p q r s t u w v x y z.* See each under its proper Article.

But as there is a much greater Number of different Sounds in our Language; 'tis not without Reason that some Grammarians maintain, that there ought to be a greater Number of Letters: As also, that the double Letters, *x* and *y*, and the superfluous ones, *k* and *g*, should be retrench'd. See Consonant, Vowel, &c.

The French *Alphabet* only contains 23 Letters.—*Pasquier* indeed maintains it to consist of 25, by reason he adds the two double Letters & for *et*, and ⁹ for *us*; but those are only Abbreviatures. The *Abbe d'Angeau*, on better Grounds, reckons 34 different Sounds in the *French* Tongue; and urges, that the *Alphabet* ought of Consequence to consist of 34 different Characters, setting aside the double Letters *x* and *y*, and the superfluous one *q*. See French.

The Difference between Languages, with respect to the Number of Letters, is very considerable: The *Hebrew*, *Chaldee*, *Syriac*, and *Samaritan Alphabets*, have each 22; the *Arabic* 28; the *Persian* 31; the *Turkish* 33; the *Georgian* 36; the *Cophtick* 32; the *Muscovite* 43; the *Greek* 24; the *Latin* 22; the *Sclavonick* 27; the *Dutch* 26; the *Spanish* 27; the *Italian* 20; the *Indians* of *Bengal* 21; the *Baramas* 19.

The *Æthiopic* has no less than 202 Letters in its *Alphabet*, there being 7 Vowels, which they combine with each of their 26

Consonants; to which they add 20 other aspirated Syllables. — The like is said of the *Tartarian*; each of their Letters is a Syllable; having one of the Vowels joined to its Consonant: as *La*, *Le*, *Li*, &c.

The *Chinese* have no *Alphabet*, properly speaking; except we call their whole Language their *Alphabet*; their Letters are Words, or rather Hieroglyphicks, and are in Number about 80,000. See CHINESE, and CHARACTER.

In effect, *Alphabets* were not contrived with Design, according to the just Rules of Reason and Analogy; but successively framed, alter'd, &c. as occasion offer'd.——And hence many grievous Complaints as to their Deficiencies; and divers attempts to establish new, and more adequate ones in their place.

Bishop *Wilkins* charges the *Alphabets* extant with great Irregularities, with respect both of the Order, Number, Power, Figure, &c.——As to the *Order*, it appears inartificial, precarious, and confused; in that the Vowels and Consonants are not reduced into Classes, with such order of precedence and subsequence as their Natures will bear.——Even the Hebrew *Alphabet*, from which the rest are derived, is not free from this Imperfection.

As to *Number*, they are both redundant, and deficient: Redundant, either by allotting several Letters to the same Power, and Sound; as in the *Hebrew* ם and ש; and the ordinary *Latin c* and *k*, *f* and *ph*: or by reckoning double Letters among the simple Elements of Speech; as in the *Hebrew* ש, the *Greek* ξ and ψ, the Latin *q cu*, *x cs*, and the *j* Consonant, or Jod.—Deficient in divers respects, especially in regard of Vowels, of which there are seven or eight kinds commonly used; tho the Latin *Alphabet* only takes notice of five; whereof two, *viz. i* and *u*, according to our *English* Pronunciation, are not properly Vowels, but Diphthongs.

Add, that the Difference among Vowels in respect of long and short, is not sufficiently provided for: The Antients, we know, used to express a long Vowel by doubling its Character; as *Amaabam*, *Naata*, *Ree*, *Seedes*, *Sanctissimus*; tho the Vowel *i*, instead of being doubled, was frequently prolonged, as ÆDILIS, also, VIVUS.—The ways used in *English* for lengthning and abbreviating Vowels, *viz.* by adding *e* quiescent to the End of a Word, for prolonging a Syllable; and doubling the following Consonants, for the shortening of a Vowel, as *Wane Wann*, *Ware Warr*, &c. or else by inserting some other Vowel, for the lengthning of it, as *Meat Met*, *Read Red*, &c. are all improper; in that the Sign ought ever to be where the Sound is.

As to their *Powers*, again, those are not always fixed to the same Signification: The Vowels, for instance, are generally acknowledg'd to have each of 'em several Sounds: *Vocales omnes plurisonæ*, says *Lipsius*; and *Vossius* assures us, the Antients used their Vowels very different ways, *aliquando tenuius extiluisque, nunc crassius, nunc intermedio sono.* Thus the Power of the Vowel *e* is expressed in writing no less than six several ways, *viz.* by *e*; as in *he*, *me*, *she*, *ye*: —by *ee*, in *thee*, *free*, *we*; —by *ie*, in *field*, *yield*, *shield*, *chief*;—by *ea*, in *near*, *dear*, *hear*;—by *eo*, in *people*;—by *i*, in *privilege*. So is the Power of the Vowel *a*; as in *all*, *aul*, *aw*, *fault*, *caught*, *brought*: which are all only various ways of writing the same long Vowel; besides the other distinct ways of expressing the same Vowel when used short: Again, the Power of the Vowel *o* is written five ways; *o*, as in *to*, *who*, *move*;—*oe*, in *doe*.—*oo*, in *shoo*, *moon*, *noon*;—*ou*, in *could*, *would*;—*wo*, in *two*; and so of the rest.——Nor are the Consonants of more determinate Powers: witness the different Pronunciation of the same Letter (*c*) in the same Word, *Circo*; and of *g* in *negligence*. —To say no more, the Letters *c*, *s*, *t*, are used alike, to denote the same Power; and the Letter *s*, is commonly used for *z*: and which is yet worse, some Letters of the same Name and Shape, are used at one time for Vowels, and at another for Consonants; as *j*, *v*, *w*, *y*; which yet differ from one another, says Bishop *Wilkins*, *sicut corpus & anima.*

From this Confusion in the Power of Letters, there arise divers Irregularites; as, that some Words are distinguish'd in Writing, which are the same in Pronunciation, *e. g. Cessio* and *Sessio*, &c. and others are distinguish'd in Pronunciation, which are the same in Writing; as *give*, *dare*, and *Give*, *vinculum*, &c. Hence also the Latin *Malo*, is a Dissyllable, and the English *Male*, a Monosyllable.

The *Names* also, in most *Alphabets*, are very improperly express'd by Words of divers Syllables; as *Alpha*, *Beta*, &c. in which respect, the Roman and our English *Alphabets*, which only name the Letters by their Powers, have a great Advantage over the rest.

Lastly, their *Figures* are not well concerted; there being nothing in the Characters of the Vowels answerable to the different Degrees of Apertion: nor in the Consonants, analogous to the Agreements or Disagreements thereof.

All these Imperfections are endeavour'd to be obviated in the *Universal Alphabets*, or Characters of Mr. *Lodowic*, Bishop *Wilkins*, &c. See *Universal* CHARACTER.

In the *French* King's Library, is an *Arabic* Work, intitled *Sephat Alacham*; containing divers sorts of imaginary *Alphabets*, which the Author distributes into Prophetical, Mystical, Philosophical, Magical, Talismanical, &c.

Monsieur *Leibnitz* had it in view to compose an *Alphabet of Human Thoughts*. *Mem. de l'Acad. R.* An. 1716.

'Tis no wonder that the Number of Letters in most Languages shou'd be so small, and that of the Words so great; since from a Calculation made by Mr. *Prestet*, it appears, that, allowing only 24 Letters to an *Alphabet*, the different Words or Combinations that may be made out of those 24 Letters, taking them first one by one, then two by two, three by three, &c. would amount to the following Number, 139,172428,887252,999425,128493,402200. See COMBINATION.

It may be here observ'd, that every Combination may make a Word, even tho that Combination have not any Vowel in it; because the *e* mute or quiescent insinuates it self imperceptibly between the Consonants, or after the Consonants, where there are but two; the latter of which would not be heard without it.—The use of this quiescent *e* is very remarkable in the *Armenian*, *Welch*, and *Dutch* Languages; wherein the generality of Words have several Consonants together.

Nor must it be omitted, that every single Letter may make a Word: which is very apparent, where that Letter is a Vowel; Words of that kind being found in most Languages. Thus, α and ω make Words in the *Greek*; *a*, *o*, in the *Latin*; *a*, *i*, *o*, in *English*; *a*, *o*, *y*, in *French*; *a*, *e*, *i*, *o*, in *Italian*; *a*, *y*, in *Spanish*; *a*, *o*, in the *Portuguese*; *o*, in most Languages, and even in the *Dutch* and *Swedish*. A Consonant also becomes a Word, by adding an *e* mute to it in Pronunciation.

In fine, tho a considerable Number of the possible Combinations of 24 Letters were retrench'd, yet the Number remaining would still be immense, and vastly superior to that of the Words in any Language known.

Of all other Languages, the *Greek* is look'd upon as one of the most copious, the Radices of which are only esteem'd about 3244; but then it abounds exceedingly in Compounds, and Derivatives. Bishop *Wilkins* thinks these may be moderately computed at about ten thousand.

Hermannus Hugo, indeed, asserts, that no Language has so few as 100000 Words; and *Varro* is frequently quoted by learned Men, as if he affirmed that there are in the *Latin* no less than 500000: But upon inquiring into the Scope of the Passage, Bishop *Wilkins* observes, that this Number is not intended by him to express the just Number of Words in the *Latin*; but the great Variety made thereof, by the Inflection and Composition of Verbs.—To this purpose he lays it down, that there are above one thousand Radical Verbs in the *Latin*; and that each Verb admits of five hundred several Varieties: He further supposes, that each of these may be compounded with nine Prepositions; as *cessit*, *recessit*, *accessit*, *decessit*, &c. which amounts to five Millions. See WORD.

ALPHABET, in Matters of Polygraphy, is a duplicate of the Key or Cypher, which each of the Parties corresponding are to keep by them. See CYPHER.

It is properly an *Alphabet* of the usual Letters disposed in their Order; opposite to, or underneath which, are the secret Characters corresponding thereto, with the blank or useless Letters, and the other Signs or Symbols serving to obscure, and render it difficult to decypher. See DECYPHERING.

ALPHETA, in Astronomy, a Fix'd Star in the *Northern Crown*; otherwise called *Lucida Coronæ*. See LUCIDA.

Its Longitude, Latitude, &c. *see among the rest of the Constellation* CORONA *Septentrionalis.*

ALPHONSINE *Table*. See TABLE.

ALPHOS, in Medicine, a Distemper described by *Celsus*, under the Name of *Vitiligo*; wherein, the Skin is rough, and looks as if it had Drops of white upon it, not much differing from Morphew. See MORPHEW.

ALRAMECH, or ABRAMECH, in Astronomy, the *Arabic* Name of a Star, otherwise called *Arcturus*. See ARCTURUS.

ALT, in Musick. See DIAGRAM, and SCALE; see also ALTO.

The Word is form'd of the Latin *altus*, high.

ALTAR, ARA, ALTARE, a Place or Pile whereon to offer Sacrifice to some Deity. See SACRIFICE.

The *Jews* had their Brazen *Altar*, for Burnt offerings, and a Golden *Altar*, or *Altar of Incense*. See TABERNACLE, &c.

Among the *Romans*, the *Altar* was a kind of Pedestal, either square, round, or triangular; adorn'd with Sculpture, with Basso Relievo's, and Inscriptions, whereon were burnt the Victims sacrificed to Idols. See VICTIM.

Those *Altars* set apart for the honour of the celestial Gods, and Gods of the higher Class, were placed on some pretty tall Pile of Building; and for that reason were called *Altaria*, from the Words *Alta* and *Ara*, a high elevated *Altar*.—Those appointed for the terrestrial Gods, were laid on the Surface of the Earth, and call'd *Aræ*.—And on the contrary, they dug into the Earth, and open'd a Hole for those of the infernal Gods, which they called *Scrobiculi*. See God.

The *Greeks* also distinguish'd two sorts of *Altars*; that whereon they sacrific'd to the Gods, was called βωμος, and was a real *Altar*; different from the other, whereon they sacrific'd to the Heroes, which was smaller, and called εσχαρα. *Pollux* makes this Distinction of *Altars* in his *Onomasticon*: He adds, however, that some Poets used the Word εσχαρα, for the *Altar* whereon Sacrifice was offer'd to the Gods.—The Septuagint Version does sometimes also use the Word εσχαρα, for a form of little low *Altar*, which may be expressed in *Latin* by *Craticula*; being a Hearth, rather than an *Altar*.

The *Jews* also gave the Name *Altar* to a kind of Tables, occasionally rais'd in the Country or Field, whereon to sacrifice to God.——In such a Place, *he built an* Altar *to the Lord*.

Altar, is sometimes also used among Christians, for a square Table, placed on the Eastern side of a Church, rais'd a little above the Floor, and set apart for the Celebration of the Eucharist. See Eucharist.

Its Form is not borrow'd, either from that of the Heathen *Altars*, or even from that of the *Jews* in the Temple; but in regard the Eucharist was instituted by Jesus Christ at Supper, and upon a Table, the modern *Altar* is made in form of a Table; whence it is more usually, and even more significantly denominated *Communion Table*. See Communion.

In effect, the Denomination *Altar* is founded on this Supposition, that the Eucharist is a proper Sacrifice; which, tho the standing Doctrine of the Church of *Rome*, is utterly denied by most of the Reformed. See Mass.

In the primitive Church, the *Altars* were only of Wood; as being frequently to be removed from place to place.—The Council of *Paris*, in 509, decreed, That no *Altar* should be built but of Stone.

At first there was but one *Altar* in each Church; but the Number soon increas'd; and from the Writings of *Gregory* the Great, who lived in the VIth Century, we learn, that there were sometimes 12 or 13.

The *Altar* is sometimes sustained on a single Column, as in the subterraneous Chapels of St. *Cæcilia* at *Rome*, &c. sometimes, by four Columns, as the *Altar* of St. *Sebastian* of *Crypta Arenaria*; but the customary Form, is, to be a Massive of Stone-work, sustaining the *Altar-Table*.

These *Altars* bear a resemblance to Tombs: In effect, we read in Church-History, that the primitive Christians chiefly held their Meetings at the Tombs of the Martyrs, and celebrated the Mysteries of Religion thereon. For which Reason, it is a standing Rule to this Day in the Church of *Rome*, never to build an *Altar*, without inclosing the Relicks of some Saints therein. See Relick, Saint, Church-*Yard*, &c.

Altar *of Prothesis*, is a Name given by the *Greeks* to a smaller, preparatory kind of *Altar*, whereon they bless the Bread, before it be carried to the large *Altar*, where the solemn Liturgy is perform'd. See Prothesis.

F. *Goar* maintains, that the *Table of Prothesis* was antiently in the Sacristy, or Vestry; which he makes appear from some *Greek* Copies, where Sacristy is made use of in lieu of *Prothesis*.

Altar is also used, in Church History, for the Oblations, or contingent Incomes of a Church. See Oblation.

In antient Days, they distinguish'd between the Church and the *Altar*.—The Tithes, and other settled Revenues, were called the Church, *Ecclesia*; and the other incidental Incomes, the *Altar*. See Tithe, &c.

Altar, *Ara*, in Astronomy, one of the Constellations of the Southern Hemisphere; not visible in our Climate. See Star, and Constellation.

ALTARAGE, a Word which includes not only the Offerings made upon the *Altar*, but also the Profit that arises to the Priest on account of the *Altar*. See Altar.

ALTERATION, Alteratio, in Physicks, the Act of changing the Circumstances and Manner of a thing; its general Nature and Appearance remaining the same.—Or, *Alteration* is an accidental, and partial Change in a Body; without proceeding so far, as to make the Subject quite unknown, or to take a new Denomination thereupon.—Or, it may be called, the Acquisition or Loss of such Qualities as are not essential to the Form of the Body. See Body, Quality, Essence, &c.

Thus, a piece of Iron, which before was cold, is said to be *altered*, when it is made hot; since it may still be perceiv'd to be Iron, is called by that Name, and has all the Properties thereof.

By this, *Alteration* is distinguish'd from *Generation*, and *Corruption*; those Terms expressing an Acquisition or Loss of the essential Qualities of a thing. See Generation, and Corruption.

The modern Philosophers, after the antient Chymists and *Corpuscularians*, hold all *Alteration* to be effected by means of local Motion: According to them, it always consists either in the Emission, Accession, Union, Separation, or Transposition of the component Particles. See Particle, &c.

Aristotle makes a peculiar kind of Motion, which he calls the *Motion of Alteration*. See Motion, &c.

ALTERANT, or Alterative, in Medicine, a Property, or Power in certain Remedies, whereby they induce an *Alteration* in the Body, and dispose it for Health or Recovery, by correcting some Indisposition; without occasioning any sensible Evacuation. See Medicine.

Under *Alterants*, therefore, come all Medicines which are not Evacuants. See Evacuant, and Evacuation.

'Tis a Point much question'd by some, whether there really be any such thing as an *Alterant* in this Sense; *i. e.* any thing which tends to cure a Disorder otherwise than by eliminating or expelling some peccant Matter. See Disease, Specific, &c.

Dr. *Quincy* has made it probable, that Remedies usually reputed *Alterants*, act in the same manner on the remoter and more intimate Parts of the Habit, as Emetricks, Purgatives, &c. do on the Stomach and Intestines. See Purgative.

Alteratives, therefore, are better defined, such Medicines as have no immediate sensible Operation, but gradually gain upon the Constitution, by changing the Humours from a State of Distemperature to Health.

ALTERCATION, a Debate or Contest between two Friends, or Acquaintance.

They never come to an open Quarrel; but there is continually some little *Altercation* or other.

The Word comes from the Latin *Altercari*; which antiently signify'd to converse or hold Discourse together. See Dialogue.

ALTERN *Base*, a Term in Trigonometry, contradistinguish'd from *true Base*, thus — In an oblique Triangle, the true Base is either the Sum of the Sides; in which Case, the Difference of the Sides is called the *Altern* Base: or, the true Base is the Difference of the Sides; in which Case, the Sum of the Sides is called the *Altern Base*. See Base.

ALTERNATE, or Alternative, is understood of several Things which succeed, or are disposed one after another, *i. e.* by turns.

In this Sense, we say, an *Alternate* or *Alternative Office* or Trust, which is discharged by turns: So, two general Officers, who command each his Day, are said to have the Command *alternately*.

In Botany, the Leaves of a Plant are said to be *alternate*, or placed *alternatively*, when there is a Correspondence between the Sides of a Branch; the Leaves of the one, following those of the other.

Alternate *Angles*, in Geometry, are the internal Angles made by a Line cutting two Parallels, and lying on the opposite Sides of the cutting Line; the one below the first Parallel, and the other above the second. See Angle.

Thus, x and u, and z and y, (Tab. *Geometry*, Fig. 46.) are *Alternate Angles*.

There are also two external Angles, *alternately* opposite to the internal ones. See Opposite.

Alligation Alternate. See Alligation *Alternate*.

Alternate *Ratio*, or *Proportion*, is where the Antecedent of one Ratio is to its Consequent, as the Antecedent of another, to its Consequent; the very same Ratio, in this Case, holding *alternately* in respect of the Antecedents to each other, and the Consequents to each other. See Ratio.

Thus, if A : B :: C : D; then, *alternately*, A : C :: B : D. See Proportion.

Alternate, in Heraldry, is used in respect of the Situation of the Quarters. See Quarter.

Thus, in Quarterly, Ecartele, the first and fourth Quarters are *alternate*; and are usually of the same Nature. The like holds of the second and third. See Quartering, Quarterly, &c.

ALTERNATION, a Term sometimes used for the divers Changes, or Alterations of Order, in any Number of Things proposed. See Change.

This is also called *Permutation*, &c. and is easily found, by a continual Multiplication of all the Numbers, beginning at Unity. See Permutation.

Thus, if it be requir'd to know how many Changes or Alternations can be rung on six Bells; multiply the Numbers 1, 2, 3, 4, 5, 6, continually one into another; and the last Product gives the Number of Changes. See Combination.

ALTER-

ALTERNATIVE, is particularly used for the Choice of two things proposed.—In this Sense, we say, To take the *Alternative* of two Propositions. See ALTERNATE.

ALTIMETRY, ALTIMETRIA, the Art of taking or measuring Altitudes, or Heights; whether accessible or inaccessible. See ALTITUDE.

Altimetria makes the first Part of Geometry; including the Doctrine and Practice of measuring both perpendicular and oblique Lines; whether in respect of Height, or Depth. See GEOMETRY; see also HEIGHT, *&c.*

The Word is compounded of the Latin *Altus*, high, and μετρεω, *metior*, I measure.

ALTITUDE, ALTITUDO, in Geometry, the third Dimension of Body; called also *Height*, or *Depth*. See HEIGHT; see also BODY, DIMENSION, *&c.*

ALTITUDE, in Opticks, is usually consider'd as the Angle subtended between a Line drawn thro' the Eye, parallel to the Horizon, and a Visual Ray emitted from an Object to the Eye.

For the Laws of the Vision of ALTITUDE, see VISION.

If thro' the two Extremes of an Object, S and T, (Tab. *Opticks*, Fig. 13.) two Parallels, T V and S Q be drawn; the Angle T V S, intercepted between a Ray passing thro' the Vertex S, and terminating the Shadow thereof in V, makes, with the right Line T V, what is called, by some Writers, the *Altitude of the Luminary*.

ALTITUDE, in Cosmography, is the perpendicular Height of a Body, or Object; or its Distance from the Horizon, upwards. See HEIGHT; see also HORIZON.

Altitudes are divided into *accessible* and *inaccessible*. See ACCESSIBLE, and INACCESSIBLE.

There are three Ways of *Measuring Altitudes*, *viz.* Geometrically, Trigonometrically, and Optically.—The first is somewhat indirect and unartful; the second, perform'd by means of Instruments for the Purpose; and the third by Shadows.

The Instruments chiefly used in measuring of *Altitudes*, are the *Quadrant*, *Theodolite*, Geometrick *Quadrat*, or Line of *Shadows*, &c. *the Descriptions*, *Applications*, &c. *whereof*, *see under their respective Articles*, QUADRANT, THEDOLITE, QUADRAT.

To take Accessible ALTITUDES.

To measure an accessible Altitude, *geometrically*.——Suppose it required to find the *Altitude* A B, (Tab. *Geometry*, Fig. 88.) plant a Staff D E perpendicularly in the Ground, of such height as may equal the height of the Eye. Then, laying prostrate on the Ground, with your Feet to the Staff; if E and B prove in the same right Line with the Eye C; the length C A is equal to the *Altitude* A B. If some other lower Point, as F, prove in the Line with E and the Eye; you must remove the Staff, *&c.* nearer to the Object: On the contrary, if the Line continued from the Eye over E, mark out some Point above the *Altitude* requir'd; the Staff, *&c.* are to be remov'd farther off, till the Line C E raze the very Point requir'd.—Thus, measuring the Distance of the Eye C from the Foot of the Object A; the *Altitude* is had; since C A = A B.

Or thus:——At the Distance of 30, 40, or more Feet, plant a Staff D E, (Fig. 89.) and at a distance herefrom, in C, another shorter one, so as that the Eye being in F; E and B may be in the same right Line therewith. Measure the Distance between the two Staves, G F; and between the shorter Staff and the Object, H F; as also, the difference of the Heights of the Staves, G E.——To G F, G E and H F; find a fourth proportional B H.—To this add the *Altitude* of the shorter Staff, F C. The Sum is the *Altitude* required, A B.

To measure an accessible Altitude, *trigonometrically*.—Suppose it required to find the *Altitude* A B, (Tab. *Trigonom.* Fig. 23.) chuse a Station in E; and with a Quadrant, Theodolite, or other graduated Instrument duly placed, find the Quantity of the Angle of *Altitude* A D C. See ANGLE.

Measure the shortest Distance of the Station from the Object, *viz.* D C, which of consequence is perpendicular to A C. See DISTANCE.

Now, C being a right Angle, 'tis easy to find the Line A C; since, in the Triangle A C D, we have two Angles, *viz.* C and D, and a side opposite to one of them, C D, to find the Side opposite to the other: for which we have this Canon. —As the Sine of the Angle A, is to the given side opposite thereto, D C; so is the Sine of the other Angle D, to the Side required C A. See TRIANGLE.

To the side thus found, adding B C, the Sum is the perpendicular *Altitude* requir'd.

The Operation is best perform'd by Logarithms. See LOGARITHM.

If there happen an Error in taking the Quantity of the Angle A, (Fig. 24.) the true *Altitude* B D will be to the false one B C; as the Tangent of the true Angle D A B, to the Tangent of the erroneous Angle C A B.

Hence, such Error will be greater in a greater *Altitude* than in a less: and hence also, the Error is greater if the Angle be lesser, than if greater.—To avoid the Inconveniences of both which, the Station is to be pitch'd on at a moderate Distance; so as the Angle of *Altitude*, D E B, may be nearly half right.

Again, if the Instrument were not horizontally placed, but inclined, *e. g.* to the Horizon in any Angle: The true *Altitude* will be to the erroneous one, as the Tangent of the true Angle, to that of the erroneous one.

To measure an accessible Altitude *optically*, *by the Shadow of the Body*. See SHADOW.

To measure an accessible Altitude *by the geometrical Quadrat*.——Suppose it required to find the *Altitude* A B, (Tab. *Geom.* Fig. 90.) chusing a Station at pleasure in D, and measuring the Distance thereof from the Object, D B; turn the Quadrat this and that way, till the Top of the Tower A, appear thro' the Sights.

If, then, the Thread cut the right Shadows, say, As the Part of the right Shadow cut off, is to the side of the Quadrat; so is the Distance of the Station D B, to the Part of the *Altitude* A E.—If the Thread cut the versed Shadows, say, As the Side of the Quadrat is to the Part of the versed Shadow cut off; so is the Distance of the Station D B, to the Part of the *Altitude* A E.

A E, therefore, being found in either Case, by the Rule of Three; and the Part of the *Altitude* B E added thereto; the Sum is the *Altitude* required.

To take Inaccessible ALTITUDES.

To measure an inaccessible Altitude, *geometrically*.——Suppose A B, (Fig. 89.) an inaccessible *Altitude*, so that you cannot measure to the Foot thereof. Find the Distance C A, or F H, as taught under the Article DISTANCE: proceed with the rest as in the Article for accessible Distances.

To measure an inaccessible Altitude, *trigonometrically*.—Chuse two Stations, G and E, (Tab. *Trigonom.* Fig. 25.) in the same right Line with the required *Altitude* A B, and at such distance from each other, D F, as that neither the Angle F A D, be too small, nor the other Station G too near the Object, A B.—With a proper Instrument, take the Quantity of the Angles A D C, A F C, and C F B. See ANGLE.—And also measure the Interval F D.

Then, in the Triangle A F D, we have the Angle D, given by Observation; and the Angle A F D, by subtracting the observed *Altitude* A F C, from two right Angles; and consequently the third Angle D A F, by subtracting the other two from two right ones: and also the Side F D: From whence the Side A F is found by the Canon above laid down, in the Problem of accessible *Altitudes*. And again, in the Triangle A C F, having a right Angle C, an observed Angle F, and a side A F; the Side A C, and the other C F, are found by the same Canon. Lastly, in the Triangle F C B, having a right Angle C, observed Angle C F B, and a Side C F; the other side C B, is found by the same Canon.

Adding, therefore, A C and C B; the Sum is the *Altitude* required, A B.

To find an inaccessible Altitude, *by the Shadow*, *or the geometrical Quadrat*.——Chuse two Stations in D and H, (Tab. *Geom.* Fig. 90.) and find the Distance D H or C G: observe what part of either the right or versed Shadow is cut by the Thread.

If the right Shadows be cut in both Stations, say, As the Difference of the right Shadows in the two Stations, is to the Side of the Square; so is the Distance of the Stations G C to the *Altitude* E A.——If the Thread cut the versed Shadow at both Stations, say, As the Difference of the versed Shadows mark'd at the two Stations, is to the lesser versed Shadow; so is the Distance of the Stations G C, to the Interval G E. Which being had; the *Altitude* E B is also found by means of the versed Shadow in G; as in the Problem for accessible *Altitudes*.

Lastly, if the Thread in the first Station G, cut the right Shadows; and in the latter, the versed Shadows: say, As the Difference of the Product of the right Shadow into the versed, subtracted from the Square of the Side of the Quadrat, is to the Product of the Side of the Quadrat into the versed Shadow: so is the Distance of the Stations G C, to the *Altitude* requir'd, A E.

The utmost Distance at which an Object may be seen, being given; to find its Altitude.——Suppose the Distance D B, (Tab. *Geography*, Fig. 9.) turn this into Degrees; by which means, you will have the Quantity of the Angle C. From the Secant of this Angle subtract the whole Sine B C; the Remainder will be A B, in such Parts, whereof B C is 10000000.—Then say, as 10000000 is to the Value of A B in such Parts; so is the Semidiameter of the Earth B C 19695359, to the Value of the *Altitude* A B in *Paris* Feet.

The Sun's *Altitude* may also be found without a Quadrant, or any the like Instrument, by erecting a Pin or Wire perpendicularly, as in the Point C, (Tab. *Astronomy*, Fig. 62.)

62.) from which Point you had describ'd the Quadrantal Arch A F. Make C E equal to the Height of the Pin or Wire, and thro' E draw E D parallel to C A, and make it equal to C G, the length of the Shadow; then will a Ruler, laid from C to D, intersect the Quadrant in B; and B A is the Arch of the Sun's *Altitude*, when measur'd on the Line of Chords. See CHORD.

Suppose, *e. g.* the *Altitude* be required of a Tower A B, whose Top is visible at the Distance of five Miles: Then will D C B 20′, from whose Secant 10000168, subtracting the whole Sine 10000000; the Remainder A B is 168, which will be found 331 *Paris* Feet.

ALTITUDE *of the Eye*, in Perspective, is a right Line let fall from the Eye, perpendicular to the geometrical Plane.

ALTITUDE, in Astronomy, is the Distance of a Star, or other Point in the Mundane Sphere, from the Horizon. See SPHERE, HORIZON, DISTANCE, &c.

This *Altitude* may either be *true* or *apparent*.—If regard be had to the rational, or real Horizon; the *Altitude* is said to be *true* or *real*: If to the apparent, or sensible Horizon; the *Altitude* is *apparent*.—Or rather, the *apparent Altitude* is such as it appears to our Observation; and the *true*, that from which the Refraction has been subtracted. See TRUE, APPARENT, &c.

The *Altitude* of a Star, or other Point, is properly an Arch of a Vertical Circle, intercepted between the assigned Point and the Horizon. See VERTICAL.—Hence,

Meridian ALTITUDE.—The Meridian being a vertical Circle; a *Meridian Altitude*, that is, the *Altitude* of a Point in the Meridian, is an Arch of the Meridian intercepted between it and the Horizon. See OBSERVATION.

To observe the Meridian Altitude *of the Sun, of a Star, or other Phænomenon, by means of the Quadrant*, see MERIDIAN *Altitude*.

To observe a Meridian Altitude *by means of a Gnomon*, see GNOMON.

ALTITUDE *of the Pole*.—Since the Meridian passes thro' the Poles of the World; the *Altitude of the Pole*, is an Arch of the Meridian, intercepted between the Pole and the Horizon.

To observe the Altitude *or Elevation of the Pole*, see ELEVATION, and POLE.

The *Altitude of the Pole* coincides with the Latitude of the Place. See LATITUDE.

ALTITUDE *of the Equator*, is the Complement of the Altitude of the Pole to a Quadrant of a Circle. See ELEVATION *of the Equator*.

To find the ALTITUDES *of the Sun, Stars*, &c. *by the Globe*. See GLOBE.

ALTITUDE *of the Nonagesimal*, is the *Altitude* of the 19th Degree of the Ecliptic, reckon'd from the East Point. See NONAGESIMAL.

Refraction of ALTITUDE, is an Arch of a Vertical Circle, as S s, (Tab. *Astronomy*, Fig. 28.) whereby the *Altitude* S E, of a Star or other Body, is increas'd by means of the Refraction. See REFRACTION.

Parallax of ALTITUDE, called also simply *Parallax*; is the difference C B, (Tab. *Astron.* Fig. 27.) between the true and apparent Place of a Star; or, the Difference B C, between the true Distance of a Star A B, and the observed Distance A C, from the Zenith A.

The Parallax diminishes the *Altitude* of a Star, or increases its Distance from the Zenith.

To find the Parallax of Altitude, &c. see PARALLAX.

ALTITUDE *of a Figure*, in Geometry, is the Distance of its Vertex, from its Base; or the length of a Perpendicular let fall from the Vertex to the Base. See FIGURE, BASE, and VERTEX.

Thus, K M, (Tab. *Geometry*, Fig. 19.) being taken for the Base of the Rectangle-Triangle, K L M: the Perpendicular K M, will be the *Altitude* of the Triangle.

Triangles of equal Bases and *Altitudes*, are equal; and Parallelograms, whose Bases and Altitudes are equal to those of Triangles, are just double thereof. See TRIANGLE, PARALLELOGRAM, &c.

ALTITUDE *of Motion*, is a Term used by Dr. *Wallis*, for the Measure of any Motion, estimated according to the Line of Direction of the moving Force. See MOTION.

ALTO *& Basso*, or *in* ALTO *& in Basso*, in Law, signifies the absolute Reference of all Differences, small and great, high and low, to some Arbitrator or indifferent Person.——*Pateat universis per præsentes quod Willielmus Tylar de Yetton, & Thomas Gower de Almestre, posuerunt se in* Alto *& in Basso, in arbitrio quatuor Hominum*, viz.—*de quadam querela pendente inter eos in curia. Nos & terram nostram Altè & Bassè ipsius domini Regis supposuimus voluntati.* Du Cange.

ALUDELS, in Chymistry, *Subliming-Pots*. See SUBLIMATION.

Aludels, are a Range of earthen Tubes, or Pots without bottoms; fitted, one over another, and diminishing as they advance towards the Top.—The lowest is adapted to a Pot, placed in the Furnace, wherein the Matter to be sublimed is lodg'd.—And at the Top is a Head, to retain the Flowers which ascend. See FLOWER.

ALVEARIUM, in Anatomy, the bottom of the Concha, or hollow of the Auricle. See AURICLE, and CONCHA.

The *Alvearium Auriculæ* terminates at the *Meatus Auditorius*. See MEATUS.

The Word literally signifies *Bee-hive*, form'd of *Alveus*, Channel.

ALVEOLI, in Anatomy, little Sockets in the Jaws, wherein the Teeth are set. See TEETH, and JAW.

The *Alveoli* are lined with a Membrane of exquisite Sense, which seems to be nervous, and is wrapt about the Roots of each Tooth; from whence, and the Nerve, proceeds that Pain called *Odontalgy*, or Tooth-ach. See ODONTALGY, and TOOTH-ACH.

ALVIDUCA, a Term used by some Writers for *loosening Medicines*. See PURGATIVE, &c.

The Word is compounded of *Alvus*, and *duco*, I draw.

ALUM, ALUMEN. See ALLUM.

ALVUS, among Anatomists, is sometimes used to express the intestinal Tube, from the Stomach to the Anus. See INTESTINES.

ALVUS, in a Medicinal Sense, is taken for the State, and Condition of the Fæces, or Excrements contain'd within that Cavity. See EXCREMENT, &c.

Thus, when a Person is laxative, it is called *Alvus liquida*; and when costive, *Alvus adstricta*. See COSTIVE, LAXATIVE, &c.

AMABYR, or AMVABYR, in our antient Law-Books.—*Pretium virginitatis domino solvendum.—Puella dicitur esse desertum Regis, & ob hoc Regis est de ea* Amvabyr *habere.*

The Custom was in honour of *Clun*, and obtained till such time as *Henry* Earl of *Arundel*, *Temp. Phil. & Mar.* in consideration of 60 *l.* released it to all his Tenants there, by the Name of the *Custom of* Amabyr *and Chevage*. See CHEVAGE.

AMAIN, a Sea Term, used by a Man of War, to his Enemy; and signifying, *yield*.—Hence, *To strike Amain*, that is, to lower your Topsails.

AMALGAM, or AMALGAMA, in Chymistry, a Mass of Mercury, united and incorporated with a Metal. See MERCURY, and METAL.

The *Amalgam* of Mercury with Lead, is a soft, friable Substance, of a Silver Colour. See LEAD.

By washing and grinding this *Amalgam* with fair warm Water in a glass Mortar, the Impurities of the Metal will mix with the Water; and by changing the Water, and repeating the Lotion again and again, the Metal will be further and further purified.—*Boerhaave* mentions it as one of the greatest Secrets in Chymistry, to contrive to bring off the Liquor at last as clear and unsully'd as when first pour'd on the *Amalgam*; which might afford a Method of making the nobler Metals, or procuring them from the Base. See TRANSMUTATION, PHILOSOPHER'S *Stone*, &c.

This philosophical way of purifying Metals, may be applied to all the Metals, except Iron and Copper. See AMALGAMATION.

The Word *Amalgama* is form'd of the *Greek* ἅμα, *simul*, together, and γαμεῖν, *jungere*, to join.

AMALGAMATION, in Chymistry, the Operation of making an *Amalgama*; *i. e.* of calcining, or rather dissolving some Metal, especially Gold, by means of Mercury. See AMALGAMA.

Amalgamation is performed by fusing, or at least igniting the Metal; and in this State adding a proportion of Mercury thereto; upon which they mutually attract, and incorporate with each other. See MERCURY.

All Metals, except Iron and Copper, unite and *amalgamate* with Mercury; but Gold with the greatest facility; Silver the next; then Lead, and Tin. See METAL, &c.

The *Amalgamation* of Gold is usually perform'd by heating the Laminæ or Plates of Metal red hot; after which, Quicksilver is to be pour'd upon 'em, and the Mixture stirr'd with a little Iron Rod, till it begins to rise into Smoke.—It is then thrown into a Vessel full of Water, where it coagulates and becomes manageable.

This Calcination is in great use among Goldsmiths, and Gilders, who by this means render Gold fluid and ductile for their Purposes.—Such Mixture or *Amalgama* being laid on any other Metal, for instance, Copper; and this afterwards placed on the Fire to evaporate; the Gold will be left alone on the Surface of the Copper: which makes what we call *Gilding*. See GILDING.

The Blackness adhering to the *Amalgama* may be washed away with Water; and a deal of the Mercury press'd out thro' a linen Cloth: The rest being evaporated in a Crucible, the Gold remains behind in an impalpable Powder. See GOLD.

Gold retains about thrice its own weight of Mercury.

This Operation is denoted among Chymists by the Letters AAA. See CHARACTER.

AMATORII *Musculi*, in Anatomy, an Appellation sometimes given to those Muscles of the Eyes which give them a Cast sideways, and assist in that particular Look by some called Ogling. See EYE.

When the *Abductor* and *Humilis* act together, they give this oblique Motion. See ABDUCTOR, and HUMILIS.

The Word is form'd of the Latin *Amare*, to love.

AMAUROSIS, in Medicine, a Deprivation of Sight; the Eyes remaining fair, and seemingly unaffected. See EYE, &c.

Amaurosis is the same with what the *Latins* more usually call *Gutta Serena*. See GUTTA *Serena*.

The Word is *Greek*, ἀμαύρωσις, q. d. *Darkness*; form'd of ἀμαυρόω, *obscuro*.

AMAXOBII, AMAXOBIANS, or HAMAXOBIANS, in antient Geography, a kind of People who had no Houses, nor even Tents; but lived altogether in Chariots. See HAMAXOBIANS.

The Word is compounded of ἅμαξα, *a Chariot*, and βιος, *vita*, Life.

AMAZON, in Antiquity, a Term signifying a bold, courageous Woman; capable of daring, hardy Atchievements. See VIRAGO, HEROINE, &c.

The Word is borrow'd from the *Amazons*, a Nation of warlike Women, in *Scythia*, inhabiting near the *Tanais*; who liv'd without Men, and had only to do with Strangers; killing their Male Children, and cutting off the left Breasts of their Females, to make them more fit for the Combat.

'Tis from this last Circumstance that they take their Name, *viz.* from the Privative α, and μάζος, *Mamma*, Breast.

'Tis a Point controverted even among antient Writers, whether ever there really were such a Nation of *Amazons*.—*Strabo*, *Palæphatus*, and others, absolutely deny it: on the contrary, *Herodotus*, *Pausanias*, *Diodorus Siculus*, *Trogus Pompeius*, *Justin*, *Pliny*, *Mela*, *Plutarch*, &c. expressly assert it.

Hippocrates mentions a Law among 'em, whereby they were doom'd to remain Virgins, till such time as they had slain three Men of their Enemies.—He adds, that the Reason of their cutting off the right Breast, was to make the right Arm the stronger; as supposing this would now receive the Nutriment, which wou'd otherwise have gone to that.

Some Authors relate, that instead of killing, they twisted the Legs of their Male Children; to prevent their being able to contend with 'em for the Mastery.

M. *Petit*, a *French* Physician, publish'd a *Latin* Dissertation in 1685, to prove that there really was a Nation of *Amazons*: It contains abundance of curious Inquiries, relating to their Habit, their Arms, the Cities built by 'em, &c.—On Medals, the *Amazons* Bust is usually arm'd with a little Ax, bore on the Shoulder, and a Buckler, in form of a Half-Moon, by the *Latins* called *Pelta*.

Some modern Geographers and Travellers mention *Amazons* still in being.—*John de los Sanctos*, a *Portuguese* Capuchin, in his Description of *Ethiopia*, speaks of a Race of *Amazons* in *Africa*. And *Æneas Sylvius* gives us a very precise Account of a Republick of real *Amazons*, in *Bohemia*, which lasted nine Years; founded by the Courage of a Maid named *Valasca*.

AMBAGES, a *Latin* Term for a *Circumlocution*; or, an indirect Discourse or Diction, tending to express or shew something by a Compass of Words or Sentiments fetch'd from afar. See CIRCUMLOCUTION.

AMBARVALIA, in Antiquity, a Feast, or Ceremony among the *Romans*; celebrated annually, to procure of the Gods a happy Harvest. See FEAST, &c.

At these Feasts, they sacrificed a Bull, a Sow, and a Sheep; which, before the Sacrifice, were led in Procession around the Fields; whence the Feast took its Name: from the *Greek* αμφι, *about*; or the Latin *ambio*, I go round, and *arvum*, Field.—Tho, *Scaliger* writes it *Ambarbalia*; and deduces it from *ambire urbem*, to go round the City.

From the Beasts offer'd in Sacrifice, the Ceremony was also called *Suovetaurilia*. See SUOVETAURILIA.

'Tis not certain whether this Feast was fix'd, or moveable; nor whether it was celebrated once, or twice a year; Authors being of different Opinions on both those Heads.

The *Ambervale Carmen*, was a Prayer preferr'd on this Occasion; whereof we have the Formula preserved in *Cato*, C. 141. *de Re Rustica*.

The Priests who chiefly officiated at the Solemnity, were called *Fratres Arvales*. See ARVALES.

AMBASSADOR. See EMBASSADOR.

AMBE, in Anatomy, a superficial Jutting out of a Bone. See BONE.

The Word is also used as the Name of a Chirurgical Instrument, with which they reduce dislocated Bones.

AMBER, SUCCINUM, CARABE or KARABE, GLESSUM, ELECTRUM, CHRYSOLECTRUM, in Natural History, &c. a yellow transparent Substance, of a gummous or bituminous Form and Consistence, but a resinous Taste, and a smell like Oil of Turpentine; chiefly found in the *Baltick* Sea, along the Coasts of *Prussia*, &c.

Naturalists are infinitely divided as to the Origin of *Amber*, and what Class of Bodies it belongs to: some referring it to the Vegetable, others to the Mineral, and some even to the Animal Kingdom.—Its Natural History, and its Chymical Analysis, afford something in favour of each Opinion.

Pliny describes it as "a resinous Juice, oozing from aged "Pines, and Firs; (others say, from Poplars, whereof there "are whole Forests on the Coasts of *Sweden*;) and discharged thence into the Sea; where undergoing some Alteration, it is thrown in this form upon the Shores of "*Prussia*; which lie very low: They add, that it was hence "the Antients gave it the Denomination *Succinum*; from "*Succus*, Juice." *Nat. Hist.* Lib. XXXVII.

This Opinion of the antient Naturalist, is confirmed by the Observations of many of the modern ones; particularly the learned Father *Camelli*. *Philosoph. Transact.* N° 290.

Some have imagin'd it a Concretion of the Tears of Birds; others, the Urine of a Beast; others, the Scum of the Lake *Cephiside*, near the *Atlantick*; others, a Congelation form'd in the *Baltick* Sea, and in some Fountains where it is found swimming like Pitch.

Others suppose it a Bitumen, trickling into the Sea from subterraneous Sources; there concreted into this form, and thrown ashore by the Waves.

This last Opinion was a long time the most popular; and seem'd to have the best Ground: but this, too, is now discarded; as good *Amber* having been found in digging at a considerable distance from the Sea, as that gathered on the Coast.

Others suppose *Amber* a compound Substance.—*Prussia*, say they, and the other Countries which produce *Amber*, are moisten'd with a bituminous Juice, which mixing with the vitriolick Salts abounding in those Places, the Points of those Salts fix its Fluidity, whence it congeals: and the Result of that Congelation makes what we call *Amber*; which is more or less pure, transparent, and firm, as those Parts of Salt and Bitumen are more or less pure, and mix'd in this, or that Proportion.

The Chymists are as much divided as the Naturalists. *Amber* being found by Distillation to yield an acid Spirit, which precipitates into a Salt; is inferr'd, by some, to be of a mineral Nature; this being a Circumstance peculiar to that Kingdom, and never found in the Distillation of Vegetables: To which may be added, that *Amber* dissolves in Alcohol, not in Water; melts at the Fire, and is inflammable; which are Characters, that seem to refer it to the Class of Sulphurs, or Bitumens.

Others, on the contrary, argue it of the Vegetable Kind, from its resolving into the same Principles with Vegetables; *viz.* Water, Spirit, Salt, and Oil.—*Boerhaave* resembles it to Camphire, which is a concreted Oil of the aromatic Plants of that Country, elaborated by Heat into a crystalline Form.

There are several Indications which discover where *Amber* is to be found.—The Surface of the Earth is there cover'd with a soft scaly Stone; and Vitriol in particular abounds there, which is sometimes found white, sometimes reduced into a Matter like melted Glass, and sometimes figur'd like petrify'd Wood.

Amber assumes all Figures in the Ground; that of a Pear, an Almond, a Pea, &c. Among others, there have been found Letters very well formed; and even *Hebrew*, and *Arabick* Characters.—Within some pieces of *Amber*, have likewise been found Leaves, Insects, &c. included; which seems to indicate either that the *Amber* was originally in a fluid State; or that having been exposed to the Sun, it was soften'd, and render'd susceptible of the Leaves, Insects, &c. which came in its way. The latter of these seems the more agreeable to the Phænomenon, in regard those Insects, &c. are never found in the Centre of the piece of *Amber*, but always near the Surface.

'Tis observ'd by the Inhabitants of the Places where *Amber* is produc'd, that all Animals, whether terrestrial, aerial, or aquatick, are extremely fond of it; and that they frequently find Pieces of it in their Excrements, and in their Bodies when open'd.

The most remarkable Property of *Amber*, is, that, when rubbed, it draws or attracts other Bodies to it; and this, 'tis observ'd, it does, even in those Bodies which the Antients thought it had an Antipathy to; as oily Bodies, Drops of Water, the Basilisk, Sweat of human Body, &c. See ELECTRICITY.

Add, that by Friction it is brought to yield Light pretty copiously in the dark; whence 'tis reckon'd among the native *Phosphori*. See FRICTION, PHOSPHORUS, LIGHT, &c.

Amber is reputed of some medicinal Efficacy; being used in Suffumigations, to remove Defluxions; and in Pouder, as an Alterant, Absorbent, Sweetner, and Astringent. See SUFFUMIGATION, ABSORBENT, ASTRINGENT, &c.

In

In times of Plague, those who work in *Amber* at *Koningsberg* are said to be never infected; whence it is held a Preservative.—It is esteem'd a Lithonthriptick Diuretick, and Promoter of the Menses.

Some distinguish *Amber* with regard to its Colours, into *yellow*, *white*, *brown*, and *black*.—But the two latter are supposed of a different Nature and Denomination; the one call'd *Jet*, the other *Ambergrease*. See AMBERGREASE.

The white is most valued for Medicinal Uses, as being best digested, of the most odoriferous Smell, and containing the greatest Quantity of Volatile Salt.—The yellow is most prized by those who work it into Beads, and other Toys, by reason of its transparency.

Kerkrig pretends to be Master of the Secret of making Coffins of *Amber*, without destroying its Transparency. 'Tis probable he took the Hint from the *Ethiopians*, who bury their Dead in Glasses. An *Ethiopian*, tho black, makes a fine Figure in a Venice Crystal; much more would he do in a Cover of yellow *Amber*.

The *Amber* gather'd on the *Prussian* Coasts, yields that Prince a handsome Revenue.—Authors make mention of other Places where it is found, as on the Banks of the *Po*; the Coasts of *Marseilles*; and divers Parts of *Asia*, *Africa*, and even *America*: But *Hartman*, who has wrote the History of the *Prussian Amber*, *Succini Prussici Historia*, &c. treats all these Accounts as Fables, and denies *Amber* to be found any where but in the Northern Countries of *Europe*, *viz.* in *Poland*, *Silesia*, and *Bohemia*, rarely; *Jutland*, *Holstein*, *Denmark*, oftener; more frequently still on the Coasts of *Samogitia*, *Courland*, *Livonia*, and *Pomerania*; but most of all, in *Prussia*, in the Country called *Sambia*, from *Neve Tiff* to *Urantz Urug*.

The Word is originally *Arabick*, *Ambar*, or *Anbar*, which signifies the same thing.

Spirit of AMBER, is an acid Liquor, procur'd from *Amber*, by pulverizing and distilling it by a Sand-heat, with or without the Addition of Tobacco-pipes, Bricks, Sand, &c.

It is chiefly used externally in Rheumatick Pains and Aches; and internally, in inveterate Gleets, &c.

Oil of AMBER, is a fine, transparent, ponderous, yellow Oil; procured after the Spirit, by increasing the degree of Fire.—This, by Rectification, becomes a good Antihysteric, and Emmenagogue; being very subtile and penetrative.

Volatile Salt of AMBER.—The principal Chymical Production of this Substance, is a peculiar white, transparent, acid Salt; which rises after the Oil, and fixes in the Neck of the Retort, &c.

It is a good Cephalic, and Detergent: Dr. *Quincy* says, it extremely attenuates, cuts, and penetrates the most remote and minute Recesses; and thus scours, as it were, the whole nervous System. Its chief tendency, he adds, is to Secretion; and what it carries along with it, is by Urine. It also contributes, with Alexipharmicks, to promote a Diaphoresis; and is scarce ever omitted in Prescription for chronick Cases, as Epilepsies, Palsies, &c.

The great Consumption of this Medicine, and the small Proportion that *Amber* yields of it, occasions it to be frequently adulterated with Sal Ammoniac, Nitre, Cream of Tartar, Salt of Coral, &c.

Tincture of AMBER, is procured by Digestion in Spirit of Wine with a Sand-heat. See TINCTURE, and DIGESTION.

It is prescribed with the same Intentions as the *Salt of Amber*.

Black AMBER. See JET.

Liquid AMBER, is a kind of native Balsam, or Resin, like Turpentine; clear, reddish or yellowish; of a pleasant Smell, almost like Ambergrease. See RESIN.

It flows liquid, from an Incision made in the Bark of a fine large Tree in *New Spain*; but hardens as it grows older into a solid form, and is brought to us in Barrels.

It is reputed an excellent Balsam; mollifies, consolidates, and is good against the Sciatica, Weakness of the Nerves, &c. See BALM.

AMBER-GREASE, AMBERGRIS, AMBRA-GRISIA, AMBARUM, a fragrant Drug, that melts almost like Wax; commonly of a greyish or ash-colour, used both as a Perfume and a Cordial.

It is found on the Sea-Coasts, in several Countries; as, along the Southern and Eastern Parts of *Africa*, *Madagascar*, the *Maldives*, some Parts of the *Mediterranean*; and in the *West Indies*, about the Islands of *Bermudas*, &c. It is of divers Colours, whitish, brownish, streak'd with yellow, blackish, &c.

There is a great Variety of Opinions among Naturalists with regard to its Origin and Production: To rehearse 'em all, would make a Volume.—The principal may be reduced to these which follow.

1°, Some take it for the Excrement of a Bird, which being melted by the Heat of the Sun, and wash'd off the Shore by the Waves; is swallow'd by Whales; who return it back in the Condition we find it. Or, as *Barbosa* relates, from the *Moorish* Inhabitants of the *Maldives*; the Excrements above mention'd are alter'd and refin'd by lying on the Rocks, exposed to the Sun, Moon, and Air; from whence they are afterwards wash'd off by the rising Sea. They add, that the Whales frequently swallow pieces hereof: that those Pieces we meet withal of a black Colour, took that Hue in the Stomach of those Animals; that the brown are such as have floated long on the Water; and the white, such as have only been a short time there, which they value the most. *Ramusio*, Tom. I. fol. 313.

2°, Others speak of it as the Excrement of a Cetaceous Fish; because sometimes found in the Intestines, and sometimes in the Fæces themselves, of such Animals.—*Justus Klobius*, in his History of *Amber*, describes the Animal; which he says is a Whale, and called the *Trunk*: Adding, that the Sperma Ceti is taken out of the Head of the same Creature.—Others, with the *Persians*, suppose the Fish that yields the *Ambergrease*, a Sea-Calf; others, with the *Africans*, a peculiar Species of Fish, named *Ambracan*; others a Crocodile, by reason its Flesh is perfumed, &c.

But, to both these Hypotheses it is objected, That we have no Instance of any Excrement capable of melting like Wax. Add, that if it were the Excrement of a Whale, it should rather be found in such Places where those Animals abound, as about *Greenland*, &c. than about the *Maldivy* Islands, *Soffala*, *Melinda*, *Cape Comorin*, &c. where no Whales are found.

3°, Others take it for a kind of Wax, or Gum, which distils from Trees, and drops into the Sea, where it congeals, and becomes *Ambergrease*.

4°, Others, and particularly many of the Orientals, imagine it springs out of the bottom of the Sea, as Naphtha does out of some Fountains.—They add, that the only Springs hereof are in the Sea of *Ormus*, between the *Arabian* and *Persian* Gulphs. *Edrissi*, who is of this Opinion, in the first Climate of his Geography, mentions pieces of *Ambergrease*, on those Coasts, weighing a full Quintal.—*Paludanus* and *Linschoot* speak of it as a sort of Pitch, gradually working up from the bottom of the Sea, and hardening in the Sun.

5°, Others take it for a Sea-Mushroom, tore up from the bottom by the Violence of Tempests; it being observ'd, that *Ambergrease* is never found but after Storms.

6°, Others assert it a Vegetable Production, issuing out of the Root of a Tree, whose Roots always shoot toward the Sea, and discharge themselves into the same.—This Account we have in the *Philosophical Transactions*, from one of the *Dutch* Factors at *Batavia*: And the same is confirmed by Mr. *Boyle*. *Of Tastes and Odors*.

7°, Others suppose it a spongious kind of Earth, which the working of the Sea washes from off the Rocks, where, being lighter than Water, it floats.—Others are of Opinion that it is a bituminous Matter; that it is at first liquid, and runs into the Sea, and that it is there condensed and reduced into a Mass.

8°, Lastly, others maintain, that *Ambergrease* is made from the Honey-Combs which fall into the Sea from the Rocks, where the Bees had formed their Nests.—This Opinion has something of Experience on its side, and begins now to be generally allow'd; several Persons having seen Pieces that were half *Ambergrease*, and half plain Honey-Comb: and others, again, having found large Pieces of *Ambergrease*, which when broke, Honey-Comb, and Honey too, were found in the middle.

The Pieces frequently seem composed of divers Strata, laid one over another; with Stones and other Bodies inclosed therein; and the Strata are sometimes full of little Shells, which seem a Species of Concha Anatifera: Whence it may be conjectur'd, that the *Ambergrease* has originally been in a fluid State; or at least, that it has been melted; and in that State has form'd it self afresh, and invelop'd such Bodies as happen'd to be in its way.

It is of considerable use among Perfumers, who melt it over a gentle Fire, and make Extracts, Essences, and Tinctures of it.—It would be of more use in Physick too, were not its Smell so rank and offensive, and on that account apt to occasion Vapours.

We have various Instances in Authors, of huge Pieces of this Matter: The largest that has been known in *Europe*, was brought by the *Dutch East-India* Company, toward the Close of the last Century; and kept in their House for some Years. It was almost round; measured two Foot in Diameter, and weigh'd an hundred eighty two Pounds. The great Duke of *Tuscany* offer'd fifty thousand Crowns for it.

AMBER-SEED, or *Musk-seed*, is a Seed somewhat like the Millet, of a bitterish Taste, and brought dry to us from *Martinico* and *Egypt*.—The *Egyptians* use it internally, as a Cordial, to fortify the Heart, Stomach, and Head, and to provoke Lust.—It gives a grateful Scent to the Breath, after eating; but is not proper for those who are inclinable to Vapours.

AMBI-

AMBIDEXTER, one who uses both Hands alike, the Left as well as the Right, and this in Cases where only the Use of one is necessary.

The Word is form'd from the Latin *ambo*, both, and *dexter*, right hand.—*Hippocrates* observes, that this never happens to Women.

In a legal Sense, *Ambidexter* signifies a Juror, &c. who receives Money of both Parties, for the giving his Verdict, &c. for which he is to forfeit *decies tantum*, ten times as much as he receives. See JUROR.

AMBIENT, a Term applied to such things as incompass others round about.

Thus, the Bodies situate around any other Body, are called the *Ambient*, and often the *Circum-Ambient* Bodies.

And the whole Body of Air, because it incompasses all things on the Face of the Earth, is often by Physical Writers called, by way of Eminence, the *Ambient*, or *Ambient Air*. See AIR.

The Word is form'd of the Latin *Ambire*, to incompass, go round.

AMBIGENAL *Hyperbola*, in Geometry is that which has one of its infinite Legs inscribed, and the other circumscribed. See HYPERBOLA, and CURVE.

AMBIGUOUS, something dubious, obscure, or which may be taken in different Senses.—The Word is form'd of the Latin *ambo*, both, and *ago*, I drive; *q. d.* that which keeps the Mind wavering, or in Suspence; not knowing which side to chuse.

The Answers of the antient Oracles were always *ambiguous*. See ORACLE.

AMBIT, of a Figure, in Geometry, is the Perimeter, Circumference, or Sum of all the bounding or incompassing Lines, that constitute or include it. See PERIMETER, CIRCUMFERENCE, &c.

AMBITUS, among the antient *Romans*, signified the Act of suing, or making Interest for Offices.

The Candidates, in this Case, went about the City; and into all publick Places, and Assemblies, to beg Voices; which was call'd *Ambitus*; *am*, in the antient *Latin*, signifying *circum*, about, or around, and *ire*, to go. See CANDIDATE.

AMBLE, AMBLING, in Horsemanship, a peculiar kind of Pace, wherein a Horse's two Legs of the same Side, move at the same time. See PACE.

The *ambling* Horse changes Sides at each remove; two Legs of a side being in the Air, and two on the ground, at the same time: An *Amble* is usually the first natural Pace of young Colts; which, as soon as they have Strength enough to trot, they quit.—There is no such thing as an *Amble*, in the Manage; the Riding-Masters allowing of no other Paces, beside Walk, Trot, and Gallop: Their Reason is, That a Horse may be put from a Trot to a Gallop, without stopping him; but not from an *Amble* to a Gallop, without such Stop; which loses time, and interrupts the Justness and Cadence of the Manage. See TROT, GALLOP, &c.

There are various Practices and Methods of Discipline, for bringing a young Horse to *Amble*: Some chuse to toil him in his Foot-pace thro' new-plough'd Lands; which naturally inures him to the Stroke requir'd in the *Amble*. Its Inconveniencies are, the Weakness and Lameness that such disorderly Toil may bring on a young Horse.

Others attempt it by sudden stopping, or checking him in the Cheeks, when in a Gallop; and thus putting him into an Amazedness, between Gallop and Trot; so that losing both, he necessarily stumbles on an *Amble*.—But this is apt to spoil a good Mouth and Rein; and exposes the Horse to the Danger of an Hoof-reach, or Sinew-strain, by over-reaching, &c.

Others prefer *ambling* by Weights, as the best way; and to this end, some overload their Horse with excessively heavy Shoes; which is apt to make him interfere, or strike short with his hind Feet.——Others fold leaden Weights about the Fetlock Pasterns; which are not only liable to the Mischiefs of the former, but put the Horse in danger of incurable Strains, crushing of the Coronet, and breeding of Ring-bones, &c.——Others load the Horse's Back with Earth, Lead, or the like massy Substance; which may occasion a Swaying of the Back, overstraining of the Fillets, &c.

Some endeavour to make him *Amble in hand*, ere they mount his Back, by means of some Wall, smooth Pale or Rail, and by checking him in the Mouth with the Bridle-hand; and correcting him with a Rod on the hinder Hoofs, and under the Belly, when he treads false: But this is apt to drive a Horse to a desperate Frenzy, ere he can be made to understand what they would have of him; and to rear, spraul out his Legs, and make other antick Postures, which are not easily quitted again.

Others think to effect it by a pair of hind Shoes with long Spurns or Plates before the Toes; and of such length, that if the Horse offers to trot, the hind-foot beats the fore-foot. But this occasions Wounds of the back Sinews, which often bring on an incurable Lameness.

Some attempt to procure an *Amble*, by folding fine, soft Lists strait about his Gambrels, in the Place where he is gartered for a Stiffle Strain; and turn him thus to Grass for two or three Weeks, and afterwards take away the List.—This is a *Spanish* Method, but disapproved; for tho a Horse cannot then trot but with Pain, yet the Members must be Sufferers; and tho the *Amble* be gain'd, it must be slow, and unsightly; because attended with a cringing in the hind Parts.

In effect, *Ambling by the Tramel* appears the nearest to Nature, the best and most assured way. See TRAMEL.

There are divers Errors usually practis'd in this Method: as, That the Tramel is oft made too long, and so gives no Stroke; but makes a Horse hackle and shuffle his Feet confusedly; or too short, which makes him volt and twitch up his hind Feet so suddenly, that by Custom it brings him to a String-halt; from which it will scarce ever be recover'd. Sometimes the Tramel is misplaced, and to prevent falling put above the Knee, and the hind Hoof.—In which Case, the Beast cannot give any true Stroke, nor can the fore Leg compel the hind to follow it: or if, to evade this, the Tramel be made short and strait, it will press the main Sinew of the hind-Leg, and the fleshy part of the fore Thighs; so that the Horse cannot go without halting before, and cringing behind.

As to the Form of the *Tramel*; some make it all of Leather, which is inconvenient; in that it will either stretch or break, and thus confound the Certainty of the Operation. In a true Tramel, the side-Ropes are to be so firm, as not to yield a Hair's-breadth; the Hose soft, and to lie so close, as not to move from its first Place; and the Back-band flat, no matter how light, and to descend from the Fillets so as not to gall.

When the Horse by being *Trameled* on one side, has attain'd to *Amble* perfectly in the Hand; it is to be changed to the other side, and that to be likewise brought to Rule. When, by this changing from one side to another, with a half Tramel, the Horse will run and *amble* in the Hand, readily and swiftly, without Snappering and Stumbling; which is ordinarily done by two or three Hours labour; the whole Tramel is to be put on, with the broad, flat, Back-band, and both sides tramel'd alike.

AMBLYGONOUS *Angle*, in Geometry, is an obtuse Angle; or an Angle consisting of more than 90 Degrees. See ANGLE, and OBTUSE.

A Triangle is said to be *Amblygonous*, when it has one Angle greater than a right Angle. See TRIANGLE.

The Word is *Greek*; compos'd of ἀμβλὺς, *obtuse*, and γωνία, *Angle*.

AMBLYOPY, AMBLYOPIA, in Medicine, a Disease of the Eyes; otherwise called *Gutta Serena* and *Amaurosis*. See GUTTA *Serena*, &c.

The Word comes from ἀμβλὺς, *obtusus*, dull, and ὄψομαι, *video*, I see.

AMBO, a kind of Pulpit, or Desk, antiently used in Churches, whereon the Priests and Deacons stood to read, or sing part of the Service; and preach to the People. See PULPIT.

It was ascended by Steps; which occasioned that part of the Office perform'd there, to be called the *Gradual*. See GRADUAL.

The Term is derived from ἀμβαίνω, I mount.—The *Latins* also called it *Analogium*; by reason they read there.—The *Ambo* was mounted upon two Sides; and hence some derive the Appellation, from *ambo*, both.

The Gospel was read at the Top of the *Ambo*; the Epistle a Step lower.

AMBROSIA, in the Heathen Theology, &c. a delicious kind of Food, whereon the Gods were supposed to feed. See GOD.

Lucian, rallying these poetical Gods, tells us, that *Ambrosia* and *Nectar*, of which one is the Meat, and the other the Drink of the Gods, were not so excellent as the Poets describe them; since they would leave them for Blood and Fat, which they come to suck from the Altars like Flies.

The Word is compounded of the Privative Particle α, and βρότος, *Mortal*; in regard it render'd those who fed thereon immortal, or was the Food of the Immortals.

AMBROSIAN, in Church History.—We frequently read of the *Ambrosian Rite*, the *Ambrosian Office*, &c. denoting a particular Office, or Formula of Worship, used in the Church of *Milan*; which is sometimes also called the *Ambrosian* Church. See RITE, OFFICE, &c.

We also meet with the *Ambrosian* Chant, or *Song*; which was distinguish'd from the *Roman*, in that it was stronger and higher.

The Term takes its rise from St. *Ambrose*, Archbishop of *Milan* in the IVth Century, who is usually supposed to have been the Author of this Office. Yet some are of Opinion, the Church of *Milan* had an Office different from that of

the *Roman*, and other Churches of *Italy*, before the Time of that Father. In effect, till the Time of *Charlemaign*, each Church had its several Office: And when in after-Days the Pope took on him to impose the *Roman* Office on all the other Churches of the West; that of *Milan* shelter'd it self from the Imposition, under the Name and Authority of St. *Ambrose*; from which Time, the Phrase *Ambrosian Rite* has obtain'd, in contradistinction to the *Roman* Rite.

The publick Library of *Milan*, is also called the *Ambrosian Library*. See LIBRARY.

AMBRY, or ARMORY, the Place where the Arms, Plate, Vessels, and every thing belonging to House-keeping were kept.

Hence, probably the *Ambry* at *Westminster*, was so called, because formerly set apart for that use; or rather, from *Aumonery*, a House adjoining to an Abbey, in which the Charities were laid up, and distributed to the Poor. See ALMS.

AMBULATION, or *Walking*. See EXERCISE.

AMBULATION, in Physick, is used by some for the spreading of a Gangrene, or Mortification. See GANGRENE, &c.

AMBULATORY, a Term antiently applied to such Courts, &c. as were not fixed to any certain Place; but held sometimes in one Place, and sometimes in another.—In opposition to *Sedentary* Courts. See COURT, and SEDENTARY.

The Court of Parliament was antiently *Ambulatory*; so were the Courts of King's Bench, &c. See PARLIAMENT, KING'S-*Bench*, &c.

The Word is form'd of the Latin *ambulare*, to walk.

We sometimes also say, in a Moral Sense, a Man's Will is *Ambulatory*, to the Time of his Death; meaning, that he has it always in his Power to revoke it.

AMBURBIA, or AMBUREALE *Sacrum*, in Antiquity, a Religious Feast, or Ceremony, practised among the *Romans*, wherein they made Processions around their City.

The Word is composed of *ambio*, I go round; or of *amb*, or *ambu*, an antient Preposition, signifying *around*, and *urbs*, City.

Hence, also, we have *Amburbiales Victimæ*, the Victims carried along in the Procession; and afterwards sacrific'd.

Scaliger, in his Notes on *Festus*, maintains the *Amburbia* to be the same with *Ambarvalia*. See AMBARVALIA.

AMBUSCADE, AMBUSH, AMBUSHMENT, a Body of Men, who lie hid in a Wood, &c. to rush out upon, or inclose an Enemy unawares.—Or, the Place wherein such a Corps hide themselves.

AMBUSTIO, in Medicine, a *Burn*: See BURN, and BURNING.

AMEL, or *Enamel*. See ENAMEL.

AMEN, a Church Term, used as the Conclusion of all solemn Prayers, &c. and signifying, *so be it*, or *fiat*.

The *Hebrews* had four kinds of *Amen*.— That just mention'd they called *Amen past*; which was accompany'd with the greatest Attention, and Devotion: In this Sense, the Word has pass'd into almost all Languages, without any Alteration.

Some Authors are of Opinion, that the Word *Amen* is formed of the initial Letters of these Words, *Adonai Melech Neeman*, *Dominus Rex Fidelis*; an usual Expression among the *Jews*, when they would give Weight or Sanction to any thing they said. In effect, 'tis known, that to express the Words אדוני מלך נאמן *Adonai Meelech Neeman*, in the ordinary way of Abbreviatures; the Rabbins only take the initial Letters, which joined together, are really the Letters of the Word אמן *Amen*. See ABBREVIATURE.

On the other hand, there are some of their Cabbalists, who, according to their usual manner of finding hidden Meanings in Words, which they call *Notaricon*; out of the Letters of the Word *Amen*, form the whole Phrase, *Adonai Melech Neemen*. See NOTARICON.

Yet, 'tis certain also, that the Word *Amen* was in the *Hebrew* Tongue, before ever there were any such things as Cabbala or Cabbalists in the World: as appears from *Deuteronomy*, Chap. XXVII. ver. 15. See CABBALA, &c.

The Primitive of the Word *Amen*, is the Verb *aman*, which, in the passive Voice, signifies to be true, faithful, constant, &c.—Hence came the Noun אמן *Amen*, which signifies, *Truth*.

And, lastly, of this Noun *Amen* they made a kind of affirmative Adverb, which, when placed at the End of any Phrase or Proposition, signifies, *So be it*, *Be it true*, *I acquiesce in it*, &c.

Thus, in the Passage above cited from *Deuteronomy*, *Moses* ordered the Levites to cry aloud to the People, *Cursed is he that makes any graven or molten Image*, &c. and all the People shall say, *Amen*; i. e. *Yes*, *May he be cursed*, *We desire*, *we agree to it*.—But at the beginning of a Phrase, as in several Passages of the New Testament, it signifies *Truly*, *Verily*.—When it is redoubled, or repeated twice together, as is always done by St. *John*, it has the Effect of a Superlative, agreeably to the Genius of the *Hebrew* Tongue, and her two Daughters, the *Chaldee* and *Syriack*.—In this Sense we are to understand *Amen*, *Amen*, *dico vobis*. The Evangelists usually preserve the *Hebrew* Word *Amen*, in their *Greek* αμην; tho St. *Luke* sometimes renders it by ἀληθῶς, *truly*, or ναι, *certainly*.

AMEND, or AMENDE, in the *French* Customs, a *Mulct*, or pecuniary Punishment, imposed by a Sentence of the Judge; for any Crime, false Prosecution, or groundless Appeal. See MULCT, PUNISHMENT, APPEAL, &c.

AMENDE *Honorable*, is an afflictive Pain, importing, or carrying with it a Note of Infamy.—As, when the Delinquent is condemned to go naked to the Shirt, a Torch in his Hand, and a Rope about his Neck, into a Church or Auditory; and beg pardon of God, the King, or the Court, for some ill deed.

The Phrase *Amende honorable*, is more peculiarly used where a Person is condemn'd to come into Court, or into the Presence of some Person injured; and make an open Recantation, &c.

AMENDABLE, or AMAINABLE, is applied in our Law-Books to a Woman, that is supposed to be governable by her Husband. See WOMAN, WIFE, &c.

AMENDMENT, in Law, the Correction of an Error committed in a Process, and espied before Judgment. See ERROR.

If the Error be committed in giving Judgment, *viz.* a wrong Judgment be given, there, they cannot *amend* it; but the Party aggriev'd must bring his Writ of Error.—However, where the Fault appears to be in the Clerk who writ the Record, it may be amended.

AMERCEMENT, or AMERCIAMENT, in Law, a Penalty assessed by the Peers or Equals of the Party *amerced*, for an Offence done; or a pecuniary Punishment imposed upon Offenders, at the Mercy of the Court; and therefore in our Law frequently called *Misericordia*. See PUNISHMENT, and MISERICORDIA.

There is this stated Difference between Fines, and *Amercements*; that Fines are Punishments certain, and determined by some Statute; but *Amercements* are arbitrary Impositions, proportion'd to the Fault, at the Discretion of the Court.

Manwood, in his *Forest Law*, makes another Difference: as if an *Amerciament* were a more easy and merciful Penalty, and a Fine a more sharp and grievous one.

In the *New Terms of the Law*, *Amerciament* is said to be properly a Penalty assessed by the Peers or Equals of the Party *amerced* for an Offence done; for which he puts himself upon the Mercy of the Lord.—The same Author mentions an *Amerciament Royal*; and defines it, a pecuniary Punishment laid upon a Sheriff, Coroner, or such-like Officer of the King, by Justices, for some Offence or Abuse in his Office.

AMETHYST, in Natural History, a Precious Stone, of a violet Colour, bordering on Purple. See PRECIOUS *Stone*.

There are three sorts:—The *Oriental*, which is the hardest, the scarcest, and most valuable, is of a dove Colour; the *German*, which is of a violet Colour; and that of *Carthagena*, which has the Colour of a Pansy.

There are some Orientals also of a purple Colour, and others white, and like the Diamond.—There are beautiful ones found in the *Pyreneans*, and in the Mountains of *Auvergne*.

The *Amethyst* is not extremely hard; but may be cut with a leaden Wheel, smear'd with Emery moisten'd in Water.—It is polish'd on a pewter Wheel with Tripoli.—It is easily engraven on, either *in Creux* or *Relievo*.

Plutarch says, the *Amethyst* takes its Name from its Colour; which, according to him, resembles that of Wine mix'd with Water; and not from its preventing Drunkenness: which, however, was a common Opinion, and gave occasion to its being hung about the Necks of great Drinkers.—Those who ascribe this Virtue to the *Amethyst*, derive its Name from the Privative α, and μεθύσκω, *to inebriate*. See GEM.

AMETHYST, in Heraldry, signifies the purple Colour, in the Coat of a Nobleman; which in Gentlemens Escutcheons below that degree, is called *Purpure*; and in those of sovereign Princes, *Mercury*. See PURPLE, and PURPURE.

AMIANTHUS *Lapis*, in Natural History, the same with *Asbestos*. See ASBESTOS.

AMICTUS, in our antient Writers, the uppermost of the six Garments worn by Priests.

It was tied round the Neck, *Ne inde ad linguam transeat mendacium*; and covered the Breast and Heart, *Ne vanitates cogitet*.—*Amictus*, *Alba*, *Cingulum*, *Stola*, *Manipulus*, & *Planeta*.

AMIABLE *Numbers*, denote Numbers which are mutually equal to the whole Sum of one another's Aliquot Parts.—Such are the Numbers 284 and 220. See NUMBER.

AMITTERE *Legem Terræ*, a Law-Phrase, signifying, the Forfeiture of the Right of swearing in any Court or Cause; or to become infamous. See LAW.

This is the Punishment of a Champion overcome, or yielding in the Combat; of Jurors found guilty in a Writ of Attaint; and of Persons outlaw'd. See CHAMPION, COMBAT, JUROR, OUTLAWRY, &c.

AMMA, a Girdle, or Truss used in Ruptures; to hinder the Intestines from bearing down too much. See RUPTURE, &c.

AMMI, or *Semen* AMMEOS, a kind of aromatick Seed, of considerable use in Medicine; the Produce of a Plant of the same Name.

The Seed is brought from the *Levant*: It is found to contain a great deal of essential Oil, and volatile Salt; and to be attenuating, aperitive, hysterick, carminative, cephalick, and alexipharmick being, is one of the four lesser hot Seeds.—It expels Wind, provokes the Menses, &c.

According to *Lemery*, the Plant takes its Name *Ammeos* from ἄμμος, *arena*; its Seed being very like Grains of Sand.—It is also called *Ammi Creticum*, or *Ethiopicum*, to distinguish it from the vulgar *Ammi*, or Bishops-weed. It is sometimes also called *Cuminum Ethiopicum*.

AMMON, or HAMMON, in Antiquity, an Epithet given to *Jupiter* in *Lybia*; where was the celebrated Temple of *Jupiter Ammon*.

There has been a great Dispute about the Origin of this Name.—Some derive it from the *Greek* ἄμμος, *Sand*; in regard the Temple was situate in the burning Sands of *Lybia*: Others borrow it from the Egyptian *Anam*, a Ram; as having been first discover'd by that Animal.—Others will have *Ammon* to signify the Sun; and the Horns wherewith he is represented, the Sun-beams.

However this be, *Jupiter Ammon* was usually represented under the Figure of a Ram; tho in some Medals he appears of a human Shape, having only two Rams Horns growing out beneath his Ears.

AMMONIACK.—*Gum* AMMONIAC; or, as it is sometimes, tho improperly, called, ARMONIAC, is a kind of Gum, brought from the *East Indies*; supposed to ooze from an umbelliferous Plant. See GUM.

It ought to be in dry Drops, white within, yellowish without, easily fusible, resinous, somewhat bitter, and of a very sharp Taste and Smell, somewhat like Garlick.

Dioscorides says, it is the Juice of a kind of Ferula growing in *Barbary*; and that the Plant that produces it, is called *Agasyllis*.

The good *Ammoniac* is of a high Colour, and not mixed with any Scrapings of Wood, Stone, or Sand; it is called θραῦσμα, *Fracture*.—The other, which is full of Stones or Sand, is called φύραμα, that is, *Mixture*.

Pliny calls the Tree whence it flows, *Metopion*; and says, the Gum takes its Name from the Temple of *Jupiter Ammon*, nigh which the Tree grows.

Some say, this Gum served the Antients for Incense in their Sacrifices. See INCENSE.

It enters several medicinal Compositions, as an Attenuant, and Detergent, against Disorders arising from Viscidities, and Grumes.—Outwardly applied, it is resolutive and suppurative; and, as some say, will of it self draw out Splinters, &c.

Some dissolve the Gum in Vinegar, and other Liquors, and call it *Lac Ammoniacum*; much used in Asthmas, and Obstructions of the Lungs.—But the more usual form of prescribing it is in Pills.

AMMONIAC.——*Sal* AMMONIAC, is also a kind of Salt; more usually wrote ARMONIAC. See ARMONIAC.

Cornu AMMONIS, in Natural History. See CORNU *Ammonis*.

AMMUNITION, in general, signifies all sorts of warlike Stores and Provisions, more especially Pouder and Ball. See MUNITION.

The Word is form'd of the Latin *Amonitio*, which, according to *Du Cange*, was used in the corrupt State of that Language for *Subsistence*.

AMMUNITION-*Bread*, is what is provided for, and distributed daily to, the Soldiers of an Army or Garrison.

Such an Officer has so many Rations of *Ammunition-Bread*, &c. See RATION.

AMNESTY, or AMNISTY, a General Pardon, which a Prince grants to his Subjects, by a Treaty, or Edict; wherein he declares that he forgets and annuls all that is past, and promises not to make any farther Inquiry into the same. See PARDON.

Such *Amnesties* are usually practised upon Reconciliations of the Sovereign towards his People, after Rebellions, general Defections, &c.

Such, *e. g.* was the Act of Oblivion granted at King *Charles*'s Restoration.

The Word is derived from the *Greek* ἀμνεσία, *Amnestia*; which was the Name of a Law of this kind, pass'd by *Thrasibulus* upon the Expulsion of the thirty Tyrants out of *Athens*.—*Andocides*, an *Athenian* Orator, whose Life is written by *Plutarch*, and of whom we have an Edition, of the Year 1575; gives us, in his Oration *upon Mysteries*, a Formula of the *Amnisty*, and the Oaths taken thereupon.

AMNIOS, or AMNION, in Anatomy, the innermost Membrane, wherewith the Fœtus in the Womb is immediately invested. See FOETUS.

The *Amnios* is a white, soft, thin, transparent Membrane; making part of the Secundines, and lying next under the Chorion. See SECUNDINE, and CHORION.

It contains a limpid Liquor, like a thin Gelly-broth; with which the Stomach of the Fœtus being always found full, it is supposed to be the Matter of its Nourishment. See NUTRITION.

On its outside lies the Allantois, or Urinary Membrane. In some Subjects, the Urinary Membrane, and Chorion, stick so close to one another, that they appear to be but one.—It hath all its Vessels from the same Origin as the Chorion. See ALLANTOIS.

The Word is deriv'd from the Greek ἀμνὸς, *a Lamb*, q. d. *Pellis Agnina*.

AMOMUM, a Medicinal Fruit, called also *Amomum Racemosum*, *Amomum Verum*, and *Elaterii Pomum*.

It resembles the Muscat Grape; and grows, like it, in Clusters; is about the bigness of a Chich-Pea, round, membranous, and divided into three Cells, which contain several brown, angular Grains; of a very strong aromatick Taste, and Smell.

This Fruit is brought from the *East Indies*; and makes part of the Composition of Treacle; and is thought to be the *Sison*, or *Sinon* of the Antients.

Besides this, there is likewise another paler Seed, which bears the Name, *Amomium*; but neither of them are in much repute in Physick.

The Commentators on *Pliny*, and *Dioscorides*, have never been able to agree upon the antient *Amomum*; the generality of 'em pitch on Fruits different from this.—Some will have the Rose of *Jericho* pass for it.——F. *Camelli* is positive he has discover'd the real *Amomum* of *Dioscorides*, and that it is the *Tugus*, or *Birao*, or *Caropi*, growing in the *Philippine* Islands; the Grains or Berries whereof, are worn by the Natives about their Necks; both on account of their agreeable Odour, and of their supposed Virtue in preserving from Infection, curing the Sting of the Scolopendria, &c. *Phil. Transf.* N° 248.

Scaliger is confident, that the *Amomum* of the Antients was not a Fruit; but the Wood it self, which bore some resemblance to a Bunch of Grapes, and was particularly used in embalming of Bodies: and hence, says he, the Term *Mummy* was given to the Bodies of *Egyptians* embalm'd with it. See MUMMY.

AMORTIZATION, or AMORTISEMENT, in Law, the Act of turning Lands into Mortmain, *i. e.* of alienating or transferring 'em to some Corporation, Guild, or Fraternity, and their Successors. See MORTMAIN.

The Term is also used for the Licence or Privilege which the King or superior Lord grants, to enable such Corporation, &c. thus to receive Lands into Mortmain: which otherwise they cannot do.—There is supposed to be some Fine, or Acknowledgment paid the King, or the Lord, in Consideration hereof; to make 'em Satisfaction for several incidental Dues and Profits, which would have fallen to them in the common way; which are hereby cut off.

This Practice was borrow'd from the *Lex Papiria*, whereby it was forbidden to consecrate any Land to Religious Uses, without the Consent of the People.

The Word is form'd of the French *Amortir*, to extinguish, put out, &c. See EXTINGUISHMENT.

AMPELITIS, in Natural History, a kind of Earth that dissolves in Oil; used to blacken the Eyebrows, and the Hair withal. See EARTH.

AMPHIARTHROSIS, in Anatomy, a neutral or dubious kind of Articulation, distinguish'd from the *Diarthrosis*, in that it has no apparent Motion; and from the *Synarthrosis*, in its not being absolutely devoid of Motion. See ARTICULATION, DIARTHROSIS, &c.

Such is the Articulation of the Ribs, with the Vertebræ; and that of the Carpus with the Tarsus, &c. See VERTEBRÆ, CARPUS, &c.

The Word, according to *Dionis*, is deriv'd from ἄμφω, *both*, and ἄρθρωσις, *Articulation*; the *Amphiarthrosis* being compounded of both the other sorts.—Whence some also call it, *Diarthrosis-Synarthroidal*.

AMPHIBIOUS, in Natural History, a Term applied to a sort of Animals which live both on Land, and in the Water; that is, which breathe the Air, but pass part of their Time in the Water, as affording 'em their chief Food. See ANIMAL.

Such are the Frog, Castor, Otter, Tortoise, Sea-Calf, Crocodile, &c.

The *Amphibious* Kind have peculiar Provisions in their Structure, to fit 'em for so various a way of Living; particularly

cularly in the Heart, Lungs, Foramen Ovale, &c. See HEART, FORAMEN *Ovale*, &c.

The Term is sometimes also extended to Men, who have the Faculty of living a long time under Water —We have divers Instances of such *Amphibious* Men; the most remarkable is of a *Sicilian*, named the *Fish Colas*. *Kircher* relates, that by a long Habitude from his youth, he had so accustom'd himself to live in Water, that his Nature seem'd to be quite alter'd: So that he lived rather after the manner of a Fish, than a Man. See DIVING, PEARL-*Fishing*, &c.

The Word comes from the *Greek* ἀμφὶ, *utrinque*, both-ways, and βίος, *Vita*, Life; as living in either Place.

AMPHIBLESTROIDES, in Anatomy, a Tunic, or Coat of the Eye, more usually called *Retina*. See RETINA.

The Word is *Greek*, ἀμφιβληστροειδὴς, of ἀμφιβληστρον, *Rete*, Net; compounded of ἀμφὶ, *circum*, about, βάλλω, *jacio*, I cast; and εἶδος, Form; by reason of its Net-like Texture: whence the *Latins* also call it *Retiformis*.

AMPHIBOLOGY, or AMPHIBOLIA, in Grammar, a Fault in Language, whereby it is render'd obscure, and liable to be understood in a double Sense.

Amphibology is chiefly used in respect of a Phrase; as Equivoque is in respect of a Word. See EQUIVOQUE, and EQUIVOCATION.

Of this kind was that Answer which *Pyrrhus* receiv'd from the Oracle; *Aio Te, Æacida, Romanos vincere posse*: Where the *Amphibology* consists in this, that the Words *Te* and *Romanos*, may either of 'em precede, or either of them follow the Words *posse vincere*, indifferently. See ORACLE.

The *English* Language usually speaks in a more natural manner, and is not capable of any *Amphibologies* of this kind: nor is it so liable to *Amphibologies* in the Articles, as the *French* and most modern Tongues. See CONSTRUCTION, ENGLISH, ARTICLE, &c.

The Word comes from the *Greek*, ἀμφίβολος, *ambiguous*, and λογὸς, *Discourse*.

AMPHIBRACHIUS, the Name of a Foot in the *Latin* and *Greek* Poetry; consisting of three Syllables, the first and last whereof are short, and that in the middle long. See FOOT, and VERSE.

Such is the Word *Amare*.

The Word comes from ἀμφὶ, *circum*, and βραχὺς, *brevis*, *q. d.* a Foot short at both Ends, and long in the middile.

AMPHICTYONS, AMPHYCTONES, in Antiquity, the Deputies of the Cities and People of *Greece*, who represented their respective Nations in a general Assembly; having a full Power to concert, resolve, and appoint what they should think fit, for the Service of the common Cause.

The *Amphyctones*, in good measure, were the same with the States General of *Holland*; or rather, with what in *Germany* they call the Diet of the Empire. See STATES, and DIET.

The first Assembly of this kind, was held by the Direction of *Amphictyon*, the third King of *Athens*, who propos'd by that means to bind the *Greeks* more firmly together; so as to render them a Terror to the barbarous Nations their Neighbours.—These met twice a year at *Thermopylæ*, in the Temple of *Ceres*, which was built in a large Plain, near the River *Asopus*; and were called *Amphictyons* from the Name of their Founder.

Pausanias, in his List of the ten Nations which compos'd that Assembly, says nothing of the *Achaians*, *Eleans*, *Argians*, *Messenians*, &c. *Æschines* also gives an Account of the Cities admitted into it, in his Oration, *De falsa Legatione*.

Acrisius instituted a new Council of *Amphyctones*, on the Model of the antient ones; who met twice a Year in the Temple of *Delphos*.

Each were indifferently called Ἀμφικτύονες, Πυλαγόραι, Ἱερομνήμονες, and their Assembly Πυλαία.

The *Romans* never thought fit to suppress the Meeting of the *Amphictyons*. *Strabo* even assures us, that they met in his Time.

AMPHIDROMIA, in Antiquity, a Feast celebrated on the fifth Day after the Birth of a Child. See FEAST.

AMPHIMACER, a Foot in the antient Poetry, consisting of three Syllables; the first and last whereof are long, and that in the middle short. See FOOT, &c.

Such are the Words *Omnium*, *Castitas*, &c.

The Word comes from the *Greek* ἀμφὶ, *circum*, and μακρὸς, *longus*, by reason both Extremes are long.

AMPHIPOLES, in Antiquity, Archons, or chief Magistrates of the City of *Syracuse*. See ARCHON.

They were first establish'd by *Timoleon*, after his Expulsion of *Dionysius* the Tyrant.—They govern'd *Syracuse* for the Space of 300 Years; and *Diodorus Siculus* assures us, they subsisted even in his Time.

AMPHIPROSTYLE, in the antient Architecture, a kind of Temple, which had four Columns in Front, and as many behind. See TEMPLE.

The Word is derived from the *Greek* ἀμφὶ, *about*, πρὸ, *before*, and στύλος, *Column*.

AMPHISCII, in Geography and Astronomy, the People who inhabit the Torrid Zone. See ZONE.

They are thus denominated, as having their Shadow turn'd sometimes one way, and sometimes another, *i. e.* at one time of the Year to the North, and at another to the South. See SHADOW.

The Word comes from ἀμφὶ, *about*, and σκιὰ, *Shadow*.

The *Amphiscii* are also *Ascii*. See ASCII.

AMPHISMELA, an anatomical Knife, edg'd on both sides; from ἀμφὶ, *utrinque*, on both sides, and μαλίζω, *incido*, I cut.

AMPHITHEATRE, a spacious Building, either round or oval, having its Area or Arena incompassed with Rows of Seats, rising gradually one over another; with Portico's both within and without-side. See AREA and ARENA.

Among the Antients, the *Amphitheatre* was appointed for the exhibiting of Spectacles or Shews to the People: as, the Combats of Gladiators, and those of wild Beasts. See SPECTACLE, GLADIATOR, &c.

Their Theatre was built in form of a Semicircle, only exceeding a just Semicircle by one fourth part of the Diameter; and the *Amphitheatre* was nothing else but a double Theatre, or two Theatres join'd together: so that the longest Diameter of the *Amphitheatre*, was to the shortest, as $1\frac{1}{2}$ to 1. See THEATRE.

There are *Amphitheatres* still standing at *Rome*, at *Nismes*, &c.—The *Amphitheatre* of *Vespasian*, called the *Coliseum*, and that at *Verona* in *Italy*, are the most celebrated now remaining of all Antiquity. See COLISÆUM.

Pliny mentions an *Amphitheatre* built by *Curio*, which turn'd on large Iron Pivots; so that of the same *Amphitheatre*, two several Theatres were occasionally made, whereon different Entertainments were presented at the same time.

The Word is deriv'd from the *Greek* ἀμφὶ, *about*, and θέατρον, *Theatre*; which comes from θεάομαι, *specto*, *contemplor*; so that an *Amphitheatre*, strictly speaking, is a Place whence a Person may see all around him.

AMPHORA, in Antiquity, an earthen Vessel, which serv'd as a kind of liquid Measure, among the *Romans*. See MEASURE.

The *Amphora* contained 48 Sextaries; amounting to about seven Gallons, *English* Wine Measure.

Amphora is also a modern Measure used by the *Venetians*. See MEASURE.

Suetonius tells us of a Man who stood for the Questorship, and who drank an *Amphora* of Wine at one Meal, with the Emperor *Tiberius*.

The *Amphora* was sometimes also used as a Dry Measure, containing three Bushels; the Standard whereof was kept at *Rome* in the Capitol, to prevent false Measures. See STANDARD.

AMPLIATION, properly signifies an *Enlargement*; but in Law, the Word is used to denote a deferring of Judgment till the Cause he further examin'd.

AMPLIFICATION, in Rhetorick, part of a Discourse or Speech, wherein a Crime is aggravated, a Praise or Commendation heighten'd, or a Narration enlarged by an Enumeration of Circumstances; so as to excite the proper Emotions in the Souls of the Auditors. See ORATION, &c.

Such is that Passage in *Virgil*, where, instead of saying merely that *Turnus* died, he *amplifies* his Death,

——Ast illi solvuntur frigore membra,
Vitaque cum gemitu fugit indignata sub umbras.

Amplification, according to *Cicero*, is a vehement Argumentation; a forcible Affirmation, that perswades by moving the Passions.

Some Authors define *Amplification*, after *Isocrates*, to be a Discourse which makes great things of little; or which raises and exaggerates little things, so as to make 'em appear great.—But in this Sense, *Amplification* should rather become a Sophist or Juggler, than an Orator.

The Masters of Eloquence make *Amplification* the Soul of Discourse.—*Longinus* speaks of it as one of the principal means which contribute to the Sublime; but censures those who define it a Discourse which magnifies Things; this equally agreeing to the Sublime, the Pathetick, &c.—The same Author distinguishes *Amplification* from the Sublime by this, that the latter consists wholly in an Elevation of Words and Sentiments, whereas the former consists also in their Multitude: The Sublime is sometimes found in a single Thought; but *Amplification* cannot subsist, excepting in Abundance. See SUBLIME.

There is likewise a difference between the *Amplification*, and the Proof; in that the one serves to clear the Point, and the other to heighten, and exaggerate it. See PROOF.

There are two general Kinds of *Amplification*; the one *of Things*, the other *of Words*.—The first is produced in divers manners; as, 1°, by a Multitude of Definitions: Thus it

it is *Cicero amplifies* on History: *Historia est testis temporum, lux veritatis, vita memoriæ, magistra vitæ, nuntia vetustatis.* See DEFINITION.—— 2°, By a Multitude of Adjuncts; of which we have a fine Instance in *Virgil*'s Lamentation for *Cæsar*'s Death, by enumerating the many Prodigies and Monsters that either preceded or succeeded it. ——*Vox quoque per Lucos vulgo exaudita silentes, ingens & simulacra modis pallentia miris visa sub obscurum noctis; pecudesque locutæ, infandum, sistunt amnes, terræque debiscunt, & mæstum illachrymat templis ebur, Æraque sudant.* —3°, By a Detail of Causes and Effects.—4°, By an Enumeration of Consequences.—5°, By Comparisons, Similitudes, and Examples. See SIMILITUDE, &c.——6°, By the Contrast of Antithets, &c.

Amplification by Words, is effected six Ways.——1°, By using Metaphors. See METAPHOR.——2°, By Hyperboles. See HYPERBOLE.——3°, By Synonymas. See SYNONYMOUS. ——4°, By splendid magnificent Terms; as that of *Horace, Scandit æratas vitiosa naves cura: nec turmas equitum relinquit, ocyor cervis, & agente nimbos, ocyor euro.*—5°, By Periphrases, or Circumlocutions. See PERIPHRASIS, &c.—6°, By Repetition. See REPETITION.

AMPLITUDE *of the Range of a Projectile*, is the horizontal Line subtending the Path in which it moved. See PROJECTILE.

AMPLITUDE, in Astronomy, an Arch of the Horizon, intercepted between the true East or West Point thereof, and the Centre of the Sun, or a Star at its rising or setting. See HORIZON, RISING, SETTING, &c.

Amplitude is of two Kinds; *Eastern* or *Ortive*; and *Western*, or *Occiduous*.

Eastern, or *Rising* AMPLITUDE, *Amplitudo Ortiva*, is the Distance between the Point wherein the Star rises, and the true Point of East, wherein the Equator and Horizon intersect. See EAST.

Some call it *Eastern*, or *Ortive Latitude*. See LATITUDE.

Western, or *Setting* AMPLITUDE, *Amplitudo Occidua*, is the Distance between the Point wherein the Star sets, and the true Point of West in the Equinoctial. See WEST.

The Eastern and Western *Amplitude*, are also called *Northern*, and *Southern*, when in the Northern and Southern Quarters of the Horizon.

The Complement of the Eastern or Western *Amplitude* to a Quadrant, is called the *Azimuth*. See AZIMUTH.

To find the Sun's or a Star's Amplitude, *either rising or setting, by the Globe.* See GLOBE.

To find the Sun's Amplitude, *trigonometrically; having the Latitude, and the Sun's Declination given.*—Say, As the Co sine of the Latitude is to Radius, so is the Sine of the present Declination to the Sine of the *Amplitude*.—Suppose, *e. g.* the Latitude 15° 30′, and the Declination 11° 50′;

Then to the Ar.co. of the Co-sine of	50°	30′	0,2058503
Add the Sine of			9,3118926
Sum is the Sine of			9,5177429

which is the *Amplitude* requir'd.

Magnetical AMPLITUDE, is an Arch of the Horizon, contained between the Sun, at his rising, and the East or West Point of the Compass; or, it is the Difference of the Rising or Setting of the Sun, from the East or West Points of the Compass. See COMPASS, RISING, SETTING, &c.

It is found by observing the Sun at his rising or setting, by an *Amplitude* Compass. If the Compass have no Variation, the *Magnetical Amplitude* will be the same as the true one.

AMPUTATION, in Chirurgery, the Operation of cutting off a Limb, or other Part of the Body, with an Instrument of Steel. See CHIRURGERY, OPERATION, &c.

In Cases of Mortification, recourse is frequently had to *Amputation*. See MORTIFICATION, GANGRENE, SPHACELUS, &c.

The Method of performing it, in the Instance of a Leg, is as follows.—The proper Part for the Operation being four or five Inches below the Knee; the Skin and Flesh are first to be drawn very tight upwards, and secured from returning by a Ligature two or three Fingers broad: above this Ligature another loose one is passed, for the Gripe, which being twisted by means of a Stick, may be straiten'd to any degree at pleasure. Then, the Patient being conveniently situated, and the Operator placed to the inside of the Limb; which is to be held by one Assistant above, and another below the Part designed for the Operation; and the Gripe sufficiently twisted, to prevent too large an Hemorrhage, the Flesh is, with a Stroke or two, to be separated from the Bone with the Dismembring-Knife. Then the Periosteum being also divided from the Bone with the Back of the Knife, saw the Bone asunder with as few Strokes as possible.—When two parallel Bones are concerned, the Flesh that grows between them must likewise be separated, before the use of the Saw.

This being done, the Gripe may be slacken'd; to give an Opportunity for searching for the large Blood-Vessels, and securing the Hemorrhage at their Mouths, either by the actual Cautery, the Ligature, stitching them up, applying Vitriol Buttons, or the like. After this a dry Pledget of Lint, or one dipp'd in Spirit of Wine, and sprinkled with Diapente, may be applied to the Stump. Then loosen the first Ligature, and pull both the Skin and Flesh, as far as conveniently may be, over the Stump, to cover it; and secure them with the Cross-stitch made at the depth of half, or three quarters of an Inch in the Skin.—It remains, to apply over the whole Stump two large Pledgets, dipp'd in Oxycrate and dried, and afterwards charged with Astringents; and on these to apply a Plaister of De-minium, or simple Diachylon; and over these, an Ox-bladder, wetted in Oxycrate; and over all, a Cross-cloth pretty tight, secured with Rollers.

After all this, the Gripe may be slacken'd, so as to be made easy for the Patient; or even entirely taken away, after he is put to Bed; in which he must lie with the Stump somewhat raised; an Assistant for 12 or 14 Hours keeping fast the Dressing with his hand, to prevent any violent Hemorrhage.—In three or four Days the Dressing may be removed; and proper Digestives, mixed with Astringents, applied: having an actual Cautery, or some powerful Styptick, in readiness, in case of a violent Hemorrhage at the first opening.

M. *Sabourin*, Surgeon of *Geneva*, is recorded in the History of the Royal Academy of Sciences, *An.* 1702, for an Improvement in the Method of *Amputation*, proposed to that Academy.—The whole Secret consists in saving a piece of Flesh and Skin, a little lower than the Place where the Section is to be; wherewith the Stump is to be afterwards cover'd.—The Advantages hereof, are, that in less than two Days time, this Flesh unites with the Extremes of the divided Vessels, and so saves the Necessity either of binding the Ends of those Vessels with Thread, or of applying Caustics or Astringents; which are Methods very dangerous, or at least very incommodious. Add, that the Bone thus cover'd up, does not exfoliate.

AMSDORFIANS, in Church-History, a Sect of Protestants, in the XVIth Century; denominated from their Leader *Amsdorf*.

Sanderus, Her. 186, represents them as maintaining, that good Works were not only unprofitable, but even opposite and pernicious to Salvation.—The *Amsdorfians* were rigid Confessionists.

AMULET, AMULETUM, a kind of Medicament, hung about the Neck, or other part of the Body; to prevent, or remove Diseases.

The Word *Amulet* is form'd of the Latin *Amoletum, Amolimentum*; of *amoliri*, to remove, drive away. See PRESERVATIVE.

Such are Quills of Quick-silver or Arsenic, which some hang on the Neck, or wear under the Shirt against the Plague, and other contagious Diseases; the Blood-stones worn by others against Hemorrhages; and that wore by the Women of the *East Indies* to bring down the Menses.

Amulets are frequently no other than a sort of Spells or Charms; consisting of quaint Words and Characters, supposed to have the Virtue of warding off ill.—*Pliny* makes frequent mention of 'em. See CHARM, &c.

The *Greeks* called these kind of Remedies φυλακτήρια, *Phylacteries*; περιάπτα, *Periapta*; ἀποτελέσματα, περιτρήμματα, περιαμματα, βρέβια.—The *Latins* call 'em *Amuleta, Appensa*, &c. See PHYLACTERY, PERIAPTA, &c.——The Council of *Laodicea* forbids Ecclesiasticks to wear such *Amulets* and Phylacteries, on Pain of Degradation. St. *Chrysostom* and St. *Jerom* are likewise zealous against the same Practice. *Hoc apud nos*, says this last Father, *superstitiosæ mulierculæ, in parvulis Evangeliis & in crucis ligno & istiusmodi rebus quæ habent quidem zelum Dei sed non juxta scientiam, usque hodie factitant.* See *Kirch.* Oedip. Ægypt.

Amulets are now fallen from the great Repute they were antiently in; yet the great Mr. *Boyle* alledges 'em as an Instance of the Ingress of external Effluvia into the Habit; in order to shew the great Porosity of the human Body.—He adds, that he is perswaded some of these external Medicines do answer; for that he himself having once been subject to bleed at the Nose, and reduced to use several Remedies to check it; found that Moss of a dead Man's Skull, tho only applied so as to touch the Skin till the Moss was warm thereby, the most effectual of any.—A memorable thing of this kind was communicated to *Zwelfer* by the chief Physician to the States of *Moravia*, who having prepared some Troches of Toads after *Helmont*'s manner, not only found that being worn as *Amulets* they preserv'd him and his Domesticks and Friends from the Plague; but, being put on the Plague-Sores of others, they were greatly reliev'd, and even saved thereby.

The ſame Mr. *Boyle* ſhews how the Effluvia even of cold *Amulets*, may in tract of Time pervade the Pores of a living Animal; by ſuppoſing an Agreement between the Pores of the Skin, and the Figure of the Corpuſcles. *Bellini* has demonſtrated the Poſſibility of the Thing in his laſt Propoſitions, *De Febribus*: And the like is done by Dr. *Wainwright*, Dr. *Keil*, &c. See EFFLUVIA, PORE, SKIN, PLAGUE, &c.

AMULET, in Cookery. See OMELET.

AMURCA, in Pharmacy, a Medicine made of the Lees or Sediment of Olives.—It is an Aſtringent. See OLIVE.

AMY, in Law, the Perſon next of kin to an Orphan, or Infant; who is to be intruſted for him: properly called *Prochein Amy*. See PROCHEIN, &c.

The Word is *Freneh*, and literally ſignifies *Friend*.

AMYGDALÆ. See ALMONDS.

AMYGDALATE, an Artificial Milk, or Emulſion, made of blanched Almonds, &c. See ALMOND.

AMYLUM. See STARCH.

AMYNTICA *Emplaſtra*, in Pharmacy, defenſative, or ſtrengthening Plaiſters.

ANA, or ἀνά, in Medicine, denotes an equal *Quantity* of any Thing, whether in liquid or dry Meaſure. See A.

Hence *Anatica Proportio* is uſed by ſome Writers to ſignify the Ratio, or Proportion of Equality. See EQUALITY, RATIO, &c.

ANA, in Matters of Literature, a *Latin* Termination, adopted into the Titles of ſeveral Books in other Languages.——*Ana's*, or *Books in Ana*, are Collections of the memorable Sayings of Perſons of Learning, and Wit; much the ſame with what we otherwiſe call *Table Talk*.

Wolfius has given the Hiſtory of *Books in Ana*, in the Preface to the *Caſauboniana*: He there obſerves, that tho ſuch Titles be new, the Thing it ſelf is very old; that *Xenophon*'s Books of the Deeds and Sayings of *Socrates*, as well as the Dialogues of *Plato*, are *Socratiana*: That the Apothegms of the Philoſophers, collected by *Diogenes Laertius*; the Sentences of *Pythagoras*, and thoſe of *Epictetus*; the Works of *Athenæus*, *Stobeus*, and divers others, are ſo many *Ana's*. Even the *Gemara* of the *Jews*, with ſeveral other Oriental Writings, according to *Wolfius*, properly belong to the ſame Claſs. See GEMARA.

The *Scaligeriana* was the firſt Piece that appear'd with a Title *in Ana*. It was compoſed from the Writings of *Vaſſant* and *Verthunian*, who, as 'tis ſaid, took 'em from the Mouth of *Scaliger*, whom they had conſtantly attended a long time. The firſt Edition was in 1666.——Soon after came the *Perroniana*, *Thuana*, *Naudæana*, *Patiniana*, *Sorberiana*, *Menagiana*, *Anti-menagiana*, *Fureteriana*, *Chevræana*, *Leibnitziana*, &c. to *Arlequiniana*.

ANABAPTISTS, a Religious Sect, whoſe diſtinguiſhing Tenet is, That Children are not to be baptized, till they arrive at Years of Diſcretion; as holding it requiſite, that they give a Reaſon of their Faith, before they can receive a regular Baptiſm. See BAPTISM.

The Word is compounded of ἀνὰ, *denuo*, again; and βαπτίζω, *I baptize*; of βάπτω, *I waſh*; it being their Practice to re-baptize ſuch as had been baptized in their Infancy.

There were *Anabaptiſts* even in the Primitive Church; that is, Hereticks who baptized a ſecond time: Such were the *Novatians*, *Cataphrygians*, and *Donatiſts*. See NOVATIAN, CATAPHRYGIAN, and DONATIST.

There were alſo in the IIId Century ſeveral Catholick Biſhops in *Aſia* and *Africa*, who held the Baptiſm of Hereticks invalid; and therefore re-baptized ſuch as were converted to Orthodoxy.

But theſe antient Re-baptiſts were not called *Anabaptiſts*. See RE-BAPTIZER.

In the XIIth Century, the *Waldenſes*, *Albigenſes*, and *Petrobruſſians*, are alſo recorded as of the ſame Belief; but neither was the Denomination given them. See ALBIGENSES, WALDENSES, &c.

Thoſe properly called *Anabaptiſts*, are a Sect of Proteſtants, who firſt appeared in the XVIth Century, in ſome Provinces of *Germany*, particularly *Weſtphalia*, where they committed ſeveral Outrages.—They taught, that Baptiſm was not to be conferr'd on Children; that it is unlawful to ſwear, or to bear Arms; that a true Chriſtian cannot be a Magiſtrate, &c.

'Tis not known who was the Author of this Sect: Some charge it on *Carloſtad*; others on *Zuinglius*. *Cochlæus* ſays it was *Balthazar Pacimontanus*, who began to teach in 1527; and was burnt, at *Vienna*, ſome time afterwards.—*Mezorius* affirms it was firſt broach'd by *Pelargus*, in 1522; who was ſeconded by *Bodeſtein*, *Carloſtad*, *Weſtenberg*, *Quiccou*, *Didymus*, *More*, &c.

But the common Opinion fathers it on *Thomas Munſter*, or rather *Muncer*, of *Zwickau*, a City of *Miſnia*; and *Nich. Storck*, of *Stalberg* in *Saxony*; two Perſons originally Diſciples of *Luther*, from whom they took occaſion to ſeparate, on pretence that his Doctrine was not perfect enough; that he had only carried the Reformation half-way; and that to arrive at the true eſſential Religion of Chriſt, immediate Revelation muſt be added to the dead Letter of Scripture: *Ex revelationibus divinis judicandum eſſe dicebat, & ex bibliis, Muncerus*.—In effect, if theſe two Perſons were not the firſt Inventors of the Doctrine; they appear, at leaſt, to have been the firſt Teachers, and Propagators thereof. See LUTHERANISM.

Sleidan faniſhes the beſt Account of the Origin of the *Anabaptiſts*, in his *Hiſtorical Commentaries*.—*Luther*, he obſerves, had preach'd up ſo ſtrenuouſly for the Evangelical Liberty; that the Peaſants of *Suabia* flocking together, leagued themſelves againſt the Eccleſiaſtical Powers, on pretence of defending the Evangelical Doctrine, and ſhaking off the Yoke of Servitude: *Obducta cauſa quaſi & Evangelii doctrinam tueri, & ſervitutem ab ſe profligare vellent. Luther* wrote 'em ſeveral Exhortations to lay down their Arms, but in vain: They retorted his own Doctrine upon him; maintaining, that having been made free by the Blood of Jeſus Chriſt, it was injurious to the Name of Chriſtian, that they had hitherto been reputed Servants: *quod huc uſque ſint habiti velut conditione ſervi*. Accordingly, they proclaimed every where, that they only took up Arms, by reaſon they eſteem'd themſelves obliged thereto by Commandment of God.

Luther finding all his Exhortations ineffectual, publiſh'd a Book, wherein he invited all the World to take up Arms againſt thoſe Fanaticks, who thus abuſed the Word of God.—He was obliged to write a ſecond, ſoon after, to juſtify his Conduct; which to many appeared too ſevere, and even cruel.

The *Anabaptiſts*, to the Number of forty thouſand, ravaged all the Places wherever they came. *John* of *Leiden*, who headed 'em, declar'd himſelf their King; and never ſtirr'd out or appear'd in publick, without a large Retinue of principal Officers: Two young Men always rode immediately after him, the one bearing in his Hand a Crown, and the other a naked Sword.—Their Pretence was to eſtabliſh the new Reign of Jeſus Chriſt on Earth, by force of Arms; condemning all uſe of Arms for other Purpoſes.

Calvin wrote a Treatiſe againſt the *Anabaptiſts*, ſtill extant in his *Opuſcula*.—What they chiefly ſupported their great Doctrine on, was thoſe Words of our Saviour, *He that believes and is baptized, ſhall be ſaved*, Matt. C. XVI. v. 16. As none but Adults are capable of believing, they argued, that no others were capable of Baptiſm: Eſpecially as there is no Paſſage in all the New Teſtament, where the Baptiſm of Infants is clearly enjoined. *Calvin*, and other Writers againſt 'em, are pretty much embarraſs'd to anſwer this Argument; and are obliged to have recourſe to Tradition, and the Practice of the Primitive Church. In this Point they have apparently the Advantage over 'em; mention being made of Infant-Baptiſm by *Origen*; the Author of the Queſtions attributed to *Juſtin*; a Council held in *Africa*, ſpoke of by St. *Cyprian*, where the Baptiſm of Infants immediately after they were born, was expreſly enjoin'd; and ſeveral other Councils, of *Autun*, of *Maſon*, of *Giron*, of *London*, of *Vienna*, &c. beſide other Fathers, as *Ireneus*, *Jerom*, *Ambroſe*, *Auguſtin*, &c.

It muſt be added, that very conſiderable Arguments may be drawn againſt the *Anabaptiſts* even from Scripture: Children, we are told, are capable of the Kingdom of Heaven: *Mark* X. 14; *Luke* XVIII. 16; and our Saviour made ſuch be brought near him, and bleſs'd 'em. Yet, He aſſures us in St. *John* III. 5. that unleſs a Man be baptized he cannot enter the Kingdom of God. Whence it follows, that Children, inaſmuch as they are capable of entering into Heaven, are alſo capable of being baptized.—The *Anabaptiſts* anſwer, that thoſe here ſpoke of by our Saviour, were grown big, ſince they could come to him; and conſequently were capable of an Act of Faith: But this is contrary to the expreſs Terms of Scripture, which in St. *Matthew* and St. *Mark*, calls 'em παιδία; and in St. *Luke*, βρέφη, *little Children*: The ſame St. *Luke* writes, that they were *brought* to Jeſus; which is a Preſumption that they were not yet able to walk.

Another Argument much inſiſted on, is drawn from theſe Words of St. *Paul* to the *Romans*, C. V. "If by one Man's "Offence Death reign'd; much more they who re-"ceive abundance of Grace and of the Gift of Righteouſ-"neſs, ſhall reign in Life by one, Jeſus Chriſt." For, if all become criminal by one; then are Children criminal: Conſequently, if all are juſtified by one, then are Children juſtified: But this cannot be without Faith. And conſequently Children may have the Faith required for the receiving of Baptiſm, *i. e.* an Actual Faith, preceding the Sacrament, as a Diſpoſition requiſite thereto. This Faith they have, not of themſelves; but by others, *viz.* their Parents, or their Godfathers and Godmothers, who anſwer for 'em. Nor is there any thing in the whole Diſpenſation, but what is very equitable: It being but juſt, that as they had ſinned in the Will of another, they might alſo be juſtified by the Will of another.

The *Anabaptists* adopted several other Dogmata from the *Gnosticks*, &c. touching the Incarnation, &c. But those who now retain the Name, have abandoned the greatest Part thereof; and in lieu of the Fanatick Zeal of the antient Founders of the Sect, have given into an Exemplary Simplicity in their Actions, Discipline, Dress, &c. not much unlike the modern Quakers. See QUAKERS.

As they multiplied, they divided into a great number of Sects; which took particular Denominations, either from the Leaders thereof, or the peculiar Opinions, which they superadded to the general System of *Anabaptism*.—The principal were the *Munzerians*, *Catharists*, *Enthusiasts*, *Silentes*, *Adamites*, *Georgians*, *Independants*, *Hutites*, *Melchiorites*, *Nudipedalians*, *Mennonites*, *Bulcholdians*, *Augustinians*, *Servetians*, *Monasterians*, *Libertins*, *Deoreliotians*, *Semperorantes*, *Polygamites*, *Ambrosians*, *Clancularians*, *Manifestarians*, *Bacularians*, *Pacificators*, *Pastoricides*, *Sanguinarii*, &c.

ANABASII, in Antiquity, the Couriers who travel'd on Horseback, or in Chariots. See COURIER, and POST.

The Word comes from the *Greek* αναβασις, *adscensus*, mounting.

ANABIBAZON, in Astronomy, the *Dragon's Head*; or the Northern Node of the Moon, where she passes the Ecliptick from South to North Latitude. See DRAGON, and NODE.

ANABROSIS, in Medicine, the issuing of Blood at a Hole wore in a Vein by Corrosion.——The Word is *Greek*, ἀνάβρωσις, *erosio*.

ANACALYTERIA, in Antiquity, Feasts celebrated among the Heathens, on the Day that the Bride was permitted to lay aside her Veil, and to be seen in publick. See FEAST, MARRIAGE, &c.

They were thus called from the *Greek* ἀνακαλύπτειν, *to discover*, *uncover*.

ANACAMPTICK, signifies as much as *Reflecting*; and is frequently used in reference to Echoes, which are said to be Sounds produced *anacamptically*, or by Reflexion. See REFLECTION, SOUND, and ECHO.

Hence also *Anacampticks* is by some used for *Catoptricks*, See CATOPTRICKS, PHONICKS, &c.

ANACATHARTIC, is understood of a purging Medicine, that works upwards. See PURGATIVE.

The Word comes from ἀνα, *supra*, upwards; and καθαιρω, *purgo*, I purge.

ANACEPHALEOSIS, in Rhetorick, a Recapitulation; or a short and summary Repetition of what has been said. See RECAPITULATION.

The Word comes from the *Greek* ἀνα, which in Composition signifies *Repetition*, and κεφαλη, *Head*.

ANACHORET, or ANCHORET. See ANCHORET.

ANACHRONISM, in Matters of Chronology, an Error in Computation of Time; whereby an Event is placed earlier than it really happen'd. See TIME, and CHRONOLOGY.

Such is that of *Virgil*, who places *Dido* in *Africa* at the Time of *Æneas*; tho, in reality, she did not come there till 300 Years after the taking of *Troy*.—An Error on the other side, whereby a Fact is placed later, and lower than it should be, is call'd a *Parachronism*. See PARACHRONISM.

The Word is compounded of the *Greek* ἀνα, *sursum*, *supra*, *retrorsum*, higher, backwards; and χρόνος, *tempus*, Time.

ANACLATICKS, that Part of Opticks which considers refracted Light. See REFRACTION.

Anaclaticks are the same with what we more usually call *Dioptricks*. See DIOPTRICKS.

ANACLETERIA, in Antiquity, Feasts celebrated in honour of Kings and Princes, when they took upon them the Administration of their State, and made a Solemn Declaration thereof to the People.

The Word is form'd of ανα, and καλέω, *voco*, I call.

ANACREONTIC, in the *Greek* and *Latin* Poetry, something invented by *Anacreon*; or in the Manner and Taste of *Anacreon*.

Anacreon, a Poet of *Teios*, who lived upwards of 400 Years before Christ, was famous for the Delicacy of his Wit; and the exquisite, yet easy and natural, turn of his Poesy.—We have several of his Odes still extant; and few of the modern Poets, but have *Anacreonticks* in Imitation hereof.

They are most of 'em composed in Verses of seven Syllables; or rather, of three Feet and an half, Spondees and Iambus's, tho sometimes Anapests.—Hence, Verses in that Measure are usually called *Anacreonticks*, or *Anacreontic Verses*. See VERSE.

ANADIPLOSIS, in Rhetorick, a Figure, in which one Verse begins with the same Word wherewith the former ended. See FIGURE.

The Word is sometimes also used in Physick, for a Reduplication of the Fits, or Paroxysms of Fevers: in which Sense, some Writers also call it *Epanadiplosis*.

ANAGLYPHICE, or the ANAGLYPHIC *Art*, signifies *Sculpture*; or the Art of Carving, Engraving, Chasing, and Embossing. See SCULPTOR, CARVING, ENGRAVING, ENCHASING, &c.

The Word comes from the *Greek* ἀναγλυφω, *exsculpo*.

ANAGOGICAL, *Mysterious*, something that raises the Mind to Things eternal and divine; the Matters of the next Life. See ANAGOGY.

This Term is principally used with regard to the different Senses of the Scripture.—The literal Sense is the first, and the natural Sense: The mystical Sense is founded on the natural Sense, from whence it is taken by Analogy or Comparison, by Similitude or Resemblance of one thing to another; and is divided into several kinds. See MYSTICAL.

Where it regards the Church, and Matters of Religion, it is called the *Allegorical* Sense. See ALLEGORICAL.

Where it regards our Morals, it is called the *Tropological* Sense. See TROPOLOGICAL.

And where it regards Eternity, or the Life to come, it is called the *Anagogical* Sense. See SENSE.

The Word is derived from the *Greek* ἀναγωγη, *carrying away*, *overturning*; which is form'd of the Preposition ανα, *sursum*, upwards, and αγωγη, *leading*; of αγω, *duco*.

ANAGOGY, ANAGOGE, a Rapture, or Elevation of the Soul, to things Celestial, and Eternal. See EXTASY, &c.

This is not the natural Sense of such a Passage of Scripture, it is an *Anagogy*. See MYSTIC.

We have Comments on the Scripture, which are *Anagogies* throughout. See ANACOGICAL.

ANAGRAM, ANAGRAMMA, a Transposal of the Letters of a Name; or a Combination thereof in some new manner, so as to exhibit one or more Words, either to the Advantage or Disadvantage of the Person to whom it belongs. See NAME.

The Word is form'd from the *Greek* ἀναγραφω, *I write backwards*.

Thus, the *Anagram* of *Galenus* is *Angelus*; that of Logica, *Caligo*; that of *Lorraine*, is *Alerion*; on which account it was, that the Family of *Lorrain* took *Alerions* for their Armoury.—*Calvin*, in the Title of his Institutions, printed at *Strasburg* in 1539, calls himself *Alcuinus*, which is the *Anagram* of *Calvinus*, and the Name of an eminently learned Person in the Time of *Charlemaign*, who contributed greatly to the Restauration of Learning in that Age. *Barclay*, in his *Argenis*, anagrammatizes *Calvinus* by a less creditable Name, *Ufinulca*: and *Rabelais*, to be revenged of the same *Calvin*, who had made an *Anagram* of his Name, found in that of *Calvin*, *Jan Cul*.

Such as keep close to the Definition of *Anagram*, take the Liberty to omit or retain the Letter *H*, and that Letter only; but such as stand up for the poetical Licence, make bold sometimes to use *E* for *Æ*, *V* for *W*, *S* for Z, and *C* for *K*; and *vice versa*. See ALPHABET.

This way of writing was scarce known among the Antients: *Dausat*, a *French* Poet in the Reign of *Charles* IX. is usually said to be the first that broach'd it: Yet *Lycophron*, who wrote under *Ptolemy Philadelphus*, about 280 Years before Christ, appears to have been no Stranger to the Art of making *Anagrams*. *Canterus*, in his *Prologomena* to *Lycophron*, gives us two of his Pieces in this Kind; the first on the Name of King *Ptolemy*, Πτολεμαιος, in which he found απὸ μέλιτος, *of Honey*; to insinuate the Sweetness and Mildness of that Prince: The second was on Queen *Arsinoe*, Ἀρσινόη, of whom he made Ἰον Ηερς, *Juno's Violet*.

The Cabbalists among the *Jews* are professd'd *Anagrammists*; the third Part of their Art, which they call *Mura*, *i. e.* changing, being nothing but the Art of making *Anagrams*, or of finding hidden and mystical Meanings in Names: which they do by changiog, transposing, and differently combining the Letters of those Names.—Thus, of נח the Letters of *Noah's* Name, they make חן *Grace*: of משיח *the Messiah*, they make ישמח *he shall rejoice*.

There are two manners of making *Anagrams*; for, 1°, some only consist in dividing a single Word into several: Thus the Ænigma of the God *Terminus*, mention'd by *Aulus Gellius*, Lib. XII. c. 6. is founded on the *Anagram* TER MINUS: and thus *Sustineamus* yields *sus tinea mus*.—This Kind alone seems to have been used among the *Romans*.

The second, is where the Order and Situation of the Letters is changed: Such are those abovementionn'd; and also these, *Roma*, *Maro*, *Amor*; *Julius*, *Livius*; *Corpus*, *Porcus*, *Procus*, *Spurco*.

To find all the ANAGRAMS *any Name will admit of, algebraically*, see the Article COMBINATION.

The finest and happiest of all the *Anagrams* extant, is that on the Question put by *Pilate* to Jesus Christ; *Quid est veritas?* which *anagrammatically* make, *Est vir qui adest*: The *Anagram*, here, is the best, and justest Answer that could possibly be given.

Besides,

Besides the antient kind of *Anagram*, there have been new ones invented; as, the *Mathematical Anagram*, invented in 1680; by which the Abbot *Catelan* found, that the eight Letters of the Name of *Lewis* XIV. made *Vrai Heros*, i. e. *true Hero*.

We are now likewise furnish'd with the *Numerical Anagram*; where the numeral Letters (*i. e.* such as in the *Roman* cyphering stood for Numbers) taken together, according to their numerical Values, express some Epocha: Of which kind is that Distich of *Godart* on the Birth of the late *French* King, in the Year 1638, on a Day wherein there was a Conjunction of the Eagle with the Lion's Heart:

eXorIens DeLphIn aqVILæ CorDIsqVe LeonIs
CongresseV gaLLos spe LætItIaqVe refeCIt.

ANALECTA, a *Greek* Term, signifying *Collection*; form'd of ἀναλέγω, *I gather*.

ANALEMMA, a *Planisphere*; or Projection of the Sphere, on the Plane of the Meridian, orthographically made, by strait Lines and Ellipses; the Eye being supposed to be at an infinite Distance, and in the East or West Points of the Horizon. See PLANISPHERE, PROJECTION, and SPHERE.

ANALEMMA, is also used for an Astrolabe; or kind of Instrument, consisting of the Furniture of the same Projection, drawn on a Plate of Brass or Wood; with an Horizon or Cursor fitted to it. See ASTROLABE.

Its use is for finding the Time of the Sun's rising and setting, the Length of the longest Day in any Latitude, and the Hour of the Day.

The *Analemma* is also of considerable use among Dialists, for laying down the Signs of the Zodiack, with the Length of Days, and other Matters of Furniture, upon Dials. See DIAL, and FURNITURE.

The Word is derived from the *Greek* ἀνάλημμα, of ἀναλαμβάνω, *resumo*.

ANALEPTICKS, in Medicine, *Restoratives*; or Remedies proper to restore the Body, when wasted or emaciated, either by the Continuance of a Disease, or the Want of Food. See RESTORATIVE.

The Word is *Greek*, Ἀναληπτικὸς, derived of Ἀναλαμβάνω, *I re-establish, restore*.

ANALOGY, a certain Relation, Proportion, or Agreement, which several Things, in other respects different, bear to each other.—Such is that between the Bull in the Heavens, and the Animal so called on Earth.

The Word is *Greek*, Ἀναλογία; which the *Latins* usually render by *Comparatio*, and *Proportionalitas*: And hence, among Geometricians, *Analogy* is frequently used for a Similitude of Ratio's; called also *Proportion*. See PROPORTION.

Reasonings by *Analogy* may serve to explain and illustrate, but not to prove any thing; yet is a great deal of our philosophizing no better founded. See SIMILITUDE, PHILOSOPHIZING, &c.

In Matters of Language, we say, New Words are form'd by *Analogy*, *i. e.* new Names are given to new Things, conformably to the establish'd Names of other Things of the like Nature and Kind. See LANGUAGE, and WORD.—— The Difficulties and Obscurities in a Language, are chiefly to be clear'd up by *Analogy*. See ETYMOLOGY.

The Schoolmen define *Analogy* to be a Resemblance, join'd with some Diversity: Its Foundation, according to them, is laid in the Proportion of several Things, consider'd as that Proportion proceeds upon different Considerations. See PROPORTION.

Thus, a *sound* Animal, a *sound* Food, and a *sound* Proposition, agreeing in this, that they have a common Denomination, but the Reason or Quality whereon the Denomination is founded, different; are said to have an *Analogy*, or to be *analogous*.

Accordingly, *Analogous* Things are defined to be such as have a common Name, but the Thing immediately signified by that common Name, different; yet with some Correspondence or Relation discernible therein. See GENERAL *Term*.

Philosophers usually distinguish three Kinds of *Analogy*, *viz.*—of *Inequality*, where the Reason of the common Denomination is the same in Nature, but not in Degree or Order: In which Sense, *Animal* is *analogous* to Man, and Brute.——Of *Attribution*; where, tho the Reason of the common Name be the same, there is a difference in its habitude or respect thereto: In which Sense, *Healthy* is *analogous* both to a Man, and an Exercise.——Of *Proportionality*; where, tho the Reasons of the common Name do really differ, yet they bear some proportion to each other: In this Sense, the Gills of Fishes are said to be *analogous* to the Lungs in terrestrial Animals: and thus, the *Eye* and the *Understanding* are said to bear an *Analogy* to each other.

ANALOGISM, ANALOGISMUS, in Logick, an Argument from the Cause to the Effect. See CAUSE, &c.

ANALYSIS, in Logick, a Method of applying the Rules of Reasoning, to resolve a Discourse into its Principles; in order to a Discovery of its Truth, or Falshood. See PRINCIPLE.

Or, *Analysis* is an Examination of some Discourse, Proposition, or other Matter, by searching into its Principles, and separating and opening its Parts; in order to consider them more distinctly, and arrive at a more precise Knowledge of the Whole. See DISCOURSE, PROPOSITION, REDUCTION, &c.

The Word is *Greek*, ἀνάλυσις, which literally signifies, *Resolution*; form'd of ἀνὰ, and λυω, *solvo*, *resolvo*, I loosen, I resolve.

Analysis makes one great Branch or Species of Method; called also *Resolution*. See METHOD, and RESOLUTION.

ANALYSIS, in Mathematicks, a Method of solving, or resolving Mathematical Problems. See PROBLEM.

There are two general Methods of finding Truth in Mathematicks; Synthesis, and *Analysis*.—*Analysis* is the Demonstration, or Consideration of the Consequences drawn from any Proposition; in which a Man proceeds, till he comes to some known Truth, by means whereof, he may be able to give a Solution of the Problem. See RESOLUTION.

The Method of *Analysis* consists more in the Judgment and readiness of Apprehension, than in any particular Rules, where pure Geometry is made use of, as it was among the Antients; but at present Algebra is principally used on this Occasion, which furnishes certain Rules to perform or arrive at the End proposed. See ANALYTIC.

This Method, under its present Improvements, must be allowed the Apex or Height of all human Learning; being the great Instrument or means whereby so many surprizing Discoveries have been of late Years made, both in Mathematicks, and Philosophy. It furnishes the most perfect Instances, and Examples of the Art of Reasoning; gives the Mind a surprizing Readiness at deducing and discovering Things unknown, from a few *Data*; and by using Signs for Ideas, presents Things to the Imagination, which otherwise seem'd out of its Sphere. By this, Geometrical Demonstrations may be wonderfully abridg'd; and a long Series of Argumentations, wherein the Mind cannot without the utmost Effort and Attention discover the Connection of Ideas, are hereby converted into sensible Signs, and the several Operations requir'd therein, effected by the Combination of those Signs. But what is yet more extraordinary, by means of this Art, a Number of Truths are frequently express'd by a single Line, which in the common way of explaining and demonstrating Things, would fill whole Volumes: Thus, by mere Contemplation of one single Line, whole Sciences may sometimes be learnt in a few Minutes time; which otherwise could scarce be attain'd in many Years. See MATHEMATICKS, KNOWLEDGE, THEOREM, &c.

Analysis, is divided, with regard to its Object, into that of *Finites*, and that of *Infinites*.

ANALYSIS *of finite Quantities*, is what we otherwise call *Specious Arithmetick*, or *Algebra*. See ALGEBRA, and *Specious* ARITHMETICK.

ANALYSIS *of Infinites*, called also the *New* ANALYSIS, is particularly used for the *Method of Fluxions*, or *Differential Calculus*. See FLUXIONS, and CALCULUS.—See also INFINITE.

ANALYSIS, is also used in Chymistry, for the decompounding of a mixt Body; or the Reduction thereof into its Principles. See PRINCIPLE, REDUCTION, DECOMPOSITION, BODY, &c.

To *analyze* Bodies, or resolve 'em into their component Parts, is the chief Object of the Art of Chymistry. See CHYMISTRY.

The *Analysis* of Bodies is chiefly effected by means of Fire. See FIRE.

All Bodies, by a Chymical *Analysis*, resolve into Water, Earth, Salt, Sulphur, and Mercury; tho every Body does not afford all these Parts, but some more, some less, according to the Kingdom they belong to. See ELEMENT.—See also WATER, EARTH, SALT, &c.

The *Analysis* of Vegetables is easy; that of Fossils, particularly Metals and Semi-metals, difficult. See VEGETABLE, FOSSIL, METAL, &c.

Some Bodies of the Fossil Tribe consist of Particles so very minute, and so firmly united, that the Corpuscles thereof need less heat to carry them off, than to separate 'em into their Principles: So that the *Analysis* is impracticable in such Bodies.—Hence the difficulty of *analysing* Sulphur. See SULPHUR.

The Anatomical Dissection of an Animal, is a kind of *Analysis*. See ANATOMY, and DISSECTION.

ANALYSIS is also used for a kind of Syllabus, or Table of the principal Heads, or Articles of a continued Discourse; disposed in their natural Order, and Dependency.—*Analyses* are more scientifical than Alphabetical Indexes; but are less used, as being more intricate.

ANALYTIC, Analytical, something that belongs to, or partakes of the Nature of *Analysis*. See Analysis.

Thus, we say, an *Analytical* Demonstration; *Analytical* Enquiry; *Analytical* Table, or Scheme; *Analytic* Method, *&c.* See Method.

The *Analytic* Method stands opposed to the *Synthetic*.—'As in Mathematicks, *says Sir* I. Newton, so in Natural 'Philosophy, the Investigation of difficult Things by the 'Analytic Method, ought to precede the Method of Com'position. This *Analysis* consists in making Experiments, 'and Observations, and in drawing general Conclusions 'therefrom by Induction, and admitting of no Objections 'against the Conclusions, but such as are drawn from Expe'riments and other certain Truths. And tho the arguing 'from Experiments and Observations by Induction, be no 'Demonstration of general Conclusions; yet it is the best 'way of arguing which the Nature of the Things admits of; 'and may be esteem'd so much the stronger, as the Induc'tion is more general. And if no Exception occur from 'Phænomena, the Conclusion may be pronounced generally. 'By this way of *Analysis*, we may proceed from Compounds 'to Ingredients; and from Motions to the Forces producing 'them; and in general, from Effects to their Causes, and 'from particular Causes to more geocral ones, till the Argu'ment end in the most general.——This is the *Analytic* 'Method.

'The Synthetic consists in assuming the Causes discovered, 'and established as Principles; and by them explaining the 'Phænomena proceeding from them, and proving the Ex'planations.' See Synthesis.

ANALYTICS, Analytica, the Doctrine, and Use of *Analyses*. See Analysis.

The great Advantage of the present Mathematicks above the antient, is chiefly in Point of *Analyticks*.

The Authors on the antient *Analyticks*, are enumerated by *Pappus*, in the Preface to his 7th Book of Mathematical Collections; being, *Euclid*, in his *Data*, and *Porismata*; *Apollonius*, *de Sectione Rationis*; *Apollonius*, in his *Conicks*, *Inclinations*, and *Tactions*; *Aristæus*, *de Locis Solidis*, and *Eratosthenes*, *de mediis proportionalibus*. But the antient *Analyticks* were very different from the modern.

To the modern *Analyticks*, principally, belong Algebra; the History of which, with the several Authors thereon, see under the Article Algebra.

The chief Writers upon the *Analysis* of Infinites, are its Inventors, Sir *Isaac Newton*, in his *Analysis per Quantitatum Series, Fluxiones & Differentias, cum enumeratione Linearum* 3ii *ordinis*; and *de Quadratura Curvarum*: and M. *Leibnitz*, in *Act. Eruditor.* An. 1684: The Marquis *de l'Hopital*, in his *Analyse des Infiniment petites*, 1696: *Carre*, in his *Methode pour la mesure des Surfaces, la dimension des Solides*, &c. *par l' application du calcul integral*, 1700: *G. Manfredius*, in a posthumous Piece, *de Constructione Equationum differentialium primi gradus*, 1707: *Nich. Mercator*, in *Logarithmotechnia*, 1668; *Cheyne*, in *Methodo Fluxionum inversa*, 1703; *Craig*, in *Methodo figurarum lineis rectis & curvis comprehensarum Quadraturas determinandi*, 1685; and *de Quadraturis figurarum curvilinearum & locis*, &c. 1693: *Dav. Gregory*, in *Exercitatione Geometrica de dimensione figurarum*, 1684; and *Nieuentiit*, in *Considerationibus circa Analyseos ad quantitates infinitè parvas applicatæ, principia*, 1695.——The Sum of what is found in *l'Hopital*, *Carre*, *Cheyne*, *Gregory*, and *Craig*; is collected into one Volume, and very well explain'd by *C. Hayes*, under the Title of, *A Treatise of Fluxions*, &c. 1704.

Analytick, in Logick, is a Part of that Science, teaching to decline and construe Reason, as Grammar doth Words.

ANAMORPHOSIS, in Perspective and Painting, *a monstrous Projection*; or a Representation of some Image, either on a plane or curve Surface, deformed; which at a certain distance shall appear regular, and in proportion. See Projection.

The Word is *Greek*; compounded of ανα, and μορφωσις, *formatio*, of μορφη, *form*.

To make an *Anamorphosis*, or monstrous Projection on a Plane.——Draw the Square ABCD, (Tab. *Perspective*, Fig. 18.) of a bigness at pleasure, and subdivide it into a Number of Areolas, or lesser Squares.—In this Square, or Reticle, called the *Craticular Prototype*, let the Image to be distorted be drawn.—Then draw the Line ab=AB; and divide it into the same Number of equal Parts, as the Side of the Prototype AB; and in E, the middle thereof, erect the Perpendicular EV, so much the longer; and draw VS perpendicular to EV, so much the shorter, as the Image is desir'd to be distorted. From each Point of Division draw right Lines to V, and join the Points a and S; as also the right Line aS. Thro' the Points d e f g, draw Lines parallel to ab; then will $abcd$ be the Space that the Monstrous Projection is to be delineated in; called the *Craticular Ectype*.

Lastly, in every Areola, or small Trapezium of the Space $abcd$, draw what appears delineated in the correspondent Areola of the Square ABCD: by this means you will obtain a deformed Image, which yet will appear in just Proportion to an Eye distant from it the length FV, and raised above its height, VS. See Designing.

It will be diverting to manage it so, that the deformed Image do not represent a mere Chaos; but some other Image: Thus, we have seen a River with Soldiers, Waggons, *&c.* marching along the side of it; so drawn, that when viewed by an Eye in the Point S, it appears to be the satyrical Face of a Man.

An Image also may be distorted mechanically, by perforating it here and there with a Needle, and placing it against a Candle, or Lamp; and observing where the Rays which pass thro' these little Holes fall on a plane, or curve Superficies; for they will give the correspondent Points of the Image deformed: by means whereof, the Deformation may be compleated.

To draw the Anamorphosis, *or Deformation of an Image upon the convex Surface of a Cone.*

It is manifest from the former Case, that all here required, is to make a Craticular Ectype on the Superficies of the Cone, which shall appear to an Eye duly placed over its Vertex, equal to the Craticular Prototype.

Let the Base ABCD, therefore, of the Cone, (Fig. 19.) be divided by Diameters into any Number of equal Parts, that is, the Periphery thereof: And let some one Radius be likewise divided into equal Parts, and thro' each Point of Division draw concentrick Circles: thus will the Craticular Prototype be made.——With double the Diameter AB, as a Radius, describe the Quadrant EFG, (Fig. 20.) so as the Arch EG be equal to the whole Periphery: then this Quadrant folded duly up, will form the Superficies of a Cone, whose Base is the Circle ABCD.—Divide the Arch AB into the same Number of equal Parts as the Craticular Prototype is divided into, and draw Radii from each of the Points of Division. Produce GF to I, so that FI=FG, and from the Centre I, with the Radius IF, draw the Quadrant FKH, and from I to E draw the right Line IE. Divide the Arch KF into the same Number of equal Parts, as the Radius of the Craticular Prototype is divided into; and draw Radii thro' each of the Points of Division, from the Centre I meeting EF, in 1, 2, 3, *&c.* Lastly, from the Centre F, with the Radii, F1, F2, F3, *&c.* describe the concentrick Arches.—Thus will the Craticular Ectype be form'd, each Areola whereof will appear equal to other.

Hence, what is delineated in every Areola of the Craticular Prototype; being transferred into the Areolas of the Craticular Ectype: the Image will be distorted or deformed: yet an Eye being duly raised over the Vertex of the Cone, will perceive it in just proportion.

If the Chords of the Quadrants be drawn in the Craticular Prototype, and Chords of their fourth Part in the Craticular Ectype, all things else remaining the same; you will have the Craticular Ectype on a quadrangular Pyramid.

And hence it will be easy to deform any Image, in any other Pyramid, whose Base is any regular Polygon.

Because the Eye will be more deceived, if from contiguous Objects it cannot judge of the distance of the Parts of the deformed Image; therefore, these kinds of deformed Images are to be view'd thro' a small Hole.

ANANAS, in Natural History, by some called *Nanas*, by others *Jayama*, and by us popularly the *Pine-Apple* on account of the resemblance it bears to the Cones of Pines or Firs; is a fine *Indian* Fruit, which grows on a Plant like the Fig-tree, and of the Size of an Artichoke.

The Fruit is adorned on the Top with a little Crown, and a bunch of red Leaves resembling Fire. The Flesh is fibrous, but dissolves in the Mouth; having the delicious Taste of the Peach, the Quince, and the Muscadine Grape, all together.—M. *du Tertre* describes three Kinds of *Ananas*. They make a Wine from the Juice, which is almost equal to *Malmsey* Sack, and will intoxicate as soon.

It is good to strengthen the Heart and Nerves, against nauseating, to refresh the Spirits, and excites Urine powerfully; but is apt to occasion Abortion in Women.—They make a Confection of the *Ananas* on the Spot, which they bring hither whole; and is found of good service to restore a decay'd, or aged Constitution.

The *Anana*, or *West-India* Pine-Apple, is generally allow'd, both for its rich and delicious Flavour, and its beautiful Colour, for the King of Fruits.——Great Endeavours have of late been used to cultivate the Plant in *Europe*; in which they have succeeded, and there are now produced delicious Fruits of this kind, in some of the fine Gardens in *England*.—They are usually about the Size of a Tennis-Ball.

ANAPEST, Anapestus, a Foot in the *Greek* and *Latin* Poetry, consisting of two short, and one long Syllable. See Foot.

Such


OSTEOLOGY, or the Bones.
ANGEIOLOGY, or the Vessels of the 18.
Interior of the Body.
SPLANCNOLOGY, or the Viscera.
The Abdomen opened to show its Viscera.
Lungs of the Body.
Pulmonary Arteries & Veins of Coleman.
Exterior Muscles of the Fore Parts of the Body.
Interior Muscles of the Body, appearing after the Former are taken off.
MYOLOGY, or the Muscles.
Exterior Muscles of the Back Parts of the Body.
Interior Muscles after the Former

Such is the Word *Legerent*.

The Word is derived from ἀναπαίω, *contra ferire*; this Verse being the Reverse of the Dactyl. See DACTYL.

Anapestick Verses, *i. e.* Verses wholly composed of such Feet, were much in vogue among the Antients.

ANAPHORA, in Rhetorick, a Figure whereby the same Sound is repeated in the Beginning of several Sentences, or Verses. See FIGURE.

The Word is *Greek*, ἀναφορὰ, signifying *Relation*, or *Repetition*.

ANAPLEROTICKS, in Medicine, such Remedies as incarnate, and fill up Ulcers and Wounds with new Flesh. See WOUND, and ULCER.

Anapleroticks are the same with what we otherwise call *Incarnatives*. See INCARNATIVE.

The Word comes from the *Greek* ἀναπληροῦν, *to fill up*.

ANARCHY, the want of Government in a Nation, where no supreme Authority is lodged, either in the Prince or other Rulers; but the People live at large, and all things are in confusion. See GOVERNMENT.

The Word is derived from the *Greek* Privative α, and ἀρχὴ, *Command, Principality*.

ANASARCA, in Medicine, a sort of universal Dropsy, wherein the whole Substance of the Body is stuffed, or bloated with pituitous Humours. See DROPSY.

The *Anasarca* is otherwise called *Leucophlegmatia*. See LEUCOPHLEGMATIA.

The Word is form'd of the *Greek* ἀνασαρκα.—The *Anasarca* is a further degree of a *Cachexia*. See CACHEXY.

In an *Anasarca*, the Legs swell at the beginning, especially towards Night, and then pit remarkably: The Urine is pale, the Appetite decays; at length the Swelling rises higher, and appears in the Thighs, Belly, Breast, Arms. The Face becomes pale and cadaverous; the Flesh soft and lax; a difficulty in Respiration comes on, attended with a slow Fever, &c.

ANASTOMASIS, or ANASTOMOSIS, in Anatomy, is sometimes used to express such an Aperture of the Mouths of the Vessels, as lets out their Contents. See VESSEL, &c.

The Word is form'd of the *Greek* ἀνα, *per*, thro', and στομα, *Os*, Mouth.

ANASTOMASIS is more frequently used to denote the opening of two Vessels into one another; or the Union and Juncture of the Mouths of two Vessels, whereby they come to communicate with one another.

There are various *Anastomases* of this kind, *e. g.* of an Artery with an Artery, a Vein with a Vein, or a Vein with an Artery. See ARTERY, and VEIN.

The Circulation of the Blood in the Fœtus is effected by means of the *Anastomases*, or Inosculations of the Vena Cava with the Pulmonary Vein; and of the Pulmonary Artery with the Aorta. See FOETUS.

The same Circulation is also perform'd in Adults, by the *Anastomases* or Continuations of the Capillary Arteries with the Veins. See CIRCULATION *of the Blood*.

After the Circulation of the Blood thro' the Heart, Lungs, and large Blood-Vessels, was demonstrated by *Harvey*; it was only guess'd how the Extremities of the Arteries transmitted the Blood to the Veins: till *Leewenhoeck*'s Microscopes had discover'd the Continuations of the Extremities of those Vessels, in Fish, Frogs, &c.—However, there were not wanting those who doubted of the like Continuations of the Extremities of the Arteries and Veins in human Bodies and Quadrupeds; since those Animals it had hitherto been chiefly seen in satisfactorily, were either such Fish, or amphibious Kinds, as have but one Ventricle in their Hearts, and their Blood actually cold; beside that their Blood does not circulate with such Rapidity, as in Animals whose Hearts have two Ventricles. This difference in the principal Organs of Circulation, moved Mr. *Cowper* to make Experiments on Animals, whose Organs differ only from the Human in their gross Figure, and not in their intimate Structure.—The Result was a plain Discovery of the like Inosculations of the Arteries and Veins, in the Omentum of a Cat.

George Frederick Francus, of *Frankenau*, a Physician of *Copenhagen*, published, in the Year 1705, a learned and copious Work, intitled, *Anastomasis Retecta*.

ANASTOMATICS, or ANASTOMATIC *Medicines*, are such as have the Faculty of opening, and dilating the Orifices of the Vessels; and by that means of making the Blood circulate the more freely.

The Word comes from the *Greek* Ἀνασομόω, *I open, unstop*.

ANATHEMA, an Excommunication, attended with Execrations and Curses. See EXCOMMUNICATION.

There are two Kinds of *Anathema's*; the one *Judiciary*, the other *Abjuratory*.

The former can only be pronounced by a Council, a Pope, Bishop, or other qualified Person; and differs from a simple Excommunication in this, that an Excommunication only prohibits the Criminal from entering within the Church, or from holding Communion with the Faithful; whereas an *Anathema* cuts him off from the Body, the Society, and even the Commerce of the Faithful, and delivers him over to the Devil.

The latter kind of *Anathema* usually makes a Part of the Ceremony of Abjuration; the Convert being obliged to *anathematize* the Heresy he abjures. See ABJURATION.

Most *Greek* Writers distinguish *Anathema*, written with a long *e*, Ἀνάθημα; from *Anathema* with a short *e*, Ἀνάθεμα: Yet *Beza* rejects the Difference.—*Pollux*, in his Lexicon, observes that the Word properly signifies, *Gifts dedicated to the Gods*: This Interpretation is confirm'd by *Hesychius*, who explains *Anathema* by *Ornaments*; these Gifts being hung up as Ornaments in the Temples.

The Criticks and Commentators are divided about the manner wherein St. *Paul* wishes to be *Anathema* for his Brethren, *Romans*, Cap. IX. 3. Some render it by *accursed for*, others by *separated from*, &c.

ANATOCISM, ANATOCISMUS, an Usurious Contract, wherein the Interests arising from the principal Sum, are added to the Principal it self, and Interest exacted upon the Whole.

Anatocism is what we popularly call *Interest upon Interest*, or *Compound Interest*. See INTEREST.

This is the worst Kind of Usury, and has been severely condemn'd by the *Roman* Law, as well as the Common Laws of most other Countries. See USURY.

The Word is originally *Greek*, but is used by *Cicero* in *Latin*; whence it has descended into most other Languages. It comes from the Preposition ἀνα, which in Composition signifies *Repetition* or *Duplication*, and τοκος, *Usury*.

ANATOMY, the Art of dissecting, or artificially taking to pieces, the solid Parts of Animal Bodies; in order to an exact Discovery of their Structure and Oeconomy. See ANIMAL, BODY, DISSECTION, and OECONOMY.

Anatomy makes a great Branch of that Division of Medicine called *Physiology*. See MEDICINE, and PHYSIOLOGY.

It is sometimes divided, with regard to its End, into *Speculative* and *Practical*; a Division of very little use and moment.—It is also divided, with regard to its Subject, into *Human* and *Comparative*.

Human, which is absolutely and properly denominated *Anatomy*, is that employ'd on the human Body; called also *Anthropology*. See ANTHROPOLOGY.

Comparative Anatomy, is that which considers Brutes, and other Animals, and even Vegetables; chiefly with a View to illustrate the human Structure. See COMPARATIVE *Anatomy*.

The Subject of *Anatomy*, *viz.* the Body, is variously divided into Parts, *Organical*, and *Inorganical*; *Similar*, and *Dissimilar*; *Spermatick*, &c. See PART.—See also SIMILAR, ORGANICAL, &c.

Its more obvious Division, is into *Solids* and *Fluids*, or Containing and Contained Parts. See SOLID, and FLUID.

Under the Solids come the *Bones*, *Muscles*, *Nerves*, *Arteries*, *Veins*, *Cartilages*, *Ligaments*, *Membranes*, &c.——Under the Fluids, come *Chyle*, *Blood*, *Milk*, *Fat*, *Lymph*, &c. see each under its proper Article, BONE, MUSCLE, NERVE, ARTERY, VEIN, CARTILAGE, MEMBRANE, &c. See also CHYLE, BLOOD, MILK, FAT, &c.

The antient Writers of *Anatomy*, *Hippocrates*, *Democritus*, *Aristotle*, *Galen*, and others, look'd upon this as the most important Part of Physick, and that, without which the Uses of the Parts of an human Fabrick, and consequently the Causes of Diseases incident thereto, could no way be discovered. And yet this Art, useful as it is, was entirely discontinued for several Ages; till in the XVIth Century it began to flourish afresh.—The Dissection of an human Body was look'd upon as Sacrilege before that time; and we have seen a Consultation which the Emperor *Charles* V. appointed to be held by the Divines of *Salamanca*, in order to be satisfied, whether or no it were lawful, in point of Conscience, to dissect a dead Carcase.——We may add, that to this Day the use of Anatomy and Skeletons, is forbid in *Muscovy*; the first as inhuman, the latter as subservient to Witchcraft: And *Olearius* assures us, that one *Quirin*, a *German* Chirurgeon, being found with a Skeleton, hardly escap'd with Life; and the Skeleton, after being solemnly dragg'd about the Streets, was burnt. *Boyle's Usefulness of Philos.*

Vesalius, a *Flemish* Physician, who died in 1564, was the first who set *Anatomy* on any tolerable footing. He was seconded by *Carpus*, *Sylvius*, *Fernelius*, *Fallopius*, *Eustathius*, *Fabricius*, *Pareus*, *Bauhinus*, *Hoffman*, *Riolanus*, &c.

These were succeeded by others, to whom some of the finest Discoveries in *Anatomy* are owing.—*Aselius*, in the Year 1622, discovered the Lacteal Veins; and in 1628, the immortal *Harvey* publish'd his admirable Discovery of the Circulation of the Blood. See LACTEAL, and CIRCULATION.——*Pecquet* discovered the Reservoir of the Chyle, and the Thoracick Duct, in 1651. See RECEPTACULUM *Chyli*, and THORACICK *Duct*.——*Rudbecks*, a *Swede*, and *Bartholine*, a *Dane*, found out the Lymphatick Vessels, in 1650, and 1651. See LYMPHATICK.——*Wharton*, in 1655, disco-

discovered the lower Salival Ducts; and *Steno* the upper Salival Ducts, those of the Palate, the Nostrils, and Eyes, in 1661. See SALIVAL.——*Wirtsungus*, in 1642, discover'd the Pancreatic Ducts. See PANCREATIC.——*Willis*, who came after him, publish'd an *Anatomy* of the Brain, and Nerves, in a manner much more exact than had been done before him; yet he had omitted some considerable Things, which were afterwards observ'd by *Vieussens*. See NERVE. ——In effect, *Glisson* treated particularly of the Liver; *Wharton* of the Glands; *Havers* of the Bones; *Graaf* of the Pancreatick Juice, and the Parts of Generation; *Lower* of the Motion of the Heart; *Thurston*, of Respiration; *Peyer*, of the Glands of the Intestines; *Brown*, of the Muscles; *Drelincourt*, of the Conception of the Ova in Women, the Placenta, and the Membranes of the Fœtus. See LIVER, GLAND, BONE, GENERATION, RESPIRATION, FOETUS, &c.

Malpighi, who died in 1694, is one of those to whom *Anatomy* owes the most: He made a great Number of Discoveries in the Lungs, Brain, Liver, Spleen, Glands, and Lymphaticks, by help of the Microscope, &c. Nor must it be omitted that *Ruysch*, still living, has let great Light into many of the finer and more intricate Parts of the human Frame, particularly the Glands; by means of his Injections. See MICROSCOPE, and INJECTION.

Mauget, and *Le Clerc*, two Physicians of *Geneva*, have given us a *Bibliotheca Anatomica*; containing all the new Discoveries that have been made in this Art.

The best Systems of the Art, as it now stands, are those of *Verheyen*, *Drake*, *Keill*, &c.

ANATOMY *of Plants*. See PLANT.—See also ROOT, BRANCH, BARK, PITH, WOOD, LEAF, FLOWER, SEED, &c.—See also VEGETATION, &c.

The Word comes from the *Greek* ἀνατομὴ, *Section*, or *Cutting*; of ἀνατέμνω, *dissecto*.

ANATRON, or NATRON, a kind of native Salt-petre, or Nitre, found in *Egypt*. See NATRON, and NITRE.

ANATRON, is also a volatile Salt, skimm'd from the Composition of Glass, when in fusion. See GLASS.

When pounded, it yields a kind of Pouder; which being dissolv'd in the Air, or in a proper Liquor, becomes common Salt, after Coagulation.

Anatron is likewise the Name of a nitrous Juice, which condenses in Vaults, Arches, and other subterraneous Places. See STALACTITES.

ANATRON is also used by some Writers for a compound Salt, made of Quicklime, Alum, Vitriol, common Salt, and Nitre. See SALT.

ANBURY, a kind of Wen, or spongy Wart, growing upon any part of a Horse, or Cow, full of Blood.

ANCESTORS, Progenitors; or those from whom a Person is descended. See PROGENITOR.

The Word is deriv'd from the Latin *Ancessor*, wrote, by Contraction, for *Antecessor*, goer before.

The Law distinguishes between *Ancestor* and Predecessor; the former being applied to a Natural Person, as such an one, and his *Ancestor*; and the latter to a Body Politick or Corporate, as a Bishop, and his Predecessors.

ANCESTREL, in Law.—*Homage* ANCESTREL, signifies Homage that hath been done or performed by one's *Ancestors*. See HOMAGE.

Action ANCESTREL. See ACTION.

ANCHOR, an Instrument used at Sea, and in Rivers; to retain and fasten a Vessel by. See SHIP.

An *Anchor* is a large strong piece of Iron, crooked at one End, and form'd into two Barbs, resembling a Hook; fasten'd at the other end by a Cable. See CABLE, &c.

The Goodness of the *Anchor* is a Point of great Importance; the Safety and Conservation of the Vessel depending principally thereon.—Great Care is to be taken, that the Metal it is made of, be neither too soft, nor too brittle; the latter rendering it liable to break, and the former to straiten. See IRON.

Travellers tell us of People in the *Indies* who make use of wooden *Anchors* in their Navigation.—The Inhabitants of the Island of *Ceylon*, in lieu of *Anchors*, use huge round Stones; and in some Places, the *Anchors* are a kind of Machines of Wood, loaden with Stones.

The Word comes from the Latin *Ancora*, of the *Greek* ἄγκυρα, which comes from ἄγκυλος, *incurvus*, crooked.

The Parts of an *Anchor*, are, 1°, The *Ring*, into which the Cable is fasten'd: 2°, The *Beam*, or *Shank*, which is the longest Part of the *Anchor*: 3°, The *Arm*, which is that which runs down into the Ground: at the End of which is, 4°, The *Flouke*, or *Fluke*, by some called the *Palm*; being that broad and picked Part with its Barbs like an Arrow-head, which fastens into the Ground: 5°, The *Stock*, a piece of Wood fasten'd unto the Beam, near the Ring, serving to guide the Fluke, so that it may fall right, and fix in the Ground.

There are three Kinds of *Anchors* commonly used: the *Kedger*, the *Grapnel*, and the *Stream-Anchor*: *which see under their respective Articles.*

Aubin, in his Dictionary of Sea-Affairs, printed at *Amsterdam* in 1702, observes, that the *Anchor* of a large heavy Vessel is smaller, in proportion, than that of a lesser and lighter one. The Reason he gives, is, that tho the Sea employs an equal Force against a small Vessel as against a great one, supposing the Extent of Wood upon which the Water acts, to be equal, in both; yet the little Vessel, by reason of its superior Lightness, does not make so much resistance as the greater; the Defect whereof must be supplied by the Weight of the *Anchor*.

ANCHOR, in Architecture and Sculpture, an Ornament in form of an *Anchor*, or Arrow's-head; frequently carved on the Echinus, or Quarter-round, in the *Dorick*, *Ionic*, *Corinthian*, &c. Capitals. See CAPITAL, &c.

The *Anchors* are usually intermix'd with Representations of Eggs; whence the Echinus it self is popularly called *Eggs and Anchors*. See ECHINUS, QUARTER-*Round*, &c.

ANCHORAGE, or ANCHORING, Ground fit to hold a Ship's *Anchor*, so that she may ride safely. See ANCHOR.

The best Ground for a Ship to anchor in, is stiff Clay or hard Sand; and the best riding at Anchor, is when a Ship is Land-lock'd, and out of the Tide.

ANCHORAGE, in Law, a Duty taken of Ships for the Pool of the Haven, where they cast *Anchor*. See DUTY.

No Man can let an Anchor fall on the King's Ground in any Port, without paying for it to the King's Officer appointed by Patent.

ANCHORED, in Heraldry.——A *Cross*-ANCHORED, or ANCREE, is a form of Cross so called, because the four Extremities resemble the Flouke of an Anchor. See CROSS.

This Cross is so like the Cross *Moline*, that the Resemblance has occasioned many Mistakes in Heraldry. See MOLINE.

ANCHORET, ANCHORITE, or ANACHORITE, a Hermit, or devout Person, living alone in some Desart; to be further out of the reach of the Temptations of the World, and more at leisure for Meditation. See HERMIT.

Such were St. *Anthony*, St. *Hilarion*, &c. *Paul* the Hermit was the first of the Tribe of *Anchorites*.——The Word comes from the *Greek* ἀναχωρέω, *I retire into a By-place*.

These People are very numerous among the *Greeks*; consisting principally of Monks, who not caring for the Fatigues and Offices of the Monastery, purchase a little Spot of Ground, with a Cell, whither they retreat, and never appear in the Monastery again, excepting on solemn Days. See MONK.

These are also called *Ascetæ* and Solitaries. See ASCETA, and SOLITARY.

The *Anchorites* of *Syria* and *Palestine* retire into the most obscure, and unfrequented Places; hiding themselves under Rocks, and Mountains, and living on the spontaneous Productions of the Earth.—The *Anchorites* in *America*, are look'd upon there, as by far the most perfect sort of Monks; and are held in much higher Opinion and Veneration than the Cœnobites, or Monks residing in Monasteries. See COENOBITE.

Many of these retire, with the leave of their Abbots, and have an Allowance from the Monastery.—The People, in regard of their Piety, present them with good Sums of Money, which they carefully hoard up, and at their Death, bequeath it to the Monastery they had belong'd to.

ANCHOVY, in Matters of Commerce, &c. a little Sea Fish, much used by way of Sauce, or Seasoning.

Scaliger describes it as of the Herring-kind, about the Length of a Finger, having a pointed Snout, a wide Mouth, no Teeth, but Gums as rough as a Saw.—Others make it a sort of Pilchard: But others, with better Reason, hold it a peculiar Species, very different from either. See FISH.

The *Anchovy* is caught in the Months of *May*, *June*, and *July*, on the Coasts of *Catalonia*, *Provence*, &c. at which Season, it constantly repairs up the Straits of *Gibraltar*, into the *Mediterranean*.

The Fishing is chiefly in the Night-time; when, a Light being put out on the Stern of their little Fishing-Vessels, the *Anchovies* flock round, and are caught in the Nets. See FISHING.

When the Fishery is over, they cut off the Heads, take out the Guts; then lay 'em in Barrels and salt 'em.—The common way of eating *Anchovies*, is as Salad, with Oil, Vinegar, &c. in order to which, they are first boned, and the Tails, Fins, &c. stipp'd off. They are made into Sauce by mincing, adding to 'em a Cutlet of Veal or Ham, with Pepper, &c. over the Fire.

The Word is derived from the Spanish *Anchora*, or rather from the Italian, *Anchoia*.

ANCHYLOPS, in Medicine, a Species, or rather Degree of Fistula Lachrymalis; frequently confounded with *Ægilops*, &c. See FISTULA, and ÆGILOPS.

ANCIENT. See ANTIENT.

ANCO, or ANCON, the Tip of the Elbow; or the backward and larger Process of the Cubitus. See CUBITUS.

The

The *Ancon* is the ſame with what the *Greeks* call *Olecranum*. See OLECRANUM. And hence,

ANCONÆUS *Muſculus*, in Anatomy, the ſixth Muſcle of the Elbow; ſo called, as being ſituate behind the Folds of the Ancon or Elbow.

It ariſes from the back part of the Extremities of the Humerus, paſſes over the Elbow, and is inſerted into the lateral and internal Part of the Cubitus; about three or four Fingers Breadth above the Olecranum.—Its uſe is to aſſiſt in extending the Arm.

ANCONES, in Architecture, are the Corners or Coins of Walls, Croſs Beams, or Rafters. See COIN, &c.

ANCONY, in the Iron Mines, a Bloom wrought into the Figure of a flat Iron Bar, about three Foot long, with two ſquare rough Knobs, one at each End. See IRON, and BLOOM.

ANCREE, in Heraldry, the ſame with *anchored*. See ANCHORED.

ANCYLE, or ANCILE, in Antiquity, a little Buckler, which fell, as 'tis ſaid, from Heaven, upon *Numa Pompilius*; at the ſame time that a Voice was heard, which declared that *Rome* ſhould be Miſtreſs of the World, while ſhe preſerv'd that Buckler. See BUCKLER.

The *Ancyle* was, as it were, the *Palladium* of *Rome*. See PALLADIUM.

Different Authors give different Etymologies of this Word.—Some derive it from the *Greek* ἀγκύλος, *crooked*: *Varro* derives it *ab Anciſu*; as being cut or arch'd on the two Sides, like the Bucklers of the *Thracians*, called *Peltæ*. *Plutarch* thinks the Word may be derived from the *Greek* ἀγκὼν, *Elbow*, this Weapon being wore on the Elbow: But the Opinion of *Varro* is the moſt probable.

Tho there was but one *Ancyle* that fell from Heaven; yet were there twelve preſerv'd: *Numa*, by the Advice, as 'tis ſaid, of the Nymph *Egeria*, having ordered eleven others, perfectly like the firſt, to be made; that if any ſhould attempt to ſteal it, as *Ulyſſes* did the Palladium, they might not be able to diſtinguiſh the true *Ancyle* from the falſe ones.

Theſe *Ancylia* were preſerved in the Temple of *Mars*; and were committed to the Care of twelve Prieſts or *Salii*, inſtituted for that purpoſe. See SALII.

They were carried every Year, in the Month of *March*, in proceſſion around *Rome*; and the 30th Day of that Month, were again depoſited in their Place.

ANCYLE, is alſo uſed in Anatomy, for the Contraction of the Ham.

ANCYLOGLOSSUS, ἀγκυλόγλωσσος, one that is Tongue-ty'd, or has an Impediment in his Speech, ariſing from a Contraction of the Frænum of the Tongue. See TONGUE.

ANCYROIDES, is uſed by ſome Writers in Anatomy, for the Proceſs or ſhooting forth of the Shoulder-bone, in form of a Beak. See OMOPLATA.

ANDABATÆ, in Antiquity, a kind of Gladiators, who fought hood-wink'd. See GLADIATOR.

They were called *Andabatæ*, *quaſi* ἀναβαταὶ, *aſcenſores*, becauſe they fought on Horſeback, or out of Chariots.

ANDREW.——*Knights of St.* ANDREW, or the *Thiſtle*. See THISTLE.

ANDREW's *Croſs*, is a Badge wore in the Hat, by the People of *Scotland*, on the Day of the Feaſt of that Saint.

It conſiſts of blue and white Ribbands, diſpoſed into a Croſs, or Saltier; and is intended as a Commemoration of the Crucifixion of St. *Andrew*, the tutelary Saint of *Scotland*. See CROSS, and SALTIER.

ANDROGYNE, or ANDROGYNUS, an *Hermaphrodite*; ſomething born with two Sexes, being Male and Female in the ſame Perſon. See HERMAPHRODITE.

Many of the Rabbins are of opinion, that *Adam* was created *Androgynus*; that he was Male on one Side, and Female on the other; and that he had even two Bodies, the one of a Man, and the other of a Woman: ſo that God, to create *Eve*, only ſeparated thoſe two from each other. See SEX.

Plato tells us, that in the Beginning People were born double, and with both Sexes; but that this Duplicity of Members, giving them too much Strength and Vigour, they became inſolent, and even declared War againſt the Gods.—Upon which, *Jupiter*, to tame their Pride, ſplit each of them into two; but ſo as that each Moiety ſtill retain'd a ſtrong Paſſion to be re-united: and hence that Philoſopher derives the natural Love between the two Sexes.

The Aſtrologers alſo give the Appellation *Androgynus* to ſuch of the Planets as are ſometimes hot, and ſometimes cold; as Mercury, which is reputed hot and dry when near the Sun, and cold and moiſt when near the Moon.

The Word comes from the *Greek* ἀνδρόγυνος, *Male and Female*.

ANDROIDES, an Automaton, in figure of a Man; which by virtue of certain Springs, &c. duly contrived, Walks, Speaks, &c. See AUTOMATON.

Albertus Magnus, is recorded as having made an *Androides*.—The Word is compounded of the *Greek* ἀνὴρ, ἀνδρὸς, *Man*, and εἶδος, *form*.

ANDROLEPSY, ANDROLEPSIA, in Antiquity.—If an *Athenian* were kill'd by a Citizen of ſome other Place; and ſuch City refuſed to deliver up the Criminal to Puniſhment; it was held lawful to take three Inhabitants of ſuch City, and puniſh the Homicide in them.—This the *Greeks* called *Androlepſia*, and the Romans *Clarigatio*. See CLARIGATIO.

Some Authors alſo uſe *Androlepſia* for *Reprizals*. See REPRIZAL.

The Word is form'd of ἀνὴρ, *Man*, and λαμβάνω, *capio*, I take.

ANDROMACHI *Theriaca*, or *Treacle of* ANDROMACHUS, in Pharmacy, is a capital Alexipharmic Compoſition; called alſo *Venice Treacle*. See THERIACA, and ALEXIPHARMIC.

ANDROTOMY, ANDRATOMY, the Anatomy or Diſſection of human Bodies. See DISSECTION.

It is thus called in oppoſition to *Zootomy*, which denotes that of Brutes. See ZOOTOMY.

Anatomy is the Genus, and comprehends all Diſſections in general, whether of Men, Beaſts, or Plants; and *Androtomy* and Zootomy are the Species. See ANATOMY.

ANECDOTES, ANECDOTA, a Term uſed by ſome Authors, for the Titles of *Secret Hiſtories*; that is of ſuch as relate the ſecret Affairs and Tranſactions of Princes; ſpeaking with too much Freedom, or too much Sincerity, of the Manner and Conduct of Perſons in Authority, to allow of being made publick.

Herein they imitate *Procopius*, who gives this Title to a Book which he publiſh'd againſt *Juſtinian* and his Wife *Theodora*; and ſeems to be the only Perſon among the Antients, who has repreſented Princes, ſuch as they are in their domeſtick Relation.—*Varillas* has publiſhed *Anecdotes* of the Houſe of *Medici*.

The Title *Anecdotes* is alſo given to ſuch Works of the Antients as have not yet been publiſhed.—In this Senſe, M. *Muratori* gives the Name *Anecdota Græca*, to ſeveral Writings of the *Greek* Fathers, found in the Libraries, and firſt publiſh'd by him.—F. *Martene* has given a *Theſaurus Anecdotarum Novus*, in Folio, 5 Vol.

The Word is *Greek* ἀνεκδότα, q. d. *Things not yet known, or hitherto kept ſecret*.

ANEMIUS *Furnus*, among Chymiſts, a *Wind-Furnace*; uſed to make fierce Fires for melting, &c. See FURNACE.

The Word is form'd of the *Greek* ἄνεμος, *Wind*.

ANEMONE, ANEMON, or *Wind-Flower*; a general Name, under which *Heſychius* comprizes all Flowers that are of a ſhort Duration, and that are eaſily beaten down, ruffled, and deſtroy'd by the Wind. See FLOWER.

The Word is derived from ἄνεμος, *Ventus*; in regard of the Effects which the Wind has on ſuch Flowers.——*Pliny* rather derives it hence, that the *Anemone* never opens but when the Wind blows. Others ſay, it was thus called from a Nymph of that Name.

ANEMOSCOPE, a Machine invented to foretel the Changes of the Wind. See WIND.

It has been obſerv'd, that Hygroſcopes made of Cats-gut, &c. prove very good *Anemoſcopes*; ſeldom failing, by the turning of the Index about, to foretel the ſhifting of the Wind. See HYGROSCOPE.

The *Anemoſcope* uſed by the Antients, ſeems, by *Vitruvius*'s Deſcription of it, to have been intended rather to ſhew which way the Wind actually blew, than to foretel into which Quarter it would change.

The Word is deriv'd from the *Greek* ἄνεμος, *Wind*, and σκέπτομαι, *to look*. See ANEMOMETER.

Otto de Gueric alſo gave the Title *Anemoſcope*, to a Machine invented by him, to foretel the Change of the Weather, as to fair and rain. See WEATHER.

It conſiſted of a little wooden Man, who roſe and fell in a Glaſs Tube, as the Atmoſphere was more or leſs heavy.—Accordingly, M. *Comiers* has ſhewn, that this *Anemoſcope* was only an Application of the common Barometer. See BAROMETER.

ANEMOMETER, a Machine wherewith to meaſure the Strength of the Wind. See WIND.

The *Anemometer* is variouſly contrived. In the *Philoſophical Tranſactions*, we have one deſcribed, wherein the Wind being ſuppoſed to blow directly againſt a flat Side, or Board which moves along the graduated Limb of a Quadrant; the Number of Degrees it advances, ſhews the comparative Force of the Wind.—*Wolfius* gives the Structure of another, which is moved by means of Sails, like thoſe of a Wind-Mill; which raiſe a Weight, that, ſtill the higher it goes, receding further from the Centre of Motion, by ſliding along an hollow Arm fitted on to the Axis of the Sails, becomes heavier and heavier, and preſſes more and more on the Arm, till being a Counterpoiſe to the Force of the Wind on the Sails, it ſtops the Motion thereof. An Index, then, fitted upon the ſame Axis at right Angles with the Arm, by its riſing or falling points out the Strength of the Wind, on a Plane divided, like a Dial-plate, into Degrees. *See its Figure*, Plate PNEUMATICS.

The Word is compounded of the *Greek* ἄνεμος, *Wind*, and μέτρον, *Meaſure*.

ANEU-

ANEURISM, Aneurisma, in Medicine, a soft yielding Tumor, form'd of Blood extravasated and spread under the Flesh, by the Rupture or Dilatation of an Artery. See Artery, and Tumor.

Aneurisms usually proceed from an Artery being accidentally cut, or prick'd in bleeding; or from some preternatural Distention, or a Corrosion of its Coats, &c. See Phlebotomy.

If an Artery happen to be cut, the Blood gushes out impetuously, by starts; and is not easily stop'd: an Inflammation and Discolouration of the Part succeeds, with a Tumor, and Inability to move the Part. The Symptoms are nearly the same in case of a Corrosion of the Coats of the Artery, only less violent. See Wound.

If the Blood cease to flow from the wounded Artery, and pour it self between the Interstices of the Muscles; recourse is had to manual Operation; which being neglected, the Extirpation of the Limb frequently becomes unavoidable.—An *Aneurism* from a Distention of the Canal, is seldom fatal; tho reckon'd, when large, incurable: The chief Inconveniencies are the Magnitude of the Tumor, and the Pulsation. See Hemorrhage.

M. *Littre* gives us the History of an *Aneurisma* of this kind, in the Aorta; the Cause whereof he attributes to an extraordinary Diminution of the Cavity of the Axillary and Subclavian Arteries. *Hist. de l'Acad. R.* An. 1712.—— Another History of an *Aneurisma* of the same Part, we have in the *Philosophical Transactions*. It was occasioned by some violent Shocks the Patient receiv'd on the Breast, which threw him into spitting of Blood, and soon after form'd the Tumor, whereof he dy'd. Upon Dissection, the *Aneurisma* was found so big, that it filled the whole Cavity of the Thorax on the right Side. N° 265.

The Word comes from the *Greek* ἀνευρύνω, *dilato*, I dilate.

ANGARIA, a Term in Law, signifying any troublesom, or vexatious Duty or Service, paid by the Tenant to the Lord.—The Word is form'd of the French *Angarie*, Personal Service; that which a Man is bound to perform in his own Person.—*Præstationes Angariarum & Periangariarum plaustrorum & navium*, impressing of Ships. See Service, &c.

ANGEIOGRAPHY, a Description of the Weights, Measures, Vessels, &c. used by the several Nations. See Measure, Weight, Vessel, &c.

The Word is compounded of ἀγγεῖον, *Vas*, Vessel, and γράφω, *scribo*, I describe.

ANGEIOLOGY, Angeiologia, in Anatomy, the History, or Description of the Vessels in a human Body; *e. g.* the Nerves, Arteries, Veins, and Lymphaticks. See Vessels.

Angeiology is a Branch of Sarcology. See Sarcology.

The Word seems to be derived from ἀγγεῖον, *a Vessel*, and λόγος, *Speech*, or *Discourse*.

ANGEL, a spiritual, intelligent Substance; the first in Rank and Dignity among created Beings. See Spirit.

The Word *Angel*, is not properly a Denomination of Nature, but of Office; denoting as much as *Nuntius*, Messenger, a Person employ'd to carry one's Orders, or declare his Will.—Thus it is St. *Paul* represents *Angels*, *Heb.* I. 14. where he calls them Ministring Spirits: And for the same Reason the Name is given, in the Prophet *Malachy*, C. II. 7, to Priests; and by St. *Matthew*, C. XI. 10, to St. *John Baptist*. Jesus Christ himself, according to the Septuagint, is call'd in *Isaiah*, C. IX. 6, the *Angel* of the mighty Council; a Name, says *Tertullian*, *de Carne Christi*. C. IV. which speaks his Office, not his Nature.—So the *Hebrew* Word used in Scripture, for *Angel*, is also a Name of Office, and not of Nature מלאך *Legatus*, q. d. Legate, Envoy, Minister: and yet Custom has prevailed; insomuch that *Angel* is now commonly taken for a Denomination of Nature.

The Existence of *Angels* is supposed in all Religions.—Indeed, the antient Sadducees are represented as denying all Spirits; and yet the *Samaritans* and Caraites, who are reputed Sadducees, openly avow it: witness *Abusaid*, the Author of an *Arabick* Version of the Pentatench; and *Aaron*, a Caraite *Jew*, in his Comment on the Pentateuch; both extant in Manuscript, in the King of *France*'s Library. See Sadducee, Caraite, &c.

In the Alcoran, we find frequent mention of *Angels*.—The Mussulmen believe 'em of different Orders or Degrees, and destin'd for different Employments, both in Heaven, and on Earth. They attribute exceeding great Power to the *Angel Gabriel*; as, to be able to descend in the Space of an Hour from Heaven to Earth; to overturn a Mountain with a single Feather of his Wing, &c. The *Angel Israel*, they suppose, appointed to take the Souls of such as die; and another *Angel*, named *Israphil*, stands with the Trumper ready in his Mouth to proclaim the Day of Judgment. See Alcoran, Mahometanism, &c.

The Heathen Philosophers and Poets, were also agreed as to the Existence of intelligent Beings, superior to Man; as is shewn by St. *Cyprian*, in his Treatise of the Vanity of Idols, from the Testimonies of *Plato*, *Socrates*, *Trismegistus*, &c. See Platonism, &c.—See also Dæmon, Genius, &c.

Some Christian Writers, after *Lactantius*, Institut. Lib. I. c. xv. alledge the *Energumeni*, and the Operations of Magick, as convincing Proofs thereof. St. *Thomas* produces other Considerations, in behalf of the Opinion, Lib. II. *contra gentes*, c. xlvi.

Authors are not so unanimous about the Nature as the Existence of *Angels*.—*Clemens Alexandrinus* believ'd they had Bodies; which was also the Opinion of *Origen*, *Cæsarius*, *Tertullian*, and several others. *Athanasius*, St. *Basil*, St. *Gregory Nicen.* St. *Cyril*, St. *Chrysostom*, &c. hold 'em mere Spirits.

Ecclesiastical Writers make an Hierarchy of nine Orders of *Angels*. See Hierarchy.

Angel is more particularly understood of a Spirit of the ninth and lowest Class, or Order of the Hierarchy, or Heavenly Choir. See Hierarchy.

The Scripture makes mention of the Devil and his *Angels*.—We also say, the Fallen *Angels*, Guardian *Angels*, &c. See Guardian, Dæmon, Genius, &c.

In the Apocalypse, the Denomination *Angel* is also given to the Pastors of several Churches.—The *Angel* of the Church of *Ephesus*; the *Angel* of the Church of *Smyrna*, &c.

Du Cange adds, that the same Name was antiently given to certain Popes and Bishops; by reason of their singular Sanctity, &c.

Angel is also used in Commerce, for an antient Gold Coin struck in *England*; so called from the Figure of an *Angel* impress'd upon it. See Coin.

Its Value in 1 *Hen.* VI. was 6 *s.* 8 *d.* in 1 *Hen.* VIII. 7 *s.* 6 *d.* in 34 *Hen.* VIII. 8 *s.* and in 6 *Edw.* VI. it was 10 *s.*—And the *half Angel*, or, as it was sometimes called, the *Angelot*, was the Moiety of this.

The *Angel* now subsists no otherwise than as a Money of Account. See Money.

The *French* have also had their *Angels*, *Demi-Angels*, and *Angelots*; now disused.

ANGELIC, or Angelical, something belonging to, or that partakes of, the Nature of *Angels*. See Angel.

Thus, we say, an *Angelical* Life, &c.—St. *Thomas* is styled the *Angelical Doctor*.—The *Angelical* Salutation is called by the *Romanists Ave Maria*. See Ave.

The *Greeks* distinguish two Kinds of Monks: Those who profess the most perfect Rule of Life, are called Monks of the Great or *Angelical Habit*.

ANGELICA, called also Archangelica, and *Radix Siriaca*, a medicinal Plant, thus named, on account of its great Virtue as an Alexipharmic or Counterpoison. See Alexipharmic.

It is of a sweet Smell, and aromatick Taste; and is loaded with a highly exalted Oil, and volatile Salt.—It is reputed cordial, stomachick, cephalick, aperitive, sudorifick, vulnerary, resists Poison, &c. tho the chief Intention wherein it is now prescribed among us, is, as a Carminative.

Its Root is in the most esteem; tho the Leaves are also used.

Angelica-*Water*, is one of the compound Waters of the Shops; thus called from the *Angelica* Roots, which are the Basis thereof. See *Angelica*-Water.

Angelica, Ἀγγελική, was also a celebrated Dance, among the antient *Greeks*, perform'd at their Feasts. See Dance.

It was thus called, from the *Greek* ἄγγελος, *Nuntius*, Messenger; by reason, as *Pollux* assures us, the Dancers were dress'd in the Habit of Messengers.

Angelica *Vestis*, among our Ancestors, was a Monkish Garment, which Laymen put on a little before their Death, that they might have the Benefit of the Prayers of the Monks.

It was from them called *Angelical*, because they were called *Angeli*, who by these Prayers *animæ saluti succurrebant*.—Hence, where we read the Phrase *ad succurrendum* in our old Books, it must be understood of one who had put on the Habit, and was at the Point of Death.

ANGELICI, were an antient Order of Knights, instituted in 1191, by *Isacius Angelus Flavius Commenius*, Emperor of *Constantinople*. See Knight, and Order.

They were divided into three Classes; but were all under the Direction of one Grand Master.—The first, were called *Torquati*, from a Collar which they wore, and were 50 in number.—The second were called the *Knights of Justice*, and were Ecclesiasticks.—And the third were called *Knights Servitors*.

Justiniani will have this Order to have been instituted in the Year 313, by *Constantine*; and supposes the Occasion thereof to have been the Appearance of an *Angel* to that Emperor, with the Sign of a Cross and these Words, *In hoc signo vinces*: But, that there was such a thing as any Military Order in those Days, is a mere Fable. See Military *Order*.

Angelici were also a Sect of antient Hereticks.—St. *Augustin* supposes 'em thus call'd from their yielding an extravagant Worship to *Angels*, and such as tended to Idolatry: Tho *Epiphanius* derives the Name from their holding that the World was created by *Angels*.

ANGERONALIA, in Antiquity, solemn Feasts, held by the *Romans*, on the 21st of *December*, in honour of *Angerona*, or *Angeronia*, the Goddess of Patience and Silence. See FEAST.

Festus and *Julius Modestus*, quoted by *Macrobius*, *Saturn.* l. 1. c. 10. derive the Name from *Angina*, *Squinancy*; and suppose the Goddess to have been thus denominated, by reason she presided over that Disease.——Others suppose it form'd from *Angor*, Grief, Pain; to intimate that she gave Relief to those afflicted therewith. Others deduce it from *Angeo* I press, I close; as being reputed the Goddess of Silence, &c. See GOD and GODDESS.

ANGINA, in Medicine, a Disease, popularly call'd the *Quincy*, *Squinancy*, or *Esquinancy*. See SQUINANCY.

Angina is a Difficulty of Respiration and Deglutition, from a Disease in the Muscles and Glands about the Throat and Larynx. See LARYNX, &c.

The Word is formed from the *Greek* ἄγχειν, *strangulare* to strangle, suffocate.

If any Symptoms appear on the outside of the Throat, the *Angina* is said to be *external*; if none appear, *internal*.——It is sometimes supposed to be *epidemical*.

In the *external Angina*, before any Suppuration appears, recourse is had to repeated Venæsection in the Jugulars.——Vesicatories, and Cupping are also used; with Purgatives, emollient Gargles, &c.

ANGLE, ANGULUS, in Geometry, the Aperture or mutual Inclination of two Lines, which meet, and form an *Angle* in their Point of Intersection. See LINE.

Such is the *Angle* ABC, (Tab. GEOMETRY, Fig. 91.) form'd by the Lines AB, and AC, meeting in the Point A—The Lines A B and A C, are called the *Legs* of the *Angles*; and the Point of Intersection, the *Vertex*. See LEG and VERTEX.

Angles are sometimes denoted by a single Letter affix'd to the Vertex, or angular Point, as A; and sometimes by three Letters, that of the Vertex being in the middle, as B A C.

The *Measure* of an *Angle*, whereby its Quantity is expressed, is an Arch, D E, described from its Vertex A, with any Radius at pleasure, between its Legs, A C and B C. See ARCH.

Hence *Angles* are distinguished by the Ratio of the Arches which they thus subtend, to the Circumference of the whole Circle. See CIRCLE and CIRCUMFERENCE.——And thus, an *Angle* is said to be of so many Degrees, as are the Degrees of the Arch D E. See DEGREE.

Hence also, since similar Arches, AB and DE, fig. 87. have the same Ratio to their respective Circumferences; and the Circumferences contain each the same Number of Degrees; the Arches A B, and D E, which are the Measures of the two *Angles* A C B, and A D E, are equal; and therefore the *Angles* themselves are so too.——Hence, again, as the Quantity of an *Angle* is estimated by the Ratio of the Arch, subtended by it, to the Periphery; it does not matter what Radius that Arch is described with al: But the Measures of equal *Angles* are always either equal Arches or similar ones; and contrarily.

It follows, therefore, that the Quantity of the *Angle* remains still the same, tho' the Legs be either produced or diminished——And thus similar *Angles*, and in similar Figures, the Homologous or Corresponding *Angles* are also equal. See SIMILAR, FIGURE, &c.

To measure, or find the Quantity of an ANGLE.

1°. On Paper—Apply the Centre of a Protractor on the Vertex of the *Angle* O; (Tab. SURVEYING, fig. 29.) so as the Radius O *p* lie on one of the Legs: The Degree shewn in the Arch, by the other Leg of the *Angle*, will give the *Angle* required. See PROTRACTOR.——To do the same with a Line of Chords, see CHORD.

2°. On the Ground—Place a surveying Instrument, *E.gr.* a Semi-circle, fig. 16. in such manner as that a Radius thereof CG may lie over one Leg of the *Angle*, and the Center C over the Vertex.——The first is obtain'd by looking thro' the Sights F and G, towards a Mark fixed at the End of the Leg; and the latter, by letting fall a Plummet from the Centre of the Instrument——Then, the moveable Index HI being turn'd this way and that, till thro' its Sights, you discover a Mark placed at the extreme of the other Leg of the *Angle*: The Degree it cuts in the Limb of the Instrument, shews the Quantity of the *Angle*. See SEMICIRCLE.

To take an *Angle* with a *Quadrant*, *Theodolite*, *plain Table*, *Circumferentor*, *Compass*, &c. see QUADRANT, THEODOLITE, PLAIN TABLE, CIRCUMFERENTOR, COMPASS, &c.

To plot or lay down any given Angle; i. e. the Quantity of the *Angle* being given, to describe it on Paper, see PLOTTING and PROTRACTING.

To bissect a given Angle, as HIK, fig. 92. from the Centre L, with any Radius at pleasure, describe an Arch LM. From L and M, with an Aperture greater than LM, strike two Arches, mutually intersecting each other in N. Then, drawing the right Line IN, we have HIN = NIK.

To trissect an Angle, see TRISSECTION.

ANGLES are of various Kinds, and Denominations.——

With regard to the Form of their Legs, they are divided into *Rectilinear*, *Curvilinear*, and *Mix'd*.

Rectilinear, or *right-lined* ANGLE, is that whose Legs are both right Lines; as ABC (Tab. GEOMETRY, fig. 91.) See RECTILINEAR.

Curvilinear ANGLE, is that whose Legs are both of 'em Curves. See CURVE and CURVILINEAR.

Mix'd, or *Mixtilinear* ANGLE, is that, one of whose Sides is a right Line, and the other a Curve. See MIX'D.

With regard to their Quantity, *Angles* are again divided into *Right*, *Acute*, *Obtuse*, and *Oblique*.

Right ANGLE, is that form'd by a Line falling perpendicularly on another; or that which subtends an Arch of 90 Degrees——Such is the *Angle* K L M, Fig. 93. See PERPENDICULAR, &c.

The Measure of a right ANGLE, therefore, is a Quadrant of a Circle; and consequently all right Angles are equal to each other. See QUADRANT.

Acute ANGLE is that which is less than a right *Angle*, or than 90°——as A E C, fig. 86. See ACUTE.

Obtuse ANGLE, is that greater than a right *Angle*, or whose Measure exceeds 90°——as A E D See OBTUSE.

Oblique ANGLE, is a common Name both for Acute and Obtuse *Angles*. See OBLIQUE.

With regard to their Situation in respect of each other, ANGLES are divided into *Contiguous*, *Adjacent*, *Vertical*, *Alternate*, and *Opposite*.

Contiguous ANGLES, are such as have the same Vertex, and one Leg common to both——Such are F G H, and H G I, fig. 94. See CONTIGUOUS.

Adjacent ANGLE, is that made by producing one of the Legs of another *Angle*——Such is the *Angle* A E C, fig. 86. made by producing a Leg E D, of the *Angle* A E D, to C. See ADJACENT.

Two *adjacent Angles*, *x* and *y*; or any other Number of *Angles* made on the same Point E, over the same right Line CD, are together equal to two right ones; and consequently, to 180°——And hence, one of two contiguous *Angles* being given, the other is likewise given: as being the Complement of the former to 180°. See COMPLEMENT.

Hence, also, to measure an inaccessible *Angle* in the Field; taking an adjacent accessible *Angle*, and substracting the Quantity thereof from 180°, the Remainder is the *Angle* required.

Again, all the *Angles* *x*, *y*, *o*, E, &c. made a-round a given Point E, are equal to four right ones; and therefore all make 360°.

Vertical ANGLES, are those whose Legs are Continuations of each other——Such are the *Angles* *o* and *x*, fig. 86. See VERTICAL.

If a right Line A B, cut another, C D, in E, the vertical *Angles* *x* and *o*, as also *y*, and E, are equal.——And hence, if it be required to measure in a Field, or any other Place, an inaccessible *Angle*, *x*; and the other vertical *Angle*, *o*, be accessible: This latter may be taken in lieu of the former. See SURVEYING.

Alternate ANGLES. See ALTERNATE.——Such are the *Angles* *x* and *y*; fig. 36.

The alternate *Angles* *y* and *x*, are equal. See OPPOSITE *Angles*.

Opposite ANGLES. See OPPOSITE.——Such are *u* and *y*, and also *z* and *y*.

External ANGLES, are the *Angles* of any right-lined Figure made without it, by producing all the Sides severally.

All the external *Angles* of any Figure taken together, are equal to four right *Angles*: And the external *Angle* of a *Triangle* is equal to both the internal and opposite ones, as is demonstrated by *Euclid*, Lib. 1. Prop. 32.

Internal ANGLES, are the *Angles* made by the Sides of any right-lined Figure within.

The Sum of all the internal *Angles* of any right-lined Figure, is equal to twice as many right *Angles* as the Figure hath Sides, excepting four. This is easily demonstrated from *Euclid*, Prop. 32. Lib. 1.

The external *Angle* is demonstrated to be equal to the internal opposite one; and the two internal opposite ones, are equal to two right ones.

Homologous ANGLES, are such *Angles* in two Figures, as retain the same Order from the first, in both Figures. See FIGURE.

ANGLE *at the Periphery*, is an *Angle* whose Vertex and Legs do all terminate in the Periphery of a Circle——Such is the *Angle* E F G, fig. 95. See PERIPHERY.

Angle in the SEGMENT, is the same with that at the Periphery. See SEGMENT.

It is demonstrated by *Euclid*, that all the *Angles* in the same Segment are equal to one another; that is, any *Angle* EHG, is equal to any *Angle* EFG in the same Segment EFG.

The *Angle* at the Periphery, or in the Segment, is comprehended between two Chords AB and BD, and stands on the Arch AB. See CHORD, &c.

The Measure of an *Angle* without the Periphery G, (fig. 96.) is the Difference between half the Concave Arch LM, whereon it stands, and half the Convex Arch, NO, intercepted between its Legs.

ANGLE *in a Semi-circle*, is an *Angle* in a Segment of a Circle, whose Base is a Diameter thereof. See SEGMENT.

It is demonstrated by *Euclid*, that the *Angle* in a Semicircle is a right one; in a Segment greater than a Semicircle, is less than a right one; and in a Segment less than a Semi-circle, greater than a right one.

Since an *Angle* in a Semi-circle stands on a Semi-circle, its Measure is a Quadrant of a Circle; and therefore is a right *Angle*.

ANGLE *at the Centre*, is an *Angle* whose Vertex is in the Centre of a Circle, and its Legs terminated in the Periphery thereof.——Such is the *Angle* CAB. See CENTRE.

The *Angle* at the Centre is comprehended between two Radii, and its Measure is the Arch BC. See RADIUS, &c.

Euclid demonstrates that the *Angle* at the Centre, BAC, is double of the *Angle* BDC, standing on the same Arch BC.——And hence, half of the Arch AD, is the Measure of the *Angle* at the Periphery.

Hence also, two or more *Angles* HLI, and HMI (fig. 97.) standing on the same Arch HI, or on equal Arches, are equal.

ANGLE *without the Centre*, HIK, is that whose Vertex K is not in the Centre, but its Legs HK and IK are terminated in the Periphery.

The Measure of an *Angle* without the Centre, is half of the Arches HI and LM, whereon it and its Vertical K do stand.

ANGLE *of Contact*, is that made by the Arch of a Circle and a Tangent in the Point of Contact.——Such is the *Angle* HLM, (fig. 43.) See CONTACT.

The *Angle* of Contact, in a Circle, is proved by *Euclid* to be less than any right-lined *Angle*: But from hence it does not follow, that the *Angle* of Contact is of no Quantity, as some have imagined.—Sir *Isaac Newton* shews, that if the Curve HAE, fig. 97. be a cubick Parabola, the *Angle* of Contact, where the Ordinate DF is in the subtriple Ratio of the Abscisse AD, the *Angle* BAF contained under the Tangent AB in its Vertex, and the Curve, is infinitely greater than the circular Angle of Contact BAC; and that if other Parabola's of higher kinds be described to the same Axis and Vertex, whose Abscisses AD are as the Ordinates DF^4, DF^5, DF^6, &c. you will have a Series of *Angles* of Contact going on infinitely, of which any one is infinitely greater than that next before it.

ANGLE *of a Segment*, is that made by a Chord with a Tangent, in the Point of Contact.—Such is the *Angle* MLH. See SEGMENT.

It is demonstrated by *Euclid*, that the *Angle* MLC, is equal to any *Angle* MaL in the alternate Segment MaL.

For the Effects, Properties, Relations, &c. *of Angles, when combined into Triangles, Quadrangles, and polygonous Figures*, see TRIANGLE, QUADRANGLE, SQUARE, PARALLELOGRAM, POLYGON, FIGURE, &c.

ANGLES are again divided into *Plane*, *Spherical*, and *Solid*.

Plane ANGLES are those we have hitherto been speaking of; which are defined by the Inclination of two Lines in a Plane, meeting in a Point. See PLANE.

Spherical ANGLE is the Inclination of the Planes of two great Circles of the Sphere. See CIRCLE and SPHERE.

The Measure of a Spherical *Angle*, is the Arch of a great Circle at right *Angles* to the Planes of the great Circles forming the *Angle*, intercepted between them.

For the Properties of Spherical Angles, see SPHERICAL *Angle*.

Solid ANGLE is the mutual Inclination of more than two Planes, or plane *Angles*, meeting in a Point, and not contain'd in the same Plane.

For the Measure, Properties, &c. *of solid Angles*, see SOLID *Angle*.

We also meet with other less usual sorts of *Angles* among some Geometricians; as,

Horned ANGLE, *Angulus Cornutus*, that made by a right Line, whether a Tangent or Secant, with the Periphery of a Circle.——

Lunular ANGLE, *Angulus Lunularis*, is that form'd by the Intersection of two Curve Lines; the one Concave, and the other Convex. See LUNE.

Cissoid ANGLE, *Angulus Cissoides*, is the inner *Angle*, made by two Spherical Convex Lines intersecting each other. See CISSOIDES.

Sistroid ANGLE, *Angulus Sistroides*, is that in Figure of a Sistrum. See SISTRUM.

Pelecoid ANGLE, *Angulus Pelecoides*, is that in figure of a Hatchet. See PELECOIDES.

ANGLE, in Trigonometry. See TRIANGLE and TRIGONOMETRY.

For the Sines, Tangents, and Secants of ANGLES, see SINE, TANGENT, and SECANT.

ANGLE, in Mechanicks——ANGLE *of Direction*, is that comprehended between the Lines of Direction of two conspiring Forces. See DIRECTION.

ANGLE *of Elevation*, is that comprehended between the Line of Direction of a Projectile, and a horizontal Line——Such is the *Angle* ARB, (Tab. MECHANICS, fig. 47.) comprehended between the Line of Direction of the Projectile AR, and the horizontal Line AB. See ELEVATION and PROJECTILE.

ANGLE *of Incidence*, it that made by the Line of Direction of an impinging Body, in the Point of Contact——Such is the *Angle* DCA, (fig. 63.) See INCIDENCE.

ANGLE *of Reflexion*, is that made by the Line of Direction of the reflected Body, in the Point of Contact from which it rebounds,——Such is the *Angle* ECF. See REFLEXION.

ANGLE, in Optics——*Visual* or *Optic* ANGLE, is the *Angle* included between two Rays drawn from the two extreme points of an Object, to the Centre of the Pupil——Such is the Angle ABC, (Tab. OPTICS, fig. 69.) comprehended between the Rays AB, and BC. See VISUAL *Angle*.

Objects seen under the same, or an equal *Angle*, appear equal. See MAGNITUDE and VISION.

ANGLE *of the Interval*, of two places, is the *Angle* subtended by two Lines directed from the Eye to those places.

ANGLE *of Incidence*, in Catoptrics, is the lesser *Angle* made by an incident Ray of Light, with the Plane of a Speculum; or, if the Speculum be concave or convex, with a Tangent in the point of Incidence——Such is the *Angle* ABD (fig. 26.) See RAY and MIRROUR.

Every incident Ray, AB, makes two *Angles*, the one acute, ABD, the other obtuse, ABE; tho sometimes both right——The lesser of such *Angles* is the *Angle* of Incidence. See INCIDENCE.

ANGLE *of Incidence*, in Dioptrics, is the *Angle* ABI, (fig. 56.) made by an incident Ray, AB, with a Lens or other refracting Surface, HI. See LENS, &c.

ANGLE *of Inclination*, is the *Angle* ABD, contained between an incident Ray, AB, and the Axis of Incidence, DB. See AXIS, &c.

ANGLE *of Reflection*, } in Catoptrics. See REFLEC-
Reflected ANGLE, } TION.

ANGLE *of Refraction*, } in Dioptrics. See REFRAC-
Refracted ANGLE, } TION.

ANGLE, in Astronomy——ANGLE *of Commutation*. See COMMUTATION.

ANGLE *of Elongation*, or, ANGLE *at the Earth*. See ELONGATION.

Parallactic ANGLE. See PARALLACTIC *Angle*.

ANGLE *at the Sun*, or *the Inclination*, is the *Angle* RSP, (Tab. ASTRONOMY, fig. 25.) under which the Distance of a Planet P, from the Ecliptic PR, is seen from the Sun. See INCLINATION.

ANGLE *of the East*. See NONAGESIMAL.

ANGLE *of Obliquity*, of the Ecliptic. See OBLIQUITY and ECLIPTIC.

The Angle of Inclination of the Axis of the Earth, to the Axis of the Ecliptic, is 23°, 30′; and remains inviolablly the same in all points of the Earth's annual Orbit. By means of this Inclination, such Inhabitants of the Earth as live beyond 45° of Latitude, have more of the Sun's Heat, taking all the Year round; and those who live within 45°, have less of his Heat, than if the Earth always moved in the Equinoctial. See HEAT, &c.

ANGLE *of Longitude*, is the *Angle* which the Circle of a Star's Longitude makes with the Meridian, at the Pole of the Ecliptic. See LONGITUDE.

ANGLE *of right Ascension*, is the *Angle* which the Circle of a Star's right Ascension makes with the Meridian at the Pole of the World. See RIGHT *Ascension*.

ANGLE, in Navigation——ANGLE *of the Rhumb*, or *Loxodromic* ANGLE. See RHUMB and LOXODROMY.

ANGLES, in Fortification, are understood of those formed by the several Lines used in Fortifying. See FORTIFICATION, FORTIFYING, &c.

ANGLE *of*, or *at the Center*, is the *Angle* formed at the Center of the Polygon, by two Semi-diameters drawn thither from the two nearest Extremities of the Polygon. See POLYGON——Such is the *Angle* CKF (Tab. FORTIFICAT. fig. 1.)

Angle *of the Circumference*, is the mixed *Angle* made by the Arch drawn from one Gorge to the other. See Gorge.

Angle *of the Counterscarp*, is that made by the two Sides of the Counterscarp, meeting before the middle of the Curtain. See Counterscarp.

Angle *of the Curtain*, or *of the Flank*, is that made by, or contain'd between, the Curtain and the Flank; such is the *Angle* BAE. See Curtain.

Angle *of the Complement of the Line of Defence*, is the *Angle* arising from the Intersection of the two Complements one with another. See Complement.

Diminished Angle, is the *Angle* which is made by the meeting of the exterior Side of the Polygon, with the Face of the Bastion——Such is the *Angle* BCF.

Angle *of the Polygon*, or *of the exterior Figure*, is the *Angle* FCN, formed at the Point of the Bastion C, by the meeting of the two outermost Sides or Bases of the Polygon, FC and CN.

Angle *of the Epaule*, or *Shoulder*, is that form'd by the Flank and the Face of the Bastion——Such is the *Angle* ABC. See Epaule.

Angle *of the Interior Figure*, is the *Angle* GHM, made in H, the Center of the Bastion, by the meeting of the innermost Sides of the Figure GH and HM.

Flanking Angle *outward*, or Angle *of the Tenaille*, is that made by the two rasant Lines of Defence, *i. e.* the two Faces of the Bastion when prolonged. See Tenaille.

Angle *flanking inward*, is the *Angle* CIH, made by the flanking Line with the Curtain.

Angle *flanked*, by some call'd the Angle *of the Bastion*, is the *Angle* BCS, made by the two Faces of the Bastion, BC, CS; being the outermost part of the Bastion, and that most exposed to the Enemy's Batteries, and therefore by some call'd the *Point of the Bastion*. See Bastion.

Angle *of the Triangle*, in Fortification, is half the *Angle* of the Polygon.

Angle *forming the Flank*, is that consisting of one Flank, and one Demi-gorge.

Angle *forming the Face*, is that composed of one Flank and one Face.

Angle *of the Moat*, is that made before the Curtain, where it is intersected. See Moat.

Re-entring, or *Re-entrant* Angle, is that whose Vertex is turned inwards, towards the Place. See Rentrant.

Saillant Angle, is that which advances its Point towards the Field. See Saillant.

Angle *of the Tenaille*, or *the outward flanking Angle*, called also *the Angle of the Moat*, or *the dead Angle*, is made by the two Lines sichant in the Faces of the two Bastions, extended till they meet in an *Angle* towards the Curtain——This always carries its Point in towards the Work.

Angle *of a Wall*, in Architecture, is the Point, or Corner, where the two Sides or Faces of a Wall meet. See Wall, Coin, &c.

Angles *of a Battalion*, in the Military Art, are the Soldiers where the Ranks and Files terminate. See Battalion.

The *Angles* of a Battalion are said to be *blunted*, when the Soldiers at the four Corners are removed, so that the square Battalion becomes octagonal: which was an Evolution very common among the Antients, tho now disused. See Evolution.

Angles, in Anatomy, are understood of the *Canthi*, or Corners of the Eye, where the upper Eye-lid meets with the under. See Eye and Eye-lid.

That next the Nose is call'd the *great* or *internal*, and that towards the Temples, the *less* or *external Angle* or *Canthus*. See Canthus.

Angles, in Astrology, are certain Houses of a Figure or Scheme of the Heavens——Thus the Horoscope of the first House is termed the *Angle of the East*. See House, Horoscope, &c.

ANGLICISM, a Diction in the *English* Idiom; or a Manner of Speech peculiar to the *English* Tongue. See Idiom and English.

ANGLING, the Art of catching Fish by means of a Rod, with Line, Hook and Bait fitted thereto. See Fish and Fishing.

There are several prudential Rules observed by thorough Anglers; as, not to wear any white or shining Apparel, but be cloathed in a dark sky-Colour: To invite the Fish to the place intended for *Angling*, by casting in from time to time proper Foods, as boil'd Corn, Worms, and Garbage: To keep them together in the time of *Angling*, by throwing in Grains of ground Malt; or sinking a Box of Worms, with small holes for them to creep slowly out at, &c. To draw Salmon or Trout together, they use a Composition of fine Clay incorporated with Blood, and Malt ground.

To learn what Bait is best for any Fish at any time; after having caught one, they slit his Gills, and take out the Stomach; and thus find what he last fed on.

The several Methods of Angling *for Salmon, Trout, Carp, Tench, Perch, Pike, Dace, Gudgeon, Roach, Flounder*, &c. See the Articles *Salmon*-Fishing, *Trout*-Fishing, &c.

For the Rules of Angling *with the Fly*, see *Fly*-Fishing.

Angling-*Rod*. See Fishing-*Rod*.

In *Angling*, they observe, after having struck a large Fish, to keep the Rod bent; which will hinder him from running to the utmost Length of the Rod-Line, by which he would be enabled to break his Hold or Hook.

Angling *Line* is either made of Hair, twisted; or Silk; or the *Indian* Grass——The best Colours are the Sorrel, White and Grey; the two last for clear Waters, the first for muddy ones. Nor is the pale watery Green despisable: this Colour is given artificially, by steeping the Hair in a Liquor made of Allum, Soot, and the Juice of Walnut-Leaves boil'd together.

Angling *Hook*. See Fishing *Hook*.

Angling *Fly*. See Fishing *Fly*.

ANGLO *Saxon*. See English.

ANGULNEAL *Hyperbola*. See Hyperbola and Curve.

ANGULAR, something that relates to, or hath, *Angles*. See Angle.

Angular Objects at a distance appear round; the little Inequalities disappearing at a much less distance than the Bulk of the Body. See Vision.

Angular *Motion*, is a compound kind of Motion, wherein the Moveable both slides and revolves at the same time. See Motion, Sliding, &c.

Such is the Motion of the Wheel of a Coach, or other Vehicle. See Wheel.

The Phænomena, &c. of such Motion, see accounted for under the Article Rota *Aristotelica*.

Angular *Motion*, in Astronomy, is the Increase of the Distance between any two Planets, revolving round any Body as the common Center of their Motion. See Planet, Center, &c.

The Quantity of this Motion is expressed by two right Lines drawn from the said Center, to the revolving Bodies; which will open wider, and consequently grow greater, as the revolving Bodies part farther and farther from one another.

ANGUSTICLAVIA, or Angusticlavus, in Antiquity, a *Roman Tunica*, embroider'd with little purple Studs. See Tunica.

The *Angusticlavia* was wore by the Knight. See Knight.

The Word is compounded of *Angustus*, narrow, small; and *Clavus*, Nail or Stud: in regard those Ornaments were smaller in this Garment than in the *Laticlavus* wore by the Senators. See Laticlavus. See also Senator, &c.

ANHELITUS signifies a shortness and thickness of Breath; as in an Asthma. See Respiration and Asthma.

The Word is *Latin*, form'd of the Verb *anhelo*, I puff and blow.

ANIL, in Natural History, the Plant from which Indigo is procured. See Indigo.

ANIMA, a *Soul*; whether Rational, Sensitive, or Vegetative. See Soul, Rational, Sensitive, and Vegetative.

The Word is pure *Latin*, form'd of the *Greek* ανεμος, *Ventus*, Wind, Breath. See Spirit.

Anima *Mundi*, q. d. *Soul of the World*, or *of the Universe*, is a certain pure, ethereal Substance or Spirit, diffused, according to many of the antient Philosophers, thro the Mass of the World, informing, actuating, and uniting the divers parts thereof into one great, perfect, organical, vital Body or Animal. See World, Universe, Animal, &c.

Plato treats at large of the ψυχὴ τοῦ κόσμου, in his *Timæus*; and is even supposed to be the Author of the Dogma: Yet are Interpreters much at a loss about his Meaning. *Aristotle*, however, taking it in the common and obvious sense, strenuously opposes it. See Platonism, &c.

Serranus, on *Plato's Timæus*, explains this Doctrine thus: 'Our Philosopher will have the Universe ζῶον ἔμ-'ψυχον ἔννουν, consisting of Body and Spirit; the Spirit he 'makes to be that Analogy, or Symmetry, whereby things of different Nature, are amicably associated in the grand Com-'pages of all things. In which sense the *Anima Mundi* sig-'nifies as much as the Form of the Universe.' See Harmony.

Others will have the *Anima Mundi* to signify I know not what ignific Vertue, or vivific Heat, infused into the Chaos, and disseminated thro its whole Frame; for the Conservation, Nutrition, and Vivification thereof. See Heat, &c.

Hence

Hence that of the Poet,

Igneus est Ollis Vigor & Cœlestis Origo——

Others suppose *Plato*, by his *Anima Mundi*, to have meant God, or the Spirit of God; and to have taken the Hint from *Moses*, who in his Account of the first Day's Creation, says, *The Spirit of God moved on the Face of the Deep*. See God, Abyss, &c.

The modern *Platonists* explain their Master's *Anima Mundi* by a certain universal, ethereal Spirit, which in the Heavens exists perfectly pure, as retaining its proper Nature; but on Earth, pervading elementary Bodies, and intimately mixing with all the minute Atoms thereof, assumes somewhat of their Nature; and becomes of a peculiar Kind——So the Poet:

Spiritus intus alit, totumq; infusa per orbem
Mens agitat molem, & magno se corpore miscet.

They add, that this *Anima Mundi*, which more immediately resides in the Celestial Regions as its proper Seat, moves and governs the Heavens in such manner, as that the Heavens themselves first received their Existence from the Fœcundity of the same Spirit: For that this *Anima*, being the primary Source of Life, every where breathed a Spirit like itself, by virtue whereof various kinds of things were framed conformable to the Divine Ideas. See Idea, Platonist, &c.

The Notion of an *Anima Mundi* is rejected by most of the modern Philosophers; tho M. *du Hamel* thinks, without any great reason; for the generality of them admit something very much like it——The *Peripatetics* have recourse to celestial Influxes, in order to account for the Origin of Forms, and the secret Powers of Bodies. See Form, Peripatetic, &c.

The *Cartesians* have their subtile Matter, which answers to most of the Uses, and Intentions of *Plato*'s *Anima Mundi*; being supposed to flow from the Sun and the other heavenly Bodies, and to be diffused thro all the Parts of the World, to be the Source or Principle of all Motions, &c. See Subtile *Matter*, Cartesian, &c.

Some later Philosophers substitute Fire; and others a subtile elastic Spirit or Medium diffused thro all the Parts of Space. See Fire, *Subtile* Medium, &c. Newtonian, &c.

The principal thing objected, on the Christian Scheme, against *Plato*'s Doctrine of the *Anima Mundi*, is, that it mingles the Deity too much with the Creatures; confounds, in some measure, the Workman with his Work, making this, as it were, a part of that, the several Portions of the Universe so many parts of the Godhead——Yet is the same Principle asserted by *Seneca*, Epist. 92. *Totum hoc quo continemur, & unum est, & Deus. Et socii ejus sumus & membra*——

Anima *Hepatis*, q. d. the *Soul of the Liver*; a Term applied by the Chymists, to the *Sal Martis*, Salt of Iron or Steel; on account of its Use in Distempers of that Part. See Iron, Mars, Steel, Salt, Liver, &c.

It is sometimes also prescribed under the Name of *Vitriolum Martis*. See Vitriol.

Anima *Articulorum* is a Denomination sometimes given to *Hermodactyls*; on account of their Efficacy in Disorders of the Joints. See Hermodactyl.

Anima *Pulmonum*, is used for Crocus, or Saffron; by reason of its great Use in Diseases of the Lungs. See Saffron and Lungs.

ANIMA, or *Gum* Animæ, in Pharmacy, a kind of Gum or Resin; whereof there are two kinds, *Western* and *Eastern*——The first flows from an Incision of a Tree in *New Spain*, called *Courbati*; it is transparent, and of a Colour like that of Frankincense: its Smell is very agreeable, and it easily consumes in the Fire. See Gum, &c.

The Eastern Gum *Anima* is distinguished into three Kinds; the first white; the second blackish, in some respects like Myrrh; the third pale, resinous, and dry.

All the several Kinds of *Anima* are used in Perfumes, by reason of their charming Smell; they are also applied externally in cold Disorders of the Head and Nerves, in Palsies and Catarrhs; but are little known among us; insomuch that our Apothecaries usually sell Bdellium for Gum *Animæ*. See Bdellium.

ANIMADVERSION, sometimes signifies *Correction*; sometimes Remarks, or Observations made on a Book, &c. and sometimes, a serious Consideration and Reflection on any Subject, by way of Criticism.

The Word is formed of the *Latin animadvertere*, to animadvert: of *animus*, the Mind; and *adverto*, I turn to, or toward.

ANIMAL, a Being, which, besides the Power of growing, increasing, and producing its like, which Vegetables likewise have, is further endowed with Sensation, and spontaneous Motion. See Being, Sensation, and Motion.

The Word *Animal* is derived from the *Latin Anima*, Soul; and literally denotes something endued with a Soul. See Anima and Soul.

An *Animal*, respect being only had to the Body, not the Soul, may be defin'd with *Boerhaave* to be an organical Body, consisting of Vessels and Juices; and taking in the Matter of its Nutriment, by a Part called a Mouth; whence it is conveyed into another called the Intestines, into which it has Roots implanted, whereby it draws in its Nourishment, after the manner of Plants. See Mouth.

According to this Definition, an *Animal* is distinguished from a Fossil, in that it is an organical Body; and from a Vegetable by this, that it has its Roots within itself, and a Plant without itself. See Fossil and Vegetable.

In effect, the Intestines of an *Animal* are, in reality, no more than its Earth, or the Body it adheres to; into which it sends forth its Roots; that is, the lacteal Vessels, which thence draw the Matter of its Life and Increase. See Intestines.

An *Animal* is better defin'd from its Mouth than its Heart; since we don't know whether the whole Tribe have such a Part; for as several have 16 Hearts, particularly the Silk-Worm, and some even 60; so 'tis possible others may have none at all. See Heart.

Nor can any general Character of an *Animal* be taken from the Brain, the Lungs, or the like; since we know of many quite destitute thereof. See Brain, Lungs, &c.

The genuine Characteristic, then, of an *Animal*, is to be free and at large with respect to the Subject it derives its Nourishment from: for every thing is taken in by the Mouth; and the Mouth does not adhere to any thing: Whereas all Plants are connected, in some manner or other, to the Body which furnishes them Food.

Hence it follows, that a Fœtus, while it remains in the Mother's Womb, is a real Plant; as being connected by the Funiculus umbilicalis to the Placenta, and by the Placenta to the Uterus, from whence it receives its Nutriment——If it did not derive its Food by the said Funiculus, but by its Mouth, it were an *Animal*; and if it drew it by both, a Neophyte, or Plant-Animal. See Fœtus, Neophyte, &c.

Some have defined *Animals* from their Loco-Motion, as being capable of Shifting from place to place, and Plants from their sticking fast to the same Subject: but on this Principle, Oysters, Mussels, Cockles, &c. are excluded from the Class of *Animals*, in as much, as they adhere, or grow to Rocks, &c. yet 'tis certain, that those Creatures are real *Animals*, as they have Mouths and Stomachs to take in their Food, and Lacteals and Mesenteric Veins to receive it——Indeed, Mussels seem an Exception from the former Definition. That Anomalous Creature breathes, and receives its Nourishment, not at the Mouth, but by the *Anus*: The Part which we account its Head, tho' without either Eyes, Ears, or Tongue, or any other Apparatus, save a Hole, which we may call its Mouth, is an immoveable Part; being fastned to one of the Shells, so, that it cannot seek for Food, but the Food must come to seek it. This Food is Water, which, as the Shells open, enters in at the Anus of the Mussel, which opens at the same time; and passing thence into certain Canals between the inner Surface of the Shell, and the outer Surface of the *Animal*, is conveyed thence into its Mouth, by a certain Motion, which the *Animal* can produce at pleasure.

We chuse therefore with Dr. *Tyson*, to fix the Criterion of an *Animal* in a *Ductus Alimentalis*, *i. e.* a Gula, Stomach, and Intestines; all which make but one continued Canal. See Ductus *Alimentalis*.

All *Animals*, according to the most probable and receiv'd Opinion, come from Eggs, and are there inclosed, as it were in Epitome, till the Seed of the Male penetrate their Covering, and stretch them, so as they become ready for hatching. See Egg, Generation, &c.

There enters into their Vessels a chylous Juice; which being push'd forwards by the Spirits, circulates thro the whole Habit of the little Body, nourishes and dilates it by little and little, and thus produces what we call *Growth*. See Chyle, Chylification, and Nutrition.

This Circulation repeated several times, refines and attenuates the Juices, till at length they became of a red Colour, and are converted into what we call Blood——This natural Operation bears a great resemblance to several chymical Operations, by which, in attenuating and dissolving oily or sulphureous Substances, they assume a red Colour. See Circulation, Blood, and Sanguification.

The Philosophers comprehend Man under the Species of *Animals*; and define him, a reasonable *Animal*: tho among Naturalists, &c. *Animals* are usually restrain'd to Irrationals.

St.

St. *Auguſtin* relates, that a great many ſcrupulous perſons in his Time, extended that Prohibition of the Law, *Thou ſhalt not kill*, to all *Animals*: They grounded their Opinion on ſome Paſſages of Scripture wherein God ſpeaks of *Animals* as if they had ſome Principle of Reaſon; declaring that he will require the Blood of Man at the hand of Beaſts, *Gen.* c. 9. Adding, in the ſame place, that he makes a Covenant not only with Man, but with every living Creature.——See CARNIVOROUS.

ANIMALS are ordinarily divided into *terreſtrial*, *aquatic*, *volatile*, *amphibious*, *Inſects*, &c.

Terreſtrial *Animals*, are either Quadrupeds or Reptiles.——Quadrupeds have either the Feet cloven, as the Bullock; or entire, as the Horſe; or divided into ſeveral Toes or Claws, as the Dog, Lion, &c. See QUADRUPED, INSECT.

The other Diviſions will be found under the words FISH, BIRD, REPTILE, &c.

But, for a compleat and general Account of the various kinds of *Animals*, we ſhall here ſubjoin Mr. *Ray*'s General Scheme.

Animals are either,

- Sanguineous, that is, ſuch as have Blood, which breathe either by
  - Lungs, having either
    - Two Ventricles in their Heart, and thoſe either
      - Viviparous.
      - Aquatick, as the Whale-kind,
      - Terreſtrial, as Quadrupeds.
      - Oviparous, as Birds.
    - But one Ventricle in the Heart, as Frogs, Tortoiſes, and Serpents.
  - Gills, as all ſanguineous Fiſhes, except the Whale-kind.
- Exanguineous, or without Blood, which may be divided into
  - Greater; and thoſe either
    - Naked.
      - Terreſtrial, as naked Snails,
      - Aquatick, as the Poulp, Cuttle-fiſh, &c.
    - Covered with a Tegument, either
      - Cruſtaceous, as Lobſters and Crab-fiſh.
      - Teſtaceous, either
        - Univalve, as Limpets,
        - Bivalve, as Oiſters, Muſcles, Cockles, &c.
        - Turbinate, as Periwinkles, Snails, &c.
  - Leſſer, as Inſects of all Sorts.

Viviparous hairy Animals, or Quadrupeds, are either

- Hoof'd, which are either
  - Whole-footed or hoof'd, as the Horſe and Aſs:
  - Cloven-footed, having the Hoof divided into
    - Two principal Parts call'd Biſcula, either
      - Such as chew not the Cud, as Swine.
      - Ruminant, or ſuch as chew the Cud, divided into
        - Such as have perpetual and hollow Horns:
          - Beef-kind,
          - Sheep-kind,
          - Goat kind.
        - Such as have ſolid, branched, and deciduous Horns, as the Deer kind.
    - Four Parts, or Quadriſcula, as the Rhinoceros and Hippopotamus.
- Claw'd, or digitate, having the Foot divided into
  - Two Parts or Toes, having two Nails, as the Camel-kind.
  - Many Toes or Claws, either
    - Undivided, as the Elephant
    - Divided, which have either
      - Broad Nails and an humane Shape, as Apes.
      - Narrower and more pointed Nails, which in reſpect of their Teeth, are divided into ſuch as have
        - Many Fore teeth or Cutters in each Jaw:
          - The greater, which have
            - A ſhorter Snout and rounder Head, as the Cat-kind.
            - A longer Snout and Head, as the Dog kind.
          - The leſſer, the Vermin or Weazel kind.
        - Only two large and remarkable Fore teeth, all which are Phytivorous and are call'd the Hare-kind.

For particulars relating to Animals, their Number, Analogous Structure, Sagacity, Inſtinct, &c. See ARR, HEAD, NECK, TAIL, FEET, STORGE, INSTINCT, &c.

ANIMALS conſiſt of *Solids*, or firm parts, as Fleſh, Bones, Membranes, &c. and *Fluids*, as Blood, &c.

The Solids are mere Earth, bound together by ſome Oily Humour; and accordingly are reducible by Fire into ſuch Earth again. See EARTH, FIRE, SOLID, &c.

Thus a Bone being perfectly purg'd of all its Moiſture, by Calcination, is found a mere Earth, which the leaſt force will crumble into Duſt, for want of the natural Gluten: Yet the ſame Bone by immerging it in Water or Oil becomes firm and ſtrong again; and more ſo in Oil than Water. And thus Cupels are made of Animal Earth, which will ſuſtain the utmoſt Effect of Fire. See CUPEL.

The Fluid Parts of *Animals* are the cruder as they are leſs diſtant from the Lacteals, and abſorbent Veſſels——Thus Chyle is little elſe but a vegetable Juice; but in its farther progreſs, gradually lays aſide its vegetable Characters, till after a number of Circulations it becomes a perfect Animal Juice, under the denomination of *Blood*, from whence the other Humours are all derived. See CHYLE, BLOOD, HUMOUR, SECRETION, &c.

The parts of *Animals* are diſtinguiſhed from thoſe of Vegetables by two Circumſtances: The firſt, that when burnt they are found perfectly inſipid; all Animal Salts being volatile and flying off with heat: the contrary of which is found in Vegetables, which conſtantly retain ſome fixed Salt in all their Aſhes. See SALT, VOLATILE and FIXED.

The ſecond, that no ſincere Acid is contained in any Animal Juice; nor can any Acid Salt be extracted from the ſame: The contrary of which is found in all Vegetables. See ACID.

Yet are *Animals* reconverted into their Vegetable Nature, by Putrefaction. See PUTREFACTION.

ANIMALS make the Subject of that Branch of Natural Hiſtory call'd *Zoology*; ſee ZOOLOGY.

The Structure of *Animals*, with their Diſorders, Remedies, &c. make the Subject of Anatomy, Medicine, &c. See ANATOMY, MEDICINE, &c.

ANIMALS make the principal matter of Heraldry; both as Bearings and as Supporters, &c. See BEARING, SUPPORTER, &c.

'Tis an eſtabliſh'd Rule among the Heralds, that in Blazoning, *Animals* are always to be interpreted in the beſt Senſe; that is, according to their moſt noble and generous Qualities, and ſo as may redound moſt to the Honour of the Bearers.

Thus the Fox, being reputed witty, and withal given to filching for his Prey; if this be the charge of an Eſcutcheon, we are to conceive the Quality repreſented to be his Wit and Cunning, not his Theft.

Guillim adds, that all Savage Beaſts are to be figured in their fierceſt Action; as, a Lion erected, his Mouth wide open, his Claws extended, &c. Thus formed, he is ſaid to be *Rampant*.——A Leopard, or Wolf is to be pourtray'd going, as it were, Pedetentim: which form of Action, ſaith *Chaſſanæus*, fits their natural Diſpoſition, and is termed *Paſſant*.——The gentler kinds are to be ſet forth in their nobleſt and moſt advantageous Action; as, a Horſe running or vaulting, a Grey-hound courſing, a Deer tripping, a Lamb going with ſmooth and eaſy pace, &c.

Every *Animal* is to be moving, or looking, to the right ſide of the Shield; and it is a general Rule, that the right Foot be placed foremoſt, becauſe the right ſide is reckoned the beginning of Motion: add, that the upper part is nobler than the lower; ſo that things conſtrained either to look up or down, ought rather to be deſign'd looking upwards.—It muſt be noted, that notwithſtanding theſe ſolemn Precepts of *Guillim*, and the other Maſters of Armory; we find by experience, that there are Lions Paſſant, Couchant, and Dormant, as well as Rampant, and that moſt *Animals* look down, and not up.

ANIMAL is alſo uſed Adjectively, to denote ſomething that belongs or partakes of the Nature of an Animal Body, ſee BODY.——Thus we ſay *Animal Food*, *Animal Oeconomy*, &c. See FOOD, OECONOMY.

ANIMAL *Actions* are thoſe peculiar to *Animals*; or which belong to *Animals*, as ſuch. See ANIMAL and ACTION.

Such are *Senſation* and *Muſcular Motion*. See SENSATION, &c.

ANIMAL *Motion* is the ſame with what we call *Muſcular Motion*. See MUSCULAR *Motion*.

It is divided into two Branches; Natural or Involuntary, and Spontaneous. See NATURAL and SPONTANEOUS.

ANIMAL *Functions*, among Phyſicians. See FUNCTION.

Moraliſts frequently oppoſe the *Animal* part, which is the ſenſible, fleſhy part of Man; to the Rational part, which is the Underſtanding.

ANIMAL *Secretion* is the Act whereby the divers Juices of the Body are ſecreted or ſeparated from the common Maſs of Blood, by means of the Glands. See SECRETION, BLOOD and GLAND.

The Theory of Animal Secretion is one of the Improvements in Phyſic, for which we are indebted to Geometrical Reaſoning——The ſum of what our late Writers on the Head have ſhewn, may be reduced to the following Heads.

(1.) Different Juices may be ſeparated from the common Maſs of Blood by means of the different Diameters of the

Orifices of the secretory Ducts. For all Particles, whose Diameters are less than those of the Ducts, will pass thro' them; so that any Matter may be evacuated by any of the Glands, provided the Diameters of its Particles be made lesser than those of the secretory Duct, either by a Comminution of the Matter to be separated, or by an Enlargement of the separating Passage.

(2.) By the different Angle which the secretory Duct makes with the Trunk of the Artery. For all Fluids press the Sides of the containing Vessels in a Direction perpendicular to its Sides; which is evident in the Pulsation of the Arteries, it being to that Pressure that the Pulsation is owing. It is likewise evident, that the Blood is urged forward by the Force of the Heart; so that the Motion of Secretion is compounded of both these Motions. Now the lateral Pressure is greater when the direct Velocity is so; but yet not in proportion to such Velocity: for the lateral Pressure is considerable, even when the Fluid is at rest; being then in proportion to the Specifick Gravity of the Fluid: And in a Fluid like the Blood in the Arteries which is thrown in a right Direction, or a Direction parallel to the Axis of the Vessel, the lateral Pressure will be in a Proportion compounded of both: From whence it will follow, that if two Particles of equal Diameters, but of unequal Specifick Gravities, arrive, with the same Velocity, at an Orifice capable of admitting them, yet they will not both enter it and pass, because their Motion of Direction will be different: So that the Diversity of the Angles which the Ducts make with the Trunk of the Artery, is altogether necessary to account for all the possible Diversities of secerned Fluids, even supposing their Diameters and Figures to be the same.

(3.) By the different Velocities with which the Blood arrives at the Orifices of the secretory Ducts——For since the Secretions are made in a fluid form; no possible Reason can be assign'd, why some *Animals* have a soft loose Texture of the solid Parts, and why one Part of the Body is of an easily separated Texture, and others of a firmer, but this different Velocity of the Blood at the Orifices of the secretory Ducts, whereby the Particles secerned for Nourishment, and Accretion, are drove or impacted into the Vacuola, that receive them with a greater or less Force; it being difficult to imagine that such a Diversity in Texture can altogether proceed from the different Solidities and Contacts of the constituent Parts. *See further under the Article* SECRETION.

ANIMAL *Spirits*, are a fine subtile Juice, or Humour in Animal Bodies; supposed to be the great Instrument of muscular Motion, Sensation, &c. See MUSCULAR MOTION, SENSATION, &c.

The Antients distinguished Spirits into three Kinds, *viz.* *Animal*, Vital, and Vegetative: but the Moderns have reduced them to one sort, *viz.* *Animal*; about the Nature of which, and the Matter whence they are formed, great disputes have arisen among the Anatomists, tho' their very Existence has never been fairly proved.

As it is hard to define what cou'd never yet be brought under the Judgment of our Senses, all that we shall here offer concerning them, is, that they must needs be extremely subtile Bodies, which escape all manner of Examination by the Senses, tho ever so well assisted; and pervade the Tracts of the Nerves, which yet have no discoverable Cavity or Perforation; nor could ever by any Experiment be collected; yet are constantly moving in vast Quantities, as they must of necessity be, to perform all those mighty Operations which are ascribed to them——However, the Antiquity of the Opinion claims some Reverence.

By the Help of these we are furnished with a vast Number of precarious Solutions of great Phænomena; and without them we must leave a great Chasm in the philosophical History of *Animal* Bodies.

They are supposed to be separated in the Brain, from the subtilest Parts of the Blood; and thence carried, by the Nerves, to all Parts of the Body, for the Performance of all *animal* and vital Functions. See BRAIN and NERVE. See also further *under the Article* SPIRIT.

ANIMALCULE, ANIMALCULUM, is a Diminutive of *Animal*; and expresses such a minute Creature as is scarce discernible by the naked Eye.

Such are those numerous Insects which cloud the Water in the Summer Months; changing it sometimes of a deep, or pale red, sometimes a yellow, &c. They seem to be of the Shrimp kind, call'd by *Swammerdam*, *Pulex Aquaticus arborescens*. The cause of their Concourse at this time, Mr. *Derham* observes is to perform their Coit. He adds, that they afford a comfortable Food to many Water Animals——The green Scum on the top of stagnant Waters is nothing else but prodigious Numbers of another smaller Order of *Animalcules*; which in all probability serve for Food to the *Pulices Aquatici*.

The Microscope discovers Legions of Animalcules in most Liquors, as Water, Wine, Brandy, Vinegar, Beer, Spittle, Urine, Dew, &c. In the Philosoph. Transact. we have Observations of the *Animalcules* in Rain-Water, in several Chalybeat Waters, Infusions of Pepper, Bay-berries, Oats, Barly, Wheat, &c. See MICROSCOPE.

The human Seed has been observed by divers Authors to contain huge Numbers of *Animalcules*; which gave occasion to the System of Generation *ab Animalculo*. See SEED and GENERATION.

ANIMATE, ANIMATED, something endued with Life, or a living Soul. See LIFE and SOUL.

Thus, in Mechanicks, *Animate Power* is used to denote a Man or Brute; in contradistinction to inanimate ones, as Springs, Weights, &c. See POWER, &c.

ANIMATED *Mercury*, among Chymists, signifies Quicksilver impregnated with some subtile and spirituous Particles, so as to render it capable of growing hot when mingled with Gold. See MERCURY, AMALGAMA, &c.

ANIMATED *Needle*, a Needle touch'd with a Load stone. See NEEDLE, MAGNET, &c.

ANIMATION, signifies the informing of an animal Body with a Soul.

Thus the Fœtus in the Womb is said to come to its *Animation*, when it begins to act as a true Animal; or after the Female that bears it is quick, as the common way of Expression is. See FOETUS.

The common Opinion is, that this happens about 40 days after Conception. But *Jer. Florentinus*, in a Latin Treatise entitled, *Homo Dubius, sive de Baptismo Abortivorum*, shows this to be very precarious. See CONCEPTION, ABORTION, &c.

ANISCALPTOR, in Anatomy, a Muscle, otherwise called LATISSIMUS *Dorsi*.

ANKER, a liquid Measure, chiefly used at *Amsterdam*, &c. See MEASURE.

The *Anker* is the 4th part of the Aem, and contains two Stekans: each Stekan consists of sixteen Mingles; the Mingle being equal to two *Paris* Pints. See PINT, &c.

ANKYLOSIS, a Disease in the Junctures of an human Body; where the nervous Liquor that shou'd lubricate the Bones, and make their Motions more easy, growing too thick, clog up, and as it were, cement the Bones within one another. See BONE, ARTICULATION, &c.

The Word is derived from the *Greek* ἀγκύλωσις, which comes from ἀγκύλη, a Hardness, or Callus in a Juncture.

ANNALS, ANNALES, an historical Account of the Affairs of a State, digested in order of Years; see YEAR.

The difference between *Annals* and History is variously assigned by various Authors—Some say that History is properly a Recital of Things which the Author has seen, or been a by-stander to. What they build upon, is, the Etymology of the Word; History in the *Greek*, signifying the Knowledge of *Things* present, and in effect, ἱστορεῖν, properly signifies *to see*. On the contrary, *Annals*, say they, relate to the Transactions of others, and such as the Writer never saw. See HISTORY.

Of this Opinion, the great *Annalist*, *Tacitus* himself, seems to have been; in regard, the first Part of his Work, which treats of former Times, he calls *Annals*; whereas when he comes down to his own Times, he changes his Title, and calls it *History*.

Aulus Gellius is of a different Sentiment, and pretends that History and *Annals* only differ from one another as the Genus does from the Species; that History is the Genus, and implies a Narration or Recital of Things pass'd; and that *Annals* are the Species, and are also a Recital of Things pass'd, but with this difference, that these last are digested into certain Periods, or Years.

The same Author gives us another Opinion, which he says he borrows from *Sempronius Asellio*: According to that Writer, *Annals* are a bare Relation of what passes each Year; whereas History relates not only the Transactions themselves, but also the Causes, Motives, and Springs thereof. The *Annalist* has nothing to do but to lay down his Facts, but the Historian reasons and descants on them.

Of this last Opinion seems *Cicero* to be, when speaking of *Annalists*, he says, *Unam dicendi laudem putant esse brevitatem, non Exornatores rerum, sed tantum Narratores*. He adds, that History, in its Original, was a Composition of *Annals*.

The same *Cicero* relates the Origin of *Annals*: To preserve the Memory of Transactions, the *Pontifex Maximus*, says he, wrote what pass'd each Year; and exposed it on a Table, in his own House, where every one was at liberty to read them——These they call'd *Annales Maximi*; and the Custom was kept up till the Year of *Rome* 620. See FASTI.

Several other Writers, in imitation hereof, took to this simple, and naked Way of relating Facts; and were hence denominated *Annalists*——Such were *Cato*, *Pictor*, *Piso*, *Antipater*, &c.

ANNA-

ANNATES, Annats, *Annata*, the same with *Primitiæ* or First-fruits; so call'd from the *Latin Annus* Year, because the Rate of First-fruits, paid for spiritual Livings, is after the Value of one Year's Purchase. See Primitiæ and First-Fruits.

Annates were antiently a Right paid to the Pope, upon his granting a Bull for a vacant Benefice, Abby, or Bishoprick; but since the Reformation they are paid in *England* to the King.——The first Pope that imposed them in *England*, seems to have been *Clement* V. who, according to *Matthew* of *Westminster*, exacted *Annates* of all the vacant Benefices in the Kingdom, for the space of two Years, or according to *Walsingham* for three Years. His Successor *John* XXII. introduced the like in *France*.

Yet *Polydore Virgil*, and some others, take *Annates* to be of a much elder standing; and to have obtained long before they were paid to the Pope.——'Tis certain at least, that from the Twelfth Century, there were Bishops and Abbots, who by some peculiar Custom or Privilege, took *Annates* of the Benefices depending on their Diocese or Abbey.

Matthew Paris, in his History of *England*, for the Year 746, relates that the Archbishop of *Canterbury* in virtue of a Grant or Concession of the Pope, received *Annates* of all the Benefices that became vacant in *England*. But in after-times the Holy See thought fit to take 'em away from the Bishops and Archbishops, and appropriate 'em to themselves.

ANNEALING, or as it is popularly call'd *Nealing*. See Nealing.

One fine use of Silver, says Mr. *Boyle*, was only discovered since the Art of *Annealing* upon Glass came to be practised——For prepared Silver, or even the crude Metal being burnt on a Glass Plate, will tinge it of a fine yellow, or golden Colour. And there are several mineral Earths, and other coarse Matters, of use in this Art, which by means of Fire impart transparent Colours to Glass, and sometimes very different ones from those of the Bodies themselves. See *Painting on* Glass.

ANNEXATION, in Law, the uniting of Lands or Rents to the Crown. See Annexed.

ANNEXED, something join'd to, or dependant of, another——Thus we say such a Farm, such an Advowson is *annex'd* to such a Fee, such a Manor, &c. *Charles* VIII in the Year 1486, *annex'd Provence* to the Crown of *France*.

ANNIENTED, a Term sometimes used in Law Books, in the Sense of frustrated, or annull'd.

It is of *French* original; being form'd of the Verb *Annientir* to bring to nothing, annihilate.

ANNIHILATION, the Act of reducing a Substance into Nothing; or of totally destroying and taking away its Existence. See Substance and Existence.

Annihilation stands opposed to *Creation*: The one supposes something made out of nothing, the other nothing made out of something. See Creation.

All Annihilation must be Metaphysical or Supernatural. See Body, Alteration, Corruption, &c.

Bodies naturally admit of Changes and Alterations in their form; but not of *Annihilation*.

Philosophers object against this Notion of *Annihilation*; in that it supposes an Act required thereto: Whereas, according to them, *Annihilation* must ensue upon God's merely ceasing to act, or to create a thing. For, if the Conservation of a thing be a continued Creation thereof; as is almost universally allowed: 'Tis evident a thing can no longer endure, than while God continues to create.

The Word is compounded of *ad* to, and *nihil* nothing.

ANNI *Nubiles*, among Law-Writers, the legal Age, at which a Maid becomes fit for Marriage; which is at 12 Years. See Age.

ANNIS SEED, or Aniseed, a medicinal Seed or Grain; produced by an Umbiliferous Plant of the same Name, common in our Gardens. See Seed.

It has a sweetish Taste, intermix'd with something pungent and bitter: Is reputed an Aromatic, and prescribed not barely as a Carminative against Wind; but also as a Pectoral, Stomachic and Digestive. See Carminative, &c.

It also yields by Distillation, a white cordial Oil call'd *Essence of Annis-seed*; of a very strong penetrating Smell, and efficacious in its medicinal Operation: It being also used by the Confectioners to scent their Pomatums, &c.

In distilling the *Annis-seed* for the Oil; there is procured a limpid Water call'd *Annis-seed* Water; which has much the same Virtues with the Oil.

ANNIVERSARY, is properly the yearly Return of any remarkable Day; and was antiently called a *Year-day* or *Mind-day*, that is, a Memorial-day. See Annual Day, &c. On some extraordinary Occasions such Days have been register'd, and annually observed, in gratitude to Founders and Benefactors.——

The Word is form'd from *annus* and *verto*, in regard of its returning every Year.——In this Sense we say *Anniversary* Days, *Anniversary* Feasts, *Anniversary* Prayers, &c.

Anniversary *Days*, *Dies Anniversarii*, among our Ancestors were those Days wherein the Martyrdoms of the Saints were yearly celebrated in the Church; as also Days whereon, at every Year's end, Men were wont to pray for the Souls of their deceas'd Friends.—*Anniversaria dies ideo repetitur defunctis, quoniam nescimus qualiter eorum causa habeatur in alia vita.*—This was the Reason given by *Alcuinus* in his Divine Offices.

ANNOISANCE, or *Nusance*, in Law, a Hurt or Offence, either to a publick place, as a High-way, Bridge, or common River; or to a private one, by laying any thing that may breed Infection; by incroaching, or the like means. See Nusance.

Annoisance is also used for a Writ brought upon this Transgression. See Nusance.

ANNOTATION, a succinct Commentary, or Remark on any Book, or Writing; in order to clear up some Passage, or to draw some Induction or Consequence from it. See Comment, &c.

The Criticks of the last Age have made learned *Annotations* on the Scriptures, the Classics, &c.

The Word is form'd of the Latin *adnotatio*; of *ad* and *Nota*, Note.

ANNUAL, something which returns every Year, or closes at the end of the Year. See Year.

Thus we say an *Annual* or yearly Feast, Office, Commission, Rent, &c. See Anniversary.

The Annual *Motion of the Earth see proved under the Article* Earth.

Annual, is sometimes used for the yearly Rent, or Income of a Prebendary, &c. See Prebend, &c.

Annual *Plants*, call'd also simply *Annuals*, are such as only live their Year, *i. e.* come up in the Spring, and die again in Autumn: And accordingly are to be recruited every Year. See Plant.

Annuals stand contradistinguished from Bisannuals, Triennials, &c.

Annual *Leaves*, are such Leaves as come up afresh in Spring, and perish in Winter. See Leaf.——These stand opposed to *Perennials*. See Perennial.

Anno *Domini*, *q. d.* in the *Year of our Lord*; the Computation of Time from the Epocha of the Incarnation of Jesus Christ. See Epocha, Computation, &c.

Annual *Equation*, of the mean Motion of the Sun and Moon, and of the Moon's Apogee and Nodes. See Equation, Moon, &c.

The *annual* Equation of the mean Motion of the Sun depends on the Eccentricity of the Earth's Orbit; and is $16\frac{1}{4}$ of those Parts, whereof the mean Distance between the Sun and the Earth is 1000: whence by some, it is called the *Equation of the Center*, and when greatest, is 1 Degree 56′, 20″.

The greatest *annual* Equation of the Moon's mean Motion is 11′, 40″. of its Apogee 20′, and of its Node 9′, 30″. See Node, &c.

These four *annual* Equations are always proportionable; so that when any of them is at the greatest, the three others are also greatest; and *vice versa*.——Hence the *annual* Equation of the Center (of the Sun) being given, the other three corresponding Equations will be given; so that one Table (that is, of the central Equation) may serve for all.

ANNUALIA, yearly Oblations antiently made by the Relations of deceased Persons, on the Day of their Death: See Oblation.

This Day they call'd *Year-day*, &c. and on it, Mass was celebrated with great Solemnity. See Anniversary.

ANNUENTES *Musculi*, in Anatomy, a Pair of transverse Muscles, at the Root of the *Vertebræ* of the Back; call'd also by Mr *Cowper*, *Recti interni minores*, because they lie under the *Recti majores*. See Recti.

They are called *Annuentes*, because they help to nod the Head directly forward. See Head, Muscles, &c.

ANNUITY, a yearly Rent or Revenue, paid for Term of Life or of Years, or in Fee and for ever. See Revenue, Fee, &c.

In Common Law, the Difference between a Rent, and an *Annuity* consists in this, that Rent is payable out of Land; whereas an *Annuity* charges only the Person of the Grantor: and that for the Recovery of a Rent, an Action lies; whereas for that of an *Annuity*, there only lies a Writ of *Annuity* against the Grantor, his Heirs and Successors. See Rent, Writ, Action, &c.

Add, that *Annuities* are never taken for Assets; as being no Freeholds in Law. See Assets.

The Computation of the Value of *Annuities* belongs to Political Arithmetic. See Political *Arithmetic*.

Dr. *Halley*, in his Observations on the *Breslaw* Bills of Mortality, shews, That it is 80 to 1, a Person of 25 Years of Age does not die in a Year——That it is $5\frac{1}{2}$ to one, a Man of 40 lives 7 Years; and that one of 30 may reasonably

nably expect to live 27 or 28 Years. So great a difference is there between the Life of Man at different Ages; that it is 100 to 1. one of 20 lives out a Year; and but 38 to 1 that one of 50 doth so.

Whence, and from some other Observations, he constructed the following Table; shewing the Value of *Annuities* for every fifth Year of Life to the 70th.

Age.	Years Purchase.	Age.	Years Purchase
1	10,28	40	10,57
5	13,40	45	9,91
10	13,44	50	9,21
15	13,33	55	8,51
20	12,78	60	7,60
25	12,27	65	6,54
30	11,72	70	5,32
35	11,12		

ANNULAR, Annularis, something that relates to, or resembles, a Ring, by the *Latins* called *Annulus*. See Ring.

Annular *Protuberance*, is a Process of the *Medulla Oblongata*; thus called by Dr. *Willis*, in regard it surrounds the same, much like a Ring. See Medulla *Oblongata*.

Annular *Cartilage*, or Annularis, is the second Cartilage of the Larynx; being round, and investing the whole Larynx; called also *Cricoides*. See Larynx and Cricoides.

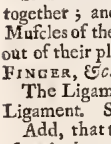
Annular *Ligament*, *Ligamentum Annulare*, is a strong Ligament, encompassing the Carpus or Wrist; after the manner of a Braceler. See Ligament.

Its use is to connect or bind the two Bones of the Arm together; and also to restrain the Tendons of the several Muscles of the Hand and Fingers, and prevent their flying out of their places, when in Action. See Carpus, Hand, Finger, &c.

The Ligament of the Tarsus is also denominated *Annular* Ligament. See Tarsus.

Add, that the Sphincter Muscle of the Anus is also called *Annularis*, or *Annular* Muscle; from its Figure. See Sphincter.

Annular is also an Epithet given the fourth Finger; popularly calld the *Ring Finger*. See Finger.



ANNULET, *q. d. little Ring*; in Heraldry, is a Difference or Mark of Distinction, which the fifth Brother of any Family ought to bear in his Coat of Arms. See Difference.

Annulets are also part of the Coat-Armour of several Families: They were antiently reputed a Mark of Nobility, and Jurisdiction; it being the Custom of Prelates to receive their Investiture *per Baculum & Annulum*. See Bishop, Investiture, &c.

ANNULETS, in Architecture, are small square Members, in the Doric Capital; under the Quarter-round. See Doric and Capital.

They are also called *Fillets*, *Listels*, &c. See Fillets, &c.

Annulet is also a narrow flat Moulding, common to other Parts of a Column, *viz.* the Bases, &c. as well as the Capital; so called, because it encompasses the Column round.—In this Sense *Annulet* is frequently used for a *Baguette* or little Astragal. See Baguette, and Astragal.

ANNULLING, the abolishing of an Act, Proceedure, Sentence, or the like. See Abolition.

The Word is compounded of *ad* and *nullus*, none; *q. d. un-doing*.

ANNUNCIATE, Annuntiada, or Annuntiate, a Denomination common to several Orders, both Religious and Military; instituted with a View to the Annunciation. See Order and Annunciation.

The first Religious Order of this kind, was instituted in 1232, by seven *Florentine* Merchants.——These are also call'd *Servites*, *q. d. Servants*. See Servites.

The second was a Nunnery at *Bourges*, founded by *Joan* Queen of *France*, after her Divorce from *Lewis* XII.

The third, was also a Nunnery, founded by a *Genoese* Lady in 1600.——The fourth, a Friary, founded by Cardinal *Torrecremata*, at *Rome*; which last are grown so very rich, that they give Fortunes of sixty *Roman* Crowns to above 400 Girls, on the Anoiversary of the Annunciation.

Knights of the Annunciate, was a military Order, instituted in 1350, by *Amadeus*, Duke of *Savoy*. See Knight.

It was at first call'd the Order of the True Lovers Knots; in memory of a Bracelet of Hair presented to the Founder by a Lady: but upon the Election of *Amadeus* VIII. to the Pontificate, it changed its Name for that of the *Annunciate*.

ANNUNCIATION, the Tidings which the Angel *Gabriel* brought to the Holy Virgin, of the Mystery of the Incarnation. See Incarnation.

Annunciation is also the Name of a Feast, celebrated annually on the 25th of *March*, popularly call'd *Lady-day*, in Commemoration of that wonderful Event. See Feast.

This Feast appears to be of great Antiquity in the *Latin* Church. Among the Sermons of Sr. *Augustin*, who died in 430, we have two on the *Annunciation*, *viz.* the 17th and 18th *de Sanctis*: And yet there are much earlier Testimonies of its use in the *Greek* Church. *Proclus*, who died in 446; *Chrysostom*, in 407; and even *Gregory Thaumaturgus*, in 295; have all of them Discourses on the *Annunciation*. *Rivet*, *Perkins*, and some other Protestant Writers after 'em, have indeed question'd the Authenticknesses of the two Homilies of *Gregory Thaumaturgus*, on the *Annunciation*; but *Vossius* acknowledges 'em the genuine Productions of that Father.

Add, that some Authors are of opinion, that the Feast was originally solemnized in Honour of our Saviour; and that the holding it in the Name and Honour of the Virgin, is of a much later standing.

Several of the Eastern Churches celebrate the *Annunciation* at a different Season from those of the West.——The *Syrians* call it *Bascarach*, *q. d.* Search, Inquiry; and mark it in their Calendar for the first Day of *December*. The *Armenians* hold it on the 5th of *January*; thus anticipating the Time, to prevent its falling in *Lent*: But the *Greeks* make no scruple of celebrating the Festival even in Lent. See Lent.

The Word is compounded of the Latin *ad* and *nuntio*, I tell, I declare; of *Nuntius*, Messenger.——The *Greeks* call it Εὐαγγελισμὸ, Good tidings; and χαιρετισμὸς, Salutation.

The *Jews* also give the Title *Annunciation* to part of the Ceremony of their Passover, *viz.* that, wherein they explain the Origin, and Occasion of the Solemnity——This Explanation they call הגדה, Haggada, *q. d. Annunciation*.

ANNULUS, a *Ring*. See Ring.

ANODYNE, in Physick, is understood of such Remedies, as by their gentle Heat and temperate Moisture, calm and assuage Pain. See Pain.

These are also called *Paregoricks*. See Paregoricks.

There are others, which bear the same Name, but improperly, *viz.* such as occasion a Stupor, Drousiness, and Sleep, properly called *Narcoticks*, *Hypnoticks*, or *Opiates*. See Narcotick, Opiate, &c.

The true *Anodynes* are applied externally, to the part affected——Such among the Class of Simples are the Onion, Lilly, Root of Mallows, Leaves of Violet, Elder, &c.

The Word is derived from the privative Particle α and ὀδύνω, *doleo*, to be in pain.

We have also certain compound Medicines in the Shops, prepared with this Intention; and called by this Name—Such is the *Anodyne Balsam*, made of Castile Soap, Camphir, Saffron, and Spirit of Wine; digested in a Sand-heat. It is recommended not only for procuring Ease in the most racking extremities of pain, but for assisting in discharging the peccant matter that occasion'd it.

ANOMALOUS, *q. d. Irregular*; something that deviates from the ordinary Rule and Method of other things of the same kind. See Rule, &c.

The Word is not compounded of the privative α, and νομος, Law, as is usually imagined: for whence, on such supposition, should the last Syllable *al*, arise? But it comes from the Greek ἀνώμαλος, *uneven*, *rough*, *irregular*, form'd of the Privative α, and ὁμαλὸς, *plain*, *even*.

Anomalous *Verbs*, in Grammar, are such as are irregular in their Conjugations; deviating from the Rules or Formula's observ'd by others. See Verb and Conjugation.

There are *Anomalous* Verbs, irregular Inflexions of Words, in all Languages——In the *English* all the Irregularity in our *Anomalous* Verbs, lies in the formation of the Preter Tense, and passive Participle; tho' this only holds of the Native *Teutonic* or *Saxon* Words, and not of the foreign Words, borrow'd from the *Latin*, *Welsh*, *French*, &c.

The principal Irregularity arises from the quickness of our Pronunciation, whereby we change the Consonant *d* into *t*, cutting off the regular ending *ed*.

Thus for *mixed*, we write *mixt* or *mix'd*; for *dwelled* *dwelt* or *dwell'd*; for *snatched*, *snatcht*, &c.——But this is rather of the nature of a Contraction than an Irregularity; and

and is complained of by some of our Politer Writers as an Abuse much to the disadvantage of our Language, tending to disfigure it, and turn a tenth part of our smoothest Words into Clusters of Consonants: which is the more inexcusable, in that the want of Vowels has been the general Complaint of the best Writers.

Another Irregularity relates to the preter Tense, and passive Participle——Thus *give*, if it were regular, or formed according to the Rule, would make *gived* in the preter Tense, and the passive Participle: whereas it makes *gave* in the preter Tense, and *given* in the passive Participle.

ANOMALISTICAL *Year*, in Astronomy, called also *Periodical Year*, is the space of time wherein the Earth passes thro' her Orbit. See YEAR.

The *Anomalistical*, or common Year, is somewhat greater than the Tropical Year; by reason of the præcession of the Equinox. See TROPICAL.

ANOMALY, in Grammar, the Irregularity of Formation or Conjugation, observed in several Verbs. See ANAMALOUS.

ANOMALY, in Astronomy, is the Distance of a Planet from the Aphelion or Apogee; or an irregularity in the Motion of a Planet, whereby it deviates from the Aphelion or Apogee. See PLANET, APHELION and APOGEE.

Kepler distinguishes three kinds of Anomalies; Mean, Eccentric and True.

Mean or *Simple* ANOMALY in the antient Astronomy, is the Distance of a Planet's mean place from the Apogee. See PLACE.

In the modern Astronomy, it is the Time wherein the Planet moves from its Aphelion A, to the mean Place or Point of its Orbit I. (Tab. ASTRONOMY, fig. 1.)

Hence, as the Arch, or the Angle, or the Elliptic Area A S I, is proportional to the Time wherein the Planet describes the Arch A I; that Area may represent the mean *Anomaly*.——Or thus: The Area S K A found by drawing a Line L K, thro' the Planet's place, perpendicular to the Line of the Apsides P A, till it cuts the Circle D A, and drawing the Line S K; may represent the mean *Anomaly*; for this Area is every where proportional to the former Area S I A, as is demonstrated by Dr. *Gregory*, *lib.* 3. *Elem. Astron. Physic. Math.*

ANOMALY *of the Eccentric*, or *of the Centre*, in the new Astronomy, is an Arch of the Eccentric Circle A K, fig. 1. included between the Aphelium A, and a right Line K L, drawn thro' the Centre of the Planet K, perpendicularly to the Line of the Apsides A P. See ECCENTRIC.

In the antient Astronomy, it is an Arch of the Zodiac, terminated by the Line of the Apsides, and the Line of the mean Motion of the Centre.

True or *Equated* ANOMALY, is the Angle at the Sun, A S I, which a Planet's distance from the Aphelium, A I, appears under; or it is the Angle or Area, taken proportional to the time in which the Planet moves from the mean Place I, to its Aphelion A.

And hence, in the Sun's Motion, it will be the distance of his true place, from the Apogee——

The true *Anomaly* being given, the mean one is easily found: but it is difficult to find the true Anomaly from the mean one given——

The Geomerrical Method of *Wallis* and *Newton*, by the protracted Cycloid, are not fit for Calculation; nor yet the Methods of *Series*, as being too laborious. Hence Astronomers are forced to have recourse to Approximation. *Ward*, in his *Astronomia Geometrica* takes the Angle A S I, at the Focus where the Sun is not, for the mean *Anomaly*; which will nearly represent it, if the Orbit of the Planet be not very Eccentric; and thus easily solves the Problem. But this Method does not hold of the Orbit of *Mars*, as being more Eccentric than those of the other Planets.

Sir *Isaac Newton* shews how to effect even this; and when his Correction is made, and the Problem solved, according to *Ward*'s Hypothesis, Sir *Isaac* affirms, that even in the Orbit of *Mars*, there will scarce ever be an Error of above a Second.

ANOMEANS, ANOMOEANS, or ANOMIANS, ANOMOEI, or ANOMIANI, a *Greek* Word, composed of the privative α and ὁμοῖος, *similar*, *resembling*; q. d. different, dissimilar.

In the fourth Century, this was the Name by which the pure *Arians* were distinguish'd; in regard they not only denied the Consubstantiality of the Word, but even asserted, that he was of a Nature different from that of the Father: In Contradistinction to the Semi-*Arians*, who indeed denied the Consubstantiality of the Word, but own'd at the same time, that he was like the Father. See ARIAN, and SEMI ARIAN.

The Semi-*Arians* condemned the *Anomeans* in the Council of *Seleucia*, and the *Anomeans* condemned the Semi-*Arians* in their Turn, in the Councils of *Constantinople* and *Antioch*; erasing the Word ὁμοῖος out of the Formula of *Rimini*, and that of *Constantinople*, and protesting that the *Word* had not only a different Substance, but also a Will different from that of the Father. Whence they were to be call'd Ἀνομοῖοι. See HOMOOUSIA, &c.

ANONYMOUS, something that is nameless; or to which no Name is affixed. See NAME.

The Term is chiefly applied to Books which do not express their Author's Name. It is derived from the *Greek* ἀνώνυμος, without Name, of the privative α and ὄνομα, *nomen*, Name.

Decker, Advocate of the Imperial Chamber of *Spires*; and *Placcius* of *Hambourg*, have given a Treatise of *Anonymous* Books——*Burcard Gotthelfus Struvius*, treats of learned Men who have endeavoured to divine the Authors of *Anonymous* Books.

ANOREXY, ANOREXIA, in Medicine, an Inappetency, or Loss of Appetite. See APPETITE.

Anorexia is properly a longer continuance than is natural, without a desire to eat. See FOOD, FASTING, DISTASTE, &c.

If the Thought, or the Sight of proper Food, create a Sickness in the Stomach, or a Tendency to vomit; it is called a *Nausea*. See NAUSEA.

Anorexia, is chiefly considered as a Symptom of some other Disorder, from which the curative Indications are to be taken, and afterwards Stomachics used. See STOMACHIC.

The Word is compounded of the privative Participle α and ὀρέγχεω, *Cupio*, I desire——

ANSES, or ANSÆ, in Astronomy, those apparently prominent Parts of the Planet *Saturn*'s Ring, discovered in its opening, and appearing like Handles to the Body of that Plant. See SATURN and RING.

The Word is *Latin*; and literally signifies Handles or Arms of divers Utensils.——

ANSCOTE, in our antient Law Books, the same with *Angild*. See SCOT and LOT.

ANSEL *Weight*. See AUNSEL *Weight*.

ANSPESSADES, a kind of Inferior Officers in the *French* Foot, below the Corporals, and yet above the common Centinels. See CORPORAL, &c.

There are usually four or five in each Company——The Word is formed of the Italian *lansa spezzada*, *q. d.* broken Lance; which was occasioned hence, that they were originally disbanded Gendarmes, who for want of other Subsistence sued for a Place of some distinction in the Infantry.

ANSWER. See RESPONSE, RESPONSAL, BILL, PLEADING, REPLICATION, &c.

ANTA, or ANTE, in the ancient Architecture, a square Column, or Pilaster, placed at the Corners of the Walls of their Temples and other Edifices. See PILASTER, TEMPLE, &c.

The *Antæ* stood out of the Wall, with a Projecture equal to one eighth of their Face, provided there were no Ornament that had a greater Projecture; but it was a Rule that the Projecture of the *Antæ* should always equal that of the Ornaments.

They took their Name, according to Mr. *Perrault*, from the Preposition *Ante* before; because placed before the Walls and Coins of Buildings to secure 'em.

ANTAGONIST, an *Adversary*; or a Party opposite to another in any Combat or Dispute. See ADVERSARY, &c.

The Word is formed from the *Greek* ἀντι, *contra*, against, and ἀγωνίζω, *oppono*, I oppose.

ANTAGONIST *Muscles*, in Anatomy, are those which have opposite Functions. See MUSCLE.

Such are the *Flexor* and *Extensor* of any Limb, the one whereof contracts it, and the other stretches it out. See FLEXOR and EXTENSOR.

We have some solitary Muscles, without any *Antagonists*; as the Heart, &c. See HEART, &c.

ANTANACLASIS, a Figure in Rhetorick; being a repetition of the same Word, but in a different Signification. See REPETITION.

The Word comes from the *Greek* ἀντι, and ἀνακλάω, *repercutio*, I strike again.

ANTANAGOGE, ἀντανάγωγή, a Figure in Rhetoric, when not being able to answer the Accusation of the Adversary, we return the Charge, by loading him with the same Crimes. See RECRIMINATION.

ANTARES, in Astronomy, the *Scorpion's Heart*; a fix'd Star of the first Magnitude, in the Constellation *Scorpio*——Its Longitude, Latitude, &c. see among the rest of the Constellation *Scorpio*.

ANTARCTIC, or ANTARTIC, *Pole*, the Southern Pole, or End of the Earth's Axis; so called because it is opposite to the Arctic or North Pole. See POLE, SOUTH, ARCTIC, &c.

The Stars near the *Antarctic* Pole never appear above our Horizon. See STAR, HORIZON, &c.

The Word is composed of ἀντι *contra*, and ἄρκτος, *Ursa*, bear.

ANTARCTIC, or ANTARTIC *Circle*, is one of the lesser Circles of the Sphere, parallel to the Equator, at

the distance of 29 deg. 30. min. from the South Pole. See CIRCLE.

It takes its Name from its being opposite to another Circle, parallel likewise to the Equator, and at the same distance from the North Pole; called the *Arctic* Circle. See ARCTIC *Circle*.

ANTECEDENT, in the Schools, something that precedes, or goes before another, in respect of time; from the *Latin* Preposition *ante*, before, and *cedens* of *cedere*, to go—In this Sense the Word stands opposed to *Subsequent*.

An *Antecedent Decree*, is a Decree preceding some other Decree, or some Action of the Creature, or the Provision of that Action. See DECREE.

'Tis a Point much controverted, whether Predestination be a Decree *antecedent* to Faith, or subsequent thereto. See PREDESTINATION.

So, an *Antecedent Will*, or *Desire*, is that which precedes some other Will or Desire, or some Knowledge or Provision—Thus we say, God by a sincere, but *Antecedent* Desire, wills all Men to be saved: That is, this sincere Desire of God precedes, and does not suppose, the Knowledge of their Faith and Repentance.

By the way it must be noted that the Term *Antecedent* is only applied to God in respect of the Order of Nature, not of an Order of Succession; for that God, by reason of his infinite Perfections, sees and foresees both at the same Time: after the same manner he also wills, and not successively, one thing after another——Yet does not this hinder, but that God may will one thing on occasion of another, or have such a desire on occasion of such a Provision; which Divines call the Order of Nature, in contradistinction to that of Time.

ANTECEDENT, *Antecedens*, in Logick, is the first Proposition of an Enthymeme, or of an Argument which only consists of two Members. See ENTHYMEME, PROPOSITION, *&c.*

In Opposition hereto, the latter is called the Consequent. See CONSEQUENT.

Thus in the Syllogism *cogito, ergo sum*, I think, and therefore exist; *cogito* is the *Antecedent*; being thus called because it precedes the *ergo*, or the *copula* of the Argument.

ANTECEDENT, in Mathematicks, is the former of the two Terms of a Ratio; or that which is compared with the other. See RATIO and TERM.

Thus, if the Ratio be of *a* to *b*; *a* is said to be the *Antecedent*.

ANTECEDENT *Signs*, are such Symptoms of Disorder as appear before a Distemper is so formed, as to be reducible to any particular Class, or proper Denomination. See SIGN and SYMPTOM.

ANTECEDENT in Grammar, the Word which a Relative refers to. See RELATIVE.

ANTECEDENCE, ANTECEDENCY. See ANTECEDENT and ANTECEDENTIA.

ANTECEDENTIA among Astronomers——When a Planet appears to move Westward, contrary to the Order or Course of the Signs; as, from *Taurus* towards *Aries*: it is said to move, *in Antecedentia*. See PLANET, ORDER, SIGN, *&c.*

On the contrary, when it goes Eastward or forwards, from *Aries* towards *Taurus*; it is said to move *in Consequentia*. See CONSEQUENTIA, *&c.*

ANTECESSOR, one that goes before, or leads another. See PRECURSOR, PREDECESSOR, *&c.*

The Term is particularly used in some Universities for a Professor, who teaches, or lectures the Civil Law.

ANTECHAMBER, or ANTICHAMBER, an outer Chamber, before the principal Chamber of an Apartment; where the Servants wait, and Strangers stay, till the Person to be spoken withal is at leisure, *&c.* See APARTMENT.

The Word is formed of the Latin *Ante Camera*. See CHAMBER.

ANTECHRIST, or ANTICHRIST, *Antichristus*, among Divines, *&c.* a Tyrant who is to reign on Earth, toward the end of the World; for the ultimate Proof of the Elect; and to give a shining Instance of the Divine Vengeance, before the last Judgment.

The Word is compounded of the Greek ἀντι, *contra*, against, and χριστος, Christ—In Scripture he is also called *Man of Sin, Son of Perdition*, &c. 'Tis added that he shall set up his Throne at *Babylon*.

The Bible and the Fathers all speak of *Antichrist* as a single Man; tho' they assure withal, that he is to have divers Precursors or Fore-runners——Yet many Protestant Writers apply to the Romish Church, and the Pope who is at the Head of it, the several Marks and Signatures of *Antichrist*, enumerated in the Apocalypse; which would rather imply *Antichrist* to be a corrupt Society, or a long Series of persecuting Pontiffs, than a single Person.

However, the Point having been maturely debated at the Council of *Gap*, held in 1603, a Resolution was taken thereupon, to insert an Article in the Confession of Faith, whereby the Pope is formally declared to be *Antichrist*—Pope *Clement* VIII, we read, was stung to the Life with this decision; and even King *Henry* IV. of *France* was not a little mortified, to be thus declared, as he term'd it, an Imp of *Antichrist*.

The learned *Grotius* maintains that *Caligula* was *Antichrist*; but neither does this quadrate with his Appearance at the end of the World.

Father *Malvenda*, a Spanish Jesuit, has published a large and learned Work, *de Antichristo*, in XIII Books——In the first he relates all the Opinions of the Fathers with regard to *Antichrist*. In the second he speaks of the Time when he shall appear; and shews that all the Fathers who supposed *Antichrist* to be near at hand, judged the World was near its Period. In the third he discourses of his Origin and Nation; and shews that he is to be a *Jew*, of the Tribe of *Dan*: This he founds on the Authority of the Fathers; on the Passage in *Genesis* XLIX. *Dan is a Serpent in the Way*, &c. On that of *Jeremy*, VIII. 16. where it is said *the Armies of Dan shall devour the Earth*; and on the *Apocalypse*, cap. VII. where St. *John* enumerating all the Tribes of *Israel*, makes no mention of that of *Dan*. In the fourth and fifth Books, he treats of the Signs of *Antichrist*. In the sixth of his Reign and Wars. In the seventh of his Vices. In the eighth of his Doctrine and Miracles. In the ninth of his Persecutions: And in the rest, of the coming of *Enoch* and *Elias*, the Conversion of the *Jews*, the Reign of Jesus Christ, and the Death of *Antichrist*, after having reigned three Years and a half.

ANTECURSOR. See PRECURSOR.

ANTEDILUVIUN. See ANTIDILUVIAN.

ANTEJURAMENTUM, and PRÆJURAMENTUM, by our Ancestors also called *Juramentum Calumniæ*; an Oath which both the Accuser and Accused were obliged to make *before* any Trial or Purgation. See OATH and PURGATION——The Accuser was to swear that he would prosecute the Criminal; and the Accused was to make Oath on the very Day that he was to undergo the Ordeal, *&c.* that he was innocent of the Fact of which he was charged. See ORDEAL.

If the Accuser failed, the Criminal was discharged; if the Accused, he was intended to be guilty, and was not to be admitted to purge himself by the Ordeal. See COMBAT, DUEL, *&c.*

ANTEPAGMENTA, or ANTIPAGMENTA, in the antient Architecture, the Jaumbs of a Door, or Lintels of a Window. See DOOR and WINDOW.

The Word is also used for the entire *Chambranle*, *i. e.* the Door-Case, or Window-Frame. See CHAMBRANLE.

ANTEPENULTIMA, or ANTEPENULTIMATE, in Grammar, the third Syllable of a Word, reckoning from the latter End; or the last Syllable but two. See WORD and SYLLABLE.

'Twas upon this Syllable, that the *Greeks* placed their acute Accents. See ACCENT——The *Antepenultimate* of a Dactyl is long. See DACTYL.

The Word is compounded of the Preposition *Ante*, before; and *Penultimate*, last but one. See PENULTIMATE.

ANTEPREDICAMENTS, ANTEPRÆDICAMENTA, in Logick, certain previous Matters, requisite to a more easy and clear apprehension of the Doctrine of Predicaments or Categories. See PREDICAMENT.

Such are Definitions of Common Terms; as Equivocals, Univocals, *&c.* with Divisions of Things, their Differences, *&c.* See DEFINITION, DIVISION, *&c.*

They are thus called because treated by *Aristotle before the Predicaments*; that the Thread of the Discourse might not afterwards be interrupted.

ANTERIOR, or ANTERIOUR, something before another, chiefly in respect of Place——In this Sense the Term stands opposed to *Posterior*. See POSTERIOR.

The Word is *Latin*; formed of the Preposition, *Ante*, before.

ANTESTATURE, in Fortification, a small Retrenchment, made of Pallisadoes, or Sacks of Earth, set up in haste, to dispute with the Enemy the Remainder of a Piece of Ground, part whereof hath been already gain'd. See RETRENCHMENT.

ANTHELIX, in Anatomy, the inner Circuit of the Auricle; thus call'd from its opposition to the outer Circuit, call'd the Helix. See AURICLE and HELIX.

ANTHELMINTICKS, Medicines good to destroy Worms. See WORM and VERMIFUGOUS.

The Word is compounded of ἀντι, *contra*, against, and ἑλμινς, *Vermis*, Worm.

ANTHEM, *Antiphona*, a Church-Song, performed in Cathedral, and other Service, by the Choristers, divided for that purpose into two Chorus's, who sing alternately. See SONG, CHOIR, CHORISTER, *&c.*

The Word was originally used both for Psalms, and Hymns, when thus perform'd. See PSALM and HYMN.

Socrates represents St. *Ignatius* as the Author of this way of singing among the *Greeks*; and St. *Ambrose* among the *Latins*——*Theodoret* attributes it to *Diodorus* and *Flavian*. *Amalarius Fortunatus* has wrote expresly of the Order of *Anthems*, *de Antiphonarum Ordine*.

At present the Term is used in a somewhat narrower Sense; being applied to certain Passages taken out of the Psalms, &c. and accommodated to the particular Solemnity in hand.

ANTHERA, in Pharmacy, a Term used by some Writers for the Yellow part in the Middle of a Rose. See ROSE——It is reputed more astringent than the rest.

ANTHERÆ, among Botanists, those little Tufts, or Knobs which grow on the Tops of the Stamina of Flowers; more usually called *Apices*. See APICES.

ANTHESPHORIA, in Antiquity, a Feast celebrated in *Sicily*, in Honour of *Proserpine*. See FEAST.

The Word is deriv'd from the Greek ἄνθος, Flower, and φέρω, I carry, in regard that Goddess was forc'd away by *Pluto*, when she was gathering Flowers in the Fields. Yet *Festus* does not ascribe the Feast to *Proserpine*; but says it was thus call'd, by reason Ears of Corn were carried on this Day to the Temples.

Anthesporia seem to be the same thing with the *Florifertum* of the *Latins*.

ANTHESTERIA, in Antiquity, was a Feast celebrated by the *Athenians*, in Honour of *Bacchus*. See FEAST.

Some are of opinion it took its Name from the Month *Anthesterion*, wherein it was celebrated——Others pretend, that it was not the Name of any particular Feast, but that all the Feasts of *Bacchus* were call'd *Anthesteria*.

The most natural Derivation of the Word is from ἄνθος, *Flos*, a Flower; it being the Custom at this Feast to offer Garlands of Flowers to *Bacchus*.

The *Anthesteria* lasted three Days, the eleventh, twelfth, and thirteenth of the Month; each of which Days had a Name suited to the proper Office of the Day——The first Day of the Feast was called πιθοιγία, *i. e.* Opening of the Vessels, in regard on this Day they open'd the Vessels, and tasted the Wine——The second they called χόες, *Congii*, the Name of a Measure, containing the Weight of about ten Pounds: on this Day they drank the Wine prepar'd the Day before——The third Day they called χύτροι, Kettles: on this Day they boil'd all sorts of Pulse in Kettles; which however they were not allow'd to taste, as being offer'd to *Mercury*.

ANTHOLOGION, ANTHOLOGUE, a Church Book in use among the *Greeks*. See GREEK.

The *Anthologion* is a sort of Breviary or Mass-Book, containing the daily Offices address'd to our Saviour, the Virgin, and the principal Saints; with other Common Offices of Prophets, Apostles, Martyrs, Pontiffs, and Confessors, according to the *Greek* Rite. See BREVIARY, MASS, OFFICE, &c.

It is called ἀνθολογιον, *q. d. florilegium*, or a Collection of Flowers.

ANTHOLOGY, ANTHOLOGIA, a discourse or Treatise of Flowers; thus call'd from ἄνθος, *Flos*, a Flower, and λογὸς, *Sermo*, Discourse. Others chuse rather to derive *Anthology* from ἄνθος, *Flos*, a Flower, and λέγω I gather; and use it to signify a Collection of Flowers. See FLOWER.

ANTHOLOGY is particularly used for a Collection of Epigrams of divers *Greek* Poets. See EPIGRAM.

St. ANTHONY, gives the Name to an Order of Knighthood, establisht'd in 1382. by *Albert* of *Bavaria*, &c. who had then taken a Resolution to make War against the *Turks*. See ORDER and KNIGHT.

The Knights of this Order wore a Collar of Gold, with a Hermit's Girdle, to which hung a Crutch and a little Bell.

Some Authors mention another Order of St. *Anthony* in *Ethiopia*, instituted in 370.

St. ANTHONY's *Fire*. See ERYSIPELAS.

ANTHORA, or *Healing Wolfs-bane*, a Species of *Aconite*, whose Root is useful in Physick; being reputed a good Antidote, and a certain Counterpoison to the *Thora*, whence its Denomination *Anthora*. See ACONITE.

The Root contains a great deal of volatile Salt and essential Oil——It is alexipharmick, cardiack, stomachick, and good against the Wind-Cholick——

ANTHOS, Ἄνθος, in its original *Greek*, signifies *Flower*; but by way of Excellency is appropriated to *Rosemary*, so as to express only Flowers of Rosemary. See ROSEMARY.

ANTHRACOSIS, a Disease of the Eyes, occasion'd by a corrosive Ulcer, cover'd with Skin, and attended with a general Swelling; especially of the Parts about the Eye. See EYE and ULCER.

The Word is Greek ἀνθρακωσις, and *denotes* an Inflammation resembling a Coal; ἄνθραξ signifying a Coal. See ANTHRAX.

ANTHRAX, ἄνθραξ, strictly signifies a *live Coal*; and figuratively, a Scab or Blotch, made by a corrosive Humour, which, as it were, burns the Skin, and occasions sharp pricking Pains.

The *Anthrax* is also called *Carbo* and *Carbunculus*. See CARBUNCLE.

The Cure is attempted with Cataplasms of *Theriac. Lond. Allium, Cepæ coct. Sapo Nig.* &c.

ANTHROPOLOGY, ANTHROPOLOGIA, a Discourse or Treatise upon Man, or Human Nature.

Anthropology includes the Consideration both of the Human Body and Soul, with the Laws of their Union, and the Effects thereof, as Sensation, Motion, &c. See BODY, SOUL, SENSATION, MOTION, &c.

Yet Dr. *Drake* entitles his Anatomy of the Human Body, *Anthropologia*. See ANATOMY.

The Word is compounded of Ἄνθρωπος, Man, and λόγος, Discourse.

ANTHROPOLOGY, is particularly used in Theology, for a way of speaking of God, after the manner of Men; by attributing Human Parts to him; as Eyes, Hands, Ears, Anger, Joy, &c.——

We have frequent Instances of *Anthropology* in Holy Scripture; by which we are only to understand the Effect, or the Thing which God does, as if he had Hands, &c. See ANTHROPOPATHY.

ANTHROPOMANCY, or ANTHROPOMANTIA, a Method of Divination, performed by inspecting the Viscera of a Person deceased. See DIVINATION.

The Word is compounded of ἄνθρωπος Man, and μαντεία, Divination.

ANTHROPOMORPHITE, one who attributes to God, the Figure of a Man. See GOD, &c.

ANTHROPOMORPHITES were a Sect of antient Hereticks, who, out of a too great Simplicity, taking every thing spoken of God in the Scriptures in a literal Sense; imagin'd he had real Hands, Feet, &c.——The Passage they chiefly insisted on, was that in *Genesis*, where it is said that God made Man after his own Image.

The Word comes from the *Greek* ἄνθρωπος, Man, and μόρφη, Shape.

ANTHROPOPATHY, a Figure, Expression or Discourse, whereby something is attributed to God, which properly belongs only to Man.

Anthropopathy is frequently used promiscuously with *Anthropology*; yet in strictness they ought to be distinguished as the Genus from the Species——*Anthropology* may be understood of any thing Human attributed to God; but *Anthropopathy*, only of Human Affections, Passions, Sensations, &c. See ANTHROPOLOGY.

The Word is compounded of ἄνθρωπος, Man, and πάθος Passion.

ANTHROPOPHAGI, *Cannibals*; or such as feed on Human Flesh. See CANNIBAL.

The Word is compounded of the Greek ἄνθρωπος, Man, and φαγω, *Edo*, I eat——The primitive Christians were accused by the Heathens of being *Anthropophagi*; as appears from *Tatian*, *Tertullian* in his Apologeticks, Cap. VII. and *Salvian* de Provid. Lib. IV. They affirmed that the Christians, in the Mysteries of their Religion, killed a Child, and feasted on its Flesh. This Calumny was grounded on what they had heard of the Eucharist, and the Communion. See EUCHARIST, COMMUNION, ALTAR, &c.

ANTHROPOPHAGY, the Act of eating human Flesh. See ANTHROPOPHAGI.

Some Authors trace the Original of this barbarous Custom, as high as the Deluge; and attribute it to the Giants——*Pliny* mentions *Scythians* and *Sauromatans*; and *Juvenal*, *Egyptians*, who accustom'd themselves to this horrible Repast——*Livy* tells us, that *Hannibal* made his Souldiers eat human Flesh, to render them more fierce and daring in Battel.

In the southern Parts of *Africa*, and in some Parts of *America*; this horrid Practice still obtains. See CANNIBAL.

The Physicians think they have discover'd the Principle of *Anthropophagy*, and that it consists in a black acrimonious Humour, which being lodg'd in the Coats of the Ventricle, produces this Voracity. And they give several Instances of this inhuman Hunger, even among their own Patients——M *Petit* has disputed the Question, whether or no *Anthropophagy* be contrary to Nature?

ANTI, a Greek Preposition, added to several *English* Words, in two different Senses——Sometimes it signifies *before*; as in *Anti*-Chamber, a place before the Chamber; in which case it has the same Meaning with the *Latin*, *ante*, before: sometimes again it signifies *contrary*, or opposite, and is then derived from the Greek ἀντὶ, *contra*, against; as in *Antipodes*, those who have their Feet opposite to ours.

In this latter Sense, the Word makes part of the Names of various Medicines: as *Antivenereals*, those used against the Pox; *Antiarthriticks*, those against the Gout; *Antiasthmaticks*, against the Asthma; *Antielminticks*, against Worms;

Worms; *Antaphroditicks*, against Lust; *Anti-epilepticks*, against the Falling Sickness, &c.

ANTI, in matters of Literature, are Pieces written by way of Answer, to others, whose Names are usually annex'd to the *Anti*.

See the *Anti* of *M. Baillet*; and the *Anti-Baillet* of *M. Menage*. There are also *Anti-Menagiana*, &c.

Cæsar the Dictator wrote two Books by way of Answer to what had been objected to him by *Cato*; which he call'd *Anti-Catones*; mentioned by *Juvenal*, *Cicero*, &c. —*Vives* assures us, he had seen *Cæsar*'s *Anti-catones* in an antient Library.

ANTIADES, a Term used by some Writers for the Glandules, and Kernels, more commonly called *Tonsils* and *Almonds of the Ears*. See TONSIL, ALMOND, and AMYGDALA, &c.

ANTIADIAPHORISTS, ANTIADIAPHORISTÆ, those opposite to the *Adiaphorists*. See ADIAPHORIST.

This Name was given, in the XVIth Century, to the rigid *Lutherans*, who disavow'd the Episcopal Jurisdiction, and many of the Church Ceremonies, retain'd by the Moderate *Lutherans*. See LUTHERAN.

The Word is compounded of the Greek ἀντι *contra*, against, and διάφορος, indifferent.

ANTIBACCHIC, ANTIBACCHIUS, in the antient Poetry, a Foot, consisting of three Syllables; the two first whereof are long, and the third short. See FOOT. Such are the Words *cantare*, *virtute*.

It is so called as being contrary to the *Bacchic*, the first Syllable whereof is short, and the two last long; as *egestas*. See BACCHIC.

ANTICARDIUM, in Anatomy, &c. that Part of the Breast just against the Heart, commonly called the Pit of the Stomach.

The Word is compounded of ἀντι, *contra* against, and καρδία, *Cor*, Heart.

ANTICHRESIS in the Civil Law, a Covenant or Convention, whereby a Person borrowing Money of another, engages, or makes over his Lands to the Creditor, with the Use and Occupation thereof, for the Interest of the Money lent.

This Covenant was allowed of by the *Romans*; among whom Usury was prohibited: It was afterwards call'd *Mortgage*, to distinguish it from a simple Engagement, where the Fruits of the Ground were not alienated, which was call'd *Vifgage*. See MORTGAGE.

ANTICHTHONES, in Geography, are those People who inhabit Countries opposite to each other.

The Word is Compounded of ἀντι, *contra*, and χθών, *Terra*.

The Term *Antichthones* is now used in the same Sense with *Antipodes*; but the Antients used it in a different one.—They consider'd the Earth as divided by the Equator into two Hemispheres, the Northern and Southern; and all those who inhabited one of these Hemispheres were reputed *Antichthones* to those of the other. In this Sense the Word is used by *Mela* and other antient Authors. See ANTIPODES.

ANTICKS, ANTICE-WORK. See ANTIQUE.

ANTICIPATION, the Act of doing a Thing before the time.—Such a Debt was not yet become due; He *Anticipated* the time of Payment.

ANTICIPATION, in Philosophy. See PRÆNOTION.

ANTICOR, ANTICŒUR or ANTOCŒUR, or *Avant Cœur*, among Farriers, is usually described as a preternatural Swelling, of the Size and Figure of an Apple, occasioned by a sanguine and bilious Humour; and appearing in the Horse's Breast opposite to his Heart.

A late Author affirms, that the generality of Writers on that Subject have been mistaken as to this Disease; attributing it to the Heart, whence it is by *Solleysell*, called the *Swelling of the Pericardium*; whereas it is really an Inflammation in the Gullet, and Throat; and the same that in human Bodies, is called the *Angina*, or *Squinancy*.

ANTIDACTYLUS in Poetry, a Foot in Verse, contrary to a *Dactyl*; consisting of three Syllables, whereof the first two are short, and the last long. See DACTYL.

ANTIDATE, a spurious Date, prior to the true Date of a Writing Instrument, Act, Deed, or the like. See DATE.

ANTIDICOMARIANITES, or ANTIDIACOMARIANISTES, antient Hereticks, who pretended that the Holy Virgin had not preserved her Virginity, but that she had several Children by *Joseph*. See VIRGIN.

Their Opinion was grounded on some Expressions of our Saviour, wherein he mentioned his Brothers, and his Sisters. —The *Antidicomarianites*, were the Disciples of *Helvidius* and *Jovinian*, who appeared in *Rome* toward the close of the IVth Century.

ANTIDILUVIAN, something before the Deluge. See DELUGE.

In this Sense, those Generations from *Adam*, till *Noah's* Flood, are called *Antidiluvians*; and those since descended from *Noah*, to the present time, are called *Postdiluvians*. See AGE, PATRIARCH, &c.

Dr. *Burnet*, and Dr. *Woodward* differ very widely about the *Antidiluvian* World; the former imagines its Face and Appearance to have been smooth, equable, and in all respects different from what we now find them to be.

The latter on the contrary endeavours to prove, that the Face of the terraqueous Globe before the Deluge was the same as it is now, *viz.* unequal, distinguished into Mountains, and Dales, and having likewise a Sea, Lakes, and Rivers; that this Sea was salt as ours is; was subject to Tides, and possess'd nearly the same Space and Extent that it now does; and that the *Antidiluvian* World was stock'd with Animals, Vegetables, Metals, Minerals, &c. that it had the same Position in respect of the Sun which ours now hath, its Axis not being parallel, but inclined, as at present, to the Plane of the Ecliptic; consequently that there were then the same Succession of Weather, and the same Vicissitudes of Seasons, as now. See TERRAQUEOUS, MOUNTAIN, &c. See also FOSSIL, &c.

ANTIDOTE, a Remedy taken either to prevent, or cure, Contagion. See PLAGUE, CONTAGION, PRESERVATIVE, &c.

The Word *Antidote* is also used to signify a Medicine taken to prevent the ill Effects of some other, for instance, Poison. See POISON.

In this Sense the Word has the same Signification with Alexipharmic, Alexiterial or Counterpoison. See ALEXIPHARMIC, COUNTER-POISON, &c.

The Word is borrow'd from the Greek ἀντί, against, and δίδωμι, I give; as being something given against Poison, either by way of Medicine, or Preservative.

ANTIENT, or ANCIENT, usually stands opposed to *Modern*. See MODERN.

The Word comes from the French *Ancien*, of the *Latin Antiquus*. Thus we say the *Antient* Architecture, *Antient* Monuments, *Antient* Church. See ARCHITECTURE, &c.

When we say absolutely, the *Antients*, we mean the *Greeks* and *Romans*——Thus, the *Antients* used to burn their Dead——The Learned have been greatly divided of late days, with regard to the Preference between the *Antients* and Moderns.

ANTIENT is sometimes opposed to young or new——We say the *antient* Bishop of such a City, when he has resign'd his See, and a new one is put in his Place. The *antient* Bishop of *Frejus*, now Cardinal de *Fleury*.

ANTIENTS in Church-Discipline. See ELDERS.

The Society of *Grays-Inn*, consists of Benchers, *Antients*, Barristers, and Students under the Bar: the *Antients* are the Elder, Barristers. See INN, BARRISTER, &c.

In the Inns of Chancery there are only, *Antients* and *Students*, or Clerks; and among the *Ancients*, one is yearly the Principal, or Treasurer——In the Middle Temple, *Antients* are such as are past their Reading, and never read. See TEMPLE.

ANTIENT is sometimes also used in a Military Sense for an *Ensign*. See ENSIGN.

ANTIENTY, in some antient Statutes is used for *Elder-ship* or Seniority——Thus the eldest Sister can demand no more than her other Sisters beside the Chief Mesne, by reason of her Antienty.

ANTIENT, is also the Flag, or Streamer born in the Stern of a Ship. See FLAG, SIGNAL, &c.

ANTIENT *Demesne*, or *Demain*, is a Tenure, whereby all Manors belonging to the Crown in *William* the Conqueror's, and St. *Edward*'s time, were held. See TENURE and DEMAIN.

The Numbers, Names, &c. hereof were enter'd by the Conqueror, in a Book call'd *Doomsday-Book*, yet remaining in the Exchequer; so that such Lands as by that Book appear'd to have belonged to the Crown at that time, are called *Antient Demesne*. See DOOMS-*Day*.

The Tenants in *Antient Demesne* are of two sorts; one who hold their Lands frankly by Charter; the other by Copy of Court-Roll, or by the Verge at the Will of the Lord, according to the Custom of the Manor. See FREE-HOLD, COPY-HOLD, &c.

The Advantages of this Tenure, are, 1. That Tenants holding by Charter cannot be rightfully impleaded out of their Manor; and when they are, may abate the Writ by pleading the Tenure. 2. They are free from Toll for all things relating to their Livelihood and Husbandry; nor can be impanell'd on any Inquest.

These Tenants held originally by plowing the King's Land, plashing his Hedges, and the like Services, for the maintenance of his Houshold; and it was on this account such Liberties were given 'em, for which they may have Writs

Writs to such as take the Duties of Toll, &c. See SERVICE, &c.

No Lands are to be accompted *ancient* Demesne, but such as are held in Soccage. See MONSTRAVERUNT.

ANTIHECTICKS, ANTIHECTICA, Remedies against *Hectical* Disorders. See HECTIC.

ANTIHECTICUM *Poterii*, in Pharmacy, a celebrated Chymical Preparation, made of equal quantities of Tin, and chalybeated Regulus of Antimony, by melting 'em in a large Crucible, and putting to them, by little and little, three times the quantity of Nitre: the Detonation being over, the whole is wash'd with warm Water till no saltness remains.

It is a very penetrating Medicine, making way into the minutest Passages, and searching even the nervous Cells; whence its use in *Hectic* Disorders, from which it derives the Name. See HECTIC.

It is applied to good purpose in Heavinesses of the Head, Giddiness, and Dimness of Sight, whence proceed Apoplexies and Epilepsies; And in all Affections and Foulnesses of the Viscera of the lower Belly is reckoned inferior to nothing. Thus it obtains in the Jaundice, Dropsies, and all kind of Cachexies. Dr. *Quincy* adds, that there is scarce a Preparation in the Chymical Pharmacy of greater efficacy in most obstinate chronick Distempers

ANTILOGARITHM, is the Complement of the Logarithm of a Sine, Tangent or Secant; or the Difference of that Logarithm, from the Logarithm of ninety Degrees. See LOGARITHM and COMPLEMENT.

ANTILOGY, ANTILOGIA, a Contradiction between two Expressions or Passages in an Author. See CONTRADICTION.

Tirinus has published a large Index of the seeming *Antilogies* in the Bible; *i. e.* of Texts which apparently contradict each other, but which are explained and reconciled by him, in his Comments on the Bible——A *Maltese* of the Oratory in *Italy*, has attempted the like; but has done little more than rehearse what occurs of that kind in the principal Commentators.

The Word is *Greek*, αντιλογια, *q. d.* Contrary Saying.

ANTIMENSIA, a kind of Consecrated Table-Cloth, occasionally used in the *Greek* Church, in lieu of a proper Altar. See ALTAR.

F. Goar observes, that in regard the *Greeks* have but few consecrated Churches; and that consecrated Altars are not things easy to be removed: That Church has for many Ages made use of certain consecrated Stuffs, or Linnens call'd *Antimensia*, to serve the purposes thereof.

ANTIMONARCHICAL, something that opposes or stands against Monarchy, or Kingly Government. See MONARCHY.

Antimonarchical is frequently used in the Sense of *Republican*. See REPUBLIC.

ANTIMONIALS, in Medicine, Preparations of Antimony; or Remedies whereof Antimony is the Basis, or principal Ingredient. See ANTIMONY.

Antimonials are chiefly of an emetic tendency; tho' they may be so qualified as to become either Cathartic, or Diaphoretic, or even only Alterative. See EMETIC, CATHARTIC, &c.

Dr. *Quincy* assures, that there are no Medicines in Pharmacy to be compared with these in Maniacal Affections: for that there are no Emetics or Cathartics of any other Tribe that are strong enough for such Patients, unless in an Overdose, which might be dangerous See MANIA.

An *Antimonial Cup*, made either of Glass of *Antimony*, or of *Antimony* prepared with Salt-petre, tho' a Substance indissoluble by the Stomach, will give a strong Cathartic, or Emetic Quality to any Liquor poured into it; without any diminution of its own weight.

ANTIMONY, ANTIMONIUM, in Natural History, a Mineral Substance, of a Metalline Nature; having all the seeming Characters of a real Metal, excepting Malleability. See MINERAL and METAL.

Antimony is what we properly call a *Semi-Metal*; being a Fossil Glebe, composed of some undetermined Metal, combined with a sulphurous and stony Substance. See SEMI-METAL.

It is found in Mines of all Metals; but chiefly those of Silver and Lead: That in Gold Mines is usually held the best——It has also his own Mines; particularly in *Hungary*, *Transylvania*, and *Germany*, and several Provinces of *France*.

Antimony is found in Clods or Stones of several sizes, bearing a near resemblance to black Lead; only that it is lighter and harder: whence also it is called *Marcasite of Lead*; and its metalline part supposed to be of that Species. See LEAD.

Its Texture is somewhat particular, being full of little shining Veins or Threads, like Needles; brittle as Glass——sometimes there are Veins of a red or golden Colour intermixed, which is called *Male Antimony*; that without 'em being denominated *Female*——It fuses in the Fire, tho' with some difficulty; and dissolves more easily in Water.

When dug out of the Earth, it is put into large Crucibles, fused by a violent Fire, and then poured into Cones, or *Antimonial* Horns; which makes the common or crude *Antimony* of the Shops, the Apex whereof is always the best and purest part, as the Basis or broadest part is the foulest.

Antimony is supposed by many of the Chymists to contain the seminal Principles of all kind of Bodies; and accordingly the Character whereby it is denoted in their Writings, is the same with the Character of the Earth; to denote that *Antimony* is a kind of Microcosm. See CHARACTER and EARTH.

The Uses of *Antimony* are very Numerous, and Important——It is a common Ingredient in Specula, or burning Concaves, serving to give them a finer Polish——It makes a Part in Bell-Metal; and renders the Sound more clear——It is mingled with Tin to make it more hard, white, and sounding; and with Lead, in the casting of Printer's Letters, to render them more smooth and firm. It is a general Help in the melting of Metals, and especially in casting of Cannon Balls. See SPECULUM, FOUNDERY, &c.

Antimony is the *Stibium* of the Antients; by the *Greeks* called στιβι——The reason of its modern Denomination is usually referr'd to *Basil Valentine*, a *German* Monk, who having thrown some of it to the Hogs, observ'd, that after purging them violently, they immediately grew fat upon it. This made him think that by giving his Fellow-Monks a like Dose, they would be the better for it. The Experiment however succeeded so ill, that they all died of it; and the Medicine thenceforward was called *Antimony*, *q. d. Anti-Monk*.

Its singular Properties and Effects have occasion'd it various other Denominations; as *Proteus*, by reason of its various forms and appearances, *Lupus*, *Devorator*, *Saturn of the Philosophers*, *Balneum Solis*, *Lavacrum Leprorum*, &c. all chiefly respecting its Faculty of destroying, and dissipating whatever Metals are fused along with it, all except Gold; whence its great Use in refining and purifying. See REFINING, PURIFYING, GOLD, &c.

Antimony, is particularly used in Pharmacy, under various Forms, and with various Intentions——Its medicinal Virtue is supposed to arise from the sulphurous part in its Composition, which being dissolved by any proper Menstruum, sets at liberty an active volatile Salt, or other unknown Principle, to which the Operation is chiefly owing. See ANTIMONIALS. See also SULPHUR.

Before the XIVth Century, *Antimony* had no place in Medicine; otherwise than as an Ingredient in some Cosmeticks: but about that time, *Basil Valentine* having found a method of preparing, and correcting the dangerous Qualities of its Sulphur, published a Book, entitled *Currus Triumphalis Antimonii*, wherein he maintained it a sure Remedy for all Diseases——But, in spight of all he could say in its behalf, tho' confirmed by Experience, *Antimony* remained in a general Neglect, upwards of 100 Years; till about the beginning of the XVIth Century, when it was brought into Vogue by *Paracelsus*——The Parliament of *Paris*, immediately upon this Restoration, condemned the use of it in form; and a Physician named *Besnier*, having been found delinquent herein, was excluded the Faculty. It seems, a deal of Mischief had been done by it, for want of knowing the proper ways of Application; so that the Arret of Parliament represents it as a mere Poison——

Several learned Men complained of so severe and unjust a Prohibition; and by a Course of happy Experiments brought it into Esteem again: whence in spight of all the Invectives made against *Antimony*, by divers Authors, it was at length replaced, in the Year 1637, by Public Authority, among the Number of Purgative Drugs; and was inserted accordingly in the Pharmacopœia, published by the Faculty the same Year.

Patin did all he could to decry *Antimony*: in his Letters we find an unusual Vehemence express'd against it——He had even compiled a large Register of Persons whom the Physicians had kill'd by it; which he called *the Martyrology of Antimony*.

Crude ANTIMONY, or *Antimony in Substance*, is the Native Mineral *Antimony*, melted down and cast in Cones, as abovementioned——It is much used in Diet-drinks and Decoctions of the Woods, and Compositions against the Scurvy, as a Diaphoretic, and Deobstruent. See DIAPHORETIC.

Prepared ANTIMONY is that which has undergone some Chymical Process, whereby its Nature and Powers are altered or abated; and this differently, according to the Circumstances of the Preparation. See ANTIMONIALS.

Antimony, says Mr. *Boyle*, alone, or associated with one or two other Ingredients, by a variety of Operations and Compositions, might be brought to furnish a whole Apothecary's

thecary's Shop: It will anſwer the Phyſician's Intention whether he wants to employ a Cathartic, or an Emetic, a Diuretic, Diaphoretic, Deobſtruent, Bezoardic, Cordial, &c.

Regulus of ANTIMONY, or *Purification of* ANTIMONY. See REGULUS *of Antimony*.

Of this are made the *Pillulæ Perpetuæ*, *Vinum Emeticum*, &c. See PILLULÆ *Perpetuæ*, EMETIC *Wine*, &c.

Glaſs of ANTIMONY, *Vitrum Antimonii*, is crude *Antimony* ground and calcined by a vehement Fire, in an earthen Crucible; till it ceaſe to fume, which is a Proof that its Sulphur is evaporated ——The Calx is then vitrified in a Wind Furnace; upon which it becomes tranſparent, ruddy, and ſhining. See GLASS.

This is the ſtrongeſt Emetic of any Preparation of *Antimony*. See EMETIC.——Yet, if diſſolved in Spirit of Urine, it ceaſes to be either Emetic, or Cathartic; even tho' the Menſtruum be drawn from it.

Flowers of ANTIMONY, is *Antimony* pulverized, and ſublimed in an Aludel; the volatile Parts whereof ſtick to the ſubliming Pot. See FLOWER and SUBLIMATION.

This is alſo a powerful Vomitive; of ſingular Efficacy in maniac Caſes; being the *Herculean* Remedy by which ſome have gain'd ſo much Reputation.

Another ſort of Flowers are made of the Regulus of *Antimony* with Sal-Ammoniac ſublimed as before; which make a Remedy ſomewhat gentler than the former.——*Helmont* alſo gives us a Preparation of *purging Flowers* of *Antimony*. See DIAPHORETIC *Antimony*.

Butter of ANTIMONY, is a white, gummous Liquor; otherwiſe call'd *Icy Oil of Antimony*. It is uſually prepared of crude (tho' ſometimes of Regulus of) *Antimony*, and corroſive Sublimate, by pulverizing, mixing, and diſtilling 'em by a gentle Heat: upon which the Butter riſes into the Neck of the Retort; from which, when full, it is to be melted down into the Receiver, by the Application of live Coals.

It is of a very fiery, corroſive Nature, ſo as to be a Poiſon when uſed internally. Externally it is applied as a Cauſtic, to ſtop Gangrenes, cure Caries's, Cancers, &c. See CAUSTIC.

This Butter may be converted into an Oil, called alſo *rectified Butter of Antimony*; by gently diſtilling it a ſecond time; which renders it more fluid, ſubtile, volatile, and efficacious.——This digeſted with thrice its Weight of Alcohol, makes the purple *Tincture of Antimony*, a Secret highly valued by Mr. *Boyle*, as an excellent Vomit.

The ſame Butter precipitates, by warm Water, into a white, ponderous Powder, or Calx, call'd *Mercurius Vitæ*, and Powder of *Algarot*; reputed a violent Emetic.

Of Butter of *Antimony* is alſo prepared the Bezoar Mineral; by diſſolving the rectified Butter with Spirit of Nitre; then drying the Solution, and applying more Spirit of Nitre; and repeating this a third time. The white Powder remaining at laſt, kept nearly red-hot for half an Hour, is the Bezoardicum Mineral. See BEZOAR.

Cinnabar of ANTIMONY, is prepared of Mercury, Sulphur, and *Antimony* mixed and ſublimed in a luted Bolthead, and a naked Fire.——It is a good Diaphoretic and Alterative. See CINNABAR.

There is alſo a Cinnabar of *Antimony* procured after the Butter of *Antimony* has done riſing, by increaſing the Degree of Fire.——This ſublimed a ſecond time, makes a yet better Cinnabar.

Crocus, or *Liver of* ANTIMONY, is the ſame with what we otherwiſe call *Crocus Metallorum*; excepting that this latter is more mild and leſs emetic; being made by repeated Lotions of the former, in warm Water, and then drying it again to a Powder. See CROCUS *Metallorum*.

It is alſo call'd *Terra Sancta Rulandi*, *Terra Aurea*, *Terra Rubra*, &c.

Diaphoretic ANTIMONY, is prepared of *Antimony* powder'd and mixed with three times the Quantity of Nitre; and the Mixture thrown at ſeveral times into an ignited Crucible: upon which, a Detonation enſues. What remains being kept in Fuſion a quarter of an Hour, turns into a white Maſs call'd *Antimonium Diaphoreticum Nitratum*, or Diaphoretic *Antimony* with Nitre; being hereby bereaved of its emetic and purgative Virtue, and rendred only Diaphoretic. See DIAPHORETIC.

If the Air can have Acceſs to it, it will again become emetic. See AIR.

There is alſo a kind of ſweet Diaphoretic *Antimony*; made of the former, by pulverizing, boiling it in Water, and filtrating the Decoction: Upon which, a white Powder will be left in the Filtre; which being waſhed by repeated Effuſions of warm Water, and dried, is the *dulcified* or *common Diaphoretic Antimony*.——This is given as an Alexipharmic in malignant Fevers, Small-Pox, &c. particularly in caſe of Deliriums. It is alſo applied in ſcorbutic and venereal Diſorders: Though the learned *Boerhaave* abſolutely decries it, as a mere metalline Calx, deſtitute of all medicinal Virtue, and only fit to load and choak up the Body, by its Inactivity and Weight.

Diaphoretic Nitre of ANTIMONY, is made by exhaling the Solution of the preceding Preparation over a gentle Fire to a dryneſs; upon which, there remains a Salt compoſed of Nitre, and the Sulphur of the *Antimony*, call'd *Nitrum Antimoniatum*.——It is no other than a ſort of *Sal Prunellæ*, or *Sal Polychreſtum*; and accordingly is ſound aperitive, cooling, diuretic; good in inflammatory Fevers, &c. See PRUNELLÆ and POLYCHREST.

Golden Sulphur of ANTIMONY, is made of the Scoria which ariſes in preparing the Regulus; by boiling it, filtrating the hot Decoction, and adding diſtill'd Vinegar: Upon which the whole coagulates, changes into a brown Colour, emits a ſtercoraceous Odor, and precipitates a red Powder. The whole Maſs being waſh'd by repeated Affuſions of Water, till the Liquor come away ſcentleſs and inſipid, and then dried, it becomes a red Powder, called the *Golden Sulphur*, or *Precipitate of Antimony*; either on account of its own Colour, or the yellow one it gives to Glaſs, Metals, &c.——It either proves emetic, cathartic, diuretic, or ſudorific, as its Force happens to be determined. See PURGATIVE.

Ceruſs, or *Calx of* ANTIMONY, is the Regulus diſtilled with Spirit of Nitre, in a Sand-Furnace; what remains after the Fumes are all ſpent, is a white Powder; which being waſh'd ſweet, is the Ceruſs required.——It is diaphoretic; and by many ſet on a footing with the Mineral *Bezoard*.

Magiſtery of ANTIMONY, is crude *Antimony* digeſted with *Aqua Regia* eight or ten Days; to which, Water is then put, but pour'd off again e'er it ſettle: This to be repeated till there remain nothing behind but a yellowiſh Powder; which, being ſuffer'd to ſettle, and the Water decanted off, becomes by repeated Ablutions, an inſipid Magiſtery. See MAGISTERY.

Its Operation is rather cathartic than emetic, tho' ſometimes ſudorific.

ANTIMONY *revivified*, *Antimonium reſuſcitatum*, is prepared of Flowers of *Antimony* and Sal-Ammoniac, digeſted in diſtill'd Vinegar; then exhaled, and the remainder ſweetned by Ablution.——It is emetic, and ſometimes alſo ſudorific; good in Maniacal Caſes, &c.

All theſe Preparations of *Antimony*, how ſevere ſoever alone, may yet be ſo managed, as to operate little or nothing at all in the *Primæ Viæ*, nor be perceived till they are got into the ſmalleſt Veſſels——And then it is they are qualified to combat the Gout, Pox, Evil, &c. See PURGATIVES.

ANTINOMASY, or rather ANTONOMASY, a Figure in Rhetoric, whereby a Noun Appellative is uſed inſtead of a proper Name. See FIGURE and NAME.

Thus we ſay, the *Philoſopher*, inſtead of *Ariſtotle*; the *Orator*, for *Cicero*; the *Apoſtle*, for St. *Paul*, &c.——Thus alſo we call a voluptuous Perſon, a *Sardanapalus*, &c. And thus we ſay *Henry* the Great, meaning *Henry* IV. of *France*.

The Word is compounded of the *Greek* ἀντὶ for, and ὄνομα, Name.

ANTINOMY, *Antinomia*, a Contradiction between two Laws, or two Articles of the ſame Law. See LAW.

The Word ſometimes alſo ſignifies an Oppoſition to all Law; whence a Sect of Enthuſiaſts, who are for carrying Goſpel-Liberty above all moral Regards, and ſlight the Motives of Virtue as inſufficient to Salvation, are called *Antinomians*.

The Word is derived from the *Greek* ἀντὶ, *contra*, and νόμος, *Lex*, Law.

ANTINOUS, in Aſtronomy, a Part of the Conſtellation *Aquila*, or the Eagle. See EAGLE.

ANTIPAGMENTS, *Antipagmenta*. See ANTEPAGMENTA.

ANTIPATHY, ANTIPATHIA, a natural Enmity, or Averſion of one Body to another.——In this Senſe, the Word ſtands oppoſed to *Sympathy*. See SYMPATHY.

Such is commonly ſaid to be between the Salamander and the Tortoiſe, the Vine and the Elm, the Toad and the Weezel, the Sheep and the Wolf, the Olive and the Oak, &c.

Merſenne, in his *Quæſt. Comment. in Geneſ.* gives other more extraordinary Inſtances; as, that a Drum made of a Wolf-Skin, will break another made of a Sheep-Skin: That Hens will fly at the Sound of a Harp ſtrung with Fox-Gut Strings, &c. *See other Matters relating to this Head, under the Articles* SOUND, MUSICK, TUNE, TARANTULA, &c.

Mr. *Boyle* mentions "a Lady, who having a ſtrange *Antipathy* to Honey; and her Phyſician conceiving it in "great meaſure imaginary, mixed a little Honey in a Medicine applied to her Foot: But he ſoon repented his "Curi-

" Curiosity; for it caused a strange Disorder in her, which " ceas'd upon removing of the Medicine. *Useful. of Philos.*" ——Dr. *Mather* relates that " a Gentlewoman in *New-* " *England* swoons upon seeing any one cut their Nails with " a Knife; but is not the least affected, if the same be " done with a Pair of Scissars." *Phil. Transact.* N° 339.

The *Peripateticks* account for *Antipathies* from certain occult Qualities inherent in the Bodies. See OCCULT, PERIPATETIC, &c. See also WITCHCRAFT, CONSENT *of Parts*, &c.

Some think that the Term *Antipathy*, can only be applied to any certain purpose, when used with the Restriction of modern Philosophers; among whom it signifies no more than a *Vis Centrifuga*, or repelling Power. See REPELLING and CENTRIFUGAL.

The Word is compounded of the *Greek* ἀντι, *contra*, against, and πάθος, Passion.

ANTIPERISTASIS, in Philosophy, the Action of two opposite Qualities, one whereof, by its Opposition excites and heightens the Force of the other. See QUALITY.

This Word is *Greek*, Ἀντιπερίστασις; form'd of ἀντι, *contra* against, and περιστημι, to stand round: *q. d.* Resistence or Renitency against any thing that surrounds or besets another.——It is usually defined, " the Opposition of a con- " trary Quality, whereby the Quality it opposes becomes " heighten'd, or intended; or the Action whereby a Body " attack'd by another, collects itself, and becomes stronger " by such Opposition; or an Intension of the Activity of " one Quality, by the Opposition of another."

Thus Cold, say the School-Philosophers, on many Occasions exalts the Degree of Heat; and Dryness that of Moisture. See COLD, &c.

Thus it is that Quick-Lime is set on fire by the Affusion of cold Water: So Water becomes warmer in Winter than in Summer, by *Antiperistasis*: And to the same Cause it is owing that Thunder and Lightning are excited in the middle Region of the Air, which is continually cold.

This *Antiperistasis* is a Principle of great Use and Extent in the Peripatetic Philosophy.——" 'Tis necessary," according to the Authors of that Class, " that Cold and " Heat be both of them endued with a self-invigorating " Power, which each may exert when surrounded by its " contrary; and thereby prevent their mutual Destruction. " Thus it is supposed that in Summer, the Cold expelled " from the Earth and Water by the Sun's scorching Beams, " retires to the middle Region of the Air, and there " defends itself against the Heat of the superior and in- " ferior. And thus, also, in Summer, when the Air a- " bout us is sultry hot, we find that Cellars and Vaults " have the opposite Quality: so in Winter, when the ex- " ternal Air freezes the Lakes and Rivers, the internal Air, " in the same Vaults and Cellars, becomes the Sanctuary " of Heat; and Water, fresh drawn out of deeper Wells " and Springs, in a cold Season, not only feels warm, but " manifestly smokes."

Mr. *Boyle* has canvass'd this Doctrine thoroughly, in his History of Cold.——'Tis certain that, *à priori*, or considering the reason of the thing abstracted from the Experiments alledg'd to prove an *Antiperistasis*, it appears highly absurd: Since, according to the Course of Nature, one Contrary ought to destroy, not to strengthen another: Beside, that it is an Axiom that natural Causes act as much as they can; which, as to inanimate Creatures, must be allowed physically demonstrative; in regard these act not by choice, but by a necessary Impulse.

'Tis commonly, indeed, alledg'd, as a Proof of a Power Nature has given Bodies of flying their Contraries, that Drops of Water, falling on a Table, collect into little Globules, to avoid the contrary Quality in the Table, and keep themselves from being swallowed up by the dry Wood: but this we can account for on more intelligible Principles, *viz.* the Power of Attraction, and Repulsion. See ATTRACTION and REPULSION.

As to the *Antiperistasis* of Cold and Heat, the Peripatetics talk of those Qualities being surrounded by their Opposites, as if each of 'em had an Understanding and Foresight, that in case it did not gather up its Spirits, and guard against its Antagonist, it must infallibly perish; which is to transform physical Agents into moral ones.

In effect, not only Reason, but Experiment also, concludes against the Notion of an *Antiperistasis*: The leading Argument urged in behalf of it, is, the heating of quick Lime in cold Water: Now, who can sufficiently admire at the Laziness and Credulity of Mankind, who have so long, and generally acquiesced in what they might so easily have found to be false? For if, instead of cold Water, the Lime be quenched with hot, the Ebullition will oftentimes be far greater than if the Liquor were cold. See HEAT.

Again; in freezing a Bason to a Joint-Stool with a Mixture of Snow and Salt, by the Fire-side, 'tis pretended, that the Fire so intends the Cold, as to enable it to congeal the Water that stagnated upon the Surface of the Stool, betwixt that and the bottom of the Vessel. But how little need there is of an *Antiperistasis* in this Experiment, appears hence, that Mr. *Boyle* has purposely made it with good success, in a place where there neither was, nor ever probably had been, a Fire. See FIRE and FREEZING.

The Patrons of an *Antiperistasis* usually plead that Aphoristical Saying of *Hippocrates*, " The Viscera are hottest " in Winter," in behalf of their Opinion: But the only Proof usually brought of such greater Heat, is, that Men then have a greater Appetite; so that the Aphorism supposes Digestion to be made in the Stomach by Heat, which is easily resell'd. See DIGESTION.

Another Argument, urged in favour of an *Antiperistasis*, is borrowed from the Production of Hail, which is presumed to be generated in Summer only, not in Winter; and, according to the Schools, is made in the lowest Region of the Air, by the Cold of the falling Drops of Rain being so highly intended by the Warmth they meet with in the Air near the Earth, as to congeal into a solid form. See the Article HAIL.

As to the refreshing Coldness which subterraneous Places afford in Summer, it may be deny'd that they are then really colder than in Winter; tho' if the contrary were allow'd, it would not necessarily infer an *Antiperistasis*.——'Tis certain, the smoaking of Waters drawn from deep places in frosty Weather, does not necessarily infer such Water to be warmer than at other times when it does not smoke; since that Effect may proceed, not from the greater Warmth of the Water, but from the greater Coldness of the Air. For a Man's Breath in Summer, or in mild Winter Weather, becomes very visible; the cold ambient Air suddenly condensing the fuliginous Steams discharged by the Lungs; which, in warmer Weather, are readily diffused in imperceptible Particles through the Air. *See the Articles* WATER, COLD, &c.

ANTIPERISTALTIC, in Anatomy, a Motion of the Intestines contrary to the *Peristaltic* Motion. See PERISTALTIC.

The *Peristaltic* Motion is a Contraction of the Fibres of the Intestines from above, downwards; and the *Antiperistaltic* Motion is their Contraction from below, upwards. See INTESTINES.

The Word is derived from the *Greek* ἀντι, against, περὶ, about, and καλιὼ, that which hath the Power of compressing. See VERMICULAR.

ANTIPHONE, ANTIPHONUM, the Answer made by one Choir to another, when the Psalm or Anthem is sung between two. See ANTHEM, CHOIR, &c.

ANTIPHRASIS, a sort of figurative Speech which has a contrary meaning to what it carries in appearance.——Or, a kind of Irony, wherein we say one thing and mean the contrary. See FIGURE and IRONY.

The Word is derived from the *Greek* ἀντι and φρασις, of φράζω, *I speak*.

'Tis a common Error, to make *Antiphrases* consist in a single Word; as when we say that the *Parcæ* are thus call'd by *Antiphrasis*, because they spare no body, *Parcæ quia nemini parcunt*.——St. *Jerom*, in his Epistle to *Riparius* against *Vigilantius*, says he ought rather to be called *Dormitantius per Antiphrasin*, than *Vigilantius*, because he opposed the Christians holding Wakes at the Tombs of the Martyrs.

Sanctius, in his *Minerva*, p. 431. condemns such *Antiphrases*; by reason *Phrasis* is not applicable to a single Word, but signifies *Orationem, aut loquendi Modum*. See PHRASE.

That excellent Grammarian defines *Antiphrasis* to be a Form of Irony, whereby we say a thing, by denying what we ought rather to affirm it to be: *Antiphrasis est Ironiæ quædam forma cum dicimus negando id quod debuit affirmari*.——As when we say, *It did not displease me*, or, *He is no Fool*; meaning, *I was pleased with it*, or, *He is a Man of Sense*.——On this Principle, the *Antiphrasis* ought to be ranked among the Figures of Sentences, and not those of Words. See FIGURE.

ANTIPODES, or ANTICHTHONES, in Geography, a relative Term, understood of such Inhabitants of the Earth as live diametrically opposite to one another. See EARTH.

The *Antipodes* are those who live in Parallels of Latitude equally distant from the Equator, the one toward the North, the other to the South; and under the same Meridian, tho 180°, or just half of that Meridian, distant from one another. See PARALLEL and MERIDIAN.

The *Antipodes* have the same degree of Heat and Cold; the same length of Night, and Day; but at contrary times: It being Midnight with one when it is Noon with the other; and the longest Day with one, when shortest with the other. See HEAT, DAY, NIGHT, &c.

Again,

Again, as the Horizon of any place is 90° distant from the Zenith thereof; *Antipodes* have the same Horizon. See HORIZON.——And hence, when the Sun rises to one, he sets to the other. See RISING and SETTING.

The Word comes from the *Greek* ἀντὶ, *against*, and ποῦς, ποδὸς, *a Foot*.

Plato is said to have first started the Notion of *Antipodes*; and likewise to have given them the Name: As he conceiv'd the Earth to be of a spherical Figure, it was easy for him to infer that there must be *Antipodes*. See EARTH.

Many of the Antients, and particularly *Lactantius* and *Augustin*, laugh'd at the Notion.

The latter of those Fathers is out of his wits to think how Men and Trees should hang pendulous in the Air, their Feet uppermost; as they must do in the other Hemisphere.

And if we may believe *Aventine*, *Boniface* Archbishop of *Mentz* and Legate of Pope *Zachary*, in the eighth Century, declared a Bishop of that Time, called *Virgilius*, a Heretick, for maintaining that there was such a thing as *Antipodes*.

But this Piece of History is controverted by the Authors of the *Mem. de Trevoux*; having been made use of, it seems, by some Persons, to shew that the Church has been mistaken in its Decisions——The only Account extant of the matter, upon which the Tradition is founded, is a Letter of Pope *Zachary* to *Boniface*; wherein he says, "If it "be proved that he maintain that there is another World, "and other Men under the Earth; another Sun, and an- "other Moon; expel him the Church, in a Council; after "first divesting him of the Priesthood, &c." The Authors above-cited endeavour to prove that this Threatening was never executed; and that *Boniface* and *Virgilius* afterwards lived together in good Understanding; and that *Virgilius* was even canonized by the same Pope. *Mem. de Trev. an* 1708.

They further assert, that were the Story true; the Pope had done nothing contrary to Truth and Equity: in regard the Notion of *Antipodes* was very different in those days, from what it is now——"For besides the Demonstra- "tions of the Mathematicians, say they, the Philosophers "too added their Conjectures; and asserted that the Sea "made two great Circles around the Earth, which divided "it into four parts; that the vast Extent of this Ocean, "and the burning Heats of the torrid Zone, prevented any "Communication between those four parts of the Earth, "so that Men could not be of the same Kind, nor proceed "from the same Original: and this," say our Authors, "was what was meant by the Word *Antipodes* in those "Times."

As to the Sentiments of the Primitive Christians with regard to *Antipodes*; some, rather than admit the Conclusions of the Philosophers, absolutely denied the whole, even the Demonstrations of the Geometricians relating to the Sphericity of the Earth: which is *Lactantius*'s way, *Instit. lib.* iii. *c.* 24. Others only call'd in question the Conjectures of the Philosophers: which is St. *Augustin*'s Method, *de Civit. Dei, lib.* xvi. *c.* 9.——After putting the Question, whether there ever were Nations of *Cyclopes*, or Pigmies, or of People whose Feet stood outward, &c. he comes to the point of *Antipodes*, and asks, "whether the "lower part of our Earth be inhabited by *Antipodes*"——He made no doubt of the Earth's being round, nor of there being a part diametrically opposite to ours; but only disputes its being really inhabited. And the Considerations he suggests for that purpose are just enough: As, That they who asserted *Antipodes*, had no History for it; That the lower part of the Earth may be cover'd with Water; and that to place *Antipodes* there, of a different Origin from us, (as must have been the Opinion of the Antients, since they thought it impossible to go from our World to theirs;) is to contradict Scripture, which teaches that the whole Race descended from one Man——Such is the Sentiment of that Critic.

It may be added, that the Christian Fathers were not the only Persons who disputed the Truth of *Antipodes*. *Lucretius* had done it before them at the end of his first Book, *v.* 10, 63, &c. See also *Plutarch, lib. de Facie in Orbe Lunæ*; and *Pliny*, who refutes the Opinion, *lib.* ii. *c.* 65.

ANTIPRÆDICAMENTS, in Logic. See ANTEPREDICAMENT.

ANTIPTOSIS, a Figure in Grammar, whereby one Case is put for another. See CASE.

The Word comes from the *Greek* ἀντὶ, *pro*, and πτῶσις, *Casus*.

ANTIQUARY, ANTIQUARIUS, a Person who studies and searches after Monuments and Remains of the *Antients*; as, old Medals, old Books, old Statues, Sculptures, and Inscriptions, and, in general, all curious Pieces that may afford any light into Antiquity. See ANTIQUITY. See also MONUMENT, MEDAL, INSCRIPTION, SCULPTURE, STATUE, &c.

Formerly there were several other kinds of *Antiquaries*. The *Librarii*, or Copists, *i.e.* those who transcribed in fair legible Characters what had been before written in Notes, were called by this Name. See LIBRARII——They were also denominated *Calligraphi*.

In the chief Cities of *Greece* and *Italy*, there were other Persons of Distinction, called *Antiquaries*, whose business it was to shew Strangers the Antiquities of the Place, to explain the antient Inscriptions, and to give them all the assistance they could in this way of Learning.

This was doubtless a very curious and useful Institution; and might well deserve to be re-established'd——*Pausanias* calls these *Antiquaries* Ἐξηγητὰς; the *Sicilians* call'd 'em *Mystagogos*.

ANTIQUATED, ANTIQUATUS, something obsolete, or grown out of date, or use. See OBSOLETE.

ANTIQUE, ANTIQUUS, something that is *antient*. See ANTIENT.

The Term is chiefly used by Architects, Sculptors, and Painters; who apply it to such pieces of Architecture, Sculpture, Painting, &c. as were made at the time when the Arts were in their greatest perfection, among the antient *Greeks* and *Romans*, *viz.* from the Age of *Alexander the Great* to the time of the Emperor *Phocas*, when *Italy* became over-run by the *Goths* and *Vandals*.

In this sense the Word stands opposed to *Modern*. See MODERN.

Thus we say, an *antique* Building, or a Building *after the Antique*; an *antique* Bust, or Bas Relievo; the *antique* Manner, Taste, &c.

ANTIQUE is sometimes even contradistinguish'd from *antient*, which denotes a lesser degree of Antiquity, when the Art was not in its utmost Purity: Thus, *antique* Architecture is frequently distinguish'd from *antient* Architecture. See ARCHITECTURE.

Some Writers use the Compound *Antiquo-modern*, in respect of old *Gothic* Churches and other Buildings; to distinguish them from those of the *Greeks* and *Romans*.

ANTIQUE *Work*. See ANTIC *Work*.

ANTIQUITY, ANTIQUITAS, antient Days; or the Times past long ago. See AGE, TIME, ANTIQUE, ANTIENT, &c.

Thus we say, the Heroes of *Antiquity*, the Marks of *Antiquity*, &c.

ANTIQUITY is also used in respect of the Remains, or Monuments of the Antients. See MONUMENT, REMAINS, RUINS, &c.

Thus we say, the *Antiquities* of *Greece*, the *Jewish Antiquities*, *Roman Antiquities*, &c.——The *Chinese* are infinite Admirers of *Antiquity*.

ANTISCII, or ANTOECI, in Geography, the People who inhabit on different sides of the Equator; and who, of consequence, at Noon, have their Shadows projected opposite ways. See SHADOW.

The People of the North are *Antiscii* to those of the South; the one projecting their Shadows, at Noon, towards the North Pole, and the others towards the South Pole.

Antiscii are frequently confounded with *Antœci*, who inhabiting opposite sides of the Equator, have the same Elevation of Pole. See ANTOECI.

The *Antiscii* stand contradistinguish'd from *Periscii*, &c. See PERISCII.

ANTISCII are sometimes also used among Astrologers, for two Points of the Heavens equally distant from the Tropics——Thus the Signs *Leo* and *Taurus* are held *Antiscii* to each other.

The Word comes from the *Greek* ἀντὶ, *against*, and σκια, *Shadow*.

ANTISCORBUTICKS, Remedies against the *Scorbutus* or *Scurvy*. See SCORBUTUS. See also DETERGENT.

ANTI-SPODIUM. See SPODIUM.

ANTI-SIGMA, a Mark in the antient Writings, when the Order of the Verses is to be changed.

ANTISPASTUS, in the antient Poetry, a Foot in Verse, having the first Syllable short, the second and third long, and the fourth short. See FOOT and VERSE.

ANTISTITIUM, a Term used in antient Histories, for a *Monastery*. See MONASTERY.

ANTISTROPHE, a Figure in Grammar, whereby two Terms or Things mutually dependent one on another, are reciprocally converted. See FIGURE and CONVERSION.

As, if one should say, the *Master* of the *Servant*, and the *Servant* of the *Master*.

ANTISTROPHE was also a kind of Dance in use among the Antients; wherein they stepped sometimes to the Right, and sometimes to the Left, still doubling their Turns or Conversions. See DANCE.

The Motion towards the Left, they called *Antistrophe*; from ἀντὶ, *against*, and στροφὴ, of στρέφω, *I turn*. See STROPHE——Hence

ANTI-

ANTISTROPHE, is also used in Lyric Poetry, in respect of an Ode, which is usually divided into the *Strophe*, *Antistrophe* and *Epode*. See ODE.

The *Antistrophe* is a kind of Eccho, or Replication to the *Strophe*; and the *Epode* a launching out from them both. See STROPHE and EPODE.

ANTITACTÆ, or ANTITACTICI, in Antiquity, a kind of Gnosticks, who own'd that God, the Creator of the Universe was good and just; but asserted withal, that one of his Creatures had created Evil, and had engaged us to follow it, in order to set us in opposition to God the Creator; and that it becomes our Duty to oppose this Author of Evil, in order to avenge God of his Enemy. See GNOSTICKS.

Hence comes their Name; which is derived from the *Greek* ἀντίτακτω, I oppose, I am contrary.

ANTITENAR, in Anatomy, a Muscle of the Thumb; whose Office is to draw it to the Fingers——It rises from the Bone of the *Metacarpus* that sustains the Fore-finger, and is inserted into the first Bone of the Thumb. See FINGER.

ANTITENAR is also the Name of a Muscle of the great Toe; which arising from the inferior part of the third *Os Cuneiforme*, and passing obliquely, is inserted into the inside of the *Ossa Sessamoidea*. See TOE.

The Word is compounded of the *Greek* ἀντι, against; and θεναρ; as being Antagonist to the *Tenars*. See TENAR.

ANTITHESIS, in Rhetorick, a setting two things by way of Opposition to each other, that the Excellency of the one, and the Folly of the other may appear the more strongly. See OPPOSITE and OPPOSITION.

Such is that of *Cicero*, in the second *Catilinarian*: "On "the one side stands Modesty, on the other Impudence; on "the one Fidelity, on the other Deceit; here Piety, there "Sacrilege; here Continency, there Lust, &c."——Such also is that of *Augustus* to some seditious young Men, *Audite, Juvenes, Senem, quem Juvenem senes Audivere*——Such again is that of *Seneca*, *Curæ Leves loquuntur, Ingentes stupent*.

St. Augustin, *Seneca*, *Salvian*, and many other antient Writers, seem greatly to affect *Antitheses*; but among the Moderns they are generally decried. *Desmarets* represents 'em as the Favourites of young Writers.

Persius long ago declaimed against the impertinent use of *Antithets*.

——*Crimina Rasis*
Librat in Antithetis, *doctus posuisse Figuras*.

ANTITHESIS is also a Figure in Grammar, whereby one Letter is substituted in the room of another; as *olli* for *illi*.

The Word is deriv'd from the *Greek* ἀντίθεσις, Opposition.

ANTITHETARIUS, a Term occurring in the Title of a Chapter in the Laws of *Canutus*, *viz.* Capit. 47. but not in the Chapter it self. The meaning of the Word, is where a Man endeavours to discharge himself of the Fact of which he is accused, by recriminating, *i. e.* by charging the Accuser with the same Fact. See RECAIMINATION.

ANTITHET, ANTITHETON, an Opposite, or Contrary; something disposed by way of Antithesis. See ANTITHESIS.

ANTITRAGUS, in Anatomy, part of the Auricle opposite to the *Tragus*. See TRAGUS, AURICLE and EAR.

ANTITRINITARIANS, Hereticks who deny the holy Trinity, and teach that there are not three Persons in the God-head. See TRINITY and GOD.

Thus the *Photinians*, who do not believe the Distinction of Persons in God; the *Arians*, who deny the Divinity of the Word; and the *Macedonians*, who deny that of the Holy Spirit, were all properly *Antitrinitarians*. See PHOTINIAN, ARIAN, and MACEDONIAN.

Among the Moderns, *Antitrinitarians* are particularly understood of *Socinians*, call'd also *Unitarians*. See SOCINIAN and UNITARIAN.

The *Biliotheca Antitrinitariorum*, or Antitrinitarian Library, is a Posthumous Work of *Christopher Sandius*, an eminent *Antitrinitarian*; wherein he gives a List digested in Order of Time, of all the Socinian or modern *Antitrinitarian* Authors, with a brief Account of their Lives, and a Catalogue of their Works.

ANTITYPE, a *Greek* Word, properly signifying a Type or Figure corresponding to some other Type. See TYPE.

The Word *Antitype*, ΑΝΤΙΤΥΠΟΣ, occurs twice in the New Testament, *viz.* in the Epistle to the *Hebrews*, IX. 24. and in St. *Peter*, 1 *Ep.* III. 21. where its genuine Import has been much controverted——The former says, that "Christ "is not entered into the Holy Places made with Hands, "which are ἀντίτυπα, the Figures or *Antitypes* of the true; "now to appear in the Presence of God for us."——Now Τυπος, as is elsewhere observed, signifies the Pattern by which another Thing is made: and as *Moses* was obliged to make the Tabernacle, and all Things in it, according to the Pattern shew'd him in the Mount; the Tabernacle so formed was the *Antitype* of what was shewn to *Moses*: Any Thing therefore formed according to a Model or Pattern, is an *Antitype*.

In the latter Passage, the Apostle speaking of *Noah*'s Flood, and the deliverance of only eight Persons in the Ark from it, says ὃ καὶ ὑμᾶς ἀντίτυπον νῦν σώζει βάπτισμα, *Baptism being an Antitype to that, now saves us; not putting away the Filth of the Flesh, but the Answer of a good Conscience toward God, &c.* The meaning is, that Righteousness, or the Answer of a good Conscience towards God, now saves us by means of the Resurrection of Christ, as formerly Righteousness saved those eight Persons by means of the Ark, during the Flood——The Word, *Antitype*, therefore here signifies a general Similitude of Circumstances; and the Particle ὅ, *whereunto*, refers, not to the immediate Antecedent, ὕδατος, Water, but to all that precedes.

ANTITYPE, among the antient *Greek* Fathers, and in the *Greek* Liturgy, is also applied to the Symbols of Bread and Wine in the Sacrament. See SYMBOL, EUCHARIST, &c.

Hence it has been argued by many Protestants, that the *Greeks* do not really believe the Doctrine of Transubstantiation; in regard they call the Bread and Wine *Antitypes*, αντιτυπα, *q. d.* Figures, Similitudes, even after the Consecration. See GREEK, TRANSUBSTANTIATION, &c.

Clement, in his Constitutions, S. *Cyril*, and *Gregory Nazianzen*, and several other antient Writers, make no scruple of using the Term on the same Occasion; as is allowed by *Leo Allatius*, *Suicer*, &c. *Thesaur. Ecc lesiast.*

M. *Simon* replies to Dr. *Smyth*, who had made this Observation of the *Greeks* calling the Species, *Antitypes*, after Consecration; that the *Greek* Church does not hold the Consecration compleated till after the Prayer call'd *Invocation of the Holy Spirit*, which comes after the Passage of the Liturgy, where the Bread and Wine are call'd *Antitypes*.

Add, that *Marcus Ephesius*, the Leader of the Party against the *Latins*, at the Council of *Florence*; makes use of this very Passage in the *Greek* Liturgy, to prove that the Consecration does not consist wholly in the Words, *This is my Body*; but also in the Prayer or Benediction which the Priest rehearses afterwards, invoking the Holy Spirit. See GREEK.

ANTLER, among Hunters, the first of the Pearls that grow about the Bur of a Deer's Horn. See HEAD.

There are also Sur-*Antlers*, Brow-*Antlers*, &c. See HUNTING.

ANTONOMASIA, in Rhetoric. See ANTINOMASY.

ANTRUM, in Anatomy, the beginning of the Pylorus, or lower Orifice of the Stomach. See PYLORUS and STOMACH.

ANTOECI, in Geography, those Inhabitants of the Earth who live under the same Meridian, and at the same Distance from the Equator; the one towards the North, and the other to the South. See EARTH.

Hence, the *Antœci* have the same Longitude and the same Latitude, only of a different Denomination. See LATITUDE, &c.

The Inhabitants of *Peloponnesus* are *Antœci* to the *Hottentots* of the Cape of *Good Hope*——*Antœci* are frequently confounded with *Antiscii*. See ANTISCII.

The *Antœci* have precisely the same Hours of the Day and Night; but opposite Seasons: when 'tis 12 a-Clock in the longest Summer Day with one; 'tis 12 a Clock of the shortest Winter's Day with the other; and hence the Night of the one is always equal with the Day of the other. See DAY, HOUR, SEASON, &c.

Hence also those Stars which never rise to any given Place, to the *Antœci* and Antipodes thereof never set: and *vice versa*——And if the *Antœci* turn their Faces toward each other, or the Antipodes look both toward the Equator, the Stars will rise to the one on the right Hand, and to the other on the Left. See ANTIPODES, &c.

The Word is form'd of the *Greek* ἀντι, *contra*, and οἰκέω, I dwell, inhabit——The *Antœci* are contradistinguish'd from the *Periœci*. See PERIOECI.

ANUS, in Medicine, the Extremity of the Intestine *Rectum*; or the Orifice of the Fundament. See RECTUM and FUNDAMENT.

Fistula's in Ano are very difficult of Cure. See FISTULA.

The *Gabionites* sent golden *Anus*'s back with the Ark, to be cured of a Disease which afflicted them in the *Anus*. See ARK.

Sphincter of the Anus, or *Sphincter* ANI. See SPHINCTER *Ani*.

Levator ANI. See LEVATOR *Ani*.

Scalptor ANI. See ANI-SCALPTOR.

Procidentia, or *Prolapsus* ANI. See PROCIDENTIA *Ani*.

ANUS is also used for a small Hole in the third Ventricle of the Brain, which leads into the fourth Ventricle of the *Cerebellum*. See BRAIN and VENTRICLE.

AORISTUS, Aorist, a Tense in the *Greek* Grammar, answering to the Præter-perfect of the *Latin* and *English*. See Tense and Greek.

As, for instance, *I lov'd you*——The *Greeks* have two *Aoristus's*; the *Latins*, none. See Preter and Preterit.

AORTA, in Anatomy, an Artery, which arises immediately out of the left Ventricle of the Heart; and is distributed thence thro' all Parts of the Body. See Artery and Heart.

The *Aorta* is otherwise called the *great Artery*; as being the Trunk, out of which the other Arteries all spring; and the great Conduit or Canal whereby the Blood is convey'd throughout the Body. See Blood and Circulation.

The Word is form'd of the *Greek* ἀορτὴ, which signifies a *Vessel, Chest*, &c.——The *Aorta* is divided into two grand Trunks, call'd the *Ascending* and *Descending*; *Aorta, ascendens* and *descendens*. See Ascending and Descending.

Ossifications, or Petrifactions of the Coats of the *Aorta* at its rise from the Heart, are so frequent, that some think it a constant Case.—Mr. *Cooper*, however, has an express Discourse to shew that whenever such Ossification happens in Man, it is a Disease, and incommodes the Part in the due Execution of its Office. Of this he gives us several Instances; one, in which an Intermission of Pulse was produced; in another, a Coldness of the Extremes with a Gangrene, &c. *Phil. Transact.* N° 299.

AONIDES, in Mythology. See Muse.

APAGMA, a Term used by some Writers in Chirurgery, for the thrusting of a Bone or other Part out of its proper place. See Dislocation.

APAGOGICAL *Demonstration*, is such as does not prove the thing directly, but shews the Impossibility and Absurdity which arises from denying it. See Demonstration.

Hence it is also call'd, *Reductio ad impossibile*, or *ad absurdum*. See Reduction and Absurdum.

APANNAGE, Apennage, or Appannage. See Appanage.

APELLITÆ, Hereticks in the Primitive Church, who taught that Christ left his Body dissolved in the Air; and so ascended into Heaven without it.

APARTMENT, a Portion of a large House, wherein a Person may lodge separately; having all the Conveniencies requisite to make a compleat Habitation. See House, &c.

A compleat *Apartment* must consist at least of a Chamber, an Antichamber, and a Cabinet or Wardrobe. See Chamber, Antichamber, &c.

The Word comes from the *Latin Apartimentum*, of the Verb *partiri*, to divide.

APATHY, a moral Insensibility; or a Privation of all Passion, all Motion, or Perturbation of Mind. See Passion.

The *Stoicks* affected an entire *Apathy*: their wise Man was to enjoy a perfect Calmness or Tranquillity of Mind, incapable of being ruffled, and above the reach of any Sense either of Pleasure or Pain. See Stoicks, Pleasure and Pain.

The Word is form'd of the privative Particle α, and πάθος, Passion.

In the first Ages of the Church the Christians adopted the Term *Apathy*, to express a Contempt of all earthly Concerns; a State of Mortification, such as the Gospel prescribes. And hence we find the Word often used among the devouter Writers: *Clemens Alexandrinus*, in particular, brought it exceedingly in vogue; thinking hereby to draw the Philosophers to Christianity, who aspired after such a sublime pitch of Virtue.

Quietism, is only *Apathy* disguised under the appearance of Devotion. See Quietism.

APATURIA, in Antiquity, Feasts celebrated by the *Athenians* in honour of *Bacchus*. See Feast.

The Word is derived from the *Greek* ἀπάτη, Fraud.——It is said to have been instituted in memory of a fraudulent Victory, obtain'd by *Melanthus* King of *Athens*, over *Xanthus*, King of *Beotia*, in a single Combat, which they agreed upon, to put an end to a Debate between 'em relating to the Frontiers of their Countries.——Hence *Budæus* calls it *Festum Deceptionis*, the Feast of Deceit.

This Feast lasted four Days: The first Day, those of the same Tribe made merry together; and this they call'd Δόρπια. The second Day, which they call'd Ἀνδροῖνα, they sacrificed to *Jupiter* and *Minerva*. The third Day, which they call'd Κουρεῶτις, such of their young Men and Maids as were of Age, were admitted into their Tribes. The fourth Day they call'd Ἐπιδεῖπνα.

Other Authors give a different Etymology of this Feast, from what we have now related: They tell us, that the young *Athenians* were not admitted into the Tribes on the third Day, till their Fathers had first swore that they were their own Children; and that till that time they were supposed, in some measure, to be without Fathers, ἀπάτορες, whence the Feast, say they, took its Name.

Xenophon, on the other hand, informs us, that the Relations and Friends met on this occasion, and join'd with the Fathers of the young People who were to be received into the Tribes; and that from this Assembly the Feast took its Name: that in Ἀπάτουρα, the α far from being a Privative, is a Conjunctive, and signifies the same thing with ὁμοῦ, together.

APEPSY, Apepsia, in Medicine, a want of Digestion. See Digestion.

Apepsia, is a Defect in the Stomach, which prevents the Aliment taken in from affording a proper Chyle for supplying the Blood and nourishing the Body. See Food, Stomach, Chyle, Blood, Nutrition, &c.

The Word is form'd from the privative Particle α, and πέσσω, *coquo*, I boil, or concoct.

APERIENS, or *Aperient*, or *Aperitive*, in Medicine. See Aperient.

The Word is *Latin*; being the Participle of the Verb *Aperire*, to open; *q. d. opening*.

Crocus Martis Aperiens, *opening Saffron of Iron*, is a Preparation of Iron-Plates or Filings, made by exposing them to the Rain or Dew, till they contract a Rust; which is the Medicine required. See Crocus and Mars. See also Air, &c.——it is a good *Aperient*.

Aperiens *Palpebram Rectus*, in Anatomy, is a Muscle, which rising in the Orbit of the Eye, near the entrance of the Optic Nerve; passes over the attollent Muscle of the Eye, and is at last inserted into the whole superior Part of the upper Eye-lid, which it serves to open. See Eye and Palpebra.

APERIENTS, or Aperitive *Medicines*, are such as open the obstructed Passages of the small Vessels, Glands, and Pores; and by that means promote a due Circulation of the contained Juices. See Obstruction, Capillary, Gland, Circulation, &c.

Aperients, then, coincide with Deobstruents. See Deobstruent.

The five lesser *Aperient*, or opening Seeds, are Grass, Madder, Eryngo, Capers and Cammock.——The greater opening Seeds are Smallage, Fennel, Asparagus, Parsly, and Butcher's Broom.

APERTIONS, in Architecture, are the Openings in a Building; as Doors, Windows, Stair-cases, Chimneys, Outlets and Inlets for Light, Smoke, &c. See Building. See also Door, Window, &c.

The *Apertions* should be as few as may be; it being a Rule that all Openings are Weakenings.

APERTURE, Apertura, the *Opening* of any thing; or a Hole, Cleft, or vacant Place in some otherwise solid, or continuous Subject. See Opening.

The Word comes from the *Latin Apertura*, of *Aperire*, to open.

In Geometry, *Aperture* is used for the Space left between two Lines which mutually incline towards each other to form an Angle. See Angle.

In Optics, *Aperture* is the Hole next the Object-Glass of a Telescope, or Microscope; thro' which the Light and Image of the Object come into the Tube, and are thence carried to the Eye. See Object-Glass.

Aperture is also understood of the Part of the Object-Glass itself, which covers the former, and which is left pervious to the Rays. See Telescope.

A great deal depends on having a just *Aperture*.——To find it experimentally; apply several Circles of black smutted Paper, each bigger than other, upon the Face of the Glass, from the Magnitude of a Pea to the whole Extent of the Glass; and with each of these, separately, view several distant Objects; as the Moon, Stars, &c. That thro' which they appear the most distinctly, is to be pitch'd upon.

M. *Auzout* affirms, that he found that the *Apertures* of Telescopes ought to be nearly in the subduplicate Ratio of their Lengths: But *Huygens*, who first introduced the Use of *Apertures*, assures us he found by experience, that the *Aperture* of an Object-Glass, *E. gr.* of 30 Foot, is to be determined by this Proportion: as 30 to 3, that is, as 10 to 1, so is the Root of the Distance of the Focus of any Glass multiply'd by 30, to its *Aperture*: and the focal Distances of the Eye-Glasses are to be proportional to the *Apertures*.

A *Table of Apertures for Telescopes of various Lengths*, &c. See under the Article Telescope.

The greater or less *Aperture* of an Object-Glass, it is to be noted, does not increase or diminish the visible Area of the Object; all that is effected by this, is the admittance of more or less Rays, and consequently the more bright or obscure Appearance of the Object.

Hence,

Hence, in viewing *Venus* thro' a Telescope, a much less *Aperture* is to be used than for the *Moon*, *Jupiter*, or *Saturn*, because her Light is so vivid and glaring——Which Consideration does a little invalidate and disturb M. *Auzout*'s Proportion, as is shewn by Dr. *Hook*, *Phil. Transact.* N° 4.

Apertura Tabularum, in antient Law-Books, signifies the breaking open a Last Will and Testament. See WILL and TESTAMENT.

Apertura Feudi, denotes the loss of a feudal Tenure, by default of Issue to him, to whom the Feud or Fee was first granted. See FEE, FEUD, TENURE, &c.

APETALOUS, in Botany, something without Petala or Leaves. See PETALA and LEAF.

The Word comes from the privative Particle α, and πέταλον, *Folium*, a Leaf. See FLOWER, PLANT, &c.

APEX, the Vertex or Summet of any thing. See VERTEX, APICES, &c.

APHÆRESIS, or APHERESIS, in Grammar, a Figure, whereby something is taken away from the beginning of a Word. See FIGURE and WORD.

Thus *Cicoma*, by *Aphæresis* is wrote *Conia*.

A like Retrenchment at the end of a Word is call'd *Syncope* or *Apocope*. See SYNCOPE and APOCOPE.

APHELION, or APHELIUM, in Astronomy, that Point of the Earth's or a Planet's Orbit, in which it is the farthest distant from the Sun that it can be. See ORBIT.

Thus a Planet being in A, (Tab. ASTRONOMY, fig. 1.) its utmost Distance from the Sun S; is said to be in its *Aphelion*. See PLANET, SUN, &c.

In the System or Supposition of the Sun's moving round the Earth; the same Point is called the *Apogee*. See APOGEE.

The *Aphelion* stands opposed to the *Perihelion*. See PERIHELION.

The *Aphelium*s of all the primary Planets are at rest; excepting that those Planets nearest the Sun, *viz. Mercury*, *Venus*, the *Earth*, and *Mars*, being acted upon by *Jupiter* and *Saturn*, their *Aphelium*s move a small matter *in Consequentia* with respect to the fixed Stars, and this in the sesquiplicate Ratio of the Distance of those Planets from the Sun.

Hence, if the *Aphelium* of *Mars* move 25 Minutes *in Consequentia*, in respect of the fixed Stars in 100 Years; the *Aphelium*s of the *Earth*, *Venus*, and *Mercury*, will move in 100 Years, 18 Min. 36 Sec. 11 Min. 27 Sec. and 4 Min. 29 Sec.

The Method of finding the place of the *Aphelion*, is by observing several of the great Digressions of the Planet from the Sun; till by two or three repeated Observations it be found to remain at a stand——In the *Philosophical Transactions*, N° 128, we have a Geometrical Method of finding the *Aphelia* of the Planets, by Dr. *Halley*.

Kepler places the *Aphelium* of *Saturn* for the Year 1700, in 28°. 3′. 44″. of *Sagitarius*: *De la Hire*, in 29°. 14′. 41″.——The *Aphelium* of *Jupiter* in 8°. 10′. 40″. of *Libra*: *De la Hire* in 10°. 17′. 14′.——The *Aphelium* of *Mars* in 0°. 51′. 29″. of *Virgo*; *De la Hire* in 0°. 35′. 25″.——The *Aphelium* of the *Earth* in 8°. 25′. 30″. of *Cancer*——The *Aphelium* of *Venus* in 3°. 24′. 27′. of *Aquarius*; *De la Hire* in 6°. 56′. 10″.——And the *Aphelium* of *Mercury* in 15°. 44′. 29″. of *Sagitarius*; *De la Hire* in 13°. 3′. 14″.

The annual Motion, according to *Kepler*, of the *Aphelium* of *Saturn* is 1′. 11″. of *Jupiter*, 47″. of *Mars*, 1′. 7″. of the *Earth*——of *Venus*, 1′. 18″. and of *Mercury* 1′. 45″. According to *De la Hire*, that of *Saturn* is 1′. 22″. of *Jupiter* 1′. 34″. of *Mars* 1′. 7″. of the *Earth*——of *Venus* 1′. 26″. and of *Mercury* 1′. 39″.

The Word comes from the *Greek* ἀπὸ, from, and ἥλιος, Sun.

APHONY, from the privative Particle α, and φωνὴ, *Vox*, Voice; implies a loss of Speech, or Voice. See VOICE, &c.

APHORISM, a Maxim, general Rule, or Principle of a Science; or a brief Sentence, comprehending a great deal of Matter in a few Words. See MAXIM, &c.

The Term is chiefly used in Medicine and Law.——Thus we say the *Aphorisms* of *Hippocrates*, of *Sanctorius*, of *Boerhaave*, &c. *Aphorisms* of the Civil Law, &c.

The Word comes from the *Greek* ἀπὸ ὁρίζω, of ὁρίζω, *separo*, *seligo*, I separate, I chuse, *q. d.* choice, or select Sentences. See SENTENCE, AXIOM, &c.

APHRONITRE, APHRONITRUM, a kind of Nitre, mention'd by the Antients; supposed to be the Spume, or the lightest and subtilest Part thereof, emerging to the top. See NITRE.

Some modern Naturalists rather take the antient *Aphronitre* to have been a Native Salt-Petre; now call'd *Salt-Petre of the Rock*. See SALT-PETRE.

The Word is compounded of the *Greek* ἀφρὸς, Froth, and νίτρον, Nitre.

APHTHÆ, in Medicine, little Ulcers or Pimples rising in the Mouth, the Palate, Gums, at the Root of the Tongue, &c. See ULCER, &c.

Sucking Children are particularly subject to these *Aphthæ*, when either the Nurse's Milk is corrupted or the Child's Stomach becomes unfit for Digestion: for in these cases, the sharp acrimonious parts of the Milk rising up, easily exulcerate those tender and delicate parts.

There are some of these *Aphthæ* white, others red, others livid and blackish: The white and red are the least dangerous, and the most easily cured; the livid and black often prove mortal.

When they happen in grown Persons, they are owing to thin, serous, and sharp Humours returned from the several parts of the Body to the Mouth.

A Liniment of *Mel Rosatum* and Oil of Vitriol, is esteem'd a good Remedy for the *Aphthæ*.

The Word seems derived from the *Greek* φθίω, to corrupt; or from ἅπτω, *accendo*, I kindle.

APHTHARDOCITES, APHTHARDOCITÆ, a Sect of Heretics, sworn Enemies of the Council of *Chalcedon*.

They arose among the *Eutychians*, and made their first appearance in the Year 535. See EUTYCHIAN.

The Word is derived from the *Greek* ἄφθαρτος, incorruptible, and δόκεω, I judge; and was given them, because they imagined the Body of Jesus Christ was incorruptible and impassible, and not capable of Death.

APIARY, a *Bee-House*; a Place or Court where Bees are kept.

The Word comes from the *Latin*, *Apis*, a Bee.

The *Apiary* should be screen'd from high Winds on every side, either naturally or artificially; and well defended from Poultry, &c. whose Dung is offensive to Bees.

APICES, in Botany, little Knobs growing on the Tops of the *Stamina*, in the middle of Flowers. See STAMINA and FLOWER.

They are commonly of a dark, purplish Colour.——By the Microscope they have been discover'd to be, as it were, a sort of *Capsulæ seminales*, or Seed-Vessels, containing in them small globular, and often oval Particles of various Colours, and exquisitely formed; called the *Farina Fœcundans*. See FARINA FOECUNDANS.

What the Uses of these are, is not entirely agreed: Some have guessed them to be a kind of male Sperm which falling down into the Flower, fœcundates and ripens the Seed. See further under the Article *Generation of* PLANTS.

The Word is *Latin*; being the Nominative plural of *Apex*, the Top or Summet of any thing.

APOBATERION, among the Ancients, signified a farewell Speech, or Poem; occasion'd by a Person's departure out of his own Country, or some other place where he had been kindly received, and entertained.

Such is that of *Æneas* to *Helenus* and *Andromache*, Æn. Lib. III.——The *Apobaterion* stands opposed to the Epibaterion. See EPIBATERION.

APOCALYPSE, *Apocalypsis*, q. d. *Revelation*; the Name of the last Book in the Canon of Scripture. See CANON and BIBLE.

The *Apocalypse* contains Discoveries, or Revelations relating to many important Mysteries of Christian Faith; made to the Apostle St. *John*, in the Isle of *Pathmos*, during his Banishment there under the Persecution of *Domitian*. See REVELATION.

The Word is form'd of the *Greek* ἀποκαλύπτω, I reveal, I discover.

This, of all the Books of the New Testament, is that, about which the antient Fathers, and the Practice of the Church, were the most and the longest divided——St. *Jerom* relates, that the *Greek* Church doubted of its Authenticknesses even in his Days: St *Basil* and *Gregory Nazianzen* absolutely reject it; and the Council of *Laodicea* never mention it in their Canon of the Sacred Writings.

Some attributed it to the Heretic *Cerinthus*; and others, to another *John*, Disciple of St. *John*——*Dionysius Alexandrinus* censures it as written in bad *Greek*, and even finds Solecisms and Barbarisms in it, abundance: tho he allows it to contain a mystic sense, which he says he admires even where he does not understand.

On the other hand, St *Justin*, *Irenæus*, and St. *Augustin*, make no doubt of its being Canonical. The third Council of *Carthage*, held in 397, placed it in the Canon of the New Testament; and the Churches both of the *East* and *West* have acknowledged it ever since.

The *Alogians* are represented by Ecclesiastical Writers, as great Declaimers against the *Apocalypse*, many of the Flights whereof they turn'd into Ridicule; particularly the Visions of the seven Trumpets; the four Angels bound on the River *Euphrates*, &c——St. *Epiphanius* defends it against them: The Book, he observes, is not a mere History, but a Prophecy; so that it is no wonder the Author should

should express himself after the manner of the Prophets, whose Style is usually figurative.

Of all their Objections against the Authority of this Book, that seems the best grounded which is drawn from those Words in Cap. ii. ver. 15. *Write to the Angel of the Church of* Thyatira: There was not, say they, any Christian Church at *Thyatira* at that time——St. *Epiphanius*, who grants 'em this Point, is forced to have recourse to the Prophetic Spirit; as if St. *John* had foreseen there would be a Church there in course of time.

Some late Authors have made a good amendment to St. *Epiphanius*'s Answer: 'Tis probable, in the time of that Father, the Catalogue of the Bishops, with other Acts, which shew that there had been a Church established'd there from the time of the Apostles; might not be known. *Grotius* adds, that tho there was not, indeed, any Church of *Gentile* Converts at *Thyatira* when St. *John* wrote; yet there was one of *Jews*, as there had been another at *Thessalonica* before St. *Paul* preached there.

Several Orthodox Writers have rejected the *Apocalypse* as a Book which countenanced the Reveries of *Cerinthus* touching the carnal Reign of Christ on Earth. See CERINTHIANS, and MILLENARIES.

Tho *Dionysius Alexandrinus* allow'd the *Apocalypse* for an inspired Writing; yet he took it for the Work of another *John*, beside St. *John the Evangelist*; which he endeavours to make appear from the Diversity of Style. But we all know how precarious the Arguments are, which are drawn from the mere Consideration of Style——'Tis true, in most of the antient *Greek* Copies, both printed and manuscript, we find the Name *John the Divine* at the Head thereof; but they who put this Title, meant no more thereby than to denote the Apostle St. *John*, whom the *Greek* Fathers call *the Divine*, by way of Eminence, to distinguish him from the other Evangelists. See EVANGELIST.

There have been several other Works published under the Title of *Apocalypses*——*Sozomen* mentions a Book used in the Churches of *Palestine*, call'd *the Apocalypse*, or *Revelation* of St. *Peter*. He also mentions an *Apocalypse* of St. *Paul*; which the *Coptitæ* retain to this day. *Eusebius* also speaks of both these *Apocalypses*——St. *Epiphanius* mentions an *Apocalypse* of *Adam*: *Nicephorus*, of an *Apocalypse* of *Esdras*: *Gratian* and *Cedrenus*, of an *Apocalypse* of *Moses*, another of St. *Thomas*, and another of St. *Stephen*.

Porphyry, in his Life of *Plotin*, makes mention of the *Apocalypses* or *Revelations* of *Zoroaster*, *Zostrian*, *Nicotheus*, *Allogenes*, &c.

APOCHYLISMA, among Physicians, *Inspissation*; the boiling and thickening of any Juice with Sugar and Honey, into a kind of hard Consistence. See INSPISSATION, &c.

APOCOPE, a Figure in Grammar, wherein the last Letter or Syllable of a Word is cut off. See FIGURE and WORD.

The Word is derived from the *Greek* ἀποκόπτω, *to cut off*; which is form'd from the Preposition ἀπὸ, and the Verb κόπτω, *I cut*.

A like Retrenchment at the beginning of a Word is call'd *Aphæresis*. See APHÆRESIS.

APOCRISIARIUS, or APOCRISARIUS, in Antiquity, an Officer appointed to carry or deliver the Messages, Orders, and Answers of a Prince——He afterwards became his Chancellor, and kept the Seal. In the baser *Latin* we sometimes meet with *Ascreta*, Secretary, for *Apocrisary*.

Zosimus defines the *Apocrisarius*, Secretary for foreign Affairs; being the same with what *Vopiscus* in the Life of *Aurelian* calls *Notarius Secretorum*.

The Title and Quality of *Apocrisary* became at length appropriated, as it were, to the Pope's Deputy or Agent, who resided at *Constantinople* to receive the Pope's Orders, and the Emperor's Answer——St. *Gregory* was *Apocrisary* of Pope *Pelagius*, at the time when he composed his Morals on *Job*.

The *Apocrisary* did the Office of the modern Nuntio's. See NUNTIO.

Sometimes, however, he had the Rank and Quality of the Pope's Legate. See LEGATE.

The Heresy of the *Monothelites*, and afterwards that of the *Iconoclastes*, broke off the Custom of having a Papal *Apocrisary* at *Constantinople*.

The Word is form'd from the *Greek* ἀπόκριμα, *Responsum*, Answer——Hence he is usually call'd in *Latin*, *Responsalis*.

APOCROUSTICS, Medicines intended to stop the Flux of malignant Humours, to a part diseased. See REPELLENT.

They are usually cold, astringent, and consisting of large Particles; wherein they differ from drawing Medicines, which are hot, and consist of more subtile parts. See RIPENERS.

The Word is derived from ἀποκρούω, *pulso*, *pello*, I drive.

APOCRYPHAL, something *dubious*; or that comes from an uncertain Author, whereon much credit cannot be reposed.

Thus we say, an *Apocryphal* Book, Passage, History, &c. meaning, such as are of suspected Authority——In Matters of Doctrine, the Writings of Hereticks, Schismaticks, &c. are held *Apocryphal*.

Vossius observes, that with regard to the sacred Books, none are to be accounted *Apocryphal*, except such as have neither been admitted into the Synagogue, nor the Church, so as to be added to the Canon and read in public. See CANON, BIBLE, &c.

The Word is derived from the *Greek* ἀποκρύπτειν, to *hide*; because the Origin of such Books was *unknown*, or because they contain'd some Mysteries not fit to be known——For this reason, the Books of the *Sybils* were antiently call'd *Apocryphal*, as being committed to the Trust of the *Decemviri* alone: and for the like reason the Annals of the *Egyptians* and *Tyrians* were call'd by the same Name. See SYBIL, DECEMVIR.

Before the *Septuagint* Version, the Books of the Old Testament were all *Apocryphal* in this sense——But in process of time, the sense of the Word was changed, and those Books alone were call'd *Apocryphal*, which were of doubtful or suspected Authority.

In the original meaning of the Word, all the Writings deposited in the Temple were call'd *Apocryphal*; by reason they were kept secret from the People.

When the *Jews* publish'd their sacred Books, they only gave the Appellations of *Canonical* and *Divine* to such as they thus made public; and such as were still retain'd in their Archives, they call'd *Apocryphal*, for no other reason, but because they were not public; so that they might be really Sacred and Divine, tho not promulged as such.

Thus, in respect of the Bible, all Books were call'd *Apocryphal*, which were not inserted in the *Jewish* Canon of Scripture; and 'tis in this sense St. *Epiphanius* is to be understood, when he says, That the *Apocryphal* Books are not put in the *Ark* among the other inspired Writings. See ARK.

There has been a great Dispute between the Romanists and the Reformed, about the Authority of those Books, now call'd, by the latter, *Apocryphal*; as, *Judith*, *Tobit*, *Esdras*, *Maccabees*, &c. the one having the Opinions of many of the Primitive Fathers for their Vouchers, and the others, the Tradition of their Church.

M. *Simon* contends, that they must have been read, in *Greek*, even by the Apostles themselves; which he infers from divers Passages in their Writings——He adds, that the Church receiv'd them with the other Books of Scripture, from the *Hellenist Jews*; and that if the Churches of *Palestine* never admitted them, 'twas not for their accounting them *Apocryphal* in the sense the Word is now used, but because they read none but what were writ in *Hebrew*.

To this we oppose the Authority of a great number of Ecclesiastical Writers, particularly among the *Greeks*; who make a precise Distinction between the Books now call'd *Apocryphal*, and those contain'd in the *Jewish* Canon——St. *Jerom*, in particular, is very full upon the Head; and even speaks of his Opinion as the common Opinion of the Church at that time.

APODICTICAL *Argument*, or *Syllogism*, signifies a clear, convincing Proof, or Demonstration of a Thing. See DEMONSTRATION, ARGUMENT, &c.

The Word is form'd of the *Greek* ἀποδείκνυμαι, *I demonstrate*, *I shew clearly*.

APOGEE, APOGÆUM, in Astronomy, that Point in the Orbit of the Sun, or a Planet, which is furthest distant from the Earth. See ORBIT and EARTH.

The *Apogee* is a Point in the Heavens, at the Extreme of the Line of the Apsides; in which the Sun, or a Planet, is at the greatest Distance that it can be at, from the Earth, in its whole Revolution. See APSIS, EARTH, PLANET, &c.

The opposite Point hereto, is call'd the *Perigee*. See PERIGEE.

The antient Astronomers regarding the Earth as the Centre of the System; chiefly consider'd the *Apogee* and Perigee: The Moderns, making the Sun the Centre, change the *Apogee* and Perigee for Aphelion and Perihelion. See APHELION and PERIHELION. See also SYSTEM.

The *Apogee* has a Motion; the Quantity of which is found by comparing two Observations thereof made at a great distance of time; converting the difference into Minutes, and dividing it by the number of Years elapsed between the two Observations. The Quotient gives the annual Motion of the *Apogee*——Thus, from an Observation made by *Hipparchus* in the Year before Christ 140, whereby the Sun's *Apogee* was found 5°, 30′ of ♋; and another

another made by *Ricciolus*, in the Year of Christ 1646, wherein it was found 7°, 26′, of ♋; the annual Motion of the *Apogee* is found to be 1′, 2″.

Apogee *of the Moon*. See Moon.

Apogee *of the Equant*, is its farthest Distance from the Earth; or that Point where the Circumference of the Equant is intersected by the Line of the *Apsides*, in the remotest part of the Diameter.

So the *Perigee of the Equant* is the opposite Point, or the nearest part of the Diameter.

The *mean Apogee* of the Epicycle, is a Point where the Epicycle is cut above, by a right Line drawn from its Centre, to the Centre of the Equant, or the Point of the Epicycle most remote from the Earth. See Epicycle.

The Word is form'd of the *Greek* απο, *ab*, from; and γῆ or γαῖα, Earth—In the corrupt *Latin*, *Apogee* sometimes signifies a Grotto, or subterraneous Vault.

APOGRAPH, Apographum, a Copy or Transcript of some Book or Writing. See Copy.

In this sense the Word stands opposed to *Autograph*; as a Copy to an Original. See Autograph.

It is form'd of απο, *ab*, from, and γραφω, *scribo*, I write.

APOLLINARISTS, Apollinarians, antient Heretics, who denied that Jesus Christ assumed true Flesh.

Apollinaris of *Laodicea*, their Leader, fancied I know not what strange kind of Flesh, which he supposed to have existed from all Eternity.——He distinguish'd between the Soul of Christ, and what the *Greeks* call νοῦς, *Understanding*; and from this Distinction took occasion to assert, that Christ assumed a Soul without its Understanding, and that this Defect was supplied by the Word: tho' some of his Followers held that Christ had no Soul at all.

Apollinaris further taught, that the Souls of Men were propagated by other Souls, as well as their Bodies——*Theodoret* charges him with confounding the Persons of the Godhead; and with giving into the Errors of *Sabellius*: and *Basil* accuses him of abandoning the literal sense of Scripture, and taking up wholly with the allegorical sense.

This Heresy was very subtile; it was condemn'd in a Synod at *Alexandria*, under St. *Athanasius*, in the Year 362. It was subdivided into several different Heresies, the chief whereof were the *Polemians* and the *Antidicomarianites*. See Antidicomarianite.

Apollinarian *Games*, in Antiquity, *Ludi Apollinares*, were solemn Games held yearly by the *Romans* in honour of the God *Apollo*. See Game.

The Tradition goes, that at the first Celebration hereof, they were suddenly invaded by the Enemy; and obliged to take to their Arms: upon which occasion a Cloud of Darts and Arrows falling upon their Enemies, the *Romans* soon return'd Victors to their Sports.

APOLOGETICAL, Apologetic, something said, or written by way of Excuse, or *Apology* for any Action, or Person. See Apology.

The *Apologetic* of *Tertullian* is a Work full of Strength and Spirit; such as in all respects became the Character of that Father——He there vindicates the Christians from all that had been objected to them, particularly the abominable Crimes said to be perpetrated at their Meetings, and their want of Love and Fidelity to their Country. The Grounds of this last Accusation, was their refusing to take the accustom'd Oaths, and swear by the tutelary Gods of the Empire——*Tertullian* addresses his *Apologetic* to the Magistrates of *Rome*; the Emperor *Severus* being then absent.

APOLOGUE, Apologus, a moral Fable; or a feign'd Relation, intended to inform, and amend the Manners. See Fable.

Such are the Fables of *Æsop*; whence, moral Fables are usually denominated *Æsopic Fables*.

Jul. Scaliger derives the Name απο λόγου, λόγου, inasmuch as the *Apologue* means something more than what at first sight it expresses.

Father *de Colonia* makes it essential to the *Apologue*, that it contain what passes among Brutes; and distinguishes it from the *Parable*, by this, that the latter, tho' feign'd, might possibly be true, which the former cannot; since Beasts cannot speak. See Parable.

APOLOGY, Apologia, *Defence*; a Discourse or Writing in vindication of a Person. See Defence, Vindication, &c.

The Word is form'd of the *Greek* απολογομαι, *I refute*, *I repel with Words*.

APONEUROSIS, among Anatomists, the spreading or Expansion of a Nerve, or Tendon, breadth-wise; in manner of a Membrane. See Nerve and Tendon.

It sometimes also signifies the cutting off a Nerve or Tendon——And in some Writers we find it used for a Tendon itself. See Tendon.

The Word is compounded of the *Greek* απο, *ab*, from; and νευρον, a Nerve.

APOPHLEGMATISMS, are Medicaments, chew'd, in order to draw away Phlegm, and Humours from the Head and Brain. See Masticatory.

Of this kind is Tobacco; which is as excellent as any, abating that it spoils the Teeth; and Sage has almost the same Virtues without the same Defects.

The Word comes from the *Greek* ἀπὸ and φλέγμα.

APOPHYGE, Apophyges, in Architecture, that part of a Column where it begins to spring out of its Base, and shoot upwards. See Column and Base.

The *Apophyge*, in its Original, was no more, than the Ring or Ferril heretofore fasten'd at the Extremities of wooden Pillars, to keep them from splitting; which afterwards was imitated in Stone-work See Order.

The Word in its original *Greek* signifies *Flight*; whence the *French* also call it *Escape*, *Conge*, &c. See Conge.

APOPHYSIS, in Anatomy, a Process or Protuberance of a Bone; being a part eminent or jutting out beyond the rest. See Bone, Process, &c.

Such are the Eminences of the *Vertebræ*, the Omoplate, Thigh-bone, &c. See Vertebræ, Omoplate, &c.

Apophyses *Mammillares*, are the Beginnings of the olfactory Nerves; as far as the *Os Cribrosum*, where they divide into little Fibres, which pass thro those Bones, and spread themselves throughout the upper part of the Nose. See Olfactory *Nerve*, Nose, &c.

Apophysis *Mammillaris*, or *Mastoideus*, is also one of the external Eminences of the *Os Petrosum*. See Petrosum.

The Word is *Greek*, and literally denotes a *Production outwards*.

APOPLEXY, in Medicine, a sudden Privation of all the Senses, and all the sensible Motions of the Body, excepting that of the Heart and Lungs; attended with a great Depravation of the principal Faculties of the Soul. See Sensation, Motion, &c.

It differs from a *Carus*, a *Lethargy*, and a *Coma*, in regard that in those three Distempers, the Stupor is not so profound, nor all Sensation quite destroy'd. See Carus, Lethargy, and Coma.

It differs from a *Syncope*, in that there is no sensible Pulse in this last; whereas in an *Apoplexy*, the Pulse is perceptible almost till Death. See Syncope.

It differs from an *Epilepsy*, in regard all Motion is not abolish'd in that as in this: and it differs from the *Palsy*, inasmuch as the Palsy is not attended with any Stupor, nor does it deprive the Patient of Sense and Perception. See Epilepsy and Palsy.

The *Apoplexy* may be occasion'd by an Interruption of the Passage of the Blood towards the Brain; or by any thing that hinders the Influx of the animal Spirits into the Organs of Sense, and the Parts of voluntary Motion: Sometimes it is owing to an abundance of Phlegm, and sometimes to a viscid *Pituita*, wherewith the Brain is oppress'd; as is observable in Winter *Apoplexies*, and in those of old People. It sometimes also comes from too gross a Lympha, which stops up the Nerves; or a Plethora, which oppresses them; or Excrescencies within-side the Cranium, pressing the Vessels; or a Polypus, blocking up the Carotids, &c. See Brain.

In dissecting Persons dead hereof, clotted extravasated Blood is usually found in one or both Ventricles of the Brain. See *Philos. Transact.* N° 173, 313, &c.

Hippocrates distinguishes two kinds of *Apoplexies*, the one *strong*, the other *weak*; only differing in the greater, or less Difficulty of Respiration.

The more modern Authors distinguish *Apoplexies*, from their Cause, into *Sanguineous* and *Pituitous*; to which may be added *Lymphatic*, *Polypous*, &c.

The Fit is usually preceded by a violent Pain in the Head, Dimness and Loss of Sight or Memory: Sometimes by an universal Indolence; and sometimes by a Flux of pituitous Matter by the Nose and Mouth——It is attended with a snoaring and difficulty of breathing; sometimes with a Fever, rarely with a foaming at the Mouth, frequently with a Sweat, Hemorrhoids, or Diarrhœa; and so goes off.

To prevent an *Apoplexy*, Wine and hard Labour are to be avoided; no eating to excess; nor no sleeping after Dinner: Exercise to be kept up, and Care and Chagrin to be kept under.

To cure an *Apoplexy*, Medicines must be used that occasion large Evacuations; and nothing of opiate or astringent meddled withal——During the Fit, copious bleeding in the Jugulars to be used, and the Patient laid on his back; applying strong Volatiles to the Nose; blow up strong Sternutatories, and rub the Temples with Cephalic Mixtures——A hot Iron may also be apply'd near the Vertex or Occiput, an Epispastic to the Neck; to which

are to be added powerful Purgatives, Clysters, &c.——Cupping and Scarrification on the Head, are commended by some in lieu of Venæsection.

The Disease sometimes degenerates into a Paralysis.——Sometimes only half the Head is affected; in which Case the Disease is called Hemiplegia. See HEMIPLEGIA, &c.

The Word *Apoplexy*, comes from the *Greek*, ἀποπλήσσειν, to strike or astonish; this Distemper striking suddenly, and, as it were, like a Thunder-bolt.

APOPLECTIC *Water*, *Aqua Apoplectica*. See WATER.

APORE, APORON, or APORIME, a Problem difficult to resolve, and which has never been resolved, tho' it be not, in itself, impossible. See PROBLEM.

Such we conceive the Quadrature of the Circle; the Duplicature of the Cube; the Trisection of an Angle, &c. See QUADRATURE, DUPLICATURE, TRISECTION, &c.

The Word is derived from the *Greek* ἄπορον, which signifies something very difficult and impracticable; being formed from the Privative α, and πόρος, Passage.

Hence also the Word *Pore*, which is understood of those imperceptible Passages in Bodies, which make room for the Transpiration of Humours. See PORE.

When a Question was proposed to any of the *Greek* Philosophers, especially of the Sect of Academists; if he could not give a Solution, his Answer was ἀπορῶ, *q. d.* I do not conceive it, I cannot see thro' it, I am not able to clear it up.

APORRHOE, APORRHOES, in Philosophy, sulphureous Effluvia or Exhalations, emitted from the Earth, and subterraneous Bodies. See VAPOUR and Exhalation.

The Word is form'd from the *Greek* ἀπορρέω, *defluo*, I flow from. See MEPHITES, &c.

APOSIOPESIS, in Rhetoric, otherwise called *Reticency*; a Figure, by which a Person really speaks of a thing, at the same time, that he makes a shew as if he would say nothing of it. See RETICENCY.

The Word comes from the *Greek* ἀποσιωπάω, *taceo*, *reticeo*.

APOSTASY, a deserting or abandoning of the true Religion. See RENEGADO.

Among the *Romanists*, it also signifies the forsaking of a religious Order, whereof a Man had made Profession; without a lawful Dispensation. See ORDER, &c.

The Antients distinguish'd three kinds of *Apostacy*; the first, *a Supererogatione*, is committed by a Priest or Religious, who abandons his Profession, and returns to his Lay State; the second, *a Mandatis Dei*, by a Person of any Condition, who abandons the Commands of God, tho' he retain his Faith; the third, *a Fide*, by him who not only abandons good Works, but also the Faith.

There is this difference betwixt an *Apostate*, and an Heretic; that the latter only abandons a part of the Faith, whereas the former renounces the whole. See HERETIC.

The Word is borrow'd from the *Latin Apostatare*, to despise or violate any thing. Hence

Apostatare Leges, anciently signified to transgress the Laws.——*Qui leges Apostabit terræ suæ, reus sit apud Regem.* L. L. Edw. Confess.

The *Latin Apostatare*, again, comes from the *Greek* απο, and ιστημι, *sto*, I stand.

APOSTATA *Capiendo*, a Writ which antiently lay against one, who having enter'd and profess'd some Order of Religion; broke out again, and wandred the Country, contrary to the Rules of his Order. See APOSTACY.

APOSTEME, APOSTEMA, APOSTUME, in Medicine, a preternatural Tumor; call'd also *Abscess* and *Imposthume*. See ABSCESS and IMPOSTHUME.

The Word is form'd of the *Greek* αποστημα; which comes from the Verb αφισταδαι, *abscedere*, to depart from one place and fix in another; alluding to the manner wherein the Tumor is usually form'd of a translated Humor. See DERIVATION, FLUXION, REVULSION, &c.

APOSTLE, APOSTOLUS, q. d. *Envoy* or *Messenger*; a Disciple of Jesus Christ, commission'd by him to preach his Gospel, and propagate it to all the Parts of the Earth. See GOSPEL.

St. *Paul* is frequently call'd *the Apostle*, by way of Eminence; and the *Apostle of the Gentiles*, by reason his Ministry was chiefly made use of for the Conversion of the Gentile World, as that of St. *Peter* was for the *Jews*.——The several *Apostles* are usually represented with their respective Badges or Attributes: St. *Peter*, with the Keys; St. *Paul*, with a Sword; St. *Andrew*, with a Cross or Salteer; St. *James minor*, with a Fuller's Pole; St. *John*, with a Cup and a winged Serpent flying from it; St. *Bartholomew*, with a Knife; St. *Philip*, with a long Staff, whose upper End is form'd into a Cross,; St. *Thomas*, with a Lance; St. *Matthew*, with a Hatchet; St. *Matthias*, with a Battle-Ax; St. *James major*, with a Pilgrim's Staff and a Gourd-Bottle; St. *Simon*, with a Saw; and St. *Thaddæus*, with a Club.

The Word *Apostle*, αποστολος, originally signifies a Person *delegated* or *sent*; from the Verb αποστελλω, *mitto*: In which Sense it occurs in *Herodotus*, and other prophane Authors.——Hence, in the New Testament, the Term is applied to divers sorts of Delegates; and to the twelve Disciples by way of Eminence.

In this Sense, certain false Preachers of the Gospel antiently disputed *Paul* his Quality of *Apostle*; by reason none but those who had seen Jesus, and been Witnesses of his Actions, could be said to be sent by him——In answer to these sophistical Doctors, who had seduced the Churches of *Galatia*; he begins his Epistle to 'em with these Words, *Paul an Apostle, not of Men nor by Man, but by Jesus Christ and God the Father*: By which he signified that he had his Mission immediately from God; and of consequence was a true *Apostle*.

The name *Apostle* was also attributed to the ordinary travelling Ministers of the Church——Thus St. *Paul*, in the Epistle to the *Romans*, XVI. 7. says, *Salute Andronicus and Junia, my Kinsmen and Fellow-Prisoners, who are of note among the Apostles*.

The Name *Apostle* was also given to those sent by the Churches to carry their Alms to the Poor of other Churches.——This Usage they borrowed from the Synagogues, who called those whom they sent on this Message, by the same Name; and the Function or Office itself απολη, *Apostole*, *q. d.* Mission.——Thus St. *Paul* writing to the *Philippians*, tells 'em, that *Epaphroditus* their *Apostle* had ministred to his Wants, Chap. II. 25.

APOSTLE is also used for a Person who first planted the Christian Faith in any place.

Thus St. *Dionysius* of *Corinth* is called the *Apostle* of *France*; St. *Xavier* the *Apostle* of the *Indies*, &c.——In the *East-Indies*, the Jesuit Missionaries are also call'd *Apostles*. See MISSIONARY, &c.

In some Ages of the Church, the Pope was also denominated *Apostle*. See *Sidon. Apollin.* Lib. VI. Ep. 4. See also POPE and APOSTOLICAL.

In the *Greek* Liturgy, APOSTLE is particularly used for the Epistles of St. *Paul*, printed in the Order wherein they are to be read in Churches, thro' the Course of the Year.——Another Book of the like kind, containing the Gospels, is call'd Ἐυαγγέλιον, Gospel——The *Apostle*, of late Days, has also contained the other canonical Epistles; the Acts of the *Apostles*, and the Revelations. Hence it is also call'd, *Acts of the Apostles*, Πραξαπόστολος; that being the first Book in it. See ACTS *of the Apostles*.

APOSTLE is also used among the *Jews*, for a kind of Officer anciently sent into the several Parts and Provinces in their Jurisdiction, by way of Visitor, or Commissary; to see that the Laws were duly observed, and to receive the Monies collected for the Reparation of the Temple, and the Tribute payable to the *Romans*——The *Theodosian* Code, Lib. XIV. *De Judæis*, calls *Apostoli*, *qui ad exigendum aurum atque argentum a Patriarcha certo Tempore diriguntur*. The *Jews* call'd 'em שליחין, *Schelihhin*, *q. d.* Envoys, Messengers.

Julian the Apostate remitted the *Jews* the *Apostole*, Απολη; that is, as he himself explains it, the Tribute they had been accustom'd to send him.

These *Apostles* were a degree below the Officers of the Synagogues call'd Patriarchs, and received their Commissions from 'em.——Some Authors observe, that St. *Paul* had bore this Office; and that 'tis this he alludes to in the beginning of the Epistle to the *Galatians*: as if he had said, *Paul*, no longer an *Apostle* of the Synagogue, nor sent thereby to maintain the Law of *Moses*, but now an *Apostle* and Envoy of Jesus Christ, &c.——St. *Jerom*, tho' he does not believe that St. *Paul* had been an *Apostle* of this kind; yet imagines that he alludes thereto, in the Passage just cited.

In the Arsenal of *Bremen* there are twelve large Pieces of Cannon call'd the twelve *Apostles*; on a Supposition that the whole World must be convinced, and acquiesce in the Preachings of such *Apostles*.

APOSTOLIC, APOSTOLICAL, APOSTOLICUS, something that belongs to the *Apostles*, or descends from them. See APOSTLE.

Thus we say the *Apostolical* Age, *Apostolical* Doctrine, *Apostolical* Character, &c.——The *Romanists* call their Church, the Catholic and *Apostolic* Church; and thus appropriate a Title to *Rome*, which anciently was held in common with it by several other Churches.

In the Primitive Church, the Appellation *Apostolic* was attributed to all such Churches as were founded by the *Apostles*; and even to the Bishops of those Churches, as being the reputed Successors of the *Apostles*.——These were confined to four; *viz. Rome*, *Alexandria*, *Antioch*, and *Jerusalem*.

In After-times other Churches assumed the same Quality, on account, principally, of the Conformity of their Doctrine with

with that of the Churches which were *Apostolical* by Foundation, and because all Bishops held themselves Successors of the Apostles. See Bishop.

The first time the Term *Apostolical* is attributed to Bishops, as such, is in a Letter of *Clovis*, to the Council of *Orleans*, held in 511; tho' that King does not there expressly denominate 'em *Apostolical*, but *Apostolica sede Dignissimi*, Highly worthy of the *Apostolical* See. In 581 *Guntram* calls the Bishops met at the Council of *Mason*, *Apostolical* Pontiffs, *Apostolici Pontifices*.

In progress of Time, the Bishop of *Rome* growing in Power above the rest; and the three Patriarchates of *Alexandria*, *Antioch* and *Jerusalem* falling into the hands of the *Sarazens*; the Title *Apostolical* became restrained to the Pope and his Church alone——Tho' some of the Popes, as St. *Gregory* the Great, not contented to hold the Title by this Tenure, began, at length, to insist, that it belong'd to 'em by another and peculiar Right, as being the Successors of St. *Peter*.

And hence a Legion of *Apostolicals*; *Apostolical* See, *Apostolical* Nuntio, *Apostolical* Notary, *Apostolical* Brief, *Apostolical* Chamber, &c.

APOSTOLOCI, call'd also Apostoli, and Apostles, a Name assum'd by two different Sects of Heretics, on account of their pretending to imitate the Manners and Practice of the Apostles. See Apostles.

The first *Apostolici*, otherwise call'd *Apotactitæ* and *Apotactici*, rose out of the *Encratitæ*, and *Cathari* in the IIId Century. They made profession of abstaining from Marriage, and the use of Wine, Flesh, Money, &c. See Apotactitæ, Encratitæ, &c.

The other Branch of *Apostolici* were of the the XIIth Century: These also condemned Marriage, but allow'd of Concubinage; set aside the use of Baptism; and in many things imitated the *Manichees*. St. *Bernard* wrote against 'em.

APOSTOLORUM *Unguentum*, the *Apostles Ointments*, in Pharmacy, is a kind of detergent, or cleansing Unguent, composed of twelve Drugs; the Number of the *Apostles*, whence its Name. See Unguent. It was invented by *Avicenna*, and is otherwise called *Unguentum Veneris*.——

The principal Ingredients are Turpentine, Resin, Wax, Gum Ammoniac, Birth-wort Roots, Olibanum, Bdellium, Myrrh, and Galbanum, Opopanax, Verdigrease, Litharge, Oil of Olives and Vinegar. See Detergent, &c.

APOSTROPHE, in Rhetoric, a Figure, whereby the Orator, in an extraordinary Commotion, turns his Discourse from the Audience, and directs it to some other Person, or thing. See Figure.

Thus *Cicero*, in his Oration for *Milo*, addresses himself to the Great Patriots who had shed their Blood for the Public; and calls 'em to the defence of his Client. So the same Orator in his first *Catilinarian* directs himself to *Jupiter* the Protector of the City and Empire, and beseeches him to repel the Parricide, &c.

The *Apostrophe* is frequently also address'd to Inanimates, as Tombs, Monuments, Defuncts, &c.——*Cicero's Apostrophe* to *Tubero*, in his Oration for *Ligarius*, is judg'd one of the finest Passages in his Works.

That *Apostrophe* of *Demosthenes*, wherein he addresses himself to the *Greeks* slain at the Battle of *Marathon*, is famous. Cardinal *Perron* says, it has procured the Orator as much Glory as if he had rais'd 'em from the Dead.

The Word is *Greek* αποστροφὴ, *aversio*; form'd of απο, *ab*, from, and στρεφω, *verto*, I turn.

Apostrophe, in Grammar, is an Accent or Character, placed over a Letter, in lieu of a Vowel, to denote that the Vowel is cut off, and not to be pronounced. See Accent and Character. As in *Ev'n* for *Even*; *Th'Angelic Host*, for *The Angelic*, &c.—The affectation of frequent *Apostrophes*, so usual among some late *English* Writers, is a great Abuse. See Anomalous.

APOTACTITÆ, or Apotactici, an antient Sect, who affecting to follow the Evangelical Counsels of Poverty, and the Examples of the Apostles, and primitive Christians, renounc'd all their Effects and Possessions. See Apostolici.

It does not appear that they gave into any Errors during their first State: Some Ecclesiastical Writers assure us, they had divers Holy Virgins, and Martyrs, under the Persecution of *Diocletian*, in the IVth Century: but they afterwards fell into the Heresy of the Encratitæ, and taught that the renouncing of all Riches, was not only a Matter of Council and Advice, but of Precept and Necessity——And hence the 6th Law in the *Theodosian* Code joyns the *Apotactitæ* with the *Eunomians* and *Arians*. See Eunomian and Arian.

The Word is form'd of the *Greek* αποτασσω, or αποτασσομαι, I renounce——

APOTHECARY, a Person who practises Pharmacy, or that part of Physick which consists in the Preparation and Composition of Medicines, See Pharmacy and Medicine.

Nich. Langius has wrote a large Volume expressly against the *Apothecaries*, their *quid pro quo's*, Ignorance in the *Materia Medica*, and suffering themselves to be so easily imposed on by foreign Merchants, Druggists, &c. who supply 'em with adulterated Drugs, one sort for another, old Effœte exhausted ones, for new ones just imported from the *Levant*, &c. See Drugs, Quid *pro Quo*, &c.

The Apothecaries in *England* are obliged to make up their Medicines, according to the Formula's prescribed in the College Dispensatory. See Dispensatory, Officinal, &c.——Their Shops are subject to the Visitation of the Censors of the College; who are empowered to destroy such Medicines as they think good. See College.

Bartholin complains of the too great number of Apothecaries in *Denmark*; tho' there were but three in *Copenhagen*, and four in all the Kingdom beside: What would he have said of *London*, where there are upwards of 1300?

The Word is derived from the *Greek* αποθήκη, Shop, by way of Eminence.

APOTHEGM. See Apophthegm.

APOTHEOSIS, in Antiquity, a Heathen Ceremony, whereby their Emperors and great Men were placed among the Gods. See God.

After the *Apotheosis*, which they also called *Deification* and *Consecration*; Temples and Altars were erected to the new Deity, and Sacrifices, &c. offer'd to him. See Deification, Consecration, Altar, Sacrifice, &c.

It was one of the Doctrines of *Pythagoras*, which he had borrow'd from the *Chaldees*; that virtuous Persons, after their Death, were rais'd into the Order of the Gods. See Pythagorians.

And hence the Antients deified all the Inventors of things useful to Mankind; and those who had done any important Service to the Commonwealth——*Tiberius* proposed to the *Roman* Senate the Apotheosis of Jesus Christ, as is related by *Eusebius*, *Tertullian*, and St. *Chrysostom*. *Juvenal* rallying on the frequent *Apotheoses*, introduces poor *Atlas*, complaining that he was ready to sink under the Burthen of so many Gods as were every day added to the Heavens. See Heaven.

Seneca ridicules the *Apotheosis* of *Claudius* with admirable Humour——*Herodian*, in speaking of the *Apotheosis* of *Severus*, gives us a very curious Description of the Ceremonies used in the *Apotheosis* of the *Roman* Emperors——After the Body of the deceased Emperor, says he, had been burnt with the usual Solemnities, they placed an Image of Wax, perfectly like him, but of a sickly Aspect, on a large Bed of Ivory, covered with Cloth of Gold, in the Vestibule of the Palace. The greatest part of the Day, the Senate sat ranged on the left Side of the Bed, dress'd in Robes of Mourning; the Ladies of the first Rank sitting on the right Side, in plain white Robes, without any Ornament——This lasted for seven Days successively, during which, the Physicians came from time to time to visit the Sick, always making their Report that he grew worse; till at length they publish'd it, that he was dead.

This done, the young Senators and *Roman* Knights take the Bed of State upon their Shoulders, carrying it thro' the *Via Sacra*, to the old *Forum*, where the Magistrates were used to divest themselves of their Offices. There, they set it down between two kind of Amphitheatres, in the one whereof are the Youth, and in the other the Maidens of the first Families in *Rome*, singing Hymns set to solemn Airs, in praise of the deceased. These Hymns ended, the Bed is carried out of the City into the *Campus Martius*, in the middle of which Place is erected a kind of square Pavilion, the Inside whereof is full of combustible Matters, and the Outside hung with Cloth of Gold, and adorned with Figures of Ivory, and various Paintings.

Over this Edifice are several others, like the first in Form and Decoration, but less; always diminishing and growing slenderer towards the Top——On the second of these is placed the Bed of State, and a great Quantity of Aromaticks, Perfumes, and odoriferous Fruits and Herbs are thrown all around; after which, the Knights make a Procession or Cavalcade in solemn Measures around the Pile; several Chariots also run round it, those who conduct them being clad in purple Robes, and bearing the Images of the greatest *Roman* Emperors and Generals.

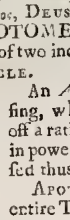
This Ceremony ended, the new Emperor comes to the *Catafalcha* or Pile, with a Torch in his Hand; and at the same time, fire is set to it, on all Sides; the Spices and other Combustibles kindling all at once.

While this is doing, they let fly from the Top of the Building, an Eagle, which mounting into the Air with a Fire-brand, carries the Soul of the dead Emperor along with it into Heaven, as the *Romans* believe; and thenceforward he is rank'd among the Gods——'Tis for this Reason, that the Medals, wherein *Apotheoses* are represented, have usually an Altar with Fire upon it; or however, an Eagle taking its Flight into the Air, and sometimes two Eagles.

The

The Word *Apotheosis* is derived from the Prepofition ἀπὸ and θεὸς, Deus, God——

APOTOME, in Mathematicks, the remainder or difference of two incommenfurable Quantities. See Incommensurable.



An *Apotome* is an irrational Refidue, as C B, arifing, when from a rational Line AC, call'd *a*, you cut off a rational part A B, call'd *b*, only commenfurable in power to the whole Line A C——It may be exprefsed thus, $a-\sqrt{b}$

Apotome, in Mufick, is the Part remaining of an entire Tone, after a greater Semi-tone has been taken from it. See Tone and Semi-tone.

The Proportion, in numbers, of the *Apotome* is, of 2048 to 2187. See Degree.

The *Greeks* thought that the greater Tone could not be divided into two equal Parts; for which reafon they called the firft part ἀ ῾ῆμι, and the other λεῖμμα; in this, imitating *Pythagoras* and *Plato*.

The Word is deriv'd from the *Greek* Verb ἀποτέμνω, *abfcindo*, I cut off.

APOZEM, in Medicine, a Form of Remedy, otherwife call'd a *Decoction*. See Decoction.

Apozems are a Clafs of liquid Medicines, compos'd of Decoctions of divers Plants, Roots, Flowers, Leaves, Fruits, and Seeds, fweetned and clarified.

It differs from *Syrup*, in Thicknefs and Confiftence; the Syrup being more denfe and vifcous than the *Apozem*. See Syrup.

It differs from a *Julep*, in that it is thicker and more vifcous; and is not made with diftill'd Waters, as Juleps are, but only with Decoctions. See Julep.

There are purging *Apozems*, Cephalic *Apozems*, Hepatic *Apozems*, &c.

The Word is derived from the *Greek* ἀποζέω, *defervefco*, I grow hot, I boil.

APPANNAGE, Appenage, Appanage, or Apennage, the Fortune of a King's younger Son: or a fettled Portion of Lands, &c. affigned for the Subfiftence of the Cadets, or younger Sons of a Sovereign Prince. See King, &c.

The younger Sons of *England* have no certain *Appanages*, as in *France*; but only what the good-pleafure of the King beftows upon 'em. See Prince, &c.

Even in *France*, during the firft and fecond Races of Kings, the Right of Primogeniture and *Appanages* were unknown; but the Domains were divided pretty equally among all the Children. See Primogeniture.

Great Inconveniences arifing hence; it was at length found proper to put off the younger born with Counties, Dutchies, or other-Diftricts; on condition of their paying Homage and Fealty for the fame, and of their reverting in defect of Heirs Male, to the Crown.

This has happened accordingly to the firft and fecond Branch of the Dukes of *Burgundy*——The Dutchy of *Orleans* is the *Appanage* of the fecond Son of *France*.

Nicod and *Menage* derive the Word from the *Latin Panis*, Bread, which frequently includes all other forts of Provifion neceffary for Subfiftence. *Du Cange* takes it to have been form'd of the bafe *Latin*, *Apanare*, *Apanamentum*, and *Apanagium*, which amounts to the fame thing; thofe Words, being apparently formed of *panis*.

APPARATOR. See Apparitor.

APPARATUS, properly fignifies a formal Preparation for fome publick and folemn Action. See Preparation.

Thus we fay, the *Apparatus* of a Feaft, Coronation, &c. The Prince made his Entry with great *Apparatus* and Magnificence.

Apparatus is alfo ufed for the Utenfils, and Appendages belonging to fome more confiderable Machine——As the Furniture or *Apparatus* of an Air-pump, Microfcope, &c. See Air-*Pump*, Microscope, &c.

Apparatus is fometimes alfo ufed, in Chirurgery, for the Bandages, Medicaments, and Dreffings of a Part; or the feveral Matters apply'd for the Cure of a Wound, Ulcer, or the like. See Wound, Ulcer, &c.

There is no judging of the Quality of a Hurt, till after taking off the firft *Apparatus*, or Apparel.

Apparatus is particularly ufed for the Operation of cutting for the Stone. See Stone and Cutting.

There are three forts of *Apparatus*; *viz.* the *Small*, *Great*, and *High Apparatus*: *Which fee defcribed under the Article* Lithotomy.

The *high Apparatus*, faid to have been invented by *De Franco*, is reputed the moft antient; tho little ufed among us till of late——In this Method an Incifion is made above the Groin, along the *Linea Alba*, into the Fund of the Bladder; thro which the Stone is extracted.

The *great Apparatus*, invented by *John de Romanis*, a Phyfician of *Cremona*, in the Year 1520; is perform'd by making an Incifion in the *Perinæum*. See Perinæum.

It is denominated *great* from the number of Inftruments ufed in it.

The *fmall Apparatus*, thus call'd from the few Inftruments it requires, was invented by *Celfus*——Here, the two Fore-Fingers are thruft up the Fundament till they come againft the Stone, and drive it to the Neck of the Bladder; from which it is extracted thro an Incifion *in perinæo*.

Apparatus is alfo ufed as the Title of feveral Books compofed in form of Catalogues, or Dictionaries; for the Eafe and Convenience of Study.

The *Apparatus* upon *Cicero*, is a kind of Concordance, or Collection of *Ciceronian* Phrafes, &c.——The *Apparatus Sacer* of *Poffevinus*, is a Collection of all kinds of Ecclefiaftical Authors printed in 1611, in three Volumes——Glofaries, Comments, &c. are alfo frequently call'd *Apparatus's*.

APPAREL, or Appareil. See Apparatus.

APPARENT, that which is vifible, evident to the Eye, or the Underftanding. See Appearance.

Heir Apparent. See Heir *Apparent*.

Apparent *Magnitude* of an Object, is the Magnitude thereof fuch as it appears to the Eye. See Magnitude.

The *apparent* or *feeming* Magnitude is meafured by the Optick Angle. See Optick *Angle*.

Thus the *apparent* Magnitude of an Object is faid to be fo many Degrees as the Optick or Vifual Angle fubtends. See Angle and Degree.

The *apparent* Magnitudes of diftant Objects are ufually faid to be as their Diftances, reciprocally. See the Articles Visible and Vision.

Inftrictnefs, however, it may be demonftrated, that the *apparent* Magnitudes of the fame Object AC, (Tab. Optics, fig. 61.) feen at different Diftances, *viz.* at the Places D and B; that is, the Angles ADC and ABC are in a Ratio lefs than the reciprocal Ratio of the Diftances DG and BG: but when the Object is very remote, *viz.* when the Optick Angles ADC and ABC, are not above one or two Degrees, they are nearly in that Ratio reciprocally.

Apparent *Magnitude* or *Diameter* of the Sun, Moon, or any Planet, is the Quantity of the Angle that their Diameters appear under, to an Obferver on the Surface of the Earth.

The *apparent* Diameters of the Celeftial Luminaries are fubject to fome Diverfity——That of the Sun is obferv'd to be leaft when he is in *Cancer*, and greateft when in *Capricorn*. See Sun.

In the Moon there is a twofold Increafe and Decreafe of her *apparent* Diameter; the one, when fhe is in the Conjunction, and Oppofition with the Sun; and the other in her Quadratures.

The greateft *apparent* Diameter of the Sun, according to *Caffini*, is 32′, 10″, and the leaft 31′, 38″.—According to *de la Hire*, the greateft is 32′, 43″; and the leaft 31′, 38″——The greateft *apparent* Diameter of the Moon, according to *Kepler*, is 32′, 44″; and the leaft 30′, 00″——And according to *de la Hire*, the one is 33′, 50″; and the other 29′, 30″. See Sun and Moon.

The apparent Diameter of *Saturn*'s Ring, according to *Huygens*, is 1′, 18″, when leaft. See Saturn.

The apparent *Diameters of the other Planets, fee under the Article* Diameter.

If the Diftances of any two remote very Objects, for example, two Planets, be equal, their true Diameters are proportional to the *apparent* ones; and if the *apparent* Diameters be equal, the true Diameters will be as the Diftances from the Eye——Hence, when neither the Diftances nor the *apparent* Diameters are equal, the true Diameters will be in a Ratio compounded of the direct Ratio of the Diftances, and of the direct Ratio of the *apparent* Diameters.

There is a further very obfervable Difference between the *apparent* Magnitudes or Diameters of the Sun and Moon when in the Horizon, from what they are in the Meridian; the reafon whereof has long perplexed the Philofophers. See Moon.

Apparent *Place* of any Object, in Opticks, is that wherein it appears, when feen thro' one or more Glaffes. See Place, Optick *Glafs*, &c.

The *Apparent Place* is different from the real one; for when, by Refraction thro Glaffes, that parcel of Rays which fall on the Pupil of the Eye, from each Point of any near Object, is made to flow as clofe together as that which comes from a diftant one; or when, by the fame means, the Rays coming from diftant Objects are made to diverge as much as if they flow'd from near ones; then the Eye muft neceffarily fee the Place of the Object changed: which Change is its *Apparent Place*. See Vision.

If an Object be placed nearer to a convex Glafs than is the Diftance of its Focus; its *Apparent Place* may be determined: But if the Object be in the Focus of the Glafs, the *Locus Apparens* of the Object cannot be determined; only that it will appear vaftly remote.

Nor

Nor can the *Locus Apparens* be determined, if the Object be beyond the Focus of a convex Glass: But if the Object be further distant from a convex Glass, than its Focus, and the Eye lie beyond the distinct Base; its *Apparent Place* will be in the distinct Base. See *the Article* LENS.

Apparent Place of a Star, &c. is a Point in the Surface of the Sphere determined by a Line drawn from the Eye, thro the Centre of the Star, &c. See PLACE.

The true, or real Place, is determined by a Line drawn from the Centre of the Earth, through the Star or Planet.

APPARENT, or *sensible Horizon*, is that great Circle which limits our Sight; or the Place where the Heavens and the Earth seem to meet. See HORIZON.

It may be conceiv'd as a Cone, whose Vertex is the Eye, and its Base the circular Plain which terminates our Prospect——It determines the Rising and the Setting of the Sun, Moon, or Stars. See RISING, SETTING, &c.

APPARENT *Conjunction*, is when the right Line supposed to be drawn thro the Centres of two Planets, does not pass thro the Centre of the Earth, but thro the Eye of the Spectator. See CONJUNCTION.

APPARENT *Motion, Time*, &c. See MOTION, TIME, &c.

APPARITION, in Astronomy, a Star or other Luminary's becoming visible, which before was hid——In this sense the Word stands opposed to *Occultation*. See OCCULTATION.

The *Heliacal* Rising is rather an *Apparition* than a proper Rising. See HELIACAL.

Circle of perpetual APPARITION. See CIRCLE *of perpetual Apparition*.

APPARITOR, or APPARITOUR, or APPARATOR, a Beadle in an University, who carries the Mace before the Masters and the Faculties. See BEADLE and UNIVERSITY.

APPARITORS are also Messengers, who cite Men to appear in the Ecclesiastical Courts. See SUMMONS, SUMMONER, CITATION, &c.

Among the *Romans*, *Apparitors* were the same with Serjeants or Tip-staffs among us; or rather *Apparitor* was a general Term, and comprized under it all the Ministers and Attendants of the Judges and Magistrates, appointed to receive and execute their Orders——And hence, they say, the Name was derived, *viz.* from *apparere*, to be present, to be in waiting.

Under the Name *Apparitores* were comprehended the *Scribæ, Accensi, Interpretes, Præcones, Viatores, Lictores, Servi Publici*, and even the *Carnifices* or Hangmen. See SCRIBA, ACCENSI, &c.

They were usually chosen out of the Freed-Men of the Magistrates; and their Condition was held in so much Contempt, that as a Mark of Ignominy, the Senate appointed a City that had revolted from them, to furnish them with *Apparitors*.

There were also a kind of *Apparitors of Cohorts*, call'd *Cohortales*, or *Conditionales*, as being attach'd to a Cohort, and doom'd to that Condition—The *Apparitors* of the Prætors, *Prætoriani*, were those who attended the Prætors, or Governors of Provinces; and who, on their Master's Birthday, were always chang'd and preferr'd to better Posts——Add, that the *Pontifices* had also their *Apparitors*, as appears from an Inscription of an antient Marble in the *Via Appia*:

APPARITORI
PONTIFICUM
PARMULARIO.

APPEAL is used in Common and Civil Law, to signify the removing of a Cause from an inferior Judge to a superior; or the having recourse to a superior Judge to rectify what is amiss in a Sentence pass'd by an inferior. See JUDGE and COURT.

Appeals lie from any of the ordinary Courts of Justice to the House of Lords, who judge *en dernier Ressort*; *i. e.* no *Appeal* lies from 'em. See RESSORT, PARLIAMENT, &c.

There are *Appeals* from Ecclesiastical Justice to Secular.——The first Instance is that of *Paulus Samosatenus*, who being condemn'd and deposed by the second Council of *Antioch*, refused to surrender the Episcopal House to *Domnus*, who had been elected his Successor; and *appealed* to the Emperor.

APPEAL is also used in Common Law in the same sense as *Accusatio* among the *Civilians*. See ACCUSATION——For, as in the Civil Law, Cognizance of criminal Cases is taken either upon Inquisition, Accusation, or Denunciation; so in ours it is taken either upon Indictment or *Appeal*.

Indictment comprehends both Inquisition and Denunciation——*Appeal* or Accusation is a lawful Declaration of another Man's Crime (which, by *Bracton*, must be Felony at the least) before a competent Judge, by one that setteth his Name to the Declaration, and undertakes to make it good on the Penalty that may otherwise ensue.

An *Appeal* is commenced two ways; either by Writ, or Bill——*Appeal by Writ*, is when a Writ is purchased out of Chancery by one to another; to this end, that he *appeal* a third of some Felony committed by him, finding Pledges that he shall do it, and deliver this Writ to the Sheriff to be recorded.

Appeal by Bill is, when a Man of himself gives up his Accusation in Writing to the Sheriff or Coroner; offering to undergo the Burden of *appealing* the Person therein named.

This Practice is drawn from the *Normans*, as appears from the grand Customary, wherein is a solemn Discourse both of the Effects of this *Appeal, viz.* the Order of the Combat, and of the Trial by Inquest; which, by our Law, is in the choice of the Defendant. See TRIAL, COMBAT, INQUEST, &c.

APPEAL *of Mayhem*, is an accusing of one that hath maimed another——But this being co Felony, the *Appeal* thereof is but in manner of an Action of Trespass; so that there is nothing recover'd but the Damages.

Bracton calls this *Appellum de Plagiis & Mahemio*, and has a whole Chapter of it.

In King *John*'s time, there is recorded an *Appeal* against a *Jew, qui fecit ementulari quondam Nepotem suum*.

Appeal of wrong Imprisonment, is used by *Bracton* for an Action of wrong or false Imprisonment. See ACTION, &c.

APPEAL is particularly used for a private Accusation of a Murderer, by one who had Interest in the Murder'd Party; or of any Felon by one of his Accomplices in the Fact. See MURDER, FELONY, &c.

If an *Appeal* of Murder or Felony be sued by any common Person against a Peer; he shall be tried by Commoners, and not by his Peers. See PEER.

The Person who brings an *Appeal*, is call'd the *Appellant*; and the Person appeal'd, the *Appellee*.

APPEARANCE, the exterior Surface of a Thing; or that which first strikes the Sense, or the Imagination. See EXTERIOR and SURFACE.

The Academicks maintain, that the sensible Qualities of Bodies are only *Appearances*; and the like Doctrine is held by some later Philosophers. See ACADEMICK and QUALITY. See also BODY, EXTERNAL *World*, &c.

Our Errors arise chiefly from a too hasty and precipitate Assent of the Will, which acquiesces too easily in the *Appearances* of Truth. See WILL, LIBERTY, ASSENT, ERROR, &c.

APPEARANCE, in Perspective, is the Representation or Projection of a Figure, Body, or the like Object, upon the Perspective Plane. See REPRESENTATION and PROJECTION.

The *Appearance* of an objective right Line, is always a right Line. See PERSPECTIVE.

The *Appearance* of an opake Body and a Luminary being given, to find the *Appearance* of the Shadow; see SHADOW.

APPEARANCE *of a Star*, or *Planet*. See APPARITION.

APPEARANCES, in Astronomy, &c. are more usually call'd *Phænomena*. See PHÆNOMENA.

In Opticks, we use the Term *Direct Appearance*, for the View or Sight of an Object by direct Rays; without either Refraction or Reflection. See DIRECT and RAY. See also OPTICKS, VISION, &c.

To save APPEARANCES, is to discharge one's Duty seemingly, or acquit himself of the Formalities and Externals thereof; so as to save his Character, and avoid the giving of Scandal or Offence.

APPEARANCE, in Law, is the Defendant's engaging to answer a Cause or Action entred against him in some Court of Judicature. See ACTION, PROCESS, &c.

Appearance, in the King's-Bench, is the Defendant's filing either of Common or Special Bail, if the Action be by Bill——If it be by Original, the *Appearance* must be with the Philazer of the County where the Arrest was. See BAIL, BILL, PHILAZER, &c.

Appearance, in the Common-Pleas, must be entred with the Philazer there; but if it be by Bill, with the Prothonotary. See PROTHONOTARY, &c.

APPELLATIVE, or *Noun* APPELLATIVE, in Grammar, a common Name; or a Name which belongs, or is applicable to all things of that kind. See NAME and NOUN.

Such are the Names, *Man, Angel, Horse, Plant, Tree*, &c.

Appellatives stand opposed to proper Names, which belong only to Individuals; as *Peter, Gabriel, Bucephalus*, &c. See PROPER *Name*.

The Word is form'd of the *Latin, appellare*, to call, name a thing.

APPENDANT, or APPURTENANT, in Law, is understood of such things as by time of Prescription have belonged,

longed, appertained, and been joined to some other principal thing.

Thus an Hospital may be *appendant* to a Manor, a Common of Fishing to a Freehold, &c.

Appended *Remedies*, Appensa, such as are outwardly applied, by hanging about the Neck.

Such are divers Amulets, Necklaces, Phylacteries, &c. See Amulet.

The Word comes from the *Latin ad*, and *pendo*, I hang to.

APPENDIX, or Appendage, a thing accessory to, or dependant of, another. See Accessory, &c.

The Term is chiefly used in matters of Literature, for an additional Discourse, placed at the end of any Piece, or Writing; to explain or prosecute something there left deficient, or draw Conclusions therefrom——In this sense the Word coincides with *Supplement*. See Supplement.

Appendix, in Anatomy, is a part, in some measure, detach'd from another part to which it adheres.

There are membranous *Appendices* of various Figures, in most of the inner parts of the Body.

The *Cæcum* is by some Writers call'd *Appendix*, or *Appendicula Vermiformis*. See Cæcum and Intestine.

Appendix is particularly used in the same sense with *Epiphysis*. See Epiphysis.

APPERTINANCES, or Appurtenancies. See Appurtenancies.

APPETITE, Appetitus, Appetency, in Philosophy, a Desire of enjoying something wanted; or a Complacency in the Enjoyment of a thing present.

Some Philosophers define it more generally, a Passion of the Soul whereby we desire something; or a Propensity or Impulse towards any thing apprehended as good. See Passion, &c.

The Schoolmen distinguish *Appetite* into *Voluntary* and *Natural*——The first is the Will itself, acting under a competent Knowledge or Information of the thing in hand: Such is the *Appetite* or Desire of being happy——The second is a kind of Instinct whereby we are mechanically driven to consult our own Preservation. See Instinct, Will, Natural *Inclination*, &c.

Natural *Appetite* is subdivided into *Concupiscible* and *Irascible*. See Concupiscence and Irascible.

The Word comes from the *Latin* Verb *appetere*, to desire, to covet; form'd of *ad*, to, and *peto*, I draw.

Appetite, in Medicine, coincides with what we more usually call *Hunger*, or *Thirst*. See Hunger and Thirst.

A Loss or Prostration of *Appetite*, is call'd *Anorexia*. See Anorexia.

An immoderate *Appetite* is call'd *Bulimia*, or *Fames Canina*. See Bulimia.

Some, however, distinguish between the βουλιμια, and Canine *Appetite*; making it the distinguishing Character of the latter, that it is attended with a *Lientery*, or other Cœliacal Flux. See Canine.

A preposterous *Appetency* of things not proper for Food, is call'd *Pica*. See Pica.

APPIAN *Way*, in Antiquity, *Via* Appia, a celebrated Road, leading from the *Porta Capena* in *Rome*, to *Brundusium*, at the farthest Eastern Extremity of *Italy*. See Road and Via.

It took its Name from *Appius Claudius*, by whom it was made, during his Censorship, in the Year of *Rome* 441.—It still subsists in many places; being paved, not with little Stones or Pebbles, like our Streets, but with large Flag-Stones, like the Pavements of our Churches.

APPLAUSE, properly signifies an Approbation of some thing witness'd by clapping the hands.

The Word is form'd of the *Latin Applausus*, or *Plausus*, of the Verb *plaudere*, to clap.

The antient way of applauding by clapping the hands, is scarce retain'd any where but in the Colleges and Theatres——Such a Tragedy was acted with great *Applause*: Such a Student maintain'd a Thesis with *Applause*, &c. See Acclamation.

APPLE. See Fruit, Orchard, &c.

APPLICATE, Applicata, *Ordinate* Applicate, in Geometry, is a right Line drawn a-cross a Curve, so as to bisect the Diameter thereof. See Curve, Diameter, &c.

Applicate is the same with what we otherwise call *Ordinate*. See Ordinate.

APPLICATION, the Act of *applying* one thing to another, by approaching or bringing them nearer together.

Motion is defined by a successive *Application* of any thing to different parts of Space. See Motion.

The *Application* of a Vesicatory to the Neck or other part, produces an Irritation of the Bladder.

The true and only Secret in Physick, is how to *apply* a Medicine, not how to make it.

Application is also used for the adjusting, accommodating, or making a thing quadrate to another. See Accommodation.

Thus we say, the *Application* of a Fable, &c. See Fable.

Application, in Theology, is particularly used for the Act whereby our Saviour transfers, or makes over to us, what he had earned or purchased by his holy Life, and Death.

'Tis by this *Application* of the Merits of Christ, that we are to be justified; and entitled to Grace, and Glory. See Merit, &c.

The Sacraments are the ordinary Means, or Instruments whereby this *Application* is effected. See Sacrament.

Application is sometimes also used in Geometry, for what in Arithmetick we call *Division*. See Division.

Application also signifies the fitting or applying of one Quantity to another, whose Areas, but not Figures, are the same.

Thus *Euclid* shews how to *apply* a Parallelogram to a right Line given, that shall be equal to a right-lined Figure given. See Apply.

APPLY is used among Mathematicians three ways.

1. It signifies to transfer a Line given into a Circle, most commonly, or into any other Figure; so as its Ends be in the Perimeter of the Figure.

2. To *apply* denotes as much as to *divide*, especially among the *Latin* Writers; who, as they say, *duc* AB *in* CB, draw AB into CB, when they would have AB multiplied by CB; or rather, when they would have a right-angled Parallelogram made of those Lines: So they say, *applica* AB *ad* CB, *apply* AB to CB, when they would have CB divided by AB; which is thus expressed, $\frac{CB}{AB}$.

3. It also signifies to fit Quantities, whose Areas are equal, but Figures different. See Application.

APPOINTEE, a Foot-Soldier, in the *French* Army, &c. who for his long Service, and Bravery, receives Pay above private Sentinels. See Anspessade.

APPOINTMENT, a Pension or Salary given by great Lords and Princes, to Persons of Worth and Parts; in order to retain them in their Service. See Salary.

The Term is chiefly used among the *French*——The King of *France* gives large *Appointments* to several of the Officers in his Service.

Appointments differ from Wages, in that the latter are fixed and ordinary, being paid by the ordinary Treasurers; whereas *Appointments* are annual Gratifications granted by Brevet for a time uncertain, and are paid out of the Privy Purse.

APPORTIONMENT, Apportionamentum, in Law, a dividing of a Rent into two Parts or Portions, according as the Land whence it issues, is divided among two, or more. See Rent, Division, Partition, &c.

Thus if a Man, having a Rent-Service issuing out of Land, purchase a part of the Land; the Rent shall be *apportioned*, according to the Value of the Land——So if a Man let Lands for Years, reserving Rent; the Rent shall be *apportioned*.

But a Rent Charge cannot be *apportioned*, nor Things that are entire; as if one hold Land by Service, to pay to his Lord yearly at such a Feast a Horse or a Rose; there, if the Lord purchase a part of the Land, this Service is totally extinct; because such things cannot be divided without hurt to the whole.

Yet, in some cases, a Rent Charge shall be *apportioned*: As, if a Man hath a Rent-Charge issuing out of Land, and his Father purchaseth a part of the Land charged in fee, and dies; and this Parcel descend to his Son, who hath the Rent-Charge: there the Charge shall be *apportioned* according to the Value of the Land; because such Portion of the Land, purchased by the Father, comes not to the Son by his own Act, but by Descent, and Course of Law.

Common appendant is of common Right, and severable: And tho the Commoner, in such case, purchase a Parcel of Land wherein the Common is appendant; yet the Common shall be *apportioned*. But in this case, Common appurtenant, not appendant, becomes extinct by such Purchase. *Coke*.

APPOSAL *of Sheriffs*, is the charging them with Money received on their account in the Exchequer, 22 & 23 *Car.* 2. *Act for better Recovery of Fines due to his Majesty*.

APPOSER, in Law. See Foreign *Apposer*.

APPOSITION, the Act of putting or applying one thing to another. See Application.

Apposition is used in Physicks, with respect to Bodies, which derive their Growth from the Adjunction or Union of neighbouring Bodies. See Adjunction.

Most Bodies of the fossil or mineral Kingdom, are form'd by Juxta-position, or the *Apposition* of Parts, brought to join and adhere to each other. See Accretion.

Apposition, in Grammar, is the putting two or more Substantives together in the same Case, and without any copular

copular Conjunction between them. See SUBSTANTIVE, CONJUNCTION, COPULATIVE, &c.

Thus, *Flanders*, bloody Theatre, horrible Scene of War, &c.

APPRAISE, to rate, value, or set a Price on Goods, by a Person who is a competent Judge, and is authorized thereto.

The Word is derived from the French *apprecier*, which signifies the same thing——Hence we also say an *Appraiser*, a sworn *Appraiser*, an *Appraisement*, &c.

APPRENDRE, in our antient Law-Books, a Fee or Profit to be taken or receiv'd. See FEE.

APPREHENSION, in Logick, the first Idea which the Mind forms of any thing, abstractly of its particular Qualities. See IDEA.

Apprehension coincides with what we otherwise call *Perception*. See PERCEPTION.

The Word literally denotes the Action of the Hand, whereby it takes hold of, and grasps any thing; being form'd of the *Latin ad*, to, and *prehendo*, I hold. See COMPREHENSION.

APPREHENSION, in Law, signifies the seizing a Criminal, in order to bring him to Justice.

APPRENTICE, one who is bound by Covenant to serve a Tradesman, or Artificer a certain Time; usually seven Years; upon Condition of the Master's instructing him in his Art or Mystery. See TRADE, COMMERCE, ART, &c.

Sir *Thomas Smith* says, that Apprentices are a kind of Bondmen, or Slaves, differing only in this that they are Servants by Covenant, and for a time. *de Rep. Anglor. Lib.* 3. See SERVANT, SLAVE, &c.

Antiently, Benchers in the Inns of Court were called *Apprentices of the Law*, in *Latin Apprenticii Juris Nobiliores*; as appears by Mr. *Selden*'s Notes on *Fortescu*: and so the learned *Plowden* stiles himself.

Sir *Henry Finch* in his *Nomotechnia* writes himself *Apprentice de Ley*: Sir *Edward Coke* in his Instit. says, *Apprenticii Legis* in pleading are called *Homines consiliarii, & in Lege periti*; and in another place, Apprentices and other Counsellors of Law.

APPROACHES, in Fortification, the several Works made by the Besiegers for advancing or getting nearer to a Fortress, or Place besieged. See WORK, FORTIFICATION.

Such are *Trenches*, *Mines*, *Sapps*, *Lodgments*, *Batteries*, &c. See TRENCH, MINE, SAPP, BATTERY, &c.

APPROACHES, or *Lines of* APPROACH, are particularly used for Trenches dug in the Ground, and their Earth thrown up on the Side towards the Place besieged; under Shelter or Defence whereof the Besiegers may approach, without Loss, to the Parapet of the cover'd Way; and plant Guns, &c. wherewith to canonnade the Place. See TRENCH.

The *Lines of Approach* are to be connected by Lines of Communication. See COMMUNICATION.

The Besieged frequently make *Counter-Approaches*, to interrupt and defeat the Enemies *Approaches*.

APPROPRIATE, APPROPRIATED, in Philosophy, is understood of something which is indeed common to several; yet, in some respects, is peculiarly attributed to one. See PROPER and COMMON.

Thus, Creation is common to the Father, Son, and Holy Ghost; and yet is *appropriated* to the Father.

APPROPRIATE, in Law, is undestrond of a Church or Benefice, the Patronage whereof is annex'd to some Church-Dignity; so that the Parson receives the Tithes. See CHURCH, BENEFICE, PATRONAGE, PARSON, and TITHE.

There are computed in *England* 3845 Churches *Appropriate* and *Impropriate*. See APPROPRIATION, IMPROPRIATION, &c.

APPROPRIATE *ad Honorem*, in Law, signifies to bring a Manor within the Extent and Liberty of such an Honour. See HONOUR, MANOR, &c.

APPROPRIATE *Commune*, in Law, signifies to discommon, *i. e.* to separate, and inclose any Parcel of Land, which before was open Common. See COMMON.

APPROPRIATION, the Act of *Appropriating*, or applying a Church-Benefice, which of its own Nature is *juris divini*, and no Person's Patrimony, to the proper and perpetual Use of some Religious Community. See APPROPRIATE.

Appropriation, is where the Advowson of a Parsonage is given or belongs to any Bishoprick, religious House, College, &c. and to their Successors; so that the House or Body, is both Patron and Parson, and some one of the Members officiates as Vicar. See PARSON, ADVOWSON, &c.

It is called *Appropriation*, because the Profits of the Living are appropriated to the use of the Patrons; so that Parsons, tho' they are not ordinarily accounted *Domini Usufructuarii*, having no right of Fee-simple; yet, by reason of the Perpetuity of their Succession, are reputed Owners of the Fee-simple, and are therefore called *Proprietarii*. See PATRON and PATRONAGE.

To make an *Appropriation*, after Licence obtain'd of the King in Chancery, the Consent of the Diocesan, Patron, and Incumbent, is necessary, if the Church be full; if it be void, the Diocesan and the Patron, upon the King's Licence, may conclude it.

To *dissolve an Appropriation*, it is enough to present a Clerk to the Bishop, and he to institute and induct him: for that once done, the Benefice returns to its former Nature.

APPROVEMENTUM, APPROVEAMENTUM, or APPROVEMENT, is sometimes used in antient Writers for *Improvement*. See IMPROVEMENT.

Thus, to APPROVE, *Approbare*, is to make the best benefit of a thing by increasing the Rent, &c.

In some antient Statutes, Bailiffs of Lords in their Franchises are call'd their *Approvers*. See BAILIFF.

Cum omnibus Approviamentis & aliis pertinentiis suis, &c. Mon. Angl.

APPROVEMENT, is more particularly used where a Man hath common in the Lord's Wastes, and the Lord inclosetb part of his Waste for himself; leaving sufficient Common, with Egress and Regress, for the Commoner.

APPROVER, one who confessing Felony in himself, appealeth or impeacheth another or more of his Accomplices. See APPEAL.

He is so call'd because he must *prove* what he hath alledg'd in his Appeal——This Proof should either be by Battel, or by the Country, at the choice of the Appellee. See PROOF, BATTEL, PAIS, &c.

APPROVERS of the King, are those who have the letting of the King's Demesnes in small Manors, &c. See DEMESNE.

APPROXIMATION, in Arithmetick, a continual approach nearer still and nearer to a Root or Quantity sought, without a possibility of ever arriving at it exactly. See ROOT.

We have divers methods of *Approximation* delivered by *Wallis*, *Raphson*, *Halley*, *Howard*, &c. all of 'em being no other than Series's infinitely converging, or approaching still nearer to the Quantity requir'd, according to the Nature of the Series. See CONVERGING and SERIES.

'Tis evident, that if a number propos'd be not a true Square, it is in vain to hope for a just quadratick Root thereof, explicable by rational Numbers, integers or fracted; whence, in such Cases, we must content ourselves with *Approximations*, somewhat near the Truth, without pretending to Accuracy: and so for the Cubick Root, of what is not a perfect Cube; and the like for superior Powers. See SQUARE, CUBE, POWER, QUADRATURE, EXTRACTION, &c.

This the Antients were aware of, and accordingly had their Methods of *Approximation*; which, tho' scarce applied by them beyond the quadratick or perhaps the cubick Root, are yet equally practicable, by due Adjustments, to the superior Powers also: as is shewn in the *Philosoph. Transact.* N° 215.

If there be a Non-quadratick or Non-cubick Number; the former being expressed by $aa+b$, and the latter by $aaa+b$, where aa and aaa are the greatest Square and Cube in the proposed Numbers; then $\sqrt{aa+b}=a+\frac{ab}{2aa+\frac{1}{2}b}$; and $\sqrt[3]{a^3+b}=a+\frac{ab}{3aaa+b}=^{\text{or}}a+\sqrt{\frac{1}{4}aa+\frac{b}{3a}}$ will be easy and expeditious *Approximations* to the Square and Cube Root.

To extract the Root of an Equation by Approximation.

1°. For a quadratic Equation——suppose the Equation $x^2-5x-31=0$; let the Root be $8+y$, so that y may denote the Fraction, whereby the assumed Number either exceeds or comes short of the Root: Then

$$\begin{array}{l} x^2=64+16y+y^2 \\ -5x=-40-5y \\ -31=-31 \\ \hline -7+11y+y^2=0 \end{array}$$

Since the Powers of Fractions are continually decreasing; and we only here want a Root nearly true; y^2 is cast away: Upon which,

$$\begin{array}{l} -7+11y=0 \\ \hline y=\frac{7}{11}=\frac{6}{10}\text{ nearly}=0.6 \end{array}$$

Wherefore $x=8+0.6=8.6$

Suppose $x=8.6+y$. Then

$$\begin{array}{l} x^2=\frac{7396}{100}+\frac{172}{10}y+y^2 \\ -5x=-\frac{430}{10}-5y \\ -31=-31 \\ \hline \frac{7396}{100}-\frac{430}{10}-31+\frac{172}{10}y-5=0 \end{array}$$

Which,

Which, being reduced to the same denomination, as here follows

$$73.96 - 4300 - 3100 + (1720 - 500)y = 0$$
$$-0.04 + 1220y = 0$$
$$12.20y = 0.04$$
$$y = 004 : 12.20 = 0.0032$$

Therefore $x = 8.6000 + 0.0032 = 8.6032$

Suppose $x = 8 - 60,2 + y$; Then will

$$x^2 = 7401505024 + 17.\frac{20640000}{y + y^2}$$
$$-5x = -43.01600000 - 500000000$$
$$-31 = -31.00000000$$
$$-0.000094976 : 12.20640000\,y = 0$$
$$y = 0.00009\,4976 : 12.20640000$$
$$= 0.0000077808.$$

Therefore $x = 8.6032000000 + 0.0000077808 = 8.6032778 08.$

Suppose, again, the Root of a Cubic Equation $x^3 + 2x^2 - 23x - 70 = 0$ be required by *Approximation*; here let the Root be $5 + y$, since the Terms are omitted wherein y^2 and y^3 are found; there is no necessity for expressing 'em in the Transformation of the Equation. Wherefore, we find

$$x^3 = 125 + 75y \ldots$$
$$+2x^2 = 50 + 20y \ldots$$
$$-23x = 115 - 23y$$
$$-70 = -70$$
$$-10 + 72y = 0$$
$$y = -\tfrac{10}{72} = 0.1$$

Therefore $x = 5 + 0.1 = 5.1$

Suppose $x = 5.1 + y$: Then will

$$x^3 = 132.651 + 78.030y \ldots$$
$$+2x^2 = 52.020 + 20.400y$$
$$-23x = -117.300 - 23.000y$$
$$-70 = -70.000$$
$$-2.629 + 75.430y = 0$$
$$75.430y = 2.629$$
$$y = 3.649 : 75.430 = 0.0348$$

Wherefore $x = 5.1 + 0.048 = 5.1348.$

And after the same manner might one proceed to Infinity.

APPUI, in the Manage, *q. d. rest* or *stay upon the Hand*; is the reciprocal Effort between the Horse's Mouth and the Bridle-Hand; or the Sense of the Action of the Bridle in the Hand of the Horseman. See HEAD, BRIDLE, &c.

A *just Appui of the Hand*, is the nice bearing up or stay of the Bridle; so that the Horse being awed by the Sensibility and Tenderness of his Mouth, dares not rest too much upon the Bit-Mouth, nor check or beat upon the Hand to withstand it.

A *dull, obtuse Appui*, is when a Horse has a good Mouth, but his Tongue so thick, that the Bit cannot work, or bear upon the Bars; the Tongue not being so sensible as the Bars: tho' the like Effect is sometimes owing to the grossness of his Lips——A Horse is said to have *no Appui*, when he dreads the Bit mouth; is too apprehensive of the Hand, and can't bear the Bit.——He is said to have *too much Appui*, when he rests or throws himself too much, too hardily upon the Bit.——Horses designed for the Army ought to have a *full Appui* upon the Hand.

APPULSE, in Astronomy, the approach of any Planet to a Conjunction with the Sun, or a Star. See CONJUNCTION.

APPURTENANCES, or APPERTINENCES, in Common Law, signify things both corporeal, *i.e.* belonging to another thing, as their principal; *E. gr.* Hamlets, to a chief Manor, and the like: and incorporeal, as Liberties and Services of Tenants, &c. See APPENDANT.

The Word is form'd of the *Latin*, *ad*, to, and *pertinere*, to belong.

APRIL, the fourth Month of the Year, according to the common Computation, but the second according to that of the Astronomers. See MONTH.

In this Month the Sun travels thro' the Sign *Taurus*. See SUN and TAURUS.

The Word is derived from the *Latin aperilis*, of *aperio*, I open; because the Earth, in this Month, begins to open her Bosom for the Production of Vegetables. See SPRING.

APRON, in Gunnery, a piece of Lead which caps, or covers the Vent, or Touch-Hole of a great Gun. See GUN, ORDNANCE, &c.

APSIDES, ABSIDES, or APSIDÆ, in Astronomy, two Points in the Orbit of a Planet, the highest whereof is called the *Aphelion*, or *Apogee*; and the lowest the *Perihelion*, or *Perigee*. See APHELION, APOGEE, PERIHELION, and PERIGEE.

The *Apsides* are also called *Auges*. See AUGES.

The Diameter which joins these two Points is call'd the *Line of the Apsides*, and passes thro' the Center of the Orbit of the Planet, and the Center of the Earth.——Such is the Line AP, (Tab. ASTRONOMY, fig. 1.) drawn from the Aphelion A to the Perihelion P. See ORBIT and PLANET.

The Eccentricity is reckoned in the Line of the *Apsides*; being the Distance between the Center of the Orbit of the Planet C, and the Center of the Sun or Earth S, according as the *Copernican* or the *Ptolemaic* System is followed. See ECCENTRICITY.

For the Motion of the Line of the *Apsides*, see APOGEE, &c.

The Word comes from the *Greek* ἁψὶς, an Arch, or Vault.

APSIDES were also antiently used for a kind of private Oratories, or Chapels in great Churches; otherwise called *Doxologia*, or *Doxalia*. See ORATORY.

They were thus call'd, because arched or vaulted over.

The Word still obtains in the Low Countries, where it denotes a kind of Choir, or Place beyond the Altar; where the Religious sit, and sing the Office, separate from the People, and without being seen by 'em.

AP-THANES, an ancient Term for the higher Nobility in *Scotland*. See THANE.

APTITUDE, the natural Disposition any thing hath to serve for such or such a purpose.

Thus, Oil hath an *Aptitude* to burn, and Water to extinguish Fire.

APTOTE, in Grammar, a Noun indeclinable, or which is without any Variation of Case. See NOUN and CASE.

The Word is derived from the *Greek* Privative α, and πτῶσις, *Casus*.

APUS, in Astronomy, the *Bird of Paradise*; one of the Constellations of the Southern Hemisphere, not visible in our Latitude. See CONSTELLATION.

APYREXY, in Medicine, the Intermission of a Fever or Ague. See FEVER and AGUE.

The Word is form'd of the privative Particle α, and πυρ, *Ignis*, Fire or Heat, or πυρέσσω, *febricito*, to be feverish.

AQUA, in natural History, Physicks, Chymistry, Medicine, &c. See WATER.

The Word is pure *Latin*, and supposed to be compounded of *a* and *qua*, q. d. from which; alluding to the Opinion that Water is the Basis or Matter of all Bodies.

AQUA *fortis*, is a corrosive Liquor, serving as a Menstruum wherewith to dissolve Silver, and all other Metals except Gold. See MENSTRUUM, DISSOLUTION, METAL, &c.

Aqua fortis is made of Salt-Petre, which is the only Salt that will act on Silver. See NITRE, SALT-PETRE, and SILVER.

To prepare *Aqua fortis*, they mix either Sand or Alum, or Vitriol, or the two last together, with the Salt-Petre; then distill it by a violent Fire; and catch the Fumes; which condensing in the Receiver, are the *Aqua fortis*.

If some of those Matters be not added to the Nitre, it runs too readily, and thus prevents the Evaporation; but when the Fusion is prevented, the parts of the Salt receiving more violent Impressions from the Fire, are converted into a volatile Spirit.

If to the Spirit of Nitre thus distill'd, Sea-Salt or Sal-Ammoniac be added; it commences *Aqua Regia*, and will no longer dissolve Silver, but Gold. See *Aqua* REGIA.

Hence, to try whether or no *Aqua fortis* be pure; put a Grain of a Solution of Silver in *Aqua fortis*, into a like Quantity of the Water in question: and if the Solution remains without either the Water's turning milky, or the Silver precipitating, the *Aqua fortis* is pure.

Aqua fortis is commonly held to have been invented about the Year 1300; tho' others will have it to been known in the Time of *Moses*.

Aqua fortis is a Liquor of various and extensive Use.——It is very useful to Refiners for parting or separating Silver from Gold and Copper. See PARTING, REFINING, &c.

To the Workers in Mosaic, for staining and colouring their Woods. See MOSAIC.

To Dyers in their Colours, and particularly Scarlet. See DYING, COLOUR, SCARLET, &c.

To other Artists, for the colouring of Bone and Ivory; which is done by steeping the Matters therein, after first tinging it with Copper, or Verdigrease, &c.—Some also turn it into *Aqua Regia*, by dissolving in it a fourth of its weight of Sal-Ammoniac, and then stain therewith Ivory Hafts and Bones, of a fine purple Colour. There are, also, Book-Binders, who throw it on Leather, and thereby make fine marble

marble Covers for Books. See MARBLING, BOOK-BINDING, &c.

And there are Diamond-Cutters, who use it to seperate Diamonds from metalline Powders. See DIAMOND.

'Tis, farther, of service in etching Copper, or Brass-Plates. See ETCHING.

Lastly, Mr. *Boyle* assures us he has caused Canes to be stained like Tortoise-Shell, by a mixture hereof with Oil of Vitriol, laid on them at several times, over live Coals, to cause it to penetrate the deeper; and, afterwards, giving them a Gloss with a little soft Wax and a dry Cloth.

AQUA *Regalis*, or REGIA. See *Aqua* REGIA.

It is thus call'd, because it dissolves Gold, which is vulgarly esteem'd the King of Metals.——It is sometimes also call'd *Aqua Chrysulea* and *Stygia*.

AQUA *Vitæ*, is commonly understood of what we otherwise call *Brandy*. See BRANDY.

Some, however, distinguish between 'em; appropriating the Term Brandy to what is procured from Wine, or the Grape; and *Aqua Vitæ* to that drawn after the same manner from Malt, &c. See WINE, MALT, DISTILLATION, &c.

AQUA *Marina*, in natural History, a Gem, or precious Stone, of a Sea-Green Colour: whence its Name, see PRECIOUS *Stone* and GEM.

It is found along the Sea-Coasts; and is said to vie with the Amethyst in hardness. See AMETHYST.

Some of the Criticks contend for its being the sixth Stone in the Rationale of the *Jewish* High Priest; call'd, in the *Hebrew*, *Tharsis*; and render'd in *Latin*, by *Berillus*, *Thalassius*, &c. *Jonathan* and *Onkelos* call it, in the *Chaldee*, כרום ימא, *Cherum Jamma*: Tho' the Seventy, S. *Jerom*, *Aquila*, *Pagninus*, the Translators of *Geneva*, and *Schindler* render it *Chrysolithus*.——Others will have it a *Turqueise*. *Leo de Juda* and *Hutterus* translate it *Hyacinthus*.

Several of the Lapidaries take it for the Beryl; which coincides with the first Opinion. See BERYL.

AQUA *omnium florum*, in Pharmacy, signifies the distill'd Water of Cows-Dung, when they are at Grass. See WATER.

AQUÆDUCT, AQUÆDUCTUS, q. d. *Ductus Aquæ*, a Conduit of Water; is a Construction of Stone, or Timber, made on an uneven Ground, to preserve the Level of the Water, and convey it, by a Canal, from one place to another. See WATER.

There are *Aquæducts* under ground, and others rais'd above it, supported by Arches.

The *Romans* were very magnificent in their *Aquæducts*; they had some that extended an hundred Miles. *Frontinus*, who had the Direction of them, tells us of nine that emptied themselves thro' 13514 Pipes, of an Inch Diameter. *Blasius* has observ'd, that in the space of twenty-four Hours, *Rome* received, from these *Aquæducts*, no less than five hundred thousand Hogsheads of Water.——The *Aquæduct* built near *Maintenon* for carrying the River *Bure* to *Versailles*, is the greatest in the World. It is 7000 Fathoms long; and its Elevation 2560 Fathom; containing 242 Arcades.

AQUÆDUCT, in Anatomy, is a Passage or Perforation, partly membranous, and partly cartilaginous; leading out of the Bony Passage of the internal Ear into the Palate. See EAR and PALATE.

It makes the beginning of the *Canalis particularis*, and is divided into two Parts; the shortest of which opens into the Cavity of the Skull, &c.

It is thus call'd, not only on account of its Form, which is that of a Canal; but from its serving to discharge any foreign Matters collected in the inner Cavities of the Ear.——It is sometimes call'd *Aquæductus Fallopii*, from the Name of its first Discoverer.

AQUARIANS, AQUARII, a kind of Hereticks in the third Century, so called from the *Latin*, *Aqua*, Water; because they used nothing but Water in the Sacrament. See EUCHARIST.

'Tis said the Occasion of the Abuse was owing to the Persecution which prevail'd in those Times: For the Christians being then obliged to celebrate the Sacrament in the Night; found it necessary to make use of Water, lest the smell of the Wine should betray them to the Heathens. But they afterwards went further, and actually forbid the use of Wine in the Eucharist, even when it might be used with safety.

Epiphanius tells us, the *Aquarians* were the Followers of *Tatian*; and were so call'd, because they abstain'd wholly from Wine, and did not use it even in the Eucharist. See ABSTEMIOUS.

AQUARIUS, in Astronomy, the eleventh Sign in the Zodiac, reckoning from *Aries*. See SIGN and CONSTELLATION.

The Sun moves thro' it in the Month of *January*; 'tis mark'd thus ♒. See CHARACTER.

The Poets feign, that it was *Ganymede*, whom *Jupiter* ravish'd under the Shape of an Eagle, and carried away into Heaven, to serve as Cup-bearer in the room of *Hebe* and *Vulcan*; whence the Name——Others hold, that the Sign was thus call'd, because, when it appears in the Horizon, the Weather usually proves rainy.——The Stars in the Constellation *Aquarius*, in *Ptolemy*'s Catalogue, are 45; in *Tycho*'s 40; in the *Britannic* Catalogue 99: The Longitudes, Latitudes, Magnitudes, &c. whereof, are as follow:

Stars in the Constellation AQUARIUS.

Names and Situations of the Stars.	Signs.	Longitude. ° ′ ″	Latitude ° ′ ″	Magn.
Preced. in the Handkerchief against the Hand.	♒	7 24 06	8 06 41 N.	5
		8 38 46	12 24 42	5
		9 22 28	11 34 51	7
		9 35 02	11 38 47	6
Subseq. in the Handkerchief.		8 44 13	8 16 10	4 5
5.				
		9 32 57	7 17 53	6
		9 19 25	3 51 49	6 7
		9 28 11	3 19 30	6
		11 37 44	11 05 06	6
		11 51 38	11 49 00	6
10.				
		16 00 11	23 02 34	6
		12 23 54	10 30 14	6
In the preced. Hand.		12 04 13	4 47 48	5
		14 18 30	6 21 43	6
		16 12 10	10 41 41	6
15.				
		16 53 23	10 25 12	6
		15 50 35	5 45 41	7
		15 01 16	2 17 03	6
		16 14 35	5 11 33	6
		18 10 20	11 14 10	6
20.				
		18 13 15	11 03 19	6
In the preced. Shoulder.		19 04 23	8 38 43	3
Under the Shoulder, as in the Arm-Pit.		19 47 16	5 59 14	5
		22 50 57	13 12 28	6
In the Head.		23 38 27	15 21 47	6
25.				
		23 56 30	14 13 55	6
		25 39 39	15 07 14	6
		28 15 21	11 58 21	6
		22 24 57	4 37 29 S.	6
		26 16 22	5 04 48 N.	6
30.				
Lower in the hind. Shoulder.		27 47 19	9 10 58	5
		28 35 40	10 13 14	6
South. in the Fore-Hip.		24 24 01	2 03 15 S.	4
Bright one in the hind. Shoulder.		29 02 16	10 40 38 N.	3
		23 19 59	6 37 49 S.	6 5
35.				
		25 07 12	1 43 12	8
		27 04 33	2 59 48 N.	6
North. in the preced. Hip.		26 09 58	0 15 37 S.	6
		25 38 49	2 52 39	6
		23 34 18	9 27 48	6
40.				
		27 07 35	1 59 02	7
Preced. of two in the poster. Side.		28 55 44	2 43 47 N.	4
		29 51 55	4 56 30	6
Subseq. of the same.		29 42 07	2 23 30	5 6
		24 59 38	10 33 45 S.	5 6
45.				
That in the hind. Arm.	♐	2 23 11	8 14 49 N.	3
	♒	24 11 54	13 39 11 S.	5
		28 36 33	3 18 38	6
	♐	1 41 48	4 49 11 N.	6
North of 3 in the hind. Hand.		4 16 51	10 29 08	5
50.				
That upon the Hips.	♒	27 53 23	6 28 36 S.	6
Preced. of the rest in the Hand.	♐	4 34 31	8 51 36 N.	4
	♒	29 32 41	4 48 31 S.	6
That in the hind. Buttock.	♐	1 03 54	1 12 33	5
		1 13 00	1 30 40	6
55.				
South of two in the fore Leg.	♒	28 12 22	10 51 40 S.	5
	♐	5 13 36	6 55 47 N.	6
	♒	29 43 32	7 58 37 S.	6
Subseq. of three in the Hand.	♐	6 04 53	8 09 42 N.	4
Preced. in the pouring out of the Water.		5 06 13	4 07 47	5
60.				
North in the Fore-Leg.	♐	0 54 55	9 56 24 S.	6
		5 19 55	1 04 29 N.	6
Following that to the Southward.		1 29 54	11 00 40 S.	6
Lower of the Northern ones in the hind. Leg.		3 39 28	5 54 42	5
		5 10 52	2 44 36	7
65.				

Names and Situations of the Stars.	Signs.	Longitude. ° ′ ″	Latitude ° ′ ″	Magn.
Upper of North in the hind Leg.	♓	4 16 52	5 38 42 S	6
South and Subseq. in the pouring out of the Water.		7 14 41	0 23 00	4
		5 54 23	4 11 08	6
South in the hind Leg.——*Scheat.*		4 33 49	8 11 17	3
		4 25 11	8 36 04	6
70.				
		7 50 34	0 12 44	6
Last in the Water.	♒	29 28 59	21 04 54	1
First of the Contig. in the Flexure of the Water.	♓	10 04 10	1 40 14	6
Second.		10 04 59	1 44 15	7
3d, and South of the Contig.		10 08 41	1 57 45	6
75.				
Preced. in the last Flexure.		3 59 44	16 34 34	5
North.		5 40 53	14 29 07	4
Subseq. and South of three.		5 14 53	15 41 55	5 6
In the 2d Flexure of the Water.		12 48 57	1 01 25	5
North of three Contig. in the Water.		11 57 28	3 58 03	5
80.				
First behind the 2d Flexure.		12 43 56	4 49 51	6
Middle of three.		12 24 17	4 15 45	5
Single one more South than those.		10 57 45	8 18 02	5
South of the Contig.		12 28 16	4 45 39	5
		11 08 02	10 07 57	6
85.				
North of the three following the last Flexure.		9 08 43	14 46 26	5
Middle		9 35 12	15 34 16	5
		10 30 55	16 45 48	6
South of those three.		11 04 19	16 30 21	5
Over the last Flexure but one.		15 20 12	11 02 03	5
90.				
		14 09 42	14 40 56	6
Preced. That.		14 17 06	14 31 10	5
Follow. It.		15 52 17	11 36 22	5
Middle, in the same Flexure.		14 38 18	15 10 26	5
Contiguous to that.		14 51 24	15 43 02	6
95.				
Subseq. in the last Flexure but one.		15 58 18	16 26 59	5
Middle of Informes behind the last Flexure.		19 26 16	16 14 06	5
North		21 57 12	15 16 03	5
South	♓	21 12 12	18 45 54 S	5

AQUATIC, something which lives, breeds, or grows in, or about the Water. See WATER.

We have *Aquatic* Plants, *Aquatic* Animals, *&c.* See PLANT, ANIMAL, *&c.*

Trees which grow on the Banks of Rivers, or in Marshes, *&c.* are also call'd *Aquatics.*

AQUEOUS, AQUOSUS, something that partakes of the Nature of Water, or abounds therein. See WATER.

Thus Milk is said to consist of an *Aqueous* or serous, and a butyrous Part. See MILK.

The Chymists separate the *Aqueous* Part or Phlegm from all Bodies by Distillation. See PHLEGM.

AQUEOUS *Humour*, is the first or outermost of the three Humours of the Eye. See HUMOUR and EYE.

It lies immediately under the Cornea, which it causes to protuberate a little; and is supposed to be furnished by certain Ducts provided for the purpose. See CORNEA.

Anatomists are divided about the Origin and Conveyance of this Humour.——'Tis certain, the Source must be pretty plentiful, inasmuch as, if by any Accident the Coats it is contain'd in be wounded, so that the Humour runs out, and the Cornea falls or collapses; the Wound readily heals, by only closing of the Eye, and the Humour recruits: of which we have numerous Instances among Physicians.

Dr. *Nuck* thinks he has discover'd the Ducts whereby the Humour is furnish'd. See AQUEOUS *Ducts.*

Others denying the reality of those Ducts, suppose it immediately derived from the Arteries. Dr. *Drake* admits the Ducts, and takes 'em to be only Branches of the excretory Ducts of the *Glandula Innominata*, and *Lachrymalis*; which piercing the Tunicks of the Eye, deliver their Liquor by ways hitherto unknown.

AQUEOUS *Ducts*, or *Ductus Aquosi Nuckii*, are certain *Ducts*, discover'd by Dr. *Nuck*, whereby the *Aqueous* Humour is supposed to be convey'd into the inside of the Membranes which inclose that Liquor.——But the Discovery is not universally allow'd. See AQUEOUS *Humour.*

AQUILA, in natural History, *&c.* See EAGLE.

AQUILA, in Astronomy, a Constellation of the northern Hemisphere; usually join'd with *Antinous.* See CONSTELLATION.

The Stars in the Constellation *Aquila* and *Antinous*, in *Ptolomy*'s Catalogue, are 15; in *Tycho*'s, 17; in the *Britannic* Catalogue, 70: The Longitudes, Latitudes, Magnitudes, *&c.* whereof, are as follow.

Stars in the Constellation AQUILA *cùm* ANTINOO.

Names and Situations of the Stars.	Signs.	Longitude. ° ′ ″	Latitude North. ° ′ ″	Magn.
Preced. of three Inform. towards *Sagittary.*	♑	4 40 57	14 59 07	4
South.		6 26 14	14 02 30	5
Subseq.		6 48 32	14 46 57	5
		8 03 00	25 03 26	5
		8 14 05	22 00 29	6
5.				
Preced. of three Inform. before *Antinous*'s Foot.		8 04 40	18 13 27	4
North of two Inform. over the Eagle's Tail.		10 26 31	43 27 53	4
South		10 31 39	41 02 20	4
		9 14 07	19 37 16	6
		9 17 24	19 33 22	6
10.				
Mid. of 3 before *Antinous*'s Foot.		10 30 35	16 54 11	5 4
		13 30 29	36 28 51	6
		13 33 55	36 11 45	6 5
Subseq. of the same.		11 44 42	16 53 53	4
Preced. in the Eagle's Tail.		13 56 58	37 36 43	3 4
15.				
Preced. in *Antinous*'s Heel.		12 17 25	18 52 40	6
Subseq.		12 46 59	18 29 26	6
Bright one in *Antinous*'s Foot.		13 02 15	17 37 36	3
Subseq. in the Eagle's Tail.		15 28 34	36 13 48	3
		15 27 48	33 24 32	6
20.				
		15 14 46	28 23 48	6
		14 16 37	14 22 17	5 6
		15 58 34	24 28 45	5
		17 08 30	26 54 11	6
		17 05 48	23 06 48	7
25.				
		17 03 34	22 21 55	7
Preced. of 3 in the Root of the Tail.		18 42 18	33 31 53	6
In *Antinous*'s Thigh.		16 36 51	16 36 09	6
South in *Antinous*'s leading Side.		17 20 05	21 04 44	6
Mid. & North in the Root of the Tail.		19 23 33	34 13 27	6
30.				
North in the preced. Wing.		19 17 21	24 50 54	3 4
Last of 3 in the Root of the Tail.		20 45 44	33 32 22	6
North in *Antinous*'s leading Side.		19 06 40	22 04 17	5
South in the preced Wing.		20 03 35	23 34 00	6
In *Antinous*'s Belly.		19 39 55	18 49 10	6
35.				
That below *Antinous*'s Knee.		19 29 24	10 58 21	6
North in the preced. Shoulder.		22 27 58	28 42 30	4
Against *Antinous*'s hind Knee.		20 31 47	14 23 03	3 4
		21 10 48	18 25 21	6
In the hind Side of *Antinous.*		21 30 47	20 02 59	3 4
40.				
		21 09 46	16 42 00	6
South in the preced. Shoulder.		23 28 56	26 30 44	5
		22 41 20	20 31 04	6
		25 52 03	33 02 08	6
South in the beginning of the hind Wing.		25 52 20	32 39 24	6
45.				
North.		26 48 33	34 00 06	6
That immediately prec. the Lucida.		25 44 15	28 22 04	6
Preced. of two in the hind Shoulder.		26 37 08	31 16 52	3
		23 18 26	10 05 20	5
Subseq. of the same.		27 36 29	32 19 49	6
50.				
Between the Shoulders; call'd *Lucida Aquilæ.*		27 23 24	29 19 11	1 2
That over the *Lucida.*		27 53 01	30 51 20	6 5
In *Antinous*'s hind Shoulder.		26 06 54	21 33 23	3 4
		24 33 02	12 05 11	5
		24 44 54	12 24 10	6
55.				
		26 32 00	20 43 43	6
Subseq. below the *Lucida.*		28 17 56	28 46 12	5
In the Eagle's Neck.		28 06 44	26 44 20	3
In the Verge of the Wing behind the Shoulder.		29 36 57	31 32 17	6
		28 50 17	19 16 01	7
60.				
In the middle of the Head.	♒	0 42 27	27 03 16	6
	♑	29 46 36	19 05 30	7
In *Antinous* hind Hand.	♒	0 35 30	18 45 35	3
		1 02 33	18 28 07	5 6
Last of the hind Wing.		5 47 33	34 06 12	5
65.				
		4 17 48	15 16 50	7
		4 43 44	15 39 39	5
		6 35 14	15 31 49	5
		7 24 03	16 48 56	4
	♒	8 06 58	18 16 36	6
70.				

AQUILINE, Aquilinus, something belonging to an Eagle——Hence, *Aquiline* Nose, denotes a hooked Nose, like the Beak of an Eagle; a Hawk's Nose.

AQUILO, the *North-East Wind*; or that which blows from the North-Eastern Point of the Horizon. See Wind, North and Point.

The Seamen call it, *North North East*. See Rhume.

The Poets give the Name to all stormy Winds dreaded by the Mariners.

ARA, the *Altar*, in Astronomy, a Southern Constellation; consisting of eight Stars. See Star and Constellation.

ARAB, Arabian, Arabic, something that belongs to the People of *Arabia*. See Arabia.

The Arabian *Horse* is said to be nursed with Camel's Milk: There are many strange Reports of this Beast. The Duke of *Newcastle* assures us, that the ordinary Price of one is 1000, 2000, or 3000 Pounds; and that the *Arabs* are as diligent in keeping the Genealogies of their Horses, as Princes of their Families. They strike Medals on every occasion to keep up the Pedigree. The Fortune the *Arabians* give their Sons, when arrived at Manhood, is, two Suits of Arms, with two Scimeters, and a Horse; who always lies in the next Room to him——Yet such of the Breed as have been brought into *England*, never proved very extraordinary. See Horse.

Arabian *Year*. See *Arabian* Year.

ARABESQUE, or Arabesck, something done after the manner of the *Arabians*.

Arabesque, *Grotesque*, and *Moresque*, are Terms applied to such Paintings, Ornaments of Freezes, &c. wherein there are no human, or animal Figures, but which consist wholly of imaginary Foliages, Plants, Stalks, &c. See Grotesque and Moresque.

The Words take their Rise from hence, that the *Moors*, *Arabs*, and other *Mahometans*, use these kinds of Ornaments; their Religion forbidding them to make any Images or Figures of Men, or other Animals. See Image.

ARABIC, Arabick, Arabicus, something that relates to *Arabia*, or the *Arabs*——

Arabic, or Arabic *Tongue*, is a Branch or Dialect of the *Hebrew*. See Language and Hebrew.

Father *Angelo de St. Joseph* speaks much of the Beauty and Copiousness of the *Arabic*. He assures us it has no less than a thousand Names for a Sword; five hundred for a Lion; two hundred for a Serpent; and eighty for Honey. See Word, Alphabet, &c.

Arabic *Figures*, or *Characters*, are the Numeral Characters commonly made use of in large Computations. See Figure, Numeral, &c.

The *Arabic* Characters stand contradistinguished to the *Roman*. See Character, &c.

The Learned are generally of opinion, that the *Arabic* Figures were first taught us by the *Saracens*, who borrow'd them from the *Arabs*, and they from the *Indians*——*Scaliger* was so satisfied of their Novelty, that he immediately pronounced a Silver Medallion he was consulted about, Modern; upon his being told of the Numeral Figures 234, 235, being on it. The common Opinion is, that *Planudes*, who lived towards the Close of the thirteenth Century, was the first Christian who made use of them. Father *Mabillon* even assures us, in his Work *de Re Diplomatica*, that he has not found them any where earlier than the fourteenth Century.

Yet Dr. *Wallis* insists on their being of a much older Standing; and concludes they must have been used in *England* at least as long ago as the time of *Hermannus Contractus*, who lived about the Year 1050; if not in ordinary Affairs, yet at least in Mathematical ones, and particularly Astronomical Tables.

The same Author gives us an Instance of their Antiquity in *England*, from a Mantle-Tree of a Chimney, in the Parsonage House of *Helmdon* in *Northamptonshire*, wherein is the following Inscription in *Basso Relievo*, N° 133, being the Date of the Year 1133. *Philos. Transact.* N° 154.

Mr. *Luffkin* furnishes a yet earlier Instance of their Use, in the Window of a House, part of which is a *Roman* Wall, near the Market-place in *Colchester*; where between two carved Lions stands an Escutcheon, containing the Figures 1090. *Philos. Transact.* N° 255.

M. *Huet* is even of opinion, that these Characters were not borrowed from the *Arabs*, but from the *Greeks*; and that they were originally no other than the *Greek* Letters, which we all know that People made use of to express their Numbers by. See Number, Numeral, &c.

Gum Arabick, is the Name of a Gum which distils from a Species of *Acacia*, growing in *Egypt* and *Arabia*. See Gum.

It is very common among us, but little is to be met with which is genuine; it is suspected to be adulterated with our common Plumb-tree Gums——That is accounted best, which is in smallest Pieces, and almost of a white Colour. It dissolves easily in any aqueous Liquor, and is good in all kinds of Fluxes.

Arabick, Arabicus, was also a Title or Denomination of Honour, given to the Emperor *Severus*; on account of his conquering *Arabia*, and reducing it into the form of a *Roman* Province. See Title, and Quality.

On the Reverse of some Medals of that Emperor, we read PARTHIC. ARABIC. ADIAB. COS. II. PP. And sometimes PARTH. ARAB. PARTH. ADIAB. That is, *Parthicus*, *Arabicus*, *Adiabenicus*, &c. Doubtless because he overcame the *Parthians* in *Arabia* and *Adiabena*; and took from them those two Provinces.

Arabici were also a kind of Hereticks, who sprung up in *Arabia*, about the Year 207; whose distinguishing Tenet was, That the Soul died with the Body, and also rose again with it. See Resurrection.

Eusebius, *lib.* vi. *c.* 38. relates, that a Council was call'd to stop the Progress of the rising Sect; that *Origen* assisted at it; and convinced them so thoroughly of their Error, that they abjured it.

ARABISM, Arabismus, an Idiom or Manner of speaking peculiar to the *Arabs*, or the *Arabick* Language. See Idiom and Arabick.

R. *Martin* maintains, that the] sometimes expresses an Oath, in the *Hebrew*, as well as the *Arabick*: *Abenezra*, a perfect Master of the *Arabick*, and who makes great use thereof to explain the *Hebrew*; does not reject the Sentiment, nor yet much approve it: he contents himself barely to rehearse it, which, for so zealous a Partisan of *Arabisms*, is enough to shew that he had no great opinion of it——Father *Scuciet*.

ARABLE-*Land*, antiently call'd Aralia, is such as is fit for Tillage. See Land and Tillage.

It is thus call'd from the *Latin arare*, of *aratrum*, a Plough. See Plough and Ploughing.

ARACHNOIDES, in Anatomy, a fine, thin, transparent Membrane, which lying between the *Dura* and *Pia Mater*, is supposed to invest the whole Substance of the Brain. See Meninx and Brain.

Many Anatomists deny the Existence of such third Membrane; and contend that it ought rather to be looked on as the external *Lamina* of the *Pia Mater*, which sends its internal *Lamella* between the Folds of the cortical part of the Brain. See Pia *Mater*.

Arachnoides, or Aranea *Tunica*, is likewise used for a fine, slender Tunick, wherewith some Anatomists suppose the crystalline Humour incompass'd. See Crystalline.

This, others call *Crystalloides*, and *Crystallina*; but others, and with good reason, deny the reality thereof, with its vulgarly supposed use. See Ciliary and Tunick.

The Word is borrowed from the *Greek* ἀράχνη, a Spider, Spider's Web; and εἶδος, Form: in regard of the Fineness of these Parts, which are supposed to resemble that of a Spider's Web.

ARACK, or Arrack, a spirituous Liquor, imported from the *East Indies*; chiefly used by way of Dram, and in Punch. See Drink, Punch, &c.

The Nature and Composition of this celebrated Liquor has been much controverted——The Name *Arack*, Mr. *Lockyer* assures us, is an *Indian* Word for strong Waters of all kinds; for that they call our Spirits and Brandy, *English Arack*——But, what we understand by the Name *Arack*, is really no other than a Spirit procured by Distillation, from a vegetable Juice call'd *Toddy*, which flows by Incision out of the Cocoa-nut Tree, like the Birch Juice procured among us. See Vegetable and Tapping.

The *Toddy*, Mr. *Lockyer* adds, is a pleasant Drink of itself when new, and purges those not used to it; and when stale, is heady, and makes good Vinegar. The *English* at *Madrass* use it as Leven to raise their Bread with.

Goa and *Batavia* are the chief Places for *Arack*——At *Goa* there are divers kinds; *single*, *double*, and *treble distilled*. The double distilled, which is that commonly sent abroad, is but a weak Spirit in comparison with *Batavia Arack*; yet on account of its peculiar and agreeable Flavour, is preferred to all the other *Aracks* of *India*. This is attributed to the earthen Vessels, which alone they use at *Goa* to draw the Spirit; whereas at *Batavia* they use Copper Stills.

The *Parier Arack*, made at *Madrass*; and the *Columbo*, and *Quilone Arack* at other places, being fiery hot Spirits, are little valued by the *Europeans*, and therefore rarely imported; tho highly prized among the Natives.

ARÆOMETER, Aræometrum, an Instrument wherewith to measure the Density or Gravity of Fluids. See Fluid, Gravity, and Density.

The Word is form'd of the *Greek* ἀραιὸς, *rarus*, *tenuis*, thin; and μέτρον, Measure.

The *Aræometer*, or Water-poise, is usually made of Glass; consisting of a round hollow Ball, which terminates in a long slender Neck, hermetically seal'd a-top: there being first, as much running Mercury put into it, as will serve to ballance or keep it swimming in an erect Position.

The Stem is divided into Degrees; (as represented Tab. MISCELLANY, fig. 18.) and by the Depth of its Descent into any Liquor, its Lightness is concluded; for that Fluid in which it sinks least, must be heaviest; and that in which it sinks lowest, lightest. See WATER-*poise*, &c.

M. *Homberg* has invented a new *Aræometer*, described in *Philos. Transact.* N° 262. thus: *A* (fig. 19.) is a Glass-bottle or Matrass, with so slender a Neck, that a Drop of Water takes up in it about five or six Lines, or $\frac{5}{12}$ of an Inch. Near that Neck is a small capillary Tube *D*, about six Inches long, and parallel to the Neck——To fill the Vessel, the Liquor is poured in at the Mouth *B*, (which is widen'd to receive a Tunnel) till it run out at *D*; that is, till it rise in the Neck to the Mark *C*, by which means you have always the same Bulk or Quantity of Liquor; and consequently, by means of the Balance, can easily tell, when different Liquors fill it, which weighs most, or is most intensely heavy.

Some regard, however, is to be had to the Season of the Year, and Degree of Heat and Cold in the Weather: by reason some Liquors rarefy with Heat, and condense with Cold, more than others; and accordingly take up more or less room. See SPECIFICK *Gravity*, RAREFACTION, &c.

By means of this Instrument, the ingenious Author has made a Table, to shew the different Weights of the same Bulk of the most considerable chemical Liquors, both in Summer and Winter; as follows:

The Aræometer *full of*	*weigh'd in Summer.*			*in Winter.*		
	oz.	dr.	gr.	oz.	dr.	gr.
Quick-silver	11	00	07	11	00	32
Oil of Tartar	01	03	08	01	03	31
Spirit of Urine	01	00	32	01	00	43
Oil of Vitriol	01	03	58	01	04	03
Spirit of Nitre	01	01	40	01	01	70
Salt	01	00	39	01	00	47
Aqua Fortis	01	01	38	01	01	55
Distilled Vinegar	00	07	55	00	07	60
Spirit of Wine	00	06	47	00	06	61
River Water	00	07	53	00	07	57
Distilled Water	00	07	50	00	07	54

The Instrument itself weighed, when empty, one Dram twenty-eight Grains.

ARÆOSTYLE, ARÆOSTYLOS, in the antient Architecture, a sort of Intercolumination; wherein the Columns were placed at the Distance of eight, or, as some say, ten Modules from one another. See INTERCOLUMNIATION.

In the *Aræostyle* the Columns were the widest and openest they were ever planted at; whence the Name: from the *Greek* ἀραιος, *rarus*, and στυλος, Column.

The *Aræostyle* is chiefly used in the *Tuscan* Order; at the Gates of great Cities and Fortresses.

ARÆOTICKS, or AREOTICKS, in Medicine, such Remedies as tend to open the Pores of the Skin, and render them large enough for the morbifick Matter's being carried off by Sweat or insensible Perspiration. See PORE, SWEAT, PERSPIRATION, &c.

To the Class of *Aræoticks* belong Diaphoreticks, Sudorificks, &c. See DIAPHORETICK, SUDORIFICK, &c.

ARAIGNEE, in Fortification, a Branch, Return, or Gallery of a Mine. See MINE, &c.

ARANEA *Tunica*. See ARACHNOIDES.

ARATRUM *Terræ*, in our antient Law-books, as much Land as can be tilled with one Plough——*Hoc manentum est* 30 *Aratrorum*. See CARRUCATA *Terræ*.

ARATURA *Terræ*, an antient Service which the Tenant was to do his Lord, by ploughing his Land. See SERVICE, &c.

ARBALET, or BALISTA, a kind of Weapon, vulgarly called a *Cross-bow*. See HARQUEBUSS.

It consists of a Steel-bow, set in a Shaft of Wood, furnish'd with a String and a Tricker; and is bent with a piece of Iron fitted for that purpose——It serves to throw Bullets, large Arrows, Darts, &c.

The Antients had large Machines to throw Arrows withal, called *Arbalets* or *Balistæ*. See BALISTA.

The Word is derived from *Arbalista*, i. e. *Arcubalista*, a Bow with a Sling.

ARBITER, in the Civil Law, a Judge nominated by the Magistrate, or chosen voluntarily by two contending Parties, on whom they confer a Power, by Compromise, of deciding their Difference according to Law. See JUDGE and COMPROMISE.

The *Romans* sometimes submitted to a single *Arbiter*; but ordinarily they chose several; and those in an uneven Number. See ARBITRATION.

In Matters wherein the Publick was concerned, as Crimes, Marriages, Affairs of State, &c. it was not allowed to have recourse to *Arbiters*——Nor was it permitted to appeal from an arbitral Sentence; the Effect of an Appeal being to suspend the Authority of a Jurisdiction, not of a Compact. See APPEAL.

Among the Moderns there are usually divers kinds of *Arbiters*; some, obliged to go by the Rigour of the Law; and others, authorized by the contending Parties to relax, or give way to natural Equity, properly call'd *Arbitrators*. See ARBITRATION.

Justinian absolutely forbids a Woman from being elected *Arbiter*, or rather *Arbitress*; as judging such an Office unbecoming the Sex. And yet Pope *Alexander* III. confirm'd an Arbitral Sentence given by a Queen of *France*.

ARBITRAGE, or ARBITREMENT. See ARBITRATION.

ARBITRARY, something left to the Choice and Determination of Men; or not fixed, and settled by any positive Law or Injunction. See LAW, LIBERTY, &c.

The Punishment of such a Crime is *Arbitrary*——*Arbitrary* Fines or Mulcts are usually called *Amercements*. See AMERCEMENT.

The Laws or Measures whereby the Creator acts, are *Arbitrary*; at least all the Physical Laws. See *Law of* NATURE.

ARBITRARY *Power*. See DESPOTICK, POWER, MONARCHY, GOVERNMENT.

The Word is form'd from the *Latin Arbitrium*, Will; whence also *Arbiter*, *Arbitrator*, &c.

ARBITRATION, or ARBITREMENT, the referring of a Cause or Quarrel to the Decision of one, or more indifferent Persons under the Quality and Denomination of Arbiters, or *Arbitrators*. See ARBITER and ARBITRATION.

Among us, two Arbitrators are usually chose by the contending Parties; and in case these cannot agree, a third is added, called an *Umpire*; in whose Decision both Sides bind themselves to acquiesce.

ARBITRATOR, an extraordinary Judge, or Commissioner, in one or more Causes between Party and Party, chosen by their mutual Consents. See ARBITRATION.

An Arbitriment is either general, that is, including all Actions, Quarrels, and Demands; or special, which includes one or more Matters, or Facts specified.

The Civilians make a difference between *Arbiter* and *Arbitrator*, tho they both ground their Power on the Compromise of the Parties; yet their Liberty is diverse: for an *Arbiter* is tied to proceed and judge according to Law, with Equity intermingled; whereas an *Arbitrator* is permitted wholly to his own Discretion, without Solemnity of Process, or Course of Judgment, to hear or determine the Controversy committed to him; so it be *juxta Arbitrium boni Viri*. See ALTO & *Basso*.

ARBOR, in natural History, Botany, &c. See TREE.

ARBOR in Chymistry——ARBOR *Philosophica*, is a Name common to several Metalline Crystallizations; thus call'd from their Ramifications resembling a Tree. See CRYSTALLIZATION——Such are the

ARBOR *Dianæ*, *Diana's Tree*. See DIANA'S *Tree*.

ARBOR *Martis*, *Tree of Mars*. See TREE *of Mars*.

ARBOR *Porphyriana*, among the Schoolmen, is a Scale of beings; or a Figure, consisting of three Rows or Columns of Words; the middlemost whereof contains the Series of Genera and Species; and bears some Analogy to the Trunk: and the Extremes, containing the Differences, to the Branches of a Tree. See GENUS, SPECIES, and DIFFERENCE——Such is

SUBSTANCE
Thinking Extended
BODY
Inanimate Animate
ANIMAL
Irrational Rational
MAN
This That
PLATO.

The *Arbor Porphyriana* is otherwise called *Scala Prædicamentalis*. See PRÆDICAMENT, &c.

ARBOR *Genealogica*, or Tree of Consanguinity; signifies a Lineage drawn out, under the Figure or Resemblance of Root, Stock, Branches, &c. See CONSANGUINITY, GENEALOGY, STOCK, &c.

ARBOR is also figuratively used in Mechanicks, for the principal part of a Machine, which serves to sustain the rest——It is also used for a Spindle or Axis whereon a Machine turns.

Such

TAB. ARCHITECTURE

TUSCAN

Mouldings or Members

Fillet, List, Listel, Reglet, Annulet, or Bandelette

Baguette, or Astragal

Tore, or Baton

Scotia, Canal, Trochilus

Ovolo

Cavetto Dominical, Corsic, and Doric Cymatium

Gorge

Ogee, or Talon

Cymatio

Corona, Larmier, Drip, & Mouchoirs

Plinth of a Base

Mutules, or Modillions

Rustick Stone

Dentils

Engraving

Mosaick Pavement

Bead

Forms of Masonry

Not Masonry

Greek Masonry

Masonry by equal Courses

Masonry by unequal courses

Masonry filled up in the middle

a Ovolo
b Astragal
c Fillet
d Larmier
e Fillet
f Ogee

Cornich

NB. The Numbers affixed to ye Members, express their Proportions, those on ye right side of each Order, the Projectures; & those on the left the Heights.

Vignola's Measures & manner of Composition are observed throughout.

Frieze

Architrave

Listel

ORDER Entire

Capital

Shaft

Base

Cornich

Dye or Trunk

Base

Column 14 Modules or 7 Diameters

Pedestal 4 Mod. 6 min.

DORIC

1 Reglet
a Cavetto
b Fillet
S Talon
Gorgona or
f Larmier
e Gutta or Drops
dd Dentelles
C Talon
b Capitals of the Triglyphs
a Bandelette

Cornich

R Metopa filled with
S Bullocks head
T Dome Metopa
V Shanks parting
X Triglyphs or Canals of
Y Triglyph, from
zz Dome Canals

Frieze

ORDER Entire

Q Cymatium or Bandelette
P Fillet of the
O Gutta or Drops
N Facia, or Platband

Architrave

Capital

Shaft

Base

Cornich

Dye

Base

Entablature 3 Mod.

Column 18 Modules or 8 Diameters

Pedestal 4 Mod. 6 min.

IONIC

Mouchette

Cornich

ORDER Entire

Frieze, with Griffons, & an Vigne candlestick in Basso Relievo taken from the Temple of Antoninus and Faustina.

Frieze

n Talon
3d or Grand Face
2d or Middle Face
1st or Lit de Face
m Reglet

Architrave

Capital

Shaft

Base

Cornich

Dye

Base

Entablature 4 Mod.

Column 18 Modules or 8 Diameters

Pedestal 5 Mod. 2 min.

CORINTHIAN

Compound Masonry

Modillion of Vignola

Modillion of Scamozzi

Original of the Corinthian Capital

a Abacus
b Acanthus
c Vase

Composite Capitula side view

a Tambour

Plan of the Composite Capital inverted

a Lion's head for spouts
b Roses
c Mutulions

Cornich

Basso Relievo of Sacrifices

Frieze

Architrave

Entablature 5 Mod.

ORDER Entire

a Flower of ye Capital
D Helices or Volutes
e Vine Leaves of ye 3d Order
f Olive Leaves of ye 2d Order
FF Caulicoles
g Olive Leaves of ye 1st Order

Capital

Column 20 Modules or 10 Diameters

Shaft

Base

Cornich

Dye

Base

Pedestal 7 Mod.

c c Metopes
bb Dentelles

Cornich

a a Foliages

Frieze

Architrave

Entablature 5 Mod.

ORDER Entire

B B Irregular Volutes

c c Leaves of Acanthus

Capital

Column 20 Modules or 10 Diameters

Shaft

Base

Cornich

Dye

Base

Pedestal 7 Mod.

COMPOSITE

Pediment

Attic Order

ARCH

Persian Order

Caryatic Order

a Tympan, or Triangular Panel
bb Archivault
c Key
d Impost
e Tympanum of the Pediment
ff Cornich of ye Jams

10 Modules

Archivault

Impost of the Cornichon

Diminution of a Column

Volute

a Cathetus
b Eye
c Listel
d Canal

Eye of ye Volute

Intercolumnations

Eustyle or 4 Modules

Systyle 4 Mod.

Pycnostyle 3 Mod.

Diastyle 6 Mod.

Areostyle 8 Mod.

a Architrave & Pilaster
c Stent

Rustic Door

c c Stretching Rustick
e e Heading Rustick
f key Stone
ii Skew or side Stone

Window

a Architrave
b Knell
e Frieze
f Cornich
g Tympanum of ye Pediment
h Lapping of the Base
i Body
k Plinth

Console

Cartouche

Festoon

Rose

Frett

No III

H. Gletcher. Sculp.

Arbor of a Crane, a Mill, Windmill, &c. See CRANE, MILL, WINDMILL, &c.

ARBOREUS, ARBOREOUS, is applied by some Naturalists to such Excrescencies, Fungus's, Mosses, and other Parasites as grow on Trees. See FUNGUS, MUSHROOM, GALLS, MOSS, PARASITE, ACORUS, &c.

ARBORIST, ARBORISTA, a Person skill'd in Trees; their Kinds, Forms, Natures, &c. See TREE.

Arborist is an appellation of less extent than *Botanist*. See BOTANY, &c.

ARBOUR, among Gardeners, &c. a kind of shady Bower or Cabinet, contrived to take the Air in. See GARDEN.

Arbours are now gone much into disuse, by reason their Seats, apt to be moist, are unwholesome——They are distinguish'd into *natural* and *artificial*.

Natural *Arbours*, are formed only of the Branches of Trees, interwoven artfully, and born up by strong Latticework, Poles, Hoops, &c. which make Galleries, Halls, Porticoes, and green Vista's naturally covered.

The Trees wherewith these *Arbours* are formed, are usually the Female Elms, or *Dutch* Lime-Trees; in regard they easily yield, and by their great quantity of small Boughs, form a thick Brush-wood: the lower parts are filled up with Horn-beam.

Artificial Arbours, and Cabinets are made of Latticework, born up by Standards, Cross-rails, Circles and Arches of Iron. For which purpose they make use of small Fillets of Oak, which being planed and made strait, are wrought in Checkers, and fastened with Wire.

ARC, or ARK. See ARCH.

The Words are formed from the *Latin*, *Arcus*, a *Bow*.

ARCANUM literally signifies a *Secret*; and is therefore very pertinently applied by Quacks and Impostors in Medicine, who conceal their Ignorance and Fraud under a pretence of Secrecy——Hence Legions of *Arcana*.

There are also standing officinal Compositions, under the Denomination of *Arcana*: such are

The *Arcanum Corallinum*, a Preparation of red Precipitate; made by distilling it with Spirit of Nitre, and repeating the Distillation again and again, till a red Powder be procured. This Powder boiled in Water, and the Water poured off, and tartariz'd Spirit of Wine put to the Powder; two or three Cohobations are made: which leave a Powder, much like the Prince's Powder; of good use in the Gout, Dropsy, Scurvy, &c. It operates chiefly by Stool.

Arcanum Joviale, is made of an Amalgama of Mercury and Tin, digested in Spirit of Nitre: the Nitre being drawn off, the remaining matter is wetted with Spirit of Wine, and the Spirit burnt away; and this for several times till the pungent Taste is gone: what remains is used much with the same Intentions as the *Antihecticum Poterii*, and is recommended by some as a Sudorific. See ANTIHECTICUM.

Arcanum duplicatum is prepar'd of Caput Mortuum of Aqua fortis, by dissolving it in hot Water, filtrating, and evaporating it to a Cuticle; then leaving it to shoot.

The *Arcanum duplicatum*, or *Panacea duplicata* is extolled as a Diuretic, and Sudorific——The Recipe was purchased at the expence of 500 Dollars, by that great Virtuoso the Duke of *Holstein*. *Schroder*, that Prince's Physician, writes wonders of its great uses in Hypocondriacal Cases, continued and intermitting Fevers, Stone, Scurvy, &c.

ARC-BOUTANT, in Building, a flat Arch or part of an Arch abutting against the Reins of a Vault, to support, and prevent its giving Way. See VAULT.

Arc-boutants are only arch'd Buttresses. See BUTTRESSE.

The name is *French*; form'd of *arc* and *bouter*, to a-but.

ARCH, ARK, ARCUS, a part of any curve Line; *e.gr.* of a Circle, Ellipsis, or the like. See CURVE.

ARCH *of a Circle* is a part of the Circumference thereof, less than a half, or Semicircle——Such is AB (Tab. GEOMETRY, fig. 27) See CIRCLE and CIRCUMFERENCE.

The Base or Line that joins the two Extremes of the Arch is called the *Chord*; and the Perpendicular rais'd in the middle of that Line, the *Sine* of the Arch. See CHORD and SINE.

All Angles are measured by *Arches*——to know their Quantity, an Arch is described, having its Centre in the Point of the Angle. See ANGLE.

Every Circle is supposed to be divided into 360 Degrees; and an *Arch* is estimated according to the Number of those Degrees it takes up——Thus an *Arch* is said to be of 30, of 80, of 100 Degrees. See DEGREE. Hence

Equal ARCHES are such Arches of the same or equal Circles, as contain the same Number of Degrees. See EQUAL——Hence

In the same or equal Circles, equal Chords subtend equal *Arches*——And hence, again, *Arches* intercepted between parallel Chords are equal.

A Radius, CE, fig. 98. which bisects the Chord in D, does also bisect the *Arch*, in E; and is perpendicular to the Chord, and on the contrary——And hence the Problem, to *bisect an Arch* is solved by drawing a Line AB perpendicular to the Chord in F.

Similar ARCHES are those which contain the same Number of Degrees of unequal Circles. See SIMILAR——Such are the *Arches* AB and DE, fig. 87.

Two Radii being drawn from the Centre of two concentric Circles; the two *Arches* intercepted between 'em, bear the same Ratio to their respective Peripheries; and also the two Sectors to the Areas of their respective Circles. See ANGLE.

The Distance of the Centre of Gravity of an *Arch* of a Circle, from the Centre of the Circle, is a third Proportional to a third part of the Periphery and the Radius. See CENTRE *of Gravity*.

For the Sines, Tangents, &c. of *Arches*. See SINE, TANGENT, &c.

ARCH in Astronomy——*Diurnal* ARCH of the Sun, is part of a Circle parallel to the Equator, described by the Sun in his Course betwixt rising and setting. See DIURNAL, DAY, &c.

His *nocturnal Arch* is of the same kind; excepting that it is described betwixt his setting and rising. See NIGHT, RISING, &c.

The Latitude and Elevation of the Pole are measured by an *Arch* of the Meridian: The Longitude, by an *Arch* of a parallel Circle. See ELEVATION, LATITUDE, LONGITUDE, &c.

ARCH *of Progression*, or *Direction*, is an *Arch* of the Zodiac which a Planet seems to pass over, when its Motion is according to the Order of the Signs. See DIRECTION.

The ARCH *of Retrogradation* is an *Arch* of the Zodiac, described while a Planet is retrograde, and moves contrary to the Order of the Signs. See RETROGRADATION.

ARCH *of Station*. See STATION and STATIONARY.

ARCH *between the Centres* is an *Arch*, as AI (Tab. ASTRONOMY, fig. 35.) passing from the Centre of the Moon's Shadow, A, perpendicular to her Orbit GH. See ECLIPSE.

If the Aggregate of the *Arch* between the Centres AI, and the apparent Semi-diameter of the Moon, be equal to the Semi-diameter of the Shadow; the Eclipse will be total without any duration: if less, total with some duration; and if greater, yet less than the Sum of the Semi-diameters of the Moon and the Shadow, partial——

ARCH *of Vision* is the Sun's depth below the Horizon, at which a Star, before hid in his Rays, begins to appear again. See Poetical RISING.

ARCH, in Architecture, is a Concave Building, rais'd with a Mould bent in form of the *Arch* of a Curve, and serving as the inward Support of any Superstructure. See BUILDING.

An *Arch*, says Sir *Henry Wotton*, is nothing but a narrow or contracted Vault; and a Vault, a dilated Arch. See VAULT.

Arches are used in large Intercolumnations of spacious Buildings; in *Porticos*, both within and without Temples; in publick Halls, as Ceilings, the Courts of Palaces, Cloisters, Theatres and Amphitheatres. See PORTICO, THEATRE, CEILING, &c.

They are also used as Buttresses and Counter-forts to support large Walls laid deep in the Earth, for Foundations of Bridges and Aquæducts, for triumphal Arches, Gates, Windows, &c. See BUTTRESS, ARC-*boutant*, &c.

Arches are either *circular*, *elliptical*, or *strait*——

Circular ARCHES are of three kinds, *viz.*——1st, *Semicircular*, which make an exact Semicircle, and have their Centre in the middle of the Chord of the Arch.

2dly, *Scheme*, which are less than a Semicircle, and consequently are flatter *Arches*; containing some, 90 Degrees, others 70, and others only 60.

3dly, *Arches of the third and fourth Point*; as some of our Workmen call them; tho' the *Italians* call them *di terzo* and *quarto acuto*, because they always meet in an acute Angle at top——These consist of two *Arches* of a Circle ending in an Angle at the Top, and are drawn from the Division of a Chord into three or four Parts, at pleasure——Of this kind are many of the *Arches* in old *Gothick* Buildings; but on account, both of their Weakness and Unsightliness, they ought, according to Sir *Henry Wotton*, to be for ever excluded out of all Buildings.

Elliptical ARCHES consist of a Semi-Ellipsis; and were formerly much used instead of Mantle-trees in Chimneys——These have commonly a Keystone and Chaptrels or Imposts.

Strait ARCHES, are those whose upper and under Edges are strait; as in the others they are curved; and those two Edges also parallel, and the Ends and Joints all pointing towards a Center——These are principally used over Windows, Doors, &c.

The Doctrine and Use of *Arches* is well delivered by Sir *Henry Wotton*, in the following *Theorems*.—1st, All Matter, unless impeded, tends to the Center of the Earth in a perpendicular Line. See DESCENT, GRAVITY, CENTRE, &c.

2dly, All solid Materials, as Bricks, Stones, &c. in their ordinary rectangular Form, if laid in Numbers, one by the Side of another, in a level Row, and their Extreme ones sustained between two Supporters; those in the middle will necessarily sink, even by their own Gravity, much more if press'd down by any superincumbent Weight—To make them stand, therefore, either their Figure or their Position must be altered.

3dly, Stones, or other Materials being figured *Cuneatim*, *i.e.* Wedge-wise, broader above than below, and laid in a level Row, with their two Extremes supported as in the preceding Theorem; and pointing all to the same Center; none of them can sink, till the Supporters or Butments give way, because they want room in that Situation to descend perpendicularly. But this is but a weak Structure; in regard the Supporters are subject to too much Impulsion, especially where the Line is long; for which reason, the Form of strait *Arches* is seldom used, excepting over Doors and Windows, where the Line is short——In order to fortify the Work, therefore, we must not only change the Figure of the Materials, but also their Position.

4thly, If the Materials be shaped wedge-wise, and be disposed in form of a circular *Arch*, and pointing to some Center; in this Case, neither the pieces of the said *Arch* can sink downwards, for want of room to descend perpendicularly; nor can the Supporters or Butments suffer so much Violence as in the precedent flat Form: for the Convexity will always make the incumbent Weight rather rest upon the Supporters, than heave them outwards: whence this Corollary may be fairly deduced, that the securest of all the *Arches* abovemention'd is the Semi-circular; and of all Vaults, the Hemispherical.

5thly, As Semi-circular Vaults, rais'd on the whole Diameter, are the strongest; so those are the most beautiful, which keeping to the same height, are yet distended, one fourteenth part longer than the said Diameter: which addition of width will contribute greatly to their Beauty, without diminishing any thing considerable of their Strength.

It is, however, to be observ'd, that according to Geometrical Strictness, to have the strongest *Arches*, they must not be Portions of Circles, but of another Curve, call'd the *Catenaria*, whose Nature is such, that a number of Spheres dispos'd in this form, will sustain each other, and form an *Arch*. See CATENARIA.

Dr. *Gregory* even shews, that *Arches* constructed in other Curves, only stand or sustain themselves by virtue of the Catenaria contain'd in their thickness; so that were they made infinitely slender or thin, they must tumble of course; whereas the Catenaria, tho' infinitely slender, must stand, in regard no one point thereof tends downward more than any other. *Philosoph. Transact.* N°. 231.

See further of the Theory under the Article VAULT.

Arches are sustain'd by Imposts. See IMPOSTS.

ARCH is particularly used for the Space between the two Peers of a Bridge. See PEER and BRIDGE.

The chief or *Master-Arch* is that in the middle; which is widest, and usually highest, and the Water under it deepest: being intended for the passage of Boats or other Vessels——We read of Bridges in the East, which consist of 300 Arches.

ARCH-*Stone*. See KEY-*Stone*.

Triumphal ARCH, is a Gate, or Passage into a City, magnificently adorned with Architecture, Sculpture, Inscriptions, &c. which being built of Stone or Marble, serves not only to adorn a Triumph, at the Return from a victorious Expedition, but also to preserve the Memory of the Conqueror to posterity. See TRIUMPH.

The most celebrated Triumphal *Arches*, now remaining of Antiquity, are that of *Titus*, of *Septimus Severus*, and of *Constantine*, at *Rome*.

ARCH, in the Scripture Sense. See ARK.

ARCH, or ARCHI, is also a Term without any meaning of itself, but which becomes very significant in composition with other Words: It heightens and exaggerates them; and has the Force of a Superlative, to shew the greatest Degree or Eminence of any thing.

Thus we say *Arch*-fool, *Arch* rogue, &c. to express Folly and Knavery in the utmost Degree——So also *Arch*-Treasurer, *Arch*-Angel, *Arch*-Bishop, *Arch*-Heretick, &c. to denote such as have a Pre-eminence over others.

The Word is form'd of the *Greek* ἀρχὴ, beginning; whence ἄρχος, *princeps*, *summus*.

In *English* we usually cut off the final *i*, from *Archi*, tho' to very ill purpose; the Words wherewith it is join'd, sounding much harsher on that score than they wou'd do were it preserv'd entire, as it is in most other Languages. See ANOMALOUS, CONTRACTION, &c.

ARCHÆUS, on obscure Term, used chiefly among the Antient Chymists, to express I know not what principle of Life and Motion; the Cause of all the Effects which we observe in Nature. See LIFE.

Hence, as they differ in their Ideas of a vital Cause; the Term *Archæus* becomes applied to very different Things: The most of 'em conceive it of the Nature of Fire. See FIRE.

Some use *Archæus* to denote the Fire lodg'd in the Centre of the Earth; to which they ascribe the Generation of Metals and Minerals, and which they believe to be the Principle of Life in Vegetables. See CENTRAL, &c.

Others by the Word *Archæus* mean a certain universal Spirit, diffused throughout the whole Creation, the active Cause of all the Phænomena in Nature. See SPIRIT, ÆTHER, MEDIUM, &c.

Others, instead of *Archæus*, chuse to call it the *Anima Mundi*; and others the *Vulcan* or *Heat* of the Earth. See ANIMA *Mundi*, &c.

They add, that all Bodies have their Share of this *Archæus*; and when this is corrupted, it produces Diseases, which they call *Archæal-Diseases*.

They likewise attribute Ideas to it; which for this Reason they call *Archæal Ideas*. See IDEA.

The Word is derived from ἀρχὴ, Principle; this Fire being the Principle and Source of all the Effects in Nature. See PRINCIPLE.

Helmont is a great Asserter of the Dogma of an *Archæus*—"No Poison, says he, can act on a Carcass: if, therefore, it "have any Effect, 'tis by means of the *Archæus*. He adds, "that if any heterogeneous Body happen to be present "to the *Archæus*; it rises into a fervour, endeavours to "expel the hostile matter; and, in order to that, exerts "all the force of the Body——To cure any Disease, there-"fore, is to pacify, and compose this *Archæus*. This *Ar-"chæus*, he holds, is irritated at the least appearance of any "thing heterogeneous; and as its Office is to watch over the "Health, and Safety of the whole Body; it is excited at "the very Shadow of the Enemy, calls its Forces to the "Charge, raises Fevers, &c. All, therefore, required to "an universal Medicine, is something that may readily pa-"cify, and lay this Unnatural Fever upon all occasions." This Doctrine of *Helmont*, *Boerhaave* observes, would not be so absurd, did he not ascribe Understanding to this *Archæus*: setting this aside, the Principle which renders Poisons deadly, and Remedies beneficial, is the Circulation of the Blood. See CIRCULATION and BLOOD.

ARCH-ANGEL, an intellectual Substance or Angel in the eighth Rank among the blessed Spirits which compose the Celestial Hierarchy. See ANGEL, and HIERARCHY.

The Word is compounded of the *Greek* ἀρχὸς, Prince and ἄγγελος Angel.

ARCHBISHOP, ARCHIEPISCOPUS, a metropolitan Prelate, having several suffragan Bishops under him. See BISHOP, SUFFRAGAN, &c.

Archbishops were not known in the East, till about the Year 320; and tho' there were some soon after this who had the Title, yet that was only a personal Honour by which the Bishops of considerable Cities were distinguished——It was not till of late that *Archbishops* became Metropolitans, and had Suffragans under them. See METROPOLITAN.

Athanasius appears to be the first that used the Title *Archbishop*, which he gave occasionally to his Predecessor; *Gregory Nazianzen*, in like manner, gave it to *Athanasius*: not that either of them were entitled to any Jurisdiction, or even Precedence, in virtue thereof.

Among the *Latins*, *Isidore Hispalensis* is the first that speaks of *Archbishops*. He distinguishes four Orders or Degrees in the Ecclesiastical Hierarchy, *viz. Patriarchs*, *Archbishops*, *Metropolitans*, and *Bishops*. See PATRIARCH, &c.

England is divided into two *Archbishopricks*, or Provinces. See ARCHBISHOPRICK.

ARCHBISHOPRICK, ARCHIEPISCOPATUS, the Dignity of Archbishop; or the Province under his Jurisdiction. See ARCHBISHOP.

There are two *Archbishopricks* in *England*, *viz* of *Canterbury* and *York*; the Prelates whereof are call'd *Primates* and *Metropolitans*. See PRIMATE and METROPOLITAN.

The

The Archbishop of *Canterbury* had antiently Jurisdiction over *Ireland* as well as *England*, and was styled a *Patriarch*, and sometimes *Alterius orbis Papa*, and *Orbis Britannici Pontifex*. Matters done and recorded in his Name ran thus, *Anno Pontificatus nostri primo*, &c. See PATRIARCH, POPE, &c.

He was also *Legatus Natus*. See LEGATE.

He even enjoyed some special Marks of Royalty; as, to be Patron of a Bishoprick, which he was of *Rochester*; to make Knights, coin Monies, &c.——He is still the first Peer of *England*, and next to the Royal Family; having precedence of all Dukes, and all Great Officers of the Crown. See NOBILITY, PEER, PRECEDENCE, &c.

He has, by Common Law, the Power of Probate of Wills and Testaments, and granting Letters of Administration, &c. See PROBATE, ADMINISTRATION, &c.

He has also a Power to grant Licences and Dispensations in all Cases formerly sued for in the Court of *Rome*, and not repugnant to the Law of God. See DISPENSATION, PLURALITY, NON-RESIDENCE, COMMENDAM, &c.

He also holds several Courts of Judicature; as, Court of Arches, Court of Audience, Prerogative Court, and Court of Peculiars. See ARCHES, AUDIENCE, &c.

The Archbishop of *York* has the like Rights in his Province, as the Archbishop of *Canterbury*; has precedence of all Dukes not of the Royal Blood; and all Officers of State except the Lord High Chancellor. He has the Rights of a Count *Palatine* over *Hexamshire*. See CONVOCATION, &c.

ARCHDEACON, ARCHIDIACONUS, a Church Officer, whose Business is to visit the Parishes within a certain District, or part of a Diocese committed to him. See VISITATION, PARISH, &c.

The *Archdeacon*, sometimes also call'd *Arch-Levite*, was originally the first and eldest of the Deacons who attended on the Bishop; whence his Name. See DEACON.

He was not known before the Council of *Nice*: his Function is since become a Dignity; and even set above that of Priest: tho' antiently it was quite otherwise. The *Archdeacon* was the Bishop's chief Minister for all external Concerns, and particularly the Administration of the Temporalties. He took care that Order and Decency were observ'd in Divine Service, look'd to the Ornaments and Utensils of the Church; had the Direction of the Poor, and the Inspection of the Manners and Behaviour of the People: for which reason he was call'd the *Bishop's Hand and Eye*.

These Advantages soon got him the upperhand over Priests, who had only Spiritual Functions. But he had no Jurisdiction over 'em till the VIth Century; tho' by this time he was become superior to the Archimandrite, or Rural Dean himself. See RURAL *Dean*.

In the Xth Century *Archdeacons* were considered as having Jurisdiction in their own Right or attach'd to their Office; with a Power of Delegating it to others. But from that time Measures were taken to lessen their Power, by increasing their Number——He whose District lay in the Capital City, took the Quality of *Great-Archdeacon*.

We have sixty *Archdeacons* in *England*: their Office is to visit every other Year, to enquire into Reparations and Moveables belonging to the Church, reform Abuses in Ecclesiastical Matters, and bring the more weighty Affairs before the Bishop; besides which, they have also a Power to suspend, excommunicate, and in many Places to prove Wills, and in some to institute to Benefices.

It is one part of the *Archdeacon's* Office to induct all Clerks into their Benefices within his Jurisdiction; and by the Act of Uniformity, he is now oblig'd to be in Priests Orders. See INDUCTION.

Many *Archdeacons* in old Foundations, have, by prescription, their Courts and Officials as Bishops have. See COURT, OFFICIAL, &c.

ARCH-CHAMBERLAIN, ARCHI-CAMERARIUS, an Officer of the Empire; much the same with what in *England* we call *Great Chamberlain*. See CHAMBERLAIN.

The Elector of *Brandenbourg* is *Arch Chamberlain* of the Empire, being so appointed by the Golden Bull; and in that Quality, he bears the Sceptre before the Emperor, walking on the left hand of the Elector of *Saxony*. At some Solemnities he serves on horseback like other Electors; carrying a Bason with a Towel in his Hands: from which alighting he sets it for the Emperor to wash—He has his Vicar, or *Sub Arch-Chamberlain*, who is Prince of *Hohenzollern*, of the House of *Brandenbourg*. See ELECTOR, EMPIRE, &c.

ARCH-CHANCELLOR, ARCHI-CANCELLARIUS, a Great Chancellor, who antiently presided over the Notaries, that is, the Secretaries of a Court. See CHANCELLOR.

This Office chiefly obtained in *France*, under the two first Races of their Kings; and afterwards under the Empire: as they had three several Territories, *Germany*, *Italy*, and *Arles*; they had three *Arch-Chancellors*; and hence the three *Arch Chancellors* still subsisting in *Germany*, the Archbishop of *Mentz* being *Arch-Chancellor* of *Germany*, the Archbishop of *Cologn* of *Italy*, and the Archbishop of *Treves* of *Arles*.

Bern. de Malliackroth, in an express Treatise *de Archicancellariis Imperii Romani*, shews that these three Archbishops were *Arch-Chancellors* before they were Electors—We also read of *Arch-Chancellors* of *Burgundy*, &c.

ARCH-CHANTER, ARCHICANTER, the Chief or President of the Chanters of a Church. See CHANTER.

ARCH DRUID, ARCHIDRUIDA, the Chief or Pontiff of the antient *Druids* in a Nation. See DRUID.

ARCH BUTLER, ARCHIPINCERNA, the Great Butler of the Empire. See BUTTLER.

The King of *Bohemia* is *Arch butler*: his Business is to present the first Cup at an Imperial Entertainment; but he is not obliged to officiate with his Crown on. He has for Vicar or Deputy the Hereditary Prince of *Lumbourg*. See ELECTOR.

ARCH DAPIFER, or *Chief-Sewer*, is another Officer of the Empire. See EMPIRE.

The Elector of *Bavaria* is *Archdapifer*——The Palatine of the *Rhine* pretended this Office was annexed to his Palatinate; but has since desisted. See PALATINE.

ARCHDUKE, ARCHIDUX, a Duke vested with some Quality, Pre-eminence, and Authority above other Dukes. See DUKE.

The *Archduke* of *Austria* is a very antient Title. There have also been *Archdukes* of *Lorrain*, and *Brabant*.

Austria was erected into a Marquisate by *Otho*, or *Henry* I. and into a Dutchy by *Frideric* I. in 1156: But we don't well know when, nor why the Title *Arch-dutchy* was given it——'Tis commonly held, that Duke *Frideric* IV. first assumed the Quality: Others, that it was given by the Emperor *Maximilian* I. in 1459; and ample Privileges annexed to it. The principal hereof are, That the *Archduke* shall distribute Justice in his own Dominions, without Appeal; that he shall be judg'd to have received the Investiture of his States, after having demanded it three times; and cannot be deprived of his Countries, even by the Emperor and the States of the Empire: that no Affair of the Empire can be concluded without his Participation; and that he have a power of creating Counts, Barons, and Gentlemen, throughout the whole Empire: which are Privileges to which the other Dukes of the Empire are strangers.

ARCHE, among Physicians, the beginning of a Disease. See DISEASE.

ARCHED *Legs*, is an Imperfection in a Horse; when being in his natural Position, he has his Legs bent forwards; and his whole Leg makes a kind of Arch or Bow. See HORSE.

It usually arises from excessive Labour, whereby the back Sinews are made to shrink up so that the Legs remain *arch'd*, and tremble after a little Riding. Tho the Disorder is sometimes natural to them.

ARCHERS, a kind of Militia or Soldiery, armed with Bows and Arrows. See ARM, MILITIA, &c.

They were much in use in former Times; but are now laid aside, excepting in *Turky*, and some of the Eastern Countries; where there are Companies of *Archers* still on foot in their Armies.

The Name *Archer*, however, is still retained even where the Thing is lost: Thus, in *France*, the Officers who attend the Prevosts, to make Captures, Seizures, Arrests, &c. are called *Archers*; tho their Arms be only Halberds or Carabines——In this sense they say, the *Archers* of the *Grand Prevot de l'Hotel*; of the *Prevot des Marchands*; the City *Archers*; the *Archers du Guet*, or of the Watch, &c.

They have also their *Archers des Pauvres*, *Archers* of the Poor; whose Office is to seize such Beggars as they find in the Streets, and carry them to the Hospitals.

The Word is form'd of the *Latin Arcus*, a Bow; whence *Arcuarius*, *Arquites*, and even *Arquis*, as we sometimes read it in the corrupt State of that Tongue——*Varro* observes, that *Archer* originally signified a Brigand, or Highwayman.

ARCHERY, in our antient Customs, a Service of keeping a Bow for the Use of the Lord, to defend his Castle. See SERVICE.

ARCHES, or *Court of* ARCHES, is one of the Archbishop's Courts; to which Appeals lie in Ecclesiastical Matters from all parts of the Province of *Canterbury*. See COURT, APPEAL, and ARCHBISHOP.

This Court is thus call'd, from the *arch'd* Church and Tower of St. *Mary le Bow*, where it was wont to be held.

The

The Judge of the Court of the *Arches*, is called the *Dean of the Arches*, or the *Official* of the *Arches* Court, &c. with which Officialty, is commonly joined a peculiar Jurisdiction over thirteen Parishes in *London*, termed a *Deanery*, exempt from the Authority of the Bishop of *London*, and belonging to the Archbishop of *Canterbury*; of which the Parish of *Bow* is one, and the principal.

Others suppose the Denomination and Functions of *Dean of the Arches* to have arose hence, that the Archbishop's Official or Dean being oft employ'd abroad in foreign Embassies, the Dean of the *Arches* was his Substitute in this Court.

This Judge on any Appeal made, forthwith, and without any farther Examination of the Cause, sends out his Citation to the Appellee, and his Inhibition to the Judge from whom the Appeal was made.

The Advocates who are allowed to plead in the *Arches* Court, are to be Doctors of the Civil Law, in one of our Universities. See ADVOCATE.

ARCHETYPE, ARCHETYPUS, a Pattern or Model, by which any Work is form'd, or which is copied after, to make another like it. See MODEL.

In this sense the Word coincides with *Original*; and stands opposed to *Copy*. See ORIGINAL and COPY.

Among Minters, &c. *Archetype* is peculiarly used for the Standard or original Weight, by which the other Weights are to be adjusted and examined. See STANDARD.

The Philosophers, particularly the *Platonists*, talk of an *Archetypal* World; meaning, the World, such as it existed in the Divine Mind, or in the Idea of God, before the Creation. See IDEA, PLATONISM, &c.

The Word is compounded of αρχή, Beginning; and τυπος, Type. See TYPE.

ARCHIACOLYTHUS, *q. d. Chief Acolythus*; was an antient Dignity, in Cathedral Churches: the Ministers whereof were divided into four Orders, or Degrees, *viz.* Priests, Deacons, Subdeacons, and *Acolythi*; each of which had their Chiefs: The Chief of the *Acolythi* was called *Archiacolythus*. See ACOLYTHUS, &c.

ARCHIATER, ARCHIATRUS, ARCHIATOR, the chief Physician of a Prince who retains several. See PHYSICIAN.

The Word is form'd of the *Greek* αρχή, *Principium*, Chief; and ἰατρος, *Medicus*, a Physician.

ARCHIEUNUCH, ARCHIEUNUCHUS, the Chief of the Eunuchs. See EUNUCH.

The *Archieunuch* was one of the principal Officers in *Constantinople*, under the *Greek* Emperors.

ARCHIGALLUS, in Antiquity, the Chief of *Cybele*'s Priests, call'd *Galli*. See GALLI.

ARCHILOQUIAN, a Term in Poetry, applied to a sort of Verses, whereof *Archilochus* was the Inventor. See VERSE.

These consist of seven Feet; the four first whereof are ordinarily Dactyls, tho' sometimes Spondees; the three last Trochees: for instance;

Solvitur acris Hyems grata vice Veris & Favoni. Hor.

'Tis usual to mix Iambic Verses of six Feet, abating a Syllable, with *Archiloquian* Verses; as *Horace* himself has done in the Ode now cited.

These Verses are also call'd *Dactylic*, on account of the Dactyls at the beginning. See DACTYL and DACTYLIC.

ARCHIMANDRITE, the Superior of a Monastery; amounting to what we now call *Abbot*. See ABBOT, SUPERIOR, &c.

Covarruvias observes, that the Word literally denotes the Chief or Leader of a Flock; in which sense it may be applied to any Ecclesiastical Superior: Accordingly, we find the Name sometimes attributed to Archbishops. But among the *Greeks*, where it is chiefly used, it is restrained to the Chief of an Abbey.

M. *Simon* maintains the Word originally derived from the *Syriac*; at least the part *Mandrite*, which by a Circumlocution, he makes to signify a Solitary or Monk.

ARCHIMIME, ARCHIMIMUS, is the same thing, in effect, with Arch-Buffoon.

The *Archimimes*, among the *Romans*, were Persons who imitated the Manners, Gestures, and Speech both of the Living and the Dead. See MIME.

At first they were only employ'd on the Theatre; but were afterwards admitted to their Feasts, and at last to their Funerals; where they walked after the Corps, counterfeiting the Gestures and Behaviour of the Person who was carrying to the Funeral Pile; as if he were still alive. See FUNERAL.

ARCHIPELAGO, in Geography, a Sea interrupted by a great Number of Islands. Sea SEA.

The most celebrated, and that to which the Name is in some measure appropriated, is that between *Greece*, *Macedonia*, and *Asia*; wherein are the Islands of the *Ægean* Sea: which is call'd the *White Sea*, in contradistinction to the *Euxine*, which they call the *Black Sea*.

The modern Geographers mention other *Archipelago's*; as, that of *Lazarus*, near the Coast of *Malabar* and *Malacca*; the *Archipelago* of *Mexico*; that of the *Caribbees*, wherein are above 12000 Islands; that of the *Philippines*, containing 11000 Islands; those of the *Molucco's*, of *Celebes*, &c.

The Word is form'd, by Corruption, of *Ægeopelagus*, q. d. *Ægean* Sea; which, again, is form'd of Αγιοπελαγος, or Holy Sea; a Name originally given it by the *Greeks*, on account of the *Cyclades*, for which they had a very high Veneration.

ARCHIPERACITA, or ARCHIPHERACITA, an Officer in the *Jewish* Academies. See ACADEMY.

The *Archiperacita* was not the same with the *Archisynagogus*, as *Grotius* and others have mistakenly imagined; but rather the Chief or Principal of these appointed to read, explain, and profess the Law, in their Schools——And hence the Name; which is form'd of the *Greek* αρχη, Chief; and the *Hebrew* or *Chaldee* פרק, *Pherak*, Division, Chapter.

ARCH-LEVITE, ARCHILEVITA. See ARCHDEACON.

ARCHMARSHAL, ARCHIMARISCHALLUS, the Grand Marshal of the Empire. See MARSHAL.

The Elector of *Saxony* is *Archmarshal* of the Empire; and in that Quality goes immediately before the Emperor, bearing a naked Sword.

ARCH-MINISTER, ARCHIMINISTER, the Prime Minister of a Prince or State. See MINISTER.

Charles the Bald having declared *Boson* his Viceroy in *Italy*, under the Title of Duke; made him also his first Minister under that of *Archiminister*: from the *Greek* αρχη, and the *Latin Minister*——*Chorier*.

ARCH-PRIEST, ARCHIPRESBYTER, a Priest, established in some Dioceses, with a Pre-eminence over the rest. See PRIEST.

Antiently, the *Arch-Priest* was the first Person after the Bishop, and even acted as his Vicar, in his absence, as to all spiritual Concerns. In the sixth Century, there were found several *Arch-Priests* in the same Diocese; from which time they were call'd *Deans*. See DEAN.

In the ninth Century, they distinguished two kinds of Cures or Parishes; the smaller, govern'd by simple Priests; and the Baptismal Churches, by *Archipresbyters*, who, beside the immediate Concern of the Cure, had the Inspection of the other inferior Priests, and gave an account thereof to the Bishop, who governed the Chief or Cathedral Church in Person. See BISHOP, PARISH, CATHEDRAL, &c.

There are *Arch-Presbyters* still subsisting in the *Greek* Church; vested with most of the Functions and Privileges of *Chorepiscopi*, or Rural Deans. See CHOREPISCOPUS and RURAL *Dean*.

ARCH-PRINTER, ARCHITYPOGRAPHUS. See PRINTER.

ARCH-PRIOR, was a Name sometimes given to the Master of the Order of Templars. See MASTER and TEMPLAR.

ARCHISTRATEGUS, Αρχιστρατηγος, the Generalissimo, or Captain General of an Army.

ARCHITECT, ARCHITECTUS, a Person skill'd in Architecture, or the Art of Buildings; who makes Plans and Designs of Edifices, conducts the Work, and directs the Masons and other Artificers employ'd therein. See ARCHITECTURE, PLAN, DESIGN, &c.

The Word is derived from the *Greek* αρχων, *Princeps*, and τεκτων, Workman, *q. d.* the *principal Workman*.

The most celebrated *Architects* are, *Vitruvius*, *Palladio*, *Scamozzi*, *Serlio*, *Vignola*, *Barbaro*, *Cataneo*, *Alberti*, *Viola*, *Bullant*, and *De Lorme*.

Vitruvius enumerates twelve Qualities requisite to an *Architect*; That he be Docil and Ingenious; Literate; skill'd in Designing; in Geometry; Opticks; Arithmetick; History; Philosophy; Musick; Medicine; Law, and Astrology. See BUILDING, &c.

ARCHITECTONICK, that which builds a thing up regularly, according to the Nature and Intentions thereof.

Thus, that plastick Power, Spirit, or whatever else it be which hatches the Ova of Females into living Creatures of the same Species, is by some called the *Architectonick* Spirit. See PLASTICK.

ARCHI-

ARCHITECTURE, ARCHITECTURA, the Art of *Building*; *i. e.* of erecting Edifices proper for Habitation, or Defence. See BUILDING, EDIFICE, *&c.*

Architecture is usually divided, with respect to its Objects, into three Branches, *Civil*, *Military*, and *Naval*.

Civil ARCHITECTURE, called also absolutely and by way of Eminence ARCHITECTURE, is the Art of contriving and executing commodious Buildings for the Uses of Civil Life; as *Houses*, *Temples*, *Theatres*, *Halls*, *Bridges*, *Colleges*, *Portico's*, &c. See HOUSE, TEMPLE, THEATRE, *&c.*

Architecture is scarce inferior to any of the Arts in Point of Antiquity.—Nature and Necessity taught the first Inhabitants of the Earth to built themselves Hutts, Tents, and Cottages; from which, in course of Time, they gradually advanced to more regular and stately Habitations, with Variety of Ornaments, Proportions, *&c.* See *Vitruvius's Account of the Origin of* Architecture *under the Article* ORDER.

The antient Writers represent the *Tyrians* as the first among whom *Architecture* was carried to any tolerable Pitch; and hence it was that *Solomon* had Recourse thither for Workmen to build his Temple. *Villalpandus*, indeed, contends, that only Under-workmen were sent for from *Tyre*, Artificers in Gold, Silver, Brass, *&c.* and that the Rules of *Architecture* were delivered by God himself to *Solomon*. Hence, he adds, the *Tyrians* rather learnt their *Architecture* from *Solomon*; which they afterwards communicated to the *Egyptians*; these to the *Grecians*, and these again to the *Romans*—In effect, the Author last cited, undertakes to prove, that all the Beauty and Advantages of the *Greek* and *Roman* Buildings, were borrow'd from this Fabrick. *Tom.* ii. *Part* ii. *Lib. Ijagog.* iii. *C.* ix. x.

To confirm this, *Sturmius* produces several Passages in *Vitruvius*, where the Rules given by that Architect, *Lib.* vi. *C.* ii. and *Lib.* v. *C.* i. quadrate exactly with what *Josephus* relates of the *Jewish* Temple, *Antiq. Jud.* Lib. vi. & viii. *&c.* See TEMPLE.

To what a Pitch of Magnificence the *Tyrians* and *Egyptians* carried *Architecture*, ere it came to the *Greeks*, may be learnt from *Isaiah* xxiii. 8. and *Vitruvius's* Account of the *Egyptian* Oecus; their Pyramids, Obelisks, *&c.* See OBELISK, PYRAMID, *&c.*

Yet, in the common Account, *Architecture* should be almost wholly of *Grecian* Original: Three of the regular Orders or Manners of Building, are denominated from them, *viz. Corinthian*, *Ionic*, and *Doric*: And scarce a Part, a single Member, or Moulding, but comes to us with a Greek Name. See CORINTHIAN, DORIC, IONIC; see also MOULDING, *&c.*

Be this as it will, 'tis certain the *Romans*, from whom we derive it, borrow'd what they had entirely from the *Greeks*; nor seem, till then, to have had any other Notion of the Grandeur and Beauty of Buildings, beside what arises from their Magnitude, Strength, *&c.*—Thus far they were unacquainted with any Order beside the *Tuscan*. See TUSCAN.

Under *Augustus*, *Architecture* arrived at its Glory: *Tiberius* neglected it, as well as the other polite Arts. *Nero*, amongst a Heap of horrible Vices, still retain'd an uncommon Passion for Building, but Luxury and Dissoluteness had a greater Share in it, than true Magnificence.—*Apollodorus*, excelled in *Architecture*, under the Emperor *Trajan*, by which he merited the Favour of that Prince; and it was he who raised the famous *Trajan* Column, subsisting to this Day. See TRAJAN.

After this, *Architecture* began to dwindle; and tho the Care and Magnificence of *Alexander Severus* supported it for some Time, yet it fell with the western Empire, and sunk into a Corruption, from whence it was not recovered for the Space of twelve Centuries.

The Ravages of the *Visigoths*, in the 5th Century, destroy'd all the most beautiful Monuments of Antiquity; and *Architecture* thence forwards, became so coarse and artless, that their profess'd Architects understood nothing at all of just Designing, wherein its whole Beauty consists: Hence a new Manner of Building took its Rise, called the *Gothic*. See GOTHIC.

Charlemagne did his utmost to restore *Architecture*, and the *French* applied themselves to it with Success, under the Encouragement of *H. Capet*: His Son *Robert* succeeded him in this Design; till by Degrees the modern *Architecture* was run into as great an Excess of Delicacy, as the *Gothick* had before done into Massiveness. To these may be added, the *Arabesk* and *Morisk*, or *Moorish Architecture*; which were much of a-piece with the *Gothic*, only brought in from the South by the *Moors* and *Saracens*, as the former was from the North by the *Goths* and *Vandals*. See ARABESK, MORISCO, GROTESK, *&c.*

The Architects of the 13th, 14th, and 15th Century, who had some Knowledge of Sculpture, seem'd to make Perfection consist altogether in the Delicacy and Multitude of Ornaments, which they bestowed on their Buildings, with a World of Care and Sollicitude; tho' frequently without any Conduct or Taste.

In the two last Centuries, the Architects of *Italy* and *France* were wholly bent upon retrieving the primitive Simplicity and Beauty of antient *Architecture*, in which they did not fail of Success: Insomuch, that our Churches, Palaces, *&c.* are now wholly built after the Antique.—

Civil Architecture may be distinguish'd, with regard to the several Periods or States thereof, into *Antique*, *Antient*, *Gothic*, *Modern*, &c. See ANTIQUE, ANTIENT, GOTHIC, and MODERN, *&c.*

Another Division of *Civil Architecture*, arises from the different Proportions which the different Kinds of Buildings render'd necessary, that we might have some proper for every Purpose, according to the Bulk, Strength, Delicacy, Richness; or Simplicity required.—

Hence arose five Orders or Manners of Building, all invented by the Antients at different Times, and on different Occasions, *viz. Tuscan*, *Doric*, *Ionic*, *Corinthian*, and *Composite*; the History, Characters, *&c.* of each whereof see under their respective Articles, TUSCAN, DORIC, IONIC, CORINTHIAN, and COMPOSITE.

What forms an Order, is the *Column* with its *Base* and *Capital*; surmounted by an Entablature, consisting of Architrave, Frieze, and Cornice; and sustain'd by a *Pedestal*. See ORDER; see also COLUMN, ENTABLATURE, PEDESTAL, *&c.* see also CAPITAL, *&c.*

For a general View of the Elements of Architecture, with the Rules which obtain with respect to the Matter, Form, Proportion, Situation, Foundation, Distribution, Covering, Apertures, &c. See the Article BUILDING.

For Particulars; see FOUNDATION, WALL, ROOF, WINDOW, DOOR, CEILING, *&c.* see also BEAUTY, *&c.*

There are several Arts subservient to *Architecture*, as Carpentry, Masonry, Paving, Joynery, Smithery, Glazery, Plumbery, Plastering, Gilding, *&c.* See CARPENTRY, MASONRY, PAVING, JOYNERY, SMITHERY, GLAZERY, PLUMBERY, PLASTERING, GILDING, *&c.*—See also TIMBER, STONE, BRICK, TYLE, MORTAR, LEAD, GLASS, *&c.*

We have no Greek Authors extant on *Architecture*—The first who wrote of it was *Agatharcus* the *Atheman*, who was seconded by *Democritus* and *Theophrastus*——Among the *Latins*; the younger *Pliny* seems to speak the best; and indeed shews himself very knowing therein.

Of all the Antients, *Vitruvius* is the only entire Author; tho' *Vegetius* relates that there were 700 Architects at *Rome* in his Time—He lived under *Augustus*, and composed a compleat System of *Architecture*, in ten Books, which he dedicated to that Prince. There are two Things censured by the Moderns in this excellent Work, *viz.* Want of Method, and Obscurity. The Mixture of Latin, Greek, in *Vitruvius*, is such, that *Leon Baptist Alberti*, has observed, he wrote Latin to the *Greeks*, and Greek to the *Latins*: He adds, that the Work contains abundance of Things superfluous and foreign to the Purpose.—For this Reason M. *Perrault* has extracted all the Rules out of *Vitruvius's* prolix Work, methodized and published them in a little Abridgment:—Several Authors have also endeavoured to explain the Text of *Vitruvius*, particularly *Philander*, *Barbaro*, and *Salmasius*, in Notes added to their several Latin Editions; *Rivius* and *Perrault* in the Notes to their *German* and *French* Versions; and *Baldus* in his *Lexicon Vitruvianum*:—The same M. *Perrault* has also composed an excellent Treatise *Of the five Orders*, which may be esteemed a Supplement to *Vitruvius*, who left the Doctrine of the Orders defective.

The Authors upon *Architecture* since *Vitruvius*, are—*Leon. Baptist Alberti*, who in 1512, published ten Books of the Art of Building, in Latin, designed to outvie *Vitruvius*; in which, however, he has not succeeded: His Work has abundance of good Things, but is deficient in the Doctrine of the Orders—*Seb. Serlio*, who wrote seven Books of *Architecture*, five of which concerning the five Orders, were made publick in 1602; throughout all which, he religiously keeps to *Vitruvius's* Rules: The seventh was since publish'd in 1575; but the sixth, concerning private Buildings, has not yet appear'd.—*And. Palladio*, who wrote four Books of *Architecture*, containing the fundamental Rules of the Art, with various Instances of all the Kinds of Works; publish'd in Italian in 1575. The two first Books are render'd into High-Dutch, and enlarg'd with Annotations by *Boeckler*—*Phil. de Lorme*, who publish'd nine Books of *Architecture*, in *French*, in 1567—*J. Barozzio de Vignola*, who in 1631, made publick his Rules of the five Orders, in Italian; since translated, with large Additions, by *Daveler*, under the Title of *Cours d'Architecture*, &c. and since also into High-Dutch, with Notes.—

To these are to be added *Vincent. Scamozzi*, his *Idea of Universal Architecture*, publish'd in 1615, in *Italian*; *Car. Phil. Dieussart*, in his *Theatre of Civil Architecture*, publish'd in High-Dutch in 1697; wherein he not only delivers the Rules of *Architecture*, but explains and compares the

five Orders as laid down by *Palladio*, *Vignola*, *Scamozzi*, &c. which same Design was also executed in French by *R. Freart de Cambray*, in a *Parallel of the antient Architecture with the Modern*, publish'd in *French* in 1650, and since translated into *English* with Additions, by Mr. *Evelyn*. *Fr. Blondel* Director of the Royal Academy of Painting, &c. in 1698, gave a *Course of Architecture*, in *French*; being a Collection from all the celebrated Writers upon the Subject of the Orders, &c.—*Nich. Goldman*, in a Treatise *de Stylometris*, publish'd in Latin and High-Dutch, in the Year 1661, has done good Service, in reducing the Rules and Orders of *Architecture* to a further Degree of Perfection, and shewing how they may be easily delineated by means of certain Instruments invented by him.

Lastly, the *Elements of Architecture* are laid down by Sir *H. Wotton*—The same are reduced by *Sturmius*, and *Wolfius*, to certain Rules and Demonstrations; and thus is *Architecture* brought into the Form of a Mathematical Art; by the first, in his *Mathesis Juvenil.* and the second, in his *Elementa Matheseos*, Tom. II. *An.* 1715.

Military Architecture, is the Art of strengthening and fortifying Places, to screen them from the Insults of Enemies, and the Violence of Arms. See Fortified *Place*.

This we more usually call *Fortification*. See Fortification.

The Business of *Military Architecture*, is to erect *Forts*, *Castles*, and other *Fortresses*, with *Ramparts*, *Bastions*, &c. See Fortress, Rampart, Bastion, &c.

Naval Architecture, or *Ship-Building*; is that which teaches the Construction of *Ships*, *Galleys*, and other floating Vessels for the Water; with Ports, Moles, Docks, &c. on the Shore. See Vessel, Ship, Galley, Boat, &c. see also Mole, Dock, &c.

Architecture *in Perspective*, is a sort of Building, wherein the Members are of different Measures and Modules, and diminish in proportion to their Distance; to make the Work appear longer and larger to the View than really it is. See Perspective.

Such is the celebrated Pontifical Stair-case of the *Vatican*, built under Pope *Alexander* VII. by the Cavalier *Bernino*.

Counterfeit Architecture, is that which has its Projectures painted, either in Black or White, or coloured after the Manner of Marble; as is seen practised in the Facades and Palaces in *Italy*, and in the Pavilions of *Marly*.

This Painting is made in Fresco, upon plaister'd Walls; and in Oil, on Walls of Stone. See Painting and Fresco.

Under the Name of *Counterfeit Architecture*, which we otherwise call *Scene-Work*, is likewise comprehended, that painted on slight Boards or Planks of Wood, whereon the Columns, Pilasters, and other Parts of Building, seem to stand out, with a *Relievo*; the whole being coloured in imitation of various Marbles, Metal, &c. and serving in the Decorations of Theaters, triumphal Arches, Publick Entries, Funeral Pomps, &c.

ARCHITRAVE, in Building, that part of a Column, or Order of Column, which lies immediately upon the Capital. See Order and Capital.

The *Architrave* is the lowest Member of the Frieze, and even of the whole Entablature. See Frieze and Entablature.

The *Architrave* is supposed to represent the principal Beam in Timber Buildings; whence the Name, which is form'd of the Greek ἀρχὴ, chief; and the Latin *Trabs*, Beam. See Beam, &c.

The *Architrave* is different in the different Orders—In the *Tuscan* it only consists of a plain Face, crown'd with a Fillet; and is half a Module in Height. See Face, Tuscan, &c.

In the *Dorick* and *Composite*, it has two Faces, or Fasciæ; and three in the *Ionick* and *Composite*; in which last Order it is $\frac{10}{12}$ of a Module high, tho' but half a Module in the rest. See Fascia, Doric, Corinthian, &c.

Architects, however, take a deal of Latitude in this Part; some using more Members than others; and many of them having two or three Forms of *Architraves*. What we give is after *Vignola*.

Architrave is sometimes also called the *Reason-piece*, or *Master-beam* in Timber-Buildings, as Porticos, Cloisters, &c. In Chimneys it is called the *Mantle-piece*; and over the Jambs of Doors, or Lintels of Windows, *Hyperthyron*. See Mantle, &c.

The *Greek*, call it the *Epistyle*. See Epistyle.

Architrave-*Doors*, are those which have an *Architrave* on the Jambs and over the Door; upon the Cap-piece, if strait, or on the Arch, if the Top be curved. See Door, Jamb, &c.

Architrave-*Windows*, of Timber, are commonly an *Ogee* rais'd out of the solid Timber, with a List over it; tho' sometimes the Mouldings are struck and laid on; and sometimes are cut in Brick. See Window.

The upper Fascia is called the *Header*, or *heading Architrave*; and the lower the *Jac*.

ARCHETYPE. See Archetype.

ARCHIVAULT, in Architecture, the inner Contour of an Arch; or a Band or Frame adorned with Mouldings, running over the Faces of the Arch-Stones, and bearing upon the Imposts. See Arch, Vault, Impost, &c.

It is different in the different Orders—In the *Tuscan*, it has only a single Face; two Faces crown'd, in the *Dorick* and *Ionick*; and the same Mouldings with the Architrave in the *Corinthian* and *Composite*.

The Word is *French*, *Archivolte*, where it signifies the same thing.

ARCHIVE, or Archives, a Chamber wherein the Records, Charters, and other Papers and Evidences of a House, or Community, are preserved. See Record, Paper, &c.

Thus we say the *Archives* of a College, of a Monastery, &c.

The *Archives* of antient *Rome*, were in the Temple of *Saturn*; and the *Archives* of *Chancery* are in the *Rolls-Office*. See Chancery, Rolls, &c.

The Code calls *Archivum publicum, vel Armarium publicum ubi acta & Libri exponebantur. Code de fid. Instrum. Auth.* & xxx. q. 1.

The Word comes from the Latin *Arca*, (*quod arceat Visum*) a Chest or Coffer; or the Greek ἀρχαῖον, which *Suidas* uses in the same Sense. In some Latin Writers we read *Archarium*.

ARCHNOIDES, Arachnoides, or Aranea *Tunica*. See Arachnoides.

ARCHON, in Antiquity, a chief Magistrate of *Athens*.

After the *Athenians* had abolished Monarchy, they created *Archons*, who were obliged to render an Account of their Administration.

Some of these were annual, and others perpetual; *Medon*, the Son of *Codrus*, was the first of those; and *Creon* of these.

The Occasion of their Institution was this: *Codrus*, King of *Athens*, having devoted himself, for the good of his People, in the War with the *Heracliдæ*; his Sons, *Medon* and *Nileus*, disputed the Crown betwixt them: The *Athenians* took this Occasion of dissolving their Monarchy, and in lieu of Kings, created perpetual Governors, under the Name of *Archons*.—*Medon*, Son of *Codrus*, was he who first had this Charge, and his Descendants enjoy'd it for a long Succession of Years. But a perpetual Magistracy, seem'd to this free People, too lively an Image of Royalty, the very Shadow whereof they were resolved to abolish.—Accordingly, the Administration of an *Archon*, which had before been perpetual, they now reduced to ten Years; and some time after, to one; with a View of recovering, as oft as possible, the Authority into their own Hands, which they never transferr'd to the Magistrates, but with Regret.

There were thirteen perpetual *Archons*, and seven decennial; the first whereof was established in the 24th Olympiad.

Under the *Roman* Emperors, several *Greek* Cities had two *Archons*, for chief Magistrates, which were the same with the *Duumviri* in the Colonies and *Municipia*. See Duumvir.

The Name *Archon* is also applied by some Authors to divers Officers both civil and religious, under the Eastern or *Greek* Empire.—Thus Bishops are sometimes call'd *Archontes*; and the same may be said of the Lords of the Emperor's Court.

We also read of the *Archon of the Antimenses*, *Archon of Archons*, *Grand Archon*, *Archon of Churches*, *Archon of the Gospel*, *Archon of the Walls*, &c.

The Word comes from the Greek ἄρχων, which signifies a Commander, or one that governs.

ARCHONTICKS, Archontici, in Church-History, a Sect of Heretics, who arose towards the Close of the second Century. See Heretick.

They were thus called from the Greek Word ἀρχαὶ, *Principalities*, or *Hierarchies of Angels*; by reason they held the World to have been created by the Angels. See Angel, Hierarchy.

The *Archontici* were a Branch of *Valentinians*. See Valentinian.

ARCH-TREASURER, *Archithesaurarius*, the Great Treasurer of the *German* Empire. See Treasurer.

This Office was erected with the 8th Electorate, in favour of the Elector Palatine, who had lost his former Electorate, which was given to the Duke of *Bavaria*, by the Emperor *Ferdinand* II. who took it away from *Frederic* V. Elector *Palatine*, after the Battle of *Prague*, where he was defeated in maintaining his Election to the Crown of *Bohemia*. See Elector.

The Dignity of *Arch-Treasurer* is contested between the Elector of *Brunswic*, now King of *Great-Britain*, who claims it in Virtue of his Succession to the Elector *Frederic*; and the present Elector *Palatine*. See Palatine.

ARCTIC,

ARCTIC, Arctick, in Astronomy, an Epithet given to the North-Pole, or the Pole rais'd above our Horizon. See North, and Pole.

'Tis call'd the *Arctic* Pole, on occasion of the Constellation of the little Bear, in Greek call'd ἄρκτος; the last Star in the Tale whereof, nearly points out the North Pole. See Ursa *Minor*.

Arctick *Circle*, is a lesser Circle of the Sphere, parallel to the Equator, and 23° 30′ distant from the North-Pole; from whence its Name. See Circle and Sphere.

This, and its Opposite, the *Antarctick*, are call'd the two *polar Circles*; and may be conceived to be described by the Motion of the Poles of the Ecliptick, round the Poles of the Equator, or of the World. See Pole and Polar.

A-RE, or A-la-mire, one of the eight Notes in the Scale of Musick. See Note and Scale.

ARCTOPHYLAX, in Astronomy, a Constellation, otherwise call'd *Bootes*. See Bootes.

ARCTURUS, in Astronomy, a Star, of the Constellation *Arctophylax*, or *Bootes*. See Bootes.

The Word is form'd of ἄρκτος, Bear, and οὐρά, Tail, *q. d. Bear's Tail*; as being very near it.—

It rises on the first Day of *September*, and sets on the 13th Day of *May*; and has been supposed rarely to appear without bringing some Storm. See Star.

ARCTOS, Arctus, in Astronomy, a Name given by the *Greeks* to two Constellations of the northern Hemisphere; by the *Latins* called *Ursa* major and minor; and by us the greater and little *Bear*. See Ursa *major* and *minor*.

Arcuation, is used by some Writers in Surgery, for the large Cap of the Bones; as in the Case of Rickets, &c. See Bone, Rickets, &c.

Arcuation, in Gardening, is the raising of Trees by Layers. See Tree, Nursery, &c.

This, *Switzer* observes, is now the general Method of raising such Trees as can't be raised from Seed, or that bear no Seed; as Elm, Abele, Lime, Alder, Sallows, &c. See Seed, Planting, &c.

The first Thing here done, is to procure large strong Mother-Plants, which the Author calls *Stools*. These being planted in a Trench, will throw out twenty, thirty, forty, or fifty Plants a-piece; which may be begun to lay about *Michaelmas* following; at which Time, if the Stools have been carefully managed, they will have shot five, six, or more main Branches out of the Root, and on every one of these, as many side or collateral Branches.

These main Branches are to be bent down to the Ground, and when thus laid quite round the Stool, and pegged fast down, the small ones may be serv'd in the same manner. Thus the main Branches are to be cover'd over, all except the Top; and the small, or Side-Branches, to be cover'd over two or three Inches thick upon the Joints. This done, they may be treaded to make them take Root the better.

About the Middle of *September* they may be opened; when it is probable they will have taken Root: Otherwise, they may lie till next Spring; then taking them up, plant them in the Nursery. See Nursery.

ARDENT, Ardens, something hot, and, as it were, burning. See Heat and Burning.

The Word is form'd of the Latin *Ardere*, to burn.

Ardent *Fever*, is a violent burning Fever. See Fever.

AREA, properly denotes any plain Surface whereon we walk. See Surface.

The Word is *Latin*, and originally signifies a *Thrashing-Floor*; form'd of the Verb *Areo*. See Thrashing.

Area, in Matters of Building, signifies the Extent of the Floor. See Floor.

Area, in Geometry, denotes the Compass or superficial Content of any Figure. See Figure and Content; see also Superficies.

Thus if a Figure, *c. gr.* a Field, be in Form of a Square, and its Side be 40 Foot long, its *Area* is said to be 1600 square Feet, or contains 1600 little Squares, each a Foot every Way. See Square and Measure.

Hence, to find the *Area* of a *Triangle*, *Square*, *Parallelogram*, *Rectangle*, *Trapezium*, *Rhombus*, *Polygon*, *Circle*, or other Figure, is to find the Magnitude or Capacity thereof in square Measures—To do which, *see under the Articles* Triangle, Square, Parallelogram, Rectangle, Trapezium, Rhombus, Polygon, Circle, &c.

To find the *Area* of Fields, and other Inclosures; they first survey or take the Angles thereof, then plot them on Paper, and thus cast up their Contents in Acres, Roods, &c. after the usual manner of other plain Figures. See Surveying, Plotting, &c.

The Law by which the Planets move round the Sun, is this, that a Line or Radius drawn from the Centre of the Sun to the Centre of the Planet, always sweeps or describes Elliptic *Areas* proportional to the Times. Thus, the Sun being supposed in S, and a Planet in A, (*Tab. Astronomy, Fig.* 65.) and letting it proceed in any given Time, to B. In such Progress, its Radius A S, will have described the *Area* A S B. Suppose again, the Planet to be arrived to P; then the Elliptic Space P S D being drawn equal to the other A S B, the Planet will move thro' the Arch P D in the same Time as thro' the Arch A B. See Planet and Ellipsis.

Sir *I. Newton* demonstrates, that whatever Bodies do observe such Law in their Motions about any other Body, do gravitate towards such Body. See Gravitation, and Newtonian *Philosophy*.

Area, is also used in Medicine, for a Disease which makes the Hair fall. See Hair.

The *Area* is a general kind of Depilation, and is distinguished into two Kinds, *Alopecia* and *Ophiasis*. See Alopecia, &c.

ARENATION, among Physicians, a kind of dry Bath, when the Patient sits with his Feet upon hot Sand. See Bath, Balneum.

AREOLA, or Areola Mamillaris, in Anatomy, the Circle which surrounds the Nipple. See Breast.

ARETOLOGY, Aretologia, that part of moral Philosopher which treats of Virtue; its Nature, and the Means of arriving at it. See Virtue.

ARDENT *Spirits*, are those distill'd from fermented Vegetables; thus call'd because they will take Fire and burn. See Spirit, Distillation, and Fermentation.

Such are Brandy, Spirits of Wine, &c. See Brandy, &c.

ARDERS, are Fallowings or Plowings of Grounds.

ARDOR *Ventriculi*, a Heat in the Stomach, usually expressed by the Word Heart-burn, or Cardialgy. See Cardialgy, &c.

ARENA, among the *Romans*, sometimes signified the same with *Circus*, or *Amphitheatre*, viz. a Place where the Gladiators had their Combats. See Circus, Amphitheatre, &c.

But, properly speaking, *Arena* was only the Pit or Space in the Middle of those Places.—The *Arena* was the same thing with regard to the Gladiators, that the *Campus*, or Field, was to Soldiers and Armies, *viz.* the Place where they fought.—And he who fought in the *Arena* was called *Arenarius*. See Gladiator.

The Word is originally *Latin*, and signifies *Sand*, in regard the Place was always strew'd with Sand, to conceal from the View of the People, the Blood spilt in the Combat.

AREOPAGUS, in Antiquity, a celebrated Tribunal of the *Athenians*.

Some imagine the *Areopagus* the proper Name of a Court of Justice, situate on a Hill, in *Athens*; and that in this Court the Senate of that illustrious City assembled.—Others say that *Areopagus* was the Name of the whole Suburbs of *Athens*, wherein stood the Hill on which the Court was built: And the Name *Areopagus* seems to countenance this last Opinion; for it signifies literally, the *Hill* or *Rock* of *Mars*, from πάγος, Hill, and ἄρης, belonging to *Mars*. In effect, the Denomination might either arise hence, that the *Areopagus* was built in a Place where had been a Temple of *Mars*; or because the first Cause pleaded there, was that of this God, who was accused of killing *Neptune*; or else because *Mars* was there condemn'd for Adultery.

This Tribunal was in great Reputation among the *Greeks*; and the *Romans* themselves had so high an Opinion of it, that they trusted many of their difficult Causes to its Decision.

Authors are not agreed about the Number of the Judges who compos'd this august Court.—Some reckon thirty-one, others fifty-one, and others five hundred: In effect their Number seems not to have been fix'd, but was more or less every Year.—By an Inscription quoted by *Volateranus*, it appears they were then 300.

At first this Tribunal only consisted of nine Persons, who had all discharged the Office of Archons.—Their Salary was equal, and paid out of the Treasury of the Republick: They had three *Oboli* for each Cause.

The *Areopagites* were Judges for Life.—They never sat in Judgment but in the Night-time, to the Intent that their Minds might be more present and attentive, and that no Object, either of Pity or Aversion, might make any Impression upon them.—All Pleadings before them, were to be in the simplest and most naked Terms; without Exordium, Epilogue, Passions, &c. See Exordium, Epilogue, &c.

At first they only took Cognizance of criminal Causes, but in course of Time their Jurisdiction became of greater Extent. — Mr. *Spon*, who examined the Antiquities of that illustrious City, found some Remains of the *Areopagus* still existing, in the middle of the Temple of *Theseus*, which was heretofore in the middle of the City, but is now without the Walls.—The Foundation of the *Areopagus* is a Semicircle, with an Esplanade of 140 Paces around it, which properly made the Hall of the *Areopagus*. There is a Tribunal cut in the middle of a Rock, with Seats on each Side of it, where the *Areopagites* sat, expos'd to the open Air.

This Court is said by some to have been instituted by *Solon*; but others carry it much higher, and assert it to have been

been eſtabliſh'd by *Cecrops*, about the Time that *Aaron* died; *viz.* in the Year of the World 2553, maintaining withal, that *Solon* only made ſome new Regulations in it.—In effect, *Demoſthenes* himſelf, in his Oration againſt *Cteſiphon*, owns himſelf at a Loſs on the Point: *The Inſtitutors of this Tribunal*, ſays he, *whatever they were, whether Gods or Heroes.*

ARGOMETER, ARGOSTYLE, ARGOTICKS, } see { ARGOMETER, ARGOSTYLE, ARGOTICKS.

ARGAL, or ARGEL, hard Lees ſticking to the Sides of Wine-Veſſels; otherwiſe called *Tartar*. See TARTAR.

ARGENTUM *Album*, mentioned in Domeſday, ſignifies *Bullion*, or Silver uncoined. See BULLION.

In thoſe antient Days, ſuch paſſed as Money from one to another in Payment—*Sumitur pro ipſo hoc Metallo penſili non Signato.* Spelm. See SILVER and MONEY.

ARGENTUM *Dei*, *God's Penny*; antiently ſignified *earneſt Money*, or Money given to bind a Bargain; in ſome Places called *Erles*, or *Arles*. See EARNEST.

Et cepit de prædicto Henrico tres denarios de Argento *Dei prâ manibus.* See CONVENTION.

ARGEA, ARGÆA, or ARGEI, in Antiquity, human Figures made of Ruſhes, thrown annually by the Veſtals into the River *Tyber*, on the Day of the Ides of *May*. See VESTAL.

This Ceremony we learn from *Feſtus* and *Varro*; the latter of whom, however, ſays they were caſt by the Prieſts: Unleſs, by *Sacerdotibus*, we ſuppoſe he meant Prieſteſſes. He adds that the Number of Figures was thirty—

Plutarch, in his *Roman* Queſtions, enquires, Why they were called *Argea*? There are two Reaſons aſſigned: The firſt, that the barbarous Nation who firſt inhabited theſe Parts, caſt all the *Greeks* they could meet withal, into the *Tyber*; for *Argians* was a common Name for all *Greeians*: But that *Hercules* perſuaded them to quit ſo inhuman a Practice, and to purge themſelves of the Crime, by inſtituting this Solemnity—The ſecond, that *Evander*, an *Arcadian*, and a ſworn Enemy of the *Argians*, to perpetuate that Enmity to his Poſterity, order'd the Figures of *Argians* to be thus caſt into the River.—

ARGENT, in Heraldry, ſignifies the Colour White, uſed in the Coats of Gentlemen, Knights, and Baronets. See COLOUR and WHITE.

Barons and all Nobles have the white Colour call'd *Pearl*; and ſovereign Princes have theirs called *Luna*.

Without either this or *Or*, the Heralds ſay there can be no good Armory. See OR.

Argent is expreſſed in Engraving, by the Parts being left plain, without any Strokes from the Graver. The Word is French, derived from the Latin *Argentum*, Silver; this Colour being ſuppoſed the Repreſentation of that Metal: Whence the *Spaniards* call this Field *Campo de Plata*, a Silver Field.

In the doubling of Mantles, where the White is ſuppoſed to repreſent a Fur, and not a Metal, it may be blazon'd *White*.

ARGILLA, or ARGIL, a white Earth, like Chalk, but more brittle; of ſome Uſe in Phyſick. See EARTH, CHALK, *&c.*

The Word is ſometimes alſo uſed for Potters Earth, or Clay. See POTTERY, CLAY, *&c.*

ARGO, in Antiquity, a Ship or Veſſel celebrated among the Poets; being that wherein the *Argonauts* made their Expedition. See ARGONAUT.

The Criticks are divided about the Origin of the Name: Some will have it thus called from the Perſon who built it, *Argus*; others, from the Greek Word *Argos*, ſwift, as being a light Sailer; others, from the City *Argos*, where they ſuppoſe it built: Others, from the *Argives*, who went on board it, according to the Diſtich quoted from an antient Latin Poet by *Cicero*, in his firſt Tuſculan;

Argo, quia Argivi in ea Delecti Viri
Vecti, petebant pellem inauratam Arietis.

Ovid calls *Argo* a ſacred Ship, *ſacrâni conſcendis in Argum*; by reaſon, ſay ſome, that *Minerva* contrived the Plan, and even aſſiſted in the building thereof: Or rather, on account of a piece of Timber in its Prow, which ſpoke, and render'd Oracles—Several Authors make mention of the Piece of Timber, which is ſaid to have been hewn in the ſacred Foreſt of *Dodona*. See ORACLE and DODONEAN.

Jaſon having happily accompliſhed his Enterprize, conſecrated the Ship *Argo* to *Neptune*, in the *Iſthmus* of *Corinth*; where it did not remain long before it was tranſlated into Heaven, and made a Conſtellation. See CONSTELLATION.

The Generality of Authors repreſent the Ship *Argo* as of a long Make, reſembling the modern Gallies—The Scholiaſt of *Apollonius* obſerves, that it was the firſt long Veſſel ever made: And *Pliny* relates the ſame, after *Philoſtephanus*, who had affirmed, that *Jaſon* was the firſt that truſted out to Sea in a long Veſſel: *Longa Nave Jaſonem primum Navigaſſe, Philoſtephanus Auctor eſt. Hiſt. Nat.* l. c. 56. By a long Ship, it is to be obſerv'd, the *Greeks* underſtood a Ship of War, in oppoſition to Ships of Burthen, which were buiſt round.—See SHIP.

ARGO, or *Navis*, in Aſtronomy, is a Conſtellation of fixed Stars, in the Southern Hemiſphere. See STAR and CONSTELLATION.

The Stars in the Conſtellation *Argo*, in *Ptolomy*'s Catalogue, are 8; in *Tycho*'s 11; in the *Britannic* Catalogue 25; the Longitudes, Latitudes, Magnitudes, *&c.* whereof, are as follow:

Stars in the Conſtellation Argo *or* Navis.

Names and Situations of the Stars.		Longit.			Latitude			Mag.
Præced. under the Shield in the Stern	♋	29	10	21	47	26	26	3
Between the Sail and Lactea		24	57	46	30	30	11	3 4
	♌	0	38	10	46	46	34	6
Subſeq. under the Shield of the Stern	♋	27	26	26	35	18	03	6
5.	♌	1	34	22	49	14	58	4 5
South. in the Middle of the Stern	♋	27	32	40	35	09	13	6
	♌	1	45	40	46	05	27	5 6
North. in the Middle of the Stern		29	22	16	37	32	25	5
10.	♌	1	44	14	44	58	49	3 4
	♋	28	43	17	33	08	53	5 6
Præced. in the Top of the Stern		29	02	00	34	09	45	4
	♌	3	20	43	42	36	40	4
Præced. of two in the Yard		4	10	24	42	53	10	6
Subſeq. in the Top of the Stern		0	49	33	22	37	35	4
15.		7	05	31	41	18	24	3
Inform. under the Sail, *Tycho*		5	39	06	38	20	40	5
In the Sail, *Tycho*		4	46	09	35	26	03	6
		4	15	53	32	06	47	4 5
		5	44	40	34	44	10	5 6
20.		5	13	29	22	24	32	6
Subſeq. in the Yard		5	32	30	22	28	27	4 3
		5	46	09	22	30	10	6
In the Maſt, the loweſt of three, *Tycho*		13	39	49	32	55	23	6
In the Maſt, upper		11	13	00	24	28	45	5
Middle in the Maſt	♌	14	02	39	30	18	40	6
25.								

ARGONAUTS, in Antiquity, a Company of fifty-two or fifty-four Heroes, who embark'd along with *Jason*, in the Ship *Argo*, for *Colchos*; with a Design to obtain the golden Fleece. See ARGO and FLEECE.

Hercules, *Theseus*, *Castor*, *Orpheus*, &c. were of the Number of the *Argonauts*.

ARGONAUTS *of* St. *Nicholas*, was the Name of a military Order instituted by *Charles* III. King of *Naples*, towards the End of the 14th Century. See ORDER and KNIGHT.

They wore a Collar of Shells, enclosed in a Silver Crescent, whence hung a Ship with this Devise, *Non credo Tempori*, I don't trust Time. Hence these *Argonaut*-Knights came to be called *Knights of the Shell*. They received the Order of St. *Basil* Archbishop of *Naples*, and held their Assemblies in the Church of St. *Nicholas*, their Patron.—

ARGUMENT, ARGUMENTUM, in Philosophy, as defined by *Cicero*, is some probable Matter alledg'd to gain Belief. See PROBABILITY, BELIEF, &c.

Others, somewhat more scientifically, define *Argument*, a Medium, from whose Connection with two Extremes, the Connection of the two Extremes themselves is inferr'd. See MEDIUM and EXTREME.

Arguments are divided, with regard to their Source, into those fetch'd from Reason, and those from Authority. See REASON and AUTHORITY.

The Logicians also divide their *Arguments*, with regard to their Form, into *Syllogisms*, *Enthymemes*, *Inductions*, &c. See SYLLOGISM, ENTHYMEME, &c.

An *Argument* in Form, is a Syllogism made according to the strict Rules of Logick.—According to *Aristotle*, the Enthymeme is the *Argument* of Rhetoric, as the Syllogism is that of Logick.—Rhetoric is defined the Art of finding *Arguments* adapted to persuade, or gain Belief. See RHETORIC, INVENTION, PERSUASION, &c.

The Rhetoricians divide *Arguments* with respect to the Places they are drawn from, into *intrinsic* or *artificial*; and *extrinsic* or *inartificial*, or remote. See PLACE, AMPLIFICATION, &c.

The *first*, are the proper Invention of him who speaks; of which there are several Kinds, *viz. Definition*, *Distribution*, *Genus*, and *Species*, *Form*, *Similitude*, *Dissimilitude*, *Comparison*, *Repugnancy*, *Adjuncts*, *Antecedents*, *Consequents*, *Causes*, and *Effects*. See each in its Place, DEFINITION, DISTRIBUTION, GENUS, &c.

To these some add two other Places of *Argument*, viz. the *Manners*, and the *Passions*. See MANNERS and PASSIONS.

The *second*, are borrowed from abroad, and only applied by the Orator to the Point in hand; such are *Laws*, *common Report*, *Books*, *Oaths*, *Torture*, and *Witnesses*. See LAW, OATH, TORTURE, &c.

A late Author divides the Places or general Heads of *Arguments*, with regard to their End, into those intended to persuade or dissuade, which are chiefly drawn from the Considerations of *Profit*, *Honour*, and *Equity*: See PERSUASION.—Those intended to praise, or dispraise; see PANEGYRIC.—And those intended to accuse or defend; see ACCUSATION, DEFENCE, CONFUTATION, CONFIRMATION, VINDICATION, &c.

ARGUMENT is also a kind of Syllabus, or Abridgement of the Subject of a Book, History, Comedy, or the like.—We have almost lost the original Use of Prologues, which was to give the *Argument* of the Play. See PROLOGUE.

ARGUMENT, in Astronomy, is an Arch whereby we seek another unknown Arch proportional to the first. See ARCH.

ARGUMENT *of Inclination*, is an Arch of the Orbit, intercepted between the ascending Node, and the Place of the Planet from the Sun, number'd according to the Succession of the Signs. See INCLINATION.

ARGUMENT *of the Moon's Latitude*, is her Distance from the Node. See NODE.

The same Term is sometimes also used for the Distance of the Moon's true Place, from the Sun's true Place. See PLACE.

By this we find the Quantity of the real Obscuration in Eclipses, or how many Digits are darken'd. See ECLIPSE.

ARGUMENT *of the Moon's Menstrual Longitude*, is an Arch of her Eccentric, L. P. (*Tab. Astronomy*, Fig. 32.) intercepted between her true Place once equated L; and a right Line P Q. drawn thro' the Centre of the Eccentric B, parallel to the Menstrual Line of the Apsides.

The *annual Argument* of Longitude, is the Angle DAH.

ARGUMENTATION, the Act of inventing or framing *Arguments*; of making Inductions, and drawing Conclusions. See ARGUMENT, INDUCTION, CONCLUSION, &c. See also DISCOURSE, RATIOCINATION, &c.

Argumentation, according to *Cicero*, is the delivering, or unfolding of an *Argument*.—The Matter of *Argumentations*, is Propositions; the Form, their due Disposition with regard to one another. See PROPOSITION, SYLLOGISM, ENTHYMEME, and SORITES.

ARGYRASPIDES, in Antiquity, Persons arm'd with Silver Bucklers, or Bucklers silvered. See BUCKLER.

The *Argyraspides*, according to *Quintus Curtius*, Lib. iv. *c.* 13. made the second Corps of *Alexander*'s Army; the first were the Phalanx. See PHALANX.

According to *Justin*'s Account, *Lib.* xii. *c.* 7. *Alexander* having penetrated into *India*, and extended his Empire as far as the Ocean; for a Monument of his Glory, order'd the Armour of his Soldiers, and the Housings of his Horses, to be adorn'd with Silver: and hence commanded them to be called *Argyraspides*; from the Greek αργυρος, Silver, and ασπις, Buckler.

By this Author it should seem that *Alexander*'s whole Army was called *Argyraspides*—After that Princes Death, the *Argyraspides* despised all other Chief of the Army, disdaining to obey any other after having born Arms under *Alexander*.

ARGYROPÆA, in Alchymy, the Art of making Silver. See ALCHYMY and SILVER.

The Scope or Design of *Argyropæa* and *Chrysopæia*, is to make Gold and Silver. See CHRYSOPÆA, TRANSMUTATION, PHILOSOPHERS-*Stone*, &c.

The Word is formed of αργυρος, Silver, and ποιεω, I make. See POESY.

ARIANS, or ARRIANS, a Sect of Hereticks, the Retainers to *Arius*, and *Arianism*. See ARIANISM.

The *Arians* divided into a great Number of Parties and Factions, under different Denominations, who mutually condemn'd each other.—Such were the *Semi-Arians*, *Anomians*, *Exacontians*, *Eusebians*, *Photinians*, *Eudoxians*, *Acacians*, *Eunomians*, *Macedonians*, *Ælians*, *Psatyrians*, &c. See SEMI-ARIAN, ANOMIAN, EUSEBIAN, PHOTINIAN, EUDOXIAN, &c.

ARIANISM, or ARRIANISM, an antient Heresy in the Church, broach'd by *Arius*, in the beginning of the fourth Century. See ARIAN.

He denied that the Son was God consubstantial and coequal with the Father. He own'd that the Son was the Word, but denied that Word to have been eternal; asserting that it had only been created before all other Beings—See TRINITY, SON, FATHER, &c.

This Heresy was condemn'd in the first Council of *Nice* in 321; but notwithstanding that, was not extinguished: On the contrary, it became the reigning Religion, especially in the East, where it obtain'd much more than in the West.—At the Time of St. *Gregory Nazianzen*, the *Arians* were Masters of the Capital City of the Empire, and frequently upbraided the Orthodox with the Smallness of their Numbers. Accordingly that Father begins his 25th Oration against the *Arians*, thus: *Where are those who reproach us with our Poverty, and define the Church by the Multitude of People; despising the little Flock*, &c.

Arianism was carried into *Africa* under the *Vandals*; and into *Asia* under the *Goths*: *Italy*, the *Gauls*, and *Spain*, were also deeply infected with it. But having reigned 30 Years with great Splendor, it sunk almost all at once.

Erasmus seem'd to have aim'd, in some measure, to restore *Arianism*, at the beginning of the 16th Century; in his Commentaries on the New Testament: Accordingly, he was reproached by his Adversaries, with *Arian* Interpretations and Glosses, *Arian* Tenets, &c. To which he made little Answer, save that there was no Heresy more throughly extinct than that of the *Arians*: *Nulla Hæresis magis extincta quam Arianorum*.

But the Face of Things was soon changed: *Servetus*, a *Spaniard* by Nation, publish'd in 1531, a little Treatise against the Mystery of the Trinity; which once more set the Heresy of the *Arians* on foot in the West.—Indeed he rather shew'd himself a *Photinian*, than an *Arian*; only that he made use of the same Passages of Scripture, and the same Arguments against the Divinity of our Saviour, with the proper *Arians*. See SERVETIST.

'Tis true, *Servetus* had not, properly speaking, any Disciples; but he give occasion, after his Death, to the forming of a new System of *Arianism* in *Geneva*, much subtiler and more artful than his, and which did not a little perplex *Calvin*.—From *Geneva* the new *Arians* removed to *Poland*, where they gain'd considerable Ground; but at length degenerated, in great measure, into *Socinians*. See SOCINIAN.

The learned *Grotius* himself, seems to have bordered a little on *Arianism*, in his Notes on the New Testament; where he mounts the Father too high above the Son; as if the Father alone were supreme God, and the Son inferior to him even in respect of his Divinity. And yet 'tis rather the Doctrine of the *Semi-Arians*, than of the *Arians*, that he seems to give into.—In *England*, the Progress of *Arianism*, or rather *Eusebianism*, is too recent, to need a Detail.

ARIETATION. See EARTHQUAKE.

ARIETUM *Levatio*, an antient kind of sportive Exercise; by Tilting, or running at the Quintain. See QUINTAIN.

ARIES, in Astronomy, the *Ram*; a Constellation, or Sign of the Zodiac. See SIGN, CONSTELLATION, and ZODIAC.

The Stars in the Constellation *Aries*, in *Ptolomy*'s Catalogue, are 18; in *Tycho*'s, 21; in the *Britannic* Catalogue 65; the Longitudes, Latitudes, Magnitudes, &c. whereof, are as follow:

Stars in the Constellation Aries.

	Longit.	Latit.	Mag.
Names and Situations of the Stars.	♈ 26 58 25	11 04 58	7 6
	26 48 15	9 01 26	7 6
	26 49 04	5 23 59	7 6
Preced. Star in the Horn	28 51 00	7 08 58	4
Subseq. and more northern (Star in the Horn	29 37 59	8 28 16	3
	♉ 0 54 20	10 57 12	
In the Neck	♈ 29 10 57	5 26 12	6
In the Crown of the Head	♉ 1 22 15	10 47 47	5
	3 26 14	12 31 52	6 7
10.	4 02 12	12 04 02	6
That under the Lucida	♉ 2 55 08	9 13 29	6
Informis over the Head	3 19 18	9 57 12	2
	4 40 46	12 05 32	6
	2 43 49	5 56 58	6
15.	5 03 50	11 57 02	8
In the Nose, the more North (of two	3 46 50	7 22 45	6
	3 25 14	6 08 45	7
	1 49 58	1 46 25	6 7
	5 59 35	11 27 44	6
20.	5 43 38	10 46 20	7.
In the Nose the more South	4 32 25	5 43 39	6
In the Extremity of the fore- (most Foot	4 41 59	5 27 23	7
	3 00 19	3 33 31	5
	3 30 53	4 09 43	7
25.	7 19 13	4 44 07	6 7
	6 41 33	2 40 42	6 7
	6 18 40	0 01 15	6 7
Informis, *alias* 16th of the Triangle	10 14 15	8 49 48	7
	6 20 07	2 44 12	5 6
The North. in the Loins	9 48 35	6 07 56	6
30			
Informis, *ali.* 17th of the Triang.	11 48 01	10 51 52	5
The South. in the Loins	9 59 55	4 01 56	6
Informis, *ali.* 18th of the Triang.	12 35 47	11 17 13	4
	9 45 08	1 44 43	7
In the preced. hind Knee	9 03 43	0 36 24	6
35			
	8 17 35	3 21 50	7
In Extrem. of the hind Foot, *alias* Ceti	7 37 07	5 34 50	4
Most northern of the Informes	14 00 55	12 28 08	4
	10 52 39	1 56 14	6
Brightest of the Informes	13 51 45	10 25 37	3
40.			
In the Leg	10 47 52	1 06 13	6
In the hindmost Knee	10 35 46	1 19 37	6
In the Thigh or Hip, the North	12 09 32	0 58 57	6
	12 32 11	1 28 58	6 7
The South	12 34 24	1 10 03	6
45.			
	13 42 08	3 34 37	6
In the Root of the Tail	14 10 09	4 08 01	5
al. 20th of the Triangle	16 13 53	8 51 55	7
	13 44 34	0 46 38	7
al. 21st of the Triangle	16 22 25	8 59 42	7
50.			
al. 22d of the Triangle	16 39 24	7 29 04	6
	15 03 56	0 16 22	7
	15 30 48	1 05 39	6 7
al. 23d of the Triangle	18 37 56	10 54 26	7
al. 24th of the Triangle	18 41 07	8 58 26	7 6
55.			
Foremost of the three in the Tail	16 30 18	1 47 34	4
The Middle	17 36 34	2 51 19	5
	20 19 17	8 32 08	7
	20 03 5	6 59 28	7
Last of the Tail	19 03 42	2 34 05	5
60.			
	20 56 50	8 45 05	6
The Middle	19 18 49	2 04 57	6
	20 39 45	5 51 39	6
The Third	19 41 15	2 02 52	7
65.	♉ 21 06 22	3 46 01	7

ARIES also denotes a *battering Ram*; being a military Engine much in use among the antient *Romans*, to batter and beat down the Walls of Places besieged. See MACHINE.

Of this there were two kinds; the one rude and plain, the other artificial and compound.—The former seems to have been no more than a great Beam, which the Soldiers bore in their Arms, and with one End of it, by main Force, assail'd the Walls.

The compound Ram is describ'd by *Josephus* thus: 'The 'Ram is a vast long Beam, like the Mast of a Ship, strength- 'ned at one End with a Head of Iron, something resem- 'bling that of a Ram, whence it took its Name. This is 'hung by the middle, with Ropes, to another Beam, which 'lies a-cross a couple of Posts; and hanging thus equally 'ballanced, is, by a great Number of Men, violently thrust 'forward, and recoil'd backwards; and so shakes the Wall 'with its Iron Head. Nor is there any Tower or Wall so 'thick or strong, as to resist the repeated Assaults of this 'forcible Machine.

M. *Felibien* describes a third sort of battering Ram, which run on Wheels; and was the most perfect and effectual of them all.

Vitruvius affirms, that the Ram was first invented by the *Carthaginians*, while they laid Siege to *Cadiz*: Theirs was the simple kind above-mentioned: *Pephasinenos* a *Tyrian*, contrived to suspend it with Ropes; and *Polydus*, the *Thessalian*, to mount it on Wheels, at the Siege of *Byzantium*, under *Philip* of *Macedon*.

The Engine opposed to the Ram, was called *Lupus*, the Wolf.—*Plutarch* tells us, that *Mark Anthony*, in the *Parthian* War, used a Ram of 80 Foot long; and *Vitruvius* assures us they were sometimes made 106, and sometimes 120 Foot long, to which, perhaps, the Force of the Engine was in great Measure owing.

The Ram was managed at once by a whole Century of Soldiers; so that it play'd continually, and without Intermission, being usually cover'd with a *Vinea*, to protect it from the Attempts of the Enemy. See VINEA.

ARISTA, in Botany, a long needle-like Beard, that grows out from the Husk of Corn, or Grass; called also the *Awn*. See CORN, &c.

ARISTARCHUS, in its original Greek, signifies, *good Prince*; but in its ordinary Use among the Learned, is understood of a very severe Critick; there having been a Grammarian of that Name, who criticiz'd on the Verses of the very best Poets. See CRITIC and CRITICISM.

Hence we derive the Titles of several Books; *Aristarchus Sacer*, *Heinsius*'s Notes on the New Testament; *Aristarchus Anti Bentleianus*, &c.

ARISTOCRACY, ARISTOCRATIA, a Form of political Government, where the supreme Power is lodg'd in the Hands of the *Optimates*, i. e. a Council or Senate composed of the principal Persons of a State, either in respect of Nobility, Capacity, or Probity. See GOVERNMENT and OPTIMATES.

The antient Writers of Politicks prefer this Form of Government to all others.—

The Republick of *Venice* is an *Aristocracy*. See REPUBLIC.

Aristocracy coincides with *Olygarchy*; which however, is more ordinarily used to signify a Corruption of an aristocratical State, where the Administration is in the Hands of too few. See OLYGARCHY.

The Word is derived from ἄριστος, *optimus*, and κρατέω, *impero*, I command, govern.

ARISTOLOCHIA, popularly call'd *Birthwort*; a medicinal Plant, used as an Ingredient in Treacle, &c. See THERIACA.

Cicero derives its Name from its Inventor *Aristolochus*; others, from its Virtues.—These last suppose it form'd from ἄριστος, *optimus*, and λοχεία, bringing forth young; in regard it is found of excellent Use in bringing down the Lochia, or Menses of Women newly deliver'd. See LOCHIA, &c.

There are four Kinds of *Aristolochia*, viz. the *round*, *long*, *rampant* or creeping, and the *slender*; but only the two former are used among us.—The *round* is of a sub-acrid aromatic Taste, found very common in *Languedoc*, *Spain*, and *Italy*: Its Root is of particular Use in facilitating Delivery, provoking the Menses, and bringing down the After-Birth; and is externally applied in vulnerary Tinctures, and in Waters for Gangrenes.

The *long Aristolochia* likewise grows in *Languedoc*; its Root is used in Opiates, and in Tinctures for the Asthma, and to excite the Menses; its Decoction, in Lotions, to facilitate the Delivery of the After-birth, &c.

Besides these, there are several other Kinds of *Aristolochia* in *America*; one particularly in *Virginia*, whose Roots are used against the Bites of venemous Beasts, in malignant Fevers, and the Small-Pox.—Its alexipharmachick Virtue has occasion'd it to be called *Viperinum Virginiæ*.

ARISTOTELIAN, something that relates to *Aristotle*.—Thus we say the *Aristotelian* Philosophy, an *Aristotelian* Dogma, &c.

The Philosopher from whom the Denomination arises, was the Son of *Nicomachus*, born in the Year of the World 3670, at

at *Stagyra*, a Town of *Macedonia*; whence he is also called the *Stagyrite*.

At 17 Years of Age he entred himself a Disciple of *Plato*, and attended in the Academy 20 Years. See ACADEMY.

Being then sent on an Embassy from the *Athenians* to King *Philip*, he found, at his Return, that *Xenocrates*, during his Absence, had put himself at the Head of the Academic Sect; upon which he chose the *Lyceum* for the future Scene of his Disputations. See LYCEUM.

It being his Practice to philosophize Walking, he got the Appellation *Peripateticus*; whence his Followers were also called *Peripateticks*.—Tho' others will have him to have been thus named from his attending on *Alexander* at his Recovery from an Illness, and discoursing with him as he walked about. See PERIPATETIC.

He was a Person of admirable Genius, and of great and various Learning: *Averroes* makes no Scruple to call him 'the Genius of Nature, the Limit of human Understanding; and declares him 'sent by Providence to teach us all that 'may be known'—He is accused of a too immoderate Desire of Fame, which led him to destroy the Writings of all the Philosophers before him, that he might stand singly and without Competitors. And hence, in the Schools, *Aristotle* is called *The Philosopher*.

Laertius, in his Life of *Aristotle*, enumerates his Books, to the Number of 4000; of which scarce above 20 have survived to our Age: They may be reduced to five Heads; the first, relating to Poetry and Rhetoric; the second, to Logicks; the third, to Ethicks and Politicks; the fourth, to Physicks; and the fifth, to Metaphysicks. In all which, as there are many Things excellent and invaluable, particularly what relates to Poetry, Rhetoric, and the Passions; so there are others, in the other Parts, which the Improvements of later Ages have taught us to explode and despise. —See ARISTOTELIAN *Philosophy*.

ARISTOTELIAN *Philosophy*, the Philosophy taught by *Aristotle*, and maintained by his Followers. See PHILOSOPHY.

The *Aristotelian* is otherwise called the *Peripatetick Philosophy*; the Rise and Fate whereof, see under the Article PERIPATETIC *Philosophy*.

ARISTOTELIANS, a Sect of Philosophers, otherwise called *Peripateticks*. See ARISTOTELIAN and PERIPATETICK.

The *Aristotelians* and their Dogma's prevail to this Day, in the Schools; malgre all the Efforts of the *Cartesians*, *Newtonians*, and other *Corpuscularians*. See SCHOOL, NEWTONIAN, CARTESIAN, CORPUSCULAR, *&c.*

The Principles of *Aristotle*'s Philosophy, the Learned agree, are chiefly laid down in his four Books *de Cœlo*; his 8 *Books of Physicks*, belonging rather to Logicks, or Metaphysicks, than to Physicks.—To give an Idea, then, of *Aristotelianism*, the reigning System of many Ages; and shew *Aristotle*'s Method of Philosophizing; we cannot do better than produce a Specimen of the Work.

Those four Books he entitles, *de Cœlo*, because the Heavens are the chief of the simple Bodies he treats of. He begins with proving that the World is perfect, which he does thus—All Bodies, says he, have three Dimensions; they can't have more, for the Number three, according to *Pythagoras*, comprehends all: Now the World is the Assemblage of all Bodies, therefore the World is perfect.

In the second Chapter, he lays down certain Peripatetic Axioms; as—that all natural Bodies have of themselves a Power of moving; that all local Motion is either Rectilinear, Circular, or composed of the two; that all simple Motions are reducible to three, the Motion of the Centre, the Motion towards the Centre, and the Motion about the Centre: That all Bodies are either simple or compounded; simple are those which have some Power within themselves, whereby they move, as Fire, Earth, *&c.* Compound are such as receive their Motion from those others whereof they are compounded.

From these Principles he draws several Consequences:

A circular Motion, says he, is a simple Motion: But the Heavens move in a Circle; therefore the Motion of the Heavens is simple: But a simple Motion can only belong to a simple Body; *i. e.* to a Body which moves by its own Force. Therefore the Heaven is a simple Body, distinct from the four Elements, which move in right Lines. This Proposition he likewise proves by another Argument, thus—There are two kinds of Motions, the one natural, the other violent; the circular Motion of the Heavens, therefore, is either the one or the other: If it be natural, the Heaven is a simple Body distinct from the four Elements, since the Elements don't move circularly in their natural Motion: If the circular Motion be contrary to the Nature of Heaven, either that Heaven must be some of the Elements, as Fire, or something else: But Heaven cannot be any of the Elements; *e. gr.* it cannot be Fire; for, if it were, the Motion of Fire being from below upwards, the Heaven would have two contrary Motions, the one circular, the other from below, upwards, which is impossible. Again; If the Heaven be any other thing which does not move circularly of its own Nature, it will have some other natural Motion, which likewise is impossible; for if it move naturally from below upwards, it will be either Fire or Air; if from above downwards, it will be Water or Earth; *ergo*, &c.—A third Argument is this—The first and most perfect of all simple Motions, must be that of a simple Body, especially that of the first and most perfect of all simple Bodies: But the circular Motion is the first and most perfect of all simple Motions, because every circular Line is perfect, and no right Line is so: For if it be finite, something may be added to it; if infinite, it is not perfect, because it wants an End, τέλος, and Things are only perfect when they are ended, τέλειος. Therefore, the circular Motion is the first and most perfect of all Motions; and therefore a Body which moves circularly is simple, and the first and most divine of simple Bodies. His fourth Argument is—That all Motion is either natural or not; and every Motion which is not natural to some Bodies, is natural to others: Now the circular Motion is not natural to the four Elements; there must, therefore, be some simple Body to which it is natural: Therefore the Heaven, which moves circularly, is a simple Body, distinct from the four Elements.—Lastly, the circular Motion is either natural or violent to any Body; if it be natural, it is evident this Body is one of the most simple and perfect; if it be not, 'tis strange this Motion should last for ever.—From all these Arguments, therefore, it follows, that there is some Body distinct from the circumambient ones, and which is of a Nature as much more perfect than they, as it is more remote. Such is the Substance of his second Chapter.

In the third Chapter, he asserts that the Heavens are incorruptible, and immutable; and the Reasons he gives for it, are—That they are the Abode of the Gods, that no Person has ever observ'd any Alterations in them, *&c.*—

In the fourth Chapter, he attempts to prove, that the circular Motion has no Contrary: In the 5th, that Bodies are not infinite: In the 6th, that the Elements are not infinite: In the 8th, he shews that there are not several Worlds of the same Kind, by this very good Argument; that as Earth is heavy by Nature, if there were any other Earth beside ours, it would fall upon our Heads, our Earth being the Centre, to which all heavy Bodies tend. In the 9th, he proves it impossible that there should be several Worlds, because if there were any Body above the Heavens, it must be either simple or compound, in a natural or a violent State; none of which is possible, for Reasons which he draws from the three Kinds of Motion above mentioned. In the 10th, he maintains that the World is eternal, because it is impossible it should have had any Beginning, and because it endures for ever. He employs the 11th in explaining the Notion of Incorruptibility; and in the 12th endeavours to shew that the World is incorruptible, because it could not have any Beginning, and because it endures for ever: All Things, says he, subsist either during a finite, or an infinite Space: But what is only infinite one Way, is neither finite nor infinite; therefore nothing can subsist in this Manner.

The Reader, we are of Opinion, will find this Taste of Peripateticism sufficient; otherwise, it had been easy to have given him his Fill. If he requires more, let him have Recourse to the Articles PRINCIPLE, ELEMENT, FORM, QUALITY, ACCIDENT, SYMPATHY, FUGA VACUI, ANTIPERISTASIS, *&c.*

It were needless to point out the particular Defects in the Specimen here laid down; 'tis easy to observe that the Principles are most of them false and impertinent, and the Reasonings absurd and inconclusive; but that the greatest part has no distinct Meaning at all.

Such is the Philosophy, and such the Method of philosophizing, of the *Genius of Nature*, the *Prince of Philosophers*, *Aristotle*.

ARITHMANCY, ARITHMANTIA, or ARITHMOMANCY, a kind of Divination, or Method of foretelling future Events, by means of Numbers. See DIVINATION and NUMBER.

The Word is compounded of ἀριθμος, Number, and μαντεια, Divination.

The Gematria, which makes the first Species of the Jewish Cabbala, is a sort of *Arithmancy*. See GEMATRIA and CABBALA.

ARITHMETIC, ARITHMETICA, the Art of Numbering; or, that Part of Mathematicks which considers the Powers and Properties of Numbers, and teaches how to compute or calculate truely, and with Expedition and Ease. See NUMBER, MATHEMATICKS, COMPUTATION, *&c.*

Some Authors chuse to define *Arithmetic*, the Science of discrete Quantity. See DISCRETE and QUANTITY.

Arithmetic consists chiefly in the four great Rules or Operations of *Addition*, *Substraction*, *Multiplication*, and *Division*. See each in its Place, ADDITION, SUBSTRACTION, MULTIPLICATION, and DIVISION.

'Tis true, for the facilitating and expediting of Computations, both Mercantile and Astronomical, divers other useful Rules have been contrived; as, the Rule of Proportion, of Alligation,

Alligation, of Falſe Poſition, Extraction of Square and Cube Roots, Progreſſion, &c.—— But theſe are only Applications of the firſt four Rules. See RULE; ſee alſo PROPORTION, ALLIGATION, POSITION, EXTRACTION, &c.

We have very little Intelligence about the Origin and Invention of *Arithmetic*; Hiſtory neither fixes the Author, nor the Time.—In all Probability, however, it muſt have taken its Riſe from the Introduction of Commerce; and conſequently, be of *Tyrian* Invention. See COMMERCE.

From *Aſia* it paſſed into *Ægypt*, (*Joſephus* ſays by means of *Abraham*.) Here it was greatly cultivated and improved; inſomuch, that a great part of their Philoſophy and Theology, ſeem to have turned altogether upon Numbers. Hence thoſe Wonders related by them about *Unity*, *Trinity*; the Numbers *Seven*, *Ten*, *Four*, &c. See UNITY, TRINITY, TETRACTYS, &c.

In effect, *Kircher*, in his *Oedip. Ægypt.* Tom. II. p. 2. ſhews, that the *Egyptians* explained every thing by Numbers; *Pythagoras* himſelf affirming, that the Nature of Numbers goes through the whole Univerſe; and that the Knowledge of Numbers is the Knowledge of the Deity. See PYTHAGORIAN.

From *Egypt* *Arithmetic* was tranſmitted to the *Greeks*, who handed it forward, with great Improvements, which it had received by the Computations of their Aſtronomers, to the *Romans*; from whom it came to us.

The antient *Arithmetic*, however, fell far ſhort of that of the Moderns: All they did was to conſider the various Diviſions of Numbers; as appears from the Treatiſes of *Nicomachus*, wrote in the third Century of *Rome*, and that of *Boethius*, ſtill extant. A Compendium of the antient *Arithmetic*, wrote in Greek, by *Pſellus*, in the ninth Century from our Saviour, was given us in Latin by *Xylander*, in 1556.—A more ample Work of the ſame Kind, was wrote by *Jordanus*, in the Year 1220; publiſh'd with a Comment by *Faber Stapulenſis* in 1480.

Arithmetic, under its preſent State, is variouſly divided, into various Kinds; *Theoretical*, *Practical*, *Inſtrumental*, *Logarithmical*, *Numerous*, *Specious*, *Decadal*, *Dynamical*, *Tetractycal*, *Duodecimal*, *Sexageſimal*, *Vulgar*, *Decimal*, *Finite*, *Infinite*, &c.

Theoretical ARITHMETIC, is the Science of the Properties, Relations, &c. of Numbers conſider'd abſtractedly; with the Reaſons and Demonſtrations of the ſeveral Rules. See NUMBER.

Euclid furniſhes a *Theoretical Arithmetic*, in the ſeventh, eighth, and ninth Books of his Elements.—*Bazlaamus Monachus* has alſo given a Theory for demonſtrating the common Operations, both in Integers and broken Numbers, in his *Logiſtica*, publiſh'd in Latin by *Chambers*, in 1600.—To which may be added *Lucas de Burgo*, who, in an Italian Treatiſe publiſh'd in 1523, gives the ſeveral Diviſions of Numbers from *Nicomachus*, and their Properties from *Euclid*; with the Algorithm, both in Integers, Fractions, Extractions of Roots, &c.

Practical ARITHMETIC, is the Art of Computing; that is, from certain Numbers given, of finding certain others whoſe Relation to the former is known—As, if a Number be required equal to two given Numbers 6 and 8.

The firſt entire Body of *Practical Arithmetic*, was given by *Nicho. Tartaglia* a *Venetian*, in 1556, conſiſting of two Books; the former, the Application of *Arithmetic* to civil Uſes; the latter, the Grounds of *Algebra*. Something had been done before by *Stifelius*, in 1544; where we have ſeveral Particulars concerning the Application of Irrationals, Coſicks, &c. no where elſe to be met withall.—

We omit other merely practical Authors which have come ſince, the Number whereof is almoſt infinite; as *Gemma Friſius*, *Metius*, *Wingate*, &c.

The Theory of *Arithmetic* is joined with the Practice, and even improved in ſeveral Parts, by *Maurolycus* in his *Opuſcula Mathematica*, 1575; *Heneſchius* in his *Arithmetica Perfecta*, 1609, where the Demonſtrations are all reduced into the Form of Syllogiſms; and *Tacquet* in his *Theoria & Praxis Arithmetices*, 1704.—

Inſtrumental ARITHMETIC, is that where the common Rules are performed by means of Inſtruments contrived for Eaſe and Diſpatch; ſuch are *Nepair's Bones*, deſcribed under their proper Article; Sir *Sam. Morland's* Inſtrument, the Deſcription whereof was publiſhed by himſelf in 1666; that of *M. Leibnitz*, deſcribed in the *Miſcellan. Berolin.* and that of *Polenus*, publiſh'd in the *Venetian* Miſcellany, 1709.—To theſe may be added,

Logarithmical ARITHMETIC, perform'd by Tables of Logarithms. See LOGARITHM.

The beſt Piece on this Subject, is *Hen. Briggs's Arithmetica Logarithmica*, 1624.

To this Head may alſo be added, the univerſal *Arithmetical Tables of Proſtaphæreſes*, publiſhed in 1610, by *Herwart ab Hohenburg*; whereby Multiplication is eaſily and accurately perform'd by Addition, and Diviſion by Subſtraction.—

The *Chineſe* have little Regard to any Rules in their Calculations; inſtead of which, they uſe an Inſtrument made of a little Plate, a Foot and half long, a-croſs which are fitted ten or twelve Iron Wires, on which are ſtrung little round Balls. By drawing theſe together, and diſperſing them again one after another, they count, ſomewhat after the Manner in which we do by Counters; but with ſo much Eaſe and Readineſs, that they will keep pace with a Man reading a Book of Accounts, let him make what Expedition he can: And at the End the Operation is ſound compleatly done; and they have their Way of proving it. See COMTE.

Numerous ARITHMETIC, is that which gives the Calculus of Numbers or indeterminate Quantities; and is performed by the common Numeral, or Arabic Characters. See ARABIC and CHARACTER.

Specious ARITHMETIC, is that which gives the Calculus of Quantities; uſing Letters of the Alphabet inſtead of Figures, to denote the Quantities. See SPECIOUS *Arithmetic*.

Specious *Arithmetic* coincides with what we uſually call *Algebra*. See ALGEBRA.

Dr. *Wallis* has joined the Numeral with the literal Calculus; and by means hereof, demonſtrated the Rules of Fractions, Proportions, Extractions of Roots, &c. A Compendium of which is given by Dr. *Wells*, under the Title of *Elements of Arithmetic*, An. 1698.

Decadal ARITHMETIC, is that performed by a Series of ten Characters, ſo that the Progreſſion is from 10 to 10—Such is the common *Arithmetic* among us, which makes Uſe of the ten Arabic Figures, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9; after which we begin 10, 11, 12, &c.

This Method of Computation is not very antient, being utterly unknown to the *Greeks* and *Romans*.—It was introduced into Europe by *Gerbert*, afterwards Pope, under the Name of *Sylveſter* II. who borrowed it from the Moors of *Spain*.—No doubt it took its Origin from the ten Fingers of the Hands, which were made uſe of in Computations before *Arithmetic* was brought into an Art.

The Eaſtern Miſſionaries aſſure us, that to this Day the *Indians* are very expert at computing on their Fingers, without any Uſe of Pen and Ink, *Lat. Edif. & Cur.*—Add, that the Natives of *Peru*, who do all by the different Arrangement of Grains of Maiſe, out-do any European, both for Sureneſs and Diſpatch, with all his Rules; *Savary Dict. de Com.*

Binary, or *Dyadic* ARITHMETIC, is that wherein only two Figures, Unity, or 1, and 0, are uſed. See BINARY *Arithmetic*.

M. *Dangicourt*, in the *Berlin* Miſcell. gives us a Specimen of the Uſe hereof in Arithmetical Progreſſions; where he ſhews, that the Laws of Progreſſion may be eaſier diſcovered hereby, than in any other Method where more Characters are uſed.

Tetractyc ARITHMETIC, is that wherein only the Figures 1, 2, 3, and 0, are uſed.

We have a Treatiſe of this *Arithmetic*, by *Erhard Weigel*: But both Binary and this are little better than Curioſities, eſpecially with regard to Practice; inaſmuch, as the Numbers may be much more compendiouſly expreſſed by Decadal *Arithmetic*, than by either of them.

Vulgar ARITHMETIC, is that converſant about Integers and Vulgar Fractions. See INTEGER and FRACTION.

Sexageſimal ARITHMETIC, is that which proceeds by Sixties; or, the Doctrine of Sexageſimal Fractions. See SEXAGESIMAL.

Sam. Reyher has invented a Kind of Sexagenal Rods, in Imitation of *Nepair's* Bones; by means whereof the Sexagenary *Arithmetic* is eaſily performed.

Decimal ARITHMETIC, is the Doctrine of Decimal Fractions. See DECIMAL FRACTION.

Political ARITHMETIC, is the Application of *Arithmetic* to Political Subjects; as, the Strength and Revenues of Princes, Number of Inhabitants, Births, Burials, &c. See POLITICAL *Arithmetic*.

ARITHMETIC *of Infinites*, is the Method of ſumming up a Series of Numbers conſiſting of infinite Terms; or of finding the Ratio's thereof. See INFINITE, SERIES, &c.

This Method was firſt invented by Dr. *Wallis*; as appears from his *Opera Mathematica*, where he ſhews its Uſe in Geometry, in finding the Areas of Superficies, and the Contents of Solids, and their Proportions.—But the Method of Fluxions, which is an univerſal *Arithmetic* of Infinites, performs all this much eaſier; and Multitude of other Things which the former will not reach. See FLUXIONS, CALCULUS, &c.

ARITHMETIC *of Rationals* and *Irrationals*. See RATIONAL, &c.

ARITHMETICAL *Complement*, of a Logarithm, is what the Logarithm wants of 10.0000000. See COMPLEMENT.

Thus

Thus the *Arithmetical* Complement of 7.1079054, is 2.8920946; where each Figure, but the last, is subtracted from 9; and that from 10. See LOGARITHM.

ARITHMETICAL *Progression*, ARITHMETICAL *Proportion*, ARITHMETICAL *Medium* or *Mean*, } See { PROGRESSION. PROPORTION. MEDIUM.

ARK, or ARC, or *Arch*, *Arcus*, in Geometry, Astronomy, &c. See ARCH.

ARK, ARCA, in the Scripture-Language, a kind of floating Vessel built by *Noah*, for the Preservation of the several Species of Animals, from the Deluge. See DELUGE.

The *Ark* has afforded several Points of curious Enquiry among the Criticks and Naturalists, relating to its Form, Capacity, Materials, Time of Building, &c.

Noah is computed to have been an hundred Years in building the *Ark*, viz. from the Year of the World 1557, to the Flood, which happen'd in the Year 1656: At least, this is the common Opinion of the Learned. *Origen*, lib. iv. *Contra Cels. S. August. de Civit Dei*, lib. xv. c. 27. and *Contra Faustin.* lib. xii. c. 18. And in his *Quest.* on *Gen.* v. and xxiii. *Rupert.* lib. iv. in *Gen.* xx. assert as much; and are followed by *Salian*, *Torniel*, and *Spondeus*.—*Pelletier* of *Rouen* declares himself of the same Opinion, in an express Dissertation, *De Arca Noæ*, printed in 1700.

Yet *Berosus* affirms, that *Noah* only began to build the *Ark* 78 Years before the Flood: *Salomon Jarchi*, on the other hand, will have it 120 Years in building; and *Tanchuma* only 52. See the Texts, *Gen.* v. 35. *Gen.* vi. &c.

Fa. *Fournier*, in his *Hydrography*, gives into the Opinion of the Fathers; noting, that the only Hands employed in it were *Noah* and his three Sons. To this Purpose he alledges the Instance of *Archias* of *Corinth*, who, with the Help of 300 Workmen, built *Hiero*'s Great Ship in one Year. Add, that *Noah*'s eldest Son was not born till about the Time when the *Ark* was begun, and the younger, after; so that it was a long Time ere they could do their Father any Service.—However, for so large a Building, a prodigious Number of Trees must have been required, which would employ a great Number of Workmen to fell and hew; Were it possible for three Men to have lain them?

The Wood whereof the *Ark* was built, is called in Scripture גֹפֶר עֵצֵי, *etsé gopher*, *Gopher Wood*: And in the LXX. ξυλα τετραγωνα, square Timbers. *Onkelos* and *Jonathan* render *Gopher* by קְרוֹם, *Kedros*, Cedar: St. *Jerom*, in the Vulgate, by *Ligna Lævigata*, Planed Wood; and elsewhere, *Ligna Bituminata*, q. d. Pitch'd Woods. *Kimhi* translates it, *Wood proper to float*; Vatable, *Light Wood*, which swims in the Water without corrupting: *Junius*, *Tremellius*, and *Buxtorf*, a kind of Cedar, by the *Greeks* called Κεδρελατη; *Avenarius* and *Munster*, Pine; *Fuller* and *Bochart*, Cypress; others, *Box*; others, *Fir*; *Castalio*, Turpentine, &c.—*Pelletier* prefers the Opinion of those who hold the *Ark* made of Cedar: His Reasons are, the Incorruptability of that Wood; the great Plenty thereof in *Asia*, whence *Herodotus* and *Theophrastus* relate, that the Kings of *Egypt* and *Syria* built whole Fleets thereof, in lieu of Deal; and the common Tradition throughout the East, imports, that the *Ark* is preserved entire to this Day on Mount *Ararat*.

The Dimensions of the *Ark*, as delivered by *Moses*, are 300 Cubits in Length, 50 in Breadth, and 30 in Height; which, compared with the great Number of Things it was to contain, seems to many too scanty. And hence an Argument has been drawn against the Authority of the Relation.

To solve this Difficulty, many both of the antient Fathers and later Criticks, have been put to miserable Shifts.—*Origen*, St. *Augustin*, and others, maintain, that by the Cubits here spoke of, we are to understand the *Egyptian* Geometrical Cubit, equal, according to them, to 6 vulgar Cubits, or 9 Foot. But the Truth is, it does not appear there ever was any such Measure as a Geometrical Cubit either among *Egyptians* or *Jews*.—Others account for it, by asserting the Stature of Mankind, in the first Ages, to have been much greater than in our Days; and consequently the Cubit, which is taken from a Part of the human Body, proportionably larger. But this does not avail, since the same Reason will infer an equal Augmentation of other Animals.—Others suppose the sacred Cubit here spoke of, which was a Hand's-breadth longer than the civil one: But this only affords a small Supply; beside, that the sacred Cubit does not appear to have been ever used, except in sacred Edifices, as the Temple and Tabernacle.

This Difficulty is much better solved by *Buteo* and *Kircher*, in Treatises express, *de Arca Noæ*, wherein, supposing the common Cubit of a Foot and an half, they prove geometrically, that the *Ark* was abundantly sufficient for all the Animals supposed to be lodged therein.—*Snellius* computes the *Ark* to have been above half an Acre in Area: *Cuneus*, *Buteo*, and others, have also calculated the Capacity of the *Ark*. Father *Lamy* shews that it was 110 Foot longer than the Church of St. *Mary* of *Paris*, and 64 Foot narrower; to which his *English* Translator adds, that it must have been longer than St. *Paul*'s Church in *London*, from West to East, broader than that Church is high in the Inside, and about 54 Foot in Height, our Measure.

The Things contained in it were, one Pair of every Species of unclean Animals, and seven Pair of every Species of clean Animals, with Provisions for them all, during the whole Year.—The former appears at first View almost infinite, but if we come to a Calculus, the Number of Species of Animals will be found much smaller than was imagined, not amounting to 100 Species of Quadrupeds, nor 200 of Birds; out of which, in this Case, are to be excepted such Animals as can live in the Water.—Zoologists usually reckon but 170 Species in all; and Bishop *Wilkins* shews, that only 72 of the quadruped Kind needed a Place in the *Ark*.

By the Description *Moses* gives of the *Ark*, it appears to have been divided into three Stories, each 10 Cubits, or 15 Foot high: And it is agreed on, as most probable, that the lowest Story was destined for the Beasts, the middle for the Food, and the upper for the Birds, with *Noah* and his Family; each Story being subdivided into different Apartments, Stalls, &c.—Tho' *Josephus*, *Philo*, and other Commentators, add a kind of fourth Story, under all the rest; being as it were, the Hold of the Vessel, to contain the Ballast, and receive the Filth and Fæces of so many Animals.

Drexelius makes 300 Apartments, Father *Fournier* 333, the anonimous Author of the Questions on *Genesis*, 400: *Buteo*, *Temporarius*, *Arias Montanus*, *Hostus*, *Wilkins*, *Lamy*, and others, suppose as many Partitions as there were different Sorts of Animals.—*Pelletier* only makes 72, *viz.* 36 for the Birds, and as many for the Beasts: His Reason is, that if we suppose a greater Number, as 333 or 400; each of the eight Persons in the *Ark* must have had 37, 41, or 50 Stalls to attend and cleanse daily, which he thinks impossible. But there is not much in this; to diminish the Number of Stalls, without a Diminution of the Animals, is vain; it being, perhaps, more difficult to take care of 300 Animals in 72 Stalls, than in 300.

Buteo computes, that all the Animals contained in the *Ark*, could not be equal to 500 Horses; he even reduces the whole to the Dimensions of 56 Pair of Oxen. Father *Lamy* enlarges it to 64 Pair, or 128 Oxen; so that supposing one Ox equal to two Horses, if the *Ark* had Room for 256 Horses, there must have been Room for all the Animals. But the same Author demonstrates, that one Floor would suffice for 500 Horses, allowing 9 square Feet to an Horse.

As to the Food in the second Story, it is observed by *Buteo* from *Columella*, that 30, or 40 Pounds of Hay ordinarily suffices an Ox for a Day; and that a solid Cubit of Hay, as usually pressed down in our Hay-racks, weighs about 40 Pound; so that a square Cubit of Hay is more than enough for one Ox one Day.—Now it appears that the second Story contains 150000 solid Cubits, which divided between 206 Oxen, will afford each more Hay by two thirds, than he can eat in a Year.—

Bishop *Wilkins* computes all the carnivorous Animals equivalent, as to the Bulk of their Bodies and their Food, to 27 Wolves; and all the rest to 280 Beeves. For the former he allows 1825 Sheep, and for the latter 109500 Cubits of Hay: All which will be easily contained in the two first Stories, and a deal of Room to spare.—As to the third Story, no Body doubts of its being sufficient for the Fowls, with *Noah* his Sons and Daughters.—

Upon the whole, the learned Bishop remarks, that of the two, it appears much more difficult to assign a Number and Bulk of necessary Things to answer the Capacity of the *Ark*, than to find sufficient Room for the several Species of Animals already known.—This he attributes to the Imperfection of our Lists of Animals, especially those of the unknown Parts of the Earth; adding, that the most expert Mathematician at this Day, could not assign the Proportions of a Vessel better accommodated to the Purpose, than is here done; and hence concludes, that 'the Capacity of the 'Ark which had been made an Objection against Scripture, 'ought to be esteemed a Confirmation of its divine Au'thority; since, in those ruder Ages, Men being less versed 'in Arts and Philosophy, were more obnoxious to vulgar 'Prejudices than now; so that had it been an human Inven'tion, it would have been contrived according to those wild 'Apprehensions which arise from a confused and general 'View of Things; as much too big, as it has been repre'sented too little.—

ARK *of the Covenant*, in Scripture, is used for a kind of Chest, wherein where kept the two Tables of Stone, whereon God had ingraven the ten Commandments given to *Moses* on the Mount, and held in high Veneration among the *Hebrews*. See COVENANT.

The *Ark* was taken by the *Philistines*, and returned with divers Presents.—It was at first placed in the Tabernacle, afterwards in the Sanctuary of the Temple. See TABERNACLE, TEMPLE, and SANCTUARY.

Josephus describes it at 5 Palms long, 3 broad, and as many high; the Wood, both within Side and without, lined with Plates of Gold, and fitted with golden Hinges.—The Lid or Covering of the *Ark* was called the *Propitiatory*, over which were two Figures placed called *Cherubim*, a kind of Spirits with Wings of a peculiar Form never seen but by *Moses* before the Throne of God. It may be added that some Criticks take the Word *Cherub*, כרוב, to be only a Transposition of the Hebrew Letters of the Word רכוב, *Rechub*, *Chariot*; and that by the *Cherubim being placed over the Ark*, we are only to understand that the *Ark* was a sort of Chariot, on which God sate. See PROPITIATORY, CHERUB, *&c.*

The *Jews* to this Day, have a kind of *Ark* in their Synagogues, wherein their sacred Books are reposited, in imitation of the antient *Ark* of the Covenant.—This they call *Aron*. *Leo* of *Modena* gives a Description thereof, in his Account of the *Customs and Ceremonies of those of his Nation*: 'The *Jews*, says he, in the eastern Side of all their 'Synagogues, have an *Ark*, or Armory, called *Aron*; in 'Memory of the *Ark* of the Covenant. In this are preser-'ved the five Books of *Moses*, wrote on Vellum, with Ink 'made on Purpose, *&c.*

Tertullian calls this Ark, *Armarium Judaicum*; whence the Phrase, *to be in the Armory of the Synagogue*, q. d. to be in the Number of canonical Writings. See APOCRYPHA.

ARM, *Brachium*, a part of the human Body, terminating at one End in the Shoulder, and at the other in the Hand. See BODY, SHOULDER, *&c.*

Among Physicians, the *Arm* only includes that part between the Shoulder and the Elbow; the rest, from the Elbow to the Wrist, being taken into the greater Hand. See HAND.

The *Arm*, in this latter Acceptation, has only one large Bone, called the *Humerus*, or Shoulder-Bone. See HUMERUS.

It has five sorts of Motions, which are effected by five Pair of Muscles; upwards, by the *Deltoides*, *Supraspinatus*, and *Coracobrachialis*; downwards, by the *Teres*, *Rotundus major*, and *Latissimus Dorsi*; forwards, by the *Pectoralis*; backwards, by the *Infraspinatus*; and circular, by the *Transversalis*, *Subscapularis*, and *Infraspinatus*. See each Muscle described under its proper Article.

The other Part consists of two Bones, called *Focils*; viz. the *Radius* and *Cubitus*, or *Ulna*. See FOCIL, RADIUS, and ULNA.

The Muscles whereby this Part are moved, are the *Biceps*, *Brachiæus Internus*, *Gemellus*, *Brachiæus Externus*, *Anconæus*, *Pronator Radi teres*, and *Quadratus*; *Supinator Longus*, & *Brevis*. See each in its Place.

The usual Venæsections are in the *Arm*. See PHLEBOTOMY, *&c.*

ARM, in the Manage, is applied to a Horse, when he endeavours to defend himself against the Bit; to prevent obeying, or being check'd thereby.

A Horse is said to *arm* himself, when he presses down his Head, and bends his Neck, so as to rest the Branches of the Bridle upon his Brisket; in order to withstand the Effort of the Bit, and guard his Bars and his Mouth.

A Horse is said to *arm* himself *with the Lips*, when he covers the Bars with his Lips, and deadens the Pressure of the Bit.—This frequently happens in thick-lipp'd Horses.—The Remedy is by using a Bit-mouth, forged with a Canon or Scatch-mouth, broader near the Bankers than at the Place of its Pressure, or rest upon the Bars.

For arming against the Bit, the Remedy is to have a wooden Ball cover'd with Velvet, or other Matter, put on his Chaul; which will so press him between the Jaw-bones, as to prevent his bringing his Head so near his Breast.

ARM, is also used in Geography, for a Branch of a Sea, or River. See SEA, OCEAN, RIVER, *&c.*

Italy and *Sicily* are only parted by an *Arm* of the Sea.—St. *George's Arm*, in the *Mediterranean*, is the *Thracian Bosphorus*.

Among Gardeners, *Arm* is sometimes used in respect of Cucumbers and Melons, in the same Sense as Branch, of other Plants. See BRANCH, CLASPER, *&c.*

ARM is used figuratively for *Power*.—The *Secular Arm*, is the Lay or Temporal Authority of a secular Judge; to which Recourse is had for the Execution of the Sentences pass'd by Ecclesiastical Judges. See SECULAR.

The Church sheds no Blood: Even the Inquisition, after they have found the Person guilty, surrenders him to the secular *Arm*. See INQUISITION.

The Council of *Antioch*, held in 341, decrees, that Recourse be had to the *Secular Arm* to repress those who refuse Obedience to the Church: For secular *Arm*, they here use *exterior Power*.

ARM, in the military Art, Heraldry, *&c.* See ARMS and ARMOUR.

ARM, in the Sea-Language.—A Ship is said to be *armed*, when fitted out and provided in all respects for War. See SHIP.

Also, a Cross-Bar-shot is said to be *armed*, when some Rope-yarn, or the like, is rolled round about one End of the Iron-Bar which runs thro the Shot, both that the Shot may be the better rammed down into the Gun, and lest the sharp End of the Bar shou'd catch into any Honey-Combs within the Cylinder of the Piece.

ARM, in respect of the Magnet.—A Loadstone is said to be *armed*, when it is capped, cased, or set in Iron or Steel; in order to make it take up the greater Weight; and also to distinguish readily its Poles. See MAGNET, POLE, *&c.*

The usual Armour of a Loadstone in form of a right-angled Parallelopepidon, consists of two thin Pieces of Steel or Iron, in a square Figure, and of a Thickness proportionable to the Goodness of the Stone: If a weak Stone have a strong Armour, it will produce no Effect; and if the Armour of a strong Loadstone be too thin, its Effect will not be so considerable as when thicker.—The proper Thickness is found by filing it thinner and thinner, till its Effect is found the greatest possible.

The Armour of a Spherical Loadstone, consists of two Steel Shells fastened to one another by a Joint, and covering a good Part of the Convexity of the Stone. This also is to be filed away, till the Effect is found the greatest.—'Tis surprizing to what Degree the Armour of a Loadstone will augment its Effect: A good Stone thus *armed*, will lift above 150 times more than before. See MAGNETISM.

Kircher, in his Book *de Magnete*, tells us, that the best way to *arm* a Loadstone, is to drill a Hole thro' the Stone from Pole to Pole, and in that, to place a Steel Rod of a moderate Length; which Rod, adds he, will take up more Weight at the End, than the Stone itself *armed* the common Way, can do.

ARMA *dare*, q. d. *to give Arms*, in some antient Charters, signifies to dub, or make a Knight. See KNIGHT.

ARMA *deponere*, *to lay down Arms*, was a Punishment antiently enjoin'd when a Man had committed an Offence. *Leg. Hen.* I.

ARMA *Molita*, were sharp Weapons: *Fleta* calls them *Arma Emolita*.

ARMA *Mutare*, q. d. to *change Arms*, was a Ceremony used to confirm a League or Friendship.

ARMA *Reversata*, *Inverted Arms*; was when a Man was convicted of Treason or Felony. See DEGRADATION, *&c.*

ARMAN, among Farriers, a Confection of great Efficacy to prevent a total Loss of Appetite in Horses. See APPETITE.

ARMATURE. See ARMOR.

ARMARIUM *Unguentum*, in antient Writers, a sympathetick Ointment, or Weapon Salve, whereby Wounds are said to have been cured at a Distance, by only dressing the Weapon. See SYMPATHETIC.

ARMED. See ARM and ARMS.

ARMED, in Heraldry, is used in respect of Beasts and Birds of Prey, when their Teeth, Horns, Feet, Beak, Talons, or Tusks, are of a different Colour from the rest.—He bears a Cock, or a Falcon, *armed*, Or, *&c.*

ARMIGER, q. d. *Armour Bearer*; a Title of Dignity, render'd in *English*, by *Esquire*. See ESQUIRE.

ARMILLARY, ARMILLARIS, in Astronomy, an Epithet given to an artificial Sphere, composed of a Number of Metalline Circles, representative of the several Circles of the Mundane Sphere, put together in their natural Order. See SPHERE and CIRCLE.

Armillary Spheres ease and assist the Imagination to conceive the Constitution of the Heavens, and the Motions of the heavenly Bodies. See HEAVEN, SUN, PLANET, *&c.*

Such is represented, *Tab. Astron.* Fig. 21.—where P and Q represent the Poles of the World, A D the Equator, E L the Ecliptic and Zodiac, P A G D the Meridian, or the Solsticial Colure, T the Earth, F G the Tropic of Cancer, H T the Tropic of Capricorn, M N the Arctic Circle, O V the Antarctic, N and O the Poles of the Ecliptic, and R S the Horizon.

The Word is form'd of the Latin *Armilla*, a Bracelet.

ARMILLA *Membranosa*, is a Name given by some Anatomists, to the annular Ligament. See ANNULAR *Ligament*.

ARMAMENT, a large Body of Forces, rais'd and provided with the Furniture of War, either for Land or Sea Service. See ARMY.

ARMENIANS, in respect of Religion, a Sect, or Division among the Eastern Christians; thus called from *Armenia*, the Country antiently inhabited by them. See SECT.

The *Armenians*, since the Conquest of their Country by *Seha Abas* King of *Persia*, have had no fixed Place of Habitation, but are dispersed in divers Parts of *Persia*, *Turky*, and even some Parts of Europe.—Their chief Employment is

is Merchandise, in which they excel.—The Cardinal de *Richlieu*, we are told, had a Design to make an Establishment of them in *France*, for promoting the Commerce of that Country.

With regard to Religion, there are two Kinds of *Armenians*; the one Catholicks, and subject to the Pope, having an Archbishop in *Persia*, and another in *Poland*.—The other make a peculiar Sect, having two Patriarchs in *Natolia*. They have their Printing-house at *Marseilles*.

The *Armenians* are of the Sect of *Monophysites*, and only allow of one Nature in Jesus Christ. See MONOPHYSITE.

As to the Eucharist, they agree with the *Greeks*, except in this, that they mix no Water with their Wine, and use unleavened Bread after the manner of the *Latins*. See GREEK, AZYMUS, &c.

They abstain very rigourously from eating of Blood and Meats strangled, and are much addicted to Fasting, insomuch, that to here them talk, one would conclude that their whole Religion consisted in Fasting.

The Monastic Order is in great Repute among them, since one of their Patriarchs introduced that of St. *Basil*; but part of them which have united with the Church of *Rome*, have changed their antient Rule, for that of the *Dominicans*. See BASILIAN and DOMINICAN.

ARMENIAN-*Stone*, *Lapus Armenus*, in natural History, called also *Lapis Stellatus*; is a kind of precious Stone, nearly resembling the *Lapis Lazuli*, except that it is softer, and instead of Veins of Gold, is intermixed with Green. See STONE and LAZULI.

Boerhaave rather ranks it among Semi-Metals; and supposes it composed of a Metal and Earth.—See METAL.—He adds, that it only differs from the *Lazuli* in degree of Maturity; and that both of them seem to contain Arsenic. See ARSENIC.

It it found in *Tirol*, *Hungary*, and *Transilvania*; and is used both in Mosaic Work, and to make that beautiful Blue Colour called *Azure*. See AZURE and MOSAIC.

ARMENIAN *Bole*, *Bolus Armenus*, or *Bole Armoniac*, is a native Bole or Earth, brought from *Armenia*. See BOLE and EARTH.

Some conjecture it to have a Mixture of Iron in its Composition.—That which is palish, red, soft, fattish upon the Pallate, and adhesive on the Tongue, is the best. It is a good Astringent, and Vulnerary; and in those Intentions frequently prescribed against Diarrhæas, Dyssenteries, Hæmmorrhages, and other Defluxions.—Externally it is used in strengthening Plasters, against Luxations of the Joints.

ARMILUSTRIUM, in Antiquity, a Feast held among the *Romans*; wherein they sacrific'd, armed at all Points, and with the Sound of Trumpets. See FEAST.

Some define *Armilustrium* to have been a Feast, wherein a general Review was made of all the Forces in the *Campus Martius*.—But this does not come up to the Point; for *Varro* does not derive the Word from the Latin *Arma* and *lustrare*, to make a Review; but from the Custom of holding this Feast in the Place where the Reviews were used to be made, or rather from their going round the Place armed with Bucklers. And he prefers this last Opinion, being persuaded that it was from this Ceremony, that the Place where this Sacrifice was offer'd to the Gods, was called *Armilustrium*, or *Armilustrum*, *ab luendo aut λαστρῳ*, i. e. *quod circumibant ludentes, ancilibus armati*.

This Sacrifice was intended as an ὁπλοκαθάρσιον, an Expiation of Arms, for the Prosperity of the Arms of the People of *Rome*; and was celebrated on the 14th of the Calends of *November*.

ARMINGS, in a Ship, are the same with *Wast-Clothes*, being Red Clothes, hung about the Outsides of the Ship's Upper-works, fore and aft; and before the Cubbridge Heads.—There are some also hung round the Tops, called *Top-Armings*.

ARMINIANISM, the Doctrine of *Arminius*, a celebrated Professor in the University of *Leyden*; and of the *Arminians*, a Sect which follow him.

The principal Article wherein the *Arminians* differ from the other Reformed, consists in this, that thinking the Doctrines of *Calvin*, with regard to Free-will Predestination and Grace, too severe, they have return'd to those of the Romish Church, and maintain, that there is an universal Grace given to all Men; that Man is always free, and at Liberty to reject or embrace Grace, &c. See GRACE, FREE-WILL, &c.

Gomar, *Arminius*'s Collegue, stood strenuously up for a particular or special Grace, given only to those who were predestinated or elect; and for a positive Decree both of Election in some, and of Reprobation in others. See PREDESTINATION, ELECTION, REPROBATION, &c.

At length, the Matter came to an Hearing, before the Synod of *Dort*, where *Arminianism* was condemn'd in Form.—These Disputes began in the Year 1609. From the School they pass'd into the Government, and the Republick of *Holland* was once in a fair way to be over-turned by them.

ARMINIANS, a religious Sect or Party, which arose in *Holland*, by a Separation from the *Calvinists*. See ARMINIANISM.

The *Arminians* are sometimes also called *Remonstrants*; by reason of a Remonstrance which they perser'd to the States General in 1611, wherein the chief Articles of their Faith were laid down. See REMONSTRANT.

The latter *Arminians* carried Things much further than *Arminius* himself, and even came very near to *Socinianism*.—Especially under *Simon Episcopius*.—When the *Calvinists* upbraided them with renewing an antient Heresy already condemned in the *Pelagians*, and *Semi-Pelagians*; they replied, that the mere Authority of Men cou'd not be allow'd a legitimate Proof any where but in the Church of *Rome*; that it was not enough to shew any Opinion had been condemned, without shewing it had been condemned justly: *Nec satis est damnatam olim Sententiam esse, nisi damnandam; aut jure aut rite damnatam esse, constet.*

On this Principle, which the *Calvinists* cannot well gainsay, the *Arminians* retrench abundance of those called fundamental Articles of Religion. Not finding them all clearly expressed in Scripture, they laughed at all the Catechisms and Formula's of Faith which they would have restrained them to; and accordingly were condemn'd at the famous Synod of *Dort*, held in 1618, whereat Divines from all the Reformed Churches were present.

Many among them have quitted the Doctrine of their Master relating to the Points of eternal Election and Predestination.—*Arminius* taught, that God elected the Faithful out of a Foreknowledge of their Faith: But *Episcopius*, and others, think he elects no Person from all Eternity, and only elects the Faithful, at the Time when they actually believe. They speak very ambiguously of the Prescience of God, which was the principal Strong-Hold of *Arminius*. They look on the Doctrine of the Trinity as a Point not necessary to Salvation; and many of them hold there is no Precept in Scripture, by which we are enjoin'd to adore the Holy Ghost; and that Jesus Christ is not equal to God the Father. And they generally avoid the Word *Satisfaction of Christ*. Tho' *Episcopius* declares, that Jesus Christ has made Satisfaction to God, so far as to render him propitious to Mankind.

They press with a great deal of Earnestness, a general Toleration of all those who profess the Christian Religion; maintaining that all Christians are agreed in the essential Points: As it has never been decided by any infallible Authority, which of the many Ways is the true one, and the most agreeable to the Word of God; they ought all to combine on the same Footing, to compose one Church, without obliging any to quit their own Sentiments, or embrace those of others.

Their principal Writers are *Arminius*, *Episcopius*, and *Grotius*; to which may be added *Curcellæus*, who has collected a System of Theology out of the large diffusive Writings of *Episcopius*, with the Addition of many Things of his own.—Tho' *Curcellæus*, it must be own'd, is rank'd by the *Socinians* among the Number of their Writers.

ARMISTICE, *Armistitium*, a short Truce, or Cessation of Arms for a small Time. See TRUCE, CESSATION, &c.

ARMONIACK, or rather AMMONIAC, in natural History, a sort of volatile Salt; whereof there are two Kinds, antient and modern. See SALT.

The antient *Sal Ammoniac*, called also *Sal Cyrenaic*, described by *Pliny* and *Dioscorides*, was a native Salt, generated in the Earth, or rather the Sands, in those large Inns or Caravanseras, where the Crouds of Pilgrims coming from all Parts to the Temple of *Jupiter Ammon*, used to lodge.—The Method of Conveyance in those Parts being on Camels; and those Creatures when in *Cyrene* a Province of *Egypt* wherein that celebrated Temple stood, urining in the Stables, or say some in the parched Sands: Of this Urine, which is remarkably strong, sublimed by the Heat of the Sun, arose a kind of Salt, denominated sometimes from the Temple *Ammoniac*, and sometimes from the Region *Cyrenaic*.

This Salt being no longer found in those Places, some Authors suspect there was never any such thing; and that the antient as well as the modern *Sal-Armoniac* was factitious.—What pleads for the contrary, is, that the Salt frequently belched out in large Quantities from Mount *Ætna*, appears much of the same Nature, and answers to most of the Characters of the antient *Sal-Armoniac*. The Reason no more is produced in *Egypt*, is the Cessation of Pilgrimages to that ancient Idol.

Its Characters are, that it cools Water, turns *Aqua Fortis* into *Aqua Regia*, and consequently dissolves Gold; that it sublimes by a large Fire, and affords a pungent urinous Savor. See AQUA-REGIA, URINOUS, &c.

The modern *Sal-Armoniac*, called also *Aqua Cœlestis*, is held by some to be native, and to trickle out of the Ground about Mount *Vesuvius*, *Ætna*, &c. in Form of a Liquor; which,

which, when filtered and inspissated, becomes *Sal-Armoniac*.—But 'tis certain, all the modern *Sal-Armoniac* is compound and factitious; consisting of a Mineral, a Vegetable, and an animal Salt combined together.

Indeed, though there scarce be any Drug more common than *Sal-Armoniac*, the Public has been entirely at a Loss, both as to the Place whence it comes, and how it was made; all we knew for certain, was that it came from the *Levant*, and was a volatile urinous Salt, penetrated by an Acid.—Father *Sicard*, the Jesuite, has at length removed the Veil, in the Memoirs of the *Journal de Trevoux*, for *ober*, 1717.—This Salt, says that Father, in a Letter to the Count de *Tholouse*, is made in *Egypt*, in a sort of Ovens contrived for the Purpose, the Tops whereof are perforated with several longitudinal Clefts; and on these Clefts are laid several long-necked Glass-Bottles, filled with Soot, a little Sea-Salt, and the Urine of Cattle; well stopped.

This done, they cover them up with a Body of Clay and Brick, all but the Necks, which lie open to the Air; and put the Fire in the Oven, which they keep up for 3 Days and Nights.—The Phlegm of the Materials contained in the Bottles, being thus exhaled by the Heat of the Fire; and the acid and alkaline Salts abounding therein, being thus brought together near the Necks of the Bottles, they coalesce, harden, and form a whitish Mass, which is the *Sal-Armoniac*—It must be added, that all Soot is not fit for the Purpose, but only that exhaling from a sort of Fuel made of Dung.

Our Chymists have divers Ways of preparing a *Sal-Armoniac*, in Imitation of this.—The common Way is by putting one part of common Salt, to five of Urine; to which some add half that Quantity of Soot: The whole being put in a Vessel, they raise from it by Sublimation a white friable farinacious Substance, which they call *Sal-Armoniac*.—*M. Lemery* suspected, that what is imported to us from Abroad, must be made after a different Manner; he even concluded that it was made as our common Salt is, by Lotion, and Evaporation: In which Suspicion, it appears from the foregoing Account, he is far from the Truth.—They purify it by Dissolution in hot Water; which being filtered, and evaporated to a Cuticle, shoots into a fine white Salt, used in Medicine both as a Sudorific and a Diuretic; and proving a good Aperient in all Obstructions.

There are various Preparations of this Salt, in the modern Pharmacy; as,

Sublimate of *Sal-Armoniac*, of like Virtue as the purified. See SUBLIMATION.—

Volatile Sal Armoniac, made by subliming the *Sal-Armoniac* with Salt of Tartar; used against malignant Fevers as a Sudorific; as also in Pocket Smelling-Bottles.—

Flowers of Sal-Armoniac; made of *Sal-Armoniac*, with Sea-Salt decrepitated.—Its Vertues are much the same as of the fublimated *Sal-Armoniac*. See FLOWERS.—

Sometimes, instead of the Sea-Salt, Iron or Steel are used; which makes what they call *Martial Flowers of Sal-Armoniac*, of a very penetrating and deobstruent Nature, and recommended in all Kinds of Obstructions, Cachexies, Jaundice, Dropsies, &c.

Spirit of Sal-Armoniac—Of this we have various Kinds, which derive different Denominations and Properties from the different additional Ingredients the Salt is distilled with: As—*Spirit of Sal-Ammoniac with Tartar*, with *Quicklime*; with *Amber*; with *Steel* or *Iron*: *Sweet* Spirit of *Sal-Ammoniac*; *Acid* Spirit of *Sal-Armoniac*; *Diuretic* Spirit of *Sal-Armoniac*, &c.

ARMOR, or ARMOUR, a defensive Habit, wherewith to cover and secure the Body from the Attacks of an Enemy. See ARMS.

Such are the *Buckler*, *Cuirasse*, *Helmet*, Coat of Mail, Gantlet, &c. See BUCKLER, CUIRASSE, HELMET, &c.

A compleat *Armor* antiently consisted of a Cask or Helm, a Gorget, Cuirasse, Gantelets, Tasses, Brassets, Cuisses, and Covers for the Legs, to which the Spurs were fastened.—This they called *Armour Cap-a-pe*; and was the Wear of the Cavaliers, and Men at Arms.

The Infantry had only part of it, *viz.* a Pot or Head-Piece, a Cuirasse, and Tasses; but all light.—Lastly, the Horses themselves had their *Armour*, wherewith to cover the Head and Neck.

Of all this Furniture of War, scarce any thing is now retained.

The Gallantry of going to the Battle naked, without any defensive *Armour*, prevailed so far, that the *French*, during the Reign of *Louis* XIV. were obliged to be continually issuing Ordonnances to restrain it; in consequence of which, the General Officers, and those of the Cavalry, were obliged to resume the Cuirasse.—

Coat-ARMOUR, is the Escutcheon of any Person, or Family, with its several Charges, and other Furniture, as Mantling, Crest, Supporters, Motto, &c. See ESCUTCHEON, CHARGE, CREST, MANTLING, SUPPORTER, MOTTO, &c.

Thus we say, a Gentleman of Coat-Armour; meaning one who bears *Arms*. See COAT, ARMS, GENTLEMAN, &c.

ARMORY, or ARMOURY, a Store-house of Arms, or a Place wherein military Habiliments are kept, to be ready for Use. See ARMS.

There are *Armories* in the Tower, and all Arsenals, &c. See TOWER and ARSENAL.

ARMORY is also used for a Branch of Heraldry; being the Knowledge of Coat-Armours, as to their Blazons, and various Intendments. See HERALDRY; see also COAT-*Armour*, BLAZON, &c.

ARMS, ARMA, all Kinds of Weapons, whether for Defence, or Offence. See WEAPON, DEFENCE, &c.

The *Arms* of Offence, are the Sword, Pistol, Musquet, Bayonet, Pike, &c. See SWORD, GUN, &c.

ARMS of Defence. See under ARMOR.

Fire-ARMS. See FIRE-*Arms*.

The principal *Arms* of the antient *Britons*, were Hatchets, Scythes, Lances, Swords, and Bucklers: The *Saxons*, &c. brought in the Halbard, Bow, Arrows, Arbalets, &c.

The Word is formed from the French *Armes*; which *Nicod* derives from a Latin Phrase, *Quod operiant armos*, by reason they cover the Shoulders, or Sides: But ought rather to be brought from *Arma*; which *Varro* derives *ab Arcendo, eo quod Arceant hostes*.

'Tis supposed that the first *Arms* were of Wood, and were only employ'd against Beasts.—That *Nimrod*, the first Tyrant, turn'd them against Men; and that his Son *Belus* was the first that waged War; whence, according to some, came the Appellation *Bellum*.—*Diodorus Siculus* takes *Belus* to be the same with *Mars*, who first train'd Soldiers up to Battle.—

Arms of Stone, &c. even of Brass, appear to have been used before they came to Iron and Steel.

Josephus assures us, that the Patriarch *Joseph* first taught the Use of Iron Arms in *Egypt*, arming the Troops of *Pharoah* with a Cask and Buckler.

In the Eye of the Law, *Arms*, *Arma*, are extended to any Thing which a Man takes in his Hand in his Wrath, to cast at, or strike another.—So *Crompton*—*Armorum appellatio non ubique Scuta & Gladios & Galeas significat, sed & Fustes & Lapides*.

ARMS of *Courtesy*, or *Parade*, were those used in the antient Justs, and Tournaments. See JUST and TOURNAMENT.

These usually were Lances not shod; Swords without Edge or Point; and frequently wooden Swords, or even Canes.

Pass of ARMS, was a Kind of Combat in use among the antient Cavaliers. See PASS *of Arms*.

Place of ARMS, in Fortification, &c. See PLACE *of Arms*.

ARMS, are also the natural Weapons, or Parts of Defence of Beasts; as Claws, Teeth, Tusks of Elephants, Beaks of Birds, &c. See BILL, TALON, TUSK, &c.

Some Animals are sufficiently guarded against all common Dangers by their natural Cloathing, their Armature of Shells, as the Tortoise, &c. See SHELL, TORTOISE, &c.—Others, destitute of this Guard, are *armed* with Horns; others with sharp Quills, or Prickles, as the Porcupine and the Hedgehog; others with Stings, &c. See HORN, STING, &c.

ARMS are also used figuratively for the Profession of a Soldier.—Thus we say, he was bred to *Arms*. See SOLDIER.

ARMS, or ARMORIES, are also used in Heraldry, for Marks of Dignity and Honour, regularly compos'd of certain Figures and Colours, given or authorized by Sovereigns, and bore in Banners, Shields, Coats, &c. for the Distinction of Persons, Families, and States. See FIGURE, COLOUR, SYMBOL, HONOUR, NOBILITY, &c. see also SHIELD, &c.

They are called *Arms*, in regard they are bore principally on the Buckler, Cuirasse, Banners, and other Apparatus of War.—They are also called *Coats of Arms*, *Coat Armour*, &c. because antiently embroider'd on Surcoats, &c. See COAT *of Arms*, &c.

Some will have the Name to have been first occasioned by the antient Knights, who in their Justs and Tournaments bore certain Marks (which were frequently their Mistress's Favours) in their *Armour*, i. e. their Helms or Shield; to distinguish them from each other. See JUST, TOURNAMENT, &c.

Arms make the Subject of the Art of *Heraldry*. See HERALDRY and BLAZON.

Three *Flowers de lys*, in a Field Azure, are the *Arms* of *France*.—The *Arms* of *England* are three Lyons.—In the *Arms* of *Great-Britain* are Quartered the *Arms* of *France*, *England*, *Scotland*, and *Ireland*. See QUARTER and QUARTERING.

There has been a great Dispute among the Learned about the Origin of *Arms*.—*Favin* will have them to have been from the Beginning of the World; *Segoin* from the Time of *Noah*; others, from that of *Osiris*, which is supported by some Passages in *Diodorus Siculus*; others, from the Times of the *Hebrews*, in regard *Arms* were given to *Moses*, *Joshua*, the twelve Tribes, *David*, &c. Others

Others will have them to have taken their Rise in the heroical Age, and under the Empires of the *Assyrians*, *Medes*, and *Persians*; building upon *Philostratus*, *Xenophon*, and *Quintus Curtius*.

Some pretend that the Use of *Arms*, and the Rules of Blazon, were regulated by *Alexander*.—Some will have them to have had their Original under the Empire of *Augustus*; others, during the Inundations of the *Goths*; and others, under the Empire of *Charlemagne*.

Chorier observes, that among the antient *Gauls*, each Man bore a Mark on his Buckler, by the Sight whereof he might be known to his Fellows; and hence he refers the Original of the *Arms* of noble Families.—*Camden* has observ'd something like this of the antient *Picts*, and *Britons*, who going naked to the Wars, painted their Bodies with Blazons, and Figures of divers Colours, which he supposes to have been different in different Families, as they fought divided by Kindreds. Yet *Spelman* says, that the *Saxons*, *Danes*, and *Normans*, first brought *Arms* from the North into *England*; and thence into *France*.

Upon the whole it is certain, that from Time immemorial, there have been symbolical Marks in use among Men, to distinguish them in Armies, and to serve as Ornaments of Shields and Ensigns; but these Marks were used arbitrarily as Devices, Emblems, Hieroglyphicks, &c. and were not regular *Armories*, like ours, which are hereditary Marks of the Nobility of a House, regulated according to the Rules of Heraldry, and authoriz'd by Princes. See DEVICE, EMBLEM, HIEROGLYPHIC, &c.

Before *Marius*, even the Eagle was not the constant Ensign of the *Roman* Army; but they bore in their Standards a Wolf, Leopard, or Eagle indifferently, according to the Fancy of the Generals. See EAGLE, ENSIGN, &c.

The same Diversity has been observed with regard to the *French* and *English*; on which account, Authors are divided when they speak of the antient *Arms* of those Countries. —In effect, it appears from all the best Authors, that the Armories of Houses, as well as the double Names of Families, were not known before the Year 1000. And several have even endeavour'd to prove, that the Use of *Arms* did not begin till the Time of the first Croisades of the Christians in the East. See CROISADE.

The Truth is, it was the antient Tournaments that occasioned the fixing of Armories. See TOURNAMENT.

Henry the Fowler, who regulated the Tournaments in *Germany*, was the first who introduc'd these Marks of Honour, which appear to be of an older standing in *Germany*, than any other Part of Europe.—It was then that Coats of *Arms* were first instituted; which were a kind of Livery compos'd of several Bars, Fillets, and Colours; whence came the *Fess*, *Bend*, *Pale*, *Chevron*, and *Lozenge*; which were some of the first Elements of *Armories*. See COAT, FESS, BEND, &c.

Those who had never been concerned in any Tournament, had no *Arms*, tho' they were Gentlemen. See GENTLEMAN.

Such of the Nobility and Gentry as cross'd the Sea in the Expeditions to the Holy Land, also assum'd these Tokens of Honour to distinguish themselves.

Before these Times, we find nothing upon antient Tombs but Crosses, with *Gothick* Inscriptions and Representations of the Persons deceas'd. The Tomb of Pope *Clement* IV. who died in 1268. is the first whereon we find any *Arms*; nor do they appear on any Coins struck before the Year 1336. We meet with Figures, it is true, much more antient, both in Standards and in Medals; but neither Cities nor Princes ever had *Arms* in Form; nor does any Author make mention of Blazoning before that Time.

Originally, none but the Nobility had a Right of bearing *Arms*; but King *Charles* V. having ennobled the *Parisians*, by his Charter in 1371. he permitted them to bear *Arms*: From whose Example, the more eminent Citizens of other Places did the like.

Camden refers the Original of hereditary *Arms* in *England* to the Time of the first *Norman* Kings. He says their Use was not establish'd till the Reign of K. *Henry* III. and instances in several of the most considerable Families in *England*, wherein, till that Time, the Son always bore different *Arms* from the Father.—About the same Time it became the Custom here in *England*, for private Gentlemen to bear *Arms*; borrowing them from the Lords of whom they held in Fee, or to whom they were the most devoted.

ARMS, at present, follow the Nature of Titles, which being made hereditary, these are also become so; being the several Marks for distinguishing of Families and Kindreds, as Names are of Persons and Individuals. See NAME, &c.

ARMS are variously distinguish'd by the Heralds.—

Full or *Entire* ARMS, are such as retain their primitive Purity, Integrity, and Value; without any Alterations, Diminutions, Abatements, or the like. See DIMINUTION, ABATEMENT, &c.

'Tis a Rule, that the simpler and less diversified the *Arms*, the more noble and antient they are.—For this Reason, *Garcias Ximenes*, first King of *Navarre*, and his Successors for several Ages, bore only Gules, without any Figure at all.

The *Arms* of Princes of the Blood, of all younger Sons and junior Families, are not pure, and full; but distinguished and diminished by proper Differences, &c. See DIFFERENCE.

Charged ARMS, are such as retain their antient Integrity and Value; with the Addition of some new honourable Charge or Bearing, in Consideration of some noble Action. See CHARGE.

Speaking, or *Vocal* ARMS, are those wherein the Figures bear an Allusion to the Name of the Family.—Such are those of the Family of *la Tour* in *Auvergne*, who bear a Tower; that of the Family of *Prado* in *Spain*, whose Field is a Meadow. See DEVICE, MOTTO, &c.

Most Authors hold these the most noble and regular, as is shewn by an Infinity of Instances produced by Fa. *Varenne* and *Menetrier*.—They are much debased, when they come to partake of the Rebus. See REBUS.

ARMS are also said to be *Party*, or divided; *Couped*; *Quartered*, &c. See PARTI, COUPE, QUARTERING, &c.

ARMS are said to be *false* and irregular, when there is something in them contrary to the established Rules of Heraldry.—As, when Metal is put on Metal, or Colour on Colour, &c. See METAL and COLOUR.

The Laws, and other Affairs of *Arms*, with the Cognizance of Offences committed therein, belong, among us, to the *Earl-Marshal*, and *College of Arms*. See MARSHAL and COLLEGE *of Arms*.

ARMS, in Faulconry, are the Legs of an Hawk, from the Thigh to the Foot. See HAWK and HAWKING.

King at ARMS, *Herald at* ARMS, *Poursuivant at* ARMS, *College of* ARMS, } see { KING *at Arms*, HERALD, POURSUIVANT, COLLEGE *of Arms*.

ARMY, a Body of Soldiers, Horse and Foot, divided into Regiments, under the Command of a General, with several Ranks of subordinate Officers under him. See SOLDIER, GENERAL, OFFICER, REGIMENT, &c. see also CAVALRY, INFANTRY, &c.

This is to be understood of a *Land Army*.—A *Naval* or *Sea Army*, is a Number of Ships of War, equipp'd and mann'd with Marines, under the Command of an Admiral, with other inferior Officers under him. See NAVY, ADMIRAL, SHIP, &c.

We say, an *Army* ranged in Form of Battle—The March of an *Army*—The Retreat of an *Army*—The Review of an *Army*, &c. See MILITIA, BATTLE, MARCH, RETREAT, REVIEW, CAMP, &c.

An *Army* is usually divided into three Corps; the Vanguard, Rear-guard, and Main-Body. See VAN-GUARD, REAR-GUARD, and BODY.

ARMIES are also rang'd in Lines, Columns, &c. with Wings. See LINE, COLUMN, WING, &c.

Our *Armies* antiently were a sort of Militia, composed chiefly of the Vassals and Tenants of the Lords. See VASSAL, TENANT, LORD, SERVICE, MILITIA, &c.

When each Company had served the Number of Days or Months enjoined by their Tenure, or the Customs of the Fees they held; they returned Home. See TENURE, FEE, &c.

The *Armies* of the Empire consist of divers Bodies of Troops, furnished by the several Circles. See EMPIRE and CIRCLE.

The Gross of the French *Armies* under the *Merovingian* Race, consisted of Infantry. Under *Pepin* and *Charlemaign*; the *Armies* consisted almost equally of Cavalry and Foot: But since the Declension of the *Carlovingian* Line, the Fees being become hereditary, the national *Armies*, says *le Gendre*, are chiefly Cavalry.

The *Armies* of the Grand-Signior consist most of Janizaries, Spahi's, and Timariots. See JANIZARY, SPAHI, and TIMARIOT.

ARNODI, in Antiquity, the same with *Rhapsodi*. See RHAPSODI.

The Word is compounded of the Greek αρνος, a Lamb, which was their usual Reward; and ωδη, Song, Singing.

ARNOLDISTS, ARNALDISTS, a kind of Sectaries in the XIIth Century; thus called from their Chief, *Arnold* of *Bresse*.—He declaimed much against the great Wealth and Possessions of the Church, and preached against Baptism and the Eucharist.

After raising great Disturbances at *Bresse* and *Rome*, he was hang'd at this latter Place in 1155, and his Ashes cast into the *Tyber*.—His Disciples were also call'd *Publicans*, or *Poplecans*.

AROMATIC, Aromaticus, is underſtood of a Drug, Plant, or the like, which yields a briſk, agreeable Smell, and a warm, ſpicy Taſte.

Such are Frankincenſe, Storax, Benjoin, Cinnamon, Mace, Cloves, Nutmeg, Pepper, &c.—Such alſo are Lavender, Marjoram, Sage, Thyme, Roſemary, &c. See Spice, &c.

The Word is form'd of the Greek αρωμα, of αρω, to make fit, accomodate; in regard Spices, which are all *Aromatic*, are uſed for the ſeaſoning and preparing of Meats.

Aromaticks, or *Aromatic* Medicines, are either ſimple or compound.—To this Claſs belong moſt Cardiac, Cephalic, and Carminative Remedies, with many ſtomachic ones. See Cardiac, Carminative, Cephalic, Stomachic, &c.

The *Aromaticum Roſatum*, is a compound officinal Powder, made of Red Roſes, Liquorice, Aloes Wood, Yellow Sanders, Cinnamon, Cloves, Mace, Gum, Tragacanth, Nutmegs, Cardamums, Galangals, Spikenard, Ambergreaſe and Muſk mix'd together.—It is chiefly preſcribed in Cordial and Cephalic Boles and Electuaries, to ſtrengthen the Stomach and Head, which all *Aromaticks* have a Tendency to.

Some Writers give the Title *Aroma Germanicum* to Elecampane, as preferring it, in that Intention, to Ginger itſelf. See Elecampane, &c.

Aromaticks are of particular Service in cold cachectic Habits, where the Load of Humours has been forced away by ſtrong Detergents and Catharticks; as they tend to ſtrengthen the Fibres, and prevent a Relapſe.—Hence they become of abſolute Uſe after Purging, and carrying off the Waters of a Dropſy; or in the Intervals thereof, to fortify the Springs, and prevent a filling again. See Dropsy.

ARONDE, in Fortification. See Queue d'*Aronde*.

ARPAGUS, in antient Inſcriptions, ſignifies a Child who died in the Cradle.

The *Romans* made no Funerals for their *Arpagi*.—They neither burnt their Bodies, nor made Tombs, Monuments, or Epitaphs for them; which occaſioned *Juvenal* to ſay,

—Terra clauditur Infans
Vel minor igne rogi.

In after-times it became the Cuſtom to burn ſuch as had lived to the Age of 40 Days, and had cut any Teeth; and theſe they called *Rapti*.

The Word *Arpagus* ſignifies the ſame thing in *Greek*. *Euſtathius* aſſures us, it was the Cuſtom among the *Greeks* never to bury their Children either by Night or full Day, but at the firſt Appearance of the Morning, which they called, Ἡμέρας ἁρπαγίω

ARQUEBUSS, or Harquebuss, a large Hand-gun, ſomething bigger than our Muſquet; and called by ſome a *Calliever*. See Harquebuss.

Arquebuss *a Croc*, is a ſort of ſmall Fort-Arm, which carries a Ball of about three half Ounces; now only uſed in old *Caſtile*, and ſome Gariſons of the *French*.

The Word is deriv'd from the *Italian Arcobuſio*, or *Arcoabuſo*, form'd of *Arco*, a Bow, and *Buſio*, a Hole; becauſe of the Touch-Hole of an *Arquebuſi*, which ſucceeds to the Uſe of the Bow among the Antients.

ARRAIGN, or Arrain, in Law, ſignifies to ſet a Thing in Order, or in its Place. See Arrangement.

Thus, he is ſaid to *Arraign* a Writ of Novel Diſſeiſin, who prepares and fits it for Trial before the Juſtices of the Circuit. In this Senſe *Littleton* ſays, the Leſſee *arraigneth* an Aſſize of Novel Diſſeiſin.—To *arraign* the Aſſize, is to cauſe the Tenant to be called to make the Plaint, and to ſet the Cauſe in ſuch Order, as the Tenant may be forced to anſwer thereto.

A Priſoner is alſo ſaid to be *arraigned*, when he is indicted and brought forth to his Trial. See Indictment.—

Spelman is of Opinion the Word ſhould be written *Arrame*, from *Arramare*, and that from the old French *Arramir*, i. e. *Jurare*, *promittere*, *Solemniter profiteri*. Yet in the Regiſter we find no ſuch Word as *Arramare*; but in all the Writs of Aſſize, the Year-Books, &c. it is *Arrainavit*: The more natural Derivation is from the French *Arraiſonner*, i. e. *ad rationem ponere*, to call a Man to anſwer in Form of Law; which comes from the barbarous Latin *Adrationare*, i. e. *placitare*— In which Senſe, to *arraign* a Criminal, is *ponere eum ad rationem*.

ARRAIGNMENT, or Arrangement, in Law, the Act of *Arraigning*, or ſetting a Thing in Order. See Arraigning.

ARRAIATIO *Peditum*, the arraying of Foot Soldiers. See Arraying.

ARRAS-Hangings, a ſort of rich Tapeſtry, made at *Arras* in the County of *Artois* in *Flanders*. See Tapestry.

ARRANGEMENT, or Rangement, the Diſpoſition of the Parts of a Whole, in a certain Order. See Part and Disposition.

The modern Philoſophy ſhews us, that the Diverſity of Colours depends entirely on the Situation and the *Arrangement* of the Parts, which reflect the Light differently; the Diverſity of Taſte and Smells on the different *Arrangements* of the Pores, which render them differently ſenſible; and the Diverſity of Bodies on the different *Arrangement* of their Parts. See Body, &c.

The happy *Arrangement* of Words makes one of the greateſt Beauties of Diſcourſe. See Construction, &c.

ARRAY, in Law, the ranking or ordering a Jury or Inqueſt of Men impannel'd on any Cauſe. See Jury, Inquest, &c.

The Word may be derived either from the obſolete French *Array*, Order, or from *Raye*, a Line.—Hence the Verb, to *Array a Pannel*, Ann. 3 Hen. V. &c. q. d. to ſet forth the Men empanelled one by another. The *Array* ſhall be quaſhed, *ib.* By the Statute, every *Array* in Aſſize ought to be made four Days before.—Hence alſo, to challenge the *Array*; ſee Challenge.

ARRAYERS, *Arraiatores*, is uſed in ſome antient Statutes, for ſuch Officers as had care of the Soldiers Armour, and ſaw them duly accoutred in their Kinds. See Armour, Accoutrements, &c.

Such were the *Commiſſioners of Array*, appointed by King *Charles* I. in the Year 1642.

ARREARS, or Arrearages, the Remains of an Account; or a Sum of Money remaining in the Hands of an Accomptant. See Account and Accomptant.

The Word is alſo uſed more generally for a Remainder of Rents, or Monies unpaid at the due Time; whether they be Rents of a Manor, or any other Thing reſerved.

The Word is derived from the French *Arrerages*, which is formed from *arriere*, and that again from *retro*, behind.

ARREST, in common Law, an Execution of the Command of ſome Court, or Officer of Juſtice.—Hence, when a Perſon is legally ſtopp'd, apprehended, and reſtrained of his Liberty, for Debt, &c. he is ſaid to be *arreſted*, or put under an *Arreſt*; which is the beginning of *Impriſonment*. See Attachment, Imprisonment, and Hautelode.

To *move* or *plead in Arreſt of Judgment*, is to ſhew Cauſe why Judgment ſhould be ſtay'd, tho' there be a Verdict in the Cauſe. See Judgment and Verdict.

To *plead in Arreſt of taking the Inqueſt*, is to ſhew Cauſe why an Inqueſt ſhould not be taken. See Inquest.

The Word *Arreſt*, is originally French, and is uſed by them for a Decree, or Determination of a Cauſe debated to and fro: In which Senſe it ſeems deriv'd from the Greek ἀρεσὸν, *placitum*, the Pleaſure of the Court. See Arret.

ARRENTATION, Arrendare, in the Foreſt Law, the Licenſing an Owner of Lands in the Foreſt, to encloſe them with a low Hedge and ſmall Ditch, in conſideration of a yearly Rent. See Forest, Purlieu, &c.

Saving the Arrentations, denotes a Power reſerved to give ſuch Licenſes for a yearly Rent.

ARRESTANDIS *Bonis ne diſſipentur*, a Writ which lies for him whoſe Cattle or Goods are taken by another, who, during the Controverſy, makes, or is like to make them away, and will hardly be able to give Satisfaction for them afterwards.

ARRESTANDO *ipſum, qui pecuniam recepit ad proficiſcendum in Obſequium Regis*, &c. is a Writ which lies for the Apprehenſion of him that hath taken Preſt-Money for the King's Wars, and hides himſelf when he ſhould go. See Prest-*Money*.

ARRESTO *facto ſuper bonis Mercatorum Alienigenorum*, &c. is a Writ which lies for a Denizen againſt the Goods of Strangers of another Country found within this Kingdom, in Recompence of Goods taken from him in that Country, after he hath been denied Reſtitution there. See Mark.

This among the antient Civilians, was called *Clarigatio*, now barbarouſly *Repriſalia*. See Clarigatio and Repriſal.

ARRETED, Arrectatus, is ſometimes uſed in our antient Law-Books, for *imputed*, or laid to; as, No Folly may be *arreted* to one under Age.

ARRHABONARII, a Sect in Religion, who held that the Euchariſt is neither the real Fleſh and Blood of Chriſt, nor yet the Sign of them, but only the Pledge or Earneſt thereof.

The Word is derived from the Greek Ἀρραβὼν, *Arrha*, Earneſt.

ARRHA, Arrhes, or *Argentum Dei*. See Earnest, &c.

ARRHEPHORIA, a Feaſt among the *Athenians*, inſtituted in Honour of *Minerva*.— Boys, or, as ſome ſay, Girls, between 7 and 12 Years of Age, were the Miniſters that aſſiſted at this Feaſt. See Feast.

The Word is derived from the Greek Ἀρρηφόρια, which is compoſed of ἀρρητον, Myſtery, and φέρω, I carry.—This Feaſt was alſo called *Herſiphoria*, from *Herſe* the Daughter of *Cecrops*, on whoſe account it was eſtabliſh'd.

ARRIERE,

ARRIERE, a French Term, literally signifying the *hind*, or *posterior* Part of any Thing; usually wrote in *English*, abridgedly, *Rear*. See REAR.

ARRIERE-BAN, or ARIERE-*Ban*, in the French Customs, is a general Proclamation, whereby the King summons to the War all that hold of him; both his Vassals, *i. e.* the Nobilesse, and the Vassals of his Vassals. See VASSAL, TENURE, &c.

To the Provost of *Paris* belongs the convoking and commanding of the *Ariere-Ban*. See PROVOST, &c.

M. *Caseneuve* takes the Word to be composed of *Arriere* and *Ban*: The *Ban*, according to him, denotes the convening of the Nobilesse or Vassals, who hold Fees immediately of the King; and *Arriere*, those who only hold of the King mediately.—*Pasquier* observes, that the Word is frequently mentioned in the Salic Law.

ARRIERE-*Corps*. See CORPS.

ARRIERE-FEE, or FIEF, is a Fee dependant on some other superior one. See FEE.

These commenced at the Time when the Counts and Dukes, rendering their Governments hereditary in their Families, distributed to their Officers certain Parts of the royal Domains which they found in their Provinces; and even permitted those Officers to gratify the Soldiers under them, with Parts thereof. See COUNT, DUKE, &c.

ARRIERE-GUARD. See REAR-*Guard*.

ARRIERE *Vassal*, or *Tenant*, the Vassal or Tenant of another Vassal or Tenant. See VASSAL, TENANT, &c. see also ARRIERE-FEE.

ARRONDIE, in Heraldry, a CROSS-*Arrondie*, or *rounded*, is that whose Arms are composed of Sections of a Circle, not opposite to each other, so as to make the Arm bulge out thicker in one Part than another; but both the Sections of each Arm lye the same Way, so that the Arm is every where of an equal Thickness; and all of them terminating at the Edges of the Escutcheon, like the plain Cross. See CROSS.

ARSACIDES, ARSACIDÆ, the Descendants of *Arsaces* King of *Parthia*.

This *Arsaces*, according to the *Persian* Chronicles, was of the Lineage of *Cyrus*; tho others affirm that he was descended from *Darius*.—Be this as it will, *Arsaces* having freed the *Parthians* from the Dominion of the *Seleucides*, they esteemed him the Founder of their Monarchy, and would have all their future Kings bear his Name, and be called *Arsacids*. Whence the Poets have attributed the Appellation to the whole Nation.

The *Arsacides* began to reign in *Arsaces*, under *Seleucus* II. surnamed *Callinicus*, the third of the *Seleucides*, 240 Years before Christ; and continued about 460 or 470 Years; when *Artaxerxes* kill'd *Artabanus*, the last of the *Arsacides*, about the Year of Christ 227.

ARSENAL, a royal or publick Magazine, or Place appointed for the making, and keeping of Arms necessary either for Defence, or Assault. See ARMS and ARMORY.

The *Arsenal* of *Venice* is the Place where the Gallies are built and laid up.—The *Arsenal* of *Paris*, is that where the Cannon or great Guns are cast. It has this Inscription over the Door—

Vulcania Tela Ministrat,
Tela Gigantæos debellatura furores.

There are also *Arsenals*, or Store-houses, appropriated to Naval Furniture and Equipments. See NAVY, YARD, &c.

The Word, according to some, is deriv'd from *Arx* or *Arcus*; or rather from *Ars*, an Engine; this being the Place where the Engines of War are preserv'd.—Some derive it from *Arx Senatus*, as being the Defence of the Senate; others from the Italian *Arsenale*, or from the modern Greek *Arsenalis*; but the most probable Opinion is, that it is deriv'd from *Darsenaa*, which, in the Arabick, signifies an *Arsenal*.

ARSENIC, ARSENICUM, in natural History, a ponderous mineral Substance, extremely caustic or corrosive, to the Degree of a violent Poison. See FOSSIL, CORROSIVE, &c.

The Word is compounded of the Greek ανηρ, Man, and νικαω, I overcome, kill; alluding to its poisonous Quality. See POISON.—

In an antient Manuscript ascribed to the Sybils, is a Verse which plainly intimates *Arsenic*:

Tetrasyllabus sum; prima pars mei Virum,
Secunda Victoriam significat.

Arsenic is rank'd among the Class of Sulphurs. See SULPHUR.

There are divers Kinds of *Arsenic*; *viz.* Yellow, or Native; Red, and Crystalline.

Native Arsenic is of a Yellow, or Orange-colour; whence it is also denominated *Auripigmentum*, or *Orpiment*.—It is chiefly found in Copper-Mines, in a sort of Glebes or Stones, of different Figures and Sizes. Its Colour, tho' always Yellow, yet admits of divers Shades and Mixtures, as a golden Yellow, reddish Yellow, green Yellow, &c. It is found to contain a Portion of Gold, but so little, as not to quit the Cost of separating it. See ORPIMENT.

Of this are prepared two other Kinds of *Arsenic*, viz. *White* and *Red*.

This, sublimed with some other Matters, is the *Sandaracha Græcorum*. See SANDARACH.

Tho' some Naturalists will have Red *Arsenic*, and *Realgal*, two distinct Drugs, taking the latter for a native Mineral, and the former for a Preparation of a native *Arsenic*. See REALGAL.

Red Arsenic, called also *Realgal*, is only the native Yellow rubified by Fire.

The *White*, or *Crystalline*, is drawn from the Yellow, by subliming it with a Proportion of Sea-Salt.—'Tis this Species is chiefly in Use among us for real *Arsenic*. Some Authors give it a different Origin, and maintain it a native Matter, found in white scaly Glebes in the Mines.

White and Yellow *Arsenic* are also procurable from Cobalt: The Method of which, as practised in *Hungary*, is given us by Dr. *Krieg*, in the *Philosophical Transactions*, N° 293.—The Cobalt being beat to Powder, and the light sandy Part wash'd off, by a Current of Water, they put what remains in a Furnace; the Flame of which passing over the Powder, takes along with it the Arsenical Part, in Form of a Smoak; which being receiv'd by a Chimney, and carried thence into a close Brick Channel, sticks by the Way to the Sides; and is scraped off, in form of a whitish or yellowish Powder.—From what remains of the Cobalt, they proceed to make *Smalt*. See SMALT.

The smallest Quantity of any of these *Arsenics*, being mixed with any Metal, renders it friable, and absolutely destroys its Malleability.

Hence, the Refiners dread nothing so much as *Arsenic* in their Metals; nor could any thing be so advantageous to them, were such a thing to be had, as a Menstruum that would absorb, or act on *Arsenic* alone; for then their Metals would be readily purified, without flying off, or evaporating. See REFINING.

A single Grain of *Arsenic* will turn a Pound of Copper into a beautiful seeming Silver. This Hint many Persons have endeavoured to improve on, for the making of Silver, but in vain, as it could never be brought to sustain the Hammer: Some have been hang'd for coining Species of this spurious Silver. See SILVER, COINING, &c.

The Chymists furnish several Preparations of *Arsenic*, which all turn on repeated Ablutions and Sublimations, to blunt the corrosive Salts thereof, and change them into a safe Medicine, after the Manner of Sublimate—Such are Ruby of *Arsenic*, &c. But it scarce appears worth the Pains: And whatever some may urge, *Arsenic* should never be used inwardly in any Form, as gnawing and tearing the Parts, and occasioning mortal Convulsions.—Its Fume taken into the Lungs, kills instantly: And the oftner it is sublimed, says *Boerhaave*, the ranker it grows.—Butter and Cow's Milk taken in large Quantities, prove good Antidotes against *Arsenic*.

Regulus of ARSENIC, is the most fix'd and compact Part thereof, prepared, by mixing it with Pot-ashes and Soap, dissolving the whole, and casting it into a Mortar; upon which the heaviest Part falls to the Bottom. See REGULUS.

Caustic Oil of ARSENIC, is a Butyrous Liquor, like Butter of Antimony, prepared of *Arsenic* and corrosive Sublimate.—It serves to eat off fungous Flesh, cleanse carious Bones, &c.

ARSENICAL *Magnet*, *Magnes Arsenicus*, is a Preparation of Antimony, with Sulphur and White *Arsenic*.

ARSENOTHELYS, among the antient Naturalists, the same with *Hermaphrodite*. See HERMAPHRODITE.

The *Greeks* used the Word both of Men and Beasts.—It is form'd from αρσην and θηλυς, Male and Female.

ARSIS and *Thesis*, a Phrase in musical Composition, where a Point being inverted, is said to move *per Arsin & Thesin*; that is, rises in one Part, and falls in another; or, on the contrary, falls in one Part, and rises in another: Whence is produc'd a very agreeable Variety.

ART, ARS, is defined by the Schoolmen, a Habit of the Mind operative or effective according to right Reason; or, somewhat more intelligibly, a Habit of the Mind prescribing Rules for the due Production of certain Effects; or the introducing of Changes in Bodies from some Foreknowlege and Design in a Person endued with a Principle or Faculty of Acting. See HABIT, ACTION, &c.

On this Footing, *Arts* are divided into *active* and *factive*.—Such as leave no external Effect after their Operation, as Dancing, Fiddling, &c. are called *active* or *practical Arts*: Those which do leave an Effect, as Painting, &c. are called *factive*, or *Effective* Arts. *Magn. Moral.* lib. 1. cap. 35.

ART is better defined, after my Lord *Bacon*, a proper Disposal of the Things of Nature by human Thought and Experience, so as to make them answer the Designs and Uses of Mankind. See EXPERIMENT, &c.

Nature, according to that Philosopher, is sometimes free, and at her own Disposal; and then she manifests herself in a regular Order: as we see in the Heavens, Plants, Animals, &c.—Sometimes she is irregular, and disorderly, either thro' some uncommon Accident, or a Depravation in Matter, when the Resistance of some Impediment perverts her from her Course; as in the Production of Monsters. See MONSTER.—At other Times she is subdued and fashion'd by human Industry, and made to serve the several Purposes of Mankind.

This last is what we call *Art*; in which Sense, *Art* stands opposed to Nature. See NATURE, ARTIFICIAL, &c.

Hence, the Knowledge of Nature may be divided into the History of Generations, of Prætergenerations, and of *Arts*.—The first considers Nature at Liberty; the second, her Errors; and the third, her Restraints.—

ART is also used for Science or Knowledge reduced into Practice. See KNOWLEDGE.

Several of the Schoolmen hold Logic and Ethicks to be *Arts*; inasmuch as they do not terminate in mere Theory, but tend to Practice. See THEORY and PRACTICE; see also LOGICKS, ETHICKS, &c.

In this Sense, some Branches of the Mathematicks are *Arts*, others Matters of Doctrine, or Science. See MATHEMATICKS.

Staticks is wholly scientifical, as it takes up with the mere Contemplation of Motion: Mechanicks, on the contrary, is an *Art*, as it reduces the Doctrines of Staticks into Practice. See MATHEMATICKS.

ART is principally used for a certain System or Collection of Rules, Precepts, and Inventions or Experiments, which being duly observ'd, make the Things a Man undertakes succeed, and render them advantageous and agreeable. See RULE, PRECEPT, EXPERIMENT, &c.

In this Sense, *Art* is opposed to *Science*, which is a Collection of speculative Principles and Conclusions. See SCIENCE.

The Nature and Origin of Art, *and its Distinction from Science, will be farther consider'd in the* Preface *to this Work.*

Arts, in this Sense, may be divided, with respect to their Scope and Object, into *human*, as Medicine; and *divine*, as Theology. See MEDICINE and THEOLOGY.

Human, again, may be subdivided into *Civil*; as Law, Politicks, &c. *Military*, as Fortification, &c. *Physical*, as Agriculture, Chymistry, Anatomy, &c. *Metaphysical*, as Logicks, pure Mathematicks, &c. *Philological*, as Grammar, Criticism, &c. *Mercantile*, to which belong the Mechanical Arts and Manufactures. See each in its Place.

ARTS are more popularly divided into *Liberal* and *Mechanical*.

The *liberal Arts* are those that are noble, and ingenuous; or which are worthy of being cultivated without any regard to Lucre arising therefrom.—Such are *Poetry*, *Musick*, *Painting*, *Grammar*, *Rhetoric*, the *military Art*, *Architecture*, and *Navigation*. See LIBERAL; see also POETRY, MUSIC, GRAMMAR, RHETORIC, &c.

Mechanical Arts, are those wherein the Hand, and Body are more concern'd than the Mind; and which are chiefly cultivated for the sake of the Profit they bring with them.—Of which kind are most of those which furnish us with the Necessaries of Life, and are popularly known by the Name of *Trades*.—Such are *Weaving*, *Turnery*, *Brewing*, *Masonry*, *Clock-making*, *Carpentry*, *Joinery*, *Foundery*, *Printing*, &c. See TRADE, MANUFACTURE, &c.

The *mechanical Arts* take their Denomination from μηχανη, Machine; as being all practised by means of some Machine or Instrument. See MACHINE, &c.

With the *liberal Arts* it is otherwise; there being several of them which may be learnt and practiced without any Instrument at all: As Logic, Eloquence, Medicine properly so called, &c.

The *Arts* which relate to the Sight and Hearing, My Lord *Bacon* observes, are reputed liberal beyond those which regard the other Senses, which are chiefly employed in Matters of Luxury. See SENSE.

It has been well noted by some Philosophers, that during the Rise and Growth of States, the military *Arts* chiefly flourish; when arrived at their Height, the liberal *Arts*; and when on the declining hand, the voluptuary *Arts*.

There are also divers particular *Arts*; as the *Art* of Memory, the *Art* of Decyphering, *Art* of Flying, of Swimming, *Art* of Diving, &c. See MEMORY, DECYPHERING, FLYING, SWIMMING, DIVING, &c.

Democritus maintain'd, that Men learnt all their *Arts* from Brutes; the Spider taught 'em Weaving, the Swallow Building, the Nightingale Music; and several Medicine.

The Nature, Office, History, &c. *of the several Arts; will be found under their respective Articles in this Dictionary.*

The Word *Art* is derived from the Greek αρετὴ, Virtue, Industry.—This is the Opinion of *Donatus*, on the first Scene of *Terence's Andria*: *Ars ἀπὸ τῆς ἀρετῆς, dicta est per Syncopen.* Others derive it from ἄρης, Utility, Profit; which is found in that Sense in *Æschylus*.

ART is also applied to divers imaginary, and even superstitious Doctrines and Inventions.—Such are,

Lully's ART, or the *Transcendental Art*, by means whereof a Man may dispute whole Days on any Topic in Nature, without understanding the least tittle of the Thing in Dispute; thus called from its Inventor *Raimond Lully*, or *Ramon Lull*.

It consists chiefly in disposing the several Sorts of Beings into divers Scales or Climaxs, to be run down in a descending Progression.—Thus, whatever were proposed to be talk'd on, they won'd say, first, it is a *Being*, and consequently, *one*, *true*, *good*, *perfect*: then, it is either *created*, *or increated*. Again, every created Being is either *Body* or *Spirit*, &c.

Angelical ART, or *the* Art *of Spirits*, is a Method of attaining to the Knowledge of any thing desired, by means of an Angel, or rather of a Dæmon. See DÆMON.

Under this come the *Arts* of *Magic*, *Sorcery*, *Witchcraft*, &c. See MAGIC, SORCERY, WITCHCRAFT, &c.

Term of ART, *Master of* ARTS, } see { TERM, MASTER, DEGREE, FACULTY.

Ars Notoria, is a manner of acquiring Sciences by Infusion, without any other Application than a little Fasting, and making a few Ceremonies. See FASTING, &c.

They who make Profession of this *Art*, affirm that it was by means hereof that *Solomon*, in one Night's Time, acquired all his Knowledge.—*Delrio* shews it to be a criminal Curiosity, and founded on a secret Compact with the Devil. *Disquis. Mag.* p. 11. It was solemnly condemn'd by the Sorbonne, in 1320.

St. *Anselm's* ART, is a superstitious Manner of curing Wounds, by barely touching the Linen wherewith those Wounds had been cover'd. See WOUND and SYMPATHY.

Delrio, in his *Disquisitiones Magicæ*, observes that some *Italian* Soldiers, who practiced this *Art*, attributed the Invention thereof to St. *Anselm*; but assures us withal, that it was really invented by *Anselm* of *Parma*, a celebrated Magician.

St. *Paul's* ART, is a Branch of the *Ars Notoria*, so called as being supposed to have been taught by St. *Paul*, after his being taken up into the third Heaven.

ART *and Part*, is a Term used in the North of *England*, and in *Scotland*.—When any one is charged with a Crime, they say he is *Art and Part* in committing the same; that is, he was both a Contriver, and acted a Part in it. See PRINCIPAL, ACCESSARY, &c.

ARTERIOTOMY, in Chirurgery, &c. the Operation of opening an Artery; or of letting of Blood by the Arteries; practiced in some extraordinary Cases. See ARTERY, PHLEBOTOMY, &c.—For the Effects hereof, see ANEURISMA.

Arteriotomy, is a very dangerous Operation, seldom used with Design, except in the Temples, and behind the Ears, where the Arteries are easily closed again by reason of the *Cranium* underneath, which would be very difficult in any other Part.—In the other Parts it usually proves fatal; and we have numerous Instances of Persons kill'd in Bleeding, by a Mistake of an Artery for a Vein.

Catherwood endeavours to introduce *Arteriotomy* in apoplectic Cases, as much preferable to Venæsection; but he is not much followed. See APOPLEXY.

The Word is form'd of αρτηρια, and τεμνω, *seco*, I cut.

ARTERY, ARTERIA, in Anatomy, a hollow fistulous Canal, appointed to receive the Blood from the Ventricles of the Heart, and distribute it to all Parts of the Body, for the Maintainance of Heat and Life, and the Conveyance of the necessary Nutriment. See BLOOD, HEART, LIFE, &c.

The Word is Greek, αρτηρια; which some imagine deriv'd from ἀὴρ, *Aer*, the Air, and τηρέω, *servo*, to keep: But others who understand the Use of the Part better, derive it from ἀπὸ τοῦ ἀείρειν, because of its continual Throbbing or Beating.

The *Arteries* are ordinarily composed of three Coats or Membranes. The first or outermost, nervous or tendinous; being a Thread of fine Blood Vessels with Nerves, for nourishing the other Coats. The second muscular, made up of circular, or rather spiral Fibres; of which there are more or fewer *Strata*, according to the Bigness of the *Artery*: These Fibres have a strong Elasticity, by which they contract themselves with Force, when the Power by which they have been stretched out, ceases. The third and inmost Coat is a fine, dense, transparent Membrane, which keeps the Blood within its Channels, which otherwise upon the Dilatation of

of an *Artery*, would easily separate the spiral Fibres from one another. As the *Arteries* grow smaller, these Coats grow thinner.

All the *Arteries* are conical, *i. e.* begin with a Trunk, and growing less and narrower, end in Branches so minute, that they escape the Sight, unless assisted with Microscopes; by which, in the Tails of Tadpoles and very small Eels, the Extremities of the *Arteries* seem, by the swift uninterrupted Course of the Blood, to be inosculated or continued to the Originations of the Veins: The by the Transparency of those Vessels, the actual Continuation be not visible. See ANASTOMOSIS, and INOSCULATION.

The Coats of the *Arteries* are of a very dense, close Contexture; by which means the Blood not being visible thro' them, they generally appear white. Add, that the Blood proceeding from a greater Capacity to a less, is thereby somewhat obstructed in its Passage; but being forced on by the Motion of the Heart, distends the Coats, and thereby occasions a saliant Motion, call'd the *Pulse*.—By this Thickness and Whiteness of the *Arteries*, with the Pulsation observed therein, *Arteries* are distinguish'd from Veins. See VEIN.

The Pulse of the *Arteries*, like that of the Heart, consists of two reciprocal Motions, a Systole or Contraction, and a Diastole or Dilatation: But they keep opposite Times; the Systole of the one answering to the Diastole of the other. See PULSE, SYSTOLE, and DIASTOLE.

All the *Arteries* of the Body, we have observed, arise in two large Trunks, from the two Ventricles of the Heart. That from the right Ventricle, is called the *Pulmonary Artery*, serving to carry the Blood into the Lungs: That from the left, the *Aorta*, or *great Artery*; which, by its numerous Ramifications, furnishes all the rest of the Body, as far as the remotest Stages of Circulation. See CIRCULATION *of the Blood*.

The *Great Artery*, after it leaves the Heart, divides into two large Trunks, called the *ascending*, or upper; and *descending*, or lower, *Trunks*. See AORTA.

The ascending Trunk, or *Aorta ascendens*, conveys the Blood to the Head, and other upper Parts of the Body, and is subdivided into three Branches.—The first, the right *Subclavian*, whence arise the *Carotid*, *Vertebral*, *Cervical*, right *Axillary*, &c.—The second, is the *left Carotid*.—The the third, the *left Subclavian*; whence arise the *left Cervical*, *Vertebral*, and *Axillary*.—See each described in its proper Article, SUBCLAVIAN, CAROTID, VERTEBRAL, CERVICAL, AXILLARY, *&c.*

The *descending Trunk*, or *Aorta descendens*, carries the Blood to the Trunk, and the lower Parts of the Body.

Out of this arise the *Bronchial*, *Intercostals*, *Coeliac*, *Phrenic*, *Mesenteric*, *Emulgent*, *Spermatic*, *Iliac*, *Umbelical*, *Epigastric*, *Hypogastric*, *Crural*, &c. with their several Ramifications.—See each in its Place.

A Draught of the several *Arteries*, with their Divisions and Subdivisions, in their natural Order and Position, as taken from the Life; see in Plate *Anatomy*.

ARTERY, is also applied to that fistulous Tube, composed of Cartilages and Membranes, which descends from the Mouth to the Lungs, for the Conveyance and Reconveyance of the Air, in Respiration. See RESPIRATION and LUNGS.

This is particularly called the *Aspera Arteria*, or *Trachea*, and popularly the *Wind-pipe*. See TRACHEA.

ARTERIAL, or ARTERIOUS, in Anatomy, something that relates to the Arteries. See ARTERY.

The *arterial* Blood is supposed more warm, florid, and spirituous than the venal. See BLOOD.

The Antients gave the Name *Vena Arteriosa*, to the Tube or Canal whereby the Blood passes from the right Ventricle of the Heart to the Lungs, as supposing it of an intermediate Nature and Office, between an Artery and a Vein.—The Moderns finding it a real Artery, call it the Pulmonary Artery. See PULMONARY.

The *Canalis Arteriosus*, is a Tube in the Heart of a Fœtus; which with the Foramen Ovale, serves to maintain the Circulation of the Blood, and divert it from the Lungs. See CANALIS *Arteriosus*, FÆTUS, CIRCULATION, and FORAMEN *Ovale*.

ARTHRITIS, in Medicine, a Disease better known under the Name of the *Gout*. See GOUT.

The Word is form'd from the Greek αρθρον, *Articulus*, a Joint; in regard the chief Seat of that Distemper is in the Joints.—

ARTHRODIA, in Anatomy, a Species of Articulation, wherein a flat Head of one Bone is received into a shallow Socket of another. See BONE and ARTICULATION.

Such is that of the *Humerus* with the *Scapula*. See HUMERUS, &c.

The Word is formed from the Greek αρθρον, *Articulus*, and δεχομαι, *recipio*, I receive.

ARTHROSIS, or ARTHRON, in Anatomy, a Juncture of two Bones, designed for Motion; called also *Articulation*. See ARTICULATION.

The Word is formed from the Greek αρθρον, *Articulus*, Juncture, Joint.

ARTICLE, ARTICULUS, a little Part or Division of a Book, Writing, or the like.—*Aquinas* divides his Sum of Theology, into several Questions; and each Question into divers *Articles*.—Such an Account consists of so many *Articles*.

ARTICLE is also used for the several Clauses, or Conditions of a Convention, Treaty of Peace, or the like. See TREATY, CONVENTION, &c.

In this Sense we say, *Articles of Marriage*, *Articles of Capitulation*, *Preliminary Articles*, &c.—The Establishment of an *East-India* Company at *Ostend*, is a direct Breach of the eighth and ninth *Articles* of the Treaty of *Munster*.

ARTICLES *of the Clergy*, *Articuli Cleri*, are certain Statutes touching Persons and Causes ecclesiastical, made under *Edward* II. and III.

ARTICLE *of Faith*, is some Point of Christian Doctrine which we are obliged to believe, as having been revealed by God himself, and allow'd and established'd as such by the Church. See FAITH, *&c.*

ARTICLE, *Articulus*, in Anatomy, is a Joint, or Juncture, of two or more Bones of the Body. See BONE, JOINT, *&c.* see also ARTICULATION.

ARTICLE of *Death*, *Articulus Mortis*, the last Pangs, or Agony of a dying Person. See AGONY.

The Pope usually sends his Benediction to the Cardinals, *&c.* in *Articulo Mortis*.

ARTICLE, in Arithmetic, signifies the Number 10, or any Number justly divisible into ten Parts; as 20, 30, 40, *&c.*—These are sometimes called *Decads*, and sometimes *round Numbers*: *Harris*.

ARTICLE, in Grammar, is a Particle used in most Languages, for the declining of Nouns, and denoting the several Cases and Genders thereof. See PARTICLE, NOUN, CASE, GENDER, *&c.*

The Use of *Articles* arises hence, that in Languages which have not different Terminations to express the different States and Circumstances of Nouns; there is something required to supply that Office. See TERMINATION.

The *Latins* have no *Articles*; but the *Greeks*, and most of the modern Languages, have had Recourse hereto, for fixing and ascertaining the Vague Signification of common and appellative Names. See NAME and APPELLATIVE.

The *Greeks* have their ὁ, the eastern Tongues their *he*. *Emphaticum*; the *Italians* their *il*, *lo*, and *la*.—The *French* their *le*, *la*, and *les*.—The *English* also have two *Articles*, *A* and *The*; which being prefixed to Substantives, apply their general Signification to some particular Thing.—Thus we say, *A Man*; that is, some Man or other: *The Man*; that is, that certain Man.—

Hence it appears that *A* is used in a larger, and more general Sense, being applied indifferently to any particular Person or Thing.— Whereas, *The* distinguishes individually, and shews what particular Thing is spoke of.—If the Substantive to which the Particle *A* is affix'd, begin with a Vowel, or an *H*; we write and speak it, *An*: So we say, An Eye, an Hour, *&c.*

Some Grammarians make the *Article* a distinct Part of Speech; others will have it a Pronoun; and others, with Mr. *Greenwood*, a Noun adjective. See SPEECH, PRONOUN, ADJECTIVE, *&c.*

Articles are Things of great Service in a Language, as they contribute to the more neat and precise expressing of several Properties and Relation which must otherwise be lost.—And hence one great Disadvantage of the Latin, above other Languages which have *Articles*; in that the *Article* being either expressed, or left out, makes an Alteration in the Sense, which the *Latins* cannot distinguish.—Thus when the Devil said to our Saviour, *Si tu es filius Dei*, it may either be understood, *if you are a Son of God*, or, *if you are the Son of God*.—*Scaliger*, from the Want of *Articles* in the Latin, concluded them useless.

The *Italians* even prefix Articles to proper Names, which dont naturally need any, in regard they do of themselves signify Things individually.—Thus they say, *Il Ariosto*, *Il Tasso*, *Il Petrarcha*.—Even the *French* join the *Article* to the proper Names of Kingdoms, Provinces, *&c.* as *la Suede*, *la Normandie*.— And we our selves do it to the Names of certain Mountains and Rivers; as the *Rhine*, the *Danube*, the *Alps*, &c.

Indefinite ARTICLE. The *Article A* is said to be *indefinite*, because applied to Names taken in their more general, and confused Signification; as, He travelled with the Port and Equipage of a Prince; where the Word *Prince* may be understood of any Prince in the general.

Definite ARTICLE. The *Article The* is said to be *definite*, or *demonstrative*, as fixing the Sense of the Word it is put before, to one individual Thing. See DEFINITE.

Fa. *Buffier* distinguishes a third kind of *Articles* in the French, which he calls intermediate, or *partitive*; serving to denote part of the Thing expressed by the Substantives they

added to: As, *Des Scavans ont cru*, some learned Men have supposed, &c. I want, *De la lumiere*, some Light, &c.

The Use and Distinction of the definite and indefinite *Articles le* or *la*, and *de* or *du*, make one of the greatest Difficulties in the French Tongue, as being utterly arbitrary, and only to be acquired by Practice.—We may add, that in the *English*, tho' the *Articles* be so few, yet they are of such frequent Use, that they easily discover any Stranger, from a natural Englishman. See ENGLISH and FRENCH.

ARTICULARIS, ARTICULAR, in Medicine, an Epithet applied to a Disease which more immediately infests the *Articuli*, or Joints.—The *Morbus Articularis*, is the same with the Greek αρθριτις, and our *Gout*. See ARTHRITIS and GOUT.

ARTICULATE *Sounds*, are those which express the Letters, Syllables, &c. of any Alphabet, or Language. See SOUND, LETTER, ALPHABET, &c.

Brutes cannot form *articulate* Sounds, cannot *articulate* the Sounds of their Voice; excepting some few Birds, as the Parrot, Pye, &c. See VOICE.

ARTICULATION, ARTICULATIO, in Grammar, a distinct Pronunciation of Words and Syllables. See PRONUNCIATION, &c.

Articulation, is that part of Grammar which treats first of Sounds, and Letters; then of their Combination, for the composing of Syllables and Words. Hence he who pronounces his Words clearly, and distinctly, is said to pronounce them *articulately*. See LETTER, SYLLABLE, WORD, &c.

ARTICULATION, in Anatomy, a Juncture or Connexion of two Bones, design'd for Motion. See BONE, MOTION, &c.

There are various Forms and Kinds of *Articulation*, suited to the several Sorts of Motion and Action.—That which has a notable and manifest Motion, is called *Diarthrosis*. See DIARTHROSIS.—This is subdivided into *Enarthrosis*, *Arthrodia*, and *Ginglymus*. See each in its Place, ENARTHROSIS, ARTHRODIA, and GINGLYMUS.

That which only admits of an obscure Motion, is called *Synarthrosis*; see SYNARTHROSIS.—It is subdivided into *Symphisis*, *Sutura*, *Harmonia*, *Syssarcosis*, *Syncondrosis*, *Syneurosis*, *Syntenosis*, and *Synymensis*. See SYMPHISIS, SUTURA, HARMONIA, &c.

ARTIFICIAL, ARTIFICIALIS, something made by Art; not produced naturally, or in the common Course of Things. See ART.

'Art is usually consider'd as a Thing very different from 'Nature; and *artificial* Things, from natural ones: Whence 'arises another more grievous Error, *viz.* that Art is a dif'ferent Principle built upon Nature, and of such Power, 'as to be able, either to perfect what Nature had begun, 'to rectify and amend her when disordered, or to free her 'when confined; tho' not utterly to divert or transmute 'her.—But the Truth is, *artificial* Things do not differ 'from natural ones in Nature or Form, but only in the 'Efficient: Man has no Power over Nature, beside what 'he has by Motion; in vertue whereof, he can apply natu'ral Bodies to, or remove them from, one another. Where 'such Application, or joining of active Things to passive 'ones, is practicable, there may Man do any thing; where 'it is not, nothing. Gold we sometimes see purified by the 'Chymist's Fire; and sometimes find it perfectly pure in 'the Sands, Nature herself having done the Business: So 'the Rainbow is sometimes form'd on high in the Water 'of a Cloud; and sometimes here below by a sprinkling of 'Water. Nature, therefore, governs all Things; under 'this Subordination, of the Course of Nature, the Latitude 'or Evagation of Nature, and *Art*, or Man super-added 'to her other Works. *Bacon de Augmen. Scient.* lib. II. See NATURE.

ARTIFICIAL frequently coincides with *factitious*. See FACTITIOUS.

Thus we have *artificial* Sal-Armoniac, *artificial* Borax, &c. See ARMONIAC and BORAX.

ARTIFICIAL Day. See DAY.

ARTIFICIAL Globe, Sphere, &c. See GLOBE, SPHERE, &c.

ARTIFICIAL Horizon. See HORIZON.

ARTIFICIAL Eye. See EYE.

ARTIFICIAL *Numbers*, are *Secants*, *Sines*, and *Tangents*.—See SECANT, SINE, and TANGENT; see also LOGARITHMICAL.

ARTIFICIAL *Lines*, on a Sector or Scale, are certain Lines so contrived, as to represent the Logarithmick Sines, and Tangents; which, by the help of the Line of Numbers, will solve all Questions in Trigonometry, Navigation, &c. pretty exactly. See LINE, SCALE, SECTOR, &c.

ARTIFICIAL *Fire-works*, are Compositions of inflammable Materials; chiefly used on solemn Occasions, by Way of Rejoycing. See FIRE-WORKS.

ARTIFICIAL *Arguments*, in Rhetoric, are all such Proofs or Considerations as arise from the Genius, Industry, or Invention of the Orator. See ARGUMENT and INVENTION.

Such are *Definitions*, *Causes*, *Effects*, &c. which are thus called to distinguish them from Laws, Authorities, Citations, and other Arguments of that Nature, which are said to be *inartificial* Arguments. See DEFINITION, AUTHORITY, &c.

ARTILLERY, the heavy Equipage of War; comprehending all sorts of great Fire-arms with their Appurtenances, as Cannons, Mortars, Bombs, Petards, Musquets, Carbines, &c. See CANNON, MORTAR, GUN, PETARD, &c.

In this Sense, the Word *Artillery* coincides with what we otherwise call *Ordnance*. See ORDNANCE.

There was no attacking such a Place for want of heavy *Artillery*.—The *Persians*, we are told in the Embassy of *Figueroa*, would never, in 1518, have either *Artillery* or Infantry in their Armies, by reason they hinder'd their Charging and retiring with so much Nimbleness; wherein their chief military Address and Glory lay.

The Term *Artillery* is sometimes also applied to the antient Instruments of War, as the *Catapultæ*, battering Rams, &c. See ARIES, MACHINE, CATAPULTÆ, &c.

Park of ARTILLERY, is that Place in a Camp set apart for the *Artillery*, or large Fire-arms.

Traile or Train of *Artillery*, is a Set, or certain Number of Pieces of Ordnance mounted on Carriages, with all their Furniture fit for Marching.—To it frequently belong Mortar-pieces, with Bombs, Carcasses, &c. under the Direction of a Master of the *Artillery*. See MASTER.

There are Trains of *Artillery* in most of the King's Magazines, as in the *Tower*, at *Portsmouth*, *Plimouth*, &c.

ARTILLERY-*Company*, is a Band of Infantry, consisting of 600 Men, making part of the Militia or City-guard. See MILITIA.

Their Officers are a *Leader*, two *Lieutenants*, two *Ensigns*, three *Gentlemen of Arms*, &c.

ARTILLERY is also used for what we otherwise call *Pyrotechnia*, or the Art of Fire-works, with the Instruments and Apparatus belonging thereto. See PYROTECHNIA.

The Writers upon *Artillery*, are *Casimir Semionowitz*, *Apole*, *Buchnerus*, *Braunius*, *Mieth*, and *De S. Remigio*, in his *Memores de Artillerie*, which contains an accurate Description of all the Machines and Instruments of War now in Use, with every Thing that relates thereto.

ARTOTYRITES, or ARTOTYRITÆ, a Sect in Religion; being a Branch of the antient Montanists, who first appear'd in the second Century, and infected all *Galatia*. See MONTANIST.

They used Bread and Cheese in the Eucharist, or perhaps Bread baked with Cheese.—Their Reason was, that the first Men offer'd to God, not only the Fruits of the Earth, but of their Flocks too.

Hence, according to St. *Augustin*, came their Name, which is Greek; being composed of αρτος, Bread, and τυρος, Cheese.

ARVALES *Fratres*, were Priests in antient *Rome*, who assisted in the Sacrifices of the *Ambarvalia* offer'd every Year to *Ceres* and *Bacchus* for the Prosperity of the Fruits of the Earth, *viz.* of the Corn and Wine. See PRIEST and AMBARVALIA, &c.

They were instituted by *Romulus*, and were twelve in Number; all of them Persons of the first Distinction; the Founder himself having been of the Body.—They made a College, called *Collegium Fratrum Arvalium*. See COLLEGE.

The Mark of their Dignity, was a Garland, composed of Ears of Corn, tied with a white Ribbon, which *Pliny* says, was the first Crown in Use at *Rome*. See CROWN.

The Word is originally Latin, and is formed from *Arvum*, a Field; because, in their Ceremonies, they went in Procession a-round the Fields: Others say, because they were appointed Arbitrators of all Differences relating to the Limits of Fields and Land-Marks.

According to *Fulgentius*, *Acca Laurentia*, *Romulus*'s Nurse, was the first Founder of this Order of Priests: She, it seems, had twelve Sons, who used to walk before her in the Sacrifice; one of whom dying, *Romulus*, in favour of his Nurse, promised to take his Place; and hence, says he, came this Sacrifice, the Number twelve, and the Name of Brother.—*Pliny* seems to indicate the same thing, when he mentions that *Romulus* instituted Priests of the Fields, after the Example of *Acca Laurentia* his Nurse.

ARUSPICES, an Order of Priests among the antient *Romans*, who foretold Things to come, by inspecting the Entrails of Beasts killed in Sacrifice. See PRIEST and SACRIFICE.

The Word is derived from *haruga*, which signifies the Entrails of Victims; and *aspicere*, to view or consider. Others say, from *Aras*, and *Inspicere*, to inspect the Altars.—Fa. *Pezron* is positive the Word was originally form'd of the Celtic *Au*, Liver; and *spicio*, I look; whence *Auspex*: Which being a Word somewhat rude of Pronunciation, they thence form'd *Aruspex*. See AUSPICES.

The Doctrine or Discipline of the *Aruspices*, was form'd into a precise Art, called *Aruspicina*. See DIVINATION.

ARYTÆNOIDES, in Anatomy, the third and fourth Cartilages of the Larynx, situate under the Thyroides; call'd also *Guttales*. See LARYNX.

The *Arytænoides* are thus called on account of the Figure of an Ewer; which, together, they somewhat resemble: From

From ἀρύω, *haurio*, to drink; and εἶδος, *Forma*, Shape.

ARYTÆNOIDEUS, in Anatomy, a Pair of Muscles of the Larynx. See LARYNX.

The *Arytænoideus* has its Head in one Arytænoid Cartilage, and its Tail in the other; and serves to bring them together, and shut the Rima or Glottis. See GLOTTIS.

ARYARYTÆNODEUS, in Anatomy, one of the Muscles serving to close the Larynx; otherwise called little *Arytænoideus*, and *Aryaritænoideus*, as deriving its Origin from the posterior and inferior part of the Arytænoides. See ARYTÆNOIDES.

ARYTHMUS, in Medicine, a Sinking or Failure of the Pulse, so as it can no longer be felt. See PULSE.

The Word is form'd from the privative Particle α, and ῥύθμος, *Modulus*, or *Pulsus*.

AS, among Antiquaries, has two different Significations.

1° It signifies a Weight; and in this Sense the Roman *As* is the same with the Roman *Libra*, or Pound. See WEIGHT, LIBRA, POUND, &c.

The *As* had several Divisions.—The principal were, the *Uncia*, or Ounce; which was the twelfth Part of the *As*: *Sextans*, the sixth Part of the *As*, or two Ounces: *Quadrans*, the fourth Part of the *As*, or three Ounces: *Triens*, the third Part of the *As*, which was four Ounces: *Quincunx* was five Ounces: *Semis*, half the *As*, that is six Ounces: *Septunx*, seven Ounces: *Bes*, two Thirds of the *As*, or eight Ounces: *Dodrans*, three Fourths of the *As*, or nine Ounces: *Dextans*, ten Ounces: *Deunx*, eleven Ounces. See OUNCE, UNCIA, QUADRANS, &c.

Hence, also, the Word *As* came to signify a whole or entire Thing, or the Totality of any Thing; in which Sense it was used, principally, in Matters of Succession, and signified the whole Succession, or Inheritance. Thus, to inherit to any Person, *ex asse*, was to inherit all his Estate, to be his sole Legatee, his only Heir; and thus, to inherit, *ex triente*, *ex semisse*, *ex besse*, was to inherit a Third, an Half, or two Thirds of the Estate.

2° *As* was also the Name of a Roman Coin. See COIN.

Under *Numa Pompilius*, according to *Eusebius*, the *As* was either of Wood, Leather, or Shell.—In the Time of *Tullus Hostilius*, it was Brass, and was call'd *As*, *Libra*, or Pound.—Four hundred and twenty Years after, the first *Punic* War having exhausted the Treasury, they retrench'd a *Sextans* or two Ounces, and thenceforward only made it of the Weight of a *Dextans*, or ten Ounces.—After this they took away another Ounce, and reduced the *As* to a *Dodrans*, or nine Ounces.—Lastly, by the *Papirian* Law, they took away an Ounce and half more, and reduced the *As* to a *Septunx* and *Semuncia*: And 'tis generally thought that it rested here all the Time of the Commonwealth. See MONEY.

This last was called the *Papirian As*, in regard the Law just mentioned was pass'd in the Year of *Rome* 563, by *C. Papirius Carbo*, then Tribune of the People. Thus there were four different *As*'s in the Time of the Commonwealth.

The Figure which the *As* bore, was a *Janus* with two Faces on the one Side, and the Rostrum or Prow of a Ship on the other Side.

The Word is derived from the Greek ἅς, which, in the *Dorick* Dialect, is used for εἷς, one, *q. d.* an entire Thing; as above noted. *Goodwin* will have it named *As*, quasi *Æs*, because made of Brass.—*Budæus* has wrote nine Books *De Asse & ejus partibus*, of the *As* and its Parts.

ASAPPES, ASAPPI, an Order of Soldiers in the *Turkish* Army, whom they expose to the first Shock of their Enemies, to the end that being thus fatigued, and their Swords blunted, the Spahi's and Janizaries may fall on and find an easy Conquest.

The *Asappes* are held of so little Value, that they frequently serve as Bridges for the Cavalry to pass over, in ill Roads, and as Fascines to fill up the Ditches of Places besieged.—The greatest Part of them are natural *Turks*; they travel on Foot, and have no Pay, but the Plunder they can get from the Enemy.

The Word is deriv'd from the Turkish *Saph*, which signifies Rank, File, Order; from whence they have formed *Asphaph*, to range in Battle.

ASBESTINE *Paper* or *Cloth*, is such as will burn in the Fire, be purified by it, and yet not consume. See INCOMBUSTIBLE.

It is made of the *Asbestos*, or *Lapis Amianthus*; and is by some called *Linum Vivum*. See ASBESTOS.

The Antients are said to have made Napkins and Towels of it, which, when foul, instead of Washing, they threw into the Fire to cleanse. See LINUM *Incombustibile*.

ASBESTOS, or *Amianthus*, *Lapis*, in natural History, called also *Carystius Lapis*, an incombustible Matter; supposed by some to be a sort of Flax, growing on the *Pyreneans*; whence it is also called *Linum vivum*, *Linum Incombustibile*, &c.

The *Asbestos*, or *Lapis Asbestos*, is really a sort of native, fissile Stone, which one may split into Threads or Filaments, very fine, brittle, yet somewhat tractable, silky, and of a greyish silver Colour, not unlike *Talc* of *Venice*.

It is almost insipid to the Taste, indissoluble in Water; and exposed to the Fire, neither consumes nor calcines.—A large Burning-glass, indeed, reduces it into little Glass Globules, in proportion as the Filaments separate; but common Fire only whitens it. See BURNING-*Glass*.

These Filaments are of different Lengths, from one Inch to ten.—The Stone is found inclosed within other very hard Stones, and is brought from the Isles of the *Archipelago*, the *Pyreneans*, and from *Montauban* in *France*. We have also seen Instances of it in *Scotland*, *Wales*, &c.

Several Persons have pretended to the Secret of spinning the *Asbestos*: *B. Porta* assures, that in his Time, 'twas a thing known to every Body in *Venice*: And yet this should seem hardly practicable, without the Mixture of some other very pliant Matter, as Wool, Line or Hemp along with it; the Filaments of the *Amianthus* it self being too brittle to make any tolerably fine Works.—*See further of the natural History, Preparation, Manufacturing*, &c. *of this celebrated Stuff, under the Article* LINUM *Incombustibile*.

The Works made of *Asbestos*, were heretofore held in so great Esteem, that they were of equal Price with Gold; and none but Emperors and Kings had Napkins made of it. See ASBESTINE-*Cloth*.

Some Antiquaries are of Opinion, that the Antients made Shrouds of the *Asbestos*, wherein they burnt the Bodies of their Kings, in order to preserve their *Ashes* entire, and prevent their being mix'd with those of Wood, and other combustible Matters, whereof the common Funeral Piles were form'd. See FUNERAL, BURNING, &c.

Others assert, that the Antients used the *Asbestos*, to make perpetual Wicks for sepulchral Lamps.

However this be, there are some at this Day who use the *Asbestos* for the Wicks of such Lamps as they would not have any trouble withal; because the *Amianthus* never wasting, there is no occasion for shifting the Wick. See LAMP.

The Word ἄσβεστος, *Asbestos*, properly signifies an *incombustible Body*; being formed of the privative Particle α, and σβέννυμαι, *extinguo*.—Notwithstanding the common opinion that Fire has no Effect on the *Asbestos*; yet, in two Trials before the Royal Society, a Piece of incombustible Cloth made of this Stone, a Foot long, and half a Foot broad, weighing about an Ounce and half, was found to lose above a Dram of its Weight, each time.

The *Asbestos* applied to any Part of the Body, excites an Itching; and yet we read of it as antiently prescribed for Diseases of the Skin, and particularly for the Itch: Unless it were rather the *Alumen Plumosum* that was meant hereby; for even at this Day, they are frequently confounded. See ALUM and PLUMOSE.

ASCARIDES, in Medicine, a kind of little Worms, sometimes found in the Rectum, and adhering to the Fundament. See WORMS and VERMES.

They are thus called from the Greek ἀσκαρίζω, *I leap*, on account of their continual troublesome Motion, causing a most intolerable itching.

ASCENDANT, or ASCENDENT, or ASCENDING *Line*, in Genealogy, is understood of such Relations as have gone before us; or those nearer the Root of the Family. See LINE and CONSANGUINITY.

Such are Father, Grandfather, Great Uncle, &c.—They are thus called in Contradistinction to Descendants, or the descending Line. See DESCENDANT.

Marriage is always forbid between the *Ascendents* and Descendents, in the direct Line. See MARRIAGE, DEGREE, &c.

ASCENDENT, in Astrology, the Horoscope; or the Degree of the Equator which rises upon the Horizon, at the Time of the Birth of any one. See HOROSCOPE.

This is supposed to have an Influence on his Life and Fortune, by giving him a Bent and Propensity to one thing more than another. See NATIVITY, &c.

In the Cœlestial Theme, this is also called the *First House*, the *Oriental Angle*, and the *Significator of Life*. See HOUSE, THEME, SIGNIFICATOR, &c.

Such a Planet ruled in his *Ascendent*.—*Jupiter* was in his *Ascendent*, &c.

Hence the Word is also used in a moral Sense, for some Superiority which one Man has over another, from some unknown Cause.

ASCENDING, in Astronomy, is understood of those Stars, or Degrees of the Heavens, &c. which are rising above the Horizon, in any Parallel of the Equator. See RISING and HORIZON.

ASCENDING *Latitude*, is the Latitude of a Planet when going towards the Poles. See LATITUDE.

ASCENDING *Node*, is that Point of a Planet's Orbit, wherein it passes the Ecliptic, to proceed to the Northward. See ORBIT, PLANET, &c.

This

This is otherwise called the *northern Node*, and represented by this Character ☊. See NODE, &c.

ASCENDING, *Ascendens*, in Matters of Genealogy, &c. See ASCENDENT.

ASCENDING *Signs*, among Astrologers, are those which are upon their Ascent or Rise; from the Nadir or lowest Part of the Heavens, to the Zenith or highest. See SIGN, ZENITH, NADIR, &c.

ASCENDING, in Anatomy, is applied to such Vessels as carry the Blood upwards, or from lower to higher Parts of the Body. See BLOOD and VESSEL.

The *Ascending Aorta*, *Aorta ascendens*, is the superior Trunk of the Artery, which furnishes the Head. See AORTA.

The *ascending Cava*, *Vena Cava Ascendens*, is a large Vein form'd by a Meeting or Union of the two Iliacks of one Side, with those of the other. See CAVA.

Many of the antient Anatomists, call'd this the *descending Cava*; as imagining that the Blood descended from the Liver by this Vein, to supply the Parts below the Diaphragm. But the Moderns have shewn that it has a quite contrary Use, and serves for the Conveyance of the Blood from the lower Parts to the Head; whence its Appellation *Ascendent*.

ASCENSION, ASCENSIO, a rising, or moving upwards. See ASCENT, ASCENDANT, ASCENDING, &c.

ASCENSION is particularly used for that miraculous Elevation of our Saviour, when he mounted to Heaven in the Sight of his Apostles.—

Hence also, ASCENSION-*Day*, a Festival of the Church, held ten Days before *Whitsuntide*, in Memory of our Saviour's *Ascension*. See FEAST.

ASCENSION, in Astronomy, is either *right* or *oblique*.

Right ASCENSION. See RIGHT *Ascension*.

To find the *Right Ascensions* of the Sun, Stars, &c. trigonometrically, say, as Radius is to the Cosine of the Sun's greatest Declination, so is the Tangent of the Distance from *Aries* or *Libra*, to the Tangent of *Right-Ascension*.

To find the *Right-Ascensions* mechanically by the Globe. See GLOBE.

The Arch of Right-Ascension, is that Portion of the Equator intercepted between the beginning of *Aries*, and the Point of the Equator which is in the Meridian: Or it is the Number of Degrees contained therein.—This coincides with the *Right-Ascension* it self.—The *Right-Ascension* is the same in all Parts of the Globe.

We sometimes also say, the *Right-Ascension* of a Point of the Ecliptic, or any other Point of the Heavens. See DESCENSION.

Oblique ASCENSION. See OBLIQUE *Ascension*.

To find the Oblique *Ascensions* of the Sun, either trigonometrically, or by the Globe. See ASCENSIONAL *Difference*, and GLOBE.

The Arch of Oblique-Ascension, is an Arch of the Horizon intercepted between the beginning of *Aries*, and the Point of the Equator which rises with a Star or Planet in an Oblique Sphere.—This coincides with the Oblique *Ascension* it self.—The Oblique *Ascensions* change according to the Latitude of the Places.

The Difference between the Right and Oblique *Ascensions*, is called the *ascensional Difference*. See ASCENSIONAL.

ASCENSIONAL *Difference*, is the Difference between the Right and Oblique *Ascension*. See ASCENSION.

Or it is the Space of Time which the Sun rises or sets before or after six of the Clock.

To find the *Ascensional* Difference trigonometrically, having the Latitude of the Place, and the Sun's Declination given; say, As the Co-Tangent of the Latitude, is to the Tangent of the Sun's Declination, so is the Radius to the Sine of the *Ascensional* Difference.

For Example, suppose the Latitude be 51°. 30'. and the Sun's Declination 9°. 00'.

Then, to the Ar-co. of the Co-Tangent of — — —	51°. 30'.	0,099395
Add the Tangent of — —	9°. 00'.	9,199712
Sum is the Sine of — —	11°. 29'	=9,299107

which is the *ascensional* Difference required; and being reduced into Time, by allowing four Minutes of an Hour for every Degree, it will be 44'. 29". See TIME.

If the Sun be in any of the northern Signs, and the *ascensional* Difference, as D O, be substracted from the Right *Ascension* D, in *Tab. Astronomy*, Fig. 63. the Remainder will be the Oblique *Ascension* O.—If he be in a southern Sign, the *ascensional* Difference being added to the *Right Ascension*, the Sum is the Oblique *Ascension*; and thus may Tables of Oblique *Ascensions* be constructed for the several Degrees of the Ecliptick, under the several Elevations of the Pole. See TABLE.

ASCENSORIUM occurs in our antient Writers for a Stair or Step. See STAIR.

ASCENT, ASCENSUS, the Motion of a Body tending from below upwards. See MOTION.

In this Sense the Word stands opposed to Descent. See DESCENT.

The Peripateticks attribute the spontaneous *Ascent* of Bodies, to a Principle of Levity inherent in them. See LEVITY.

The Moderns deny any such Thing as spontaneous Levity, and shew that whatever ascends, does it in virtue of some external Impulse or Extrusion. Thus it is that Smoak, and other rare Bodies, ascend in Atmosphere; and Oil, light Woods, &c. in Water: Not by any external Principle of Levity, but by the superior Gravity or Tendency downwards of the Parts of the Medium wherein they are. See GRAVITY, MEDIUM, ATMOSPHERE, &c.

The *Ascent* of light Bodies in heavy Mediums is produced after the same manner as the *Ascent* of the lighter Scale of a Ballance.—It is not that such Scale has an internal Principle whereby it immediately tends upwards; but it is impelled upwards by the Præponderancy of the other Scale; the Excess of the Weight of the one having the same Effect by augmenting its Impetus downwards, as so much real Levity in the other: By reason the Tendencies mutually oppose each other.—*See this further illustrated under the Articles* SPECIFIC *Gravity*, FLUIDS, HYDROSTATICAL *Ballance*, &c.

ASCENT *of Bodies on inclined Planes*. See the Doctrine and Laws thereof, under the Article *Inclined* PLANE.

ASCENT *of Fluids*, is particularly understood of their rising above their own Level between the Surfaces of nearly contiguous Bodies, or in slender capillary Glass Tubes, or in Vessels filled with Sand, Ashes, or the like porous Substance. See FLUID.

This Effect happens as well *in vacuo* as in the open Air, and in crooked as well as strait Tubes.—Some Liquors, as Spirit of Wine, and Oil of Turpentine, ascend swifter than others; and some rise after a different manner from others. Mercury does not ascend at all, but rather subsides.

The Phænomenon, with its Causes, &c. in the Instance of Capillary Tubes, will be spoke of more at large under the Article CAPILLARY *Tube*.

As to Planes—Two smooth polished Plates of Glass, Metal, Stone, or other Matter, being so disposed as to be almost contiguous, have the Effect of several parallel capillary Tubes; and the Fluid rises in them accordingly, the like may be said of a Vessel fill'd with Sand, &c. the divers little Interstices whereof form, as it were, a kind of Capillary Tubes. So that the same Principle accounts for the Appearance in them all. And to the same may probably be ascribed the *Ascent* of the Sap in Vegetables. See VEGETABLE and VEGETATION.

Thus Sir *I. Newton*—'If a large Pipe of Glass be filled 'with sifted Ashes well pressed together, and one End dipped into stagnant Water, the Fluid will *ascend* slowly in 'the Ashes, so as in the Space of a Week or Fortnight, to 'reach the Height of 30 or 40 Inches above the stagnant 'Water. This *Ascent* is wholly owing to the Action of 'those Particles of the Ashes which are upon the Surface of 'the elevated Water; those within the Water attracting as 'much downwards as upwards: It follows, that the Action 'of such Particles is very strong; tho' being less dense and 'close than those of Glass, their Action is not equal to that of 'Glass, which keeps Quicksilver suspended to the Height 'of 60 or 70 Inches, and therefore acts with a Force which 'would keep Water suspended to the Height of above 60 'Feet.—By the same Principle, a Sponge sucks in Water, 'and the Glands in the Bodies of Animals, according to 'their several Natures and Dispositions, imbibe various 'Juices from the Blood.' *Opticks*, p. 367.

If a Drop of Oil, Water, or other Fluid, be laid on a Glass Plane perpendicular to the Horizon, so as to stand without breaking or running off; and another Plane inclined to the former, so as to meet a-top, be brought to touch the Drop; then will the Drop break, and ascend towards the touching End of the Planes: And it will ascend the faster in proportion as it is higher, by reason the Distance between the Planes is constantly diminishing.—After the same manner, the Drop may be brought to any part of the Planes, either upward or downward, or sideways, by altering the Angle of Inclination.

Lastly, if the same perpendicular Planes be so placed, as that two of their Sides meet and form a small Angle, the other two being only kept a-part by the Interposition of some thin Body; and thus immerged in a Fluid tinged with some Colour: The Fluid will ascend between the Planes, and this the highest where the Planes are nearest; so as to form a Curve Line, which is found to be a just Hyperbola, one of the Asymptotes whereof, is the Line of the Fluid, the other being a Line drawn along the touching Sides.—

The

The physical Cause in all these Phænomena, is the same Power of Attraction. See ATTRACTION.

ASCENT, in Astronomy, &c. See ASCENSION.

ASCENT in Logic, is a kind of Argumentation, wherein we rise from Particulars to Universals. See UNIVERSAL, ARGUMENT, and PARTICULAR.

As, when we say, This Man is an Animal, and that Man is an Animal, and the other Man, &c. therefore every Man is an Animal.—Or Fire, Water, Air, and Earth, are four; therefore the Number of Elements is four.—See INDUCTION.

ASCETIC, ASCETA, ASCETES, an antient Name for such Persons, as in the primitive Times devoted themselves to the Exercises of Piety and Virtue in a retired Life; and particularly to Prayer and Mortification. See SOLITARY.

Afterwards, when the Monks came in fashion, this Title was bestowed upon them; especially such of them as lived in Solitude. See MONK, HERMIT, ANCHORITE, &c.

The Word is derived from the Greek ἀσκήτται, which is form'd from ἀσκέω, *exerceo*, I exercise.

The Term *Ascetic* is also used as a Title of several Books of Spiritual Exercises: As, the *Ascetick*s, or devout Treatises of St. *Basil*, Archbishop of *Cæsarea* in *Cappadocia*.

We also say, the *Ascetic Life*, meaning the Exercise of Prayer, Meditation, and Mortification.—See MYSTIC.

ASECRETA, a Secretary. See SECRETARY.

ASCETERIUM, ASSISTERIUM, ARCHISTERIUM, &c. are Words frequently used among our antient Writers, for a *Monastery*. See MONASTERY.

ASCII, in Geography, are those Inhabitants of the Globe, which, at certain Times of the Year, have no Shadow. See GLOBE and SHADOW.

Such are the Inhabitants of the Torrid Zone; by reason the Sun is sometimes vertical to them. See TORRID and ZONE.

To find on what Days the People of any Parallel are *Ascii*. See GLOBE.

The Word is form'd of the privative Particle α, and σκια, *Umbra*, Shadow.

ASCITÆ, in Antiquity, a Sect or Branch of Montanists, who appear'd in the eleventh Century. See MONTANIST.

The Word is derived from the Greek ἀσκὸς, a Bag or Bottle. The *Ascitæ* were so call'd, because they introduc'd a kind of Bacchanals into their Assemblies, who danced round a Bag or Skin blow'd up; saying, they were those new Bottles fill'd with new Wine, whereof Jesus Christ makes mention, *Matth.* xix. 17.

These are sometimes also call'd *Ascodrogites*.—

ASCITES, in Medicine, a Species of Dropsy, affecting chiefly the Abdomen, or Lower Belly. See ABDOMEN.

The *Ascites* is the ordinary Water-Dropsy. See DROPSY.

The Word is borrowed from the Greek ἀσκὸς, *Uter*, Belly.

ASCLEPIAD, ASCLEPIADÆUS, a *Greek* or *Latin* Verse of four Feet, containing a Spondee, a Coriambus, and two Dactyls. See FOOT and VERSE.

Such is the Verse, *Mæcenas atavis Edite Regibus.*

Or of four Feet, and a long Syllable; the first a Spondee, and the second a Dactyl, after which comes the long Syllable, succeeded by two Dactyls: as,

Sublimi feriam sidera vertice.

ASCODROUTES, in Antiquity, a Sect of Hereticks, in the second Century, who rejected all Use of Sacraments, on this Principle, that incorporeal Things cannot be communicated by Things visible and corporeal. See SACRAMENT.

They made perfect Redemption consist in the Knowledge of the Universe, *Theodoret*, lib. 1. *Hæret.*

ASCOLIA, in Antiquity, a Feast which the Peasants of *Attica* celebrated in Honour of *Bacchus*. See FEAST.

They sacrificed a Goat to him, and of the Skin thereof made a Foot-ball, which they blew up, and anointed with some unctuous Matter. The young People playing at this, and keeping themselves always on one Foot, whilst the other was suspended in Air, by their frequent Falls, gave occasion of Diversion to the Spectators.—Hence this Feast took its Name; ἀσκὸς, signifying a *Bag* or *Budget*.

ASELLUS, in Medicine. See MILLEPEDES.

ASHLAR, a Term among Builders; by which they mean common or free Stones, as they come out of the Quarry, of different Lengths and Thicknesses. See STONE and QUARRY.

ASHLERING, among Builders, Quartering to tack to, in Garrets, about 2 ½, or 3 Foot high, perpendicular to the Floor, up to the Underside of the Rafters. See BUILDING, ROOF, COVERING, &c.

ASH, in Building. See TIMBER.

ASH-WEDNESDAY, the first Day of Lent; so called from a Custom of the antient Church, of Fasting in Sackcloth, with *Ashes* on their Heads, in Token of Humiliation. See LENT.

ASHES, *Cineres*, the terrene or earthy Part of Wood, and other combustible Bodies, remaining after they are burnt or consumed with Fire. See EARTH, BURNING, FIRE, &c.

Ashes are properly the Earth, and fix'd Salts of the Fuel, which the Fire cannot raise, all the other Principles being gone off in the Smoak. See SMOAK, FUEL, FIX'D, VOLATILE, SALT, &c.

The Chymists frequently call the *Ashes* of a Body its *Calx*. See CALX and CALCINATION.

Ashes, if well burnt, are usually pure White, by reason the Oil to which they owe their Blackness when in a Coal, is supposed quite evaporated. See COAL, SULPHUR, &c. WHITE, BLACK, &c.

The *Ashes* of Kali, Fern, or the like, are a principal Matter in the Composition of Glass. See KALI, GLASS, &c.

The *Ashes* of all Vegetables are found to contain Iron, insomuch that M. *Geoffroy* makes it a chymical Problem, which he proposes to the Public, *To find Ashes without any Particles of Iron therein.*—Whether the Metal existed in the Plants themselves, or is produced in 'em by the Operation of Calcination, is a Point very ingeniously controverted between Mess. *Geoffroy* and *Lemery* the younger, in the Memoirs of the Royal Academy. *See the Substance of the Dispute under the Article* METAL.

Ashes, are of considerable Use in making Lixiviums, or Lyes, for the Purposes of Medicine, Bleaching, Sugar-Works, &c. See LIXIVIUM; see also BLEACHING, &c.

The Antients preserved the *Ashes* of their dead Ancestors, with great Care and Piety, in Urns, for the Purpose. See FUNERAL, URN, &c.

Ashes, of all Kinds, in Virtue of their Salt, make an excellent Manure for cold and wet Grounds. See MANURE.

Hence that of *Virgil*,

———*Ne pudet,*
Effœtos Cinerem immundum jactare per agras.

Pot-ASHES. See POT-*Ashes*.

In the *Philosophical Transactions*, N° 21. we have an Account of a Shower of *Ashes* in the *Archipelago*, which held several Hours, and extended to Places distant above 100 Leagues. See SHOWER and RAIN.

ASIDE, in the Drama.—*An Aside*, *Seorsim*, is something which an Actor speaks a-part, or, as it were, to himself, for the Instruction of the Audience, by discovering some Sentiment which otherwise did not appear, and which is to be concealed from the rest of the Actors then present.

The severer Criticks condemn all *Asides*; and with some Reason; as they are a manifest Breach of Probability.—Accordingly, they are never to be used but at a Pinch, which a good Author will scarce suffer himself to be brought to. See PROBABILITY, TRAGEDY, COMEDY; see also SOLILOQUY.

ASPALATH, ASPALATHUM, in Pharmacy, the Wood of a prickly Tree, heavy, oleaginous, somewhat sharp and bitter to the Taste, of a strong Smell and Purple Colour. See WOOD.

The *Aspalath* is otherwise called *Rhodium*, or *Rosewood*, and was antiently in much Repute, as an Astringent or Dryer, but now disused. See ROSE.

In Virtue, Taste, Smell, and Weight, it resembles the *Lignum Aloes*; and in Physick they are frequently substituted the one for the other. See ALOES.

There are four Kinds of *Aspalath*—the first, of the Colour of Box; hard, solid, heavy, and of a Smell like Roses, whence its Appellation *Rosewood*.—The second, red, like Yew, and of a very agreeable Smell.—The third, hard, twisted, knotty: It has a rank Smell, like that of a Goat, and a disagreeable Taste.—The fourth, has an ash-colour'd Bark, and its a Wood of a Purple Dye.

The Rose-wood is what the Inhabitants of *Martinico* call *Cypress-wood*. See CYPRESS.

It affords an Oil of an admirable Scent; reputed one of the best of Perfumes, chiefly used in scenting Pomatums and Liniments. See PERFUME.

ASPECT, ASPECTUS, in Perspective, Gardening, &c. See PROSPECT, EXPOSURE, &c.

ASPECT, in Astronomy, is used for the Situation of the Stars, or Planets, in respect of each other; or certain Configurations, and mutual Relations between the Planets, arising from their Situations in the Zodiac. See STAR, PLANET, &c.

Tho' such Configurations may be varied, and combined a thousand Ways, yet only a few of them are considered.—Hence, *Wolfius* more accurately defines *Aspect* the meeting of luminous Rays emitted from two Planets, to the Earth, either situate in the same Right Line, or including an Angle which is one or more Quota Parts of four Right Angles. See RAY and ANGLE.

Hence it follows, that Conjunction and Opposition are the two Extremes of the *Aspects*; Conjunction being the Beginning, and Opposition the highest Term. See CONJUNCTION and OPPOSITION.

Beſide theſe two extreme *Aſpects*, Conjunction, and Oppoſition, the Antients reckon'd three other, *viz. Trigon* or *Trine*, the Angle meaſured by A B. *Tab. Aſtron.* Fig. 3. *Tetragon* or *Quadrate*, the Angle meaſured by the Quadrant A D; and *Sextile*, which is the Angle meaſured by the Sextant A G. See TRIGON, TETRAGON, QUADRATE and SEXTILE.

The Doctrine of *Aſpects* was introduced by the Aſtrologers, as the Foundation of their Predictions.—Hence *Kepler* defines *Aſpect* by an Angle form'd by the Rays of two Planets meeting on the Earth, able to excite ſome natural Power or Influence. Accordingly, we read much of *benign Aſpects*, *malign Aſpects*, &c.—But this Notion is long ago exploded. See ASTROLOGY.

To the antient *Aſpects*, the modern Writers have added ſeveral more; as *Decile*, containing the tenth Part of a Circle; *Tridecile*, three tenths; and *Biquintile*, four tenths, or two fifths.—*Kepler* adds others, as he tells us, from meteorological Obſervations; as, the *Semi-Sextile*, containing the twelfth part of a Circle; and *Quincunx*, containing five twelfths.—Laſtly, to the aſtrological Phyſicians we owe *Octile*, containing one eighth; and *Trioctile*, containing three eighths.

The Angle intercepted between two Planets in the *Aſpect* of Conjunction is 0; in the *Semi-Sextile Aſpect*, 30°; in *Decile*, 36°; in *Octile*, 45°; in *Sextile*, 60°; in *Quintile*, 72°; in *Quartile*, 90°; in *Tridecile*, 108°; in *Trine*, 120°; in *Trioctile*, 135°; in *Biquintile*, 144°; in *Quincunx*, 150°; in *Oppoſition*, 180.

Theſe Angles or Intervals are reckoned on the ſecondary Circles; for the manner whereof, ſee SECONDARY *Circle*.

The *Aſpects* are uſually divided into *Partile* and *Platic*.

Partile ASPECTS, are when the Planets are juſt ſo many Degrees diſtant, as is above expreſſed.—

Platic ASPECTS, are when the Planets do not regard each other from theſe very Degrees; but the one exceeds as much as the other comes ſhort.—

Double ASPECT, is uſed in Painting, where a ſingle Figure is ſo contrived, as to repreſent two or more different Objects, either by changing the Poſition of the Eye, or by means of angular Glaſſes.—

Inſtances hereof ſee under the Articles MIRROR, CATOPTRICK CISTULA, ANAMORPHOSIS, &c.

ASPER, in Grammar.—*Spiritus* ASPER, a Character or Accent, in form of a c; placed over certain Letters, in the Greek Tongue, to ſhew they are to be ſtrongly aſpirated, and to ſupply the Place of an *h*. See ASPIRATE.

ASPER alſo ſignifies a little Turkiſh Silver Coin, wherein moſt of the Grand Signior's Revenues are paid. See COIN and MONEY.

The *Aſper* is worth ſomething more than an *Engliſh* Halfpenny.—The only Impreſſion it bears, is that of the Prince's Head under whom it was ſtruck—The Pay of the Janizaries, is from twelve to fifteen *Aſpers per Diem*. See JANIZARY.

ASPERA *Arteria*, in Anatomy, the *Wind-pipe*; otherwiſe called the *Trachea*. See TRACHEA and ARTERY.

The *Aſpera Arteria*, is a Canal ſituate in the Fore-part of the Neck, before the Oeſophagus: Its upper End is called the *Larynx*; from whence it deſcends to the fourth Vertebra of the Back, where it divides and enters the Lungs. See OESOPHAGUS, LARYNX, VERTEBRA, &c.

It is form'd of annular Cartilages ranged at ſmall and equal Diſtances from one another, growing ſmaller and ſmaller, as they approach the Lungs; and thoſe of the Bronchia ſo cloſe to one another, that, in Expiration, the ſecond enters within the firſt, and the third within the ſecond, and the following always enters the preceding. See RESPIRATION, &c.

Betwixt the Larynx and the Lungs, theſe Cartilages make not complete Rings; but their hind Part, which is contiguous to the Oeſophagus, is membranous, that they may better contract and dilate, and give way to the Food as it paſſes down the Gullet. See DEGLUTITION.

The Cartilages of the Bronchia are completely annular, yet their capillary Branches have no Cartilages, but inſtead of them ſmall circular Ligaments, which are at pretty large Diſtances from one another.—The Uſe of the Cartilages, is to keep the Paſſage for the Air open; but in the capillary Bronchia, they would hinder the ſubſiding of the Veſſels. See BRONCHIA.

Theſe Cartilages are tied together by two Membranes, external and internal: the external is compoſed of circular Fibres, and covers the whole Trachea externally; the internal is of an exquiſite Senſe, and covers the Cartilages internally: it is compoſed of three diſtinct Membranes; the firſt woven of two Orders of Fibres; thoſe of the firſt Order being longitudinal, for the ſhortening the Trachea; theſe make the Cartilages approach and enter one another: the other Order is of circular Fibres, for the contracting the Cartilages.

When theſe two Orders of Fibres act, they aſſiſt, together with the external Membrane, in Expiration, in Coughing, and in Altering the Tone of the Voice. See EXPIRATION, VOICE, &c.

The ſecond Membrane is altogether glandulous; and the excretory Veſſels of its Glands opening into the Cavity of the Trachea, ſeparate a Liquor for moiſtening the ſame, and defending it from the Acrimony of the Air.—The laſt is a Net of Veins, Nerves, and Arteries; the Veins are Branches of the *Vena Cava*, the Nerves of the Recurrent; and the Arteries, Sprigs of the Carotides. *See further under the Article* TRACHEA.

ASPERIFOLIÆ, in Botany, one of the Diviſions or Kinds of Plants. See PLANT.

The Characters of the *Aſperifolious* Kind, are, that the Leaves ſtand alternately, or without any certain Order on the Stalks: The Flowers are monopetalous, but have the Margin cut into five Diviſions, ſometimes deep, ſometimes ſhallow; and the upper Spike or Top of the Plant, is often curved back, ſomething like a Scorpion's Tail.

They are called *Aſperifoliæ*, becauſe they are uſually *rough-leav'd*, but not always ſo.

After each Flower there uſually ſucceed four Seeds; Mr. *Ray* reckoning the *Cerinthe* the only Plant of this Genus, that hath leſs than four Seeds at the Root of each Flower; this, indeed, hath but two.

The *Herbæ Aſperifoliæ*, are the *Pulmonaria Maculoſa*, *Cynogloſſa*, *Borago*, *Buglaſſa*, *Anchuſa*, *Echinum*, *Linum Umbilicatum*, *Heliotropium majus*, *Aparine major*, *Conſolida major*, *Lithoſpermum*, *Echium Scorpoides*, and *Cerinthe*.

ASPERITY, ASPERITAS, implies the Inequality, or Roughneſs of the Surface of any Body; whereby ſome Parts of it do ſo ſtick out beyond the reſt, as to hinder the Hand, &c. from paſſing over it eaſily and freely. See PARTICLE.

Aſperity, or Roughneſs, ſtands oppoſed to Smoothneſs, Politure, &c. See POLISHING, &c.

From the *Aſperity* of the Surfaces of contiguous Surfaces, ariſes *Friction*. See SURFACE and FRICTION.

According to the Relations of *Vermuaſen*, the blind Man ſo famous for diſtinguiſhing Colours by the Touch, it ſhould appear that every Colour has its particular Degree and Kind of *Aſperity*. He makes Black the roughest, as it is the darkeſt of Colours; but the others are not ſmoother in proportion as they are lighter; *i. e.* the roughest do not always reflect the leaſt Light: For, according to him, yellow is two Degrees rougher than blue, and as much ſmoother than green. *Boyle* of Colours. See COLOUR, LIGHT, &c.

ASPERSION, the Act of ſprinkling with Water, or ſome other Fluid. See WATER.

Some contend for Baptiſm by *Aſperſion*, others by Immerſion. See BAPTISM, IMMERSION, &c.

The Word is form'd of the Latin *aſpergere*, to ſprinkle; of *ad*, to, and *ſpargo*, I ſcatter.

ASPHALITES, in Anatomy, the fifth Vertebra of the Loins. See VERTEBRA.

It is thus called becauſe conceived as the Support of the whole Spine of the Loins; from the Privative α and σφαλλω, *I ſupplant*.

ASPHALTOS, or ASPHALTUM, a ſolid, brittle, black, inflammable, bituminous Subſtance, reſembling Pitch, brought from *India*; whence it is alſo called *Jewiſh Pitch*. See PITCH.

The *Aſphaltos* belongs to the Claſs of Bitumens; and is the furtheſt maturated and concocted of the whole Tribe; but conſiſts of the ſame ſimple Principles as the reſt. See BITUMEN and SULPHUR.

It is found ſwimming on the Surface of the *Lacus Aſphaltites*, or Dead Sea, where antiently ſtood the Cities of *Sodom* and *Gomorrah*.—It is caſt up from time to time, in the Nature of a liquid Pitch, from the Earth which lies under this Sea; and being thrown upon the Water, ſwims like other fat Bodies, and condenſes by little and little, thro the Heat of the Sun, and the Salt that is in it.

The *Arabs* uſe it to pitch their Ships withal, as we do common Pitch.—Beſides, there was a deal of it imploy'd in the embalming of the Antients. See EMBALMING, &c.

It is ſuppoſed to fortify, and reſiſt Putrifaction; reſolve, attenuate, cleanſe and cicatrize Wounds: But is little uſed among us either externally or internally.

'Tis uſual to ſophiſticate the *Aſphaltos*, by mixing common Pitch along with it; the Reſult whereof makes the *Piſaſphaltum*, which the Coarſeneſs of the black Colour, and the fetid Smell eaſily diſcover.—Others, however, will have its pitchy Quality natural to it, and ſuppoſe *Piſaſphaltum* to be the native *Aſphaltum*. See PISASPHALTUM.

ASPHALTUM is alſo a kind of bituminous Stone, found near the antient *Babylon*, and lately in the Province of *Neufchatel*; which, mix'd with other Matters, makes an excellent Cement, incorruptible by Air, and impenetrable by Water; ſuppoſed to be the Mortar ſo much celebrated among

among the Antients, wherewith the Walls of *Babylon* were laid. See MORTAR, &c.

It yields an Oil which defends Ships from Water, Worms, &c. much better than the ordinary Composition; and which is also of good Service for the cleansing and healing of Ulcers, &c.

ASPIC—*Oil of* ASPIC, vulgarly called *Oil of Spike*, is an inflammable Oil drawn from the Leaves and Flowers of a Plant frequent in the Southern Parts of *France*, resembling Lavender, and by the Botanists called *Lavandula Mas*. See OIL.

It is much used by Painters and Farriers; and sometimes also in Medicine.—The true Oil of *Aspic*, is of a white Colour, and an aromatic Taste; and is held the only Thing capable of dissolving Sandarach: By which it is easily distinguish'd from the Counterfeit, which is only Oil of Turpentine mixed with a little Petrol.

ASPIRATE, ASPIRATIO, or *Spiritus Asper*, in Grammar, a Character used to denote an Aspiration. See ASPER and ASPIRATION.

ASPIRATION, the Act of *aspirating*; i. e. of pronouncing any Syllable, or Word, strongly; with a good deal of Breath, and Vehemence. See ASPIRATE and PRONUNCIATION.

This we do, for instance, in those Words which have the Letter *H*, before them; as Harangue, Hook, Holland, Hero, &c. whereas the like Syllables are sounded much softer and easier without the *H*, as in Ear, Eat, &c. See *H*.

The *Aspirate*, by the *Greeks* called *Spiritus*, and marked over their Vowels, seems to be very different from the Letters; but is, nevertheless, a true Letter, as well as the rest, and a real Consonant.—By Letters we dont mean the Characters of the Alphabet, which are changeable according to the Languages and the People, and among the same People, according to Time and Custom; and even according to the Fancy of particular Persons.—Thus, some, for instance, write the *Aspirates*, or Letters *aspirated*; which, by others, are omitted; tho both the one and the other pronounce alike; as in *Huomo*, *Huomoni*, an Italian Word frequently written *uomo uomoni*. See ALPHABET.

But, by *Letters*, we mean articulate Sounds, form'd by the Organs of Speech, (*viz.*) The Throat, Mouth, Tongue, Palate, Teeth, &c. See LETTER and VOICE.

These Sounds are of two Kinds, the one simple, and the other compound, or modified.—*Simple*, are those pronounced by a single Motion of the Organ; such are the Vowels. See VOWEL.

Compound Sounds, are those same simple Sounds modified by a Motion of the Organ superadded to the Motion necessary to pronounce the simple Sound; of which Kind are the Consonants. See CONSONANT.

Now an *Aspirate* is an Effect or Consequence of a Motion made by some of the Organs of Speech; and therefore must either be a Vowel or a Consonant.—The former it cannot be, as not being a simple Sound, or a Sound that may be pronounced by it self. It must therefore be a Modificative, or Consonant; and in Effect it has all the Properties of one.

For, 1*st*, it results from a Motion of the Organ, which, of it self, produces no Sound. Thus the *Spiritus* of the *Greeks*, our *h aspirate*, as well as that of the *French*, and other People, has no more Sound of it self than *b*, *c*, *d*, &c. and the same Thing may be observed of the *Aleph*, *Heth*, and *Caph*, of the Eastern Languages.

2*dly*, On the contrary, our *h*, the *Spiritus* of the *Greeks*, and the other *Aspirates* just mentioned, are pronounced with all the Vowels, in the same manner as Consonants are.—They modify those Vowels, and are Effects of a Motion of the Organ superadded to the Motion necessary to form the Vowel. Thus, to pronounce *ha*, two Motions of the Organ are required as well as for *ba*, or *ca*, &c. One for *a* which it self is a Sound; the other for *h*, which yields no Sound, no more than *b*; but adds something to *a* which modifies it, and makes that *ha* is not mere *a*, nor *ba*, nor *ca*, &c. And this must hold still more sensibly in the stronger *Aspirates*, as those of the oriental Tongues הוי, יוו, חת, ך, ך, &c. In all which, there are evidently two Motions, the one for the Vowel, and the other to modify it: Now this being the Nature and Essence of a Consonant, it follows, that let them be denoted in what Manner they will, whether as our *h*, as the Orientals do, *i. e.* by proper Characters in the Course of the Words themselves; or, as the *Greeks* do some of theirs, by a Sign of Aspiration placed over the Vowel; it matters not. The *Aspirate* is no less a Consonant in ἅιρω, than in χαιρω; in ἕω, than in χέω; in ὅλη, than χολη; and so of others.

The third and last Reason is, that the Eastern Languages, which do not express the Vowels, do yet express the *Aspirates*.

Add, that the *Aspirate* is frequently chang'd into a Consonant, and express'd by a Consonant. Thus, of ἑξ is made *Sex*; of ἑπτα, *Septem*; of ἑσπερος, *Vesperus*, &c. Of the Hebrew יין, οἶνος, and thence *Vinum*, &c. Nay, even in the same Language, *Hesiod*, speaking of *Hercules*'s Buckler, uses Ἥρσυν for Θώρσυν; making no Difference between a Θ and an *Aspirate*. See CONSONANT.

Hence it evidently follows, that *Aspirates* are real Consonants; and that it must be an Error to rank א, ה, ח, ע, of the Eastern Languages, among the Vowels; and to exclude the *h* in ours, out of the Number of Letters.

ASSA-FOETIDA, or ASA-FOETIDA, a Gum or Resin, brought from the *East-Indies*, of a brownish Colour, a sharp Taste, and a very strong, offensive Smell; whence it is also called *Stercus Diaboli*, or Devil's Dirt.

'Tis not known from what Plant this Gum is procured: all that has been advanced on that Point by the Botanists and the Writers of Pharmacy, amounts to no more than Conjectures, founded on the different Relations of Travellers—They who after the Antients, suppose it drawn from the *Laser*, or *Laserpitium*, would be hard put to it to get clear of those many Disputes which have so often divided the Botanists on the Subject of the true *Laser*, and the *Succus Cyrenaicus*, so infinitely prized among them. Indeed there seems but little Resemblance between the Gum described by M. *Furetiere*, out of *Pliny*, lib. xix. c. 3. and our *Assa-Fœtida*: If they be the same, 'tis certain we are not acquainted with half its Virtues.

The modern *Assa-Fœtida*, which is little used but by the Farriers, is a Gum said to distil during the Summer's Heats, from a little Shrub, frequent in *Persia*, *Media*, *Assyria*, and *Arabia*.—It is at first white, bordering on yellow, then on red, and lastly on Violet; and melts under the Fingers like Wax.

It is of known Efficacy in some uterine Disorders; but the Rankness of its Smell occasions it to be seldom used; yet in the *East-Indies* it makes an Ingredient in their Ragouts.

ASSA-DULCIS, a Name sometimes given to Gum Benjoyn. See BENJOYN.

ASARABACKA, or ASSARA-BACARA, a Plant mentioned by *Pliny* and *Dioscorides*, under the Name of the *Wild Nardus*; by us called ASARUM.

Avicenna relates, that it is brought from *China*; that its Roots resemble those of Gramen, or Dog's-Tooth; but that it has a pretty brisk Smell, and bites the Tongue when tasted.—Its Leaves were antiently much in Use, as an Emetic, and Cathartic; and in some Authors we find a superstitious Observance in the gathering 'em: They alledge, that if the Plant be pull'd forward it becomes vomitive, but if backwards purgative. *Rulandus* and *Fernelius* frequently describe it as a Diuretic.

But it is chiefly used among us as a Sternutatory, in order to which, it is dried and reduced to a Powder, to be taken as a Snuff; in which Quality it drains the Head of mucous Humours.

ASSACH, or ASSATH, a kind of Purgation, antiently used in *Wales*, by the Oaths of 300 Men. See PURGATION and OATH.

ASSAILANT, one that assaults, or sets upon another. See ASSAULT, ATTACK, &c.

ASSART, in Law, an Offence committed in the Forest, by pulling up, by the Roots, Woods which serve as Thickets and Covert for the Deer, and making them plain as arable Land. See FOREST.

This is the greatest Trespass that can be committed in the Forest, being more than a Waste. For whereas Waste of the Forest is but the felling and cutting down the Coverts, which may grow again; *Assart* is a total Extirpation thereof. See WASTE.

What we call *Assartum*, is elsewhere term'd *Disboscatio*.

ASSART was also used for a Parcel of Land assarted. See ASSART.

ASSART-*Rents*, were those paid to the Crown for the Forest Lands *assarted*. See RENT.

ASSASSIN, a Person who kills another with the Advantage either of an Inequality in the Weapons, or by means of the Situation of the Place, or by attacking him at unawares. See MURTHER, DUEL, &c.

The Word *Assassin* is said, by some, to have been brought from the *Levant*, where it took its Rise from a certain Prince of the Family of the *Arsacides*, popularly called *Assasins*, living in a Castle between *Antioch* and *Damasco*, and bringing up a Number of young Men, ready to pay a blind Obedience to his Commands; whom he employed in murdering the Princes with whom he was at Enmity. See ARSACIDES.

The Jew *Benjamin*, in his Itinerary, places them near Mount *Libanus*; and calls them in Hebrew, from the Arabic אל אשי שין, *El asisin*; which shews that the Name did not come from *Arsacide*, but from the Arabic חשיש, *Asis*, *Insidiator*, a Person who lies in Ambush.

The

The *Assassins*, or *Assassinians*, *Assassinii*, abovementioned, possessed eight or twelve Cities about *Tyre*: They chose themselves a King, whom they call'd the *Old Man* of the Mountain. In 1213, they *assassinated Louis* of *Bavaria*. They were *Mahometans*, but paid some Tribute to the Knights-Templars.—The Favourers of the *Assassins* were condemned by the Council of *Lyons*, and under *Innocent* IV. in 1231.—The *Tartars* overcame them, and kill'd their old Man of the Mountain in 1257; upon which the Faction became extinct.

ASSATION, the preparing or dressing of Medicaments, or Foods, in their own Juices, without Addition of any foreign Moisture.

Assation, in respect of culinary Matters, is more frequently call'd *Roasting*; and in Pharmacy, *Ustion* or *Torrefaction*. See Dressing, Roasting, Torrefaction, &c.

The Word is form'd of the Latin *assare*, to roast.

ASSAULT, in the Art of War, an Attack made upon a Camp, Fortress, or Post, in order to become Master thereof. See Attack, Fortress, &c.

An *Assault* is properly a general Attack, wherein the Assailants do not screen themselves by any Works.—

The Words are, to give an *Assault* to such a Place, to be commanded to the *Assault*, to stand an *Assault*, to repulse an *Assault*, to carry by *Assault*, &c.

While an *Assault* lasts, and both Parties are mix'd; there is no use of Cannon on either Side; for they are afraid of destroying their own Men thereby.

A Governour is obliged to sustain three *Assaults* ere he give up the Place—'Tis very difficult saving a Town from Pillage that is carried by *Assault*. See Pillage, &c.

The *Enfans perdus* march first to the *Assault*. See Enfans *Perdus*.

Assault, in Law, is a violent Injury offered to a Man's Person, of a larger Extent than Battery, for that it may be committed by only offering to give a Blow, or by a threatning Speech, &c. See Battery.

To rebuke a Collector with foul Words, so that he departed for Fear, without doing his Office, was adjudg'd an *Assault*; and to strike a Man, tho' he be not hurt with the Blow, is reputed the same. In Trespass for *Assault* and Battery, a Man may be found guilty of the *Assault*, and excused of the Battery, 25 *Edw.* 3.

ASSAY, or Essay, or Say, in Coinage, &c. the Proof or Trial of the Goodness, Purity, Value, &c. of Gold, Silver, or other Metals. See Gold, Silver, Metal, &c.

The Methods of Assaying, *or making* Assays, *see under the Article* Essay.

Assay *of Weights and Measures*, signifies the Trial or Examination of common Weights and Measures, used by the Clerk of the Market. See Weight, Measure, Standard, Clerk *of the Market*.

ASSAYER of the King, is an Officer of the Mint, establish'd for the *Assay*, or due Trial of Silver and Gold. See Assay.

The *Assayer* is indifferently appointed by the Master of the Mint, and the Merchants who bring Silver, &c. for Exchange. See Mint, Coin, &c.

ASSEMBLAGE, the joining or uniting of several Things together; or, the Things themselves so joined, or united. See Union, &c.

The *Assemblage* of two Bones for Motion, is called *Articulation*. See Articulation.

The Carpinters and Joiners have various Kinds and Forms of *Assemblage*; as, with Mortoises and Tenons, with Dove-tails, &c. See Mortoise, Dove-tail, &c.

The *Europeans* admire the Carpentry of some *Indians*, where the *Assemblage* is made without either Nails or Pins. *Herrera*. See Carpentry, Nail, &c.

The Word *Assemblage* is also used in a more general Sense, for a Collection of several Things, so disposed together, as that the whole has an agreeable Effect.—'Tis with Discourse as with Bodies, which owe their chief Excellency to the just *Assemblage*, and Proportion of their Members.—

ASSEMBLY, a meeting of several Persons in the same Place, and with the same common Design.

The Word is form'd from the Latin *adsimulare*; compounded of *ad* to, and *simul* together.

Assemblies of the Clergy, are called Convocations, Synods, Councils; tho' that annual one of the Kirk of *Scotland*, retains the Name *General Assembly*. See Convocation, Synod, Council, &c.

Those of Judges, &c. are called *Courts*, &c. See Court.

The *Assemblies* of the *Roman* People were called *Comitia*. See Comitia, &c.

The *Assembly* of a Preacher, &c. is his Audience.—The Academies have their *Assemblies*, or Days of *Assembly*. See Academy, &c.

The *Assemblies* of Dissenters, &c. are frequently called *Conventicles*. See Conventicle.

Assembly is particularly used in the *Beau Monde*, for a stated and general Meeting of the polite Persons of both Sexes; for the sake of Conversation, Gallantry, and News.

Unlawful Assembly, in Law. See Unlawful *Assembly*.

Assemblies *of the* Campus Martii, *or* Maii, *of the Field of* Mars, *or* May. See Field *of Mars*, &c. Campus, &c.

Quarter, or *Place of* Assembly, in a Camp, &c. See Quarter *of Assembly*.

Assembly, is also used in the military Art, for the second Beat of the Drum, before the March. See Drum.

On hearing this, the Soldiers strike their Tents, roll them up, and then stand to their Arms. See March.

The third Beating is called the *March*, as the first is called the *General*. See General.

ASSENT, Assensus, an Agreement or Acquiescence of the Mind, to something proposed, or affirmed.—Thus, to *assent* to any Proposition, is to allow it true, or to perceive its Truth. See Truth.

The Schoolmen observe, that to every Proposition, how compound or complex soever it be, there only goes one *Assent* of the Mind.—Thus, in the conditional Proposition, *If the Sun shines it is Day*; there is only one *Assent* of the Mind, which regards the Connexion of the Effect with the Condition. So in the disjunctive Proposition, Peter *either studies, or does not study*; the Mind does not give a two-fold *Assent* to the two Parts thereof, it being enough that *Peter* do either the one or the other, for the Proposition to be true. See Proposition.

Assent is distinguished, like Faith, into *implicite*, or *blind*; and *explicite*, or *seeing*. See Faith, &c.

Others distinguish it into *actual* and *habitual*.—

Actual Assent, is a Judgment whereby the Mind perceives a thing to be true.—

Habitual Assent consists in certain Habits induced in the Mind by repeated Acts. See Habit and Habitude.

To this belongs *Faith*, which is an *Assent* arising from the Authority of the Person who speaks: Such also is *Opinion*, which is defined an *Assent* of the Mind *cum formidine Oppositi*, &c. See Faith, Opinion, &c.

For the Measures and Degrees of Assent, see Probability, Verisimilitude, Evidence, Demonstration, &c.

Fa. *Mallebranch* lays it down as an Axiom, or Principle of Method, never to allow any thing for Truth, from which we can forbear our *Assent* without some secret Reproach of our own Reason. See Liberty, Method, Maxim, &c.

ASSERTION, Assertio, in the Language of the Schools, a Proposition which a Person advances; which he avows to be true, and is ready to maintain in publick. See Proposition.

ASSESSOR, or Assessour, an inferior, or subordinate Officer of Justice, chiefly appointed to assist the ordinary Judge with his Opinion and Advice. See Judge and Justice.

The Masters in Chancery are *Assessors* of the Lord Chancellor. See Master and Chancellor.

The Word is Latin, form'd of *ad*, to, and *sedeo*, I sit.

There are two Kinds of *Assessors* in the imperial Chamber, ordinary and extraordinary.—The *ordinary* are now in Number 41, whereof 5 are elected by the Emperor, *viz.* 3 Counts or Barons, and two *Juris Consulti*, or Civil Lawyers. The Electors appoint 10, the six Circles 18, &c. They act in Quality of Councellors of the Chamber, and have Salaries accordingly. See Imperial and Chamber.

Assessor, is particularly used among us, for an Inhabitant of a Town, or Village, elected by the Community, to settle the Taxes, and other Impositions of the Year, to fix the Proportion which each Person is to bear, and to see the Collection made. See Tax, &c.

By the Stat. 16 & 17 *Car.* 2. two Inhabitants in every Parish were made *Assessors* for the Royal Aid. See Aid.

ASSETS, in Law, Effects sufficient to discharge the Burden laid on an Executor, or Heir, for satisfying the Testator's Debts or Legacies. See Executor, Heir, Testament, Legacy, &c.

The Word is form'd of the French *Assez*, enough; in regard whoever charges another with *Assets*, charges him with having enough descended or come to his Hands to discharge that which is in Demand.

Assets are of two Sorts, *real* and *personal*—Where a Man dies seised of Lands in Fee-simple, the Lands which descend to his Heir, are *Assets real*. See Real.

Where he dies possess'd of any personal Estate, the Goods which come to the Hands of the Executor, are *Assets personal*. See Personal.

Of real *Assets* there are two Sorts, *per Descent*, and *Assets enter mains*.

Assets *per Descent*, are where a Man enters into Bond, and dies seized of Lands in Fee-simple, which descend to his

his Heirs, and are therefore chargeable as *Assets* in his Hands. If the Heir alien the Lands before the Bond be put in Suit, he is discharged.

Assets *enter mains*, is when a Man dies indebted, leaving to his Executors sufficient wherewithal to discharge his Debts and Legacies. See Executor.

ASSEVERATION, an earnest Affirmation, or Avouching. See Affirmation, &c.

ASSIDÆANS, Assidæi, in Antiquity, a Sect among the *Jews*; thus called from the Hebrew, חסידים. *hhasidim*, merciful, righteous.—The *Assidæ* are recorded as holding Works of Supererogation necessary.—They were the Fathers and Predecessors of the *Pharisees*; and from them likewise arose the *Esseni*. See Pharisee and Esseni.

The Jesuit *Serrarius* and *Drusius*, have wrote against each other upon the Subject of the *Assidæans*, on occasion of a Passage in *Joseph Ben Gorion*; the first maintaining, that by the Name *Assidæans* he means *Esseni*, and the latter *Pharisees*.

ASSIENTO, in Matters of Commerce, a Contract or Convention between the King of *Spain* and other Powers, for furnishing the *Spanish* Dominions in *America*, with Negro Slaves. See Negro, *&c.*

The Term is originally *Spanish*, and signifies a *Farm*: Accordingly, the first *Assiento* was a Treaty or Contract made with the *French Guinea* Company, whereby they were put in possession of this Privilege, in consideration of a certain Duty which they were to pay to the King of *Spain's Farms*, for every Negro thus furnished.—

This Contract was signed in the Year 1702, to last ten Years, with a further Liberty allow'd the *Assientists* of two Years more, in case they had not furnished the whole Number stipulated before.—The two principal Articles regarded, first, the Number of Negroes to be provided, which was 3800 while the War should last, and 4800 in case of Peace. Secondly, The Duty to be paid the King of *Spain*, during the Farm, or *Assiento*; which was fixed at 33 Pieces of Eight *per* Head.—

By the Treaty of *Utrecht*, *Philip* V. being acknowledged King of *Spain* by the Allies; it was one of the Articles of the Peace between *England* and *France*, that the *Assiento* Contract should be transferred to the *English*.—Accordingly a new Instrument was signed in *May* 1713, to last 30 Years; and the furnishing of Negroes to the *Spanish America*, was committed to the *South-Sea Company*, just then erected. See *South-Sea* Company.

In virtue hereof, they are yearly to furnish 4800 Negroes; for which they are to pay at the same Rate as the *French*, with this Condition, that during the first 25 Years, only half the Duty shall be paid for such as they shall import beyond the stated Number.

The last Article gives them a further Privilege not enjoyed by the *French*; which is, that the *English Assientists* shall be allowed, every Year, to send to the *Spanish America* a Ship of 500 Tons, loaden with the same Commodities as the *Spaniards* usually carry thither; with a Licence to sell the same concurrently with them at the Fairs of *Puerto Bello*, and *La vera Cruz*.—This additional Article is supposed as advantageous to the Company, as the whole Contract besides; being granted contrary to the usual *Spanish* Policy, which has ever sollicitously preserved the Commerce of their *America* to themselves. See Register.

Some new Articles have been since added to the antient *Assienta*; as, that the *English* shall send their Register-Ship yearly, even tho' the *Spanish Flota* and *Galloons* do not go; and that for the first 10 Years, the said Ship may be of 650 Tun.

The manner of valuing the Negroes, in order to settle the King of *Spain's* Duty, is the same as delivered under the Article Negro.

ASSIGN, in Law, a Term introduced in favour of Bastards; who, because they cannot pass by the Name of *Heirs*, are comprised under that of *Assigns*. See Heir and Bastard.

Assign is also used for the appointing of a Deputy, or the making over a Right to another. See Assignee.

In this Sense we say, such Lands or Estate were *assigned* or affected to such Persons for such Uses, *&c.* See Affection, &c.

In the Stat. 20 *Edw.* I. we read of Justices *assign'd* to take Assizes, *&c.* See Assize.

Assign also signifies to point out, or set forth.—Thus we say, to *assign* the real Cause of such an Event, *&c.*

So, *to assign Error*, is to shew in what part of a Process at Law, an Error is committed. See Error.

To assign false Judgment, Verdict, &c. is to declare how and where Judgment, Verdict, or the like, is unjust. See Judgment, Verdict, *&c.*

To assign Waste, is to shew especially wherein the Waste is committed. See Waste.

ASSIGNEE, in Law, a Person to whom a Thing is appointed, or *assigned*, to be occupied, paid, or done. See Assign.

An *Assignee* differs from a Deputy in this, that the *Assignee* possesses or enjoys the thing in his own Right; and a Deputy in the Right of another. See Deputy.

Assignee may be so either *by Deed* or *by Law*.

Assignee by Deed, is when a Lessee of a Term sells and assigns the same to another: that other is his *Assignee by Deed*.—

Assignee by Law, is he whom the Law so makes without any Appointment of the Person.—Thus, an Executor is *Assignee* in Law to the Testator, who dies possessed of a Lease made to him and his *Assigns*. See Executor, Testator, *&c.*

ASSIGNMENT, the Act of *Assigning*, or transferring to another. See Assign.

The *Assignment of a Dower*, is the setting out of a Woman's Marriage-Portion by the Heir. See Establishment and Dower.

ASSIMILATION, the Act of *assimilating*; or an Act whereby Things are rendered similar or like to one another. See Similitude, *&c.*

The Word is compounded of *ad*, to, and *similis*, like.

Assimilation, Assimilatio, in Physicks, is properly a Motion whereby Bodies convert other duly disposed Bodies, into a Nature like, or homogeneous to their own. See Motion, Body, *&c.*

Some Philosophers call it, *the Motion of Multiplication*, meaning, that Bodies are hereby multiplied, not in Number, but in Bulk; which is more properly expressed by *the Motion of Augmentation* or *Accretion*. See Accretion, Accession, Augmentation, *&c.*

Such *Assimilation* we see in Flame, which converts the oily or other Particles of a Fuel into its own fiery and luminous Nature. See Flame, Fuel, Fire, *&c.*

The like we see in Vegetables, where the watery Juices imbibed from the Earth, being further prepared and digested in the Vessels of the Plant, become of a vegetable Nature, and augment the Wood, Leaves, Fruit, *&c.* thereof. See Vegetable, Vegetation, Sap, Wood, Fruit, *&c.*

So in Animal Bodies, we see the Food *assimilated*, or changed into an animal Substance, by Digestion, Chylification, and the other Operations necessary to Nutrition. See Food, Digestion, Chylification, Nutrition, Animal, &c.

ASSISA, or Assise, *Assize*. See Assize.

Assisa *Cadera*, to *fall from the Assise*, in Law, is to be *nonsuited*. See Nonsuit.

Assisa *Cadit in Juratam*, is where the Thing in Controversy is so doubtful, that it must necessarily be tried by a Jury. See Jury.

Assisa *capi in modum Assisæ*, is when the Defendant pleads to the *Assize*, without taking any Exception to the Count, Declaration, or Writ.

Assisa *Nocumenti*, is an *Assize* of Nuisance. See Nuisance and Annoyance.

Assisa *Panis & Cerevisiæ*, denotes the Power or Privilege of assigning, or adjusting the Weight and Measure of Bread and Beer. See Assize.

Assisæ *Judicium*, in Law, signifies a Judgment of the Court, given either against the Plaintiff or Defendant, for Default. See Default.

Assisa *Continuanda*, is a Writ directed to the Justices, to take an *Assize* for the Continuance of a Cause, where certain Records alledg'd cannot in Time be procured by the Party. See Writ.

Assisa *proroganda*, is a Writ directed to the Justices of *Assize*, for the Stay of Proceedings, by reason of the King's Business, wherein the Party is imployed. See Writ.

ASSIZE, or Assise, *Assisa*, in Law, a sitting of Judges, or Justices; for the hearing and determining of Causes. See Judge, Justice, Cause, *&c.*

The Word is French, *Assise*, of *Assis*, seated; form'd of *Assideo*, I sit by; which is compounded of *ad*, to, and *sedeo*, I sit. See Assessor.

Assize, or Assizes, were originally used for certain extraordinary Sittings of superior Judges, in the inferior Courts depending on their Jurisdiction; to inquire whether the subaltern

altern Judges and Officers did their Duty; to receive the Complaints prefer'd against them; and take Cognizance of Appeals from them. See APPEAL, &c.

ASSIZE, was also a Court or Assembly, composed of several great Persons of the Realm; held occasionally in the King's Palace, for the final Decision of all Affairs of Importance. See COURT, PALACE, &c.

This is more usually called, among our Writers, *Placita*, or *Curiæ Generales*. See PLACITA, &c.

Yet there is some Difference between *Assizes* and *Placita*.—The Vicounts, or Sheriffs, who originally were only Lieutenants of the Comites, or Counts, and render'd Justice in their Place; held two Kinds of Courts, the one ordinary, held every Day, and called *Placitum*; the other extraordinary, called *Assize*, or *Placitum Generale*; at which the Count himself assisted for the Dispatch of the more weighty Affairs.—These *Assizes* were also called *Mallum*. See COUNT, VICOUNT, SHERIFF, &c.

Hence, the Term *Assize* came to be extended to all grand Days of Judgment, at which the Trials and Pleadings were to be solemn and extraordinary.

The modern Constitution of *Assizes* is pretty different from that hitherto spoke of.—Our *Assize* may be defined a Court, Place, or Time where, and when Writs and Processes, either civil or criminal, or both, are consider'd, dispatch'd, decided, &c. by Judges and Jury. See PROCESS, COURT, DAY, JURY, &c.

In this Sense, we have two Kinds of *Assizes*; general and special.

General ASSIZES, are those held by the Judges twice a Year, in their several Circuits. See CIRCUIT.

The Nature of these *Assizes* is explained by my Lord *Bacon*, who observes that all the Counties of the Kingdom, are divided into six Circuits; thro each of which two learned Men, assigned by the King's Commission, ride twice a Year, call'd *Justices* or *Judges of Assize*, who have several Commissions, by which they sit, *viz.*

1° *Commission of Oyer and Terminer*, directed to them, and many others of the best Account in their respective Circuits. See OYER *and Terminer*.—In this Commission, the Judges of *Assize* are of the *Quorum*; so that without them there can be no Proceeding. This Commission gives them Power to deal with Treasons, Murders, Felonies, and other Misdemeanors. See TREASON, FELONY, &c.

The second is of *Goal-Delivery*, which is only to the Judges themselves, and the Clerk of the *Assize* associate.—By this Commission they have to do with every Prisoner in Goal, for what Offence soever. See GOAL-*Delivery*, &c.

The third is directed to themselves, and the Clerk of the *Assize*, to take Writs of Possession, called also *Assizes*; and to do Right and Justice thereupon. See WRIT.

The fourth, is to take *Nisi prius*, directed to the Justices, and the Clerks of *Assizes*, whence they are also called Justices of *Nisi prius*. See NISI *prius*.

The fifth, is a *Commission of Peace*, in every County of their Circuit; and all the Justices of the Peace, having no lawful Impediment, are bound to be present at the *Assizes*, to attend the Judges. See PEACE.

The Sheriff of every Shire is also to attend in Person, or by a sufficient Deputy allow'd by the Judges, who may fine him if he fail. See SHERIFF.

This excellent Constitution of Judges, Circuits, and *Assizes*, was begun in the Time of *Henry* the Second; tho somewhat different from what it is now.

Special ASSIZE, is a particular Commission granted to certain Persons, to take Cognizance of some one or two Cases, as a Disseisin, or the like.—This was frequently practiced among our Ancestors. *Bracton*, lib. 3. c. 12.

ASSIZE, or *Assise*, is also used for a Writ directed to the Sheriff, for the Recovery of Possession of Things immoveable, whereof your self, or Ancestors, have been disseiz'd. See WRIT, POSSESSION, &c.

Littleton, and others, suppose these Writs of *Assize* to give the Denomination to the *Assizes*, or Courts so called; and assign several Reasons of the Name of the Writ: As,

First, because such Writs *settle* the Possession, and Right in him that obtains by them. Secondly, Because, originally, they were executed at a certain Time and Place *appointed*; for, by the *Norman* Law, the Time and Place must be known forty Days before the Justices sit; and by our Law there must be fifteen Days Preparation, except they be tried in the standing Courts at *Westminster*.—But, it is more natural to suppose the Writs denominated from the Courts; and that they were call'd *Assizes*, because antiently tried at special Courts of *Assize*, set and appointed for that Purpose.—Tho, of later Days, they are dispatched at the general *Assizes*, along with the Commissions of *Oyer and Terminer*, &c.

This Writ is as well of Things corporeal, as incorporeal Rights, being of four Sorts, *viz.*

ASSIZE, or *Assise*, *of Novel Disseisin*, which lies where a Tenant in Fee-simple, Fee-tail, or for Life, is lately disseis'd of his Lands or Tenements, Rent-service, Rent-seck, or Rent-charge, Common of Pasture, common Way, &c. See DISSEISIN, TENANT, &c.

To this may be added, the Bill of fresh Force, directed to the Officers or Magistrates of Cities or Towns-corporate; being a kind of *Assize* for Recovery of Possession in such Places, within forty Days after the Force, as the ordinary *Assize* is in the County. See FRESH *Forces*.

ASSIZE of *Mort d'Ancestor*, lies where my Father, Mother, Brother, Uncle, &c. dies seized of Lands, Tenements, Rents, &c. held in Fee-simple; and after their Death, a Stranger abates. See ABATEMENT.—It is good as well against the Abator, as any other in Possession. See ABATOR.

ASSIZE of *Darrein Presentment*, lies where I, or my Ancestor have presented a Clerk to a Church, and after the Church becomes vacant by his Death, or otherwise, a Stranger presents his Clerk to the same Church, in my Disturbance. See PRESENTATION, PATRONAGE, &c.

These three *Assizes* were instituted by *Henry* the Second, in the Place of Duels; which, till then, had obtained on these Occasions.—*Magna assisa est regale Beneficium, Clementia principis de Concilio procerum populis indultum; a quo vitæ hominum & status Integritati tam Salubriter Consulitur, ut in Jure quod quis in libero Soli tenemento possidet, retinendo, Duello Casum homines declinare possunt*, &c. *Glanvill*, lib: xi. c. 7. See DUEL, COMBAT, &c.

ASSIZE of *Utrum*, lies for a Parson against a Layman, or a Layman against a Parson, for Land or Tenement, doubtful whether it be in Lay-fee, or Free-alms. See TITHE, &c.

ASSIZE, or *Assise*, is also used, according to *Littleton*, for a Jury. See JURY.

This, that Author supposes to be by a *Metonymia effecti*, the Jury being so called, because summoned by Virtue of the Writ of *Assize*. See ASSIZE.

Yet it must be observed, that the Jury summoned upon a Writ of Right, is likewise called the *Assise*; but this may be said to be καταχρηστικῶς, or abusively so termed. *Assise*, in this Signification, is divided in *magnam & parvam*.

ASSIZE is also used, according to *Littleton*, for an Ordinance or Statute of *Assize*. See STATUTE and ORDINANCE.

Thus the Statute of Bread and Ale, *Anno* 51 *Hen.* 3. is termed the *Assize of Bread and Ale*.

ASSIZE, or *Assise*, is further used for the Scantling or Quantity it self prescribed by the Statute.

Thus we say, when Wheat is of such or such Price, Bread shall be of such *Assize*.

ASSIZE *of the Forest*, is a Statute or Condition containing Orders to be observed in the King's Forest. It is called an *Assize*, because it sets down and appoints a certain Measure, Rate, or Order in the Things it concerns.

Clerk of ASSIZE. See CLERK *of Assize*.

ASSIZE, again, is used for the whole Process in Court, founded on such Writ of *Assize*; and sometimes for a part of it, *viz.* the Issue or Verdict of the Jury.

Thus we read, that *Assizes of Novel Disseisin shall not be taken but in their Shires; and after this Manner*, &c. Mag. Chart. cap. xii.—So in *Merton*, cap. iv. Hen. III. we meet with, *Certified by Assize, quitted by Assize*, &c.

ASSIZER of Weights and Measures, is an Officer who has the Care and Oversight of those Matters. See CLERK *of the Market*.

ASSISOR, the same with *Assessor*. See ASSESSOR.

In *Scotland*, *Assisors* are the same with our *Jurors*. See JUROR.

ASSISTANCE. See AID.

ASSISTANT, is used for a Person or Officer appointed to attend a principal Officer, for the more regular Discharge of his Function.—Such a Bishop or Priest had seven or eight *Assistants*.

ASSISTANTS, are particularly used for a kind of Counsellors, or Controllers, added to the Generals or Superiors of Monasteries, *&c.* to take Care of the Affairs of the Community.—The General of the Jesuits has five *Assistants*, of consummate Experience, chosen by him out of all the Provinces of the Order, and denominated from the Kingdoms or Countries to which they belong, *e. gr. Italy, Spain, Germany, France,* and *Portugal.* See General, Jesuit, *&c.*

In the like Sense, most of our Trading Companies have their *Courts of Assistants.* See Company, *&c.*

Assistants are also those condemned to *assist* in the Execution of a Criminal. See Absolution.

ASSOCIATE, an Adjunct, Partner, or Member. See Adjunct, Association, *&c.*

The Word is compounded of the *Latin ad* and *socius*, Fellow, Companion.

ASSOCIATION, Associatio, the Act of associating or forming a Society, or Company. See Associate, Society, Company, *&c.*

Association is properly a Contract or Treaty of Partnership, whereby two or more Persons unite together, either for their mutual Assistance, or the Joint carrying on of an Affair; or even for a more commodious Manner of Life —The closest of all *Associations* is that made by the Band of Matrimony.

Association *of Ideas*, is where two or more Ideas, constantly and immediately follow or succeed one another in the Mind, so that one shall almost infallibly produce the other; whether there be any natural Relation between them, or not. See Idea.

Where there is a real Affinity or Connection in Ideas, it is the excellency of the Mind, to be able to collect, compare, and range them in Order, in its Enquiries: But where there is none, nor any Cause to be assign'd for their accompanying each other, but what is owing to mere Accident or Habit; this unnatural *Association* becomes a great Imperfection, and is generally speaking, a main Cause of Error, or wrong Deductions in reasoning. See Error, *&c.*

Thus the Idea of Goblins and Sprights, has really no more Affinity with Darkness than with Light; and yet let a foolish Maid inculcate these often on the Mind of a Child, and raise them there together, 'tis possible he shall never be able to separate 'em again so long as he lives, but Darkness shall ever bring with it those frightful Ideas.—Let Custom, from the very Childhood, have joined the Idea of Figure and Shape to the Idea of God, and what Absurdities will that Mind be liable to, about the Deity?

Such wrong Combinations of Ideas, Mr. *Lock* shews, are a great Cause of the irreconcileable Opposition between the different Sects of Philosophy and Religion: For we can't imagine, that all who hold Tenets different from, and sometimes contradictory to one another, shou'd wilfully and knowingly impose upon themselves, and refuse Truth offered by plain Reason: But some loose and independent Ideas are by Education, Custom, and the constant Din of their Party, so coupled in their Minds, that they always appear there together: These they can no more separate in their Thoughts, than if they were but one Idea, and they operate as if they were so. This gives Sense to Jargon, Demonstration to Absurdities, Consistency to Nonsence, and is the Foundation of the greatest, and almost of all the Errors in the World.

Association, in Law, is a Patent sent by the King, either of his own Motion, or at the Suit of the Party Plaintiff, to the Justices of Assize; to have other Persons *associated* to them, in order to take the Assize. See Patent and Assize.

Upon this Patent of *Association*, the King sends his Writ to the Justices of the Assize, by it commanding them to admit them that are so sent.

ASSOILE, in our antient Law Books, signifies to absolve, deliver, or set free from an Excommunication. See Absolution, Excommunication, *&c.*

ASSONANCE, in Rhetorick and Poetry, a Term used where the Words of a Phrase, or a Verse, have the same Sound or Termination, and yet make no proper Rhyme. See Rhyme.

These are usually vitious in *English*; though the *Romans* sometimes used them with Elegancy: As, *Militem comparavit, Exercitum ordinavit, Aciem instravit.*

The *Latins* call it *similiter desinens*; and the *Greeks* ὁμοιοτέλευτον. See Homoioteleuton.

ASSONANT *Rhymes*, is a Term particularly applied to a kind of Verses common among the *Spaniards*, where a Resemblance of Sound serves instead of a natural Rhyme. See Rhyme.

Thus, *ligera, cubierta, tierra, mesa*, may answer each other in a kind of *assonant* Rhyme, in regard they have each an *e* in the penultimate Syllable, and an *a* in the last.

ASSUMPSIT, in Law, a naked Contract; or a voluntary Promise, by Word of Mouth, by which a Man *assumes* and takes upon him to perform, and pay any thing to another. See Contract, Covenant, *&c.*

This Term comprehends any verbal Promise; and is variously express'd by the Civilians, according to the Nature of the Promise: Sometimes, by *pactum*; sometimes by *promissio, pollicitatio*, or *Constitutum.* See Pactum.

Where a Man sells Goods to another, the Law makes the *Assumpsit*; and promises that he shall pay for them.

ASSUMPTION, Assumptio, a Feast celebrated in the *Romish* Church, in honour of the miraculous Ascent of the Holy Virgin, Body and Soul, into Heaven. See Feast, Virgin, *&c.*

The Word is compounded of the *Latin ad*, to, and *sumo*, I take.

This Feast is held with great Solemnity both in the Eastern and Western Churches.—Yet is not the *Assumption* of our Lady any Point of Faith. The antient Martyrologies speak of it with a great deal of reserve, as a thing not yet fully ascertained: Tho' a Divine who should now deny it, would be obliged to retract.

The *Sorbonne*, in the Year 1696, in the Condemnation of *Mary* of *Agreda*, protested, among other things, that they believed that the Holy Virgin was *assumed*, or taken into Heaven, Body and Soul.

Assumption was also among our Ancestors, used for the Day of the Death of any Saint: *Quia ejus anima in Cœlum assumitur.*

Assumption, in Logick, is the Minor, or second Proposition, in a categorical Syllogism. See Minor, Syllogism, *&c.*

Assumption is sometimes also used for a Consequence drawn from the Propositions whereof an Argument is composed. See Consequence.

Thus we say, the Premisses are true, but the *Assumption* is captious. See Premisse, *&c.*

ASSUMPTIVE *Arms*, in Heraldry, are such as a Man has a right to *assume* of himself, in virtue of some Action. See Arms.

As, if a Man who is no Gentleman of Blood, nor Coat Armour, takes a Gentleman, Lord, or Prince, Prisoner in any lawful War; he becomes intitled to bear the Shield of such Prisoner, and enjoy it to him and his Heirs.—The Foundation hereof is that Principle in Military Law, that the Dominion of Things taken in lawful War passes to the Conqueror.

ASSURANCE, in Law. See Security.

Assurance, or Insurance, in Commerce. See Insurance.

Policy of Assurance, is a Contract whereby one or more Persons oblige themselves to make good any Damages which a Ship, a House, or the like, may undergo, by Sea, Fire, or the like Dangers.—The Nature and Laws hereof see under the Article of Policy *of Assurance.*

We have several Offices of *Assurance from Fire.*—As, the *Sun-Fire Office*; the *Hand-in-Hand Fire Office*; the *Phenix Office*, &c. some for Houses, others for Goods; and some for both.

We have also *Assurances for Life*, in Virtue whereof, when the Person *assured* dies, a Sum of Money becomes payable to the Person in whose Favour the Policy of *Assurance* was given. See Annuity, *&c.*

Assurance, in Logick. See Certainty, Evidence, Demonstration, *&c.*

ASSUROR, a Merchant, or other Person, who *assures* a Ship, House, Life, or the like. See Assurance.

Assurors are not answerable for what Damages arise thro' the Negligence, or other Fault of the Master or Seamen; or even those which arise from any Vice or Defect in the thing *assured.* See Average.

ASTATI, or Astathii, or Astathyi, a Sect of Hereticks in the ninth Century, the Followers of one *Sergius*, who renewed the Errors of the *Manichees.* See Manichee.

They prevail'd much under the Emperor *Nicephorus*; but his Successor, *Michael Curopalates*, curb'd them with very severe Laws.

The Word is derived from the *Greek* privative α, and ἵστημι, *sto*, to stand firm, and signifies any thing unstable and inconstant.

ASTERISK, a Character in form of a small Star, set over any Word, or Sentence, to make it the more conspicuous, or to refer to the Margin for a Quotation, Explanation, *&c.* See Character, Note, Reference.

The Word is derived from a Diminutive of the *Greek* ἀστὴρ, Star.

ASTERISM, Asterismus, in Astronomy, the same with *Constellation.* See Constellation.

The Word comes from the *Greek* ἀστὴρ, *Stella*, Star. See Star.

ASTHMA, in Medicine, a Disease of the Lungs, accompanied with a Shortness, and Difficulty of Respiration. See Respiration and Lungs.

Or, *Asthma* is a Difficulty of Breathing, arising from a Diforder of the Lungs; and usually attended with violent Motions of the Diaphragm, Abdominal and Intercostal Muscles, as also a rattling in the Throat.

The Word is *Greek*, ἄσθμα; form'd of the Verb ἄω, *Spiro*; I breath.

If Respiration be only thick and quick, without the other Symptoms, it is call'd a *Dyspnœa.*—If it be so intense as to occasion a violent Motion of the Muscles of the Thorax; so that the Patient cannot be tolerably easy, except in an erect Posture, it is call'd an *Orthopnœa.* See Dyspnæa and Orthopnæa.

The *Asthma* is usually divided into *Moist* and *Dry*, or *Manifest* and *Occult*, or *Pneumonic* and *Convulsive*: The first attended with an Expectoration of purulent Matter; the latter without.

The true *Asthma* is occasioned by an abundance of Serosities, or of gross viscous or purulent Humours, collected in the Cavities of the Lungs, which stop up or straighten the Passages of the Air, and compress the *Bronchia*. See BRONCHIA.

It is also owing to Empyema's, Phthisis's, Crudities in the Stomach, Cachexies, *&c.* See EMPYEMA, PHTHISIS, *&c.*

The convulsive *Asthma* is supposed to be occasioned by an irregular Motion of the Animal Spirits; and happens when the Spirits do not flow fast enough, or in sufficient Quantity, into the Muscles of the Breast, either by reason of an Obstruction, or of some other Obstacle: The necessary Consequence whereof is a violent and painful Respiration.—The *Asthma*, again, is either *continual*, or *periodical*, and *intermitting*; which last returns chiefly where a sober Regimen is not observed.

The *Asthma* is found to be the most violent when the Patient is in Bed, and in a prone Posture; the Contents of the lower Belly, in that case, bearing against the *Diaphragm*, so as to lessen the Capacity of the Breast, and to leave the Lungs less room to move.

The Cure of the true or pneumonic *Asthma*, is by bleeding; after which Emeticks may be used; and if the Paroxysm returns, Epispasticks, with Glysters instead of Purges.—Infusions of *Fim. Equin.* or the Juice thereof, being detersive and attenuating, are reputed excellent. *Linctus*'s also contribute to the Cure, *Millepedes*, Spirit of *Gum Armoniac*, with *Sal Armoniac*, *Coffee*, Tincture of *Sulphur*, &c. are commended in *Asthmatick* Cases.

For the convulsive Kind, the Cure is attempted by *Antiepilepticks*, *Antihysterick*s, *Antispasmodicks*, *Opiats*, &c.

ASTRAGAL, ASTRAGALUS, in Anatomy, a Bone of the Heel, having a convex Head, articulated with the two *Focils* of the Leg, by *Ginglymus*. See HEEL and FOOT.

The *Astragalus* call'd *Talus*, and *Os Balistæ*, is the first Bone of the *Tarsus*. See TALUS and TARSUS.

Some also apply the Name to the *Vertebræ* of the Neck.—*Homer*, in his *Odyssee*, uses the Term on this Occasion. See VERTEBRÆ.

ASTRAGAL, in Architecture, is a little round Member, in form of a Ring, or Bracelet; serving as an Ornament on the Tops and at the Bottoms of Columns. See MOULDING, COLUMN, *&c.*

The *Astragal* is sometimes also used to separate the *Fasciæ* of the Architrave; in which case it is wrought in Chaplets, or Beads and Berries.

It is also used both above and below the Lists, adjoining immediately to the Square, or Die of the Pedestal. See DYE and PEDESTAL.

The Word is derived from the *Greek* ἀστράγαλος, which signifies the *Ankle* or *Ankle-Bone*.

ASTRAGAL, in Gunnery, is a Kind of Ring or Moulding on a piece of Ordnance, at about half a Foot's Distance from the Mouth; serving as an Ornament to the Piece, as the former does to a Column. See ORDNANCE, CANON, *&c.*

ASTRAL, something belonging to the *Stars*, or depending of the *Stars*. See STAR.

The Word comes from the *Latin astrum*, of the *Greek* ἄστρον, Star.

ASTRAL, or *Sidrial Year*. See SIDERIAL and YEAR.

ASTRINGENTS, ASTRINGENTIA, in Medicine, *binding Remedies*; or such as have the Power of contracting the Parts, and diminishing the Pores thereof. See MEDICINE.

Astringents act either by the Asperity of their Particles, whereby they corrugate the Membranes, and make them draw up closer; or by thickening the Fluids, whereby they cannot run off so fast as before.

Astringents therefore stand opposed to *Laxatives*. See LAXATIVE, PURGATIVE, *&c.*

Hence, *Astringents* are of the Class of Strengtheners, or Corroborants; the Nature and Operation whereof, see under the Article STRENGTHENER.

Astringents only differ from *Stypticks*, in Degree of Efficacy. See STYPTICK.

The Word is compounded of the *Latin ad* and *stringo*, I bind.

Among Simples, Mint, red Roses, Nettles, Sanicle, Barbaries, Quinces, Pomegranates, Sloes, Cinnamon, Blood-stone, Alum, Chalk, Boles, Coral, Tutty, *&c.* are principal *Astringents*.

ASTROITES, or *Lapis* ASTROITES, in Natural History, a Kind of figured Stone, found in divers Parts, and particularly the North of *England* See FIGURED-*Stone*.

The Form thereof is very uniform and regular; consisting of several thin pentagonal Joints set one over another, so as to form a Kind of five-angled Column.—The usual Figures, as given by Dr. *Lister*, are represented in *Tab. Nat. History, Fig.* 14.

These Stones, as now found, are all Fragments, consisting of from 1 to 25 Joints.—The Matter or Substance thereof when broken, is Flint-like, of a dark shining Politure, but much softer, and easily corroded by an acid Menstruum.—They creep, like the *Cornu Ammonis*, in Vinegar; but a stronger Spirit, as of Nitre, agitates them with some Violence. See CORNU *Ammonis*.

The protuberant Parts represented under the top Joint of the first Figure are not found in all; but only in those which are deep-jointed.—They are always five in Number. Dr. *Lister* calls them *Wyers*; and compares them to the Antennæ of Lobsters.

'Tis controverted among the Naturalists, to what Species of Bodies the *Astroites*, *Trochites*, *Entrochi*, &c. are to be referr'd. Some will have 'em Native Stones, others Rock-Plants, and others Petrifactions of Plants. See STONE. See also PETRIFACTION, SPAR, TROCHITES, ENTROCHI, *&c.*

ASTROLABE, ASTROLABIUM, was originally used for a System or Assemblage of the several Circles of the Sphere, in their proper Order and Situation with respect to each other. See CIRCLE and SPHERE.

The antient *Astrolabes* were the same with our Armillary Spheres. See ARMILLARY.

The first and most celebrated of this Kind was that of *Hipparchus*, which he made at *Alexandria*, the Capital of *Egypt*, and lodg'd in a secure Place, where it serv'd for divers Astronomical Operations.—*Ptolomy* made the same use of it; but as the Instrument had several Inconveniences, he bethought himself to change its Figure, though perfectly natural and agreeable to the Doctrine of the Sphere; and to reduce the whole *Astrolabe* upon a Plane Surface, to which he gave the Denomination of *Planisphere*. See PLANISPHERE.—Hence,

ASTROLABE, is used among the Moderns for a *Planisphere*; or a *Stereographick* Projection of the Sphere upon the Plane of some Circle thereof. See PROJECTION and STEREOGRAPHICK.

The usual Planes of Projection are that of the Equinoctial, the Eye being supposed in the Pole of the World; and that of the Plane of the Meridian, the Eye being supposed in the Point of Intersection of the Equinoctial and Horizon.

Stoffler, *Gemma Frisius*, and *Clavius*, have treated at large of the *Astrolabe*.—*For a further Account of the Nature and Kinds hereof, see the Article* PLANISPHERE.

ASTROLABLE, or *Sea* ASTROLABE, is an Instrument chiefly used for taking the Altitude of the Pole, the Sun, or Stars, at Sea. See ALTITUDE.

The *Astrolabe* represented *Tab. Navigation, Fig.* 22. consists of a large Brass Ring, about 15 Inches in Diameter, whose Limb, or a convenient Part thereof, is divided into Degrees and Minutes; fitted with a moveable Index, or Label, which turns upon the Centre and carries two Sights.—At the Zenith is a Ring, to hang it by in time of Observation.

To use the *Astrolabe*, turn it so to the Sun, as that the Rays may pass freely through both the Sights F and G; in which Case, the Edge of the Label cuts the Altitude in the divided Limb.

The *Astrolabe*, though now grown into disuse, is at least equal to any of the other Instruments used for taking the Altitude at Sea; especially between the Tropicks, when the Sun comes near the Zenith.—There are a great many other uses of the *Astrolabe*; whereof *Clavius*, *Henrion*, &c. have wrote entire Volumes.

The Word is form'd from the *Greek* ἄστρον, Star, and λαμβάνω, *Capio*, I take.—The *Arabs* call it, in their Tongue, *Astharlab*; a Word form'd by Corruption from the common *Greek* Name: Though some of 'em have endeavour'd to give it an *Arabick* Original. But the learned are generally satisfied that the *Arabs* borrowed both the Name and the Use of the Instrument from the *Greeks*.—*Nasir Reddi Thousi* has a Treatise in the *Persian* Language, entitled, *Bait Babsil Astarlab*, wherein he teaches the Structure and Application of the *Astrolabe*.

ASTROLOGY, ASTROLOGIA, the Art of foretelling future Events, from the Aspects, Positions, and Influences of the Heavenly Bodies. See ASPECT, INFLUENCE, *&c.*

The Word is compounded of the *Greek* ἄστρον, Star, and λόγος, Discourse; whence, in the literal Sense of the Name, *Astrology* should signify no more than the *Doctrine or Science of the Stars*; which we read was its original Acceptation, and made the antient *Astrology*; though, in Course of Time, an Alteration has arose; that which the Antients called *Astrology* being by us termed *Astronomy*. See ASTRONOMY.

Astrology may be divided into two Branches, *Natural* and *Judiciary*.

To the former belong the predicting of natural Effects; as, the Changes of *Weather*, *Winds*, *Storms*, *Hurricanes*, *Thunder*, *Floods*, *Earthquakes*, &c. See NATURAL. See also WEATHER, WIND, RAIN, HURRICANE, THUNDER, EARTHQUAKE, *&c.*

To this our Countryman *Goad* chiefly keeps, in his two Volumes of *Astrology*; wherein he pretends, that Inundations may be foretold, and an Infinity of Phænomena explained from the Contemplation of the Stars.—Accordingly, he endeavours to account for the Diversity of Seasons, from the different Situations and Habitudes of the Planets, from their Retrograde Motions; the Number of fix'd Stars in the Constellations, *&c.*

This Art properly belongs to Physiology, or Natural Philosophy.

Its Foundation and Merits the Reader may gather from what we have said under the Articles, AIR, ATMOSPHERE, WEATHER, ÆTHER, FIRE, LIGHT, COMET, PLANET, MAGNETISM, EFFLUVIA, *&c.*

For

For this *Astrology*, Mr. *Boyle* has a just Apology in his *History of the Air*.—Generation and Corruption being the Extremes of Motion, and Rarefaction and Condensation the Mean ones; he shews, that the Effluvia of the Heavenly Bodies, as we find them immediately contribute to the latter, must also have a mediate Influence on the former; and consequently, all physical Bodies be affected thereby. See GENERATION, CORRUPTION, RAREFACTION, CONDENSATION, *&c.*

'Tis evident, that the Properties of Moisture, Heat, Cold, *&c.* employ'd by Nature to produce the two great Effects of Rarefaction and Condensation almost wholly depend on the Course, Motion, Position, *&c.* of the heavenly Bodies.—And 'tis also clear that every Planet must have its own proper Light, distinct from that of any other; Light not being a bare visible Quality, but endued with its specifick Power. The Sun, we know, not only shines on all the Planets, but by his genial Warmth calls forth, excites, and raises the Motions, Properties, *&c.* peculiar to them; and his Rays must share or receive somewhat of the Tincture thereof; and thus tinged be again reflected into the other Parts of the World, and particularly the adjacent Bodies of the planetary System. Whence, according to the Angle the Planets make with that grand Luminary, and the Degree wherein they are enlightened, either by his direct or his oblique Rays; together with their Distance and Situation in respect of our Earth; the Powers, Effects, or Tinctures, proper to each, must be transmitted hitherto, and have a greater or less effect on sublunary Things.—See *Mede de Imperio Solis & Lunæ*, &c.

Judiciary, or *Judicial* ASTROLOGY, which is what we commonly call *Astrology*, is that which pretends to foretell moral Events; *i. e.* such as have a Dependance on the Will and Agency of Man; as if that were directed by the Stars. See WILL, ACTION, *&c.*

The Professors hereof maintain, "That the Heavens are one "great Volume, or Book wherein God has wrote the History "of the World; and in which every Man may read his own "Fortune, and the Transactions of his Time.—The Art, say they, "had its Rise from the same Hands as *Astronomy* itself: While "the antient *Assyrians*, whose serene unclouded Sky favour'd "their Cælestial Observations, were intent on tracing the Paths "and Periods of the heavenly Bodies; they discover'd a con-"stant settled Relation or Analogy, between them and things be-"low; and hence were led to conclude, these to be the *Parcæ*, the "Destinies, so much talked of, which preside at our Births, and "dispose of our future Fate. See PARÆ, DESTINY, FATE, "*&c.*

"The Laws therefore of this Relation being ascertained by a "Series of Observations, and the Share each Planet has therein; "by knowing the precise Time of any Person's Nativity, they "were enabled from their Knowledge in Astronomy, to erect a "Theme or Horoscope of the Situation of the Planets, at that "Point of Time; and hence, by considering their Degrees of "Power and Influence, and how each was either strengthened or "temper'd by other, to compute what must be the result there-"of. See HOROSCOPE, NATIVITY, HOUSE, *&c.*

Thus the *Astrologers*.—But the chief Province now remaining to the modern Professors, is the making of Calendars or Almanacks. See CALENDAR and ALMANACK.

Judicial *Astrology* is commonly said to have been invented in *Chaldea*, and thence transmitted to the *Egyptians*, *Greeks*, and *Romans*.—Though it is to the *Arabs* we owe it. At *Rome* the People were so infatuated with it, that the *Astrologers*, or as they were then call'd, the *Mathematicians*, maintained their Ground in spight of all the Edicts of the Emperors to expel them out of the City. See MATHEMATICKS.

Add, that the *Bramæ*, who introduced and practiced this Art among the *Indians*, have hereby made themselves the Arbiters of good and evil Hours, which gives them a vast Authority: They are consulted as Oracles; and they have taken care never to sell their Answers but at good Rates. See BRACHMAN.

The same Superstition has prevailed in more modern Ages and Nations. The *French* Historians remark, that in the Time of Queen *Catherine de Medicis*, *Astrology* was in so much Vogue that the most inconsiderable thing was not to be done without consulting the Stars. And in the Days of King *Henry* III. and IV. of *France*, the Predictions of *Astrologers* were the common Theme of the Court Conversation.

This predominant Humour in that Court was well rallied by *Barclay*, in his *Argenis*, Lib. II. on Occasion of an *Astrologer*, who had undertook to instruct King *Henry* in the Event of a War then threatned by the Faction of the *Guises*.

"You maintain," says *Barclay*, "that the Circumstances of Life "and Death depend on the Place and Influence of the Celestial "Bodies, at the Time when the Child first comes to Light; and "yet own that the Heavens revolve with such vast Rapidity, that "the Situation of the Stars is considerably changed in the least "Moment of Time.—What certainty then, can there be in "your Art; unless you suppose the Midwives constantly "careful to observe the Clock; that the Minute of Time may "be convey'd to the Infant as we do his Patrimony? How often "does the Mother's Danger prevent this Care? And how many are "there who are not touched with this Superstition? But suppose "them watchful to your Wish: If the Child be long in Deli-"very; if, as is often the Case, a Hand or the Head come first, "and be not immediately followed by the rest of the Body; "which State of the Stars is to determine for him? That, when "the Head made its Appearance; or when the whole Body was "disengaged? I say nothing of the common Errors of Clocks, "and other Time-keepers, sufficient to elude all your Cares.

"Again, why are we to regard only the Stars at his Nativity, "and not those rather which shone when the *Fætus* was anima-"ted in the Womb? And why must those others be excluded "which presided while the Body remained tender, and suscepti-"ble of the weakest Impression, during Gestations?

"But setting this aside; and supposing, withal, the Face of "the Heavens accurately known: Whence arises this Dominion "of the Stars over our Bodies and Minds, that they must be "the Arbiters of our Happiness, our manner of Life, and "Death? Were all they who went to Battle, and died together, "born under the same Position of the Heavens? And when a "Ship is to be cast away, shall it admit no Passengers but those "doomed by the Stars to suffer Shipwreck? Or rather, do not "Persons born under every Planet go into the Combat, or aboard "the Vessel; and thus notwithstanding the Disparity of their "Birth, perish alike? Again, all who were born under the same "Configuration of the Stars do not live or die in the same man-"ner. Are all who were born at the same Time with the King, "Monarchs? Or are they all even alive at this Day? View M. "*Villeroy*, here; nay view your self: Were all that came into "the World with him as wise and virtuous as he; or all born "under your own Stars, Astrologers like you? If a Man meet "a Robber, you will say he was doomed to perish by a Robber's "Hand; but did the same Stars which, when the Traveller was "born, subjected him to the Robber's Sword; did they likewise "give the Robber, who perhaps was born long before, a Power "and Inclination to kill him? For you will allow it as much "owing to the Stars that the one kills, as that the other is kill'd. "And when a Man is overwhelmed by the fall of a House, did "the Walls become faulty because the Stars had doom'd him "to die thereby; or rather, was not his Death owing to this, "that the Walls were faulty? The same may be said with regard "to Honours and Employs: Because the Stars that shone at a "Man's Nativity promised him Preferment, could those have an "influence over other Persons not born under them, by whose "Suffrages he was to rise? Or how do the Stars at one Man's "Birth annul or set aside the contrary Influences of other Stars, "which shone at the Birth of another?

"The Truth is, supposing the reality of all the planetary "Powers; as the Sun which visits an Infinity of Bodies with the "same Rays, has not the same effect on all; but some things "are harden'd thereby, as Clay; others, softened, as Wax; "some Seeds cherished, others destroy'd; the tenderer Herbs "scorched up, others indemnified by their coarser Juice: So, "where so many Children are born together, like a Field tilled "so many different Ways, according to the various Health, Ha-"bitude, and Temperament of the Parents, the same Celestial "Influx must operate differently. If the Genius be suitable and "towardly, it must predominate therein: If contrary, it will "only correct it. So that to foretell the Life and Manners of a "Child, you are not only to look into the Heavens, but into "the Parents, into the Fortune which attended the pregnant "Mother, and a thousand other Circumstances utterly inaccessible.

"Further, does the Power that portends the new-born "Infant a Life, for Instance, of 40 Years; or perhaps a violent "Death at 30; does that Power, I say, endure and reside still "in the Heavens, waiting the destin'd time, when, descending "upon Earth, it may produce such an effect? Or is it infused "into the Infant himself; so that being cherished, and gradually "growing up together with him, it bursts forth at the appointed "Time, and fulfils what the Stars had given it in Charge? "Persist in the Heavens it cannot; in that depending immediate-"ly on a certain Configuration of the Stars, when that is chan-"ged, the effect connected with it must cease, and a new, per-"haps a contrary one, take place. What Repository then have "you for the former Power to remain in, till the Time come "for its Delivery? If you say it inheres or resides in the Infant, "not to operate on him till be be grown to Manhood; the An-"swer is more preposterous than the former: For this, in the "Instance of a Shipwreck, you must suppose the Cause why the "Winds rise, the Ship is leaky, or the Pilot, through Ignorance "of the Place, runs on a Shoal or a Rock. So the Farmer is "the Cause of the War, that impoverishes him; or of the fa-"vourable Season which brings him a plenteous Harvest.

"You boast much of the Event of a few Predictions, which, "considering the Multitude of those your Art has produced, "plainly confess its impertinency.—A Million of Deceptions are "industriously hidden and forgot in favour of some eight or ten "which have succeeded. Out of so many Conjectures it must "be preternatural if some did not hit; and 'tis certain, that "considering you only as Guessers, there is no room to boast "you have been successful therein. Do you know what Fate awaits "*Sicily* in this War; and yet are not apprehensive what shall "befall your self? Did not you foresee the Opposition I was "this

" this Day to make you? If you can say whether the King shall " vanquish his Enemies; find out, first, whether he will believe " you.

ASTRONOMY, ASTRONOMIA, the Doctrine of the Heavens, and the Phænomena thereof. See HEAVEN.

Astronomy is properly a mix'd mathematical Science, whereby we become acquainted with the Cælestial Bodies, their Magnitudes, Motions, Distances, Periods, Eclipses, *&c.* See MATHEMATICKS.

Some understand the Word *Astronomy* in a more extensive Sense; including under it the Theory of the Universe, and the primary Laws of Nature: In which Sense it rather seems a Branch of *Physicks* than of *Mathematicks*. See PHYSICKS, SYSTEM, NATURE, *&c.*

The Word is compounded of the *Greek* ἀστρ, Star; and νομος, Law, Rule.—Care must be taken to distinguish *Astronomy* from *Astrology*. See ASTROLOGY.

The Heavens may be consider'd two Ways; either as they appear to the naked Sense, or as they are discovered by the Understanding: And hence *Astronomy* is divided into two Branches, *Spherical* and *Theorical*.

Spherical ASTRONOMY, *Theorical* ASTRONOMY, } See { SPHERICAL *Astronomy*. THEORICAL *Astronomy*.

The Invention of *Astronomy* has been variously assigned; and several Persons, several Nations, and several Ages have laid claim to it.—From the Accounts given us by the antient Historians, it appears that Kings were the first Inventors and Cultivators of it: Thus, *Belus*, King of *Assyria*, *Atlas*, King of *Mauritania*, and *Uranus*, King of the Country situate on the Shore of the *Atlantick* Ocean, are severally recorded, as the Persons to whom the World owes this noble Science.

This, at least, is pretty evident, that it was known to those Nations long before it came into *Greece*: Agreeably to which, *Plato* tells us, it was a *Barbarian* who first observed the heavenly Motions; to which he was led by the clearness of the Weather in the Summer Season, as in *Egypt* and *Syria*, where the Stars are constantly seen, there being no Rain or Clouds to interrupt the Prospect. And the want of this clearness of Atmosphere the same Author lays down as the Reason why the *Greeks* came so late to the Knowledge of *Astronomy*.

The generality of Writers fix the Origin of *Astronomy* and *Astrology* in *Chaldea*; and accordingly among the Antients we find the Word *Chaldean* frequently used for *Astronomer*.—Some chuse to attribute the Invention to the antient *Hebrews*; and some, even, to the first Men; building on the Authority of *Josephus*, and of what he mentions about *Seth*'s Pillars.—The *Mussulmans* ascribe it to *Enoch*, and other Orientals to *Cain*.—But these Opinions appear scarcely probable to others, in regard they find no Terms of *Astronomy* in the Language of those first People, that is, in the *Hebrew* Language; which, on the contrary, are very frequent in the *Chaldee*: Though it must be own'd we have something of this kind in *Job*, and the Books of *Solomon*

We don't know whether it is worth noting, that *Rudbeck*, in his *Atlantis*, maintains *Astronomy* to have been invented by the *Swedes*: His Reasons are, the great Diversity in the length of the Days in that Country, which must naturally lead the People to conclude the Earth round, and that they lived near one of its Extremes: A Conclusion which the *Chaldeans*, and other Inhabitants of the middle Parts of the Globe, had no easy Way of coming at. The *Swedes*, adds our Author, prompted hereby to enquire further into the great Opposition of Seasons, soon discover'd that the Sun bounds his Progress by a certain Space in the Heavens, *&c.*—But we have no Historical Facts to support this reasoning, which at best only proves that the thing might be so.

By *Porphyry*'s Account, *Astronomy* must have been of a very antient standing in the East; for he tells us, that when *Babylon* was taken by *Alexander*, there were brought thence cælestial Observations, for the Space of 1903 Years, which therefore must have commenced within 115 Years of the Flood, or fifteen Years of the building of *Babel*.—*Epigenes*, according to *Pliny*, affirmed that the *Babylonians* had Observations of 720 Years, engraven on Bricks.—*Achilles Tatius* ascribes the Invention of *Astronomy* to the *Egyptians*; and adds, that their Knowledge therein was engraven on Columns, and by that means transmitted to Posterity.

From the *Egyptians*, *Astronomy* is commonly supposed to have pass'd to the *Greeks*: *Laertius* tells us, that *Thales*, first, about the 50th Olympiad, and after him *Eudoxus* and *Pythagoras*, travell'd into *Egypt*, to be instructed herein; and that this last, in particular, living in a close Community with the *Egyptian* Priests for seven Years, and being initiated into their Religion, was here let into the true System of the Universe; which he afterwards taught in *Greece* and *Italy*.—He was the first, among the *Europeans*, who taught that the Earth and Planets turn round the Sun, which stands immoveable in the Center; that the diurnal Motion of the Sun and fix'd Stars, was not real but apparent, arising from the Earth's Motion round its own Axis, *&c.* See PYTHAGOREAN.

Yet *Vitruvius* represents the Introduction of *Astronomy* into *Greece*, somewhat differently; maintaining, that *Berosus*, a *Babylonian*, brought it thither immediately from *Babylon* itself; and open'd an *Astronomical* School in the Island of *Cos*. *Pliny*, Lib. VII. c. 37. adds, that in consideration of his wonderful Predictions, the *Athenians* erected him a Statue in the *Gymnasium*, with a gilded Tongue.—If this *Berosus* be the same with the Author of the *Chaldee* Histories, he must have been before *Alexander*.

After *Pythagoras*, *Astronomy* sunk into neglect; most of the cælestial Observations brought from *Babylon*, were lost, and 'twas but a very small Number that *Ptolomy*, in his Time, was able to retrieve.—However, some few of his Followers continued to cultivate *Astronomy*; among whom were *Philolaus* and *Aristarchus Samius*.

At length, those Patrons of Learning, the *Ptolomys*, Kings of *Egypt*, founding an Academy for *Astronomy*, at *Alexandria*, there arose several eminent *Astronomers* from the same; particularly *Hipparchus*, who, according to *Pliny*, undertook what wou'd have been a great Work even for a God to atchieve, *viz.* to number the Stars, and leave the Heavens as an Inheritance to Posterity: He foretold the Eclipses both of the Sun and Moon for 600 Years, and on his Observations is founded that noble Work of *Ptolomy*, intitled μεγάλη συντάξις. See CATALOGUE, *&c.*

The *Saracens*, on their Conquest of *Egypt*, got a Tincture of *Astronomy*, which they carried with them out of *Africa* into *Spain*; and by this means *Astronomy*, after a long Exile, was at length introduced afresh into *Europe*.

From this Time, *Astronomy* began to improve very considerably; being cultivated by the greatest Genius's, and patronized by the greatest Princes.—*Alphonsus*, King of *Castile*, enrich'd it with those Tables which still bear his Name. See TABLE.

Copernicus re-establish'd the antient *Pythagorean* System; And *Tycho Brahe* publish'd a Catalogue of 770 fixed Stars, from his own Observations. See COPERNICAN, STAR. *&c.*

Kepler, from *Tycho*'s Labours, soon after discovered the true Theory of the World; and the physical Laws by which the heavenly Bodies move. See PLANET, PERIOD, GRAVITATION, *&c.*

Galileo first introduced Telescopes into *Astronomy*, and by their means discovered the Satellites of *Jupiter*; the various Phases of *Saturn*, the Mountains of the Moon, the Spots in the Sun, and its Revolution about its Axis. See TELESCOPE, SATELLITE, MOON, MACULÆ, *&c.*

Add, that *Hevelius*, from his own curious Observations, furnished a Catalogue of the fix'd Stars, much more complete than *Tycho*'s.—*Huygens* and *Cassini* discovered the Satellites of *Saturn*, and his Ring.—And *Gassendus*, *Horrox*, *Bullialdus*, *Ward*, *Riccioli*, *Gascoign*, &c. each contributed very considerably to the Improvement of *Astronomy*. See SATURN, RING, ELLIPTIC, MICROMETER, *&c.*

The immortal *Newton* first demonstrated from physical Considerations, the great Law that regulates all the heavenly Motions, sets bounds to the Planets Orbs, and determines their greatest Excursions from the Sun, and their nearest approaches to it.—'Twas he first taught the World whence arose that constant and regular Proportion observed by both primary and secondary Planets, in their Circulation round their central Bodies; and their Distances compared with their Periods.—He has given us a new Theory of the Moon, which accurately answers all her Inequalities, and accounts for 'em from the Laws of Gravity and Mechanism. See NEWTONIAN. See also ATTRACTION, MOON, TIDE, *&c.*

Dr. *Halley* obliged the World with the *Astronomy* of Comets, and with a Catalogue of the Stars in the southern Hemisphere; and continues still a Benefactor to *Astronomy*, by his Observations: To which it may be added, that he has in the Press, a new set of astronomical Tables; preferable by many Degrees to any yet published. See COMET, TABLE, *&c.*

Mr. *Flamstead* upwards of forty Years watch'd the Motions of the Stars, and has given us a great number of curious Observations of the Sun, Moon, and Planets; besides a noble Catalogue of 3000 fix'd Stars; which is more than double the Number in that of *Hevelius*.—Nothing now seem'd wanting to *Astronomy*, but an universal and compleat Theory of the cælestial *Phænomena*, explained according to their true Motions and physical Causes, which has been performed by Dr. *Gregory*. See CENTRIPETAL, CENTRIFUGAL, *&c.*

ASTRONOMY is sometimes divided, with respect to its different States, into *New* and *Old*.—The antient *Astronomy* is such as the Art stood under *Ptolomy*, and his Followers; with all the Apparatus of solid Orbs, Epicycles, Excentricks, Deferents, Trepidations, *&c.* See PTOLOMAIC. See also HEAVEN, EPICYCLE, *&c.*

The antient *Astronomy* is deliver'd by *Claud. Ptolomy*, who died A. D. 147; in his μεγαλη Συνταξις; translated in 827, into *Arabick*; and thence, in 1528, into *Latin*. An Epitome of it, for the use of Learners, was made by *Purbachus* and his Scholar *Regiomontanus*, in 1550; containing the whole Doctrine of the heavenly Motions, their Magnitudes, Eclipses, *&c.*—On the Model hereof, *Albategnius* the *Arab*, compiled another Work, on the *Knowledge of the Stars*, published in *Latin* 1537.

The *New Astronomy* is such as the Art has been since *Copernicus*; by whom those fictitious Machines were thrown out; and the Constitution of the Heavens reduced to more simple, natural, and certain Principles. See COPERNICAN. See also SYSTEM, SUN, EARTH,

TAB. ASTRONOMY.

Fig. 1. Eccentric

Fig. 2. Diurnal Motion.

Fig. 3. Aspect Trine Tetragon

Fig. 4. Declination.

Fig. 5. Declination.

Fig. 6. Meridian.

Fig. 7. Star.

Fig. 8. Meridian line.

Fig. 9. Meridian Line

Fig. 10. Circular Velocity.

Fig. 11. Micrometer.

Fig. 12. Micrometer.

Fig. 13. Moon.

Fig. 14. Moon.

Fig. 15. Moon.

Fig. 16. Moon.

Fig. 17. Moon.

Fig. 81. Moon

Fig. 19. Moon.

Fig. 20. Moon.

Comet.

Fig. 21. Ptolomaick Sphere.

Fig. 14. Earth 60.

Fig. 15. Earth 60.

Fig. 16. Earth

Fig. 22. Copernican Sphere.

Fig. 23. Comet.

Fig. 24. Paracentric.

Fig. 27. Parallax.

Fig. 28. Parallax Rejaction.

Fig. 25. Comutation Reduction. Fig. 26.

Fig. 29. Parallax.

Fig. 30. Parallax.

Fig. 31. Parallax

Fig. 32. Particula- Elongation

Fig. 33. Node

Fig. 34. Eclipse.

Fig. 35. Eclipse. 37.

Fig. 38. Eclipse.

Fig. 39. Sun.

Fig. 40. Geocentric.

Fig. 41. Crepusculum

Fig. 42. Crepusculum

Fig. 48. Culmination.

Fig. 43. Ptolemaic System.

Fig. 45. Tychonic System.

Fig. 44. Copernican System.

Fig. 47. Penumbra.

Fig. 46. Emersion.

Fig. 50. Equation of Time.

Astronomical Quadrant.

Fig. 54.

Fig. 55. Gunters Quadrant.

Fig. 62. Heliocentric-Latitude.

Fig. 60. Globe.

Globe.

Fig. 52. Equator, Sphere. Ecliptic, Horizon, Tropicks.

Fig. 61. Fig. 58. Globe

Fig. 62. Suns Altitude.

Fig. 64. Ascensional-Difference.

Anomaly.

Fig. 63.

Fig. 57. Gnomen.

Fig. 58. Retrogradation

Fig. 59. Retrogradation

Fig. 60. Planet.

Fig. 61. Planet.

Fig. 56. Suttons Quadrant

Latit. 51. 32.

Fig. 53. Horducical Quadrant

Fig. 59. Globe.

EARTH, PLANET, ORBIT, *&c.* See also SPHERE, GLOBE, *&c.*

The modern *Astronomy* is deliver'd in *Copernicus's* six Books of *Cælestial Revolutions*, published about the Year 1566; wherein, by retrieving *Pythagoras's* and *Philolaus's Dogma* of the Motion of the Earth, he laid the Foundation of a juster System.—*Kepler's Commentaries of the Motions of Mars*, published in 1609; wherein, in lieu of the circular Orbits admitted by all former *Astronomers*, he proposed the elliptic Theory; which, in his Epitome of the *Copernican Astronomy*, published in 1635, he applied to all the Planets.—*Ish. Bullialdus's Astronomia Philolaica*, published in 1645, wherein he endeavoured to amend *Kepler's* Theory, and render the Calculus more Exact and Geometrical: Some Errors committed by *Bullialdus* were pointed out by Dr. *Seth. Ward*, in his *Inquiry into the Philolaic Astronomy*, published in 1653; and corrected by himself in his *Foundations of the Philolaic Astronomy more clearly explain'd*, in 1657.—*Ward's Astronomia Geometrica*, published in 1656; wherein a Geometrical Method is proposed of computing the Planets Motions; though not consistent with the true Laws of their Motions established by *Kepler*. The same was proposed the Year following by the Count *de Pagan*. The Truth is, *Kepler* himself does not seem to have been ignorant thereof; but rather chose to set it aside, as finding it contrary to Nature.—*Vin. Wing's Astronomia Britannica*, publish'd in 1669; wherein, going on *Bullialdus's* Principles, he gives just Examples of all the Precepts in practical *Astronomy*, well accommodated to the Capacity of Learners.—*Newton's Astronomia Britannica*, published in 1657; and *Street's Astronomia Carolina*, in 1661; both upon *Ward's* Hypothesis.

In *Riccioli's Almagestum Magnum*, published in 1651, we have the several Hypotheses of all the *Astronomers*, antient as well as modern.—And in Dr. *Gregory's Elementa Astronomiæ Physicæ & Geometricæ*, in 1702, the whole modern Astronomy, as founded on the Discoveries of *Copernicus*, *Kepler*, and Sir *Isaac Newton*.—The Marrow of the new *Astronomy* is also laid down by *Whiston*, in his *Prælectiones Astronomicæ*, in 1707.—For Novices in the Art, *Mercator's Institutiones Astronomicæ*, published in 1676; which contains the whole Doctrine, both according to the Antients and Moderns; and Dr. *Keill's Introductio ad Veram Astronomiam*, in 1718, which only takes in the Modern, are the best calculated.

ASTRONOMICAL, something that relates to *Astronomy*. See ASTRONOMY.

ASTRONOMICAL *Observations*. See CÆLESTIAL *Observations*.

The *Astronomical* Observations of the Antients, among which those of *Hipparchus* make a principal Figure, are preserved by *Ptolomy* in his *Almagest*. See ALMAGEST.

In the Year 880, *Albategnius*, a *Sarazen*, applied himself to the making of Observations: In 1457, *Regiomontanus* undertook the Province at *Norimberg*; and his Disciples *J. Wernerus*, and *Ber. Walcherus*, continued the same from 1475 to 1504. Their Observations were published together in 1544.—In 1509, *Copernicus*, and after him the Landgrave of *Hesse*, with his Assistants *Rothmannus* and *Byrgius*, observed; and after them *Tycho*, at *Uranibourg*, from 1582 to 1601.—All the Observations hitherto rehearsed, together with *Tycho's Apparatus* of Instruments, are contain'd in the *Historia Cælestis*, published in 1672, by Order of the Emperor *Ferdinand*.—Soon after, *Hevelius*, with a still more magnificent and better contrived *Apparatus* of Instruments, described in his *Machina Cælestis*, began a Course of Observations. It is objected to him that he only used plain Sights, and could never be brought to take the Advantage of Telescopic ones; which occasioned Dr. *Hook* to write Animadversions on *Hevelius's* Instruments, printed in 1674; wherein he despises them on account of their Inaccuracy: But Dr. *Halley*, who at the Instance of the Royal Society went over to *Dantzick* in the Year 1679, to inspect his Instruments; approved of their Justness, as well as of the Observations made with them.

Jer. Horrox, and *Will. Crabtree*, two of our own Countrymen, are famous for their Observations from the Years 1635 to 1645.—They were followed by *Flamsteed*, *Cassini* the Father and Son, *Halley*, *de la Hire*, *Roemer*, and *Kirchius*.—See *further under the Articles* OBSERVATORY, CATALOGUE, *&c.*

ASTRONOMICAL *Tables*,	See	*Astronomical* TABLE.
ASTRONOMICAL *Quadrant*,		*Astronomical* QUADRANT.
ASTRONOMICAL *Telescope*,		*Astronomical* TELESCOPE.
ASTRONOMICAL *Calendar*,		*Astronomical* CALENDAR.
ASTRONOMICAL *Hours*,		*Astronomical* HOURS
ASTRONOMICAL *Month*,		*Astronomical* MONTH.
ASTRONOMICAL *Year*,		*Astronomical* YEAR.
ASTRONOMICAL *Characters*, &c.		*Astron.* CHARACTERS, *&c.*

ASTRONOMICAL *Place*, of a Star or Planet, is its Longitude, or Place in the Ecliptick reckoned from the beginning *Aries*, *in Consequentia*, or according to the natural Order of the Signs. See PLACE, LONGITUDE, *&c.*

ASTRONOMICAL *Time*. See *Astronomical* TIME.

ASTRONOMICALS, a Name used by some Writers for Sexagesimal Fractions; on account of their use in *Astronomical* Calculations. See SEXAGESIMAL.

ASYLUM, or AZYLUM, a Sanctuary, or Place of Refuge and Protection, where a Criminal who shelters himself is deem'd inviolable, and not to be touch'd by any Officer of Justice. See REFUGE, PRIVILEGE, *&c.*

The Word *Asylum* is *Latin*: *Servius* derives it from the *Greek* ἄσυλον; which is compounded of the privative Particle α, and συλάω, *I take out*, *I draw*, because no Person cou'd be taken out of an *Asylum* without Sacrilege. See SACRILEGE.

The first *Asylums* were established at *Athens*, by the Descendents of *Hercules*, to shelter themselves from the fury of his Enemies. See HERACLIDES.

The Altars, Statues, and Tombs of Hero's, were, antiently, the ordinary Retreat of those who found themselves aggriev'd by the Rigour of the Laws, or oppress'd by the Violence of Tyrants: But of all others, Temples were held the most sacred and inviolable Refuge. It was supposed that the Gods took upon them to punish the Criminal who thus threw himself upon them; and it had been a great Impiety in Man to take Vengeance out of the Hands of the Immortals. See ALTAR, TEMPLE, TOMB, STATUE, *&c.*

The *Israelites* had their Cities of Refuge, which were of God's own Appointment; where the Guilty, who had not committed any detestable Crime, found Safety and Protection.—As to the Heathens, they allowed Refuge and Impunity, even to the vilest and most flagrant Offenders, for the sake of peopling their Cities; and it was by this means, and with such Inhabitants, that *Thebes*, *Athens*, and *Rome*, were first stock'd.—We even read of *Asylums* at *Lyons* and *Vienne* among the antient *Gauls*; and there are some Cities in *Germany* which still preserve the antient right of *Asylum*.

Hence, on the Medals of several antient Cities, particularly in *Syria*, we meet the Inscription, ΟΑΣΥΛΟΙ, to which is added, ΙΕΡΑΙ. For Instance, ΤΥΡΟΥ ΙΕΡΑΣ ΚΑΙ ΑΣΥΛΟΣ ΣΙΔΩΝΟΣ ΙΕΡΑΣ ΚΑΙ ΑΣΥΛΟΥ.— This Quality of *Asylum* was given them, according to M. *Spanheim*, in regard of their Temples, and of the Gods revered by them.

The same Qualities has also been given to Deities: Thus *Diana* of *Ephesus* is call'd ἄσυλος.—Add, that the Camp form'd by *Romulus* and *Remus*, and which afterwards became a City, was first call'd *Asylum*; and a Temple was therein erected to the God *Asylæus*, Θεὸς ἄσυλαιος.

The Emperors *Honorius* and *Theodosius* granting these Immunities to Church-yards, the Bishops and Monks laid hold of a certain Tract or Territory, without which they fix'd the Bounds of the Secular Jurisdiction: And so well did they manage their Privileges, that Convents, in a little time, became next a-kin to Fortresses; where the most glaring Villains were in Safety, and braved the Power of the Magistrate. See CHURCH-*Yard*.

These Privileges, at length, were extended not only to the Church-yards, but also to the Bishop's Houses, whence the Criminal cou'd not be removed without a legal Assurance of Life, and an entire Remission of the Crime.—The Reason of the Extension was, that they might not be obliged to live altogether in the Churches, *&c.* where several of the Occasions of Life cou'd not be decently done.

But, at length, the *Asyla*, or Sanctuaries, were stripp'd of most of their Immunities, in regard they served to make Guilt and Libertinage more daring and bold-faced. In *England*, particularly, they were entirely abolished. See *the Article* SANCTUARY.

ASYMMETRY, ASYMMETRIA, a want of Symmetry or Proportion. See SYMMETRY.

In Mathematicks, the Term is particularly used for what we more usually call *Incommensurability*; which is when between two Quantities there is no common Measure: As, between the Side, and Diagonal of a Square.—In Numbers, surd Roots, as $\sqrt{2}$, *&c.* are incommensurable to rational Numbers. See INCOMMENSURABLE, SQUARE, SURD, *&c.*

The Word is derived from the privative Particle α, σὺν, and μέτρον, q. d. *without Measure*.

ASYMPTOTE, in Geometry, a Line which continually approaches nearer and nearer to another, yet will never meet therewith, though indefinitely prolonged. See LINE.

The Word is compounded of the privative Particle α, σὺν, with, and πίπτω, I fall; q. d. *In-coincident*, or which never meet.—Some *Latin* Authors call them *Intactæ*.

Bertinus gives us divers sorts of *Asymptotes*; some Strait, others Curve; some Concave, others Convex, *&c.* and further, proposes an Instrument to describe them withal.—Though, in strictness, the Term *Asymptotes* seems appropriated to right Lines.

Asymptotes, then, are properly right Lines, which approach nearer and nearer to some Curve, of which they are said to be the *Asymptotes*; but which, though they and their Curve, were indefinitely continued, would never meet. See CURVE.

Asymptotes may be conceived as Tangents to their Curves at an infinite Distance. See TANGENT.

Two Curves are also said to be *Asymptotical*, when they thus continually approach, without a possibility of meeting.—Thus two Parabola's, whose Axes are in the same right Line, are *Asymptotical* to one another.

Of Curves of the second Kind, that is, the Conick Sections, only the Hyperbola has *Asymptotes*, which are two in Number.

All Curves of the third Kind have at least one *Asymptote*, but they may have three; and all Curves of the fourth Kind may have four *Asymptotes*. See CURVE *of higher Kind*.

The Conchoid, Cissoid, and Logarithmick Curve, though not reputed Geometrical Curves, have each also one *Asymptote*. See MECHANICAL, TRANSCENDENTAL, *&c.*

ASYMPTOTE *of the Conchoid*.—The Nature of *Asymptotes* will be easily conceived in the Instance of the *Asymptote* of a Conchoid.—Suppose MMAM, *&c.* (*Tab. Analysis, Fig.* 1.) be a Part of a Conchoid, C its Pole, and the right Line Bd, so drawn that the Parts QM, EA, OM, *&c.* of right Lines drawn from the Pole C, are equal to each other: Then will the Line BD be an *Asymptote* of the Curve: Because the Perpendicular MI, *&c.* is shorter than MO, and MR than MQ, *&c.* so that the two Lines continually approach; yet the Points M, *&c.* and R, can never coincide, in regard there is still a Portion of a Line to keep them asunder; which Portion of a Line is infinitely divisible, and consequently must be diminish'd infinitely e're it become nothing. See DIVISIBILITY, INFINITE, *&c.* See also CONCHOID.

ASYMPTOTES *of the Hyperbola* are thus described.—Suppose a right Line DE (*Tab. Conicks, Fig.* 20.) drawn through the Vertex A of the Hyperbola, parallel to the Ordinates M*m*, and equal to the Conjugate Axes, *viz.* the Part DA, and that AE to the Semi-axis: Then, two right Lines drawn from the Centre C, of the Hyperbola, through the Points D and E; *viz.* the right Lines CF and CG, are *Asymptotes* of the Curve.

For the Properties of the ASYMPTOTES *of a Hyperbola*, see HYPERBOLA.

If the Hyperbola GMR, *Fig.* 12. be of any kind whose Nature with regard to the Curve and its *Asymptote*, is express'd, by this general Equation $x^m y^n = a^{m+n}$; and the right Line PM be drawn any where Parallel to the *Asymptote* CS, and the Parallelogram PCOM, be compleated: This Parallelogram is to the hyperbolick Space PMGB, contained under the determinate Line PM, the Curve of the Hyperbola GM indefinitely continued towards G, and the Part PB of the *Asymptote* indefinitely continued the same way, as $m-n$ is to n: And so if m be greater than n, the said Space is squareable; but when $m=n$, as it will be in the common Hyperbola, the Ratio of the foregoing Parallelogram to that Space is as 0 to 1; that is, the Space is infinitely greater than the Parallelogram, and so cannot be had: And when m is less than n, the Parallelogram will be to the Space, as a negative Number to a positive one, and the said Space is squareable, and the Solid generated by the revolving of the indeterminate Space GMOL about the *Asymptote* CE, is double of the Cylinder generated by the Motion of the Parallelogram PCOM about the Axis CO.

ASYMPTOTE *of a Logarithmic Curve*.—If MS be the Logarithmic Curve, PR an *Asymptote*, PT the Subtangent, and MP an Ordinate; then will the indeterminate Space RPMS=PM+PT; and the Solid, generated by the Rotation of this Curve about the *Asymptote* VP, will be $\frac{1}{2}$ of a Cylinder, whose Altitude is equal to the Length of the Subtangent, and the Semidiameter of the Base equal to the Ordinate QV. See LOGARITHMIC.

ASYMPTOTIC *Spaces*. See HYPERBOLA.

ASYNDETON, a Figure in Grammar, implying a defect or want of Conjunctions in a Sentence. See FIGURE and CONJUNCTION.

As, in the Instance, *Veni, Vidi, Vici*, I came, I saw, I conquer'd; where the Copulative *et*, and, is omitted.

The Word is derived from the privative α, and συνδέω, *colligo*, bind together.

Asyndeton stands opposed to *Polysyndeton*. See POLYSYNDETON.

ATAMADULET, the first Minister in the *Persian* Empire. See MINISTER.

The *Atamadulet*, or, as *Tavernier* writes it, *Athematdoulet*; and *Sanson*, *Etmadaulet*, is much the same with the Grand Visier in *Turky*; excepting that he has not the Command of the Army, which the Visier has. See VISIER.

The *Atamadaulet* is Great Chancellor of the Kingdom, President of the Council, Superintendant of the Finances; and has the Charge of all Foreign Affairs.—The *Atmadaulet* is in effect Vice-Roy of the Kingdom: He issues the King's Mandates, or Orders, in this Style, *Bende derga Ali il alia Etmadolvet*; that is, I who am the Support of the Power, the Creature of this Port, the highest of all Ports, *&c.*

The Word is *Arabick*, compounded of *Itimàde* and *daulet*, that is, the Trust of Majesty, or according to *Tavernier*, the Support of Riches.

ATARAXY, ATARAXIA, a Term much used by the Stoicks, to denote that calmness and tranquillity of Mind, and that firmness of Judgment which sets us free from any Agitations or Emotions arising from Self-Opinion, and the Knowledge we imagine our selves possess'd of. See STOICKS.

In this *Ataraxy*, they supposed the sovereign Good to consist. See GOOD.

The Word is purely *Greek*, compounded of αταρ and ταξις, Order. See ATAXY.

ATAXY, ATAXIA, a want of Order or Regularity.—The Term is chiefly used in Medicine, where the Order of the Critical Days, or other Phænomena of a Disease, is inverted. See CRITICAL, *&c.*

The Physicians have frequent recourse to an *Ataxy* or Irregularity of the Spirits, when at a loss to account for any Disorder in the Body. The Spirits, Dr. *Drake* observes, being always at Hand, are forced to bear the blame of a thousand things they are innocent of. See SPIRIT.

The Word is compounded of the privative α, and ταξις, Order.

ATCHIEVEMENT, in Heraldry, the Coat of Arms of any Person or Family, duly marshall'd with its external Ornaments, as *Supporters*, *Helmet*, *Wreath*, *Crest*, and *Motto*. See COAT and ARMS. See also SUPPORTER, HELMET, *&c.*

Such are usually hung out on the Fronts of Houses after the Death of some considerable Person; and are now corruptly called *Hatchments*.

The Word is form'd of the *French*, *Achievement*, finishing, Consummation, Perfection.

ATELLANÆ, or ATTELLANÆ, in Antiquity, a kind of comic and satyric Pieces, presented on the *Roman* Theater; somewhat less ludicrous than the Farces on the *English* Stage, and yet less grave and serious than the *Greek* or *Latin* Comedies and Tragedies. See COMEDY, TRAGEDY, SCENE, *&c.*

The *Atellanæ*, or *Fabulæ Atellanæ* of the *Romans*, answer'd to the *Satyræ* among the *Greeks*. See SATYR, FABLE, *&c.*

They were thus called from *Atella*, or *Attella*, a City of *Tuscany*, where they were first represented.

They became so licentious and impudent, that the Senate was at length obliged to suppress them. See SCENIC.

ATHANASIAN *Creed*. See CREED, TRINITY, *&c.*

ATHANASIANS. See ARIANS and ARIANISM.

ATHANATI, an Order of Soldiers among the antient *Persians*.—The Word is originally *Greek*, and signifies *immortal*; being compounded of the privative α, and θανατος, Death.

The *Athanati* were a Body of Cavalry, consisting of ten thousand Men, always compleat, because, when any one of 'em died, another was immediately put into his Place.—It was for this Reason that they were call'd *Athanati*, or *immortales*.

ATHANOR, in Chymistry, a large immoveable Furnace, built of Brick or Earth, and cover'd with a Tower a-top; proper to maintain a temperate and equable Degree of Heat for a considerable time. See FURNACE, HEAT, *&c.*

The Heat of the *Athanor* is intended or remitted by opening or shutting a Register. See REGISTER.

It is made to communicate its Heat by Tubes or Apertures at the Side of the Hearth or Fire-Place, to several adjacent Vessels; by which means different Operations are carry'd on at the same time.—We meet with divers Forms and Constructions of this Furnace, in the Writers of Chymistry.

The *Athanor* is also call'd *Piger Henricus*, slow Harry; because chiefly used in the slower Operation; and because when once filled with Coals, it keeps burning a long time; whence the *Greeks* call it ακοπῶν, q. d *giving no trouble*, as it does need to be continually attended.—It is also call'd the *Philosophical Furnace*, or *Furnace of Arcana*; and popularly, the *Tower Furnace*.

The Word *Athanor* is borrowed from the *Arabs*, who call an Oven, *Tanneron* from the *Hebrew* תנור, *Tannour*, an Oven, or Furnace; whence, with the additional Particle *al*, אלתנור, *Altannour*, &c.—Others chuse to derive the Name from the *Greek* αθανατος, Immortal; because of its durable Fire.

ATHEIST, ATHEUS, a Person who denies the Deity; who does not believe the Existence of a God, nor a Providence; and who has no Religion, true nor false. See GOD, PROVIDENCE, RELIGION.

In general, a Man is said to be an *Atheist* who owns no Being superior to Nature, that is, to Men and the other sensible Beings in the World. See NATURE.

In this Sense, *Spinosa* may be said to be an *Atheist*; and it is an Impropriety to rank him, as the learned commonly do, among *Deists*; since he allows of no other God beside Nature, of which Mankind makes a Part; and there is no *Atheist* but allows of the Existence of the World, and of his own in particular. See SPINOSISM. See also EXISTENCE, SUBSTANCE, *&c.*

Plato distinguishes three kinds of *Atheists*.—Some, who deny absolutely that there are any Gods; others who allow the Existence of Gods, but maintain that they don't concern themselves with human Affairs, and so deny a Providence; and others, who believe there are Gods, but think they are easily appeas'd with a little Prayer, or the like; and that they remit the greatest Crimes for the smallest Supplication. See EPICUREAN, *&c.*

The Word *Atheist* is derived from the privative α, and Θεὸς, God.

ATHENÆA, a Feast of the antient *Greeks*, held in Honour of *Minerva*, who was call'd Ἀθήνη. See FEAST.

These were afterwards call'd *Panathenæa*. See PANATHENÆA.

ATHENÆUM, in Antiquity, a publick Place wherein the Professors of the liberal Arts held their Assemblies, the Rhetoricians declaimed, and the Poets rehearsed their Verses.

The

The *Athenæa* were built in form of Amphitheatres; and were also incompass'd with Seats, which *Sidonius* calls *Cunei*. See AMPHITHEATRE.

The two most celebrated *Athenæa* were that of *Rome*, and that at *Lyons*; the former of which, according to *Aurelius Victor*, was built by the Emperor *Adrian*.

The Word is *Greek*, and is derived from *Athens*, a learned City, where many of these Assemblies were held; or from the *Greek* Name of *Pallas*, Ἀθήνη, Goddess of Science; intimating that *Athenæum* was a Place consecrated to *Pallas*, or set a-part for the Exercises over which she presides.

ATHEROMA, in Medicine, a Kind of a Tumour or Swelling, of a pappy Consistence, without pain, or discolouring the Skin. See TUMOR.

The *Atheroma* is contain'd in a Cystis or membranous Bag; and does not give way when touched with the Finger, nor retains any dent after pressure.

The *Atheroma* is thus call'd from the *Greek* ἄθηρα, a Kind of Pap or Pulp which the Matter of this Tumour resembles.—It is near a-kin to the *Meliceris* and *Steatoma*; and cured like them. See MELICERIS and STEATOMA.

ATHLETA, in Antiquity, a Wrestler, or a strong courageous Person, who employs himself in Exercises of the Body, as running, wrestling, and other the like Gymnic Sports, for which the Antients had established Prizes. See EXERCISE and GYMNASTIC. See also GAME, CIRCUS, *&c.*

The *Athletæ* lived in continual Abstinence from Pleasures, to render themselves the more vigorous and robust. See ABSTINENCE.

The Word comes from the *Greek* ἀθλητὴς, of ἀθλέω, *certo, pugno*, I contend, I fight. See COMBAT, GLADIATOR, *&c.*

ATIA. See ODIO and ATIA.

ATLANTIS, or ATLANTICA, in Antiquity, an Island spoke of by *Plato* and other Writers, under some extraordinary Circumstances; and render'd famous by a Controversy among the Moderns about it.

The most distinct Account of this celebrated Place, is given us in *Plato's Timæus*, and *Critias*; which amounts, in a few Words, to what follows.—" The *Atlantis* was a large Island in the Western Ocean, situate before, or opposite to, the Straights of *Gibraltar*. Out of this Island there was an easy Passage into some others, which lay near a large Continent exceeding all *Europe* and *Asia*. *Neptune* settled in this Island, which he distributed among his ten Sons; to the youngest fell the extremity of the Island call'd *Gadir*, which in the Language of the Country signifies Ἐυμηλος, *Fertile*, or *abundant in Sheep*. The Descendants of *Neptune* reigned here from Father to Son, for a great Number of Generations, in the Order of Primogeniture. They also possessed several other Islands; and passing into *Europe* and *Africa*, subdued all *Libya* as far as *Egypt*, and all *Europe* to *Asia Minor*. At length the Island sunk under Water; and for a long Time afterwards, the Sea thereabouts was full of Flats and Shelves.

The learned *Rudbecks*, Professor in the University of *Upsal*, in an express Treatise intitled, *Atlantica sive Manheim*, maintains, very strenuously, that *Plato's Atlantis* is *Sweden*; and attributes to his Country, whatever the Antients have said of their *Atlantis*, or *Atlantic Island*.—After the little Abridgment we have given of *Plato's* Account, the Reader will be surprized to find *Sweden* taken for the *Atlantis*; and accordingly tho' *Rudbeck's* Work be full of uncommon Erudition, the Author passes for a Visionary in this Point.

Others will have *America* to be the *Atlantis*; and hence infer, that the new World was not unknown to the Antients: But what *Plato* says, does by no means quadrate thereto.—*America* should rather seem to be the vast Continent beyond the *Atlantis*, and the other Islands mentioned by *Plato*.

Beeman, in his *History of Islands*, Cap. 5. advances a much more probable Opinion than that of *Rudbeck's*.—The *Atlantis*, according to him, was a large Island extended from the *Canaries* to the *Azores*; and these Islands are the Remains thereof not swallowed up by the Sea.

The *Atlantis* took its Name from *Atlas*, *Neptune's* eldest Son, who succeeded his Father in the Government thereof.

ATLANTIDES, among the Poets. See VERGILIÆ.

ATLAS, in Architecture, is a Name given to those Figures, or Half-Figures of Men, so much used instead of Columns, or Pilasters; to support any Member of Architecture, as a Balcony, or the like. See COLUMN, *&c.*

These are otherwise call'd *Telamones*. See TELAMON.

ATLAS, in Anatomy, the Name of the first *Vertebra* of the Neck, which supports the Head. See VERTEBRA and NECK.

It is so call'd in allusion to the celebrated Mountain *Atlas*, in *Africa*, which is so high, that it seems to bear the Heavens; and to the Fable, in which, *Atlas*, the King of this Country is said to bear the Heavens on his Shoulders.

The *Atlas* has no spiny *Apophyses*; because the Motions of the Head don't turn on this *Vertebra*, but on the second. As it is obliged to turn about as often as the Head moves round, had there been any spiny *Apophyses*, it would have incommoded the Motion of the Muscles in the Extension of the Head.—It is also of a finer and firmer Texture than the other *Vertebræ*; and it differs further from them in that those receive at one End, and are received at the other, whereas this receives at both Extremes; for two Eminences of the Occiput are inserted within its two upper Cavities, which makes its Articulation with the Head; and at the same time, two other Eminences of the second *Vertebræ* are received within its two lower Cavities, by means of which they are articulated together.

ATLAS is also a Title given to Books of universal Geography, containing Maps of the known Parts of the World; as if they were view'd from the Top of that celebrated Mountain, which the Antients esteemed the highest in the World; or rather on Account of their holding the whole World like *Atlas*.

We have also *Atlas's* of particular Parts, *Sea-Atlas's*, &c.—The first Work under this Denomination was the *Great Atlas* of *Blaeuw*.

ATMOSPHERE, ATMOSPHÆRA, an Appendage of our Earth; consisting of a thin, fluid, elastic Substance, call'd *Air*, surrounding the Terraqueous Globe, to a considerable Heighth. See EARTH.

By *Atmosphere* is usually understood the whole Mass, or Assemblage of ambient Air: Though, among the more accurate Writers, the *Atmosphere* is restrain'd to that Part of the Air next the Earth, which receives Vapours and Exhalations; and is terminated by the Refraction of the Sun's Light. See REFRACTION.

The further or higher Spaces, though perhaps not wholly destitute of Air, are supposed to be possess'd by a finer Substance call'd *Æther*; and are hence denominated the *Ætherial Region*, or Space. See ÆTHER, HEAVEN, *&c.*

A late eminent Author considers the *Atmosphere* as a large Chymical Vessel, wherein the Matter of all the Kinds of sublunary Bodies is copiously floating; and thus exposed to the continual Action of that immense Furnace the Sun; whence innumerable Operations, Sublimations, Separations, Compositions, Digestions, Fermentations, Putrefactions, *&c.* See CHYMISTRY.

For *the Nature, Constitution, Properties, Uses, Diversities*, &c. of the ATMOSPHERE, see the Article AIR.

We have a large Apparatus of Instruments, contrived for indicating and measuring the State and Alterations of the *Atmosphere*; as, *Barometers, Thermometers, Hygrometers, Manometers, Anemometers*, &c. see each under its proper Article, BAROMETER, THERMOMETER, HYGROMETER, *&c.*

The *Atmosphere* insinuates itself into all the Vacuities of Bodies; and thus becomes the great Spring of most of the Mutations here below; as Generation, Corruption, Dissolution, *&c.* See GENERATION, CORRUPTION, DISSOLUTION, *&c.*

'Tis one of the great Discoveries of the modern Philosophers, that the several Motions attributed by the Antients to a *Fuga-vacui*, are really owing to the Pressure of the *Atmosphere*. See FUGA-*Vacui*, PUMP, PRESSURE, *&c.*

Weight of the ATMOSPHERE.

Organical Bodies are peculiarly affected by this Pressure: To this, Plants owe their Vegetation; and Animals their Respiration, Circulation, Nutrition, *&c.* See PLANT, ANIMAL, VEGETATION, CIRCULATION, *&c.*

To this also we owe several considerable Alterations in the animal Oeconomy, with regard to Health, Life, Disease, *&c.* See HEALTH, *&c.*

And hence, a Calculus of the precise Quantity of this Pressure, becomes a Point worthy of Attention.

Our Bodies, then, are equally press'd on by the incumbent *Atmosphere*; and the Weight they sustain is equal to a Cylinder of *Air*, whose Base is equal to the Superficies of our Bodies.—Now, a Cylinder of *Air* of the Height of the *Atmosphere*, is equal to a Cylinder of Water of the same Base, and 35 Foot high; or a Cylinder of Mercury, 29 Inches high; as appears from the Torricellian Experiments; as also from the Height to which Water ascends in Pumps, Syphons, *&c.* See TORRICELLIAN. See also PUMP, SYPHON, *&c.*

Hence it follows, that every Foot square of the Superficies of our Bodies, is pressed upon by a Weight of Air equal to 35 cubical Feet of Water; and a cubical Foot of Water, being found, by Experiment to weigh 76 Pound *Troy* Weight, therefore the Compass of a Foot square upon the Superficies of our Bodies, sustains a quantity of Air equal to 2660 Pound: For $76+35=2660$; and so many Foot square as the Superficies of our Body contains, so many times 2660 Pound does that Body bear.

Hence, if the Superficies of a Man's Body, contain 15 square Feet, which is pretty near the Truth, he will sustain a Weight equal to 39900 Pound, for $2660+15=39900$, which is above 13 Tun for the ordinary Load.

The Difference of the Weight of the Air which our Bodies sustain at one time more than at another, is also very great.—The whole Weight of Air which presses upon our Bodies when the Mercury is highest in the Barometer, is equal to 39900 Pounds. Whence, the Difference between the greatest and the least pressure of Air upon our Bodies, may be prov'd to be equal to 3982 Pounds.

The

The Difference of the Air's Weight, at different times, is measur'd by the different Height to which the Mercury is rais'd in the Barometer; and the greatest Variation of the Height of the Mercury being 3 Inches, a Column of Air of any assignable Base equal to the Weight of a Cylinder of Mercury of the same Base, and of the Altitude of three Inches, will be taken off from the Pressure upon a Body of an equal Base, at such times as the Mercury is three Inches lower in the Barometer; so that every Inch square of the Surface of our Bodies, is pressed upon at one time more than another, by a Weight of Air equal to the Weight of 3 cubical Inches of Mercury.—Now a cubical Foot of Water being 76 Pound; a cubical Foot of Mercury must be 1064 Pound =102144 Drams: And as 102144 Drams is to a cubical Foot, or, which is all one, 1728 cubical Inches, so is $59\frac{192}{1728}$ Drams, to one cubical Inch. So that a cubical Inch of Mercury being very near =59 Drams; and there being 144 square Inches in a Foot square, therefore a Mass of Mercury of a Foot square, =144 square Inches; and if three Inches high, must contain 432 cubical Inches of Mercury, which ×59 (the Number of Drams in a cubical Inch of Mercury) makes 25488 Drams.—And this Weight does a Foot square of the Surfaces of our Bodies, sustain at one time more than at another.

Suppose again, the Superficies of a human Body =15 Foot square; then would the Body sustain at one time more than at another, a Weight $=15\times2548=\frac{382320}{8}$ Drams $(=\frac{47790}{12}$ Ounces) $=3982\frac{1}{2}$ Pound *Troy*.

Hence, it is so far from being a wonder that we sometimes suffer in our Health, by a change of Weather; that it is the greatest, we don't always do so.—For when we consider that our Bodies are sometimes pressed upon by near a Tun and a half Weight more than at other, and that this Variation is often very sudden; 'tis surprizing that every such Change does not intirely break the Frame of our Bodies to pieces.

In effect, the Vessels of our Bodies being so much straitned by an increas'd Pressure, would stagnate the Blood up to the very Heart, and the Circulation would quite cease; if Nature had not wisely contriv'd, that when the Resistance to the circulating Blood is greatest, the Impetus, by which the Heart contracts, should be so too.—For, upon an increase of the Weight of the Air, the Lungs will be more forcibly expanded, and thereby the Blood more intimately broken and divided, so that it becomes fitter for the more fluid Secretions, such as that of the nervous Fluid; by which the Heart will be more strongly contracted. And the Blood's Motion towards the Surface of the Body being obstructed, it will pass in greater quantity to the Brain, where the Pressure of the Air is taken off by the Cranium; upon which score also, more Spirits will be separated, and the Heart, on that account too, more enabled to carry on the Circulation, through all passable Canals, whilst some others, towards the Surface, are obstructed. See HEART, CIRCULATION, *&c.*

The most considerable Alteration made in the Blood, upon the Air's greater or lesser Pressure on the Surface of our Bodies, is its rendring the Blood more or less compact, and making it crowd into a less, or expand into a greater Space, in the Vessels it enters.—For the *Air* contain'd in the Blood, always keeps it self in Equilibrio with the external *Air* that presses upon our Bodies; and this it does by a constant Nisus to unbend it self, which is always proportionable to the compressing Weight by which it was bent: So that if the Compression or Weight of the circumambient Air be ever so little abated, the Air contain'd within the Blood unfolds its Spring, and forces the Blood to take up a larger Space than it did before. See BLOOD, HEAT, COLD, *&c.*

The Reason we are not sensible of this Pressure, is well explained by *Borellus*, *De mot. nat. à Grav. fac. prop.* 29, *&c.*—After shewing that Sand perfectly rammed in a hard Vessel is not capable by any means of being penetrated or parted, not even by a Wedge; and likewise that Water contained in a Bladder compressed equally on all Sides, cannot yield or give way in any Part: He proceeds, "In like manner, within the Skin of an Animal "are contained a diversity of Parts, some hard, as Bones; others "soft, as Muscles, Nerves, Membranes, *&c.* others fluid, as "Blood, Fat, *&c.* Now 'tis not possible the Bones should be "broke or displaced in the Body, unless the Weight lay heavier "on one Part than another, as we sometimes see in Porters. "If the Pressure be subdivided, so that it lay equally all around, "upwards, downwards, and sideways, and no Part of the Skin "is exempt therefrom, it is evidently impossible any Fracture "or Luxation should follow. The same may be observed of the "Muscles and Nerves; which, though soft, yet being composed of solid Fibres, do mutually sustain each other, and resist "the common Weight. The same holds of Blood, and the other Humours; and as Water does not admit any manifest "Condensation, so the Animal Humours contained in ther Vessels may suffer an Attrition from an impulse made in one or "more particular Places; but can never be forced out of their "Vessels by an universal Compression.—It follows, that as none "of the Parts undergo either Separation, Luxation, Contusion, or "any other Change of Situation; 'tis impossible any Sense of Pain "should ensue, which can only be the effect of a Solution of Continuity." This is confirmed by what we see in Divers, *&c.* See DIVING.

The same is farther confirmed by Mr. *Boyle*; who including a young Frog in a Vessel half full of Water, and intruding so much Air as that the Water must sustain eight times the Weight it otherwise would; yet the Animalcule, notwithstanding the great tenderness of its Skin, did not seem to be at all affected thereby.

For the Effects of the Removal of the Pressure of the Atmosphere, see AIR-*Pump*.

For the Cause of the Variations in the Weight and Pressure of the Atmosphere, see BAROMETER.

Height of the ATMOSPHERE.

The Height of the *Atmosphere* is a Point about which the modern Naturalists have been very sollicitous.—Had not the Air an elastic Power, but were every where of the same Density, from the Surface of the Earth to the extreme Limit of the *Atmosphere*, like Water, which is equally Dense at all Depths; it being above observed that the Weight of the Column of Air reaching to the Top of the *Atmosphere* is equal to the Weight of the Mercury contained in the Barometer; and the Proportion of Weight likewise being known between equal bulks of Air and Mercury; it were easy to find the Height of such Column, and consequently of the *Atmosphere* it self.—For a Column of Air one Inch high, being to an equal Column of Mercury, as 1 to 10800; 'tis evident that 10800 such Columns of Air, that is, a Column 900 Foot high, is equal in Weight to one Inch of Mercury: And consequently the 30 Inches of Mercury sustained in the Barometer, require a Column of Air 17000 Foot high, on which footing the Height of the *Atmosphere* would only be 27000 Foot, or little more than five *English* Miles high. See TORRICELLIAN.

But the Air, by its elastic Property, being liable to expand and contract; and it being found by repeated Experiments in *England*, *France*, and *Italy*, that the Spaces it takes up, when compressed by different Weights, are reciprocally proportional to those Weights themselves; or, that the Air takes up the less Space, the more it is pressed: It follows, that the Air in the upper Regions of the *Atmosphere* where the Weight is so much less, must be much rarer than nearer the Surface of the Earth; and consequently that the Height of the *Atmosphere* must be much higher than is above assign'd.

If we suppose the Height of the whole *Atmosphere* divided into innumerable equal Parts; the Density of the Air in each of the said Parts being as its Quantity, and the Weight of the *Atmosphere* being also as the Quantity of the whole incumbent Air; 'tis evident the Weight of the incumbent Air is every where as the Quantity of Air contained in the subjacent Part, which makes a Difference between each two contiguous Parts of incumbent Air.—Now, we have a Theorem in Geometry, that where the Differences of Magnitudes are geometrically proportionable to the Magnitudes themselves, those Magnitudes are in continual Arithmetical Proportion: Wherefore if, according to the Supposition, the Altitude of the Air by the continual Addition of the new Parts into which it is divided, do increase in a continual Arithmetical Proportion; its Density will be diminished, or which amounts to the same, its Gravity increased, in continual Geometrical Proportion.

From such a Series it is easy by making two or three Barometrical Observations of the Rarity of the Air at two or three different Heights; to find its Rarity at any other Height, or the Height corresponding to any Rarity; and consequently the Altitude of the whole *Atmosphere*, supposing the utmost Degree of Rarity known beyond which the Air cannot go. See the Articles BAROMETER, SERIES, PROGRESSION, *&c.* See also *Greg. Astron. Phys. Geom. Log.* 5. *Prop.* 3. and *Halley* in *Philosoph. Transact.* N°. 181.

It must not be here omitted, that some Observations made by *Cassini* and his Associates, seem to render this Method precarious.—In continuing the Meridian Line of the Observatory at *Paris*, they measured the Altitudes of several Mountains with great accuracy; noting the Height of the Barometer at the Top of each; and found, that the Rarities of the Air as you ascend from the Level of the Earth, are much greater than they ought to be, according to this Proportion.

Suspecting, therefore, the justness of the Experiments, the Royal Academy made divers others, under great Dilatations of Air, far exceeding the Rarities found on the Tops of the Mountains; the Result whereof was, that they all exactly answered the Proportion of the incumbent Weights. Whence it should follow, that the higher Air about the Tops of Mountains, is of a different Nature, and observes a different Law from that near the Earth.

The Reason hereof may be owing to the great Quantity of gross Vapours and Exhalations here, more than there; which Vapours being less Elastic and not capable of so much Rarefaction as the pure Air above: The Rarefactions of the pure Air increase in a greater Ratio than the Weights diminish.—M. *Fontenelle*, however, from some Experiments of M. *de la Hire*, accounts for the Phænomenon in a different Manner; alledging, that the elastic

ſtic Power of Air is increaſed by the admixture of Humidity therewith; and conſequently, that the Air near the Tops of Mountains, being moiſter than that below, becomes thereby more Elaſtic, and rarifies in a greater Ratio than naturally and in a drier State it would.—But Dr. *Jurin* ſhews, that the Experiments produced to ſupport this Syſtem, are by no means concluſive. *Append. ad Varen. Geograph.*

Be this as it will, the Rarities of the Air at different Heights proving not to bear any conſtant Proportion to the Weights wherewith they are preſs'd; Experiments made with Barometers at the Feet and Tops of Mountains, cannot give the Height of the *Atmoſphere*; ſince our Obſervations are all made near the Earth; whereas the greater Part of the *Atmoſphere* is far beyond; and the farther from us, the farther does it ſeem to recede from the Nature and Laws of ours.—M. *de la Hire*, therefore, after *Kepler*, has recourſe to a more ſimple and ſecure Way of aſcertaining the Height of the *Atmoſphere*; viz. from the conſideration of the Crepuſcula.

'Tis allowed by Aſtronomers, that when the Sun is 18° below the Horizon, we begin or ceaſe to ſee the Twilight: Now the Ray whereby we do it, can be no other than a horizontal Line, or a Tangent to the Earth in the Place where the Obſerver is. But this Ray cannot come directly from the Sun, which is under the Horizon; and muſt therefore be a Ray reflected to us by the laſt inner and concave Surface of the *Atmoſphere*. We are to ſuppoſe that the Sun when 18° below the Horizon, emits a Ray which is a Tangent to the Earth, and ſtrikes upon this laſt Surface of the *Atmoſphere*, and is thence reflected to our Eye, being ſtill a Tangent, and horizontal.—If there were no *Atmoſphere*, there would be no Crepuſculum; and conſequently if the *Atmoſphere* were not ſo high as it is, the Crepuſculum would begin and end when the Sun is at a leſs Diſtance from the Horizon than 18°. And contrarily.—Hence we gather, that the largeneſs of the Arch by which the Sun is depreſs'd when the Crepuſculum begins or ends, determines the Height of the *Atmoſphere*. We are to note however, that 32′ Minutes muſt be ſubtracted from the Arch of 18°, for the Refraction, which raiſes the Sun ſo much higher than he wou'd be; and 16′ more for the Height of the upper Limb of the Sun, which is ſuppoſed to ſend the Ray, above his Centre, which is ſuppoſed to be 18° low. The remaining Arch, therefore, which determines the Height of the *Atmoſphere*, is only 17° 12′.

Two Rays, one direct, and the other reflected, but both Tangents to the Earth, muſt neceſſarily meet in the *Atmoſphere*, at the Point of Reflection, and comprehend an Arch between 'em of 17° 12′, whereof they are Tangents.—Hence it follows from the Nature of the Circle, that a Line drawn from the Centre of the Earth, and cutting the Arch in two, will go to the Point of Concurrence of thoſe two Rays; and as it is eaſy finding the exceſs of this Line over the Semidiameter of the Earth, which is known, 'tis eaſy to find the Height of the *Atmoſphere*, which is only that exceſs.—On this Principle M. *de la Hire* diſcovers the Height of the *Atmoſphere* to be 37223 Fathoms, or near 17 *French* Leagues. The ſame Method was made uſe of by *Kepler*, who only rejected it, becauſe it gave the Height of the *Atmoſphere* 20 times greater than he otherwiſe allowed it.

It muſt be added, that in this Calculus, the direct and reflected Rays are ſuppoſed to be right Lines; whereas in fact they are Curves, form'd by the perpetual Refraction the Rays undergo in preſſing through a Series of different Denſities of Air.—Computing, then, upon them as two ſimilar Curves; or rather as a ſingle Curve, one extreme whereof is a Tangent to the Earth: Its Vertex equally diſtant from both Extremes, determines the Height of the *Atmoſphere*; which therefore, will be found ſomewhat lower than in the former Caſe; the Point of Concurrence of two right Lines, which are here only Tangents to the Curve, the one at one end, and the other at the other; being higher than the Vertex of the Curve. On this footing, M. *de la Hire* finds the *Atmoſphere* 35362 Fathoms, or 16 Leagues. *Hiſt. de l. Acad. Roy. des Scienc.* An. 1713. See the Articles REFRACTION, CREPUSCULUM. *&c.*

ATMOSPHERES *of the Heavenly Bodies.*

Lunar ATMOSPHERE.—*That the Moon is ſurrounded, like the Earth, with a changeable* Atmoſphere, ſee evinced under the Article MOON.

The Reality of the Atmoſpheres of the other Planets, ſee alſo under the Article PLANET.

For the ATMOSPHERES *of Comets, and the Sun*, ſee COMET and SUN.—See alſo MACULÆ, TAIL, *&c.*

ATMOSPHERE *of ſolid*, or *conſiſtent Bodies*, is a kind of Sphere form'd by the Effluvia, or minute Corpuſcles emitted from them. See SPHERE and EFFLUVIA.

Mr. *Boyle* endeavours to ſhew that all Bodies, even the hardeſt and moſt coherent, as Gems, *&c* have their *Atmoſpheres*. See GEM.—See alſo MAGNET, MAGNETISM, *&c.*

ATOM, ATOMUS, in Philoſophy, a *Corpuſcle*; or a Part or Particle of Matter ſo minute as to be indiviſible. See CORPUSCLE.

The Word is *Greek*, ἄτομος; form'd of the privative α, and τέμνω, I cut, I divide.

Atoms are properly the *minima Naturæ*, the laſt or ultimate Particles into which Bodies are diviſible; and are conceived as the firſt Rudiments, or component Parts of all phyſical Magnitude, or the pre-exiſtent and incorruptible Matter whereof Bodies were form'd. See PARTICLE, BODY, *&c.*

The Notion of *Atoms* ariſes hence, that Matter is not diviſible, *in infinitum*. See DIVISIBILITY.

And hence many Authors are led to deny the reality of Atoms, together with that of Mathematical Points: An *Atom*, ſay they, either has Parts, or it has none: If it have none, it is a mere Mathematical Point: If it have, then do theſe Parts alſo conſiſt of others, and ſo to Infinity. See CONTINUITY, *&c.*

But this is to recede from the genuine Character of *Atoms*, which are not eſteemed indiviſible, becauſe of their want of Bigneſs, or Parts; (for all phyſical Magnitude muſt have three Dimenſions, Length, Breadth, and Thickneſs; and all Extenſion is diviſible) but they are indiviſible on account of their Solidity, Hardneſs, and Impenetrability, which preclude all Diviſion, and leave no Vacancy for the Admiſſion of any foreign Force to ſeparate or diſunite them. See INDIVISIBLE, DIVISIBILITY, EXTENSION, MATTER, *&c.*

As *Atoms* are the firſt Matter, 'tis neceſſary they ſhou'd be indiſſolvible, in order to their being incorruptible.—Sir *Iſaac Newton* adds, that 'tis alſo required they be immutable, in order to the World's continuing in the ſame State, and Bodies being of the ſame Nature now as formerly. See HARDNESS.

Hence the Antients were alſo led to maintain *Atoms*, eternal; for that what is Immutable muſt be Eternal. See ETERNITY.

They alſo added Gravity, and in Conſequence thereof, Motion, to their *Atoms*: And further, obſerving that *Atoms* thus falling perpendicularly, cou'd not join or unite together; they ſuper-added a fortuitous or ſide Motion, and furniſh'd them with certain hooked Parts, in order to enable them to catch and hang the better together.—And from a caſual or fortuitous Jumble of theſe famous *Atoms*, they ſuppoſed the whole Univerſe to be formed. See GRAVITY, MOTION, FAMOUS, *&c.*

ATOMICAL *Philoſophy*, the Doctrine of *Atoms*; or a Method of accounting for the Origin and Formation of all things, from the Suppoſition of *Atoms*, endued with Gravity and Motion. See ATOM, WORLD, *&c.*

The *Atomical* Philoſophy was firſt broach'd and taught by *Moſchus*, *Leucippus*, and *Democritus*: It was cultivated by *Epicurus*; whence it became alſo denominated the *Epicurean Philoſophy*. See EPICUREAN.

It has been ſince retrieved by *Gaſſendus*, and others; and is now eſpouſed and adhered to by a great Part of the philoſophical World, under the Denomination of the *Corpuſcular Philoſophy*. See CORPUSCULAR *Philoſophy*.

ATONEMENT. See PROPITIATION, SACRIFICE, *&c.*

ATONY, ATONIA, in Medicine, *&c.* a want of Tone or Tenſion; or a Relaxation of the Solids of a human Body; occaſioning a loſs of Strength, Faintings, *&c.* See TONE, SOLID, FIBRE, RELAXATION, *&c.*

The Word is compounded of the privative α, and τείνω, *tendo*, I ſtretch.

ATRABILIS, in the antient Medicine, black or aduſt Bile. See BILE and ADUST.

Atrabilis was one of the great Humours of the antient Phyſicians; whence aroſe the *Atrabilary*, one of their Temperaments; anſwering to what we call *Melancholly*. See HUMOUR, TEMPERAMENT, MELANCHOLLY, *&c.*

ATROPHY, ATROPHIA, an Indiſpoſition or Diſeaſe, wherein the Body or ſome of its Parts, do not receive the neceſſary Nutriment, but dwindles or waſtes inſenſibly. See NUTRITION.

Such are what we commonly call *Conſumptions*, *Phthiſes*, &c. See CONSUMPTION, PHTHISIS, *&c.*

An *Atrophy* is natural in old Age, call'd *Atrophia Senilis*. See OLD AGE, DEATH, *&c.*

The Word is compounded of the privative Particle α, and τρέφω, I feed, nouriſh.

ATTACHING, or ATTACHMENT, in Law, the taking or apprehending a Perſon or Thing by Commandment or Writ. See COMMANDMENT and WRIT.

The Word is form'd of the *French Attacher*, to faſten, tye; and that from the corrupt *Latin Attachiare*, of *Attexere*, to weave to; or rather from the *Celtic Tach*, a Nail, and *tacha*, to nail.

Lambard makes this Difference between an Arreſt and an *Attachment*; that an Arreſt proceeds out of an inferior Court by Precept, and an *Attachment* out of a higher Court, by Precept or Writ; and that a Precept to arreſt hath theſe formal Words, *Duci facias, &c.* and a Writ of *Attachment* theſe, *Præcipimus tibi quod attachies talem, & habeas eum coram nobis.* See ARREST.

By this it appears, that he who arreſts, carries the Party arreſted to another higher Perſon, to be diſpoſed of forthwith; whereas he that *attaches* keeps the Party *attached*, and preſents him in Court at the Day aſſigned in the *Attachment*.

There is this further Difference, that an Arreſt lies only upon the Body of a Man; and an *Attachment* ſometimes on his Goods too; for a Man may be *attach'd* by an hundred Sheep.

ATTACHMENT, by Writ, differs from a Diſtreſs in this, that an *Attachment* does not reach Lands, as a Diſtreſs does; and that a

Distress does not touch the Body, which an *Attachment* does.—Yet the two are frequently confounded together.

In the most common Use, an *Attachment* is an Apprehension of a Man by his Body, to bring him to answer the Action of the Plaintiff.—A Distress with a Writ, is the taking of a Man; a Distress without a Writ, is the taking of a Man's Goods for some real Cause, as Rent, Service, *&c.* See DISTRESS.

ATTACHMENT *out of the Chancery*, is had of course, upon an *Affidavit* made that the Defendant was served with a *Subpœna*, and appears not; or issueth upon not performing some Order or Decree. See CHANCERY.

After the Return of this *Attachment* by the Sheriff, *quod non est Inventus in Balliva sua*; another *Attachment*, with Proclamation, issues: And if he appear not thereupon, a Writ of Rebellion. See REBELLION, *&c.*

ATTACHMENT *of the Forest*, is one of the three Courts held in the Forest. See FOREST.

The lowest Court is call'd the *Attachment*, the mean Swanimote, the highest, the Justice in *Eyre's* Seat. See SWANIMOTE, and JUSTICE.

The Court of *Attachments* seems so call'd, because the Verderors of the Forest have therein no other Authority, but to receive the *Attachments* of Offenders against Vert and Venison taken by the rest of the Officers, and to inroll them, that they may be presented or punished at the next Justice Seat.—This *Attachment* is by three means; by Goods and Chattels; by Body, Pledges, and Mainprize; or by Body only.—This Court is held every forty Days throughout the Year.

ATTACHMENT *of Privilege*, is, by Virtue of a Man's Privilege, to call another to that Court whereto he himself belongs, and in respect whereof he is privileged to answer some Action. See PRIVILEGE.

Foreign ATTACHMENT, is an *Attachment* of Goods or Money found within a Liberty or City, to satisfy some Creditor within such City or Liberty.

By the Custom of some Places, particularly *London*, a Man may *attach* Money or Goods in the Hands of a Stranger: As, if *A.* owes *B.* 10 *l.* and *C.* owes *A* 10 *l.* *B.* may *attach* the 10 *l.* in the Hands of *C.* to satisfy himself.

ATTACHIAMENTA *Bonorum*, in our antient Law Books, denotes a Distress taken upon the Goods or Chattels of any Person, sued for personal Estate, or Debt, by the legal *Attachiators* or Bailiffs, as a Security to answer the Action.

ATTACHIAMENTA *de Spinis & Bosco*, signifies an antient Privilege ganted to the Officers of Forests, to take to their own use, Thorns, Brush, and Windfalls, within their own Precincts or Liberties. See FOREST.

ATTACK, an Attempt upon any Person or Thing; or the Act of begioning a Combat, or Dispute. See AGGRESSOR.

ATTACK, in the military Art, is an Attempt or Engagement to force a Post, a Body of Troops, or the like. See ASSAULT.

We say to begin, to make, to sustain an *Attack*, &c. Several Authors have wrote of the Art of *attacking* and defending. See DEFENCE.

ATTACK *of a Siege*, is the Effort made by the Besiegers with Trenches, Mines, Galleries, *&c.* to make themselves Masters of a Fortress, in *attacking* one of its Sides. See SIEGE, FORTIFICATION, WORK, *&c.*

False ATTACK, is that which is not vigorously prosecuted; serving only to make a Diversion among the besieged, and to oblige them to divide their Forces, that the true *Attack* may be carried on with greater Success. See FALSE.

To ATTACK *in Flank*, is to *attack* both Sides of the Bastion. See BASTION.

ATTAINDER, in Law, is when a Man has committed Felony, or Treason, and Judgment is passed upon him. See FELONY and TREASON.

The Children of a Person *attainted* of Treason cannot be Heirs to him, or any other Ancestor; and if he were noble before, his Posterity are hereby degraded and made base: Nor can this Corruption of Blood be salved but by an Act of Parliament, unless the Judgment be reversed by a Writ of Error. See ATTAINTED.

Our antient Laws makes this Difference between *Attainder* and *Conviction*, that a Man was said to be convicted presently upon the Verdict; but not *attainted* till it appeared he was no Clerk, or being a Clerk, and demanded by his Ordinary, cou'd not purge himself. See CLERGY.—add, that *Attainder* is more extensive than Conviction; Conviction being only by the Jury, and *Attainder* not before Judgment. See CONVICTION.

A Man is *attainted* two ways; by *Appearance*, or by *Process*.

Attainder by Appearance, is either by *Confession*, by *Battel*, or by *Verdict*.—*Confession*, whereof *Attaint* grows, is twofold; one at the Bar before the Judges, when the Prisoner, upon his Indictment read, owns himself guilty, never putting himself on his Jury. The other is before the Coroner, in Sanctuary; where he, upon his Confession, was in former times constrain'd to abjure the Realm, which is also call'd *Attainder by Abjuration*. See SANCTUARY and ABJURATION.

Attainder by Battel, is when the Party appeal'd by another, chusing rather to try the Truth by Combat than by Jury, is vanquished. See BATTEL, COMBAT, DUEL, *&c.*

Attainder by Verdict, is when the Prisoner at the Bar answering Not guilty to the Indictment, hath an Inquest of Life and Death passed on him, and is by the Verdict of the Jury pronounced, Guilty. See INQUEST.

Attainder by Process, otherwise call'd *Attainder by Default*, or *Attainder by Outlawry*, is where a Party flies, or does not appear after being five times publickly call'd in the County-Court, and at last, upon his Default, pronounced, or returned outlawed. See OUTLAWRY.

Bill of ATTAINDER, is a Bill brought into Parliament, for *attainting*, condemning, and executing a Person for High-Treason. See BILL, PARLIAMENT, TREASON, *&c.*

ATTAINT, ATTINCTA, in Law, a Writ which lies after Judgment, against a Jury that hath given a false Verdict in any Court of Record; be the Action real or personal, if the Debt or Damages exceed 40*s* See JURY and VERDICT.

If the Verdict be found false, the Judgment antiently was, that the Jurors Meadows should be ploughed up, their Houses broken down, their Woods grubbed up, and their Lands and Tenements forfeited to the King.

If it pass against him that brought that *Attaint*, he shall be imprisoned, and grievously ransomed at the King's Will.

ATTAINTED, in Law, is used for a Person found guilty of some Crime or Offence, particularly of Felony or Treason. See ATTAINDER.

Yet a Man is said to be *attainted of Disseisin*; and so it is used in *French*: as, *estre attaint, & vaincu en aucun cas*, is to be cast in any Cause.

ATTAINT, among Farriers, signifies a knock, or hurt in a Horse's Leg; proceeding either from a Blow with another Horse's Foot, or from an over-reach in frosty Weather, when a Horse being rough-shod, or having Shoes with long Calks, strikes his hinder Feet against his Fore-leg.

The Farriers distinguish *upper Attaints*, given by the Toe of the Hind-foot upon the Sinew of the Fore-leg.—And *nether Attaints*, or Over-reaches on the Pastern-Joint, which are little Bladders like Wind-Galls, coming either by a Wrench, a Strain, an Over-reach, or the like. The usual Place is in the Heel or Trush.

ATTENDANT, or ATTENDENT. See ASSISTANT. See also RETINUE, SATELLIT, *&c.*

ATTENDANT, ATTENDENS, in Law, signifies one that owes Duty or Service to another, or depends upon him: Thus if there be Lord, Mesne, and Tenant; and the Tenant hold of the Mesne by a Penny; and the Mesne hold over by two Pence: If the Mesne releases to the Tenant all his Right in the Land, and the Tenant die, his Wife shall be endowed of the Land, and shall be *Attendant* to the Heir, of the third Part of the Penny, not of the third Part of the two Pence; she being to be endowed of the best Possession of her Husband.—Where the Wife is endowed by the Guardian, she shall be *Attendant* to the Guardian, and to the Heir at his full Age. See WIFE and WOMAN.

ATTENTION, ATTENTIO, a due Application of the Ear, or the Mind, to any thing said, or done.

Attention of Mind is not properly an Act of Understanding, but rather of the Will, by which it calls the Understanding from the Consideration of other Objects, and directs it to the thing in hand. See UNDERSTANDING and WILL.

Attention, in respect of Hearing, is the stretching or straining the *Membrana Tympani*, so as to make it more susceptible of Sounds, and better prepared to catch even a feeble Agitation of the Air. Or it is the adjusting the Tension of that Membrane to the Degree of loudness or lowness of the Sound we are attentive to. See TYMPANUM See also HEARING, *&c.*

The Word is compounded of *ad*, to; and *tensio*, of *tendo*, I stretch.

ATTENUANTS, ATTENUATIVES, or ATTENUATING *Medicines*, such as subtilize or break the Humours into finer Parts; and thus dispose them for Motion, Circulation, Excretion, *&c.* See ATTENUATION and HUMOR.

Attenuants stand opposed to *Thickners*, or Medicines which condense, inspissate, *&c.* See DETERGENT.

ATTENUATION, ATTENUATIO, the Act of *attenuating*; that is, of making any Fluid thinner, and less consistent than it was before. See FLUID.

The Word is compounded of the *Latin ad*; and *tenuis*, thin, slender, weak.

Attenuation is defined more generally by *Chauvin*, the dividing or separating of the minute Parts of any Body, which before, by their mutual Nexus or Implication, form'd a more continuous Mass.—Accordingly, among the Alchymists, we sometimes find the Word used for Pulverization, or the act of reducing a Body into an impalpable Powder. See POWDER and PULVERIZATION.

ATTESTATION, the giving Testimony, or Evidence of the Truth of any thing; especially in Writing. See TESTIMONY, EVIDENCE, *&c.*

Thus we say, Miracles need be well *attested*, to gain Credit. See MIRACLE.

The Word is compounded of the *Latin ad*, to; and *testis*, witness.

ATTICISM, ATTICISMUS, a short, concise Expression or manner of speaking; thus call'd from the People of *Attica*, or *Athens*, who abounded therein. See STYLE and LACONIC.

ATTIC, ATTICUS, something relating to *Attica*, or the City *Athens*.

In Matters of Philology we use, *Attic Salt*, *Sales Attici*, for a delicate, poignant Kind of Wit and Humour, peculiar to the *Athenian* Writers: *Attic Witness*, *Atticus testus*, was a Witness incapable of Corruption: So an *Attic* Muse was an excellent one, *&c.*

ATTIC is also used in Architecture for a Kind of Building, wherein there is no Roof or Covering to be seen; thus called because usual at *Athens*

ATTIC, or ATTIC-*Order*, is also a kind of little Order, rais'd upon another larger one; by way of crowning, or to finish the Building. See ORDER.

It is sometimes also used for the conveniency of having a Wardrobe, or the like; and instead of regular Columns, has only Pilasters of a particular Form. See COLUMN and PILASTER.

There are also *Attics* used for high Altars.—The Order takes its Name from *Athens*, where it was first practiced.

ATTIC *of a Roof*, is a Kind of Parapet to a Terrace, Platform, or the like. See PARAPET, TERRACE, *&c.*

ATTIC *Continued*, is that which encompasses the whole Pourtour of a Building, without any Interruption; following all the Jets, the Returns of the Pavilions, *&c.*

ATTIC *Interpos'd*, is that situate between two tall Stories, sometimes adorn'd with Columns, or Pilasters. See STORY.

ATTIC *Base*, is a peculiar Kind of Base used by the antient Architects, in the *Ionick* Order; and by *Palladio*, and others of the Moderns, in the *Dorick*. See DORIC and IONIC.

The *Attic* is the most beautiful of all the Bases. See BASE.

ATTIRE, in Botany, is used to denote the third Part or Division of the Flower of a Plant; the other two being the *Empalement* and the *Foliation*. See FLOWER. See also EMPALEMENT, *&c.*

This *Attire* is of two Kinds; Semini-form, and Florid —The *Semini-form Attire* consists of two Parts; Chives, or the Stamina; and Semets, or Apices; one upon each *Attire*. See STAMINA and APICES.

The *Florid Attire* is usually call'd *Thrums*, as in the Flowers of Marigold, Tansy, *&c.*—These Thrums are called *Suits*, which consist of two, but most times of three Pieces,—The outer Part of the Suit is the Floret, whose Body is divided at the top, like a Cowslip Flower, into five Parts or distinct Leaves. See THRUM, *&c.*

ATTIRE, in Hunting, the Head or Horns of a Deer. See HEAD.

The *Attire* of a Stag, if perfect, consists of *Bur*, *Pearls*, *Beam*, *Gutters*, *Antler*, *Sur-antler*, *Royal*, *Sur-royal*, and *Croches*.—Of a Buck, the *Bur*, *Beam*, *Brow-antler*, *Black-antler*, *Advancer*, *Palm*, and *Spellers*. See the Article HUNTING.

ATTITUDE, in Painting and Sculpture, the Posture of a Figure, or Statue; or the Disposition of its Parts, by which we discover the Action it is engaged in, and the very Sentiment supposed to be in its Mind. See FIGURE, STATUE, and ACTION.

The representing of these in a strong and lively manner, makes what they call a *good Expression*. See EXPRESSION.

The Word comes from the *Italian Attitudo*, which signifies the same thing.

ATTOLLENS, in Anatomy, a Name common to several Muscles, whose Office or Action is to raise the Parts they belong to. See MUSCLE.

The *Attollents*, or *Attollent* Muscles, are otherwise call'd *Elevators*. See ELEVATOR.

The Word is compounded of the *Latin ad*; and *tollo*, I raise, I lift.

ATTORNEY, ATTURNATUS, in Law, a Person appointed by another to do something in his stead; particularly to sollicit and carry on a Law Suit. See AGENT, DEPUTY, *&c.* See also, CAUSE, PROCESS, ACTION, *&c.*

Attorneys in Common Law are much the same with *Procurators*, *Proctors*, or *Syndics*, in the Civil Law. See PROCURATOR, PROCTOR, *&c.*

The Word is compounded of the *Latin ad*, to; and the *French tourner*, to turn; q. d. to turn a Business over to another.—The antient *Latin* Name, according to *Bracton*, is *Responsalis*. See RESPONSALIS.

Antiently, those of Authority in Courts had it in their Power whether or no to suffer Men to appear or sue by another than themselves; as appears from *Fitz. de Nat. Brev.* in the Writ, *Dedimis potestatem de Attornato faciendo*; where it is shewed, that Men were driven to procure the King's Writs, or Letters Patent, to appoint *Attorneys* for them: But 'tis since provided by Statutes, that it shall be lawful to appoint an *Attorney* without such Circuition; as appears by several Statutes, 20 *Hen.* III. *cap.* 10.—6 *Edw.* I. *cap.* 8. &c.

There is a great diversity of Writs in the Table of the Register, wherein the King, by his Writ, commands the Judges to admit of *Attorneys*; whereby there arose so many unskilful *Attorneys*, and so many mischiefs thereby, that for restraining them it was enacted, 4 *Hen.* IV. *cap.* 18. that the Judges should examine them, and displace the unskilful; and again 33 *Hen.* VI. *cap.* 7. that there should be but a certain Number of *Attorneys* in *Norfolk* and *Suffolk*.

Attorney is either *General* or *Special*.

ATTORNEY *General* is he who by general Authority is appointed to manage the Affairs or Suits of the Community.

Such is the *Attorney-General* of the King, who is the same as *Procurator Cæsaris* in the *Roman* Empire. See PROCURATOR.

To him come Warrants for making out Patents, Pardons, *&c.* He is at the Head of managing all Law-Affairs of the Crown, either in criminal Prosecutions or otherwise; especially in Matters of Treason, Sedition, *&c.* In all Courts he pleads within the Bar; but when a Privy-Counsellor, he cannot plead in any Court, but on the King's Affairs, without obtaining a Privy Seal for so doing.

Attorney-Special, is he who is employ'd in one or more Causes particularly specified.

Attorneys are also distinguished with respect to the Courts, into *Attorneys at large*, and *Attorneys Special*, belonging to this or that Court only.

ATTORNEY *of the Court of the Dutchy of* Lancaster, *Atturnatus Curiæ ducatus Lancastriæ*, is the second Office in that Court, being there, for his Skill in Law, placed as Assessor to the Chancellor of that Court. See DUTCHY *Court* and ASSESSOR. See also CHANCELLOR, *&c.*

ATTOURNMENT, in Law, a transferring of Duty and Service to another Lord; or an Acknowledgment which a Tenant makes of Homage and Service to a new Lord. See LORD and TENANT.

Thus, when one is Tenant for Life, and he in Reversion grants his Right to another; it is necessary the Tenant for Life agree thereto, which is called *Attournment*; and without which nothing passes by the Grant.—*If the Grant be by Fine, in Court of Record, he shall be compelled to Attourn.* Stat. 27 *Hen.* VIII.

The Words used in *Attournment* are these; *I agree me to the Grant made to you*; or more commonly, *Sir, I Attourn to you by force of the same Grant*; or, *I become your Tenant*; *or deliver to the Grantee a Penny by way of Attournment*, Littl. Lib. 3.

Attournment is either by Word, or by Act; voluntary, or compulsary; by the Writ, *Per quæ servitia*, or by Distress.—It may be made to the Lord himself or to his Steward in Court. There is *Attournment* in Deed, and *Attournment* in Law. *Coke. Attournment* in Law is an Act, which though it be no express *Attournment*, yet in Intendment of Law it is of equal Force. *Coke on Littl.*

ATTRACTION, ATTRACTIO, or TRACTIO, in Mechanicks, the Act of a moving Power, whereby a Moveable is brought nearer to the Mover. See POWER and MOTION.

As Action and Re-action are always equal, and contrary; it follows, that in all *Attraction*, the Mover is drawn towards the Moveable, as much as the Moveable to the Mover. See ACTION and REACTION.

The Word is compounded of *ad*, to; and *traho*, I draw.

ATTRACTION, or ATTRACTIVE *Force*, in Physicks, is a natural Power inherent in certain Bodies, whereby they act on other distant Bodies, and draw them toward themselves. See FORCE.

This, the Peripatericks call the *Motion of Attraction*; and on many Occasions, *Suction*; and produce various Instances where they suppose it to obtain.—Thus the Air, in Respiration, is taken in, according to them, by *Attraction*, or Suction; so is the Smoak through a Pipe of Tobacco; and the Milk out of the Mother's Breasts: Thus also it is that the Blood and Humours rise in a Cupping-Glass, Water in a Pump, and Smoak in Chimneys; so Vapours and Exhalations are *attracted* by the Sun; Iron by the Magnet, Straws by Amber, and electrical Bodies, *&c.* See SUCTION.

But the later Philosophers generally explode the Notion of *Attraction*; asserting, that a Body cannot act where it is not; and that all Motion is perform'd by mere Impulsion.—Accordingly, most of the Effects which the Antients attributed to this unknown Power of *Attraction*, the Moderns have discovered to be owing to more sensible and obvious Causes; particularly the Pressure of the Air. See AIR and PRESSURE.

To this are the Phænomena of Inspiration, Smoaking, Sucking, Cupping-Glasses, Pumps, Vapours, Exhalations, *&c.* See RESPIRATION, SUCTION, PUMP, CUPPING-*Glass*, VAPOUR, SMOAK, EVAPORATION, *&c.*

For the Phænomena of magnetical and electrical Attraction, see MAGNETISM and ELECTRICITY.

The Power opposite to *Attraction* is call'd *Repulsion*; which is also argued to have some Place in natural Things. See REPULSION.

ATTRACTION, or ATTRACTIVE *Power*, in the *Newtonian* Philosophy, is a Power or Principle, whereby all Bodies, and the Particles

Particles of all Bodies, mutually tend towards each other.—Or, more justly, *Attraction* is the effect of such Power, whereby every Particle of Matter tends towards every other Particle. See MATTER and PARTICLE.

Attraction, its Laws, Phænomena, *&c* make the great Hinge of Sir *Isaac Newton*'s Philosophy. See NEWTONIAN *Philosophy*.

It must be observed, that though the great Author makes use of the Word *Attraction*, in common with the School Philosophers; yet he very studiously distinguishes between the Ideas.—The antient *Attraction* was a kind of Quality, inherent in certain Bodies themselves; and arising from their particular or specific Forms. See QUALITY and FORM.

The *Newtonian Attraction* is a more indefinite Principle; denoting, not any particular Kind or Manner of Action, nor the physical Cause of such Action; but only a Tendency in the General, a *Conatus accedendi*; to whatever Cause, physical or metaphysical, such effect be owing; whether to a Power inherent in the Bodies themselves, or to the Impulse of an external Agent.

Accordingly, the great Author, in his *Philos. Nat. Prin. Math.* Notes, "that he uses the Words *Attraction*, *Impulse*, and *Propension*, to the Centre, indifferently; and cautions the Reader "not to imagine that by *Attraction* he expresses the Modus of "the Action, or the efficient Cause thereof; as if there were "any proper Powers in the Centres, which in reality are only "mathematical Points; or, as if Centres could attract. *Lib.* I. *p.* 5.—So, he "considers centripetal Powers as *Attractions*; "though, physically speaking, it were perhaps more just to call "them Impulses." Ib. p. 147. He adds, "that what he calls "*Attraction* may possibly be effected by Impulse, though not a "common or corporeal Impulse; or in some other Manner un-"known to us." *Optic*, p. 322.

Attraction, if consider'd as a Quality arising from the specific Forms of Bodies, ought, together with Sympathy, Antipathy, and the whole Tribe of occult Qualities to be exploded. (See OCCULT *Quality*.) But when we have set these aside, there will remain innumerable Phænomena of Nature, and particularly the Gravity or Weight of Bodies, or their Tendency to a Centre, which argue a Principle of Action seemingly distinct from Impulse; where, at least, there is no sensible Impulsion concern'd. Nay, what is more, this Action, in some respects, differs from all Impulsion we know of; Impulse being always found to act in Proportion to the Surfaces of Bodies; whereas Gravity acts according to their solid Content, and consequently must arise from some Cause that penetrates or pervades the whole Substance thereof.—This unknown Principle, (unknown we mean in respect of its Cause, for its Phænomena and Effects are most notorious) with all the Species and Modifications thereof, we call *Attraction*; which is a general Name, under which all mutual Tendencies, where no physical Impulse appears, and which cannot, therefore, be accounted for from any known Laws of Nature, may be ranged.

And hence arise divers Kinds of *Attractions*; as, *Gravity*, *Magnetism*, *Electricity*, &c. which are so many different Principles, acting by different Laws; and only agreeing in this, that we do not see any physical Causes thereof; but that, as to our Senses, they may really arise from some Power or Efficacy in such Bodies, whereby they are enabled to act, even upon distant Bodies; though our Reason absolutely disallows of any such Action.

ATTRACTION may be divided, with respect to the Law it observes, into two Kinds.—1° That *which extends to a sensible Distance*.—Such are the *Attraction* of *Gravity*, found in all Bodies; and the *Attractions of Magnetism* and *Electricity*, found in particular Bodies.—*The several Laws and Phænomena of each, see under their respective Articles*, GRAVITY, MAGNETISM, and ELECTRICITY.

The *Attraction of Gravity*, call'd also among Mathematicians, the *Centripetal Force*, is one of the greatest and most universal Principles in all Nature.—We see and feel it operate on Bodies near the Earth, (See WEIGHT.) and find, by Observation, that the same Power, (*i. e.* a Power which acts in the same Manner, and by the same Rules; *viz.* always proportionally to the Quantities of Matter, and as the Squares of the Distances) does also obtain in the Moon, and the other Planets, primary and secondary as well as the Comets: And even that this is the very Power whereby they are all retain'd in their Orbits, *&c.* And hence, as Gravity is found in all the Bodies which come under our Observation, it is easily infer'd, by one of the settled Rules of philosophizing, that it obtains in all others; and as it is found to be as the Quantity of Matter in each Body, it must be in every Particle thereof; and hence every Particle in Nature is proved to *attract* every other Particle, *&c.* See *the Demonstration hereof laid down at large, with the Application of the Principle to the Celestial Motions, under the Articles*, NEWTONIAN *Philosophy*, SUN, MOON, PLANET, COMET, SATELLITE, CENTRIPETAL, CENTRIFUGAL, *&c.*

From this *Attraction* arises all the Motion, and consequently all the Mutation, in the great World.—By this, heavy Bodies descend, and light ones ascend; by this Projectiles are directed, Vapours and Exhalations rise, and Rains, *&c.* fall. By this Rivers glide, the Air presses, the Ocean swells, *&c.* See MOTION, DESCENT, ASCENT, PROJECTILE, VAPOUR, RAIN, RIVER, TIDE, AIR, ATMOSPHERE, *&c.*

In effect, the Motions arising from this Principle make the Subject of that extensive Branch of Mathematicks, call'd *Mechanicks*, or *Staticks*; with the Parts or Appendages thereof, *Hydrostaticks*, *Pneumaticks*, &c. See MECHANICKS, STATICKS, HYDROSTATICKS, PNEUMATICKS. See also MATHEMATICKS, PHILOSOPHY, *&c.*

2°. *That which does not extend to sensible Distances*.—Such is found to obtain in the minute Particles whereof Bodies are composed, which *attract* each other at, or extremely near, the Point of Contact; with a Force much superior to that of Gravity; but which at any Distance therefrom decreases much faster than the Power of Gravity.—This Power, a late ingenious Author chuses to call the *Attraction of Cohesion*; as being that whereby the Atoms or insensible Particles of Bodies are united into sensible Masses. See COHESION, ATOM, PARTICLE, *&c.*

This latter Kind of *Attraction* owns Sir *Isaac Newton* for its Discoverer; as the former does, its Improver.—The Laws of Motion, Percussion, *&c.* in sensible Bodies under various Circumstances, as falling, projected, *&c.* as ascertain'd by the later Philosophers, do not reach to those more remote, intestine Motions of the component Particles of the same Bodies, whereon the Changes of the Texture, Colour, Properties, *&c.* of Bodies depend: So that our Philosophy, if only founded on the Principle of Gravitation, and carried so far as that would lead us, wou'd necessarily be very deficient. See LIGHT, COLOUR, *&c.*

But, beside the common Laws of sensible Masses, the minute Parts they are composed of, are found subject to some others, which have been but lately taken notice of, and are yet very imperfectly known. Sir *Isaac Newton*, to whose happy Penetration we owe the hint, contents himself to establish, that there are such Motions in the *minima naturæ*, and that they flow from certain Powers or Forces, not reducible to any of those in the great World.—In virtue of these Powers, he shews, "that the small "Particles act on one another even at a Distance; and that ma-"ny of the Phænomena of Nature are the Result thereof. "Sensible Bodies, we have already observed, act on one ano-"ther divers ways; and as we thus perceive the Tenor and "Course of Nature, it appears highly probable that there may "be other Powers of the like Kind; Nature being very uni-"form and consistent with herself.—Those just mentioned, reach "to sensible Distances, and so have been observed by vulgar "Eyes: But there may be others, which reach to such small Di-"stances, as have hitherto escaped Observation; and 'tis proba-"ble Electricity may reach to such Distances, even without be-"ing excited by Friction."

The great Author just mentioned, proceeds to confirm the Reality of these Suspicions from a great Number of Phænomena and Experiments, which plainly argue such Powers and Actions between the Particles, *e. gr.* of Salts, and Water, Oil of Vitriol and Water, Aqua Fortis and Iron, Spirit of Vitriol and Salt-petre.—He also shews, that these Powers, *&c.* are unequally strong between different Bodies; stronger, *e. gr.* between the Particles of Salt of Tartar, and those of Aqua Fortis, than those of Silver; between Aqua Fortis and Lapis Calminaris, than Iron; between Iron than Copper, Copper than Silver, or Mercury. So Spirit of Vitriol acts on Water, but more on Iron or Copper, *&c.*

The other Experiments which countenance the Existence of such Principle of *Attraction* in the Particles of Matter are innumerable; many of them the Reader will find enumerated under the Articles MATTER, ACID, SALT, MENSTRUUM, *&c.*

These Actions, in virtue whereof the Particles of the Bodies above mentioned tend toward each other, the Author calls by a general, indefinite Name, *Attraction*, which is equally applicable to all Actions, whereby distant Bodies tend towards one another, whether by Impulse, or by any other more latent Power: And from hence accounts for an Infinity of Phænomena, otherwise inexplicable, to which the Principle of Gravity is insufficient.—Such are Cohesion, Dissolution, Coagulation, Crystallization, the Ascent of Fluids in Capillary Tubes, Animal Secretion, Fluidity, Fixity, Fermentation, *&c.* See the respective Articles, COHESION, DISSOLUTION, CRYSTALLIZATION, ASCENT, SECRETION, SPHERICITY, FIXITY, FERMENTATION, *&c.*

"Thus," adds our immortal Author, "will Nature be found "very conformable to herself, and very simple; performing all "the great Motions of the heavenly Bodies, by the *Attraction* "of Gravity, which intercedes those Bodies, and almost all the "small ones of their Parts, by some other attractive Power dif-"fused through the Particles thereof.—Without such Principles, "there never would have been any Motion in the World; and "without the continuance thereof, Motion wou'd soon perish, "there being otherwise a great Decrease or Diminution there-"of, which is only supplied by these active Principles." *Opticks*, p. 373.

We need not say how unjust it is in the generality of foreign Philosophers, to declare against a Principle which furnishes so beautiful a View; for no other Reason but because we cannot conceive how a Body should act on another at a Distance.—'Tis certain

certain, Philosophy allows of no Action but what is by immediate Contact and Impulsion: (for how can a Body exert any active Power there, where it does not exist? To suppose this of any thing, even the supreme Being himself, would perhaps imply a Contradiction.) Yet we see Effects without seeing any such Impulse; and where there are Effects, we can easily infer there are Causes, whether we see them or no. But a Man may consider such Effects, without entering into the Consideration of the Causes; as, indeed, it seems the Business of a Philosopher to do: For to exclude a Number of Phænomena which we do see, will be to leave a great Chasm in the History of Nature; and to argue about Actions which we do not see, will be to build Castles in the Air.—It follows, therefore, that the Phænomena of *Attraction*, are Matter of physical Consideration, and as such entitled to a Share in a System of Physicks; but that the Cause, thereof will only become so when they become sensible; *i. e.* when they appear to be the Effects of some other higher Causes, (for a Cause is no otherwise seen than as it self is an Effect, so that the first Cause must from the Nature of things be invisible.) We are therefore at Liberty to suppose the Causes of *Attractions* what we please, without any Injury to the Effects.—The illustrious Author himself seems a little irresolute as to the Cause; inclining, sometimes, to attribute Gravity to the Action of an immaterial Cause, *Opticks*, p. 343. *&c.* And sometimes to that of a material one. *Ib.* p. 325.

In his Philosophy, the Research into Causes is the last thing; and never comes in turn till the Laws and Phænomena of the Effect be settled; it being to these Phænomena that the Cause is to be accommodated.—The Cause even of any, the grossest, and most sensible Action is not adequately known: How Impulse or Percussion it self works its Effect, *i. e.* how Motion is communicated by Body to Body, confounds the deepest Philosophers; yet is Impulse received not only into Philosophy, but into Mathematicks; and accordingly the Laws and Phænomena of its Effects, make the greatest Part of common Mechanicks. See PERCUSSION, and COMMUNICATION *of Motion*.

The other Species of *Attraction*, therefore, when their Phænomena are sufficiently ascertain'd, have the same Title to be promoted from physical to mathematical Considerations; and this, without any previous Inquiry into their Causes, which our Conceptions may not be proportionate to: Let their Causes be occult, as all Causes ever will be; so as their Effects, which alone immediately concern us, be but apparent. See CAUSE.

Our noble Countryman, then, far from adulterating Philosophy with any thing Foreign, or Metaphysical; as many have reproached him; has the Glory of opening a new Source of sublimer Mechanicks, which, duly cultivated, might be of infinitely more Extent than all the Mechanicks yet known: 'Tis hence alone we must expect to learn the manner of the Changes, Productions, Generations, Corruptions, *&c.* of natural things; with all that Scene of Wonders opened to us by the Operations of Chymistry. See GENERATION, CORRUPTION, OPERATION, CHYMISTRY, *&c.*

Some of our own Countrymen have prosecuted the Discovery with laudable Zeal: Dr. *Keil* particularly, has endeavoured to deduce some of the Laws of this new Action, and applied them to solve divers of the more general Phenomena of Bodies, as Cohesion, Fluidity, Elasticity, Softness, Fermentation, Coagulation, *&c.* And Dr. *Friend* seconding him, has made a further Application of the same Principles, to account at once, for almost all the Phænomena that Chymistry presents.—So that the new Mechanicks should seem already raised to a compleat Science; and nothing can now turn up, but we have an immediate Solution of, from the *attractive Force*.

But this seems a little too precipitate; a Principle so fertile, should have been further explored; its particular Laws, Limits, *&c.* more industriously detected and laid down, e're we had gone to Application.—*Attraction*, in the gross, is so complex a thing, that it may solve a thousand different things alike: The Notion is but one Degree more simple and precise, than Action it self; and till more of its Properties are ascertain'd, it were better to apply it less, and study it more.

As a Specimen of the extent of the Principle, and the manner of applying it, we shall here subjoin the principal Laws and Conditions thereof; as settled by Sir *Isaac Newton*, Dr. *Keil*, Dr. *Friend*, Dr. *Morgan*, &c.

Theor. I. Besides that *attractive* Power whereby the Planets and Comets are retain'd in their Orbits; there is another, by which the several Particles whereof Bodies consist, *attract*, and are mutually *attracted* by, each other; which Power decreases in more than a duplicate Ratio of the Increase of the Distance.

This *Theorem* we have already observ'd, is demonstrable from a great Number of Phænomena.—We shall here only mention a few easy and obvious ones; as, the Spherical Figure, assumed by the Drops of Fluids; which can only arise from such Principle: The uniting and incorporating of two Spherules of Quicksilver into one, upon the first touch, or extremely near approach of their Surfaces; The rising of Water up the Sides of a Glass Bubble immerg'd therein, higher than the Level of the other Water, or of Mercury, up a Sphere of Iron, or the like. See SPHERICITY, DROP, *&c.*

As to the just Law of this *Attraction*, it is not yet determined; only this we know in the general, that the force, in receding from the Point of Contact, is diminished in a greater Proportion than that of the duplicate Ratio of the Distances, which is the Law of Gravity. For that if the Dimiontion were only in such duplicate Ratio, the *Attraction* at any small assignable Distance would be nearly the same as at the Point of Contact: Whereas Experience teaches, that this *Attraction* almost vanishes, and ceases to have any Effect, at the smallest assignable Distance. —But whether to fix on a triplica e, quadruplicate, or some other proportion to the increasing Distances, is not ascertain'd by Experiment.

II. The Quantity of *Attraction* in all Bodies, is exactly proportional to the Quantity of Matter in the *attracting* Body; as being in reality the Result or Sum of the united Forces of the *Attractions* of all those single Particles of which it is compos'd; or, in other Words, *Attraction* in all Bodies is, *cæteris paribus*, as their Solidities.

Hence, 1°. At equal Distances the *Attractions* of homogeneal Spheres will be as their Magnitudes.—And,

2°. At any Distance whatever, the *Attraction* is as the Sphere divided by the Square of the Distance.

This Law, it must be noted, only holds in respect of Atoms, or the smallest constituent Particles, sometimes call'd *Particles of the last Composition*; and not of Corpuscles or Compositions made up of these; for they may be so put together, as that the most solid Corpuscles may form the lightest Particles; *i. e.* the unfitness of their Surfaces for intimate Contact, may occasion such great Interstices as will make their Bulks large in Proportion to their Matter.

III. If a Body consist of Particles, every one whereof has an attractive Power decreasing in a triplicate, or more than a triplicate Ratio of their Distances; the Force wherewith a Particle is *attracted* by that Body in the Point of Contact, or at an infinitely little Distance from the Contact, will be infinitely greater than if that Particle were placed at a given Distance from the Body. See INFINITE.

IV. Upon the same Supposition, if the *attractive* Force at any assignable Distance, have a finite Ratio to its Gravity; this Force in the Point of Contact, or at an infinitely small Distance, will be infinitely greater than its Power of Gravity.

V. But if in the Point of Contact the *attractive* Force of Bodies have a finite Ratio to their Gravity; this Force in any assignable Distance is infinitely less than the Power of Gravity, and therefore ceases.

VI. The *attractive* Force of every Particle of Matter in the Point of Contact, almost infinitely exceeds the Power of Gravity, but is not infinitely greater than that Power; and therefore in a given Distance, the *attractive* Force will vanish.

This *attractive* Power, therefore, thus superadded to Matter, only extends to Spaces extreamly minute, and vanishes in greater Distances; whence, the Motion of the heavenly Bodies, which are at prodigious Distance from each other, cannot at all be disturb'd by it, but will continually go on as if there were no such Power in Bodies.

Where this *attracting* Power ceases; there, according to Sir *Isaac Newton*, does a repelling Power commence; or rather, the *attracting* does thence forward become a repelling Power. See REPELLING *Power*

VII. Supposing a Corpuscle to touch any Body, the Force whereby that Corpuscle is impell'd, that is, the Force with which it coheres to that Body, will be proportionable to the Quantity of Contact: For the Parts farther remov'd from the Point of Contact, contribute nothing towards its Cohesion.

Hence, according to the Difference in the Contact of Particles, there will be different Degrees of Cohesion: But the Powers of Cohesion are greatest when the touching Surfaces are Planes; in which case, *cæteris paribus*, the Force by which one Corpuscle adheres to others, will be as the Parts of the touching Surfaces.

Hence it appears why two perfectly polish'd Marbles, join'd together by their plane Surfaces, cannot be force'd asunder, but by a Weight which much exceeds that of the incumbent Air.

Hence also may be drawn a Solution of that famous Problem *concerning the Cohesion of the Parts of Matter.* See COHESION.

VIII. The Power of *Attraction* in the small Particles increases, as the Bulk and Weight of the Particles diminishes.

For, the Force only acting at or near the Point of Contact, the Momentum must be as the Quantity of Contact, that is, as the Density of the Particles, and the Largeness of their Surfaces: But the Surfaces of Bodies increase or decrease as the Squares, and the Solidities as the Cubes of the Diameter. Consequently, the smallest Particles having the largest Surfaces in proportion to their Solidities, are capable of more Contact, *&c.*

Those Corpuscles are most easily separated from one another, whose Contacts are the fewest and the least, as in Spheres infinitely small.

Hence we have the Cause of Fluidity. See FLUIDITY, WATER, *&c.*

IX. The Force whereby any Corpuscle is drawn to another nearly adjacent Body, suffers no Change in its Quantity, let the Matter of the *attracting* Body be increased or diminished; supposing

posing the same Density to remain in the Body, and the Distance of the Corpuscle to continue the same.

A. 

For since the *attractive* Powers of Particles are diffus'd only through the smallest Spaces; 'tis manifest that the remoter Parts at *C D* and *E* contribute nothing towards *attracting* the Corpuscle *A*: And therefore the Corpuscle will be *attracted* with the same Force towards *B*, whether these Parts remain or be take taken away; or, lastly, whether others be added to them.

Hence, Particles will have different *attractive* Forces, according to their different Structure and Composition; thus a Particle perforated will not *attract* so strongly as if entire. So, again, the different Figures into which a Particle is form'd, will occasion a diversity of Power: Thus a Sphere will *attract* more than a Cone, Cylinder, *&c.*

X. Suppose a Body of such a Texture as that the Particles of the last Composition, by an external Force, such as a Weight compressing them, or an Impulse given by another Body, may be a little removed from their original Contact, but so as not to acquire new ones; the Particles by their *attractive* Force tending to one another, will soon return to their original Contacts.—But when the same Contacts and Positions of the Particles which compose any Body, return; the same Figure of the Body will also be restor'd; And therefore Bodies which have lost their original Figures, may recover them by *Attraction*.

Hence appears the Cause of Elasticity.—For, where the contiguous Particles of a Body have by any external Violence been forc'd from their former Points of Contact, to extremely small Distances; as soon as that Force is taken off, the separated Particles must return to their former Contact: By which means the Body will resume its Figure, *&c.* See ELASTICITY.

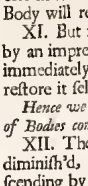
XI. But if the Texture of a Body be such that the Particles by an impressed Force being remov'd from their Contacts, come immediately into others of the same Degree, that Body cannot restore it self to its original Figure.

Hence we understand what Texture that is wherein the Softness of Bodies consists. See SOFTNESS.

XII. The Bulk of a Body heavier than Water, may be so far diminish'd, that it shall remain suspended in Water, without descending by its own Gravity. See SPECIFIC *Gravity*.

Hence it appears why saline, metallick, and other such-like Particles, when reduc'd to small Dimensions, are suspended in their Menstruums. See MENSTRUUM.

XIII. Greater Bodies approach one another with a less Velocity than smaller.—For the Force with which two Bodies *A* and *B* approach, resides only in the nearest Particles; the more remote having nothing to do therein. No greater Force, therefore, will be apply'd to move the Bodies *A* and *B*, than to move the Particles *c* and *d*; but the Velocities of Bodies mov'd by the same Force are in a reciprocal Ratio of the Bodies: Wherefore the Velocity with which the Body *A* tends towards *B*, is to the Velocity with which the Particle *c* detach'd from the Body would tend towards the same *B*, as the Particle *c* is to the Body *B*; consequently the Velocity of the Body *A* is much less than wou'd be the Velocity of the Particle *c* detach'd from the Body.



Hence it is that the Motion of large Bodies is naturally so slow and languid, that an ambient Fluid and other circumjacent Bodies generally retard them; whilst the lesser go on more briskly, and produce a greater number of Effects: So much greater is the *attractive* Energy in smaller Bodies than in the larger.—Hence again appears the Reason of that chymical Axiom; *Salts don't act till they are dissolv'd.*

XIV. If a Corpuscle placed in a Fluid be equally attracted every way by the circumambient Particles, no Motion of the Corpuscle will ensue.—But if it be *attracted* by some Particles more than others, it will tend to that part where the *Attraction* is the greatest; and the Motion produc'd will correspond to the Inequality of the *Attraction*, *viz.* the greater the Inequality, the greater the Motion, and *vice versa*.

XV. Corpuscles floating in a Fluid, and *attracting* each other more than the Particles of the Fluid that lie between them, will force away the Particles of the Fluid, and rush to one another with a Force equal to that by which their mutual *Attraction* exceeds that of the Particles of the Fluid.

XVI. If a Body be immerged in a Fluid whose Parts more strongly *attract* the Particles of the Body than they do one another; and if there be a number of Pores or Interstices in the Body pervious to the Particles of the Fluid; the Fluid will immediately diffuse itself through those Pores. And if the Connexion of the Parts of the Body be not so strong, but that it may be overcome by the Force of the Particles rushing within it; there will be a Dissolution of the Body. See DISSOLUTION.

Hence, for a Menstruum to be able to dissolve any given Body, there are three things requir'd,—1°. That the Parts of the Body *attract* the Particles of the Menstruum more strongly than these *attract* each other. 2°. That the Body have Pores or Interstices open and pervious to the Particles of the Menstruum. 3°. That the Cohesion of the Particles which constitute the Body, be not strong enough to resist the Irruption of the Particles of the Menstruum. See MENSTRUUM.

XVII. Salts are Bodies endued with a great *attractive* Force, though among them are interspersed many Interstices, which lie open to the Particles of Water; these are therefore strongly *attracted* by those saline Particles, so that they forcibly rush into them, separate their Contacts, and dissolve the Contexture of the Salts. See SALT.

XVIII. If the Corpuscles be more *attracted* by the Particles of the Fluid than by each other; they will recede from each other, and be diffus'd through the whole Fluid.

Thus, if a little Salt be dissolved in a deal of Water, the Particles of the Salt, though specifically heavier than Water, will evenly diffuse themselves through the whole Water; so as to make it as Saline at Top as Bottom.—Does not this imply that the Parts of the Salt have a centrifugal, or repulsive Force, by which they fly from one another; or rather, that they *attract* the Water more strongly than they do one another? For as all things ascend in Water which are less *attracted* than Water by the Gravity of the Earth, so all the Particles of Salt floating in Water, which are less *attracted* by any Particle of Salt, than Water is, must recede from the Particle, and give way to the more *attracted* Water. *Newt. Opt.* p. 363.

XIX. Corpuscles, or little Bodies swimming in a Fluid, and tending towards each other; if they be suppos'd elastick, will fly back again after their Congress, till striking on other Corpuscles, they be again reflected towards the first; whence will arise innumerable other Conflicts with other Corpuscles, and a continu'd Series of Percussions and Reboundings.—But, by the *attractive* Power, the Velocity of such Corpuscles will be continually increased; so that the intestine Motion of the Parts will at length become evident to Sense. See INTESTINE *Motion*.

Add, that in proportion, as the Corpuscles *attract* each other with a greater or less Force, and as their Elasticity is in a greater or less Degree, their Motions will be different, and become sensible at various Times, and in various Degrees.

XX. If Corpuscles that *attract* each other happen mutually to touch, there will not arise any Motion, because they cannot come nearer. If they be placed at a very little Distance from each other, a Motion will arise; but if further remov'd, the Force wherewith they *attract* each other, will not exceed that wherewith they *attract* the Particles of the intermediate Fluid, and therefore no Motion will be produced.

On these Principles depend all the Phænomena of Fermentation and Ebullition. See FERMENTATION and EBULLITION.

Hence appears the Reason why Oil of Vitriol, when a little Water is poured on it, works and grows hot: For, the saline Corpuscles are a little disjoin'd from their mutual Contact, by the infus'd Water; whence, as they *attract* each other more strongly than they do the Particles of Water, and as they are not equally *attracted* on every side, there must of necessity arise a Motion. See VITRIOL.

Hence also appears the Reason of that uncommon Ebullition occasion'd by adding Steel-filings to the foresaid Mixture. For the Particles of Steel are extremely elastick; whence there must arise a very strong Reflection.

Hence also we see the Reason why some Menstruums act more strongly, and dissolve Bodies sooner, when diluted with Water.

XXI. If Corpuscles mutually *attracting* each other have no elastick Power, they will not be reflected back from each other, but will form Congeries, or little Masses; *whence a Coagulum will arise.* See COAGULATION.

If the Gravity of the Particles thus amass'd, exceed the Gravity of the Fluid, *a Precipitation will succeed.*—Precipitation may also arise from an Increase or Diminution of the Gravity of the Menstruum wherein the Corpuscles are immerg'd. See PRECIPITATION.

XXII. If Corpuscles swimming in a Fluid, and mutually *attracting* each other, have such a Figure, as that in some given Parts they have a greater *attractive* Power than in others, and their Contact greater in those Parts than in others; those Corpuscles will unite into Bodies with given Figures; *and thence will arise Crystallization.* See CRYSTALLIZATION.

Particles immerged in a Fluid moved with a swift or a slow progressive Motion, will *attract* each other in the same Manner as if the Fluid were at rest; but if all the Parts of the Fluid do not move equally, the *Attractions* will be disturbed.

Hence it is that Salts will not crystallize till the Water wherein they are dissolved is cold.

XXIV. If between two Particles of a Fluid there happen to be a Corpuscle whose two opposite Sides have a strong *attractive* Power, that intermediate Corpuscle will agglutinate or fasten the Particles of the Fluid to it self.—And several such Corpuscles diffus'd through the Fluid, will fix all its Particles into a firm Body; *and the Fluid will be froze or reduc'd into Ice.* See FREEZING.

XXV. If a Body emit a great Quantity of Effluvia whose *attractive* Powers are very strong; as those Effluvia approach any other very light Body, their *attractive* Powers will overcome the Gravity of that Body, and the Effluvia will draw it towards themselves;

ſelves: And as the Effluvia are cloſer and more copious at little Diſtances from the emitting Body, than at greater; the light Body will be continually drawn towards the denſer Effluvia, till ſuch time as it comes to adhere to the emitting Body it ſelf.

And hence moſt of the Phænomena of Electricity may be accounted for. See ELECTRICITY.

ATTRACTIVE, ATTRACTRIX, ſomething that has the Power or Faculty to *attract*. See ATTRACTION, FACULTY, *&c.*

ATTRACTIVE *Power*, or *Force*, *Vis attractiva*. See POWER, ATTRACTION, *&c.*

ATTRACTIVES, or ATTRACTIVE *Remedies*. See ATTRAHENT.

ATTRAHENTS, ATTRAHENTIA, or ATTRACTIVE *Remedies*, ſuch Medicines, externally applied, as by their Activity and Warmth penetrate the Pores; and mix with and rarefy any obſtructed Matter; ſo as to render it fit for Diſcharge, upon laying open the Part by Cauſtick or Inciſion. See MEDICINE, CAUSTIC, *&c.*

Attrahents are the ſame with what we otherwiſe call *Drawers*, *Ripeners*, *Maturantia*, *Digeſtives*, &c. See RIPENNER, DIGESTION, *&c.*

The principal Simples belonging to this Claſs, are the ſeveral Kinds of *Fats*, or *Adipes*; the Dungs of Pidgeons and Cows; Bran, Yeſt, Herring, the Sucking of a Leech, Melilot, Tobacco, Oil, Pitch, Roſin, Frankincence, *&c.* See each under its proper Articles, FAT, ADEPS, HERRING, OIL, PITCH, ROSIN, FRANKINCENCE, *&c.*

In many Inſtances, as the Matter rarefies and grows more fluid by means of ſuch Medicines; the refluent Blood is apt to waſh it back into the common Maſs; which ſometimes does a deal of Miſchief; or by making it take up more room upon its Rarefaction, occaſions it to diſtend more the Parts in which it is contained: Upon which a Senſe of Pain is excited, and thereby a greater Concourſe of fluid, and conſequently a needleſs Increaſe of the Tumor. So that Medicines under this Denomination require the moſt careful Management.

ATTRIBUTE, ATTRIBUTUM, in Philoſophy, a Property which agrees to ſome Perſon, or Thing; or a Quality, which determines ſomething to be after a certain Manner. See PROPERTY and QUALITY.

Thus, Underſtanding is an *Attribute* of Mind; Figure, an *Attribute* of Body, *&c.*

Spinoza makes the Soul and the Body to be of the ſame Subſtance; with this only Difference, that the Soul is to be conceiv'd under the *Attribute* of Thought, and the Body under that of Extenſion. See SUBSTANCE, SPINOSISM, *&c.*

Of the ſeveral *Attributes* belonging to any Subſtance, that which preſents it ſelf firſt, and which the Mind conceives as the Foundation of all the reſt, is call'd its *eſſential Attribute*. See ESSENCE and ESSENTIAL.

Thus, Extenſion is by ſome, and Solidity by others, made the eſſential *Attribute* of Body or Matter. See BODY, MATTER, EXTENSION, SOLIDITY, *&c.*

The other *Attributes* are call'd *accidental* ones. See ACCIDENT and ACCIDENTAL.

Mr. *Lock* endeavours to prove, that Thinking, which the *Carteſians* make the eſſential *Attribute* of the Mind, is only an accidental one. See THINKING, MIND, SOUL, *&c.*

ATTRIBUTE, in Logic, is an Epithet given to any Subject; or it is any predicate thereof; or whatever may be affirmed or denied of any thing. See SUBJECT, PREDICATE, *&c.*

Every Propoſition conſiſts of a Subject, an *Attribute*, and a conjunctive Particle. See PROPOSITION.

Attributes are uſually divided into *poſitive*, which give a thing ſomewhat; as when we ſay of a Man that he is *animate*: And Negative; as when we ſay of a Stone that it is *inanimate*.—Others, again, divide them into *common*, which agree to ſeveral different Things, as *Animal*: And proper, as *Thought*, &c.

The Word is compounded of the *Latin*, *ad*, to; and *tribuo*, I give.

ATTRIBUTES, in Theology, are underſtood of the ſeveral Qualities and Perfections which we conceive in God; and which conſtitute his proper Eſſence; as *Juſtice*, *Goodneſs*, *Wiſdom*, &c. See GOD.

The Heathen Mythologiſts divided the Deity into as many diſtinct Beings as he has *Attributes*: Thus the Power of God was call'd *Jupiter*; the Wrath and Vengeance of God, *Juno*, &c. See POETRY.

ATTRIBUTES, in Painting and Sculpture, are Symbols added to ſeveral Figures, to denote their particular Office and Character. See FIGURE and SYMBOL.

Thus the Club is an *Attribute* of *Hercules*; the Palm an *Attribute* of Victory; the Peacock of *Juno*; the Eagle of Jupiter, *&c.* See STATUE, SCULPTURE, *&c.*

ATTRITION, ATTRITIO, or *Triture*, or *Friction*, expreſſes ſuch a Motion of Bodies againſt one another, as ſtrikes off ſome ſuperficial Particles; whereby they become leſs and leſs. See MOTION and FRICTION.

The Word is form'd of *atterere*, to rub, wear; compounded of *ad*, to; and *tero*.

The grinding and poliſhing of Bodies is performed by *Attrition*. See GRINDING and POLISHING.

The Effects of *Attrition* in excitiog Heat, Light, Electricity, *&c.* ſee under the Articles HEAT, LIGHT, FIRE, ELECTRICITY, *&c.*

A Feather by being only drawn through the Fingers has been found by Mr. *S. Grey* to acquire a Degree of Electricity, and would be attracted by the Finger when held near it; a human Hair, after having paſſed three or four times between the Finger and Thumb, would fly to his Finger at the Diſtance of half an Inch; and the Hair of a Dog's Ear, and the Threads of Silk would do the like. The like was found in Pieces of Ribband of ſeveral Colours, half a Yard long; the Hand held at the lower-end of any of which, would attract them at the Diſtance of five or ſix Inches. But if they imbibed the Moiſture of the Air, their Electricity would be much weakened thereby; in which Caſe, the Fire never failed to give them a ſtrong one. In effect, the ſame Author found Woollen, Paper, Leather, Wood-ſhavings, Parchment, and Gold-beater's Skin, to be Electrical; and that they not only came to the Hand, or any other ſolid Body, but attracted ſmall Bodies to them, ſometimes at the Diſtance of eight or ten Inches: ſome of theſe, alſo, appeared luminous upon Friction. See *Philoſ. Tranſ.* N°. 366.

ATTRITION is alſo frequently uſed for the Friction, or rubbing of ſuch ſupple Bodies one againſt another, as will not wear out, but occaſion ſome particular Determinations of the Fluids they contain.

Thus, the various Senſations of Hunger, Pain, or Pleaſure, are occaſion'd by the *Attritions* of the Organs form'd for ſuch Impreſſions. See HUNGER, PAIN, PLEASURE, *&c.*

ATTRITION, among Divines, is a Sorrow or Regret for having offended God; ariſing from a Senſe of the Odiouſneſs of Sin, and the Apprehenſions of having incurred the loſs of Heaven, and Puniſhment; *i. e.* the Pains of Hell. See HEAVEN and HELL.

Attrition is eſteem'd the loweſt Degree of Repentance, being a ſtep ſhort of Contrition. See REPENTANCE and CONTRITION.

ATTURNATO *faciendo vel Recipiendo*, a Writ which a Man owing Suit to a County, Hundred, or other Court, and deſiring to make an Attorney appear for him there, whom he doubts the Sheriff or Steward will not otherwiſe admit; purchaſeth, to command him to receive ſuch Attorney, and admit his Appearance by him. See ATTORNEY.

AVANT, a *French* Prepoſition, ſignifying *before*, or a priority either in reſpect of Time or Place; ſometimes uſed, in Compoſition, in our Language, but more uſually contracted, and wrote *Vaunt*, or *Vant*, or even *Van*. See VAN.

AVANT *Corps*,	See	VAN *Corps*.
AVANT *Foſſe*, &c.		VAN *Foſſe*.
AVANT *Gard*, &c.		VAN *Guard*, &c.

AVAUNCHERS, among Hunters, the ſecond Branches of a Hart's Horn. See HEAD, HUNTING, *&c.*

AVAST, a Term frequently uſed on board a Ship, ſignifying to *ſtop*, *hold*, or *ſtay*.

The Word is form'd of the *Italian*, *vaſta*, or *baſta*, it is enough, it ſuffices.

AUCTIO, AUCTION, a kind of Sale among the antient *Romans*, perform'd by the publick Cryer, *ſub haſta*, that is, under a Spear ſtuck up on that occaſion, and by ſome Magiſtrate who made good the Sale by Delivery of the Goods.

This was termed *Auctio*, q. d. increaſe; becauſe according to *Sigonius*, the Goods were ſold to him, *qui plurimum rem augeret*, who won'd bid moſt for them.

And hence our *Engliſh* Word, *Auction*, which ſignifies the ſame thing among us.

AUBAINE, in the *French* Cuſtoms, the act of inheriting after a Foreigner, who dies in a Country where he is not naturalized.

The Word is form'd of *Aubain*, a Foreigner; which *Menage* derives further from the *Latin*, *Alibi natus*; *Cujas*, from *Advena*; *du Cange* from *Albanus*, a *Scot*, or *Iriſhman*; by reaſon theſe were antiently much given to travelling and living abroad.

The King of *France*, by the right of *Aubaine*, claims the Inheritance of all Foreigners in his Dominions; excluſive of all other Lords, and even of any Teſtament the deceaſed con'd make. An Embaſſador, though not naturaliz'd, is not ſubject to the right of *Aubaine*. The *Swiſs*, *Savoyards*, *Scots*, and *Portugueze*, are alſo exempted from the *Aubaine*, as being reputed Natives and Regnicoles.

AUDIENCE. See HEARING, ATTENTION, and AUDITORY.

The Word is form'd from the corrupt *Latin*, *Audentia*, of *Audire*, to hear.

AUDIENCE is alſo uſed for the Ceremonies practiced in Courts, at the admiſſion of Embaſſadors, and publick Miniſters, to a hearing. See EMBASSADOR, *&c.*

Such an Embaſſador ſent to demand *Audience*; took his *Audience* of Leave to depart, *&c.*

AUDIENCE is alſo the Name of a Court of Juſtice, eſtabliſhed by the *Spaniards* in the *Weſt Indies*; anſwering in effect to the Parliaments in *France*.

They judge without Appeal, and have each a certain Diſtrict, which ordinarily takes in ſeveral Provinces, call'd alſo *Audiences*, from the Names of the Tribunals to which they belong.

Hence *Sanſon* divides *Spain* into as many of theſe *Audiences* as there are of thoſe Tribunals.—New *Spain* comprehends three *Audiences*; thoſe of *Guadalajara*, *Mexico*, and *Guatimala*.

AUDIENCE is alſo the Name of one of the Eccleſiaſtical Courts, which is, where-ever the Archbiſhop calls a Cauſe to his own Hearing. See COURT and ARCHBISHOP.

The Court of *Audience* is chiefly concerned in Differences ariſing upon Elections, Conſecrations, Inſtitutions, Marriages, *&c.*

AUDIENDO *& terminando*, a Writ, or rather a Commiſſion, directed to certain Perſons, when an Inſurrection or great Miſdemeanour is committed in any Place, for the Appeaſing and Puniſhment thereof.

AUDIENTES, in Eccleſiaſtical Hiſtory. See AUDITORES.

AUDIT, a regular hearing and examining of an Account, by Officers appointed for that purpoſe. See AUDITOR and ACCOUNT.

AUDITA *querela*, a Writ which lies againſt him, who, having taken a Statute-Merchant, or a Recognizance in the Nature of a Statute-Staple, or a Judgment, or a Recognizance of another; and craving, or having obtained Execution of the ſame from the Mayor and Bailiffs, before whom it was entered; at the Complaint of the Party who entered the ſame, upon Suggeſtion of ſome juſt Cauſe why Execution ſhould not be granted; as a Releaſe, or other Exception.—This Writ is granted by the Lord Chancellor, upon view of the Exception ſuggeſted, to the Judges of either Bench, willing them to grant Summons to the Sheriff of the County where the Creditor is, for his appearance at a certain Day before them.

AUDITOR, a Hearer, or one who liſtens or attends to any thing. See HEARING, ATTENTION, and AUDITORY.

AUDITOR is alſo uſed for ſeveral Officers, appointed to *audit*, or hear Accounts, Pleadings, *&c.* See ACCOUNT.

Antiently the Word *Auditor* was alſo uſed for *Judge*, and even for *Inquiſitor*. *Notaries* are alſo frequently call'd *Auditores*.

AUDITOR, in our Law, is an Officer of the King, or ſome other great Perſon, who yearly, by examining the Accounts of under Officers accountable, makes up a general Book, with the Difference between their Receipts and Charge, and their Allowances or *Allocations*. See ACCOUNT.

AUDITORS *of the Revenue*, or *of the Exchequer*, are Officers who take the Accounts of thoſe who collect the Revenues, Taxes, *&c.* rais'd by Parliament; as alſo of the Sheriffs, Eſcheators, Collectors, Tenants, and Cuſtomers, and ſet them down, and perfect them. See REVENUE and EXCHEQUER.

AUDITORS *of the Preſt* or *Impreſt*, are Officers in the Exchequer, who take and make up the great Accounts of *Ireland*, *Berwick*, the Mint, Cuſtoms, Wardrobe, Firſt-fruits, Naval and military Expences, and of all Monies impreſſed to any Man for the King's Service. See PREST and IMPREST.

AUDITOR *of the Receipts*, is an Officer of the Exchequer who files the Tellers Bills, and makes an Entry of them, and gives the Lord Treaſurer a Certificate of the Money receiv'd the Week before. See EXCHEQUER and TELLER.

He makes Debentures to every Teller, before they pay any Money, and takes their Accounts. He keeps the black Book of Receipts, and the Treaſurer's Key of the Treaſury, and ſees every Teller's Money lock'd up in the new Treaſury.

There are alſo *Auditors of the Firſt-Fruits*; of the Principality of *Wales*; of the Dutchy of *Cornwal*, &c. See FIRST-*Fruits*, &c.

AUDITOR *of the Rota*. See ROTA.

AUDITORS *Conventual*, *Collegiate*, &c. were Officers formerly appointed among the Religious, to examine and paſs the Accounts of the Houſe.

AUDITORES, or AUDIENTES, in Church Hiſtory, *Catechumens*; or thoſe newly inſtructed in the Myſteries of the Chriſtian Religion, and not yet admitted to Baptiſm. See CATECHUMEN.—Hence,

AUDITORIUM, AUDITORY, in the antient Churches, was that Part of the Church where the *Auditores* ſtood to hear, and be inſtructed. See CHURCH.

The *Auditorium* was that Part now call'd *Navis Eccleſiæ*. See NAVE.

In the primitive Times the Church was ſo ſtrict in keeping the People together in that Place, that the Perſon who went from thence in Sermon-time was order'd by the Council of *Carthage* to be excommunicated.

AUDITORY, ſomething belonging to the Senſe of Hearing. See HEARING.

AUDITORY, AUDIENCE, is alſo a collective Name, denoting an Aſſembly of Perſons, hearing, or attending to a Perſon who ſpeaks in publick. See ASSEMBLY, ORATION, *&c.*

AUDITORY is alſo uſed for the Seat or Bench where a Magiſtrate, or Judge, hears Cauſes. See BENCH.

At *Rome*, the ſeveral Magiſtrates had *Auditories* or Seats of Juſtice according to their Dignity.—Thoſe of the ſuperior Officers were call'd *Tribunals*; thoſe of the inferior, *Subſellia*. See TRIBUNAL, *&c.*

The *Pedanei* had their Benches or *Auditories* in the Emperor's Portico.—Thoſe of the *Hebrews*, at the Gates of Cities.—The Judges appointed by the antient Lords diſtributed Juſtice under an Elm, which was uſually planted before the Manor-Houſe, and ſerved them for an *Auditory*.

AUDITORY *Nerves*, in Anatomy, a pair of Nerves ariſing from the *Medulla Oblongata*, and diſtributed, the one to the Ear, the other to the Tongue, Eye, *&c.* See EAR and TONGUE.

The ſoft and ſpongy Branch of the *Auditory Nerve* being diffuſed through the Labyrinth and Tympanum of the Ear, is the immediate Organ of the Senſe of Hearing See HEARING.

The *Auditory Nerves* make the ſeventh Conjugation, according to the way of reckoning of the Moderns; and the fifth according to the Antients. See PAIR and CONJUGATION.

Anatomiſts obſerve a ſingular Mark of the Wiſdom and Contrivance of the Creator in the *Auditory Nerve*'s being thus diſpatch'd to different Parts; an admirable and uſeful Conſent being hereby eſtabliſhed between them.—Hence it is that moſt Animals upon hearing any uncouth Sound, are found to erect their Ears, and prepare them to catch it; to open their Eyes, to ſtand upon the Watch; and to be ready with the Mouth to call out, or teſtify their Danger: Accordingly moſt Animals when ſurprized or terrified, ſhriek or cry out, *&c.* See CONSENT *of Parts*.

Dr. *Willis* obſerves a further uſe of this nervous Communication between the Ear and the Mouth; which is, that the Voice may correſpond with the Hearing, and be a Kind of Eccho thereof; that what is heard with one of the two Nerves may be readily expreſs'd with the Voice, by the help of the other. *Cereb. Anat.* c. 17.

Meatus AUDITORIUS, or AUDITORY, Paſſage in Anatomy. See MEATUS.

AVE-*Maria*, or AVE-*Mary*, the Angel *Gabriel*'s Salutation of the Virgin, at his bringing the Tidings of the Incarnation; thus called, as beginning with thoſe Words, *Ave Maria*, Hail *Mary*. See VIRGIN, ANNUNCIATION, *&c.*

The *Ave-mary* is a Prayer or Formula of Devotion very uſual in the *Romiſh* Church.—Their Chaplets and Roſaries are divided into ſo many *Ave-marys*, and ſo many *Pater-noſters*: And hence the Beads themſelves, which indicate them, are alſo call'd *Ave*'s or *Ave-mary's*. See CHAPLET, ROSARY, *&c.*

AVELLANE, or *Croſs* AVELLANE, in Heraldry, a Form of Croſs which reſembles four Filberds in their Husks or Caſes, joined together at the great End. See CROSS.

Hence its Name; a Filberd in *Latin* being *Nux Avellana*.—*Syl. Morgan* ſays, it is this Croſs which Enſigns the Mound of Authority, or the Sovereign's Globe.

AVENAGE, in Law, a certain Quantity of Oats, paid to a Landlord, in lieu of ſome other Duties; or, as a Rent, from the Tenant.

The Word is *French*, form'd of the *Latin*, *avena*, Oats.

AVENOR, an Officer under the Maſter of the Horſe; who, by Order or Warrant from him, ſwears in all the Officers belonging to the Stables. See MASTER *of the Horſe*.

The *Avenor* alſo makes up the Accounts of the Stables, and iſſues Debentures for paying the Officers and Servant.

In a Stat. *Car.* II. we find the *Avenor* mentioned as an Officer who provides Oats for the Stables.—In the *Rot. Parl.* 1 *R.* 21. *Edw.* III. we alſo read of *Avenor* of the Queen, of the Prince, *&c.*

AVENTURÆ, in our antient Writers, ſignify Tournaments, or Military exercites on Horſeback. See TURNAMENT.

AVENTURE, or rather ADVENTURE, in our Law Books, a miſchance, cauſing the Death of a Man, without Felony; as, when he is ſudenly drowned, or burnt by any Miſeate or Miſchance, falling into the Water or Fire. See MISADVENTURE, CHANCE, *&c.*

AVENUE, in Fortification, an Opening or Inlet into a Fort, Baſtion, or the like Place. See FORT, BASTION, FORTIFICATION, *&c.*

The Word is form'd of the *French Avenir*, or *Advenir*, to come to, to arrive at. See ADVENT.

AVENUE, in Gardening, is a Walk, planted on each ſide with Trees, and leading to ſome Place. See VISTA. See alſo GROVE, GLADE.

All *Avenues*, *Mortimer* ſays, ſhould lead to the Front of an Houſe, Garden-Gate, Highway-Gate, or Wood, and terminate in a Proſpect.—In an *Avenue* to an Houſe, whatever the Length of the Walk is, it ought to be as wide as the whole Breadth of the Front, and if wider, better.

AVERAGE, AVERAGIUM, in Law, that Duty or Service which the Tenant is to pay the King, or other Lord, by his Beaſts and Carriages. See SERVICE.

The Word is derived from the baſe *Latin*, *Averia*, Cattle; or the *French*, *Oeuvre*, Work.

AVERAGE is alſo uſed in Navigation and Commerce, for the Damage which a Veſſel, or the Goods and Loading thereof, ſuſtains, from the time of its Departure to its Return; as alſo, for the Charge or Contributions towards defraying ſuch Damages.

A late Author who has wrote a Treatise express upon *Average*, distinguishes two Kinds thereof; *Simple* or Private, and *Gross* or Common.

To the first, the particular things which suffer, alone contribute; to the second, all both the Ship and the Merchandizes contribute in common.

Of the first Kind are all extraordinary and unforeseen Expences and Accidents, befalling either the Ship, or the Goods, or both; the Loss in which Cases, is to be wholly defray'd by the thing or things which occasioned it.—Such as the loss of Cables, Anchors, Masts, and Sails, by reason of Storms, *&c.* As also Damages accruing to Goods through their own Defects, by wasting, rotting, wetting, Storms, Pirates, *&c.* The Sailor's Wages while the Ship is extraordinarily detained by Embargo's, provided she be hired for the whole Voyage, and not *per* Month. All these are simple or private *Averages*, and not to be charged to the common Account.

For gross or common *Average* to have Place, the Author just mentioned, shews, 1°. That something must have been cast into the Sea, and this out of absolute Necessity. 2°. That the Commander have had the Consent of the Owners for so doing. 3°. That it have only been done for the Safety of the whole Ship, and that the Ship have been saved in Consequence thereof.—In such Case, all those for whose Interest the thing was cast into the Sea, are to contribute to indemnify the Person whose Property it was: And every thing is to be taxed hereto, so much as Jewels, Gold, *&c.* notwithstanding they do not any way burthen the Ship; and even the Vessel it self, but not Passengers, nor Provisions. *Rainold. Christ. a Derschau in Nov. Lit. Mar. Bal.* 1700.

To the occasions of common *Average* may be added, Compositions with Pirates for the Ransom of the Ship; as also Cables, Masts, Anchors, *&c.* lost or abandoned for the common Good; the Food and Physick of the Sailors wounded in Defence of the Ship; and the Pay and Provisions of the Crew when the Ship is arrested or put under Embargo by order of a Prince, provided it were hired for the Month, and not for the whole Voyage.

AVERAGE is more particularly used for the Quota or Proportion which each Merchant or Proprietor in the Ship or Loading is adjudg'd, upon a reasonable Estimation, to contribute to a common *Average*.

AVERAGE is also a little Duty which those Merchants who send Goods in another Man's Ship, pay to the Master thereof, for his care of them, over and above the Freight. See FREIGHT.

Hence, in Bills of Lading it is expressed.—Paying so much Freight for the said Goods, with Primage and *Average* accustomed.

AVER-CORN, in antient Writings, such Corn as by Custom is brought by the Tenant's Carts or Carriages, to the Lord's Granary, or Barn.

AVERIA, in our Law Books, properly signify Oxen or Horses used for the Plough; but in a general Sense, any Cattle.

When mention is made of one Beast, they say, *Quidam equus, vel quidam Bos:* When of two, or more, they do not say *Equi* or *Boves*, but *Averia*.

AVERMENT, in Law, usually signifies an Offer of the Defendant to make good, or justify an Exception pleaded in Abatement or Bar of the Plaintiff's Action.

The Word also signifies the Act as well as the Offer of justifying the Exception.

Averment is two-fold, general and particular.—A *general Averment* is the Conclusion of every Plea to the Writ, or in Bar of Replications, or other Pleadings; (for Counts, or Avowries in nature of Counts, need not be *averred*,) containing Matter affirmative, ought to be *averred* with an *hoc paratus est Verificare*.

Particular Averment is when the Life of a Tenant for Life, or Tenant in Tail, is *averred*, &c. And an *Averment* contains as well the Matter as the Form thereof.

AVERNI, among the antient Naturalists, certain Lakes, Grotto's, and other Places which infect the Air with poisonous Steams or Vapours; call'd also *Mephites*. See MEPHITES, AIR, POISON, *&c.*

The Word is *Latin*, form'd of the *Greek* privative, α, and ορνις, Bird; as intimating that Birds could not fly over them, but drop'd down dead.

Averni are said to be frequent in *Hungary* on account of the abundance of Mines therein. See MINE and MINERAL.

The Grotta *dei Cani*, in *Italy*, is famous. See GROTTA, EXHALATION, *&c.*

But the most celebrated *Avernus* was a Lake near *Bayæ*, in *Campania*, by *Strabo* call'd the *Lucrine Lake*, and by the *Italian* Geographers, *Lago di Tripergola*.—The Fumes it emitted are represented by the Antients as of so malignant a Nature, that Birds could not fly over it, but sunk down dead; which some later Writers have chose to attribute to this, that the sulphurous Effluvia hereof, not being of consistence to sustain the Birds, they drop'd by their own Weight.

This Circumstance, joined with the great Depth of the Lake, occasioned them to take it for the Gate or Entrance of Hell; and accordingly *Virgil* makes *Æneas* descend this Way to the Inferi. *Vibius Sequester* says, there was no Bottom to be found of it: *Immensæ Altitudinis cujus ima pars apprehendi non potest.* See HELL.

AVERRUNCATION, in Agriculture, the Act of scraping, cutting, or lopping off the superfluous Branches of Trees. See PRUNING.

AVERRUNCI, in Antiquity, an Order of Deities among the *Romans*, whose Office was to avert Dangers and Evils. See GOD.

The *Greeks* call'd this Species of Gods, Ἀλεξικακοι, or Ἀποτρομαιοι; and their Feast Αποτρομη: Sometimes, Ἀποτρεπαιοι.

The *Egyptians* had also their *Dii Averrunci*, or *Apotropæi*, who were pictured in a menacing Posture, and sometimes with Whips in their Hands.—*Isis* was a Divinity of this Kind; as is shewn by *Kircher*. See *Oedip. Ægypt.* T. III. p. 487.

AVERPENY, *q. d.* Average-peny, Money contributed towards the King's Averages; or Money given to be freed thereof. See AVERAGE.

AVERSION. See ANTIPATHY.

AVERY, a Place where Oats, or Provender are kept for the King's Horses. See AVERIA.

AUGES, in Astronomy, two Points in a Planet's Orbit, otherwise call'd *Apsides*. See APSIDES.

One of the *Auges* is particularly denominated the *Apogee*, the other *Perigee*. See APOGEE and PERIGEE.

AUGMENT. See AUGMENTATION.

AUGMENT, AUGMENTUM, in the *Greek* Grammar, an Increase of the Quantity, either of a Letter, or a Word. See QUANTITY.

There are two Kinds of *Augments*.—*Temporale*, or *of a Letter*, when a short Vowel is changed into a long one; or a Dipthong into another longer one: thus call'd by reason the time of its Pronunciation is now lengthened.

Augmentum Syllabicum, or *of a Syllable*, is when a Letter or Syllable is added at the beginning of the Word; so that the Number of Syllables is enlarged.

AUGMENTS, in Mathematicks. See INCREMENTS, FLUXIONS, *&c.*

AUGMENTATION, AUGMENTATIO, the Act of *augmenting*; that is, of adding or joining something to another, to render it larger, or more considerable. See ADDITION, ACCESSION, ACCRETION, AMPLIFICATION, *&c.*

AUGMENTATION is also used for the *Augment*; i. e. the Additament, or the thing added. See ADDITAMENT, ACCESSION, *&c.*

Such a Minister petitioned the King for an *Augmentation* of Salary, of Wages, *&c.*

AUGMENTATION was also the Name of a Court erected under *Henry* VIII. to the end the King might be justly dealt with, touching the Profit of such Religious Houses, and their Lands, as were given him by Act of Parliament the same Year.—This Court was dissolv'd under Queen *Mary*, by the Parliament held the first Year of her Reign; but the Office of *Augmentation* remains to this Day.

The Court took its Name hence, that the Revenues of the Crown were thought to be much *augmented* by the Suppression of the said Houses; many of which the King reserved to the Crown.

AUGMENTATIONS, in Heraldry, are additional Charges frequently given as a particular Mark of Honour, and generally born either on an Escutcheon, or a Canton.—Such are the Arms of *Ulster*, bore by all the Baronets of *England*.

AUGUR, in Antiquity, an Officer or Minister among the *Romans*, appointed to observe the Chattering and Feeding of Birds; and by means thereof, form Conjectures about future Events. See AUGURY.

The *Augurs* made a College or Community, which at first consisted of three Persons, then four, and lastly nine; four of them *Patricians*, and five *Plebians*.—*Cicero* was of the *College of Augurs*. See COLLEGE.

They bore an *Augural* Staff, or Wand, as the Ensign of their Office and Authority.

The Word *Augur* is derived from *Avis*, Bird, and *Garritus*, Chattering. *Pezron* derives it from the Celtic *Au*, Liver, and *Gur*, Man: So that according to him, an *Augur* is properly a Person who inspects the Entrails, and divines by means of the Liver: Others derive it from the *Arabick Ogor*, good Fortune.

Augurs, properly speaking, differed from *Auspices*, and *Augury* from *Auspicy*, in that the former was in strictness confined to the chirping of Birds, and the latter to their flying, feeding, *&c.* See AUSPICES, *&c.*

AUGURY, in Antiquity, the Art of divining, or foretelling Events, by the chattering, singing, and feeding of Birds. See DIVINATION and AUGUR.

The Observation of *Auguries* is very antient, as having been prohibited by *Moses* in *Leviticus*.—The Cup put in *Benjamin's* Sack, in *Egypt*, was that used by *Joseph* to take *Auguries* by.

In its more general Signification, the Word *Augury* comprizes all the different kinds of Divination; which *Varro* distinguishes into four Species of *Augury*, according to the four Elements.—Pyromancy, or *Augury* by the Fire; Aeromancy, or *Augury* by the

the Air, Hydromancy, or *Augury* by the Water; and Geomancy, or *Augury* by the Earth. See AEROMANCY, PYROMANCY, *&c.*

The particular Branches are, *Alectoromancy, Anthropomancy, Belomancy, Catoptromancy, Capnomancy, Gastromancy, Geomancy, Aruspicina, Libanomancy, Lecanomancy, Necromancy*, &c. See each described under its proper Article.

Cicero, who was one of the College, wonders how two *Augurs* could meet without laughing at each other; by which it appears what Opinion he had of the Art.—And yet no Affair of Moment could be resolv'd on without first consulting them; and ther Advice, be it what it would, was, by a Decree of the Senate, enjoin'd to be exactly and religiously performed.

AUGUST, AUGUSTUS, something majestick, venerable, sacred. See MAJESTY, *&c.*

The Title *Augustus* was first given by the *Roman* Senate to *Octavius*, after his being confirmed by them in the Sovereign Power.—It was conceived as expressing something divine, or elevated above the Pitch of Mankind; being form'd of the Verb *augeo*, I grow, Increase; *tanquam supra humanam sordem* auctus.

The Successors of *Augustus* assumed the same Quality; so that thence-forward Emperor and *Augustus* were the same thing: They became synonimous Terms, See EMPEROR.

The presumpuve Heir of the Empire, or he who was destined to succeed to the Dignity, was first created *Cæsar*; which was a step necessary to arrive at that of *Augustus* or Emperor—Yet F *Pagi* maintains the Converse; *viz.* that it was necessary to be *Augustus*, previously to the being *Cæsar*. See CÆSAR.

M. *Flechier* observes, that the Emperor *Valentinian* proclaimed his Brother *Valens*, *Augustus*; without first declaring him *Cæsar*; which had never been practiced before.—'Tis added, that *Marcus Aurelius*, upon his succeeding to *Antonnus*, immediately created *L. Verus*, both *Cæsar* and *Augustus*. This was the first time the *Romans* had known two *Augusti* at once; for which reason the Year when it was done, *viz.* 161, was mark'd in the *Fasti* with the Consulate of the two *Augusti*.

It was a surprizing Spectacle to the People of *Rome* to see themselves governed by two Sovereigns, after so much Blood spilt for the Choice of a single Master.

The Empresses also took the Quality of *Augustæ*; and even some Ladies of the Imperial Family, who had never been Wives of Emperors.

On Medals and Coins, some of the antient Kings of *France* are also found with the Appellation *Augusti*; particularly *Childebert, Clothaire*, and *Clovis*: add that the Wife of this last, *Chrototochilda*, is also call'd, by *Heric*, in his Book of the Miracles of St. *Germain*, indifferently, either *Augusta*, or *Queen*.

The *Historia* AUGUSTA, is the History of the *Roman* Emperors from the time of *Adrian* to *Carinus*, composed by six *Latin* Writers.

AUGUSTALIA, in Antiquity, a Feast instituted in Honour of the Emperor *Augustus*. See FEAST.

This Festival was first established after he had ended all his Wars, and settled the Affairs of *Sicily, Greece, Asia, Syria*, and the *Parthians*.—The Day whereon he made his Entry into *Rome*, was appointed to be kept a Feast; and was called *Augustalis*. See AUGUSTALIS.

AUGUSTALIA was also a Name given to the Games celebrated in Honour of the same Prince, on the 4th of the Ides of *October*. See GAME. See also AUGUSTALIS.

AUGUSTALIS, in Antiquity, a Name given by the *Romans* 1°. to those who led the first Ranks of an Army; 2°. to certain Magistrates in Cities; 3°. to all the Officers of the Emperor's Palace.

The Governor or Præfect of *Egypt* is particularly called *Augustalis*, or *Præfectus Augustalis*; as being first established by *Augustus*, after the Defeat of *Mark Anthony* and *Cleopatra*. He resided at *Alexandria*.

AUGUSTALIS was also a Priest or Pontiff, invested with the Direction and Superintendency of the Games perform'd in Honour of *Augustus*. See GAME, PONTIFF, *&c.*

The *Augustales* were instituted by *Tiberius*, immediately after *Augustus*'s Death; as is observ'd by *Tacitus*, who assures us they were Priests.—Several Cities had six of these *Augustales*; whence they were call'd, *Seviri Augustales*.

AUGUSTAN *Confession*, was a Confession of Faith, made by the the antient Reformers at *Augusta*, or *Augsburg*, in *Germany*. See CONFESSION, REFORMATION, PROTESTANT, LUTHERANISM, *&c.*

AUGUST, in Chronology. See MONTH.

AUGUSTINS, an Order of Religious; thus called from St. *Augustin*, whose Rule they observe. See ORDER and RELIGIOUS.

The *Augustin's*, popularly also called *Austin Fryars*, were originally Hermits, whom Pope *Alexander* IV. first congregated into one Body, under their General *Lanfranc*, in 1256. See HERMIT.

The *Augustins* are cloth'd in Black, and make one of the four Orders of Mendicants. See MENDICANT.

From these arose a Reform, under the Denomination of *Barefoot Augustins*, or *Minorites*, or *Fryars Minor*. See MINOR and MINORITE.

There are also Canons Regular of St. *Augustin*, who are clothed in white, excepting their Cope, which is black.—At *Paris* they are known under the Denomination of, *Religious of Genevieve*; that Abby being the Chief of the Order. See GENEVIEVE.

There are also *Augustines*, or Nuns, who observe the Rule of St. *Augustin*. See RELIGIOUS and NUN.

The AUGUSTIN of *Jansenius* is a celebrated Treatise of that Author, Bishop of *Ypres*, entitled, *Cornelii Jansenii Episcopi Iprensis, Augustinus*; the first Tome whereof contains a Discourse against *Pelagianism*; and the second divers Treatises of Reason; the use of Authority in Theological Matters; the State of Innocence; fall of Nature by Sin, Grace, *&c.*—From these several Treatises were collected the five famous Propositions, enumerated under the Article JANSENISM.

AU-GUY-PAN-NEUF, or AGUILLANNEUF. See MISLETO and VISCUS.

AVIGNON-*Berry*, call'd also, *French Berry*, is the Fruit of a Shrub, by some Authors call'd *Licum*; growing plentifully near *Avignon*, &c. in *France*. See BERRY.

The Berry is somewhat less than a Pea; its Colour Green, approaching towards a Yellow; of an astringent and bitter Taste.—It is much used by the Dyers who stain a yellow Colour with it; and by the Painters, who make a fine golden Yellow of it. See YELLOW.

AULA, in our antient Law-Books, signifies a Court Baron.—*Aula ibidem tenta quarto die Augusti*, &c. See BARON.

Aula Ecclesiæ is what we now call *Navis Ecclesiæ*. See NAVE.

AULIC, AULICA, an Act which a young Divine maintains in some foreign Universities, upon the Admission of a new Doctor of Divinity. See ACT.

It is so called from the *Latin*, *Aula*, a Hall; it being in the Hall of the University that this Act is usually held. See UNIVERSITY, DEGREE, DOCTOR, *&c.*

The Person who presides at the Disputation is the same, that is, to take the Doctor's Cap.

AULIC, AULICUS, is also a Name attributed to certain Officers of the Emperor, who compose a superior Court or Council, which has an universal Jurisdiction, and without Appeal, over all the Subjects of the Empire, in all Processes enter'd therein. See EMPEROR and EMPIRE.

We say *Aulic* Council, the *Aulic* Court or Chamber, *Aulic* Councellor, *&c.*

The *Aulic* Council is established by the Emperor, who nominates the Officers; but the Elector of *Mentz* has a right of visiting it.—It is compos'd of a President, who is a Catholick; a Vice-Chancellor, presented by the Elector of *Mentz*, and of eighteen Assessors, or Counsellors, nine whereof are Protestants, and nine Romanists. See ASSESSOR.

They are divided into two Benches, one whereof is taken up by Nobles, and the other by Lawyers.—They hold their Assembly in the Presence of the Emperor; and for that reason are called *Justitium Imperatoris*, the *Emperor's Justice*; and *Aulic Council*, because theirs follows the Emperor's Court, *Aula*, and has its Residence in the Place where he is—This Court clashes a little with the Imperial Chamber of *Spires*; in that they are preventive of each other: It not being allowed to remove any Cause from the one to the other. See IMPERIAL CHAMBER.

Nor can the Emperor himself hinder or suspend the Decisions of either Court; much less call any Cause before himself which has once been before them; without the Consent of the States of the Empire. Yet, in some Cases the same Council forbears making any peremptory Conclusion without the Emperor's Participation; and only Decrees thus, *Fiat Votum ad Cæsarem*; that is, make a Report hereof to the Emperor in his Privy-Council.

AULNEGER, or ALNAGER. See ALNAGER.

AUMONE, or ALMS. See ALMS.

Tenure in AUMONE, is where Lands are given to a Religious House, or Church, that some Service may be said for the good of the Donor's Soul. See TENURE.

AUMONIER, or ALMONER. See ALMONER.

AUNCIENT *Demain*. See ANTIENT *Demain*.

AVIARY, a House or Apartment for the keeping, feeding, and propagating of Birds. See BIRD.

The Word is form'd of the *Latin*, *Avis*.

AUNCEL-*Weight, quasi, Handsel-Weight*, is a kind of Ballance, consisting of Scales hanging on Hooks fasten'd at each End of a Beam or Staff, which a Man lifts up on his Hand or Fore-finger, and so discovers the Equality or Difference between the Weight and the Thing weigh'd. See BALLANCE.

There being great Deceits practiced in these Weights, they were prohibited by several Statutes, and the even Ballance alone commanded. See WEIGHT and STANDARD.

The Word is still used in some Parts of *England*, to signify Meat sold by poising in the Hand, without putting it into the Scales.

AVISO, an Advice, piece of Intelligence, or Advertisement; to notify some Event, or Matter worthy of Knowledge. See ADVERTISEMENT, *&c.*

The Word is *Italian*, and is chiefly used in Matters of Commerce.

AVO-

AVOCATORIA, a Mandate of the Emperor of *Germany*, directed to some Prince or Subject of the Empire, to stop his unlawful Proceedings in any Cause brought by way of Appeal before him. See EMPEROR and EMPIRE.

AVOIDANCE, in Law, has two Significations: The one, when a Benefice becomes void of an Incumbent; the other, when we say in Pleadings in Chancery, confessed or *avoided*, traversed or denied, *&c.* See VOIDANCE.

AVOIRDUPOIS, or AVERDUPOIS *Weight*, a kind of Weight used in *England*; the Pound whereof contains sixteen Ounces. See WEIGHT.

The Proportion of a Pound *Avoirdupois* to a Pound *Troy*, is as 17 to 14. See TROY, POUND, and OUNCE.

All the larger and coarser Commodities are weigh'd by *Avoirdupois* Weight; as Groceries, Cheese, Wool, Lead, Hops, *&c.* Bakers who live not in Corporation Towns, are to make their Bread by *Avoirdupois* Weight; those in Corporations by *Troy* Weight.—The Apothecaries buy their Drugs by *Averdupois*, but sell their Medicines by *Troy*.

AVOWEE, ADVOCATUS. See ADVOUEE and ADVOCATE.

The *Avowee* is he to whom the Right of Advowson of any Church belongs, so that he may present thereto in his own Name: he is thus called by way of Distinction from those who sometimes present in another Man's Name, as a Guardian that presents in the Name of his Ward; as also from those who only have the Lands whereto an Advowson belongs for Term of Life, or Years, by Intrusion, or Disseisin.

AU PIS ALLER, a *French* Phrase, sometimes used among *English* Writers, signifying, *at the worst*.

AURA, an airy Exhalation, or Vapour. See VAPOUR and EXHALATION.

The Word is *Latin*, deriv'd from the *Greek* ἀυρα, gentle Wind.

AUREA *Alexandrina*, in Pharmacy, a kind of Opiate or Antidote, in great Fame among the antient Writers. See ANTIDOTE.

It is called *Aurea*, from the Gold which enters its Composition, and *Alexandrina*, as having been first invented by a Physician named *Alexander*.—It is reputed a good Preservative against the Colick and Apoplexy.

AURELIA, a Term used by natural Historians for the first apparent Change of the *Eruca*, or Maggot of any Species of Insect. See INSECT.

Aurelia is the same with what other Writers call *Nympha*. See NYMPHA.

AUREOLA, the Crown of Glory given by Painters and Statuaries to Saints, Martyrs, and Confessors; as a Mark of the Victory which they have obtain'd. See CROWN.

F. *Sirmond* says, the Custom hereof was borrow'd from the Heathens, who us'd to encompass the Heads of their Deities with such Rays.

The Word *Aureola*, in its Origical, signified a Jewel which was propos'd as the Prize of a Dispute; and was given as the Reward of Victory.

Among the *Romish* School-Divines, *Aureola* is supposed to be a special Reward bestow'd on Martyrs, Virgins, Doctors, and other Saints, on account of their Works of Supererogation.

AURICHALCUM, is a factitious Metal, popularly call'd *Brass*. See BRASS.

The *Aurichalcum* is a Mixture of Copper and Calamine-stone melted together by a very vehement Fire, in Furnaces made on purpose. See COPPER and CALAMINARIS.

AURICLE, AURICULA, in Anatomy, the external Ear; or that Part of the Ear which is prominent from the Head. See HEAD.

The Word is a diminutive of *Auris*, Ear; q. d. *little Ear*.

For the Structure and Variety in the Auricle; with the several Parts thereof, their Names, &c. see EAR.

AURICLE is also applied to two Appendages of the Heart; being two muscular Caps, covering the two Ventricles thereof. See VENTRICLE.

They move regularly like the Heart; only in an inverted Order; their Systole corresponding to the Diastole of the Heart and *Vice versa*. See further of their Structure and Office under the Article HEART. See also SYSTOLE and DIASTOLE, *&c.*

AURICULA *Judæ*, or *Jew's Ear*, a kind of Fungus or Mushroom, resembling in Figure, a human Ear. See FUNGUS and MUSHROOM.

It grows on old Elder Trees, which is the Tree whereon, 'tis pretended, *Judas* hang'd himself; which has given occasion to the Name.

This Fungus steep'd in Water, and applied to the Eyes, frees them of Inflammations: 'Tis also used Gargle-wise in Decoctions, against Inflammations of the Throat, or swelling of the Tonsils.

AURICULAR, AURICULARIS, something known or learnt only by the Ears. See EAR.

Thus we say, an *Auricular* Witness, *Auritus Testis*, a Witness by hearsay. See WITNESS, EVIDENCE, TESTIMONY, *&c.*

AURICULAR *Confession*. See CONFESSION.

The little Finger is also call'd *Auricularis*, because used in cleansing the Ear. See FINGER.

AURIGA, in Astronomy, the *Waggoner*; a Constellation of fixed Stars in the Northern Hemisphere. See STAR and CONSTELLATION.

The Stars in the Constellation *Auriga*, in *Ptolomy's* Catalogue are 14; in *Tycho's* 23; in the *Britannia* Catalogue 68; the Longitudes, Latitudes, Magnitudes, *&c.* are as follow.

Stars in the Constellation AURIGA.

Names and Situations of the Stars.	Sign.	Longitude. °	′	″	Latitude. North. °	′	″	Magn. Nort.
Præced. over the North Foot	♊	11	22	20	14	52	35	6
Mid. and South over the Foot		11	49	45	14	1	48	6
In the Heel of the North Foot		12	19	33	10	24	53	4 3
Last of three over the Foot		13	18	44	15	04	00	5
		13	41	48	16	32	24	6
5								
		13	44	35	16	48	05	6
In the præced. Cubit		14	31	09	20	54	23	4
Against the Hand, præced. *Hædus*		14	18	57	18	10	10	4
		16	20	03	28	33	29	6
Subseq. *Hædus*		15	06	52	18	15	15	4
10								
South of three in the Loins		16	15	17	15	23	18	5
		17	32	33	23	15	07	6
Bright one of the Fore Shoulder, *Capella*		17	31	41	22	51	47	1
		16	11	20	9	34	13	6
Middle one in the Loins		17	28	54	16	58	39	5
15								
Nebulosæ against the Hips South.		16	49	17	10	13	20	6
Nebulosæ against the Hips Middle.		16	53	03	10	35	44	7
Northern ones in the same Præced.		17	07	13	10	48	09	7
Northern ones in the same Subseq.		17	15	18	10	46	03	6
North of three in the Loins		18	10	58	18	34	24	6
20								
Subseq. in the Hip		18	26	49	14	07	31	5
		17	36	57	5	43	03	7
Bright one in the South Foot		18	13	56	5	21	34	2
In the Fore-thigh		18	53	40	11	10	50	5
In the Fore-knee		19	50	21	8	50	44	5
25								
		21	02	46	7	05	27	6
Inform. al. *Tauri* 116th		21	06	07	2	29	23	4 5
In the Neck		23	09	56	26	22	40	6
		23	26	40	16	04	34	7
Præced. in the Hind-Arm		23	30	15	15	43	40	6
30								
North in the Head		24	50	04	32	13	30	5 6
In the Hind-thigh		23	50	36	13	50	33	6
Subseq. in the Hind-Arm		23	57	35	15	41	06	5
South of two in the Head		25	36	22	30	49	00	4
Brighter one in the Hind-shoulder		25	35	32	21	28	20	2
35								
A lesser one contiguous to that		25	40	12	22	27	52	6
		25	52	25	24	25	20	6
In the Wrist of the Hinder-Hand		25	36	42	13	44	19	3 4
		26	19	09	19	31	48	6 7
		26	40	07	19	31	14	6 7
40								
Inform. following the Eastern Arm		27	00	04	15	00	59	6
		27	48	43	25	15	32	6
		28	59	02	22	59	32	6
		29	26	51	22	56	34	6
Inform. under the Hind-Knee		29	02	42	6	04	47	4 5
45								
		29	27	23	30	03	05	6
	♋	0	12	40	25	54	20	5
		1	17	52	23	20	54	6
		1	52	18	7	09	30	6
Al. Of *Gemini* 22d		3	27	46	4	46	30	5 6
50								
		3	20	23	19	16	34	5 6
		3	26	45	16	10	35	5 6
		3	26	27	16	40	44	5
Al. Of *Gemini* 25th		4	06	16	5	47	05	6
Of *Gemini* 27th		4	24	39	5	04	50	6
55								
		3	55	02	21	21	22	5
		4	22	35	25	40	10	6
		4	40	47	20	27	01	5
		5	38	35	18	45	08	4 5
		6	21	56	15	52	47	6
60								
Inform. behind *Auriga* towards *Gemini*, and the hither Feet of *Ursa Major*		6	26	15	15	28	07	6
		6	35	28	15	31	22	7
		6	37	03	22	09	30	4 5
		7	40	23	15	11	33	6 7
		10	03	39	16	43	40	4 5
65								
		11	06	34	18	26	35	5
		12	30	02	14	28	11	5
		12	20	53	18	24	21	5

AURIPIGMENTUM, call'd also *Orpiment*. See ORPIMENT.

AVOWRY, in Law, is where one takes a Distress for Rent or other thing; and the other sues Replevin. In which Case the taker shall justify, in his Plea, for what Cause he took it: And if he took it in his own Right, is to shew it, and so *avow* the taking; which is called his *Avowry*. If he took it in the Right of another, when he has shewed the Cause, he is to make Conusance of the taking, as being a Bailiff or Servant to him in whose Right he did it. See DISTRESS, *&c.*

AURIS, an *Ear*. See EAR.

The cutting off the Ears was a Punishment inflicted by the *Saxon* Laws on those who robbed Churches; and afterwards on every Thief; and at length on divers other Criminals. See PUNISHMENT.

AURISCALPIUM, an Instrument wherewith to pick and cleanse the Ear from Wax. See EAR, CERUMEN, *&c.*

The Word is compounded of the *Latin*, *Auris*, Ear; and *Scalpo*, I scratch.

AURORA, *Crepusculum*, *Twilight*; that faint Light which begins to appear in a Morning, when the Sun is within eighteen Degrees of the Horizon. See CREPUSCULUM and TWILIGHT.

The Poets have personified, and even made it a Goddess; representing her with a Chariot, rosy Fingers, *&c.*

Nicod. derives the Word, *ab Oriente sole Quia aer aureſcit.*

AURORA *Borealis*, or AURORA *Septentrionalis*, the Northern *Dawn* or *Light*; is an extraordinary Meteor, or luminous Appearance, shewing it self in the Night Time, in the Northern Part of the Heavens. See METEOR.

'Tis usually of a reddish Colour, inclining to yellow, and sends out frequent Coruscations of pale Light, which seem to rise from the Horizon in a pyramidal undulating Form, and strike, with great Velocity, up to the Zenith.

This kind of Meteor never appears near the Equator, and was so rare in *England*, that none are recorded in our Annals since that remarkable one, *Novemb*, 14. 1574. till the surprising *Aurora Borealis*, *March* 6. 1716. which appeared for three Nights successively, but by far more strongly on the first.—Indeed, in the Years 1707 and 1708, five small ones were observ'd in little more than eighteen Months.

Hence it should seem that the Air or Earth, or both, are not at all times dispos'd to produce this *Phænomenon*; for though 'tis possible it may happen in the Day-time, in bright Moon-shine, or in cloudy Weather, and so pass unobserv'd; yet that it should appear so frequent at some times, and so seldom at others, cannot well this way be accounted for.—That in *March* 1716, was visible to the West of *Ireland*, Confines of *Russia*, and to the East of *Poland*; extending at least near 30° of Longitude, and 50° in Latitude, that is, over almost all the North of *Europe*; and in all Places at the same time, it exhibited the like wondrous Circumstances.

A sufficient number of Observations have not yet been made by the Curious, to enable them to assign the Cause of this *Phænomenon*, with any certainty.—Dr. *Halley*, however, imagines that watery Vapours, or Effluvia, rarified exceedingly by subterraneous Fire, and tinged with sulphurous Streams, which Naturalists suppose to be the Cause of Earthquakes; may also be the Cause of this Appearance: Or, that 'tis produced by a kind of subtile Matter, freely pervading the Pores of the Earth, and which entering into it near the southern Pole, passes out again with some Force into the Æther at the same Distance from the Northern; the obliquity of its Direction being proportion'd to its Distance from the Pole. This subtile Matter, by becoming some way or other more dense, or having its Velocity increas'd, may be capable of producing a small Degree of Light, after the manner of Effluvia from electrick Bodies, which by a strong and quick Friction, emit Light in the Dark: To which sort of Light this seems to have a great Affinity. *Phil. Transf.* N°. 347.

AURUM, in Natural History, *Gold*. See GOLD.

The Word is chiefly applied to certain Chymical Preparations, whereof Gold is the Basis or principal Ingredient.—Such are the *Aurum potabile*, *Aurum fulminans*, &c.

AURUM *fulminans*, fulminating or thundering Gold. See *Aurum* FULMINANS.

It is inflammable, not only by Fire, but also by a gentle Warmth; and gives a Report much louder than that of Gunpowder.

Its Effect is commonly said to be principally downwards; in opposition to Gun-powder, which is chiefly upwards; but this rather seems a vulgar Error. See GUN-POWDER.

A Scruple of this Powder acts more forcibly than half a Pound of Gun-powder: a single Grain laid on the Point of a Knife, and lighted at the Candle, goes off with a greater Noise than a Musket.—It is said to consume even to the very last Atom.

AURUM *potabile*, *Potable Gold*, is a Composition made of Gold, by reducing it, without any Corrosive, into a Gum, or Substance like Honey, of the Colour of Blood; which Gum steep'd in Spirit of Wine, acquires a Ruby-colour, and is call'd *Tincture of Gold*.

An Ounce of this Tincture, mix'd with sixteen Ounces of another Liquor, is call'd *Aurum potabile*, because of its Gold-colour; and is said to be a sovereign Remedy against several Diseases. See *Potable* GOLD.

A modern Physician has asserted that Gold is a Resin drawn from the Earth; and that the grand Secret of rendering Gold *potable*, does not consist in dissolving this Resin by means of Corrosives, but by a Water, wherein it melts like Ice or Snow in hot Water; and this Water must be nothing but a Water extracted from Gold, agreeable to an Axiom that he lays down, which is, that Matters of different Natures have no Ingress into one another; but that every Menstruum or Dissolvent ought to be taken from Bodies of the same kind with those it is to act upon.

The same Author observes, that Blood and Urine furnish a *Sal Armoniac*, which mingled with *Aqua-fortis*, acts upon Gold: whence he conjectures, that there may be a conformity of Nature between Gold and Blood; and that by consequence, Gold well open'd and subtliz'd, might produce a Resin, and a Fire that wou'd augment the Blood.

AURUM *Musaicum*. See MOSAIC *Gold*.

AURUM *Musaicum* is also a Preparation in Pharmacy, thus called from its golden Colour and Appearance. It is made of Mercury, Tin, Sal Armoniac, and Flowers of Sulphur, by grinding, mixing, then setting them three Hours in a Sand Heat.—The dirty Sublimate being taken off, the *Aurum Musaicum* is found at the Bottom of the Matrass.

It is recommended in most chronical and nervous Cases; and particularly Convulsions of Children.

AURUM *Regiæ*. See QUEEN *Gold*.

AUSCULTARE, in our antient Customs.—In regard the reading of Prayers with a graceful Tone or Accent, makes some Impression on the Hearers; there was antiently a Person appointed, in Monasteries, to hear the Monks read, who instructed them how to perform it, before they were admitted to read publickly in the Church, or before the People.—This was call'd *Auscultare*, q. d. to hear, listen.

Quicunque Lecturus vel Cantaturus est aliquid in Monasterio; si necesse habeat ab eo, viz. *Cantore, priusquam incipiat debet Auscultare. Lanfranc in Decret. pro Ord. Benedict.*

AUSPICES, in Antiquity, a sort of Priests or Southsayers, appointed to observe the Flight of Birds, and thence to form Presages of future Events. See DIVINATION.

The *Auspices* were thus call'd, *Quasi Avispices, ab avibus Inspicendis.*—They are ordinarily confounded with the *Augurs*, tho' in strictness there be a Difference. See AUGUR.

AUSPICY, AUSPICIUM, a kind of Augury amongst the Antients, which consisted in considering the Flight and feeding of Birds, in order to know whether any Undertaking they were about, would prove happy or unfortunate. See AUSPICES and AUGURY.

Pliny attributes the Invention hereof to *Tiresias* the *Theban*. See DIVINATION, OMEN, *&c.*

AUSTERE, implies a rough, astringent Taste; such as that of Vitriol, *&c.* See TASTE.

Austere things differ from acerb or sour ones; in that they constringe the Mouth and Tongue somewhat less, and are devoid of Acidity. See ACERB.

The Word comes from the *Greek*, αὐστηρὸς.

AUSTERITY, AUSTERENESS *of Taste*, that which denominates a sapid Body, *Austere*. See AUSTERE.

AUSTERITY, in a moral Sense, signifies *Severity*, or a rigid Carriage and Deportment in any thing.

Thus we say, *Austerity* of Manners; the *Austerities* of the Monastick Life. The *Austerity* of the *Roman* Censors kept the People in their Duty. The greatest *Austerity* of the *Carthusians* is perpetual Solitude. See CENSOR, CARTHUSIAN, SOLITARY, *&c.*

AUSTRAL, AUSTRALIS, the same with *Southern*. See SOUTH and SOUTHERN.

Thus, *Austral Signs*, are the six last Signs of the Zodiack; so called, because they are on the South-line of the Equinoctial. See SIGN.

The Word is derived from *Auster*, the South-Wind. See WIND.

AUSTRALIS *Piscis*, is a Constellation of the Southern Hemisphere; not visible in our Latitude. See CONSTELLATION.

AUTHENTICK, AUTHENTICUS, something genuine, and of good Authority; in opposition to what is fictitious and spurious.

It also signifies something solemn, and celebrated; cloth'd in all its Formalities; and attested by proper Persons to whom credit has been regularly given.

In this Sense we say, the Truths of Christianity are founded on *Authentic* Testimonies, *&c.*—*Authentic* Papers, Instruments.—The Nobility, and Persons of Rank, were particularly call'd *Authentic Persons*, as being supposed more deserving of Credit than others.

The Word is *Greek*, Ἀυθεντικος; q. d. *cum Authoritate.*

AUTHEN-

AUTHENTICKS, AUTHENTICÆ, in the Civil Law, is a Name given to the Novels of *Justinian*. See NOVEL.

The Reason of the Denomination is not well known.—*Alciat* will have it to have been first given them by *Accursius*.

They were Originally composed in *Greek*, and afterwards translated into *Latin* by the Patrician *Julian*, who also reduced them into fewer Words and less Compass.—In the time of *Bulgarus*, there was a second Version made, more exact and literal, though not quite so elegant as the former.

This Translation, says the Author just cited, being preferred by *Accursius*, he call'd it the *Authentica*, by way of preference over that of *Julian*, as being more conformable to the Original.

The *Authenticks* or Novels are divided into IX Collations, or Chapters. See CHAPTER, CIVIL-*Law*, *&c.*

AUTHOR, AUCTOR, properly denotes one who created or produced any thing; and is applied by way of Eminence to the first Cause, *viz.* God.—Thus we say the *Author* of Nature, *&c.* See CAUSE, GOD, NATURE, *&c.*

The Word is *Latin*, form'd of the *Greek*, αυτος, *Ipse*.

The Term *Author* is sometimes also used in the same Sense with *Inventor*.—*Polydore Virgil* has wrote eight Books of the *Authors* or Inventors of things, *&c.* See INVENTION.

Pythagoras is held the *Author* of the Dogma of *Metempsychosis*. See METEMPSYCHOSIS, *&c.*

AUTHOR, in Matters of Literature, is a Person who has wrote or composed some Book, or Writing. See BOOK, WRITING, *&c.*

Thus we say the sacred *Authors*; anonymous *Authors*, &c.—The *Latin Authors* pillaged the *Greeks*, &c. See ANONYMOUS, *&c.*

An *Original Author* is he who first treated of any Point or Subject; who did not follow any other Person, imitate any Model either in the Matter or the Manner of what he has wrote. See ORIGINAL.

AUTHORITY, AUCTORITAS, a right to command, and make one's self obey'd. See POWER.

In this Sense we say the Supreme or Soveriegn *Authority*; Absolute or Despotic *Authority*; the Royal *Authority*; the Episcopal *Authority*; the *Authority* of the Church; of a Father, *&c.* See SUPREME, SOVEREIGN, ROYAL, DESPOTIC, *&c.* See also JURISDICTION, GOVERNMENT, *&c.*

AUTHORITY, is also used for the Testimony of an Author, or Writing. See TESTIMONY.

The Word is also particularly understood of an Apophthegm, or Sentence of some great or eminent Person, quoted in a Discourse, either by way of Proof, or Embellishment.

The Term also includes Rules, Laws, Canons, Decrees, Decisions, *&c.* alledged in Confirmation of a Matter in Dispute. See CONFIRMATION, *&c.*

Passages quoted from *Aristotle* are of great *Authority* in the Schools: Texts of Scripture are of decisive *Authority*.

Authorities make a Species of Arguments call'd by Rhetoricians, *inartificial*, or *extrinsic Arguments*. See ARGUMENT.

For the Use and Effect of Authorities, see EVIDENCE, REASON, PROBABILITY, FAITH, REVELATION, *&c.*

AUTOCEPHALUS, a Person who is his own Chief or Master, and has no other over him. See ACEPHALUS.

The Word is compounded of the *Greek* αυτος, *ipse*; and κεφαλη, *Caput*, Head.

This Denomination was given by the *Greeks* to certain Archbishops, who were exempted from the Jurisdiction of Patriarchs.—Such was the Archbishop of *Cyprus*, by a general Decree of the Council of *Ephesus*, which freed him from the Jurisdiction of the Patriarch of *Antioch*. See ARCHBISHOP, PATRIARCH, *&c.*

There were several other Bishops in the East, who were *Autocephali*; and in the West, those of *Ravenna* pretended to the same Right.—The VIth Council, Canon 39. says, they have the same Authority with Patriarchs; but this is not to be understood in the full Latitude of the Words; but only as intimating, that the *Autocephali* have the same Authority over their Bishops, that Patriarchs had over their Archbishops: In which Sense only they are equal to Patriarchs. See BISHOP, METROPOLITAN, *&c.*

AUTOGRAPHY, AUTOGRAPH, the very Hand-writing of any Person: Or the Original of a Treatise, or Discourse.—In opposition to a Copy. See HAND-*writing*, ORIGINAL, COPY, *&c.*

The Word is form'd of the two *Greek* Words αυτος, and γραφω, *scribo*.

AUTOMATON, or AUTOMATUM, a self-moving Engine; or a Machine which has the Principle of Motion within it self. See MACHINE and MOTION.

Such were *Archytas*'s Dove, mentioned by *Aulus Gellius*, *Noct. Att.* L. 10. and *Regiomontanus*'s Wooden Eagle, which, as *Hakewill* relates, flew forth of the City, met the Emperor, saluted him, and return'd: As also his Iron Fly, which at a Feast flew out of his Hands, and taking a round, returned thither again. *Apol.* c. 10. §. 1.

Among *Automata* are reckoned all Mechanical Engines which go by Springs, Weights, *&c.* included within them; such are Clocks, Watches, *&c.* See SPRING, PENDULUM, CLOCK, WATCH, *&c.*

The Word is *Greek*, αυτοματον, compounded of αυτος, *ipse*, and ματαω, *facile*; whence αυτοματος, *spontaneous*.—The Cartesians maintain Brutes to be mere *Automata*. See CARTESIANISM, CAUSE, *&c.*

AUTOPSY, AUTOPSIA, an ocular Demonstration; or the seeing a thing one's self. See SIGHT, VISION, *&c.*

The Word is compounded of αυτος, *ipse*, and οψις, *Visus*, Sight

AUTUMN, AUTUMNUS, the third Season of the Year; being that wherein the Harvest, and the Fruits of the Summer are gathered. See SEASON, YEAR, *&c.*

Autumn begins on the Day when the Sun's Meridian Distance from the Zenith, being on the decrease, is a mean between the greatest and least; which happens when the Sun enters ♎. Its End coincides with the beginning of *Winter*. See WINTER, *&c.*

Some derive the Word from *augeo*, I increase, *quod annum frugibus augeat*.

Divers Nations computed the Years by *Autumns*; the *English-Saxons*, by Winters.—*Tacitus* tells us, the antient *Germans* were acquainted with all the other Seasons of the Year, but had no Notion of *Autumn*. *Linwood* observes of the beginning of the several Seasons of the Year, that

Dat Clemens Hyemem, dat Petrus Ver Cathedratus,
Æstuat Urbanus, Autumnat *Bartholomæus*.

AUTUMN, in Alchymy, the Time or Season when the Operation of the Philosopher's-stone is brought to Maturity and Perfection. See ALCHYMY and PHILOSOPHER'*s-Stone*.

AUTUMNAL, something peculiar to *Autumn*. See AUTUMN.

AUTUMNAL *Point*, is one of the Equinoctial Points; being that from which the Sun begins to descend towards the North Pole. See EQUINOCTIAL *Point*.

AUTUMNAL *Equinox*, is the Time when the Sun is in the *Autumnal* Point. See EQUINOX.

AUTUMNAL *Signs* are those through which the Sun passes during the Season of *Autumn*. See SIGN.

The *Autumnal Signs* are *Libra*, *Scorpius*, and *Sagittary*. See LIBRA, SCORPIUS, and SAGITTARIUS.

AUXESIS, in Rhetorick, a Figure, when any thing is magnified too much. See FIGURE and HYPERBOLE.

AUXILIARY, AUXILIARIS, any thing that is helping or assisting to another. See AUXILIUM.

Thus we say a Prince is to trust more to his own Soldiers, than to *Auxiliary* Troops, *&c.*

AUXILIARY *Verbs*, in Grammar, are such as help to form or conjugate others; that is, are prefixed to them to form or denote the Mood and Tense thereof. See VERB, CONJUGATION, *&c.*

Such, in *English* are, *have*, *am*, or *be*; in *French*, *estre* and *avoir*; in *Italian*, *ho* and *sono*, &c.

All the modern Languages we know of make use of *auxiliary* Verbs.—The reason is, that the Verbs thereof do not change their Terminations or Endings, as those of the *Latin* and *Greek*, to denote the different Tenses or Times of being, doing, or suffering; nor the different Moods or Manners of their signifying: So that to supply this defect, recourse is had to different *auxiliar* Verbs. See TERMINATION, TENSE, PERSON, *&c.*

The *Auxiliary am* supplies the want of Passives in our Language. See PASSIVE.

Besides the perfect *auxiliary* Verbs, we have several defective ones; as *do*, *will*, *shall*, *may*, *can*, and *have*; which by changing their own Terminations, save the necessity of changing those of the Verbs they are added to.—Thus, instead of *ego uro*, *tu uris*, *ille urit*, &c. we say, I *do* burn, thou *dost* burn, he *doth* burn, *&c.*

AUXILIUM, in Law. See AID.

AUXILIUM *Curiæ*, signifies an Order of the Court for the summoning of one Party at the Suit of another.

AUXILIUM *ad Filium Militem faciendum & filiam Maritandam*, was a Writ directed to the Sheriff of every County, where the King or other Lord had any Tenants, to levy of them reasonable Aid, towards the Knighting his Son, and the Marriage of his eldest Daughter. See AID.

AWARD, in Law, the Judgment of one who is neither assign'd by Law, nor appointed by the Judge, for ending a Matter in Controversy; but is chosen by the Parties themselves that are at variance. See ARBITRATOR, ARBITRATION, *&c.*

AWN, in Botany, *Arista*; the Beard growing out of the Husk of Corn or Grass. See ARISTA, CORN, *&c.*

AWNING, on board a Ship, is when a Sail, a Tarpaulin, or the like, is hung over any part of the Ship, above the Decks, to keep off the Sun, Rain, or Wind.

In the Long-boat they make an *Awning*, by bringing the Sail over the Yard and Stay; and boming it out with the Boat-hook.

AXILLA, or ALA, in Anatomy, the Cavity under the upper Part of the Arm; commonly called the *Arm-pit*. See ARM.

The Word is a diminutive of *Axis*; q. d. *little Axis*. See Axis.

Abscesses in the *Axillæ* are usually dangerous, on account of the many Blood-Vessels, Lymphaticks, Nerves, *&c.* thereabout, which form large Plexus's. See Ulcer.

By the antient Laws, Criminals were to be hang'd by the *Axillæ*, if they were under the Age of Puberty. See Hanging, Puberty, *&c.*

Axilla, in Botany, is the space comprehended between the Stems of Plants and their Leaves. See Plant, Stem, Leaf, *&c.*

Hence we say, those Flowers grow in the *Axillæ* of the Leaves, *i. e.* at the Base of the Leaves or their Pedicles. See Flower, *&c.*

AXILLARY, Axillaris, in Anatomy, something that belongs to the *Axillæ*, or lies near them. See Axilla.

Axillary *Vein* is one of the subclavian Veins; which passing under the Arm-pits, divides it self into several other Veins. See Subclavian and Vein.

Axillary *Artery* is a Remainder of the Trunk of the subclavian Artery; which passing under the Arm-pits, changes its Name, and is call'd *Axillary*. See Artery.

The second *Vertebra* of the Back is also call'd *Axillary*; in regard it is the neareſt to the Arm-pits. See Axis and Vertebra.

AXINOMANCY, Axinomantia, a Species of Divination, or Method of foretelling future Events by means of an Ax or Hatchet. See Divination.

The Word is form'd from the *Greek* ἀξίνη, *securis*, and μαντεία, *divinatio*.

This Art was in good repute among the Antients; and was performed by laying an Agat-stone on a red-hot Hatchet. See Agat.

AXIOM, Axioma, a self-evident Truth; or a Proposition whose Truth every Person perceives at first sight. See Truth and Proposition.

Thus, that the whole is greater than a Part; that a thing cannot give what it self has not; that a thing cannot be and not be at the same time; that from nothing, nothing can arise, *&c.* are *Axioms*.—The Word is *Greek*, ἀξίωμα, q. d. *dignitas*, *Auctoritas*, or even *Effatum*: Whence *Cicero* in lieu thereof uses the Word *Pronuntiatum*.

By *Axioms*, call'd also *Maxims*, are understood all common Notions of the Mind, whose Evidence is so clear and forcible, that a Man cannot deny them without renouncing common Sense and natural Reason. See Maxim, Evidence, *&c.*

The Rule of *Axioms* is this, that whatever Proposition expresses the immediate clear Comparison of two Ideas without the help of a third, is an *Axiom*.—On the other hand, a Truth which does not arise from an immediate Comparison of two Ideas, is no *Axiom*. See Idea, Relation, *&c.*

Wolfius assigns the Essence of an *Axiom* thus: Whatever Proposition arises immediately from the Consideration of a single Definition, is an *Axiom*.—Thus it necessarily following from the Genesis of a Circle, that all right Lines drawn from the Centre to the Circumference thereof, are equal; inasmuch as they all represent the same Line in different Situations: This is an *Axiom*. See Definition.

Hence, the Truth of *Axioms* being perceived by the meer Intuition of a Definition; they need no Demonstration: Since they are necessarily as true, as the Definition is just. See Demonstration.

Several Authors abuse this Property of *Axioms*, and obtrude for *Axioms* the Premisses of Syllogisms, which they are not able to prove.—*Euclid* himself lies liable to Exception on this Account, having assumed the Equality of Figures which mutually agree, or are congruous to each other, as an *Axiom*. See Congruency.

Axioms, in effect, strictly speaking, are no other than identick Propositions.—Thus to say that all Right Angles are equal to each other, is as much as to say, all Right Angles are Right Angles: Such Equality being implied in the very Definition, the very Name. See Definition.

My Lord *Bacon* proposes a new Science, to consist of general *Axioms*, under the Denomination of *Philosophia prima*. See Philosophy, Knowlenge, *&c.*

Axiom is also an established Principle in some Art or Science. See Principle, *&c.*

Thus, it is an *Axiom* in Physicks, that Nature discovers her-self most in the smallest Subjects; that Nature does nothing in vain; that Effects are proportional to their Causes, *&c.* Thus it is an *Axiom* in Geometry, that things equal to the same third are also equal to one another; that if to equal things you add Equals, the Sums will be Equal, *&c.* So it is an *Axiom* in Opticks, that the Angle of Incidence is equal to the Angle of Reflection, *&c.* It is an *Axiom* in Medicine, *&c.* that there is no sincere Acid in the human Body, *&c.*

In this Sense the general Laws of Motion are call'd *Axioms*; as, that all Motion is Rectilinear, that Action and Re-action are equal, *&c.* See *Laws of* Nature.

These particular *Axioms*, it may be observed, do not immediately arise from any first Notions or Ideas, but are deduced from certain Hypotheses: This is particularly observable in physical Matters, wherein, as several Experiments contribute to make one Hypothesis, so several Hypotheses contribute to one *Axiom*. See Hypothesis, *&c.*

AXIS properly signifies a Line or long Piece of Iron or Wood passing through the Centre of a Sphere, which is moveable upon the same. See Sphere.

In this Sense we say the *Axis of a Sphere*, or Globe; the *Axis*, or *Axle-Tree of a Wheel*, &c. See Globe, Wheel, *&c.*

Axis *of the World*, in Astronomy.—The *Axis of the World* is an imaginary Right Line, conceived to pass through the Centre of the Earth, and terminating at each End in the Surface of the mundane Sphere. See Sphere.

About this Line as an *Axis*, the Sphere, in the Ptolemaic System, is supposed daily to revolve. See Earth and Rotation. See also Ptolomaic.

This *Axis* is represented by the Line PQ, *Tab. Astronomy*, *Fig.* 52.—The two extream Points hereof, in the Surface of the Sphere, *viz.* P and Q, are called its *Poles*. See Pole.

Axis *of the Earth*, is a Right Line, upon which the Earth performs its diurnal Rotation. See Earth, Rotation, *&c.*

Such is the Line PQ, *Tab. Geography*, *Fig.* 7.—The two extream Points hereof are also called *Poles*. See Pole.

The *Axis* of the Earth is a Part of the *Axis* of the World.—It always remains parallel to it self, and at Right Angles with the Equator. See Parallelism.

Axis *of a Planet*, is a Line drawn through the Centre thereof, about which the Planet revolves. See Planet, *&c.*

The Sun, Moon, and all the Planets, except Mercury and Saturn, are known, by Observation, to move about their several *Axes*; and the like Motion is easily infer'd of those two. See Sun, Moon, Mercury, Saturn, *&c.*

Axes *of the Horizon*, the *Equator*, *Ecliptic*, *Zodiac*, &c. are Right Lines drawn through the Centres of those Circles perpendicularly to the Planes thereof. See Circle. See also Horizon, Ecliptic, Equator, *&c.* See also Plane, *&c.*

Axis, in Mechanicks.—The *Axis of a Ballance* is the Line upon which it moves or turns. See Ballance.

Axis *of Oscillation*, is a Right Line parallel to the Horizon, passing through the Centre, about which a Pendulum vibrates. See Oscillation and Pendulum.

Axis, in Geometry.—*Axis of Rotation*, or *Circumvolution*, is an imaginary Right Line, about which any plane Figure is conceived to revolve, in order to generate a Solid. See Solid, Genesis, *&c.*

Thus a Sphere is conceived to be formed by the Rotation of a Semicircle about its Diameter or Axis, and a Right Cone by that of a Right Angle Triangle about its perpendicular Leg, which is here its *Axis*.

Axis *of a Circle or Sphere*, is a Line passing through the Centre of a Circle or Sphere, and terminating at each End, in the Circumference thereof. See Circle and Sphere.

The *Axis of a Circle*, &c. is otherwise call'd the *Diameter* thereof—Such is the Line AB. *Tab. Geometry. Fig.* 27. See Diameter.

Axis is yet more generally used for a Right Line proceeding from the Vertex of a Figure to the Base thereof. See Figure, Vertex, and Base.

Axis *of a Cylinder* is properly that quiescent Right Line about which the Parallelogram turns, by whose Revolution the Cylinder is formed. See Cylinder.

Though, both in Right and Oblique Cylinders, the Right Line joining the Centres of the opposite Bases, is also called the *Axis of the Cylinder*.

Axis *of a Cone* is the Right Line or Side upon which the right angled Triangle forming the Cone makes its Motion. See Cone.

Hence it follows that only a Right Cone can properly have an *Axis*; in regard an Oblique one cannot be generated by any Motion of a Plane Figure about a Right Line at rest.

But in Regard the *Axis* of a Right Cone is a Right Line drawn from the Centre of its Base to the Vertex; in Analogy hereto the Writers of Conicks do likewise call the same Line drawn from the Centre of the Base of an Oblique Cone to the Vertex, the *Axis* thereof.

Axis *of a Vessel*, is that Quiescent Right Line passing through the Middle thereof, perpendicularly to its Base, and equally distant from its Sides.

Axis *of a Conick Section*, is a Right Line passing through the Middle of the Figure, and cutting all the Ordinates at Right Angles. See Conick *Section*.

Thus if AP, *Tab. Conicks*, *Fig.* 31. be drawn perpendicularly to MN, so as to divide the Section into two equal Parts; it is called the *Axis of the Section*. See Section.

Transverse Axis, called also the *first* or *principal* Axis of an Ellipsis or Hyperbola, is the *Axis* AP, last defined: Being thus called in contradistinction to the conjugate or secondary *Axis*. See Transverse.

The Transverse *Axis* in the Ellipsis the longest; and in the Hyperbola cuts the Curve in the Points A and P. *Fig.* 32.

Conjugate Axis, or *second* Axis *of the Ellipsis*, is the Line FF, *Fig.* 31. drawn through the Centre of the Figure C, parallel to the Ordinate MN, and perpendicularly to the Transverse *Axis* AP; being terminated at each extream by the Curve. See Ellipsis.

The

The Conjugate is the shorter of the two *Axes* of an Ellipsis. See CONJUGATE.

Conjugate, or *second* AXIS *of an Hyperbola*, is the Right Line FF, *Fig* 32. drawn through the Centre parallel to the Ordinates, M N, M N, perpendicularly to the *Axis* AP. See HYPERBOLA.

The Length of this *Axis*, though more than infinite, may be found by this Proportion, $\sqrt{AM \times PM} : AP :: {}^2MN : FF$.

AXIS *of a Parabola*. See PARABOLA.

The *Axis of a Parabola* is of an indeterminate Length, that is is infinite.—The *Axis* of the Ellipsis is determinate.—The Parabola has only one *Axis*; the Ellipsis and Hyperbola two. See CURVE.

AXIS *in Opticks*.—*Optick* AXIS, or *Visual Axis*, is a Ray passing through the Centre of the Eye; or it is that Ray which proceeding out of the Middle of the luminous Cone, falls perpendicularly on the crystalline Humour, and consequently passes through the Centre of the Eye. See OPTICK, RAY, CONE, VISION, *&c.*

Common or *mean* AXIS, is a Right Line drawn from the Point of Concourse of the two optick Nerves, through the Middle of the right Line, which joins the Extremity of the same optick Nerves. See OPTICK *Nerve*.

AXIS *of a Lens*, or *Glass*, is a right Line passing along the *Axis* of that Solid whereof the Lens is a Segment. See LENS and GLASS.

Thus a spherical convex Lens, being a Segment of some Sphere; the *Axis* of the *Lens* is the same with the *Axis* of the Sphere; or it is a right Line passing through the Centre thereof. See CONVEX, *&c.*

Or the *Axis* of a Glass is a right Line joining the Middle Points of the two opposite Surfaces of the Glass. See OPTICK *Glass*.

AXIS *of Incidence*, in Dioptricks, is a right Line drawn through the Point of Incidence, perpendicularly to the refracting Surface. See INCIDENCE.

Such is the Line DB, *Tab. Opticks, Fig.* 56.

AXIS *of Refraction*, is a right Line continued from the Point of Incidence or Refraction, perpendicularly to the refracting Surface, along the further Medium.—Such is the Line BE.

Or it is that made by the incident Ray, perpendicularly prolonged on the Side of the second Medium. See REFRACTION.

AXIS *of a Magnet*, or *Magnetical* AXIS, is a Line passing thro' the middle of a Magnet, length-wise; in such manner, as that however the Magnet be divided, provided the Division be according to a Plane wherein such Line is found, the Loadstone will be made into two Loadstones. See MAGNET and MAGNETISM.

The extreams of such Lines are called the Poles of the Stone. See POLE and POLARITY.

AXIS, in Anatomy, is the third Vertebra of the Neck; reckoning from the Skull. See VERTEBRA.

'Tis thus called by reason the two first Vertebræ, with the Head, move thereon, as on an *Axis*. See HEAD and NECK.

Spiral AXIS, in Architecture, is the *Axis* of a twisted Column, drawn spirally, in order to trace the Circumvolutions without. See *Twisted* COLUMN.

AXIS *of the Ionick Capital*, is a Line passing perpendicularly through the middle of the Eye of the Volute. See IONIC and VOLUTE.

The *Axis* is otherwise call'd *Cathetus*. See CATHETUS.

AXIS *in Peritrochio*, is one of the five mechanical Powers, or simple Machines; contrived chiefly for the raising of Weights to a considerable Height. See MECHANICAL *Power*, &c.

It consists of a Circle, represented AB, (*Tab. Mechanicks, Fig.* 44.) concentric with the Base of a Cylinder, and moveable together with it, about its *Axis* EF.—This Cylinder is call'd the *Axis*; the Circle, the *Peritrochium*; and the *Radii*, or Spokes, which are sometimes fitted immediately into the Cylinder, without any Circle, the *Scytale*. See PERITROCHIUM.

Round the *Axis* winds a Rope, whereby the Weight, *&c.* is to be rais'd.

The *Axis in Peritrochio* takes place in the Motion of every Machine, where a Circle may be conceived described about a fix'd *Axis*, concentric to the Plane of a Cylinder about which it is placed; as in Crane-Wheels, Mill-Wheels, Capstans, *&c.* See WHEEL.

Doctrine of the AXIS *in Peritrochio.*

1. If the Power, applied to an *Axis in Peritrochio*, in the Direction AL, *Fig.* 7. perpendicular to the Periphery of the Wheel, or to the Spoke, be to a Weight G, as the Radius of the *Axis* CE, is to the Radius of the Wheel CA, or the Length of the Spoke; the Power will just sustain the Weight, *i. e.* the Weight and the Power will be *in Equilibrio*.

2. If a Power be applied to the Wheel in F, according to the Line of Direction FD, which is oblique to the Radius of the Wheel, though parallel to the perpendicular Direction; it will have the same Proportion to a Power which acts according to the perpendicular Direction AL, which the whole Sine has to the Sine of the Angle of the Direction DFC.

Hence, since the Distance of the Power in A, is the Radius CA; the Angle of Direction DFC being given; the Distance DC is easily found.

3. Powers applied to the Wheel in several Points, F and K, according to the Directions, FD and KI, parallel to the perpendicular one AL, are to each other as the Distances from the Centre of Motion CD and DI, reciprocally.

Hence, as the Distance from the Centre of Motion increases; the Power decreases; *& vice versa*.—Hence also, since the Radius AC is the greatest Distance, and agrees to the Power acting according to the Line of Direction; the perpendicular Power will be the smallest of all those able to sustain the Weight G, according to the several Lines of Direction.

4. If a Power acting according to the Perpendicular AL, lift the Weight G; the Space of the Power will be to the Space of the Weight, as the Weight to the Power.

For, in each revolution of the Wheel, the Power passes thro' its whole Periphery; and in the same time the Weight is rais'd a Space equal to the Periphery of the *Axis*: The Space of the Power, therefore, is to the Space of the Weight, as the Periphery of the Wheel to that of the *Axis*: But the Power is to the Weights as the Radius of the *Axis* to that of the Wheel. Therefore, *&c.*

5. *A Power, and a Weight being given, to construct an* AXIS *in* Peritrochio, *whereby it shall be sustain'd.*

Let the Radius of the *Axis* be big enough to support the Weight without breaking. Then, as the Power is to the Weight; so make the Radius of the Wheel, or the Length of the Spoke, to the Radius of the *Axis*.

Hence, if the Power be but a small part of the Weight, the Radius of the Wheel must be vastly great.—*E. gr.* Suppose the Weight 3000, and the Power 50, the Radius of the Wheel will be to that of the *Axis* as 60 to 1.

This Inconvenience is provided against by encreasing the number of Wheels and Axes; and making one turn round another, by means of Teeth or Pinions. See WHEEL.

AXUNGIA, a kind of Fat, the softest and moistest of any in the Bodies of Animals. See FAT.

It is different from *Lard*, which is a firm Fat; and from *Suet* Leaf, or Adeps, which is a kind of dry Fat.

The *Latins* distinguish Fat into *Pinguedo*, call'd also *Axungia*; and *Adeps*, or *Sevum*; but many of our modern Writers confound them. See PINGUEDO.

The Physicians make use of the *Axungia* of the Goose, the Dog, the Viper, and some others, especially that of Man, which is of extraordinary Service in the drawing and ripening of Tumors, *&c.* See ATTRAHENT. See also VIPER, *&c.*

The Word is supposed to be form'd, *ab Axe Rotarum quæ unguntur*.

AXUNGIA *of Glass*, call'd also the *Gall*, and *Salt of Glass*, is a Scum taken from the Top of the Matter of Glass before it be vitrified. See GLASS.

AYEL, in Law, a Writ which lies where the Grandfather being seized in his Demesn the Day he died, a Stranger enters the same Day, and dispossesses the Heir. See WRIT.

AYRY, or *Aery* of Hawks, a Nest or Company of Hawks; so call'd from the old *French* Word *Aire*, which signifies the same thing. See HAWK and HAWKING

AYZAMENTA. See EASEMENTS.

AZIMUTH, in Astronomy.—The *Azimuth of the Sun*, or *a Star*, is an Arch of the Horizon, comprehended between the Meridian of the Place, and any given Vertical. See MERIDIAN and VERTICAL.

The *Azimuth* is the Complement of the Eastern and Western Amplitude to a Quadrant. See AMPLITUDE.

The *Azimuth* is found by this Proportion; as Radius is to the Tangent of the Latitude, so is the Tangent of the Sun's Altitude to the Cosine of the *Azimuth* from the South, at the time of the Equinox.

To find the Azimuth by the Globe, see GLOBE.

The Word is pure *Arabick*, where it signifies the same thing.

Magnetical AZIMUTH, is an Arch of the Horizon contained between the Sun's *Azimuth*-Circle, and the magnetical Meridian; or it is the apparent Distance of the Sun from the North or South Point of the Compass. See MAGNETICAL.

It is found, by observing the Sun with an *Azimuth* Compass, when he is about 10 or 15 Degrees high, either in the Forenoon Afternoon. See *Azimuth* COMPASS.

AZIMUTH *Compass* is an Instrument used at Sea for finding the Sun's magnetical *Azimuth*. See *Magnetical* AZIMUTH.

The Description and Use of the *Azimuth Compass*, see under the Article *Azimuth* COMPASS.

AZIMUTH *Dial*, is a Dial whose Style or Gnomon is at right Angles to the Plane of the Horizon. See DIAL.

AZIMUTHS, call'd also vertical Circles, are great Circles intersecting each other in the Zenith and Nadir, and cutting the Horizon at right Angles. See VERTICAL.

The Horizon being divided into 360°; for this reason they usually conceive 360 *Azimuths*.—These *Azimuths* are represented by the Rhumbs on Sea Charts. See HORIZON, RHUMB, CHART, *&c.*

On the Globe these Circles are represented by the Quadrant of Altitude when screw'd in the Zenith. See GLOBE, QUADRANT *of Altitude*, &c.

On these *Azimuths* is reckoned the Heighth of the Stars and the Sun, when he is not on the Meridian. See ALTITUDE, SUN, STAR, *&c.*

AZONES, in Mythology, a Term antiently applied to such of the Gods as were not the private Divinities of any particular Country or People, but were acknowledg'd as Gods in every Country, and worshipp'd by every Nation. See GOD.

The Word is derived from the *Greek* privative α, and ζώνη, Zone, Country.

These *Azones* were a Degree above the visible and sensible Gods, which were call'd *Zonæi*; who inhabited some particular Part of the World, and never stirr'd out of the District or Zone that was assign'd them.

AZOTH, among the antient Chymists, signified, sometimes, the first Matter of Metals; sometimes an universal Medicine; and sometimes the Mercury of a Metal.—But the Term is now disused. See METAL, MERCURY, *&c.*

AZURE, the blue Colour of the Skies. See BLUE, COLOUR, SKY, *&c.*

AZURE, in Heraldry, signifies a blue Colour, in the Coats of Arms of all Persons under the Degree of a Baron. See COLOUR.

In the Escutcheons of Noblemen, Blue is call'd *Saphir*; and in those of sovereign Princes, *Jupiter*.

In engraving, it is represented by Strokes or Hatches drawn horizontally, as in the annexed Figure.

The *French* prefer this Colour to all others, by reason the Field of the Arms of their Kings is *Azure*.

AZURE is also used for a mineral Colour, prepared from the *Lapis Armenus*. See ARMENUS.

The *Azure* is very near a-kin to Ultramarine; being procured from the Armenian Stone much after the same Manner as the other is from *Lapis Lazuli*. See ULTRAMARINE and LAPIS *Lazuli*.

AZYGOS, in Anatomy, a Vein otherwise called *Vena sine pari*, because single. See VEIN.

The *Vena Azygos* is the third Branch of the ascending Trunk of the *Cava*.—It descends through the right Side of the Cavity of the *Thorax*, and at its arrival at the eighth or ninth *Vertebra*, begins to keep the Middle, and sends forth on each Side, intercostal Branches to the Interstices of the eight lower Ribs; and there is divided into two Branches, the larger of which is inserted sometimes into the *Cava*, but oftener into the Emulgent: The other enters the *Cava*, commonly a little below the Emulgent, but is seldom joined to the Emulgent it self. See CAVA and EMULGENT.

AZYMITES, they who Communicate with Bread not leavened or fermented. See AZYMUS.

This Appellation is given by *Cerularius*, to those of the *Latin* Church, upon his Excommunicating them in the XIth Century.

The *Armenians* and *Maronites* do also make use of *Azymus*, or unleavened Bread, in their Office; on which Account some *Greeks* call them *Azymites*. See ARMENIAN and MARONITE.

AZYMUS, something not fermented, or that is without Leaven. See FERMENT and LEAVEN.

The Term *Azymus* is much used in the Disputes betwixt those of the *Greek* and *Romish* Church; the latter of whom contend, that the Bread in the Mass ought to be *Azymus*, unleaven'd, in imitation of the paschal Bread of the *Jews*, and of our Saviour, who instituted the Sacrament on the Day of the Passover; and the latter strenuously maintaining the former, from Tradition, and the constant Usage of the Church. See SACRAMENT, EUCHARIST, *&c.*

This Dispute was not the Occasion of the Rupture between the *Greek* and *Latin* Churches; *Photius* having broke with the Popes 200 Years before.—The Patriarch *Cerularius*, in the XIth Century, excommunicated the *Latins* for adhering to the Use of *Azymus* Bread.

St. *Thomas*, in 4 *Sent. Dist.* 11. q. 2. *Art.* 2. *Quæstiunc.* 3. relates, that during the first Ages of the Church, none but unleavened Bread was used in the Eucharist, 'till such time as the *Ebionites* arose, who held that all the Observances prescribed by *Moses* were still in force: Upon which, both Eastern and Western Churches took to the Use of leaven'd Bread; and after the Extinction of that Heresy, the Western Church returned to the *Azymus*; the Eastern pertinaciously adhering to the former Usage.

This Account is controverted by Fa. *Sirmond*, in a Dissertation express; wherein he shews, that the *Latins* had constantly communicated in leaven'd Bread, till the Xth Century. And Cardinal *Bona*, *Rerum Liturgic*, c. 23. p. 185. owns a deal of distrust of what St. *Thomas* alledges.—In the Council of *Florence* it was decreed that the Point lay at the Discretion of the Church; and that either leavened or unleavened Bread might be used: The Western Church has preferred the latter.

The Word is derived from the *Greek* ἄζυμος, *sine fermento*, which is composed of the privative α, and ζύμη, *Ferment*.

B.

B, THE second Letter of our Alphabet, and of most others, is the first Consonant, and first Mute, and in its Pronunciation resembles the Bleating of a Sheep; upon which account *Pierius* tells us in his Hieroglyphicks, that the *Egyptians* represented the Sound of this Letter by the Figure of that Animal. 'Tis also one of those Letters which the *Eastern* Grammarians call *Labial*, because the principal Organs employ'd in its Pronunciation, are the Lips. It has a near Affinity with the other *Labials* P and V, and is often used for P both by the *Armenians* and other *Orientals*, as in *Betrus* for *Petrus*, *apsens* for *absens*, &c. and by the *Romans* for V, as in *amabit* for *amavit*, *Berna* for *Verna*, &c. whence arose that Jest of *Aurelian* on the Emperour *Bonosus*, *Non ut vivat natus est, sed ut bibat.* B requires an intire Closure and Pressure of the Lips to pronounce it, and therefore can scarce ever end the Sound of a Word: But when you endeavour to pronounce it there, you are obliged to add an E to open the Lips again, as in *Job*, which is sounded *Jobe*. This Letter also if it pass through the Nose, becomes an M; as appears by those who have the Nostrils stopt by a Cold or otherwise, when they endeavour to pronounce the Letter M; for Instance, *many Men*, is by such an one sounded *bany Ben*. With the Antients B stood for 300, as appears by this Verse:

Et B *trecentum per se retinere videtur.*

When a Line was drawn above it, $\overline{B}$, it stood for 3000, with a kind of Accent below it for 200; but among the *Greeks* and *Hebrews* this Letter signified only 2. B F in the Preface to the *Decrees* or *Senatus-Consulta* of the old *Romans*, signified *Bonum*. 'Tis often found on Medals to mark the *Epocha*. *Plutarch* observes that the *Macedonians* changed Φ into B, and pronounced *Bilip*, *Beronice*, &c. for *Philip*, *Pheronice*, &c. and those of *Delphos* instead of B used Π, as βάδειν for πάδειν, βικὸν for πικὸν, &c. The *Latins* said *suppono*, *oppono*, for *subpono*, *obpono*, and pronounced *optinuit*, tho they wrote *obtinuit*, as *Quintilian* has observed. They also used B for F or PH; thus in an antient Inscription mentioned by *Gruter*, OBRENDARIO is used for OFRENDARIO.

BABYLONISH *Hours*. See *Hours*.

BACCHANALIA, a Religious Feast in Honour of *Bacchus*, celebrated with much Solemnity among the Antients, particularly the *Athenians*, who even computed their Years thereby, till the Commencement of the *Olympiads*. The *Bacchanalia* are sometimes also call'd *Orgia*, from the *Greek* ὀργὴ, Fury, Transport; by reason of the Madness and Enthusiasm wherewith the People appear'd to be possess'd at the Time of their Celebration. They were held in Autumn, and took their Rise from *Egypt*; whence, according to *Diodorus*, they were brought into *Greece* by *Melampus*. The Form and Disposition of the Solemnity depended, at *Athens*, on the Archon, and was at first exceedingly simple, but by degrees became incumber'd with a world of ridiculous Ceremonies, and attended with a world of Dissoluteness and Debauchery; insomuch that the *Romans*, who grew asham'd of 'em, suppress'd them by a *Senatus-consultum* throughout all *Italy*. The Women had a great Share in the Solemnity, which is said to have been instituted on their account; for a great Number of 'em attending *Bacchus* to the Conquest of the *Indies*, and carrying in their Hands the *Thyrsus*, i. e. a little Lance cover'd with Ivy and Vine-Leaves, singing his Victories and Triumphs wherever they went, the Ceremony was kept up after *Bacchus*'s Deification under the Title of *Bacchanalia*, and the Women were install'd Priestesses thereof under that of *Bacchantes*. These Priestesses at the Time of the Feast run thro the Streets and over the Mountains cover'd with Tygers Skins, their Hair dishevell'd, their *Thyrsus* in one Hand and Torches in the other, bowling and shrieking *Euhoe Evan*, *Euhoe Bacche*. Men and Women met promiscuously at the Feast, all perfectly naked, except for the Vine-Leaves and Clusters of Grapes which bound their Heads and Hips; here they danced and jump'd tumultuously, and with strange Gesticulations sung Hymns to *Bacchus*, till weary and giddy they tumbled down distracted. See *Castellanus's Eortologion*.

BACCHIUS, in the *Latin* Poetry, is a particular Kind of Foot, consisting of three Syllables; where the first is short, and the two last long, as *Egestas*: It is the Reverse of a *Dactyle*, and takes its Name from that of *Bacchus*, because frequently used in the Hymns composed in his Honour.

BACCIFEROUS *Plants*, whether Trees, Shrubs, or Herbs, are such as bear Berries, *i. e.* Fruit cover'd with a thin Membrane, wherein is contained a Pulp, which grows soft and moist when ripe, and encloses the Seed within its Substance. The *Bacciferous* Trees Mr. *Ray* divides into four Kinds: (1.) Such as bear a caliculate or naked Berry; the *Flower* and *Calix* both falling off together, and leaving the Berry bare, as the *Sassafras* Tree, &c. (2.) Such as have a naked monopyreneous Fruit, that is, containing in it only one Seed, as the *Arbutus*, *Terebinthus*, *Lentiscus*, &c. (3.) Such as have a naked but polypyreneous Fruit, that is, containing two or more Kernels or Seeds within it, as the *Jasaminum*, *Ligustrum*, &c. (4.) Such as have their Fruit composed of many *Acini*, or round soft Balls set close together like a Bunch of Grapes, as the *Uva marina*, *Rubus vulgaris*, *Rubus Idæus*, and the *Rubus minor fructu cæruleo*. See *Plant*.

BACILLI, in *Medicine*, such Compositions as are of a cylindrical Figure, like a Stick; call'd also Lozenges: from the *Latin* Word *Baculus*, a Staff.

BACK-STAFF, in Navigation, an Instrument by the *French* called the *English Quadrant*; invented by Captain *Davis*: of good Use in taking the Sun's Altitude at Sea. It consists of three Vanes, A, B, and C, and of two Arches. [*Plate of Navigation, Fig.* 5.] The Vane at A called the Horizon-Vane; that at B the Shade-Vane; and that at C the Sight-Vane. The lesser Arch B is of 60 Degrees, and that of C (or *f g*) of 30 Degrees.

To Use the Back-Staff; the Shadow-Vane B is set upon the *60th* Arch, to an even Degree of some Altitude less by 10 or 15 Degrees, than you judge the Complement of the Sun's Altitude will be: The Horizon-Vane is put on at A, and the Sight-Vane on the *30th* Arch *f g*: The Observer's Back being then turned to the Sun (whence the Name of *Back-Staff* or *Back-Quadrant*) he lifts up the Instrument, and looks thro the Sight-Vane, raising or falling the Quadrant, till the Shadow of the upper Edge of the Shade-Vane fall on the upper Edge of the Slit in the Horizon-Vane; and then if you can see the Horizon thro the said Slit, the Observation is well made: But if the Sea appear instead of the Horizon, move the Sight-Vane lower towards *g*: If the Sky appear, move it upwards towards *f*, and so try if it comes right: Then observe how many Degrees and Minutes are cut by that Edge of the Sight-Vane which answers to the Sight-Hole, and to them add the Degrees cut by the upper Edge of the Shade-Vane, the Sum is the Sun's Distance from the *Zenith*, or the Complement of his Altitude. To find the Sun's Meridian, or greatest Altitude on any Day, continue the Observation as long as the Altitude is found to increase, which you will perceive by the Appearance of the Sea instead of the Horizon, removing the Sight-Vane lower: but when you perceive the Sky appear instead of the Horizon, the Altitude is diminish'd; therefore desist from farther Observation at that Time, and add the Degrees upon the 60 Arch to the Degrees and Minutes upon the 30 Arch, and the Sum is the *Zenith* Distance, or Co-altitude of the Sun's upper Limb.

And because it is the *Zenith* Distance, or Co-altitude of the upper Limb of the Sun, not the Center that is given by the Quadrant, in observing by the upper End of the Shade-Vane, add 16 Minutes, the Sun's Semidiameter, to that which is produced by your Observation, and the Sum is the true *Zenith* Distance of the Sun's Center. If you observe by the lower Part of the Shadow of the Shade-Vane; then the lower Limb of the Sun gives the Shadow; and therefore you must substract 16 Minutes from what the Instrument gives: But considering the Height of the Observer above the Surface of the Sea, which is commonly between 16 and 20 Foot, you may take 5 or 6 Minutes from the 16 Minutes, and make the Allowance but of 10 Minutes, or 12 Minutes, to be added instead of 16 Minutes. Mr. *Flamstead* contrived a Glass *Lens*, or double Convex, to be placed in the middle of the Shade-Vane, which makes a small bright Spot on the Slit of the Horizon-Vane, instead of the Shade: Which is a great Improvement, if the Glass be truly made; for by this means the Instrument may be used in hazy Weather, and

a much more accurate Observation made in clear Weather, than could be by the Shadow.

BACK-BONE. See *Spina Dorsi*.

BACK-STAYS *of a Ship*, are Ropes whose Use is to keep the Mast from falling aft: All Masts, Top-Masts and Flag-Staves have Stays, except the Sprit-Sail-Top-Mast; the Stay of the Main-Mast, which is called the *Main-Stay*, is by a Lannier fasten'd to a Collar which comes about a Knee belonging to the Head; the Main-Top-Mast-Stay is fasten'd to the Head of the Fore-Mast by a Strap, and a Dead-Man's Eye; and so is the Main-Top-Gallant-Mast stayed to the Head of the Fore-Top-Mast: The Fore-Mast and Masts belonging to it, are in the same manner stayed to the Bold-Sprit and Sprit-Sail, Top-Sail Mast, which Stays do likewise stay the Bolt-Sprit it self. The Mizzen-Stay comes to the Main-Mast by the Half-Deck, and the Top-Mast-Stays come to the Shrowds with Crows-Feet. The Length of the Stay is the same with that of the Mast it belongs to; the Main-Mast, Fore-Mast, with the Masts belonging to them, have also *Back-Stays*, which help to keep the Mast from pitching forward or over-board, because they go on either Side of the Ship.

BACULE, in Fortification, a Kind of Portcullis or Gate, made like a Pit-fall with a Counter-Poise, and supported by two great Stakes: It is usually made before the *Corps-de-Garde* advancing near the Gates.

BACULOMETRY, the Art of Measuring accessible and inaccessible Lines, by the help of one or more Staves.

BACULUS DIVINATORIUS, or *Virgula Divina*; A Branch of Hazle-Tree, fork'd, used for the Discovery of Mines, Springs, &c. See *Virgula divina*.

BADGER, from the French *Bagagier*, i. e. a Carrier of Luggage; a licens'd Huckster, or Person that buys Corn or other Provisions, and carries them from one Place to another to make Profit of.

BAG, in Commerce a Term used to signify different Quantities of Commodities; a Bag of Almonds, for instance, is about 3 Hundred Weight, of Annifeed from 3 to 4 Hundred, of Pepper from 1 $\frac{5}{4}$ to 3 Hundred, of Goats-Hair from 2 to 4 Hundred, of Cotton-Yarn from 2 $\frac{5}{2}$ to 4 $\frac{5}{4}$, &c.

BAGNIO, an *Italian* Term signifying a *Bath*. Hence *Bagnio* is become a general Name in *Turkey* for the Prisons where their Slaves are inclosed; it being usual in those Prisons to have *Baths*. See *Baths*.

BAGNOLIANS, a Sect of *Hereticks* in the Eighth Century; in reality *Manichees*, tho they disguis'd their Errors. They rejected the *Old Testament*, and Part of the *New*; held the World to be Eternal; and affirm'd God did not create the Soul, when he infus'd it into the Body. They derive their Name from *Bagnols*, a City in *Languedoc*.

BAGPIPE, a Musical Instrument of the Wind-kind; chiefly used in Country Places. It consists of two principal Parts: The first a Leathern Bag, which blows up like a Foot-Ball, by means of a Portvent, or little Tube fitted to it, and stopp'd by a Valve. The other Part consists of three Pipes, or Flutes; the first called the Great Pipe, or Drone, and the second the Little one; which pass the Wind out only at Bottom: The third has a Tongue, and is play'd on by compressing the Bag under the Arm, when full, and opening or stopping the Holes, which are eight, with the Fingers. The little Pipe is ordinarily a Foot long, that play'd on 13 Inches, and the Portvent six. The *Bagpipe* takes in the Compass of three Octaves.

BAGUETTE, in Architecture, a little round Moulding less than an *Astragal*, sometimes carv'd, and enrich'd with Foliages, Pearls, Ribbands, Laurels, &c. Tho according to *M. le Clerc*, when the *Baguette* is enrich'd with Ornaments, it changes its Name, and is called *Chapelet*.

BAILE, or *Bale*; the Seamen call Lading or Casting the Water by Hand out of a Boat, *Bailing*, and when the Water is thus *bailed* out, they say, *The Boat is freed*. They call also those Hoops that bear up the Tilt of the Boat *Bailes*.

BAIL, in Law, from the French *Bail*, a Guardian, or Goaler; is used for the setting at Liberty one arrested or imprisoned upon an Action, either Civil or Criminal, under Sureties taken for his Appearance at a Day and Place assigned. 'Tis call'd *Bail*, because hereby the Party confined is delivered into the Hands of those who bind themselves for his forth-coming: perhaps from the French *Bail*, *locatio*, a letting out any thing to Farm, &c. *Bail* is either Common or Special: *Common Bail* is in Actions of small Prejudice or slight Proof, in which Cases any Sureties are taken: *Special Bail* is given in Cases of greater Moment, where 'tis requir'd that the Sureties be Subsidy Men at the least, and according to the Value. *Manwood* distinguishes between *Bail* and *Mainprise* thus: He that is *mainprised* is said to be at large, and to go about at his Liberty, without Ward, till the Time of Appearance; whereas he who is let to *Bail* to two or more Men, is always accounted by Law, to be in their Ward and Custody for the Time; and they may, if they please, actually keep him in Prison.

Bale in Commerce, a Pack or certain Quantity of Merchandize, as a *Bale* of Spicery, of Books, or Thread.

BAILEMENT, a Term in Law, signifying the Delivery of Things, whether Writings or Goods, to another; but sometimes to the *Bailor*, that is, back to him who deliver'd them; sometimes to the Use of him to whom they are deliver'd; and sometimes to a third Person.

BAILIFF, in its Original signifies *Guardian*, and is used to express an Officer who does Justice in a certain District or Territory. *Pasquier* maintains, that *Bailiffs* were originally a Kind of Commissioners, or Judges Delegate, sent into the Provinces to examine whether or no Justice were well distributed by the Counts, who were then the Ordinary Judges. *Loyseau* refers the Origin of *Bailiffs* to the Usurpation and Idleness of the great Lords, who having got the Administration of Justice into their own Hands, and being weary of the Burden, turn'd it over to their Commissioners, whom they call'd *Bailiffs*. The *Bailiffs* had at first the Intendance of Arms, of Justice, and of the Finances; but abusing their Power, they were by degrees stripp'd of it, and the greatest Part of their Authority transferr'd to their Lieutenants, who were to be Men of the Long Robe. 'Tis true, in *France* they have still some Prerogatives, as being reputed the Heads of their respective Districts; in their Name Justice is administred, Contracts and other Deeds passed, and to them is committed the Command of the Militia. From these it was that the *English Bailiffs* originally took both their Name and their Office: For as the *French* have eight Parliaments, which are supreme Courts, whence no Appeal lies, within the Precincts of the several Parliaments, or Provinces, and in which Justice is administred by *Bailiffs*, at least by their Lieutenants; so in *England* are several Counties wherein Justice was administred by a Viscount or Sheriff, who appears likewise to have been called *Bailiff*, and his District or County *Bailiwick*. Further, the Counties were again subdivided into Hundreds; within which 'tis manifest Justice was antiently render'd by Officers call'd *Bailiffs*. But those Hundred-Courts are now swallow'd up by the County-Courts, certain Franchises alone excepted, (see *County* and *Hundred*) and the *Bailiffs* Name and Office is grown into such Contempt, at least these *Bailiffs* of Hundreds, that they are now no more than bare Messengers, and Mandatories within their Liberties, to serve Writs, and such mean Offices. These *Bailiffs* are of two Kinds, *viz. Bailiffs Errant*, and *Bailiffs of Franchises*. *Bailiffs Errant* are those whom the Sheriff appoints to go up and down the County to serve Writs, summon County-Courts, Sessions, Assizes, &c. *Bailiffs of Franchises* are those who are appointed by every Lord within his Liberty, to do such Offices therein, as the *Bailiff Errant* does at large in the County. There are also *Bailiffs of the Forest*, and *Bailiffs of Mannors*, who direct the Husbandry, fell Trees, gather Rents, pay Quit-Rents, &c. The Word *Bailiff* still retains some of its antient Significancy; being applied to the Chief Magistrates of several Corporate Towns, as *Ludlow*, *Leominster*, &c. And again, the Government of some of the King's Castles is committed to Persons call'd *Bailiffs*, as the *Bailiff* of *Dover* Castle. *Borel* derives the Word *Bailiff* from the *Greek* βουλὴ, Counsel. *Cambden* will have *Bailiff* to have been a Term used in the *Lower Empire*, and to have passed thence into *Sicily*, so to *France* and *England*, signifying *Conservator*. This is certain, we frequently find the Word *Bajulus*, and sometimes *Baylus*, to signify a Judge, whence *Bailiff* was easily form'd.

BAILIWICK the Place of the Jurisdiction of a *Bailiff* within his Hundred or Lord's Franchise.

BAIRAM, a Feast of the *Turks*, which they celebrate after the Fast of *Ramazan*. 'Tis kept twice in the Year, once immediately after *Ramazan*, which they call *Grand Bairam*, and again 70 Days after, which they call *Little Bairam*. *Bairam* holds for three Days, during which no Work is done; but Presents pass from one to another with many Manifestations of Joy. If the Day after *Ramazan* should prove so cloudy, as to prevent the Sight of the New-Moon, *Bairam* is put off to the next Day, when it begins tho the Moon be still obscured. When they celebrate this Feast; after numerous Ceremonies, or rather strange Mimickries, in their Mosque, they end it with a solemn Prayer against the *Infidels*, to root out Christian Princes, or to arm them one against another, that they may have an Opportunity to extend the Borders of their Law.

BAJULUS, an Officer in the Court of the *Greek* Emperors. The *Bajuli* were the *Præceptors* of the Emperors, whereof there were several Degrees; the *Grand Bajulus*; and the *Bajuli* who were the *Sub-Præceptors*. The first Officer who bore this Title was *Antiochus*, in the Time of the younger *Theodosius*. Hence the *Italians* use the Word *Bajulus of the Kingdom*, in the same Sense with the *Protector* of the Kingdom in *England*.

BAKING, the Art of preparing Bread, or of reducing Meals of any Kind, whether simple or compound, into Bread.

Bread. The Forms of *Baking* are various, but may be reduced to two; the one for unleavened, the other for leavened Bread: for the first the chief is *Manchet-Baking*, the Process whereof is as follows. The Meal ground and bolted is put into a Trough, and being opened in the Middle, to a Bushel is poured in about three Pints of warm Ale, with Barm and Salt to season it. This is kneaded together with the Hands thro the Brake; or for want thereof with the Feet thro a Cloth: after having lain an Hour to swell, 'tis molded into Manchets; which, scotch'd in the Middle, and prick'd a-Top to give room to rise, are baked in the Oven by a gentle Fire. For the second, call'd *Cheat-Bread-Baking*, 'tis thus: The Meal being in the Trough, some Leaven (saved from a former Batch fill'd with Salt laid up to sour, and at length dissolved in warm Water) is strain'd thro a Cloth into a Hole made in the Middle of the Heap, and work'd with some of the Flower to a moderate Consistence; this is covered up with Meal, where it lies all Night, and in the Morning the whole Heap is stirr'd up and mixt together with a little warm Water, Barm and Salt, by which it is season'd, stiffen'd, and brought to an even Leaven: 'tis then kneaded or trodden, molded and *baked* as before.

The Learned are in great doubt about the Time when *Baking* first became a particular Profession, and *Bakers* were introduced. 'Tis generally agreed they had their Rise in the East, and pass'd from *Greece* to *Italy* after the War with *Pyrrhus*, about the Year of *Rome* 583. Till which time every Housewife was her own *Baker*: For the Word *Pistor*, which we find in the *Roman* Authors, before that time signified a Person who ground or pounded the Grain in a Mill or Mortar to prepare it for *Baking*, as *Varro* observes. According to *Athenæus*, the *Cappadocians* were the most applauded *Bakers*, after them the *Lydians*, then the *Phœnicians*. To the foreign *Bakers* brought into *Rome*, were added a Number of Freed-Men, who were incorporated into a Body, or, as they call it, a College; from which neither they nor their Children were allowed to retire. They held their Effects in common, and could not dispose of any Part of 'em. Each *Bake-house* had a *Patronus*, who had the Superintendency thereof; and these *Patroni* elected one out of their Number each Year, who had the Intendence over all the rest, and the Care of the College. Out of the Body of the *Bakers* were every now and then one admitted among the Senators. To preserve Honour and Honesty in the College of *Bakers*, they were expressly prohibited all Alliance with Comedians and Gladiators; each had his Shop or *Bake-house*, and they were distributed into 14 Regions of the City. They were excused from Guardianships and other Offices, which might divert 'em from their Employment. See *College*.

BALANCE, *Libra*, or *the Scales*, one of the six simple Powers in Mechanicks, used principally for determining the Equality, or Difference of Weights in heavy Bodies, and consequently their Masses or Quantities of Matter. The *Balance* is of two Kinds, *viz.* the Antient and Modern. The Antient or *Roman*, call'd the *Statera Romana*, or Steel-yard, consists of a Lever or Beam, moveable on a Centre, and suspended near one of its Extremes: On one side the Centre are applied the Bodies to be weigh'd, and their Weight; measured by the Divisions mark'd on the Beam, in the Place where a Weight moveable along the Beam being fix'd, keeps the *Balance in Æquilibrio*. This is still in Use in Markets, *&c.* where large Bodies are to be weigh'd. See *Statera*.

The Modern *Balance*, now ordinarily in Use, consists of a Lever or Beam suspended, exactly by the Middle; to the Extremes whereof are hung Scales. In each Case the Beam is call'd the *Brachia*; the Line on which the Beam turns, or which divides its *Brachia*, is call'd the *Axis*, and when consider'd with regard to the Length of the *Brachia*, is but esteem'd a Point, and call'd the Centre of the *Balance*; and the Places where the Weights are applied, the *Points of Suspension* or *Application*. In the *Roman Balance* therefore, the Weight used for a Counterbalance is the same, but the Points of Application various; in the Common *Balance*, the Counterpoise is various, and the Points of Application the same. The Principle on which each is founded is the same, and may be conceiv'd from what follows.

Doctrine of the Balance.

The Beam A B (*Plate of Mechanicks, Fig.* 9.) the principal Part of the *Balance*, is a Lever of the first kind, which (instead of resting on a *Fulcrum* at C, the Centre of its Motion) is suspended by somewhat fastened to C, its Centre of Motion. Hence the Mechanism of the *Balance* depends on the same Theorem as that of the Lever, (See *Lever*). Wherefore, as the known Weight is to the unknown, so is the Distance of the unknown Weight from the Centre of Motion to the Distance of that of the known Weight, where the two Weights will counterpoise each other; consequently the known Weight shews the Quantity of the unknown Weight. Or thus, the Action of a Weight to move a *Balance* is by so much greater, as the Point pressed by the Weight is more distant from the Centre of the *Balance*, and that Action follows the Proportion of the Distance of the said Point from that Centre. When the *Balance* moves about its Centre, the Point B describes the Arch B *b* (*Fig.* 10.) whilst the Point A describes the Arch A *a*, which is the biggest of the two; therefore in that Motion of the *Balance*, the Action of the same Weight is different, according to the Point to which it is applied: Hence it follows, that the Proportion of the Space gone thro by that Point at A is as A *a*, and at B as B *b*; but those Arches are to one another as C B, C A.

Varieties in the Application of the Balance.

If the *Brachia* of a *Balance* be divided into equal Parts, one Ounce applied to the ninth Division from the Centre, will equiponderate with three Ounces at the third; and two Ounces at the sixth Division act as strongly as three at the fourth, *&c.* Hence it follows, that the Action of a Power to move a *Balance*, is in a *Ratio* compounded of the Power itself, and its Distance from the Centre; for that Distance is as the Space gone thro in the Motion of the *Balance*. It may be here observ'd, that the Weight equally presses the Point of Suspension at whatever Height it hangs from it, and in the same manner as if it was fixed at that very Point; for the Weight at all Heights equally stretches the Cord by which it hangs.

A *Balance* is said to be *in Æquilibrio*, when the Actions of the Weights upon each *Brachium* to move the *Balance*, are equal, so as mutually to destroy each other. When a *Balance* is *in Æquilibrio*, the Weights on each Side are said to equiponderate: unequal Weights may also equiponderate; but then the Distances from the Centre must be reciprocally as the Weights. In which case, if each Weight be multiplied by its Distance, the Products will be equal; which is the Foundation of the Steelyard. Thus in a *Balance* whose *Brachia* are very unequal; a Scale hanging at the shortest, and the longest divided into equal Parts: If such a Weight be apply'd to it, as at the first Division shall equiponderate with one Ounce in the Scale; and the Body to be weigh'd be put into the Scale, and the above-mentioned Weight be moved along the longest *Brachium*, till the *Æquilibrium* be found; the Number of Divisions between the Body and the Centre shews the Number of Ounces that the Body weighs, and the Sub-Divisions the Parts of an Ounce.

On the same Principle also is founded the *deceitful Balance*, which cheats by the Inequality of the *Brachia*; for Instance: Take two Scales of unequal Weights, in the Proportion of 9 to 10, and hang one of them at the tenth Division of the *Balance* above-described, and the other at the ninth Division, so that there may be an *Æquilibrium*; if then you take any Weights, which are to one another as 9 to 10, and put the first in the first Scale, and the second in the other Scale, they will equiponderate. *Several Weights hanging at several Distances on one Side, may equiponderate with a single Weight on the other Side*: To do this it is required, that the Product of that Weight, by its Distance from the Centre, be equal to the Sum of the Products of all the other Weights, each being multiplied by its Distance from the Centre: To demonstrate which, Hang three Weights, of an Ounce each, at the second, third, and fifth Divisions from the Centre, and they will equiponderate with the Weight of one single Ounce applied at the tenth Division of the other *Brachium*; and the Weight of one Ounce at the sixth Division, and another of three Ounces at the fourth Division, will equiponderate with a Weight of two Ounces on the other Side at the ninth Division. *Several Weights unequal in Number on either Side, may equiponderate*: In this case, if each of them be multiplied by its Distance from the Centre, the Sums of the Product on either Side will be equal; and if those Sums are equal, there will be an *Æquilibrium*: To prove which, hang on a Weight of two Ounces at the fifth Division, and two others, each of one Ounce, at the second and seventh, and on the other Side hang two Weights, each also of one Ounce, at the ninth and tenth Divisions, and these two will equiponderate with those three.

To the Perfection of a *Balance* 'tis required, that the Points of Suspension be exactly in the same Line as the Centre of the *Balance*; that they be precisely equi-distant from that Point on either Side; that the *Brachia* be as long as conveniently they may; that there be as little Friction as possible in the Motion of the Beam and Scales; and lastly, that the Centre of Gravity of the Beam, be placed a little below the Centre of Motion. See *Motion*, *Mechanicks*, &c.

Balance of the Air, is used for the Weight of that Fluid, whereby, according to its known Property, it presseth where 'tis least resisted, till it is equally adjusted in all Parts. See *Air*. See also *Gravity*, and *Barometer*.

Hydrostatical Balance, is a Machine for determining the specifick Gravities of Bodies. See *Hydrostatical*.

Balance of Trade, is the Difference between the Value of Commodities bought of Foreigners, and the Value of the native Productions transported into other Nations. 'Tis necessary that this *Balance* be kept in Trading Nations; and if it cannot be made in Commodities, it must in Specie.

Balance of a Watch or Clock, is that Part of either, which by its Motion regulates and determines the Beats: The Circular Part of it is called the *Rim*, and its Spindle the *Verge*: There belong to it also two Pallats or Nuts, which play in the Fangs of the Crown-Wheel: And in Pocket-Watches, that strong Stud in which the lower Pivot of the Verge plays, and in the Middle of which one Pivot of the Crown-Wheel runs, is called the *Potence*: The wrought Piece which covers the *Balance*, and in which the upper Pivot of the *Balance* plays, is the *Cock*: The small Spring in new Pocket-Waches is called *Regulator*. See *Clock* and *Watch*.

Balance, one of the Signs of the *Zodiack*. See *Libra*.

BALANI, in Natural History, are certain Excrescences usually growing to the Shells of the larger Sort of Sea-Shell-Fish. See *Shell*.

BALANUS, or *Glans*, is sometimes used for the Nut of the Yard; sometimes also the *Clitoris* is so called. It is sometimes also used for a Suppository. See *Penis*, &c.

BALAUSTINES, in Pharmacy, are the Flowers of the Pomegranate, which are very rough to the Tongue and Palate, and very astringing; they are therefore used in Diarrheas, and other Fluxes, Hernias, &c.

BALCONY, in Architecture, a Projecture beyond the Naked of a Wall or Building, supported by Pillars, or Consoles, and encompassed with a Ballustrade. This Contrivance is not only made use of in Houses, but also in Ships. The Word comes from the *Italian*, *Balcone*, and that from the *Latin*, *Paleus*, or the *German*, *Palk*, a Beam. *Covarruvias* derives it from βάλλειν, *jacere*; asserting that *Balconies* were originally little Turrets over the Gates of Citadels, whence Darts, &c. were thrown on the Enemy.

BALDACHIN, or *Baldaquin*, a Piece of Architecture in Form of a Canopy, supported with Columns, and serving as a Crown or Covering to an Altar. The Word comes from the *Italian*, *Baldacchino*.

BALE, in Commerce, a Pack of Merchandize, of different Quantity; a *Bale* of Cotton-Yarn is from 3 to 4 Hundred Weight, of Raw-Silk from 1 to 4 Hundred, of Lockram or Dowlas either three, three and a half, or four Pieces, &c.

BALISTA, a military Engine in Use among the Antients, somewhat like our Cross-Bow, tho much bigger; it had its Name from βάλλειν, *jacere*, being used in casting of Stones, &c. in which it differed from the *Catapulta*, which was used only for casting Darts and Arrows; in in other respects they were alike, and were each bent in the same manner. *Marcellinus* describes the *Balista* thus; a round Iron Cylinder is fasten'd between two Planks, from which reaches a hollow square Beam placed Cross-wise, fasten'd with Cords, to which are added Screws; at one End of this stands the Engineer, who puts a Wooden Shaft with a big Head, into the Cavity of the Beam; this done, two Men bend the Engine, by drawing some Wheels: when the Top of the Head is drawn to the utmost End of the Cords, the Shaft is driven out of the *Balista*, &c.

BALKS, in Agriculture, are Ridges or Banks between two Furrows or Pieces of arable Land: the Word is used sometimes for Poles or Rafters over Out-houses or Barns; and among Bricklayers for great Beams, such as are used in making Scaffolds.

BALL AND SOCKET, a Machine contrived to give an Instrument full play. It consists of a *Ball* or *Sphere* of Brass, fitted within a conclave Semi-Globe, so as to be moveable every way, both Horizontally, Vertically, and Obliquely. 'Tis carried by an endless Screw, and is principally used for the managing of Surveying Instruments; to which it is a very necessary Appendage. The antient *Balls and Sockets* had two Concaves, or Channels, the one for the Horizontal, the other for the Vertical Direction. The *French* call it *Genou*, *Knee*.

BALLAST, in Navigation, any heavy Matter used to sink a Vessel to its proper Depth in Water, or to give it a just Weight and Counterpoise; to prevent its Overturning. The ordinary *Ballast* is Sand, or Stones stowed in the Bottom, or Hold, next the false Keel of a Vessel. The *Ballast* is sometimes one half, sometimes a third, and sometimes a fourth Part of the Burden of the Vessel. Flat Vessels require the most. Masters of Vessels are obliged to declare the Quantity of *Ballast* they bear, and to unload it at certain Places. They are prohibited unloading their *Ballast* in Havens, Roads, &c. the Neglect of which has ruin'd many excellent Ports. The Word comes from the *Flemish*, *Balast*; the *French* call it *Lest*, and the *Latins*, *Lastagium*. See *Lastage*.

BALLON, in Chymistry, a *French* Word for a large round short-neck'd Matrass, or Vessel used in Chymistry, to receive what is distilled or drawn off by the means of Fire. *Ballon* is also used in Architecture for a round Globe placed a-top of a Pillar, or the like, by way of a Pillar. See *Acroter*, or *Crowning*.

BALLOTING, a Method of Voting at Elections, &c. by means of little Balls of several Colours, which the *French* call *Ballotes*.

BALLS, or *Ballets*, a frequent Bearing in Coats of Arms, in Heraldry, but never so called; but according to their several Colours have several Names, as Besants when the Colour is Or; Plates when it is Argent; Hurts when it is Azure; Torteauxes when it is Gules; Pomeis when it is Vert; Pellets, or Agresses, when Sable; Golpes when 'tis Purple; Orenges when Tanné; Guzes when Sanguine: which are all the Colours usually mentioned in Heraldry.

BALLUSTRADE, in Architecture, an Assemblage of one or more Rows of little turn'd Pillars, high enough to rest the Elbows on, fixed upon a Terras, or the Top of a Building, or else to make a Separation between one Part of it and another. *Ducange* derives the Word from *Balaustrum*, or *Balaustrium*, a Place among the Antients where their *Baths* were rail'd in.

BALM, or *Balsam*, a kind of Gum, in very great Reputation in Medicine and Chirurgery; used to be liquified by means of Spirit of Wine or Oil, and found a sovereign Remedy in the Cure of Wounds and several Diseases. The Ladies set a particular Value on it, in regard when mix'd with the Yolk of an Egg and Spirit of Wine, it makes an admirable Paint. There are various Kinds of *Balms* or *Balsams*, if into the Number hereof we take all those which Empirics, or even Physicians and Chirurgeons call by this Name; such are *Apoplectic Balsams*, *Stomachic Balsams*, *Bezoardic*, *Hysteric*, *Vulnerary*, *Magisterial*, &c. But the *Genuine*, that is, the *Natural Balsams*, come in a little Compass, being in great measure reducible to these two, the *Balm* of *Gilead*, and *Balm* or *Balsam* of *Peru*.

Balm of *Gilead*, or of the *Levant*, is held in the greatest Esteem, tho there are some who hold that of *Peru* equal to it in Virtue. 'Tis drawn by Incision from a Tree called *Balsamum*, growing in *Egypt* and *Judea*, and which is held so precious, that it makes Part of the special Revenue of the *Grand Signior*, without whose Permission none are allowed to be planted or cultivated. The Incision through which this admirable Juice flows, is made in the Dog-Days: *Theophrastus* says it must be made with Iron Nails; *Pliny* with Glass, because, says he, Iron makes the Plant die: *Tacitus* tells us, that when the Branches are full of Sap, their Veins seem to apprehend the Iron, and stop when the Incision is made with that Metal, but flow freely when opened with a Stone, or a Piece of broken Pitcher: Lastly, *Marmol* says, the Veins must be opened with Ivory or Glass. The Juice is white at first, afterwards becomes green, by degrees a Gold Colour, and when old the Colour of Honey. It is at first muddy, but by degrees grows clear, and of the Consistence of Turpentine. Its Smell is agreeable, and very brisk; its Taste bitter, sharp and astringent; it easily dissolves in the Mouth, and leaves no Stain on Woollen Cloth. The *Balsam* commonly in Use is brought hither from *Cairo*, and is not properly the Gum, or Tears of the Tree, flowing by Incision, for it yields but little that way; but is prepared from the Wood and the green Branches of the Tree distilled; and yet even this is frequently adulterated with *Cyprus Turpentine*: Besides which, there is likewise a Liquor extracted from the Seed of the Plant, which is frequently passed off for the true *Balsam*, tho its Smell is much weaker, and its Taste much bitterer. The Tree is about the Height of a *Granada* Tree; its Leaves like those of Rue, always green; its Flowers white, and in form of Stars, whence spring out little pointed Pods, inclosing a Fruit like an Almond, called *Carpobalsamum*, as the Wood is called *Xylobalsamum*, and the Juice *Opobalsamum*. See *Opo-balsamum*.

The *Carpobalsamum* enters the Composition of Treacle, having little other Use in Medicine: It must be chosen of an aromatick Taste and agreeable Smell. See *Carpo-balsamum*. The *Xylobalsamum*, which like the other Products of the *Balsam-Tree*, is brought from *Cairo*, is used in Troches of *Hedycrum*. 'Tis in little Faggots, the Bark red, the Wood white, and resinous, and aromatick. See *Xylo-balsamum*. There is likewise a *Balm* of *Mecca*, which is a dry white Gum resembling Copperas, especially when old. 'Tis brought from *Mecca* by the Return of the Caravans of Pilgrims and *Mahometan* Merchants, who travel there out of Devotion to the Birth-Place of their Prophet. It has all the Virtues of the *Balm* of *Gilead*, or *Judea*; and is probably the same, only harden'd, and its Colour alter'd.

Balsam of *Peru* is of three Kinds; or rather, one and the same *Balsam* has three several Names, *viz.* *Balsam*

ſam of Inciſion, which is a white glutinous Reſin ouzing at an Inciſion in the Tree, and afterwards thicken'd and harden'd. This is excellent for green Wounds, and much reſembles the *Opobalſamum*, excepting in Smell, which diſtinguiſhes it. *Dry Balſam*, which is diſtill'd from the Tips of Branches cut off, to which are faſten'd little Veſſels to receive the Liquor, which at firſt is like Milk, but reddens by being expoſed to the Sun. Its chief Uſe is in the Compoſition of the *Lac Virginale*, which is made much better with this, than with Styrax or Benjoin. Laſtly, *Balſam of Lotion*, which is blackiſh, and is drawn from the Bark, Roots, and Leaves of the Tree minced and boiled together. This is uſed in Wounds like the *white Balſam*; and on account of its excellent Smell, by the Perfumers.

Beſides theſe two *Balſams*, which alone are to be eſteemed genuine ones, Naturaliſts reckon *Balſam of Copaiſ* or *Copayba*, of *Tolu* or *liquid Amber*, and a *New Balſam*. *Balſam of Copa*, *Copaiſ*, *Campaiſ* or *Copayba*, comes from *Braſil* in earthen Bottles, pointed a-top. 'Tis a kind of Oil, either clear or thick; the firſt white, of a reſinous Smell: the other a little more on the yellow; both ate admirable for Wounds: The *Jews* uſe it after Circumciſion to ſtop the Blood. *Balſam of Tolu* is a liquid Reſin, which as it grows old becomes of the Colour and Conſiſtence of *Flanders* Size. It comes by Inciſion from ſome Trees growing in *New Spain*; where the Inhabitants receive it in little Veſſels of black Wax: In Taſte and Smell it reſembles *Balm of Gilead*; as it grows old it takes the Conſiſtence of *dry Balm*. *Balſam of liquid Amber* is a clear reddiſh Reſin, produced by a Tree in *New Spain*, called by the Natives *Oſoſol*, much reſembling Ambergreaſe, eſpecially in Smell, whence its Name. The *New Balſam* is liquid; when new it is called *Oil of liquid Amber*, and when old *Balſam of liquid Amber*; it comes from both the *Spains*, in Barrels; and is very rare among us: 'Tis found ſovereign for Wounds, eſpecially in *Fiſtulas in Ano*: It reſembles *Balſam of Tolu* in Smell and Colour, and is expreſs'd in the manner of *Oil of Laurel*, from a red Fruit in the Iſland of *St. Domingo*.

Artificial Balſams, in Pharmacy, are Medicines uſually employ'd externally: In Conſiſtence they ſomewhat exceed a common Unguent, and are prepared principally to recreate the nobler Parts, by their excellent Odor. There are ſome alſo of a more liquid Conſiſtence, between an Oil and Liniment; the principal Uſe whereof is in Wounds: They are made various Ways, and of various Aromaticks and diſtill'd Oils; Oil of Nutmegs, or white Wax, are uſually the Baſis of *Balſams*; with theſe are mixed Deer's Greaſe, Manna, *&c.* According to the different Intentions they are to anſwer, they acquire different Names, as *Apoplectick*, *Stomachick*, &c. *Balm* or *Balſam of Sulphur* is of two kinds, *viz.* that of *common Sulphur*, and that of *Sulphur with Aniſe*: the firſt is drawn by Fire from a Compoſition of Nut Oil drawn without Fire, Flower of Sulphur, Oil of Tartar, and White Wine mix'd. This is uſed to digeſt and reſolve crude Matters gathered in any Part of the Body: 'tis applied externally, and ſerves for the Baſis of the Plaiſter of *Sulphur*. *Balſam of Sulphur aniſated*, is drawn from Oil of green Aniſe and Flower of Sulphur diſſolved together. *Balm of Saturn*, is a *Salt of Saturn*; Dr. *Harris* ſays, a *Sugar of Saturn*, diſſolved in Oil or Spirit of Turpentine digeſted, till the Matter have acquired a red Tincture. This is found to reſiſt the Putrefaction of Humours, and is good to cleanſe and cicatrize Ulcers.

Balm or *Balſam*, among the Chymiſts, is the Spirit of common Salt extracted by Art. The Preparation is this: They diſſolve the Salt, and place its Diſſolution, well clarified, in Horſe-Dung to purify, for the Space of two or three Months, and then diſtil it ſtrongly with a Sand-Heat; upon which there ariſes a pretious Unctuoſity, wherein Things the moſt corruptible being ſteep'd, are ſaid to remain entire, eternally. 'Tis ſaid, that 'twas by this means ſome of the Antients preſerved dead Bodies entire without reducing 'em to Mummy, and particularly that of the Woman mentioned by *Volaterran* to be found in a Mauſoleum near *Albania*, in the Time of Pope *Alexander* VI. which was by his Order thrown ſecretly into the *Tiber*, to prevent Idolatry; ſhe being found as freſh as when alive, tho ſhe had been dead 1300 Years.

BALNEUM, a Word much uſed by Chymiſts, generally ſignifying a Veſſel of Water, in which another is placed that requires a more gentle Heat than the naked Fire.

Balneum Mariæ, is by ſome ſo called, as being ſuppoſed to have been firſt invented by the Bleſſed Virgin; but by others with more Propriety, *Balneum Maris*, or *Sea-Bath*, in regard the Veſſel here floats on a kind of Sea. Here the Cucurbit is placed in hot Water, which warms the Matter contain'd. A Sand Heat is ſometimes alſo called *Balneum ſiccum*, or *cineritium*, or *arenoſum*. See *Bath*, *Sand*, &c.

BALOTADE, a Leap in which a managed Horſe offers to ſtrike out with his hind Legs, but does it not, only making an Offer, and ſhewing the Shoes of his hind Feet.

BALSAM. See *Balm*.

BALSAMICK, a Term in Phyſick, ſignifying that Property in a Medicine, whereby 'tis render'd ſoft, gently attenuating, and ſomewhat agglutinant.

BAN, or *Bans*, a ſolemn Proclamation or Publication of any thing, or a publick Edict or Summons; as of a Prince to the Nobles of a Province, frequent among the *French*; of a Lord to his Vaſſals, *&c.* to call 'em to Arms. Hence the Uſe of the Word *Banns* in publiſhing Matrimonial Contracts in the Pariſh-Church before Marriage; that if there be any Exceptions againſt either Party, as to prior Engagements, *&c.* there may be an Opportunity of making them. Theſe are what *Tertullian* ſeems to mean by *Trinundina Promulgatio*. *Bracton* mentions *Bannus Regis*, for a Proclamation of Silence made by the Court before the Congreſs of the Champions in a Combat. Some derive the Word from the *Britiſh*, *Ban*; *Clamor*, *Noiſe*: Others from the *German*, *Ban*, *Publication* or *Proſcription*, becauſe frequently made with Sound of Trumpet; whence alſo come the Words, *Baniſhment*, *Banner*, *Abandon*, &c. *Borel* derives it from the *Greek*, πᾶν, *all*; becauſe the Convocation is general.

BANC, or *Bench*, in Law, is a Seat or Bench of Judgment; as *Bancus Regis* the King's Bench, and *Bancus communium placitorum* the Common Bench. *Jus Banci*, or the Privilege of having a Bench, was antiently only allowed to the King's Judges, *qui ſummam adminiſtrant juſtitiam*. Inferior Courts, as Courts Baron, Hundred Courts, *&c.* were not allowed that Privilege; and even at this Day the Hundred Court of *Freibridge*, in *Norfolk*, is held under an Oak at *Geywood*; and that of *Woolſtry*, in *Hereford-ſhire*, under an Oak, near *Aſhton* in that County, called *Hundred-Oak*. *King's Bane* or *Bench*, is a Sovereign Tribunal where the King himſelf formerly preſided, the Judges being placed in a lower *Bench* at his Feet. The Juriſdiction of this Court is very extenſive, and reaches throughout all *England*, the Law ſuppoſing the King himſelf to be preſent. See *King's-Bench*. *Common Bank* or *Common Pleas*, the ſecond Court of Juſtice in *England*, where common and ordinary Cauſes are pleaded between Subject and Subject. Here moſt Civil Cauſes are tried, whether real or perſonal, according to the Rigour of the Law. Here are uſually four Judges, the Chief whereof is called Lord Chief Juſtice of the Common Pleas. Formerly there were ſeven Judges, then ſix, then five, *&c.* See *Common Pleas*.

BAND, any Piece of Stuff cut long and narrow, as the *Swarth-Band* for Infants, *&c.*

Band, in Architecture, a general Name for any flat low Member; which is alſo called *Face*, from the Latin *Faſcia*, which *Vitruvius* uſes for the ſame thing; and ſometimes *Fillet*, *Plinth*, &c. See *Faſcia*, *Plinth*, *Fillet*, &c.

Band, Knights of the, are a military Order in *Spain*, inſtituted by *Alphonſus* XI. King of *Caſtile*, *Anno* 1332. It takes its Name from the *Banda*, Band, or red Ribbond which comes a-croſs over the Right Shoulder and under the Left Arm of the Knight. This Order is for none but Nobles; the eldeſt Sons of Grandees are excluded; and before Admittance, 'tis requiſite to have ſerved at leaſt ten Years either in the Army, or at Court. They are bound to take up Arms for the *Catholick Faith* againſt the *Infidels*. The King himſelf is Grand Maſter of the Order.

Band of Soldiers, ſo many as fight under the ſame Flag or Enſign; from *Bandum*, which the *Romans* uſed in the ſame Senſe with *Vexillum*, or *Banner*. Thus *Romulus* called thoſe who fought under the ſame Manipule, (a Handful of Hay being then uſed for a Flag) *Manipulus Militum*.

BANDAGE, a Ligature to bind up Wounds. Theſe are of ſeveral Sorts, and adapted to the different Parts of the Body where the Wound happens. The Knowledge of their proper Uſe is no ſmall Part of Surgery. *Truſſes* uſed in Ruptures are alſo thus called. See *Ligature*.

BANDALIERE, a large leathern Belt, thrown over the Right Shoulder, and hanging down under the Left Arm; wore by the antient Muſqueteers, both for the ſuſtaining of their Fire-Arms, and for the Carriage of their Muſket-Charges; which being put up in little wooden Caſes, coated with Leather, now commonly call'd *Bandaleers*, were hung to the number of 12 to each *Bandaliere*. The *French* Soldiery ſtill retain the *Bandaliere*; their Horſe, their Muſqueteers, and common Guards, wearing it indifferently; excepting for ſome Difference in its Garniture. The Word ſeems form'd from the French *Bandoalier*, a kind of *Banditti* particularly infeſting the *Pyreneans*; who were formerly diſtinguiſh'd by this Piece of Furniture; and were themſelves ſo denominated, *quaſi Ban de Voliers*, *a Knot of Robbers*.

BANDELET, in Architecture, any little Band or flat Moulding, as that which crowns the Doric Architrave: 'tis alſo called *Tenia*, from the Latin *Tænia*, which *Vitruvius* uſes for the ſame thing.

BANDE-

BANDEROLLE, a little Standard in form of a Guidon, extended further in Length than in Breadth, hung out on the Masts of Vessels, &c.

BANIANS, a religious Sect in the *Indies*, who believe a Metempsychosis; and will therefore eat no living Creature, nor even kill noxious Animals, but endeavour to release them if they see 'em in the hands of others: they are so fearful of having Communication with other Nations, that they break their Cups if one of a different Religion has drank out of 'em, or even touch'd 'em; and empty the Water out of a Pond where he has wash'd himself. If they happen to touch one another, they must wash and purify themselves before they drink, eat, or enter their own Houses. They carry, hanging at their Necks, a Stone called *Tamberan*, as big as an Egg, and perforated in the Middle, through which run three Strings; this Stone, they say, represents their Great God, and upon that account they have great Respect shewn them by all the *Indians*. *Banian*, in their Language, signifies, *innocent People and without Guile*; for, besides their refraining to hurt any the least living Creature, they profess to pardon the Injuries done to themselves.

BANISHMENT, or *Exile*, among us is of two Kinds; the one voluntary and upon Oath, the other by Compulsion, for some Offence or Crime. This Punishment is by the *Civilians* called *Bannimentum*, and was antiently term'd *Deportatio*, if perpetual; if for a Time, *Relegatio*.

BANK, in Commerce, a Term given to certain Societies, Cities, or Communities, who take on 'em the Charge of the Money of private Persons, to improve it, or to keep it secure. There are several of these *Banks* establish'd in the several principal Trading Cities in *Europe*; as in *Venice*, *London*, *Amsterdam*, *Hamburgh*, *Paris*, &c. But of all others that of *Venice* is the most considerable, as being the most antient, and that whereon the others are model'd. The *Bank of Venice*, commonly call'd the *Banco del Giro*, is properly a Board of publick Credit and Interest; or a general and perpetual Purse for all Merchants and Traders; established by a solemn Edict of the Commonwealth, which enacts, That all Payments of Wholesale Merchandize, and Letters of Exchange, shall be in *Banco*, or *Bank Notes*; and that all Debtors and Creditors shall be obliged, the one to carry their Money to the *Bank*, the other to receive their Payments in *Banco*; so as Payments are perform'd by a simple Transfer from the one to the other: he who was before Creditor on the *Bank-Books*, becoming Debtor as soon as he has resign'd his Right to another, who is enter'd down as Creditor in his Place; so that the Parties only change a Name, without any effective Payment being made. Indeed, there are sometimes effective Payments made, especially in Matters of Retail, and when Foreigners are disposed to have ready Money to carry it off in Specie; or when particular Traders chuse to have a Stock by 'em to negotiate in Letters of Exchange, &c. The Necessity of these effective Payments, has given occasion to the opening a Fund of ready Money; which is found so far from diminishing the Stock, that this Liberty of withdrawing Money at pleasure rather augments it. By means of this *Bank*, the Republick, without incroaching on the Freedom of Commerce, or without paying any Interest, is Mistress of 500000 Ducats, to which the Capital of the *Bank* is limited, to be in readiness on any pressing Occasion; the Republick being Security for the Capital.

The Word *Bank* originally signified a *Bench*, which the first *Bankers* had in the publick Places, in Markets, Fairs, &c. on which they told their Money, wrote Bills of Exchange, &c. Hence when a *Banker* fail'd they broke his *Bank*, to advertize the Publick, that the Person to whom the *Bank* belong'd was no longer in a Condition to continue his Business. As this Practice was very frequent in *Italy*, 'tis said the Term *Bankrupt* is derived from the Italian *Banco rotto*, *broken Bench*.

BANKER, a Person who negotiates and trafficks in Money; who receives and remits Money from Place to Place, by Commission or Correspondents, by means of Bills or Letters of Exchange. See *Exchange*, *Bank*, &c. In *Italy* the Employment of a *Banker*, especially in Republicks, does not derogate from the Nobility; and hence it is, that most of the Cadets, or younger Sons of Condition, undertake it for the Support of their Family. The *Romans* had two Kinds of *Bankers*, tho their Office was much more extensive than that of the *Bankers* among us; being publick Officers, in whom were united the Functions of a *Broker*, *Agent*, *Banker*, and *Notary*; managing the Exchange, taking in Money, assisting in Buying and Selling, and drawing the Writings necessary on all these Occasions.

BANKRUPT, a Trader, who consumes his Stock, or runs out in Trade, so as not to be able to answer the Demands of his Creditors. His absconding from his Place of Abode, or being denied to his Creditors, suffering himself to be arrested willingly, for Debt, and suffering himself to lie two Months in Prison, on any lawful Action, is by Law deemed an Act of *Bankruptcy*. See *Commission of Bankruptcy*.

BANKRUPTCY, the Failure, Absconding, and Relinquishment of Traffick in a Merchant, Banker, or other Trader. There is some Difference however, between a *Bankruptcy* and a *Failure*; the first being supposed voluntary and fraudulent, and the latter constrain'd and necessary, by means of Accidents, &c. A *Failing*, or Stopping of Payment, diminishes the Merchant's Credit, but does not note him with Infamy, as *Bankruptcy* does. When a Merchant, &c. fails to appear at the *Exchange*, &c. without apparent Reason, 'tis call'd a *Failing of Presence*; the *Bankruptcy* becomes open from the Day he absconds, or the Seal is affix'd to his Effects. Those who *fail* are oblig'd to give in to their Creditors, a State or Inventory of all their Effects and Debts, and to surrender their Books; otherwise they are reputed *fraudulent Bankrupts*. All Payments and Transfers, as also all Acts, Obligations, &c. of Persons who *fail*, are null unless made ten Days before the *Failing* is become publick. See *Bank*.

BANNERET, an antient Knight or Lord, who had a Right to carry a *Banner* for assembling of his Vassals, when a *Ban* was proclaim'd, and might also form 'em into a Troop of Horse; from the Word *Banner*, or from *Ban* or *Bande*, which formerly signified a *Banner*. Antiently there were two kinds of Knights, Great and Little; the first whereof were call'd *Bannerets*, the second *Bachelors*; the first composed the upper, the second the middle Nobility. To be qualified for a *Banneret*, one must be a Gentleman of Family, and must have a Right to raise a certain Number of arm'd Men; with Estate enough to subsist at least 28 or 30 Men. This must have been vety considerable in those Days, in regard each Man, besides his Servant, had two Horse-men to wait on him, armed, the one with a Cross-Bow, the other with a Bow and Hatchet. The Form of the *Banneret's* Creation was this: On a Day of Battle the Candidate presented his Flag to the King or General, who cutting off the Train or Skirt thereof, and making it a Square, return'd it again, the proper *Banner* of *Bannerets*: Hence *Bannerets* were sometimes call'd *Knights of the Square Flag*, and by this Form of their Flag they were distinguish'd from *Barons*. Others will have *Bannerets* to have been Persons who had some Portion of a Barony assign'd 'em; and enjoy'd it under the Title of *Baro Proximus*, with the same Prerogatives as the *Baron* himself. Some Authors attribute the Institution of *Bannerets* to *Conan*, Lieutenant of *Maximus*, who commanded the *Roman* Legions in *England* under the Empire of *Gratian*, in 383. This General, say they, revolting, divided *England* into 40 Cantons, and in these Cantons distributed 40 Knights, to whom he gave a Power of assembling, on Occasion, under their several *Banners*, as many of the effective Men as were found in their respective Districts; whence they were call'd *Bannerets*. However this be, it appears from *Froissart*, &c. that antiently such of the Military Men, as were rich enough to raise and subsist a Company of arm'd Men, and had a Right to do so, were call'd *Bannerets*. Not, however, that these Qualifications render'd 'em Knights, but only *Bannerets*; the Appellation of Knights being only added thereto, because they were of the Upper Nobility, or simple Knights before. Among the *Spaniards*, *Bannerets* are known by the Name of *Riccos hombres*. *Larrey* will have *Bannerets* so call'd, because of the *Banner* or *Standard* waved in the face of the Army at the time of their Creation. *Bannerets* were second to none but Knights of the Garter; but they dwindled, and at last became extinct, on the Institution of *Baronets* by King *James* I.

BANNIMUS, is the Form of Expulsion of any Member from the University of *Oxford*, affixing the Sentence up in some publick Place, as a Denunciation or Promulgation of it.

BANQUETTE, in Fortification, is a little Foot-Path or Elevation of Earth in Form of a Step, along a Parapet, or that by which the Musquetters get up to discover the Counterscarp, or to fire on the Enemies in the Moat, or in the Covert-Way: These are generally a Foot and half high, and almost three Foot broad.

BAPTISM, in Theology, from the Greek βαπτίζειν, *to dip* or *plunge*, the Ceremony of Washing; or a Sacrament whereby a Person is initiated into Christianity, and Original Sin wash'd away in Infants, and actual Sins in Adults who receive it. The *Jews* practised this Ceremony, after Circumcision, on their Proselytes, long before the Coming of Jesus Christ. For the Matter of *Baptism*, any natural Water is held sufficient, but nothing else is allow'd: For this reason Pope *Stephen* II. excommunicated a Priest for *baptizing* a Child with Wine. In the Primitive Times this Ceremony was perform'd by Immersion, as it is to this Day in the *Oriental* Churches, according to the Signification of the Word. The Practice of the *Western* Churches, is to sprinkle the Water on the Head or Face of the Person to be *baptiz'd*, except in

in the Church of *Milan*, in whose Ritual 'tis order'd, that the Head of the Infant be *plunged* three times into the Water. A trine Immersion was first used, and continued for a very long time: This was to signify either the three Days that our Saviour lay in the Grave, or the Three Persons in the Trinity. But it was afterwards laid aside, because the *Arians* used it: 'twas then thought proper to *plunge* but once, lest the *Hereticks* should think that the *Catholicks*, like them, divided the Trinity. Some are of Opinion, that *Sprinkling* in *Baptism* was begun in cold Countries. 'Twas introduced in *England* about the Beginning of the 9th Century. At the Council of *Calchyt*, in 816, it was order'd, that the Priest should not only *sprinkle* the holy Water upon the Head of the Infant, but likewise always *plunge* them in the Bason. There are abundance of Ceremonies deliver'd by Ecclesiastical Writers, as used in *Baptism*, which are now disus'd; tho there are not wanting those who contend for their Re-admission; as the giving Milk and Honey to the *baptized*, in the *East*; Wine and Milk, in the *West*, &c. It appears, that in the Primitive Times none were *baptized* but Adults. Formerly there were great Disputes, whether the *Baptism* of *Hereticks* was valid. The general Opinion run for the Affirmative, provided it was confer'd in the Name of the Trinity, and therefore they allow'd even that of the Laity, or Women in case of Necessity. The Council of *Roan* in 1072, order'd, that the Priest should *baptize* fasting, &c. Theological Authors distinguish three Kinds of *Baptism*. 1. The *Baptism of Water*, which is that above-mention'd. 2. The *Baptism of Fire*, which is the perfect Love of God, join'd with a Desire to be *baptiz'd*; call'd also the *Baptism of the Spirit*: on occasion this may supply the Place of *Water-Baptism*. 3. *Baptism of Blood*; which is the Martyrdom of a *Catechumen*. *Baptism*, in the Primitive Times, was only administer'd at *Easter* and *Whitsuntide*, except in Cases of Necessity. The *Catechumens* were not forward in coming to *Baptism*. St. *Ambrose* was not *baptiz'd* before he was elected Bishop of *Milan*; and some of the *Fathers* not till the time of their Death; some deferring it out of a tender Conscience; and others out of too much Attachment to the World, it being the prevailing Opinion of the Primitive Times, that *Baptism*, whenever conferr'd, wash'd away all antecedent Stains and Sins. The *Fathers* rallied this superstitious Delicacy to such a degree, that they introduced a different Extreme; the ridiculous Zeal of some People carrying them to *baptize* the Dead by Proxy.

Baptism, or *Christening*, in the Sea-language, a Ceremony in long Voyages aboard Merchant-Ships; practis'd both on Persons and Vessels which pass the Tropick, or Line, for the first time. The *Baptism of Vessels* is simple, and consists only in the washing them throughout with Sea Water; that *of Passengers* is more mysterious: but neither the one nor the other without making the Crew drunk; the Seamen, on Christening the Ship, pretending to a Right of cutting off the Beak-Head, unless redeem'd by the Master or Captain. The *Christening of a Seaman*, or *Passenger*, is as follows: The oldest of the Crew who has pass'd the Line, or Tropick, comes, whimsically dress't, his Face black'd, a Grotesque Cap on his Head, a Waggoner or other Sea-Book in his Hand, follow'd by the rest of the Seamen masqu'd like himself, each having some Kitchen Utensil in his Hand, with Drums beating: he places himself gravely on a Seat prepar'd on the Deck, at the Foot of the Main-Mast. At the Tribunal of this pleasant Magistrate, each Passenger not yet initiated, swears, he will take care the same Ceremony be observ'd, whenever he is in the same Circumstance: by giving a little Money, by way of Gratification, he is discharg'd with a little *sprinkling* of Water; otherwise, as is usually the Case with the Seamen, he is heartily *drench'd* with Streams of Water pour'd on him: Ship-Boys are inclos'd in a Cage, and *drench'd* at Discretion; and besides, in Memory of the Ceremony, are oblig'd to whip each other, which they never spare.

BAPTISTERY, the Place where Persons are *baptiz'd*, or the Font in which 'tis done. Antiently in the Churches which *baptiz'd* by Immersion, the *Baptistery* was a kind of *Pond* where the *Catechumens* were *plunged*. In the first Times the *Baptistery* was a little Church adjoining to a greater, purposely appointed for the Administration of this Ceremony. There were several Fonts and Altars in each *Baptistery*, because then they *baptized* a Number at once, all of whom received the Eucharist immediately after. At first, these *Baptisteries* were only in the great Cities where Bishops resided, who alone had the Right of *baptizing*; but they afterwards allow'd Parishes to have Fonts, for the more commodious Administration of *Baptism*. This Right was confin'd to Parishes alone; and if any Monasteries were found with *baptismal* Fonts, 'twas because they had *baptismal* Churches in another Place: Tho the Bishops sometimes granted them to Monks, upon condition that they would have a secular Priest along with 'em to take care of the People; but they afterwards found means to throw off the Priest, and make themselves Masters of the Church, and attach it, with its *baptismal* Fonts, to their own Monastery.

BAR, in Heraldry, one of the honourable Members of a Coat of Arms, which is hereby divided into two equal Parts from Angle to Angle, beginning at the Top on the Left Hand, and running Diagonal-wise to the Right. It takes up one Third of the Coat, and is commonly used for the Distinction of Bastards.

Bar, in Heraldry, is likewise a Fish, or Barbel, often placed in Coats of Arms, commonly in a bended leaning Posture.

Bar, in Law, is a Destruction for ever, or the taking away for a time, the Action of him that hath Right; and it is call'd a *Plea in Bar* when such a *Bar* is pleaded. The Word *Bar* is also used for a *material Bar*, as the Places where Serjeants or Counsellors stand to plead Causes in Court, Prisoners to answer Indictments, &c. Whence our *Lawyers* who are call'd to the *Bar*, or licensed to plead, (in other Countries call'd *Licentiati*) are term'd *Barristers*.

Bars, in the Menage, the Ridges or upper Parts of the Gums, between the Under-Tushes and the Grinders of a Horse; the outward Sides whereof are always call'd the *Gums*. These *Bars* should be sharp-ridg'd and lean; for since all the Subjection a Horse suffers, proceeds from those Parts, if they have not these, they will be very little or not at all sensible, so that the Horse can never have a good Mouth: for, if they be flat, round, and insensible, the Bit will not have its Effect; and consequently, such a Horse can be no better govern'd by his Bridle, than if one took hold of his Tail.

Bars, in Musick, Strokes drawn perpendicularly a-cross the Lines of a Piece of Musick, including between each two, a certain Quantity or Measure of Time, which is various as the Time of the Musick is triple or common. In common Time, between each two *Bars* is included the Measure of four Crotchets, in triple Time three Crotchets. Their principal Use is to regulate the Beating, or Measure of Time in a Consort. See *Time*.

BARACK, or *Baraque*, a Hutt or little Lodge for Soldiers in a Camp; those for the Horse were formerly called *Baracks*, and those for the Foot *Hutts*; but *Barack* is now used indifferently for both: they are generally made by fixing four forked Poles in the Ground, and laying four others a-cross them; afterwards they build up the Walls with Sods, Wattles, or what the Place affords: the Top is planked, thatched, or covered with Turf, as they have Convenience. When the Army is in Winter Quarters, the Soldiers usually build *Baracks*; in the Summer they are content with their Tents. The Word comes from the Spanish *Barraca's*, little Cabins which the Fishermen make on the Sea-Shore.

BARALIPTON, a Term in Logick; a Syllogism in *Baralipton* is, when the two first Propositions thereof are general, and the third particular; the middle Term being the Subject of the first, and the Attribute of the second: For Example,

Every Evil ought to be fear'd:
Every violent Passion is an Evil:
Therefore something that ought to be fear'd is a violent Passion.

BARALLOT, the Name of a Sect. The *Barallots* were *Hereticks* at *Bologne* in *Italy*, who had all things in common, even their Wives and Children. They gave so readily into all manner of Debauchery, that they were also term'd *Compliers*.

BARANG, the Name of an Officer among the *Greeks* of the *Lower Empire*, whose Business it was to keep the Keys of the City-Gates where the Emperor resided. *Codinus* says, *Barangs* are those Officers who stood at the Door of the Emperor's Bed-Chamber and Dining-Room. Some think they were *Englishmen*, and took their Name from the English *bar*, to shut or make fast. They were arm'd with an Ax.

BARBACAN, in Architecture, a Canal or Opening left in the Walls, for Water to come in and go out at, when Edifices are rais'd in Places liable to be overflow'd; or to drain off the Water from a Terras. The Word comes from the Italian *Barbacane*, which *Spelman* derives from the Arabick.

Barbacan, a military Term, signifying a Cleft or Aperture made in the Walls of a Castle or Fortress, to fire thro upon the Enemy. Some think the Word implies a wooden Parapet; others any kind of Defence or Safeguard against the Enemy: *Du Cange* calls it the *outer Defence*. 'Twas formerly a Fort at the Entrance of a Bridge, or without the City, having a double Wall, with Towers.

BARBARA, a Logical Term: A Syllogism in *Barbara*, is that whereof all the Propositions are universal and affirmative; the middle Term being the Subject in the first Proposition, and Attribute in the second: For Example,

Whoever suffers a Man to starve, whom he ought to sustain, is a Murderer:
Whoever is rich, and refuses to give Alms, suffers those to starve whom he ought to sustain:
Therefore, whoever is rich, and refuses to give Alms, is a Murderer.

BARBARIAN. The *Greeks* call'd all those *Barbarians* who were not of their Country; as did also the *Romans*, generally. This Word signified with them no more than Foreigner, and did not carry that Odium with it as it does now. This may appear from those Lines of *Ovid*, who was certainly a well-bred Man.

Barbarus hic ego sum, quia non intelligor ulli,
Et rident stolidi verba Latina Getæ.

Strabo derives the Word βαρβαρος from εβαρβαριζειν, *balbutire*, by reason Foreigners coming to *Athens* used to stammer, or speak coarsely: Others derive it from βαρβαρ, a Word that Foreigners frequently stumbled on, which yet had no Meaning; others from the Arabick *Bar*, a Desart; and *Vossius* from the Chaldee Adverb בחוץ, *extra, foris*.

BARBARISM, in Grammar, is a hard or coarse Expression, and such as is not used by polite Authors; 'tis a Fault between a Solecism and Impropriety, and is committed by using any foreign Word or Phrase, not suited to the Genius of the Language; or by the dropping of Particles, Pronouns, or Prepositions, where they are necessary. *Suidas*, *Hesychius*, *&c.* confine the *Barbarism* to a single Word; but *Vaugelas* extends it to Phrases.

BARBE, in Commerce, a kind of Horses brought from *Barbary*, much esteem'd for their Vigour and Swiftness: They are usually of a slender Make, and their Legs far apart. 'Tis a Maxim, *that* Barbs *grow ripe but never old*, because they retain their Vigour to the last; which makes 'em prized for Stallions. 'Tis said they were antiently wild, and run at large in the Desarts of *Arabia*; and that it was in the Time of *Chequi Ismael*, that they first began to tame 'em. 'Tis said there are *Barbs* in *Africa* that will outrun Ostriches, ordinarily sold, according to *Dapper*, for 1000 Ducats, or 100 Camels. They are fed very sparingly; *Dapper* says with Camel's Milk. 'Tis added, that in *Barbary* they preserve the Genealogy of their *Barbs*, with as much Care as the *Europeans* do those of their noble Families; and that to sell 'em, they always produce their Titles of Nobility.

Barbe, a military Term. *To fire en Barbe*, is to fire the Cannon over the Parapet instead of thro the Embrazures; but in this case the Parapet must be but three Foot and a half high.

Barbe, or *Barde*, is also an old Term for the Armour of the Horses of the antient Knights, and Soldiers, who were accouter'd at all Points. *La Crusca* says, the *Barde* is an Armour of Iron or Leather, wherewith the Neck, Breast, and Shoulders of the Horse are cover'd.

BARBOTINE, a Grain, otherwise call'd *Semen Santonicum*, and *Semen contra Vermes*, or *Worm-Seed*; which see.

BARDESANITES, an Heretical Sect, the Followers of *Bardesanes*, of *Mesopotamia*; who as soon as he became a Christian, distinguish'd himself by his Knowledge in Philosophy, but afterwards renouncing the Christian Religion, embraced the Errors of *Valentinus*, and added to them others of his own: He asserted the Actions of Mankind to depend on Fate. His Followers invented other Notions.

BARDS, antient Poets among the *Gauls* and *Britons*, who described and sung in Verse the brave Actions of the great Men of their Nation. The Design of their Verses was to paint and recommend Virtue, and sometimes to put an end to the Difference between Armies at the very point of Engagement. The *Bards* differ'd from the *Druids*, in that the latter were Priests and Teachers of the Nation, but the former only Poets and Writers, (See *Druid.*) *Larrey*, *Bodin*, and *Pasquier*, indeed will have the *Bards* to have been Priests; *Cluverius* and *Pasquier* Philosophers; and *Cluverius* Orators too, but without much Foundation in Antiquity. *Strabo* divides the Sects of Philosophers among the *Gauls* and *Britons* into three, *viz.* the *Druids*, *Bards*, and *Evates*. The *Bards*, adds he, are the Singers and Poets; the *Evates*, the Priests and Natural Philosophers; and the *Druids*, to Natural Philosophy add also the Moral. *Hornius* however reduces 'em to two Sects, *viz.* *Bards* and *Druids*; others to one, and make *Druid* a general Name comprehending all the others: *Cluverius* will have it, that there were *Bards* also among the antient *Germans*; because *Tacitus* makes mention of their Songs and Poems which contain'd their History. *Bochart* derives the Word from *parat*, *to sing*. *Camden* agrees with *Festus*, that *Barde* properly signifies a *Singer*: and adds, that the Word is pure *British*. Others derive the Name from *Bardus*, a *Druid*, the Son of *Dryis*, and the fifth King of the *Celtæ*.

BAR-FEE, a Fee of 20 Pence, which every Person acquitted of Felony pays the Gaoler.

BARGE, a little floating Vessel used in the Navigation of Rivers, *&c.* *Barges* are of various Kinds, and acquire various Names, according to the Variety of their Uses and Structures: As,

A Company's Barge,	*A* Severn-*Trow*,
A Row-Barge,	*A* Ware-*Barge*,
A Royal-Barge,	*A Light Horseman*,
A Sand-Barge,	*A West-Country-Barge*.

BARK, the exterior Part of Trees, serving 'em for a Skin or Covering, (See *Plant.*) There are a great many kinds of *Barks* in use in the several Arts: Some in Medicine, as the *Quinquina*, or *Jesuits Bark*, *Macer*, &c. see *Cortex*; others in Dying, as the *Bark of the Alder* or *Willow*; others in Spicery, as *Cinnamon*, *Cassia lignea*, &c. see *Cinnamon*, &c. the *Bark of Oak* in Tanning, see *Tanning*; others on other Occasions, as *Cork*; that of the *Linden-Tree* for Cordage for Wells; that of a kind of *Birch* used by the *Indians* for Canoes, capable of holding 24 Persons. The Antients wrote their Books on *Barks*, especially those of the *Ash* and *Linden*; not on the exterior or outer *Bark*, but the inner and finer.

The *Bark* of Trees in general is of a spungy Texture, and by many little Fibres which pass thro the capillary Tubes whereof the Wood consists, communicates with the Pith; so that the proper Nutriment of the Tree being imbibed by the Roots, and carried up thro the fine arterial Vessels of the Tree by the Warmth of the Soil, *&c.* to the Top of the Plant, is there condens'd by the cold Air, and returns by its own Gravity down the Vessels which do the Office of Veins, lying between the Wood and inner *Bark*, leaving as it passes by, such Parts of its Juice as the Texture of the *Bark* will receive, and requires for its Support: See *Sap*. That soft whitish Rind or Substance between the inner *Bark* and the Wood, which Mr. *Bradley* thinks to do the Office of Veins, some account a *third Bark*, only differing from the others in that its Fibres are closer; 'tis this contains the liquid Sap, Gums, *&c.* found in Plants in the Spring and Summer Months. It hardens by little and little, by means of the Sap it transmits, and is converted imperceptibly into the woody Part of the Tree. There are few Trees but what have it; yet 'tis still found in less Quantity, as the Tree is more exposed to the Sun: that of the *Oak* is ordinarily about an Inch Diameter. 'Tis here that the Corruption of Trees generally begins: whence those who fell and cut out Trees, ought always to take care to leave as little of it on, as possible. See *Wood*.

In the two *Indies* they manufacture the *Bark* of a certain Tree into a kind of Stuff or Cloth. 'Tis spun and dress'd much after the manner of Hemp. The long Filaments separated from it, upon beating and steeping it in Water, compose a Thread, of a middle kind between Silk and common Thread; neither so soft nor bright as Silk, nor so hard or flat as Hemp. Some of these Stuffs are pure *Bark*, and are call'd *Penasses*, *Beambomes*, &c. In others they mix Silk with the *Bark*, and call 'em *Guingans* and *Nillas*: the *Fontalongees* too, are part Silk part *Bark*, and are only distinguish'd by being striped.

Bark, a little Vessel for the Sea, with pointed or triangular Sails, in number two, or three at the most. *Menage* derives the Word from the Latin *Barca*; *Fournier* from *Barce*, a City in *Africa*; and *Toletanus* from *Barcelona*; others, among whom *Salmasius*, from the Greek βαρις, a round Building; *Scaliger* from βαρος, *ab Oneribus gerendis*. Some Authors use the Word *Bark* for any Vessel that has no Masts. Of *Barks* there are various Kinds: As,

A Binlander,	*A Sknit*,
A Sack,	*A Snaul*,
A Sattee,	*A Snouke*.

BARK-BINDING, a Distemper incident to Trees, cured by slitting the *Bark*, or cutting it along the Grain of the Tree.

BARK-GALLING, is when Trees are gall'd by Thorns, or by being bound to Stakes, *&c.* and is cured by Clay laid on the gall'd Place, and bound up with Hay.

BARKING *of Trees*, is the Peeling off or Stripping the *Bark* from the Wood. The Month of *May* is the Season for *Barking of Trees*, because then the Sap loosens the *Bark* from the Wood; which 'tis very hard to effect in any other Time, unless the Season be very wet; Heat and Dryness being always opposite thereto.

BARM-YEAST, the Head or Workings-out of Ale or Beer. See *Leven*, *Past*, *Baking*, &c.

BARNABITES, a Set of Religious, or Regular Priests, of the Congregation of St. *Paul*. Their Habit is black, and the same with that they wore when first established, *Anno Domini* 1533. by the express Bulls of Pope *Clement* VII. Their Office is to instruct, catechize, and serve

serve in Missions. This Order was founded by *Antoine Marie Zacariah*; they were call'd *Barnabites* from the Church of St. *Barnabas*, at *Milan*.

BARNACLE, in Natural History, a little Sea-Animal, frequent among the Western Isles of *Scotland*; the manner of whose Production has occasion'd some Speculation among the Learned. The *Barnacle*, at first, appears in form of a little Shell-fish growing on old weather-beaten Timber, chiefly *Ash* and *Fir*, driven in great Quantities by the Western Ocean upon the Shores. The Shell, Sir *Robert Murray* tells us, resembles that of a Muscle in Colour and Consistence, very thin about the Edges, and about half as thick as broad, cross'd with Sutures, &c. It hangs to the Wood by a Neck longer than the Shell, of a filmy Substance, round and hollow, not unlike the Wind-pipe of a Chicken, by which it seems to draw its Nourishment from the Wood, both for its own Vegetation and that of the Animal inclosed. The Curiosity is, that instead of a Fish, which one expects in the Shell, there is found a perfect feather'd Fowl, vulgarly call'd *Solan Goose*. In a number which Sir *Robert Murray* open'd, he found the *Sea-Fowl* perfectly form'd; the Bill like that of a Goose, the Eyes mark'd, the Neck, Breast, Wings, &c. very compleat; the Feathers every where perfect; and the Feet like those of other Water-Fowl. He observes, he never saw any of 'em alive; nor does he know any body that ever did: But adds, he is credibly inform'd they have been seen as big as the Fist. The *French* have also their *Barnacles*, which they call *Macreuse*, or *Macroul*, on the Coasts of *Normandy*, &c. only differing from the *Scotish*, in that the one seems of the *Goose* Kind, the other of the *Duck* Kind. Dr. *Tanc. Robinson*, rejecting the popular Opinions of their being generated from rotten Woods, Fruits dropp'd into the Sea, and there metamorphos'd into Birds, &c. observes, that the *Barnacles* are all oviparous, from the Anatomy of their Parts serving to Generation, and that they are both Male and Female. The *French* eat the *Macreuse* on Fish-Days, and throughout all *Lent*, taking it for a kind of Fish. Yet Mr. *Ray* observes, 'tis a real Fowl; and refers it to the Species of *Sea-Ducks* describ'd by Mr. *Willoughby*.

BARNACLES, Horse-Twitchers or Brakes, are Instruments which Farriers apply to Horse's Noses when they will not stand quietly to be shod, blooded, &c.

BAROCO, a Term in Logick. A Syllogism in *Baroco* has the first Proposition universal and affirmative, but the second and third particular and negative; and the middle Term the Attribute in the two first: For Example,

Every Virtue is attended with Discretion:
Some kinds of Zeal are not attended with Discretion:
Therefore some kinds of Zeal are not Virtues.

BAROMETER, a Machine for measuring the Weight of the Atmosphere, and the Variations therein, in order chiefly to determine the Changes of Weather, from the Greek βαρος, *onus*, and μετρον, *mensura*. The *Barometer* is frequently confounded with the *Baroscope*, tho somewhat improperly; the latter, in strictness, being a Machine that barely shews an Alteration in the Weight of the *Atmosphere*: but 'tis one thing to know that the Air is heavier at one time than at another, and another to measure how much that Difference is; which is the Business of the *Barometer*.

The *Barometer* is founded on the *Torricellian* Experiment, as 'tis call'd from its Inventor *Torricelli*: which is no more than a Glass Tube fill'd with Mercury, hermetically seal'd at one End; the other open, and immerg'd in a Bason of stagnant Mercury. Now, as the Weight of the *Atmosphere* diminishes, the Mercury in the Tube will here descend; on the contrary, as it increases, the Mercury will again ascend: the Column of Mercury suspended in the Tube being always equal to the Weight of the incumbent *Atmosphere*; as is shewn under the Word *Torricellian*.

The Mechanism of the Barometer *is as follows.*

A Glass Tube A B, Plate *Pneumaticks*, *Fig.* 1. hermetically seal'd in A, having its Diameter about $\frac{1}{10}$ of an Inch, and its Length at least 31 Inches, is fill'd with Mercury so justly, as not to have any Air over it, nor any Bubbles adhering to the Sides of the Tube; which is best done by means of a Glass Funnel, with a capillary Tube. The Orifice of the Tube, fill'd after this manner, so as to overflow, is closely press'd by the Finger, so as to exclude any Air between it and the Mercury, and thus immerg'd in a wooden Vessel, of a convenient Diameter; so, however, as not to touch the Bottom: At the Distance of 28 Inches from the Surface of the Mercury, are fix'd two Plates, C E and D F, divided into two Inches, and these again subdivided into any Number of smaller Parts: Lastly, the Tube is inclosed in a wooden Frame, to prevent its being broke; and the Bason, tho open to the Air, secured from Dust; and the *Barometer* is compleat.

Many Attempts have been made to render the Changes in the *Barometer* more sensible, and so to measure the *Atmosphere* more accurately; which has given Rise to a great Number of *Barometers* of different Structures. Hence comes the *Wheel Barometer*, *Diagonal Barometer*, *Horizontal Barometer*, *Pendant Barometer*, &c. of each whereof in their turns.

Des Cartes, and after him *Huygens*, used a Tube A B, *Fig.* 2. having a Cylindrick Vessel C D; one half of which Vessel, together with the upper Part of the Tube, were fill'd with Water; the other half of the Vessel, and the lower Part of the Tube, with Mercury: But here, tho the Column suspended was larger, and consequently the Variation greater, yet the Air imprison'd in the Water getting loose by degrees, fill'd the void Space in the top, and so ruin'd the Machine. He then bethought himself of placing the Mercury a top, and the Water at bottom, in the manner following: A D G, *Fig.* 3. is a bent Tube hermetically seal'd in A, and open in G; the cylindrick Vessels B C and F E are equal, and about 29 Inches a-part; the Diameter of the Tube is about a Line, that of each Vessel 15 Lines, and the Depth of the Vessels about 10; the Tube is fill'd with Mercury (the common *Barometer* standing about 29 Inches) which will be suspended between the middle of the Vessel F E, and that of the Vessel B C; the remaining Space to A, being void both of Mercury and Air: Lastly, common Water, ting'd with a sixth Part of *Aqua Regis*, to prevent its freezing, is pour'd into the Tube F G, till it rises a Foot above the Mercury in D F. When, then, the Mercury rising above the Level of that contain'd in F E, through the Tube A D, becomes a Balance to the Weight of the *Atmosphere*; as the *Atmosphere* increases, the Column of Mercury will increase, consequently the Water will descend; as the *Atmosphere* again grows lighter, the Column of Mercury will descend, and the Water ascend. This *Barometer* therefore, which is the same with that of Dr. *Hook*, will discover much minuter Alterations in the Air than the common one: for, instead of two Inches, the Fluid will here vary two Foot; and by enlarging the Diameters of the Cylinders, that Variation may be still increas'd; but it has this Inconvenience, that the Water will evaporate, and so render the Alterations precarious; tho the Evaporation be, in some measure, prevented by a Drop of Oil of sweet Almonds swimming a-top. On account of this Defect, others have had recourse to a

Horizontal, or *Rectangular Barometer*, A B C D, *Fig.* 4. the Tube whereof is bent, in form of a Square B C D; a-top of its perpendicular Leg it is join'd to a Vessel or Cistern A B; and its Variation accounted on the Horizontal Leg C D. Now here the Interval, or Space of Variation, may be made of any Extent at pleasure, and so the minutest Change in the Air become sensible. For the Diameter of the Tube C D being given, 'tis easy to find the Diameter of the Vessel A B, so as that the Scale of Descent in the Tube D C shall have any given Proportion to the Scale of Ascent in the Vessel A B; the Rule being, that the Diameter of the Vessel is to that of the Tube in a subduplicate reciprocal Ratio of their Scales. The Diameters then of C D and A B being given, together with the Scale or Ascent of the Mercury in the Vessel, the Scale of Mercury in the Tube is found thus; as the Square of the Diameter of the Tube is to the Square of the Diameter of the Vessel, so, reciprocally, is the Scale of Mercury in the Vessel to the Scale of Mercury in the Tube.

This and the preceding Contrivance of *Huygens*, are founded on a Theorem in Hydrostaticks, *viz.* that *Fluids having the same Base, gravitate according to their perpendicular Altitude, not according to the Quantity of their Matter*; whence the same Weight of the *Atmosphere* supports the Quicksilver that fills the Tube A D and the Cistern B, as would support the Mercury in the Tube alone. See *Hydrostaticks*.

This last however, with its Virtues, has great Defects; for, by reason of the Attraction between the Parts of the Glass and of the Mercury, (which Dr. *Jurin* has shewn to be considerable) the Length of the Scale, (consequently the Quantity of Motion) and the Attrition against its Sides, especially in sudden Rises and Descents, the Mercury breaks, some Parts of it are left behind, and the Equability of its Rise and Fall ruin'd. Some therefore prefer the

Diagonal Barometer, where the Space of Variation is considerably larger than in the common one, and yet the Rise and Fall more regular than in the others. The Foundation of the *Diagonal Barometer* is this; that in a Torricellian Tube A B, *Fig.* 5. inclined at any Angle to the Horizon, the Cylinder of Mercury equivalent to the Weight of the *Atmosphere*, is to a Cylinder of Mercury, equivalent to the same placed in a vertical Tube, as the Length of the Tube A B to the perpendicular Height B C. Hence, if the Height B C be subtriple, subquadruple, &c. of the Length of the Tube, the Changes in the *Diagonal Barometer* will be

be double, or triple, &c. of the Changes in the *common Barometer*. This *Barometer* will scarce allow its Tube to be inclined to the Horizon at a less Angle than 450, without undergoing the Inconveniency of the *Horizontal* one.

Wheel-Barometer is a Contrivance of Dr. *Hook*, to make the Alterations in the Air more sensible; the Foundation of this is the *common Vertical Barometer*, with the Addition of a couple of Weights A and B, *Fig.* 5. hanging in a Pulley, the one playing at liberty in the Air, the other resting on the Surface of the Mercury in the Tube, and rising and falling with it. Thus is the Motion of the Mercury communicated, by means of the Pulley, to an Index which turns round a graduated Circle; and thus the two Inches of vertical Ascent are here improv'd to 4, 5, or more, at pleasure. But the Friction of the Parts, in the Pulley, and Index, is so considerable, that unless the Machine be made with a great deal of Accuracy, it does not answer.

Pendant Barometer is a Machine rather pretty, and curious, than useful. It consists of a conical Tube placed vertically, its upper and smaller Extreme hermetically sealed; it has no Vessel or Cistern; its conical Figure supplying that Defect: for when fill'd, like the rest, there will be as much Mercury sustain'd as is equivalent to the Weight of the *Atmosphere*; and as that varies, the same Mercury takes up a different Part of the Tube, and so becomes of a different Weight. Thus when the Weight of the *Atmosphere* is increas'd, the Mercury is driven up into a narrower part of the Tube, by which means its Column is lengthen'd, and, for the Reason just given, its Weight increas'd. Again, the *Atmosphere* decreasing, the Mercury sinks into a wider Part of the Tube, by which means its Column is shorten'd, and its Pressure accordingly weaken'd. Thus the same Mercury is still a Balance to the *Atmosphere* under all its Variations. The Inconvenience in this *Barometer* is, that to prevent the Mercury and Air from changing Places, the Bore of the Tube must be very small; which Smallness of the Bore renders the Friction so sensible, as to impede its playing.

Marine Barometer is likewise a Contrivance of Dr. *Hook*, to be used at Sea, where the Motion of the Waves renders the others impracticable. 'Tis nothing more than a double *Thermometer*, or a Couple of Tubes half fill'd with Spirit of Wine; the one hermetically seal'd at both Ends, with a Quantity of common Air inclosed; the other seal'd at one End, and open at the other. Now, the Air, we know, is able to act on the Spirit of Wine, and to raise it two ways; the one by its Gravity, as in the *Torricellian Tube*; the other by its Heat, as in the *Thermometer*. If then the two Tubes be graduated, so as to agree with each other at the time when the Air is inclosed, it will easily follow, that, where-ever the two agree afterwards, the Pressure of the *Atmosphere* is the same, as at the time when the Air was inclosed. If in the *Thermometer* open to the Air the Liquor stand higher, considering withal how much the other is risen or fallen from the other Cause of Heat or Cold, the Air is heavier; on the contrary, when it is lower, compar'd with the other, the Air is lighter than at the time when the Instrument was graduated. Here the Spaces answering to an Inch of Mercury will be more or less, according to the Quantity of the Air inclosed, and the Smallness of the Tubes; and may be increas'd, almost in any Proportion.

But it must be remember'd, that the Density and Rarity of the Air, on which this Machine is founded, don't only depend on the Weight of the *Atmosphere*, but also on the Action of Heat and Cold. This, therefore, can never be a just *Barometer*; but may properly enough be call'd a *Menoscope*, or Instrument to shew the Density of the Air.

Statical Barometer or *Baroscope*, used by Mr. *Boyle*, *Otto*, *Guerric*, &c. is fallacious, and liable to be acted on by a double Cause: It consists of a large Glass Bubble, balanced by a Brass Weight, in a nice Pair of Scales: for these two Bodies being of equal Gravity, but unequal Bulk, if the Medium in which they equiponderate be changed, there will follow a Change of their Weight; so that if the Air grows heavier, the greater Body being lighter in Specie, will lose more of its Weight than the lesser and more compact; but if the Medium grow lighter, then the bigger Body will outweigh the less.

But the most accurate *Barometer* ever yet invented, is that of Mr. *Caswell*; the Structure whereof he describes as follows: Suppose A B C D, *Fig.* 6. a Bucket of Water, wherein is the *Barometer x r e z y o s m*, consisting of a Body *x r s m*, and a Tube *e z y o*. The Body and Tube are both concave Cylinders, communicating with each other, made of Tin, or rather Glass. The Bottom of the Tube, *z y*, has a Lead Weight to sink it, so as the Top of the Body may just swim even with the Surface of the Water, by the addition of some Grain Weights a-top. The Water, when the Instrument is forced with its Mouth downwards, gets up into the Tube to the Height *y o*. There is added on the Top a small concave Cylinder, which we call the *Pipe*, to distinguish it from the other at Bottom, which we call the *Tube*: this Pipe is to sustain the Instrument from sinking to the Bottom. *m d* is a Wire, *m s*, *d e* two Threads oblique to the Surface of the Water, performing the Office of *Diagonals*. Now, while the Instrument sinks more or less, by the Alteration of the Gravity of the Air; there, where the Surface of the Water cuts the Thread, is form'd a small Bubble, which ascends up the Thread, as the Mercury of the *common Barometer* ascends, & *vice versa*. This Instrument, as appears from a Calculation which he annexes, shews the Alterations in the Air more accurately than the *common Barometer*, by 1200 times. He observes, that the Bubble is seldom known to stand still a Minute; that a small Blast of Wind, that can't be heard in a Chamber, will make it sink sensibly; that a Cloud always makes it descend, &c.

Phænomena of the Barometer.

The Phænomena of the *Barometer* are various; the Causes assign'd for 'em by several Authors as various; nor is its Use in predicting the Weather yet perfectly ascertain'd.

On the top of *Snowdon Hill*, 1240 Yards high, Dr. *Halley* found the Mercury lower by 3 Inches 8 Tenths than at the Foot thereof; whence it appears, that at every 30 Yards the Mercury sinks $\frac{1}{10}$ of an Inch. Mr. *Derham*, from some Experiments he made at the Top and Bottom of the Monument, allows 32 Feet perpendicular Ascent to a Fall of the Mercury of $\frac{1}{10}$ of an Inch: Whence we have not only a Foundation for determining the Height of the *Atmosphere*, which on this Foundation (were it equally dense every where) would not be found more than 5 Miles and $\frac{1}{10}$; but also a very accurate Method of measuring the Height of Mountains. Thus, if on the Surface of the Earth the Mercury be at 30 Inches, at 1000 foot high, it will be at 28,91 Inches; at 2000 Foot, 27,86; at 3000, 26,85; at 4000, 25,87; at 5000, 24,93; at 1 Mile, 24,67; at 2 Miles, 20,29; at 5 Miles, 11,28; at 10 Miles, 4,24; at 15 Miles, 1,60; at 20, 0,95; at 30 Miles, 0,08; at 40, 0,012: tho it must be observ'd, this is on a Supposition that the *Atmosphere* is equally dense every where.

The greatest Height the Mercury has been known to stand at in the *Barometer*, at *London*, is 30 Inches $\frac{1}{8}$, its least 28 Inches; its greatest Height at the Observatory at *Paris*, has been found 28 Inches $\frac{4}{10}$, and its least 26 $\frac{8}{10}$ of the *Paris* Foot, which exceeds the *London* Foot by $\frac{3}{144}$: and with these Observations agree others made at *Hall*, in *Saxony*, by *Wolfius*. 'Tis true, there is an Experiment wherein the Height of the Mercury is found suprizingly to exceed these Numbers; Mercury perfectly purged being suspended in a Tube, in the *Torricellian* way, at the Height of 75 Feet; tho by the least Shake it falls down to the ordinary Height. See the Accounts of this Phænomenon under the Word *Torricellian*.

The Phænomena of the *Barometer*, Mr. *Boyle* observes, are so very precarious, that 'tis exceedingly difficult to form any general Rules about the Rise or Fall thereof. Even that which seems to hold most universally, *viz.* That when high Winds blow the Mercury is the lower, sometimes fails.

Dr. Halley *gives us the following Observations.*

That in calm Weather, when the Air is inclined to Rain, the Mercury is commonly low; in serene good settled Weather, high.

That on great Winds, tho unaccompanied with Rain, the Mercury is the lowest of all, with regard to the Point of the Compass the Wind blows on. That, *cæteris paribus*, the greatest Heights of the Mercury are on Easterly and North-Easterly Winds. That after great Storms of Wind, when the Mercury has been low, it rises again very fast.

That in calm frosty Weather it stands high.

That the more Northerly Places find greater Alterations than the more Southern: And that within the Tropicks, and near them, there is little or no Variation of the Height of the Mercury at all.

Dr. Beal *observes*;

That, *cæteris paribus*, the Mercury is higher in cold Weather than in warm, and usually in the Morning and Evening higher that at Mid-Day.

That in settled and fair Weather, the Mercury is higher than either a little before or after, or in the Rain; and that it generally descends lower after Rain than it was before it. If it chance to rise higher after Rain, is is generally follow'd by a settled Serenity.

That there are frequently great Changes in the Air, without any perceptible Alteration in the *Barometer*.

For the *Use of Barometers* an ingenious Author observes, That by their means we may regain the Knowledge which still resides in Brutes, and which we forfeited by not continuing in the open Air, as they generally do; and by our Intemperance, corrupting the Crasis of our Senses.

As to *the Predictions from Barometers*, Dr. *Halley* has found, that the Rising of the Mercury forebodes fair Weather after foul, and an Easterly or North-Easterly Wind.

That

That the Falling thereof portends Southerly or Westerly Winds with Rain, or stormy Winds, or both.

That in a Storm, the Mercury beginning to rise, is a pretty sure Sign that it begins to abate.

Mr. *Patrick* observes, that in hot Weather the Falling of the Mercury presages Thunder; that when foul Weather happens soon after the Fall of the Mercury, it seldom holds long; and the same is observ'd, if fair Weather succeed presently after its Rise.

Lastly, Mr. *Derham*, from a long Series of *Barometrical Observations* made by Dr. *Scheucher*, at *Zurich*, compar'd with others made at the same times by himself at *Upminster*, observes that throughout the whole Year the Mercury was lower at the former Place than at the latter, by sometimes one and sometimes above two Inches; tho the Difference at a Medium he computes to be about half an Inch; and thence concludes the Situation of *Zurich* to be near $\frac{1}{4}$ of an *English* Mile higher than that of *Upminster*. He found, however, a considerable Harmony between the two; the one usually rising and falling, and that much or little, as the other did; tho this Harmony is not so compleat, as has been observ'd in *Barometers* nearer home, as at *London*, *Paris*, in *Lancashire*, &c.

Cause of the Phænomena of the Barometer.

These are the Phænomena of the *Barometer*; to account for which, the *Hypotheses* that have been framed, are almost infinite. Indeed, as the Weight of the *Atmosphere* is generally allow'd to be the Foundation of the *Barometer*, so 'tis generally granted, that the Alterations in the Weight of the Air, are the Occasions of those in the *Barometer*; and yet even this does not obtain universally. Dr. *Lister*, for instance, accounts for the Changes of the *Barometer* from the Alterations of Heat and Cold. This, he says, he has often observ'd, that in Storms, &c. when the Mercury is at the lowest, it breaks and emits small Particles, which he calls a kind of *fretting*; and argues, that in all times of its Descent, it is more or less on the Fret. In this Disorder, he thinks, its Parts are contracted and brought closer together, and for that reason descend: Besides, in the fretting they let go little Particles of Air, before inclosed in 'em; and these rising into the Top of the Tube, the Mercury must sink, both from the Column's being shorten'd by their Escape, and by their lying upon it. Mercury therefore, he adds, rises either in very hot or very cold Weather, between the Tropicks, &c. as being then in its natural State; and again, in the intermediate Degrees of Heat and Cold it falls, as being contracted, and as it were convuls'd and drawn together. But this Account, however ingenious, comes far short of accounting for the Phænomena; nay, in some respects, contradicts them.

The Changes in the Weight of the *Atmosphere*, therefore, must be laid down as the Cause of those in the *Barometer*; but then, for the Cause of that Cause, or whence those Alterations arise in the *Atmosphere*, will be no easy Matter to determine; there being, perhaps, no one Principle in Nature, that will account for such a Variety of Appearances, and those too so irregular. 'Tis probable, the Winds, as driven this or that way, have a great Share in 'em; some Share too, Vapours and Exhalations rising from the Earth may have; some, the Changes in the Air of the neighbouring Regions; and some, the Flux and Reflux occasion'd in the Air by the Moon.

Dr. *Halley* thinks the Winds and Exhalations sufficient; and on their footing gives us a very probable Rationale of the *Barometer*: the Substance of what may be said on that Head is as follows.

1*st*, Then, the Winds must necessarily alter the Weight of the Air in any particular Country; and that, either by bringing together and accumulating a greater Quantity of Air, and so loading the *Atmosphere* of any Place; which will be the Case, as often as two Winds blow at the same time from opposite Points towards the same Point; or, by sweeping away part of the Air, and removing some of the Load, give room for the *Atmosphere* to expand itself; which will be the Case, when two Winds blow at the same time, and from the same Point, opposite ways; or, lastly, by cutting off the perpendicular Pressure of the *Atmosphere*, which happens, as often as any single Wind blows briskly any way; it being found by Experiment, that a strong Blast of Wind, even made by Art, will render the *Atmosphere* lighter; and accordingly, the Mercury, in a Tube under which it passes, as well as in another at a Distance from it, subsides considerably. See *Philos. Transact.* N°. 292.

2*dly*, The cold nitrous Particles, and even Air itself condens'd in the Northern Parts, and driven elsewhere, must load the *Atmosphere*, and increase its Pressure.

3*dly*, Heavy, dry Exhalations from the Earth, must increase the Weight of the *Atmosphere*, and heighten its Elastick Force, as we find the specifick Gravity of Menstruums increas'd by dissolv'd Salts and Metals.

4*thly*, The Air being render'd heavier from these and the like Causes, is thereby the more able to support the Vapours; which being likewise intimately mix'd with it, and swimming every where equably throughout it, make the Weather serene and fair: Again, the Air being made lighter from the contrary Causes, it becomes unable to support the Vapours wherewith it is replete; these therefore precipitating are gathered into Clouds, and those in their Progress coalesce into Drops of Rain.

These things observ'd, it appears pretty evident, that the same Causes which increase the Weight of the Air, and make it more able to support the Mercury in the *Barometer*, do likewise make a serene Sky, and a dry Season; and the same Causes which render the Air lighter, and less able to support the Mercury, do likewise generate Clouds and Rain.

Hence, 1*st*, When the Air is lightest, and the Mercury in the *Barometer* lowest, the Clouds are very low, and move swiftly; and when after Rain the Clouds break, and a calm Sky again shines forth, being purg'd of its Vapours, it appears exceedingly bright and transparent, and affords an easy Prospect of remote Objects.

2*dly*, When the Air is heavier, and the Mercury stands higher in the Tube, the Weather is calm, tho somewhat less clear, by reason the Vapours are dispers'd every where equally; if any Clouds now appear, they are very high, and move slowly. And when the Air is heaviest of all, the Earth is frequently found envelop'd in pretty thick Clouds, which appear to be form'd out of the grosser Exhalations, and which the Air is then able to sustain, tho a lighter *Atmosphere* could not.

3*dly*, Hence it is, that with us the Mercury stands highest in the coldest Seasons, and when the Wind blows from the North or North-East Corner: for in that Case there are two Winds blowing towards us at the same time, and from opposite Corners; there being a constant West Wind found in the *Atlantick* Ocean, at the Latitude corresponding to ours. To which we may add, that in a North Wind, the cold condens'd Air of the Northern Parts is brought hither.

4*thly*, Hence, in the Northern Regions, the Variation of the Mercury is more sensible than in the Southern ones; the Winds being found both more strong, more frequent, more various, and more opposite to each other in the former than the latter.

Lastly, Hence it is, that between the Tropicks, the Variation of the Mercury is scarce sensible; the Winds there being extremely gentle, and usually blowing the same way.

Now, this Account, however well adapted to many of the particular Cases of the *Barometer*, yet comes short of some of the principal and most obvious ones; and is, besides, liable to several Objections.

For, 1*st*, If the Wind were the sole Agent in effecting these Alterations, we should have no Alterations without a sensible Wind, nor any Wind without some Alteration of the Mercury; both which are contrary to Experience.

2*dly*, If two Winds be suppos'd blowing from the same Place, *viz. Lond n*, opposite ways, *viz.* N. E. and S. W. there will be two others, blowing from opposite Points, *viz.* N. W. and S. E. to the same Place; which two last will balance the first, and bring as much Air towards the Point, as the others swept from it. Or thus, In proportion as the Air is carried off N. E. and S. W. the adjacent Air will croud in from the other Points, and form a couple of new Currents in the Direction N. W. and S. E. to fill up the Vacancy, and restore the *Æquilibrium*. This is a necessary Consequence from the Laws of Fluids.

3*dly*, If the Wind were the sole Agent, the Alterations in the Height of the Mercury won'd only be relative or topical; there would be still the same Quantity supported at several Places taken collectively: Thus what a Tube at *London* lost, another at *Paris*, or at *Pisa*, or at *Zurich*, &c. won'd at the same time gain. But we find the very contrary true in Fact; for from all the Observations hitherto made, the *Barometers* in several Parts of the Globe rise and fall together; so that it must be some Alteration in the absolute Weight of the *Atmosphere*, that accounts for the Rise and Fall of the Mercury.

Lastly, Setting aside all Objections, these popular Phænomena, the Mercury's Fall before, and Rise after Rain, are really inexplicable on the foot of this Hypothesis: for, suppose two contrary Winds sweeping the Air from over *London*: we know that few, if any, of the Winds reach above a Mile high; all therefore they can do, will be to cut off a certain Part of the Column of Air over *London*: If the Consequence of this be the Fall of the Mercury, yet there is no apparent Reason for the Rains following it. The Vapours indeed, may be let lower, but 'twill only be till they come into an Air of the same specifick Gravity with themselves; and there they will stick as before.

M. *Leibnitz* endeavours to supply the Defects of this Hypothesis with a new one of his own. He asserts, that a Body immers'd in a Fluid, only weighs with that Fluid while it is sustained thereby; so that when it ceases to be sus-

tain'd, *i. e.* to fall, its Weight ceases to make a Part of that of the Fluid; which by this means becomes lighter. Thus, adds he, the watery Vapours, while sustain'd in the Air, increase its Weight; but when let fall, cease to weigh along with it. Thus the Weight of the Air is diminish'd; and thus the Mercury falls, and Rain ensues.

But M. *Leibnitz*'s Principle, notwithstanding the Experiment he brings to confirm it, is false, as has been made appear by a counter-Experiment of Dr. *Desaguliers*. For, a Body, whether specifically equal, or lighter, or heavier than a Fluid, while it is immerg'd in it, whether it be at Rest or in Motion, adds to the Fluid a Weight equivalent to that of an equal Bulk of the Fluid; as follows from that Law in *Hydrostaticks*, *That Fluids gravitate according to their perpendicular Altitudes*. However, were M. *Leibnitz*'s Principle true, yet 'tis defective; and that in the same respect with Dr. *Halley*'s: Nor wou'd it account for the Phænomena more than the other. For, supposing the Vapours, by being condens'd, to be put in a Motion downwards, and so ceasing to gravitate with the *Atmosphere*; they will therefore fall, till they reach a Part of the *Atmosphere* of the same specifick Gravity with themselves; and there they will hang as before. If the Mercury fall, 'twill only be during the Time of that Descent; for these once fix'd, the former Gravity is retriev'd; or, were it not retriev'd, yet no Rain wou'd ensue the Fall of the Mercury.

If it might be allow'd us to add any thing after these great Men, it should be as follows: Suppose any Number of watery Vesicles, *v. g.* a Million, floating in any Part of the *Atmosphere*, over any determinate Portion of the Globe; for instance, over A B. If the upper Vesicles be condens'd by the Cold of the upper Regions, their specifick Gravity will be increas'd, and they will descend; the Horizontal Class 1 *v. g.* to 2, 2 to 3, &c. where meeting with other Vesicles not yet precipitated, they will coalesce, or run into larger Vesicles, by the known Laws of Attraction. Or, if we rather chuse to have the Wind act, let it drive either horizontally, or obliquely: In the former Case, the Vesicles, Class 8, will be driven against 9; that, against 10, &c. or the oblique Class A 7, driven against 5, 8 against 4, &c. By this means likewise will the Particles coalesce, and form new and larger Vesicles, as before; so that their Number, which before was a Million, will now be reduced, *v. g.* to a Hundred Thousand: But by the same Coalition whereby their Number is diminish'd, their specifick Gravity is increas'd, *i. e.* they come to have more Matter in the same Space, or under the same Surface; as may be easily prov'd from Principles of Geometry: For, in augmenting the Mass of any homogeneous Body, the Increase of Surface does not keep pace with that of the Solidity; but that of the former, is as the Square of the Diameter; and that of the latter, as the Cube of the same. If then the Diameter of a Vesicle were 4, and its Surface and Mass 24; after Coalition, if its Diameter be 6, its Surface or Bulk will be 54, and its solid Content 81. But since the same Quantity of Matter is now in a less Space, or under less Dimensions, it will lose less of its Weight by the Resistance of the Medium. This is evident; for, a Body immerg'd in a Fluid, loses nothing of its Weight, but by the Friction of its Parts against those of the Fluid; but the Friction is evidently as the Surface: therefore, where the Surface is lessen'd, the Resistance must be so too. Consequently, the Vesicles, whose Gravity before the Coalition was equal to the Resistance of the Medium, now that Resistance is diminish'd, will descend; and that with a Velocity, in a *Ratio* of the Increase of the Mass to the Increase of the Surface. In their Descent, as they arrive at denser Parts of the *Atmosphere*, *v. g.* at 4, 5, &c. their Mass and Surface again will be increas'd by new Coalitions; and thus, by constant fresh Accessions, more than equal to the constant Resistances, they will be enabled to pursue their Journey thro all the Stages of the Air, till they reach the Earth; their Masses exceedingly magnified; and in the form of Rain.

Now that the Vapours are got down, let us consider how the *Barometer* must have been affected in their Passage. E'er any of the Vesicles began to subside, either from the Action of the Cold, or of the Wind, they all floated in the Portion of the *Atmosphere* A B C D, and all gravitated towards the Centre E. Here now, each respectively residing in a Part of the Medium of the same specifick Gravity with itself, will lose as much of its Weight, as is equal to that of a Part of the Medium of the same Bulk with itself, *i. e.* each will lose all its Weight. But then, whatever Weight each loses, it communicates to the Medium, which now presses on the Surface of the Earth A B, with its own Weight, and that of the Vesicles conjointly. Suppose then, this united Pressure keeps up the Mercury in the *Barometer* at 30 Inches: By the Coalition of the Vesicles from the Causes aforesaid, their Surfaces, and consequently their Friction is lessen'd: They will therefore communicate less of their Weight to the Air, *i. e.* less than the whole; and consequently will descend with the Excess, *i. e.* with a Velocity equal to the Remainder, as before observ'd. Now as the Vesicles can act no otherwise on the Surface of the Earth AB, but by the Mediation of the interjacent Air; in proportion as their Action on the Medium is less, their Action on the Earth will be less. 'Tis also evident, that the Surface of the Earth A B, must be now less press'd than before; and that in proportion, as the Vesicles reserve more of their Weight uncommunicated to the Medium, to promote their own Descent, *i. e.* in proportion to the Velocity of the falling Vesicles; which is, again, in proportion to their Bulks. Thus, as the Vesicles descend; their Bulks continually increasing, the Friction, and therefore the Pressure on the Earth, and lastly, the Height of the Mercury, will continually decrease, during the whole time of the Fall. Hence we see, both why the Vesicles, when once beginning to fall, persevere; why the Mercury begins to fall at the same time; and why it continues and ceases to fall together with 'em: which were the great Desiderata in the Philosophy of the *Barometer*.

I see but one Objection that lies against this Theory; and 'tis this, That the Vesicles being put in Motion, and striking against the Particles of the Medium and one another with some Moment, will meet with a considerable Resistance from the *Vis Inertiæ* thereof; by which means their Descent will be retarded, and the Pressure of the *Atmosphere* retriev'd; the *Impetus* of the moving Vesicles being supposed to compensate for their Loss of Surface. Thus a heavy Body, sustain'd in a Fluid by a Hair, and moved up and down therein, presses more on the Bottom, than when held at Rest; which additional Pressure will be the greater, as the Velocity of the falling Vesicles is the greater; a greater Impulse being requir'd to break thro the *Vis Inertiæ* of the contiguous Particles, in a less time than in a larger. But we have both Reason and Experiment against this Objection: For, besides that the Velocity of the Vesicles, in these Circumstances, must be very small, and their Impulse inconsiderable; besides, that the *Vis Inertiæ* of the Air must be exceedingly weak, by reason of its extreme Subtility; and that it must be a very improper Vehicle to convey an Impulse to a Distance, by reason of its Elasticity: we find, that even in Water, (a gross un-elastick Medium) and a Piece of Lead, (a ponderous Body which falls with a great Moment) that even here the Body, in its Descent thro the Fluid, gravitates considerably less than when sustain'd at Rest therein: In which the several Experiments of *Reaumer*, *Ramazzini*, and *Desaguliers*, all agree.

BARON, a Term used in various Senses: First, as a Degree of Nobility next below a Viscount, and above a Gentleman; in which Sense it is the same as in other Nations, where *Baroniæ* are *Provinciæ*; and Barons are those who have the Government of Provinces, as their Fee holden of the King, some having greater, some less Authority within their Territories: and, probably, all those were call'd *Barons* that had such Seigniories or Lordships, as are now call'd *Court-Barons*; who are the same with *Seigneurs* in *France*. Soon after the Conquest, all such came to Parliament, and sat as Peers in the Upper House; but growing very numerous, it was in the Reign of King *John* ordain'd, that none but the *Barones majores* should, for their extraordinary Wisdom, Interest, or Quality, be summon'd to Parliament. But this State of the Nobility being very precarious, and depending solely on the Prince's Pleasure, they at length obtain'd of the King Letters-Patent of this Dignity to them and their Heirs Male; and these were call'd *Barons by Patent*, or *Creation*, whose Posterity are now by Inheritance Lords of Parliament; of which kind the King may create at his Pleasure. Nevertheless, there are *Barons by Writ*, as well as *Letters-Patent*; those who were first *by Writ*, may now justly be call'd *Baron by Prescription*, for that they and their Ancestors have continued *Barons* beyond the Memory of Man, and by having their *Sirnames* annex'd to the Title of *Lord*; whereas *Barons by Patent* are named by their *Barones*. The Original of *Barons by Writ*, *Camden* refers to *Henry* III. and *Barons by Patent*, or *Creation*, commenc'd in the time of *Richard* II. To these there is a third kind added, call'd *Barons by Tenure*, and such are the Lords the Bishops, who, by virtue of *Baronies* annex'd to their Bishopricks, sit in the Upper House of Parliament, and are call'd *Lords Spiritual*. Formerly all Men were call'd *Barons*, at least all of the King's Family, or that held immediately of him. *Chamberlain* observes, that from the Time of the Suppression of the Rebellion of the *Barons* by *Henry* III. only such among 'em as had continued loyal, were call'd *by Writ* to Parliament; and that those only were reputed *Peers of the Realm*, who were thus call'd *by Writ*; and thus the others lost their *Peerage*. Antiently the *Earls Palatine*, and *Earls Marches of England*

land had their *Barons*; and in *Cheshire* there is one still subsisting, *viz.* the *Barony of Burford*. But as no Bishop, but those who hold immediately of the King, are *Peers of the Realm*, (for the Bishop of *Sodor* and *Man*, holding immediately of the Earl of *Derby*, is no *Peer of England*,) so no *Baron*, but those who hold immediately of the King, are *Peers of the Realm*. See *Peer*.

Baron is also us'd for an Officer; as the *Barons of the Exchequer*; of whom the *Lord Chief Baron* is the chief; three others are his Assistants, in Causes of Justice between the King and his Subjects, touching Matters belonging to the *Exchequer* and the King's Revenue. They are call'd *Barons*, because *Barons of the Realm* were us'd to be imploy'd in that Office. Their Office is also to look to the Accompts of the King; to which end they have *Auditors* under them; as well as to decide Causes relating to the Revenue, brought by any means into the *Exchequer*. So that of late they have been constantly Persons learn'd in the Law; whereas formerly they were *Majores & discretiores in Regno, sive de Clero essent, sive de Curia*. Sir *William Temple* says, that *Baronies* were originally the larger Shares of the Lands of conquer'd Countries, which the *Northern* Invaders, such as the *Goths*, &c. used to divide among their Generals, and chief Commanders; as the smaller Shares, divided among the Soldiers, were call'd *Feuda*, or *Fees*.

There are also *Barons of the Cinque-Ports*; which are Members of the House of Commons; two stand for each Port. (See *Cinque-Port*.) *Baron* is also used for the Husband, in relation to the Wife; which two in Law are call'd *Baron and Feme*. The Chief Magistrates also of the City of *London*, before they had a *Lord-Mayor*, were call'd *Barons*.

Menage derives the Word *Baron* from the Latin *Baro*, a strong valiant Man. Others from the German *bawer*, Peasant. *Isidore*, and after him *Camden*, take the Word in its original Sense to signify, *a mercenary Soldier*. The Messieurs of the *Port Royal* derive it from βαρ⊖, *Authority*, *Power*. *Cicero* uses the Word *Baro* for a *stupid brutal Man*. And the old *Germans* make mention of *buffeting a Baron*, i. e. *a Villain*. The *Italians* use the Word *Barone* to signify *a Beggar*, and *baronare*, *to beg*. Others, again, derive it from the *old Gaulish*, *Celtick*, and *Hebrew* Languages: but the most probable Opinion is, that it comes from the Spanish *Varo*, a stout noble Person; whence Wives come to call their Husbands, and Princes their Tenants, *Barons*. In the *Salick* Laws, as well as the Laws of the *Lombards*, the Word *Baron* signifies *a Man*. In the general and the old Glossary of *Philomenes*, he translates *Baron* by ἀνηρ, *Man*. M. *de Marca* and *Camden*, derive it from the German *Bar*, *Man*, or *Freeman*: Others again from *Banner haires*, Ensign-Bearer.

BARON AND FEME, a Term in Heraldry, when the Coat of Arms of a Man and his Wife are born *per* Pale in the same Escutcheon, the Man's being always on the Dexter Side, and the Woman's always on the Sinister: But here the Wife is not an Heiress; for then her Coat must be born by the Husband on an Inescutcheon, or Escutcheon of Pretence.

BARONET, a Diminutive of *Baron*, a Dignity or Degree of Honour next beneath a *Baron*, and above a *Knight*, having Precedency of all other *Knights*, excepting those of the *Garter*. 'Tis given by Patent, and is the lowest Degree of Honour that is Hereditary. The Word *Baronet* is used in some of our old Statutes, &c. for *Banneret*; particularly in a Statute of *Richard* II. The Order of *Baronets* was founded by King *James* I, in 1611, who rais'd 'em in lieu of *Knights Bannerets*; or, as others will have it, in lieu of the antient *Valvasors*. They had several considerable Privileges given 'em, with an *Habendum* to them and their Heirs Male. They were allow'd to charge their Coat with the Arms of *Ulster*, which are in a Field Argent a Hand Gules; and that upon condition of their defending the Province of *Ulster*, in *Ireland*, against the Rebels, who then hatass'd it extremely; and, to that end, were to raise and keep up 30 Soldiers, at their own Expence, for three Years together; or, to pay into the *Exchequer*, a Sum sufficient to do it; which, at 8 *d. per* Day *per* Head, is 1095 *l.* now always remitted 'em. Their Number was at first limited to 200, but was afterwards increas'd. The Title *Sir* is granted 'em by a peculiar Clause in their Patents, tho they be not dubb'd *Knights*. A *Baronet*, and his eldest Son being of full Age, may claim *Knighthood*. To be a *Baron* 'tis requir'd a Person have 1000 *l. per Ann.*

BARONY, the Dignity, Territory, and Fee of a *Baron*; under which Notion are not only compriz'd the Fees and Lands of *Temporal Barons*, but also of *Bishops*; who, besides their Spiritual Estates, have also Temporal ones given 'em by the King, and call'd *Baronies*; by which they become *Barons*, and are Lords of Parliament. In antient Times, 13 Knights Fees and ¼ made up a *Tenure per Baroniam*, which amounted to 400 Marks *per Ann.*

This *Barony*, according to *Bracton*, is a Right invisible. Wherefore, if an Inheritance be to be divided among Copartners, tho some Capital Messuages may be divided, yet, if the Capital Messuage be the Head of a *County*, or *Barony*, it may not be parcell'd; and the Reason is, left by this Division, many of the Rights of *Counties* and *Baronies*, by Degrees, come to nothing, to the Prejudice of the Realm; which is said to be compos'd of *Counties* and *Baronies*. The *Baronies* belonging to Bishops are, by some, call'd *Regalia*, as being held solely on the King's Liberality. These don't consist in one *Barony* alone, but in many; for, *tot erant Baroniæ, quot majora prædia*.

BAROSCOPE, a Machine to shew the Alterations in the Weight of the *Atmosphere*, from βαρ⊖, *onus*, and σκοπέω, *video*. See *Barometer*.

BARRATRY, in a marine Sense, is the Master of a Ship's cheating the Owners or Insurers, whether by running away with the Ship, sinking her, deserting her, or embezzeling the Cargo.

BARREL, a Vessel or Measure for things liquid. The *Barrel*, Wine Measure, contains 42 Gallons, or half of a Hogshead. Ale or Beer Measure, 36 Gallons, or half a Hogshead. (See *Measure*.) The *Barrel* or *Barrille* of *Florence*, is a liquid Measure containing 20 Fiasques, Flasks, or one third of a Star or Staio. The *Barique*, *Barrel* of *Paris*, contains 210 Pints, or 26 Septiers and an half; four *Bariques* make three Muids.

Barrel is also used for a certain Quantity, or Weight, of several Merchandizes; which is various as the Commodities vary. In this sense we say, a *Barrel*, or *Cask*, of Herrings, or Mackerel; 12 whereof make a Last. A *Barrel* of Gun-powder for Ships, is ordinarily about 100 Pounds Weight. Authors derive the Word from the Spanish *Barril*, an earthen Vessel with a wide Belly and narrow Neck. The *Roman Barrel*, according to *Vigenere*, contains four Congia, or 76 Pints, and weighs 170 Pounds 10 Ounces.

Barrel, in Anatomy, a pretty large Cavity behind the Drum of the Ear. It is lined with a Membrane, in which there are several Veins and Arteries. It is always full of a purulent Matter in Children; and in its Cavity there are four small Bones, *viz.* the *Malleolus*, the *Incus*, the *Stapes*, and the *Os orbiculare*. See *Ear*.

BARRETOR, in Law, a common Mover or Maintainer of Suits, Quarrels, or Parties, either in Courts or elsewhere; and who is himself never quiet; *qui cum Terentiano Davo omnia perturbat*. *Lambard* derives the Word from the Latin *Barathro*, or *Balatro*, a vile Knave or Unthrift. *Skene* says, that *Barretors* are *Simonists*; and derives the Word from the Italian *Barrataria*, Corruption, or Bribery in a Judge.

BARRICADO, a military Term for a Fortification, or Retrenchment, hastily made with Vessels of Earth, Carts, Trees, &c. to preserve an Army from the Enemy's Shot, or Assault. The general Matter of *Barricados* is Trees, which are cross'd with Barroons as long as an Half-Pike, bound about with Iron at the Feet, and usually set up in Passages, or Breaches, to keep back as well the Horse as Foot.

BARRIER, a kind of Fortification made at a Passage, Retrenchment, Gate, &c. to stop up the Entry thereof. It is usually made of great Stakes, about four or five Foot high, placed at the Distance of eight or ten Foot one from another, with overthwart Rafters, to stop either Horse or Foot that wou'd rush in; in the middle of which is a moveable Bar of Wood, which opens and shuts at Pleasure.

Barriers have been likewise used to signify a martial Exercise of Men, armed and fighting together with short Swords, within certain Rails or *Bars*, whereby they are inclosed from the Spectators.

BARRISTERS, in Law, Persons who for their long Study, and Knowledge of the Common Law, are call'd out to the *Bar*, to take on 'em the Protection, and Defence of Clients. These, in other Countries, are call'd *Licentiates*. To pass *Barristers* they were formerly oblig'd to study eight Years, now seven. The Exercise requir'd, was 12 grand Moots perform'd in the *Inns of Chancery* in time of the grand Readings, and 24 petty Moots at the *Inns of Chancery* in Term-Time, before the Readers of the respective *Inns of Chancery*. A *Barrister* newly called, is to attend the next six long Vacations the Exercise of the House, *viz.* in Lent and Summer, and is thereupon for these three Years call'd a *Vacation Barrister*. These are call'd *Utter Barristers*, i. e. Pleaders without the *Bar*, to distinguish 'em from *Benchers*, or those who have been *Readers*, who are sometimes admitted to plead within the *Bar*, as the King's, Queen's, or Prince's *Council* are; hence call'd *Inner Barristers*.

BARRULET, in Heraldry, is the half of the Closet, and the quarter of the Bar.

BARRY; when an Escutcheon is divided Bar-ways into an even Number of Partitions, it is express'd in Blazon by the Word *Barry*, and the Number of Pieces is to be specified;

cified: But if the Divisions be odd, then the Field must be first named, and the Number of Bars expressed.

BARRY-BENDY, is when an Escutcheon is divided evenly both Bar and Bend-ways, as thus, *Barry-Bendy*, *Or*, and *Sable*.

BARRY-PILY, is when a Coat is thus divided, and it is to be blazon'd *Barry-Pily* of eight Pieces.

BARTER, in Commerce, signifies to truck, or exchange one Commodity for another. The Word comes from the Spanish *Baratar*, to deceive or cheat in bargaining; perhaps, because those who deal this way, usually endeavour to over-reach one another.

BARTON, in *Devonshire*, and the West of *England*, is used for the Demesne Lands of a Manner, for the Manner-House, and in some Places for Out-Houses, Fold-Yards, &c.

BASALTES, a kind of Stone, or Marble, described by the antient Naturalists as of the Hardness and Colour of Iron. The largest Block of it that was ever seen, *Pliny* says, was placed by *Vespasian* in the Temple of *Peace*: In it were represented 16 Children playing on the Banks of the *Nile*. He adds, that the Statue of *Memnon*, in the Temple of *Serapis*, at *Thebes*, which neighed at the Rising of the Sun, was made of this Stone. Most of the antique *Egyptian* Figures remaining, are apparently of this Stone. Some of the Antients call it *Lapis Lydius*, from *Lydia*, the Place where it was found in most abundance; and the Moderns, the Touch-stone, as being used to examine Gold and Silver. It was hard, heavy, close, black, and resisted the File; and had its Name from *Basal*, Iron, or βασανίζω, *diligenter examino*. *Dalechampius* says, there are Stones of the same kind near *Gaillon* in *Normandy*; others are brought from *Ethiopia* and *Germany*.

BASE, in Architecture, from the Greek βασις, *Rest*, or *Support*, is used to signify any Body which bears another; but particularly for the lower Parts of a Column and a Pedestal. The *Base* is sometimes also call'd *Spira*, from *Spiræ*, the Fo'ds of a Serpent laid at Rest, which make a Figure not unlike it.

The *Base of a Column* is that part between the Shaft and the Pedestal, if there be any Pedestal; or, if there be none, between the Shaft and the Plinth, or Zocle. (See *Column* and *Pedestal*.) The *Base* is supposed to be the Foot of the Column; or, as some will have it, 'tis that to a Column which a Shoe is to a Man. The Members or Ornaments whereof it is composed, are supposed by others to have been originally intended to represent the Iron Circles wherewith the Feet of Trees and Posts which supported the antient Houses were girt, in order to strengthen them.

The Base is different in the different Orders.

The *Tuscan Base* is the most simple of all the Orders; consisting only of a single *Tore* besides the *Plinth*.

The *Dorick Base* has an *Astragal* more than the *Tuscan*; tho that was introduced by the Moderns.

The *Ionick Base* has a large *Tore* over two slender *Scotias*, separated by two *Astragals*; tho in the most antient Monuments of this Order there are no *Bases* at all; which the Architects are at a loss to account for.

The *Corinthian Base* has two *Tores*, two *Scotias*, and two *Astragals*.

The *Composite* has an *Astragal* less than the *Corinthian*.

The *Attick Base*, so call'd because first used by the *Athenians*, has two *Tores* and a *Scotia*, and is very proper for *Ionick* and *Composite* Columns.

Base, or *Basis*, in Fortification, is the external Side of the *Polygon*; or, the imaginary Line which is drawn from the *flank'd Angle* of a *Bastion*, to that which is opposite thereto.

Base of a Figure, in Geometry, is the lowest Part of its *Perimeter*.

Base, in Musick, that Part of a Consort which is the most heard, which consists of the gravest, deepest and longest Sounds; or, which is play'd on the largest Pipes, or Strings, of a common Instrument, *viz.* an *Organ*, or *Lute*; or, on Instruments larger than ordinary, for that purpose, as *Bass-Viols*, *Bassons* or *Bass-Hautboys*, &c. Musicians hold the *Base* the principal Part of a Consort, and the Foundation of the Composition: tho some will have the *Treble* the chief Part; which others only make a Circumstance, or Ornament. *Counter-Base*, is a *second Base*, where there are several in the same Consort. *Thorough Base*, is the Harmony made by *Bass-Viols*, or *Theorbos*, continuing to play, both while the Voices sing, and the other Instruments perform their Part; and also filling the Intervals when any of those stop. M. *Brossard* observes the *Thorough-Base* to be a Part of the modern Musick; first invented in 1600, by an *Italian*, call'd *Ludovico Viadana*. 'Tis play'd by Cyphers mark'd over the Notes, on the *Organ*, *Spinette*, *Harpsichord*, *Theorbo*, *Harp*, &c. and frequently, simply, and without Cyphers, on the *Bass-Viol*, *Basson*, &c.

Base of a Triangle; any one Side thereof is occasionally so call'd, tho properly 'tis the lowest Side, or that which lies parallel to the Horizon. Indeed, in a *rectangled Triangle*, the *Base* is properly that Side opposite to the *right Angle*, i. e. the *Hypothenuse*. The *Base of a solid Figure* is its lowest Side, or that whereon it stands: *Base of a Conick Section* is a right Line in the *Hyperbola* and *Parabola*, made by the common Intersection of the *secant Plane*, and the *Base* of the *Cone*.

BASE-COURT, in Law, is any Court that is not of Record. See *Court*.

BASE-FEE, or *Base-Estate*, in Law, is a Base-Tenure, or Tenure at the Will of the Lord. See *Fee*.

BASE-POINT, in Heraldry. See *Escutcheon*.

BASE-RING *of a Cannon*, is the *great Ring* next behind the *Touch-hole*.

BASE-TENURE, is holding by Villanage, or other customary Service; as distinguish'd from the *higher Tenure in capite*, or by military Service. See *Tenure*.

BASIL, among Joiners, &c. the Angle to which the Edge of an Iron Tool is ground. To work on soft Wood they usually make their *Basil* 12 Degrees, for hard Wood 18; it being observ'd, that the more acute or thin the *Basil* is, the better and smoother it cuts; and the more obtuse, the stronger and fitter for Service.

Basil, a Monastick Order. The Order of St. *Basil* is the most antient of all the religious Orders; it takes its Name from St. *Basil*, Bishop of *Cesarea*, in *Cappadocia*, who was the Author of the Rule observ'd by this Order. The Order of St. *Basil* was antiently very famous in the East.

BASILARE OS. See *Sphænoides Os*.

BASILIC, or *Basilica*, in Architecture, from the Greek βασιλικη, *royal House*, or *Palace*; a Term antiently used for a large Hall, or publick Place, with Isles, Porticos, Galleries, &c. where the Princes administer'd Justice in Person: But the Word has been since transfer'd to signify any great Church, Court of Justice, or Exchange. *Azor* is of opinion, that *Basilics* were formerly such Churches as were not consecrated: But *Baronius* seems to have more Reason, when he says the Term was applied to the most magnificent Churches; such, which by their Grandeur as far surpass'd other Churches, as Princes Palaces do private Houses. Thus we still say, the *Basilic of St. Peter*, for the *Church of St. Peter*, &c. M. *Perrault* says, that *Basilics* differ'd from *Temples*, in that the Columns of *Temples* were without-side, and those of *Basilics* within. There were formerly four kinds of *Churches* at *Rome*, *viz.* *Patriarchal*, *Titular*, *Diaconial*, and *Oratorial*; whereof the first were those particularly call'd *Basilics*. See *Church* and *Temple*.

BASILICA, in Anatomy, the Name of a Vein, call'd also *Hepatica*; arising from the Axillary Branch, and running the whole Length of the Arm. It divides it self into two; the one whereof runs down the *Radius*, the other down the *Ulna*; the little Branches whereof extend to the Fingers. There are two Veins of this Name; the one whereof is call'd the *superficial*, or *subcutaneous*; the other, the *deeper* or *inner Basilica*.

BASILICON, in Pharmacy, is an Unguent so call'd, compos'd of Rosin, Wax, Pitch, and Oil; which the Surgeons use for a *Suppurative*.

BASILICS, a Collection of the *Roman* Laws, translated into Greek by the Order of *Basilius* and *Leo*, which were of Force in the *Eastern* Empire till its Dissolution. They comprehended the *Institutes*, *Digests*, *Code*, and *Novels*, and some Edicts of *Justinian*, and other Emperors. The Collection consisted of 60 Books; for which reason it was call'd Ἑξηκοντάβιβλος. It is supposed to be the Work of the Emperor *Leo*, the Philosopher, who gave it the Name of his Father *Basil*. Of the 60 Books, there are now remaining 41; the remaining 19 are, in some measure, supplied from the *Synopsis Basilicωn*, &c.

Basilics were Officers in the *Grecian* Empire, who carried the Emperor's Orders. The Word is deriv'd from βασιλικος, *regal*.

BASILICUS, or *Cor Leonis*, is a fix'd Star of the first Magnitude, in the Constellation *Leo*. Its Longitude, Latitude, &c. see among those of the other Stars in the Constellation *Leo*.

BASILIDIANS, were Hereticks, the Followers of *Basilides*, who lived near the Beginning of the second Century: He was educated in the *Gnostick* School over which *Simon Magus* presided; with whom he agreed, that *Christ* was only a Man in Appearance, that his Body was a Phantom, and, that he gave his Form to *Simon* the *Cyrenian*, who was crucified in his Stead. He allow'd his Disciples to renounce the Faith to avoid Martyrdom; because, says he, *Jesus*

tended to find many Mysteries in the Name of God, by which they imposed upon the People. They also invented certain Amulets, to which they attributed great Virtues. We learn from *Eusebius*, that this Impostor wrote 24 Books upon the Gospels, and that he forged several Prophets; to two of which he gave the Names *Barcaba* and *Barcoph*: His Disciples supposed there were particular Virtues in Names, and thought with *Pythagoras* and *Plato*, that Names were not found by chance, but naturally signified something. *Basilides*, to imitate *Pythagoras*, made his Disciples keep silence for five Years.

BASIOGLOSSUM, or rather *Basigloſſum*, in Anatomy, is a Pair of Muscles which arise fleshy from the Basis of the *Os Hyoides*, and are inserted into the Root of the Tongue: They serve to draw the Tongue towards the Bottom of the Mouth. The Word comes from the *Greek* βασις, Foundation, and γλῶσσα, *lingua*, a Tongue.

BASIS, in Anatomy, is applied to the upper and broader part of the Heart, in opposition to the *Mucro*, or Point; because, considering it as a Cone, which it resembles in Shape, this Name is proper to it, altho by its Situation it is uppermost. The Root of the *Os Hyoides* hath likewise this Name. See *Heart*.

BASON, in Anatomy, is a round Cavity in form of a Tunnel, situate between the anterior Ventricles of the Brain, descending from its Base, and ending in a Point at the *Glandula Pituitaria*; 'tis form'd of the *Pia Mater*, and receives the Serosity which comes from the Brain, and passes thro the Pituitary Gland, and from thence into the Veins. That Capacity also is called *Bason*, which is formed by the *Ossa Ilia* and *Sacrum*, and contains the Bladder of Urine, the *Matrix*, and the Intestines. See *Pelvis*.

Basons of a Balance, two Pieces of Brass, or other Matter, fastened to the Extremities of the Strings; the one to hold the Weight, the other the thing to be weigh'd. See *Balance*.

Bason, or *Dish*, among Glass-Grinders. They use various kinds of *Basons*, of Copper, Iron, *&c.* and of various Forms, some deeper, others shallower, according to the Focus of the Glasses to be ground. In these *Basons* it is, that Convex Glasses are form'd, as Concave ones are form'd on Spheres or Bowls. Glasses are work'd in Basons two ways: In the first the *Bason* is fitted to the Arbor, or Tree, of a Lath, and the Glass (fix'd with Cement to a Handle of Wood) presented and held fast in the Right Hand within the *Bason*, while the proper Motion is given by the Foot to the *Bason*: In the other, the *Bason* is fix'd to a Stand, or Block, and the Glass with its wooden Handle moved. The *moveable Basons* are very small, seldom exceeding five or six Inches in Diameter; the others are larger, sometimes above ten Foot Diameter. After the Glass has been ground in the *Bason*, 'tis brought smoother with Grease and Emery; and polish'd first with Tripoli, and finish'd with Paper cemented to the Bottom of the *Bason*. See *Glass*, *Lens*, *Mirror*.

Bason, among Hatters, a large round Shell, or Case, ordinarily of Iron, placed over a Furnace; wherein the Matter of the Hat is moulded into Form. The Hatters have also *Basons* for the Brims of Hats, usually of Lead, having an Aperture in the middle, of a Diameter sufficient for the largest Block to go through. See *Hat*.

Bason is also used on various Occasions for a Reservatory of Water; as, the *Bason* of a *Jet d'Eau*, or Fountain; the Bason of a Port, of a Bath, *&c.* which last *Vitruvius* calls *Labrum*. See *Fountain*.

BASS-VIOL, a Musical Instrument, of the same Form with that of the *Violin*, except that 'tis much larger. 'Tis struck like that, with a Bow; but has Strings and eight Stops, divided into Half-Stops, or Semi-Tones. The Sound it yields is much more grave, sweet, and agreeable, than that of the *Violin*, and of much better effect in a Consort. See *Violin*.

BASSON, or *Bassoon*, a Musical Instrument of the Wind Kind, serving for the *Base* in Consorts of Musick, Hautboys, *&c.* To make it more portable it divides into two Parts: Its Diameter at Bottom is nine Inches, and its Holes are stopp'd with Keys, *&c.* like large Flutes.

BASSO RELIEVO, or *Bass Relief*, a Piece of Sculpture, the Figures whereof do not project far, or stand out from the Ground with their full Proportion. M. *Felibin* distinguishes three Kinds of *Basso Relievo*'s; in the first the Front Figures appear almost with their full *Relievo*, in the second they do but stand out one half, and in the third much less, as in Coins, Vases, *&c.* See *Relievo*.

BASTARD, a natural Child, or one born out of lawful Wedlock: differing from one born in Adultery, or Incest, in that the Persons concern'd are free, or allow'd to marry. See *Marriage*, *Adultery*, *Concubines*, &c.

The *Bastards*, or natural Sons of a King in *France*, are Princes when own'd; those of a Prince, or Nobleman, are Gentlemen; but those of a Gentleman are only Plebeians, and pay Taxes. *Bastards* cannot succeed before they are legitimated; nor have Successors except their own Children begot in Wedlock; otherwise their Succession belongs to the King. By the *Roman* Law the Mother succeeded her Bastard-Child, *& vice versa*: But there was a great Difference between *Bastards* and those they call'd *Spurious*. The Law did not own the latter, nor allow them Sustenance, because they were born in common and uncertain Prostitution. *Is non habet Patrem, cui Pater est Populus.* The former sort, born in Concubinage, which resembles Marriage, succeeded their Mothers, and had a Right to demand Sustenance of their natural Fathers. They were look'd upon as domestick Creditors, that ought to be treated the more favourably, for being the innocent Product of their Parents Crimes. *Solon* would have it, that the Parents should be deprived of their paternal Authority over their *Bastards*, because, as they were only Parents for Pleasure, that ought to be their only Reward. Antiently in *Rome*, natural Children were quite excluded from succeeding their Father *ab intestat.* but they might be appointed Heirs in general. The Emperors *Arcadius* and *Honorius* made a Restriction, that when there were legitimate Children, the *Bastards* should only come in for a Twelfth, to be shared with their Mother. *Justinian* afterwards ordered, that they might come in for Half; and succeed *ab intestat.* for a Sixth, when there were Legitimates. *Bastards* might be legitimated by subsequent Marriage, or by the Prince's Letters. Only the King in *France* can give a Right of Legitimacy, and a Power to succeed. The Emperor *Anastasius* allow'd Fathers to legitimate their *Bastards* by Adoption alone: But this was abolished by *Justin* and *Justinian*, lest by this Indulgence they should authorize Concubinage. The Pope has sometimes legitimated *Bastards*. Nay, the Holy See has sometimes dispens'd not only with Illegitimates, but the Offspring of Adultery, as to Spiritual Considerations, in allowing of their Promotion to Episcopacy. *Bastards* not legitimated, may dispose of their Goods by Donation among the Living, or by Will. Those legitimated by subsequent Marriage, are in the same State, and enjoy the same Rights, with those born in Wedlock: But those who are legitimated by the King's Letters, are not esteemed legitimate, or capable of succeeding, but with regard to such of their Parents as have consented to their Legitimation. Pope *Clement* VII, by his Bull, forbad a Priest to resign his Benefice to his *Bastard*. A *Bastard*'s Arms should be crossed with a Bar, or Fillet, from the Left to the Right. They were not formerly allow'd to carry the Arms of their Father, and therefore they invented Arms for themselves; and this is still done by the natural Sons of a King. *Bastards* cannot be admitted to simple Benefices, or the lowest Orders, without a Dispensation from the Bishop; or into Holy Orders, or a more than simple Benefice, without one from the Pope: nor are they allow'd to bear Office without the Prince's Letters.

A *Bastard*, by the Law of *England*, cannot inherit Land as Heir to his Father; nor can any Person inherit Land as Heir to him, but one that is Heir of his Body. If a Child be begotten by him, who doth marry the Woman after the Child's Birth, yet is it in Judgment of the Law a *Bastard*, tho the Church holds it legitimate. If a Man take a Wife who is great with Child by another, not her Husband, it is call'd the Child, and may be the Heir of the Husband, tho it were born but one Day after the Espousals solemniz'd. If one marry a Woman and die before Night, and never bed her, and she have a Child after, it is accounted his Child, and legitimate. If a Man or Woman marry again, and have Issue by the second Wife or Husband, whilst the first is living, such Issue is a *Bastard*. If a Woman elope with a Stranger, and hath a Child by him, her Husband being within the four Seas, this is legitimate, and shall inherit the Husband's Lands. He that gets a *Bastard* in the Hundred of *Middleton*, in *Kent*, forfeits all his Goods and Chattels to the King.

BASTERNA, a Kind of Vehicle, or Chariot, used by the antient *Roman* Ladies. *Salmasius* observes, that the *Basterna* succeeded the *Litter*; from whence it differ'd very little, except that the *Litter* was borne on the Shoulders of Slaves, and the *Basterna* by Beasts. *Casaubon* says, it was borne by Mules. *F. Daniel*, *Mabillon*, &c. call it a Kind of Chariot, and say it was drawn by Oxen, to go the more gently: And *Gregory de Tours* gives an Instance of its being borne by wild Bulls. The Inside they call'd *Cavea*, Cage; and it had soft Cushions or Beds, besides Glasses on each Side, like our Chariots. The Mode of *Basterna's* passed from *Italy* into *Gaul*, and thence into other Countries; and to this we owe our Chariots; which, tho we call 'em *Currus*, yet have they no Conformity to the antient *Currus*, but are in effect *Basterna's* improv'd. *Papias* thinks, that *Basterna* is wrote for *Vesterna*: *Rosweid* says, it should be *Vix Sterna*, which he concludes from *Isidore*, who says, *Basterna*, *Viæ sterna*. The Word, however, seems derived from βάζω or βάσκω, I carry; or from βάσις, any thing proper for a Carriage. See *Coach*.

BASTILE, is a ſmall antique fortified Caſtle with Turrets, made uſe of, at preſent, for Priſons; as that at *Paris*, built by *Charles* V. 1369. which alone has retained this Name. Originally, it ſignified a Redoubt before a Place beſieg'd.

BASTION, in the Modern Fortification, a huge Maſs of Earth uſually faced with Sods, ſometimes with Brick, rarely with Stone, ſtanding out from a Rampart, whereof it is a principal Part. This is what in the antient Fortification was called *Bulwark*. A *Baſtion* conſiſts of two Faces and two Flanks. The Faces are the Lines B C and C D, (*Tab. Fortification, Fig.* 1.) including the Angle of the *Baſtion*: The Flanks are the Lines B A, S D. The Union of the two Faces makes the outmoſt or ſaliant Angle, called alſo the *Angle of the Baſtion*: The Union of the two Faces to the two Flanks, makes the Side Angles, called the *Shoulders* or *Epaules*: And the Union of the two other Ends of the Flanks to the two Curtains, the Angles of the Flanks. *Baſtions* are either ſolid or hollow.

The Foundation of the *Baſtion* is that great Rule in Fortification, *viz.* That every Part of the Works muſt be ſeen and defended, from ſome other Part: Mere Angles therefore are not ſufficient, but Flanks and Faces are indiſpenſably requiſite. If the *Baſtions* E F G and H I K conſiſted of Faces alone, the Angles G and H could not be defended from the Lines F G or I H. But if the *Baſtion* conſiſts of Flanks and Faces, as A B C S D, all the Points may be defended from the Flanks; there being none *v. g.* in the Face B C, but what may be defended from the oppoſite Flank E L, nor any in the Curtain A E, but may be defended from the adjacent Flanks B A and E L; nor any in one Flank B A, but may be defended from the other E L. For the Proportions of the Faces are not to be leſs than 24 *Rhineland* Perches, nor more than 30. The Flanks are better as they are longer, provided they ſtand at the ſame Angle of the Line of Defence: Hence the Flank muſt ſtand at right Angles to the Line of Defence. Indeed, in the antient Fortification, the Flank is made perpendicular to the Courtine, ſo as to have the Angle out of the Enemies Eye; but this is now provided for, by ſinking the lower Part of the Flank two or three Perches, as the Line A S, nearer the Axis of the Baſtion C H: Which Part thus ſunk, is better if made concave, than rectilinear, and if double, with a Ditch between, than if ſingle. The Diſpoſition of the Flanks makes the principal Part of Fortification; 'tis that on which the Defence principally depends, and which has introduced the various Forms and Manners of Fortifying. If the Angle of the *Baſtion* be leſs than 60 Degrees, it will be too ſmall to give Room for Guns; and beſides, ſo acute as to be eaſily beaten down by the Enemies Guns; to which may be added, that it will either render the Line of Defence too long, or the Flanks too ſhort: It muſt therefore be more than 60 Degrees; but whether or no it ſhould be a right Angle, or ſome intermediate Angle between 60 and 90, or even whether or no it ſhould exceed a right Angle, is ſtill diſputed. Hence it follows, that a Triangle can never be fortified, in regard either ſome or all of the Angles will be either 60 Degrees, or leſs than 60. See *Fortification*.

Solid Baſtions are thoſe that are fill'd up entirely, and have the Earth equal to the Height of the Rampart, without any void Space towards the Centre. *Void* or *hollow Baſtions* are thoſe that have a Rampart, or Parapet, ranging only round about their Flanks and Faces, ſo that a void Space is left towards the Centre; and the Ground is there ſo low, that if the Rampart be taken, no Retrenchment can be made in the Centre, but what will lie under the Fire of the Beſieged.

A *Flat Baſtion* is a *Baſtion* built in the middle of a Courtain, when it is too long to be defended by the *Baſtion*, at its Extremes: Dr. *Harris* ſays, 'tis a *Baſtion* built on a right Line.

A *Cut Baſtion* is that which has a re-entring Angle at the Point; ſometimes alſo called *Baſtion with a Tenaille*; uſed, when without ſuch a Contrivance the Angle would be too acute. We likewiſe give the Term *Cut Baſtion* to ſuch a one as is cut off from the Place by ſome Ditch, *&c.* ſome modern Engineers having found the Art of Fortifying by Pieces detach'd from the reſt. Theſe are alſo called *Ravelines*.

A *Compoſed Baſtion* is when the two Sides of the interior Polygon are very unequal, which makes the Gorges alſo unequal.

A *Regular Baſtion* is that which hath its due Proportion of Faces, Flanks, and Gorges.

A *Deformed* or *Irregular Baſtion* is that which wants one of its Demi-Gorges; one Side of the interior Polygon being too ſhort. See *Gorge*.

A *Demi-Baſtion* hath but one Face and Flank. To fortify the Angle of a Place that is too acute, they cut the Point, and place two *Demi-Baſtions*, which make a *Tenaille*, or a re-entring Angle. Their chief Uſe is before a Hornwork or Crownwork. See *Tenaille*.

A *Double Baſtion* is that, which on the Plain of the great *Baſtion* hath another *Baſtion* built higher; leaving 12 or 18 Feet between the Parapet of the lower and the Foot of the higher.

BASTON, in Law, is uſed for one of the Wardens of the Fleet; being Officers who attend the King's Courts with a red Staff, for taking ſuch to Ward as are committed by the Court. See *Warden*.

BATCHELOR, in a College Senſe, a Perſon poſſeſs'd of the *Bacculaureate*, which is the firſt Degree in the Liberal Arts or Sciences. At *Oxford*, e'er a Perſon be entitled to the Degree of *Batchelor of Arts*, he muſt have ſtudied there four Years; three Years more to become *Maſter of Arts*; and ſeven more to commence *Batchelor of Divinity*. At *Cambridge*, to commence *Batchelor of Arts*, he muſt have reſided three Years; three Years more to commence *Maſter*; and ſeven more ſtill to become *Batchelor of Divinity*. He may commence *Batchelor of Law* after having ſtudied it ſix Years. See *Degree*.

In *France*, e'er the Theology-Chairs were founded, they had their *Baccularei Curſores*, and *Baccularei Formati*; the former whereof were yet in their Courſe, or had not yet paſs'd thro their Offices; and the latter had. The *Curſores* were again divided into *Baccularei Biblici*, who explain'd the Scriptures, and *Baccularei Sententiarii*, who explain'd the Maſter of the Sentences.

There is ſcarce any Word whoſe Origin is more controverted among the Criticks than that of *Batchelor*, *Bacculareus*. *Martinius* derives the Word from the *Latin Baccalaurea*, *quaſi bacca laurea donatus*; in alluſion to the Cuſtom that antiently obtain'd, of crowning the Poets with Laurel, *baccis lauri*, as *Petrarch* was at *Rome* in 1341; and *Alicatus* and *Vives* are of the ſame Opinion. *Rhenanus* derives it from *Baculus* or *Bacillus*, a Staff, becauſe at their Commencement a Staff was put into their Hands, as a Symbol of their Authority, of their Studies being finiſh'd, and of the Liberty they were reſtored to. Thus the antient Gladiators had a Staff given 'em as a Diſcharge, which *Horace* calls *rude Donatus*. But *Spelman* rejects this Opinion, in regard there is no Appearance, that the Ceremony of putting a Staff in the Hand was ever uſed in the creating of *Batchelors*.

Batchelor was alſo a Title given to a young Cavalier, who made his firſt Campaign, and received the military Girdle accordingly. *Cambden* defines a *Batchelor*, a Perſon of a middle Degree between a ſimple Knight and a 'Squire: Or, as ſome will have it, *Batchelor* was a common Name for all the Degrees between a mere Gentleman and a Baron: Thus we find the Lord Admiral ſometimes ſo call'd. See *Knight Batchelor*.

Knights Batchelors were antiently ſo call'd, *quaſi Bas Chevaliers*, as being the loweſt Order of Knights, or inferior to Bannerets, *&c.* See *Knight*. At preſent theſe are call'd *Equites Aurati*, from the gilt Spurs that are put on 'em at the time of their Creation. The Dignity was at firſt confined to the military Men, but afterwards was confer'd on Men of the Robe. The Ceremony is exceedingly ſimple; the Candidate kneeling down, the King touches him lightly with a naked Sword, and ſays, *Sois Chevalier, au nom de Dieu*; and afterwards, *Avance Chevalier*. *Loyſeau* derives the Word, in this Senſe, from *Bas Eſchelon*, as being the laſt of the military Orders; *Cujas*, from *Buccellarius*, a kind of Knights antiently in great Eſteem; *Du Cange*, from *Baccalaria*, a kind of Fees, or Farm conſiſting of ſeveral Pieces of Ground, each whereof contain'd 12 Acres, or as much as two Oxen wou'd plough; the Poſſeſſors of which *Baccalaria* were call'd *Batchelors*: He adds, that *Batchelor* ſometimes ſignifies *Labourer*, and ſometimes a *Freeman of a City*. A *Batchelor of Arms* was a Name formerly given to a Perſon who came off Victor in his firſt Engagement. Laſtly, *Caſeneuve* and *Altaterra* derive the Word *Batchelor* from *Baculus*, a Staff, in regard the young Cavaliers exerciſed themſelves in fighting with Staffs and Bucklers: Which Opinion is confirm'd from their being call'd *Baculares* in *Oderic*, and *Bacularii* by *Walſingham* in *Richard* II's Time.

BAT-FOWLING, a Method of catching Birds in the Night, by lighting ſome Straw or Torches near the Place where they are at Rooſt; for, upon beating them up, they fly to the Flames, where, being amaz'd, they are eaſily caught in Nets, or beat down with Buſhes fix'd to the Ends of Poles, *&c.*

BATH, a convenient Receptacle of Water for Perſons to waſh, or plunge in, either for Health or Pleaſure. See *Water*. *Baths* are either *Natural* or *Artificial*. *Natural* again, are either *Hot* or *Cold*. *Hot Baths*, call'd alſo *Thermæ*, owe their Origin partly to the Admixture of ſulphureous Particles, while the Water is paſſing thro its ſubterranean Canals; or rather, while it creeps thro Beds and Mines of Sulphur, *&c.* and partly to the Fumes and Vapours exhaling up thro the Pores of the Earth, where Sulphur is, whether pure or impure, as in Coals, Amber, *&c.* For theſe Sub-

Subſtances continually emit Fumes, which warm the Waters in their Paſſage thro 'em. In moſt *Hot Baths*, however, there are likewiſe mixt Particles of Iron, Allom, Nitre, and other Mineral Bodies, which give 'em an acid aſtringent Taſt. The chief *hot Bath* in our Country, is that near *Wells* in *Somerſetſhire*; another there is of leſſer Note at *Buxton*. Theſe Waters abound with a Mineral Sulphur: They are hot, of a blueiſh Colour, and ſtrong Scent, and ſend forth thin Vapours. In the City of *Bath* are four *hot Baths*; one Triangular, called the *Croſs Bath*, from a Croſs that formerly ſtood in the midſt of it; the Heat of which is more gentle than the others, becauſe it has fewer Springs: The ſecond is the *Hot Bath*, which heretofore was much hotter than the reſt, when it was not ſo large as it now is: The other two are the *King's* and the *Queen's Bath*, divided only by a Wall, the laſt having no Spring, but receiving the Water from the *King's Bath*, which is about 60 Feet ſquare, and has in the middle of it many hot Springs, which render its healing Quality more effectual. Each of theſe hath a Pump to throw out Water upon the Diſeaſed, where 'tis required. The Waters of theſe *Baths* don't paſs thro the Body, like other Mineral Waters; but if Salt be added, they purge preſently. On Settlement, it affords a black Mud, uſed by way of Cataplaſm in Aches; of more Service to ſome than the Waters themſelves: the like it depoſits on Diſtillation, and no other. Dr. *Aſtendoff* found the Colour of the Salt drawn from the *King's* and *Hot Bath*, yellow, and that from the *Croſs Bath* white; whence he concludes, that the *Croſs Bath* has more Allom and Nitre than the *Hotter*, which abound more with Sulphur; and yet the *Croſs Bath* is found to looſen ſhrunk Sinews, by which it ſhould not ſeem to abound much with Allom: 'tis harſher to the Taſt than the others, and ſoaks the Hands more. The *Croſs Bath* preys on Silver, and all of 'em on Iron, but none on Braſs.

The *Bath* is very uſeful in Diſeaſes of the Head, as Palſies, *&c.* in cuticular Diſeaſes, as Leproſies, *&c.* Obſtructions and Hardneſs of the Bowels, the Scurvy and Stone, and in moſt Diſeaſes of Women and Children. Theſe *Baths* have perform'd many Cures, and are commonly uſed as a laſt Remedy in obſtinate Chronick Diſeaſes; where they ſucceed well, if they agree with the Conſtitution of the Patient: but whether they will agree or not, cannot be known without Trial.

Cold Baths were long baniſh'd out of Medicine, tho the Antients had them in the greateſt Eſteem: But the Improvements accruing to Phyſick from Geometry and Mechanicks, have brought them into uſe again; and the preſent Age can boaſt abundance of noble Cures perform'd by 'em, and ſuch as were long attempted in vain by the moſt powerful Medicines. The *Cold Bath* is one of the moſt univerſal and innocent Remedies yet diſcover'd. 'Tis ſerviceable in moſt Chronick Diſtempers, and reckon'd ſo ſafe that Phyſicians ſometimes preſcribe it in a beginning Phthiſis, or Conſumption, when the Lungs are but ſlightly affected. The Effect of *Cold-Bathing* is attributed not only to its Chilneſs and conſtringing Power, but in ſome meaſure to the Weight of the Water. For, ſuppoſing a Perſon immerged two Foot, and the Area of his Skin to be 15 Foot, he ſuſtains a Weight of Water, added to that of the Air, = 2280 *l.* for 2, the Number of Cubical Feet of Water preſſing upon a Foot ſquare of the Skin × 76, the Number of Pounds in a Cubical Foot of Water, is = 152; which × 15, the ſuppoſed Number of ſquare Feet on the Surface of the Body, is = 2280 *l. Troy*. Beſides, the Water in *Bathing* enters the Body, and mixes with the Blood. For the Riſe and Progreſs of *Cold-Bathing*, and the Cures effected thereby, ſee *Floyer's* and *Baynard's* Hiſtory of *Cold-Bathing*.

For *Artificial Baths*, they are various, according to the various Occaſions. See *Balneum*. Sometimes they conſiſt of Milk and emollient Herbs, Roſe-Water, *&c.* when the Deſign is to humectate; at other times of Bran and Water, when the Deſign is only to cleanſe: Sometimes again, they are made of a Decoction of Roots and Plants, with an Addition of Spirit of Wine, when a Perſon *bathes* for a great Pain or Tumor, *&c.* To theſe may be added the *Bagnio*, where People are made to ſweat by the Heat of a Room, and pouring on of hot Water; after which they generally go into a *hot Bath*. See *Bagnio*.

Vapour-Baths are when the Patient is not plunged into what is prepar'd for the *Bath*, but only receives its Steam or Fume upon thoſe Parts of his Body which require it: Thus, in ſome Diſtempers of the Fundament, and Womb, the Patient ſits and receives the Fumes of a proper Fomentation or Decoction. There is another Species of *Baths*, made by the burning of Spirit of Wine, the Patient being placed in a convenient cloſe Chair for the Reception of the Fume, which riſes and provokes Sweat in a plentiful manner: Care is here taken to keep the Head our, and ſecure Reſpiration. This *Bath* has been found very effectual in removing old obſtinate Pains in the Limbs, and Venereal Complaints; and will often compleat a Cure left unperform'd by Salivation. See *Sudatory*.

Baths, in Architecture, were alſo large pompous Buildings among the Antients, erected for the ſake of *Bathing*. On the ſide of each *Bath* were Lavers, which afforded hot Water and cold, to alter its Temperature at Pleaſure. Theſe *Baths* were frequented more for the ſake of Pleaſure than Health. The moſt magnificent were thoſe of *Titus*, *Paulus Emilius*, and *Dioclesian*, of which there are ſome Ruins ſtill remaining. 'Tis ſaid, that at *Rome* there were 856 *Baths*, publick and private. *Fabricius* adds, that the exceſſive Luxury of the *Romans*, appear'd in nothing more viſible, than in their *Baths*. *Pliny* tells us, that Common People, and even Slaves, had the Walls and Grounds beſmear'd with rich Ointments. *Seneca* complains, that the *Baths* of Plebeians were fill'd from Silver Pumps; and that the Freed-men trod on Gems. *Macrobius* tells us of one *Sergius Oratus*, a Voluptuary, who had *pendent Baths*, hanging in the Air. See *Thermæ*.

Bath, in Chymiſtry. See *Balneum*, and *Artificial Bath*.

Knights of the Bath, a military Order in *England*, inſtituted by *Richard* II, who ordain'd that there ſhould be no more than four; but his Succeſſor *Henry* IV, increas'd them to 46. Their Motto was, *Tres in uno*, ſignifying the three Theological Virtues. 'Twas the Cuſtom to *bathe* before they receiv'd the Golden Spurs; but this was only obſerv'd at firſt, being afterwards gradually dropt: However, this gave them the Name. The Order of *Knights of the Bath* is ſcarce ever confer'd, but at the Coronation of Kings, or the Inauguration of a Prince of *Wales*, or Duke of *York*. They wear a red Ribbon Belt-wiſe. *Camden* and others ſay, *Henry* IV was the Inſtitutor in 1399, and upon this occaſion: That Prince being in the *Bath*, was told by ſome Knight, that two Widows came to demand Juſtice of him; when his Majeſty leaping out of the *Bath*, cryed, he ought to prefer doing Juſtice to his Subjects to the Pleaſure of the *Bath*; and thereupon created *Knights of the Bath*. Some Authors, however, will have the Order of the *Bath* to have been on foot long before *Henry* IV. Be this as it will, 'tis certain the *Bath* had been uſed long before, in the Creation of Knights, in *France*; tho there was no Order for making of Knights.

BATHMUS, in Anatomy, a Bone, the ſame as *Trochlea*. Which ſee.

BATON, in Architecture, is a large Ring, or Moulding, in the Baſe of a Column, otherwiſe call'd *Tore*. See *Tore*.

Baton, in Heraldry, a Kind of Bend that has only one third of the uſual Breadth. See *Battoon*.

BATRACHITES, a Stone ſuppoſed to be found in Frogs, to which the antient Phyſicians and Naturaliſts attribute the Virtue of reſiſting Poiſon. The Word is form'd from the Greek, βάτραχος, *rana*, a frog.

BATRACHOMYOMACHIA, a War of the Frogs and the Mice; the Title of a fine Burleſque Poem, uſually aſcribed to *Homer*. The Subject of the War is the Death of *Pſycharpax*, a Mouſe, Son of *Toxartes*, who being mounted on the Back of *Phyſignates*, a Frog, on a Voyage to her Palace, to which ſhe had invited him, was ſeiz'd with Fear when he ſaw himſelf in the middle of the Pond, ſo that he tumbled off and was drown'd. *Phyſignates* being ſuſpected to have ſhook him off with Deſign, the Mice required Satisfaction, and unanimouſly declared War againſt the Frogs. *Stephens*, *Nunius*, and other modern Authors, take the Poem not to be *Homer's*; but the Antients ſeem of another Opinion; and *Statius*, who wrote under *Domitian*, makes no doubt of it. The Word comes from the *Greek* βάτραχος, *frog*, μῦς, *mouſe*, and μάχη, *pugna*.

BATABLE *Ground* was Land lying between *England* and *Scotland*, heretofore in queſtion to which it belong'd, when they were diſtinct Kingdoms. It ſignifies the ſame as litigious, or diſputable Ground. From *battre*, to beat.

BATTALION, a little Body of Infantry rang'd in form of Battel and ready to engage. A Battalion uſually contains from 5 to 800 Men, of which one Third are uſually Pikes in the middle, and the other two Thirds are Muſquets poſted on the Wings: But the Number of Men it conſiſts of is not determined. They are uſually drawn up with ſix Men in File, or one before another; thoſe in Length, or Side by Side, being call'd Ranks: Some Regiments conſiſt but of one Battalion, others more numerous are divided into ſeveral. *French* Regiments have 16 Companies to a Battalion. See *Regiment*. The Word *Battalion* comes from *Battel*, an Engagement of two Armies, *&c.* and that from *Battualia*, the Place where two Men fight; or from *Battalia*, the Exerciſe of People who learn to fight.

BATTEN is a Name the Workmen give to a Scantling of wooden Stuff, from two to four Inches broad, and about an Inch thick; the Length is pretty conſiderable, but undetermined. The Term is chiefly uſed in ſpeaking of Doors, *&c.* which are not framed of whole Deal, *&c.* with Stiles, Rails, and Pannels, like Wainſcot, but are made

made to appear as if they were, by means of these Pieces, or *Battens*, bradded on the plain Board round the Edges, and sometimes cross 'em, and up and down: Hence *Batten Doors* are such as seem to be Wainscot ones, but are not. These are said to be either single or double, as the *Battens* are fitted on to one Side, or to both.

BATTERY, in Law, an Act that tends to the Breach of the Peace of the Realm, by violently striking or beating a Man, who may therefore indict the other Party, or have his Action of Trespass, or Assault and Battery, against him, (for every Battery implies an Assault) and recover so much in Costs and Damages as the Jury will give him. This Action will lie as well before as after the Indictment. But if the Plaintiff made the first Assault, the Defendant shall be quit, and the Plaintiff be amerced to the King for his false Suit. In some Cases a Man may justify the beating another in a moderate manner, as a Master his Servant, &c.

Battery, in War, the Place where the Cannons are planted to play upon the Enemy. They are usually placed on a Platform, consisting of Planks, that support the Wheels of Carriages, and hinder the Weight of the Cannon from sinking them into the Ground. The Platform is raised a little behind, to check the recoiling of the Pieces. The *Battery* of a Camp is usually surrounded with a Trench and Pallisadoes at the Bottom, as also with a Parapet on the Top, having as many Holes as there are Pieces of Artillery, and with two Redoubts on the Wings, or certain Places of Arms capable of covering the Troops which are appointed for their Defence. In all *Batteries*, the open Space left to put the Muzzles of the great Guns out, are called *Embrazures*; and the Distances between the Embrazures, *Merlons*. The Guns are generally about 12 Foot distant one from another, that the Parapet may be strong, and the Gunners have room to work. A *sunk* or *buried Battery*, is when its Platform is sunk or let down into the Ground, with Trenches cut in the Earth against the Muzzles of the Guns, to serve for Embrazures. This sort of *Battery*, which the *French* call *En Terre* and *Ruinante*, is generally used upon the first making Approaches, to beat down the Parapet of any Place.

Cross Batteries are two *Batteries* at a considerable Distance from each other, which play athwart one another at the same time, and upon the same Point, forming right Angles; where what one Bullet shakes, the other bears down. A *Battery d'Enfilade* is one which sweeps the whole Length of a strait Line, a Street, &c. A *Battery en Echarp* is that which plays obliquely. A *Battery de Revers*, or *Murdering Battery*, is one that bears upon the Back of any Place; and being placed on an Eminence, sees into it. A *Battery Joint*, or *par Camerade*, is when several Guns play at the same time upon one Place.

Battery en Rouage is that used to dismount the Enemy's Pieces.

BATTEURS d'ESTRADE, or *Scouts*, are Horse sent out before, and on the Wings of an Army, two or three Miles, to make Discoveries; of which they give an Account to the General.

BATTLEMENTS, Indentures or Notches on the top of a Wall, Parapet, or other Building, in form of Embrazures, for the sake of looking thro 'em, &c. These were much affected in the old Fortification.

BATTOLOGY, in Grammar, is a multiplying Words without occasion, or a needless Repetition of the same Words over and over in a Discourse; like *Battus*, a ridiculous Poet mentioned by *Ovid*, who introduces him, saying,

Montibus (inquit) erant, & erant sub montibus illis.

BATTOON, a Term in Heraldry, signifying a fourth part of a Bend-Sinister: It is the usual Mark of Illegitimacy, and is always borne couped or cut off after this manner.

Battoon also signifies the Earl-Marshal's Staff.

BATTUS, a certain Order of Penitents at *Avignon*, and in *Provence*, whose Piety carries them to exercise severe Discipline upon themselves, both in publick and private.

BAVINS, in War, Brush-Faggots made with the Brush at length.

BAY, in Geography, a little Gulph, or an Arm of the Sea, stretching up into the Land, and larger in the middle within, than at its Entrance, which is call'd the *Mouth of the Bay*. *Bay*, or *Pen*, likewise signifies a Pond-Head made up a great Height, to keep in Store of Water for driving the Wheels of the Furnace, or Hammer, belonging to an Iron Mill, by the Stream that comes thence thro a Passage, or Flood-gate, call'd the *Pen-stock*. To *bay* is to bark as a Dog does. Among Huntsmen Deer are said to *bay*, when, after being hard run, they turn head against the Hounds.

BAYONET, a short-pointed Sword made Lancet-fashion, and having, instead of an Hilt, an hollow Iron Handle to fix it at the end of a Musket, so as not to hinder its Firing or Charging. All the Troops of the Infantry carry them in the Field: They are of great Service to the Dragoons and Fuzileers, after they have spent their Powder and Ball. This Instrument is also used in hunting the Bear or Bear; for which purpose 'tis made larger.

BAYS, in Commerce, a kind of coarse Woollen Stuff, very open, and not cross'd, having a long Nap, sometimes frized on one Side, and sometimes not frized, according to the Uses it is intended for. This Stuff is wrought on a Loom, with two Treddles, like Flannel. The Manufacture of *Bays* is very considerable in *England*, particularly at *Colchester*; and in *Flanders*, particularly about *Lisle* and *Tournay*, &c. Formerly the *French*, as well as *Italians*, were furnish'd with *Bays* from *England*; but of late the *French* Workmen have undertaken to counterfeit 'em, and set up Manufactures of their own, and that with Success; especially at *Nismes*, *Montpellier*, &c. The Commerce of *Bays* is very considerable to *Spain*, *Portugal*, and *Italy*. Their chief Use is for Linings, especially in the Army: The Looking-Glass-makers use 'em behind their Glasses, to preserve the Tin or Quicksilver; and the Case-makers, to line their Cases.

BDELLIUM, or *Bedellium*, a kind of Gum. The Name is well known among the Learned; but they can't agree what it is. 'Tis mention'd in *Genesis*, *c.* 2. *v.* 12. and *Josephus* explains the Passage, by saying 'tis the Gum of a Tree resembling the Olive-Tree; and that the Manna wherewith the *Jews* were fed in the Desert, resembled this Drug: But *Scaliger* and others set aside this Explication, and own, they don't know what the *Bdellium* mention'd in Scripture is.

The *Bdellium* in use among us, seems again to have been unknown to the Antients: Some say it distils from a kind of Thorn; others from a Tree resembling that which produces the Myrrh. Some say it is produced on the Banks of the River *Senegal* in *Africa*; others, near the City *Saraca* in *Arabia Felix*. When good, 'tis in clear transparent Pieces, of a reddish Grey without; when touch'd with the Tongue, yellow, bitter, soft, and odoriferous. It enters the Composition of *Mithridate*, and the *Emplastrum divinum*.

BEACON, a Signal for the better securing the Kingdom from foreign Invasions: On certain eminent Places of the Nation are placed long Poles erect, whereon are fasten'd Pitch-Barrels to be fir'd by Night, and Smoke made by Day, to give Notice in a few Hours to the whole Kingdom of an approaching Invasion. These are commonly call'd *Beacons*; whence comes *Beaconage*, Money paid towards the Maintenance of a *Beacon*. The Word is derived from the *Saxon*, *Beacnian*, to nod, or signify: Hence also the Word *beckon*.

BEAD, in Architecture, a round Moulding in the *Corinthian* and *Roman* Orders, carved in short Embossments, like *Beads* in Necklaces. See *Baguette*. A *Bead* is usually about $\frac{1}{3}$ of a Circle, and only differs from a *Boultine* in Bigness. When large, the Workmen call 'em *Boultines*; tho sometimes an Astragal is thus carved. A *Bead-plain* is also frequently set on the Edge of each Fascia of an Architrave. A *Bead* is often placed on the Lining-Board of a Door-Case, and on the upper Edges of Skirting-Boards.

Bead, among the *Romanists*. See *Chaplet*.

BEAD-ROLL, among the *Romish* Priests, a List or Catalogue of such Persons, for the Rest of whose Souls they are oblig'd to rehearse a certain Number of Prayers, &c. which was done by their *Beads*.

BEADLE signifies a Messenger or Apparitor of a Court, who cites Men to the Court to appear and answer. It is also an Officer under all Parishes and Companies. 'Tis moreover, an Officer at the Universities, whose Place it is to walk before the Masters. Some say they are call'd *Bedelli*, from a Corruption of *Pidelli*, as serving and running on foot. Others from *Pedo*, *seu Baculo*, *quia Virga utebantur*; forming *Pedellus* from *Pedum*, a kind of Wand, which is their Symbol; and from *Pedellus*, *Bedellus*. Others derive the Word from the *Hebrew* בדל *bedal*, *ordinare*, *to range* or *dispose*. *Spelman*, *Vossius*, and *Somner*, derive it from the *Saxon*, *Bidel*, *a publick Crier*; in which Sense Bishops, in some antient *Saxon* Manuscripts, are call'd *Beadles of God*, *Dei Bedelli*. The Translator of the *Saxon New Testament*, renders *Exactor* by *Bydele*; and the Word is used in the same Sense in the Laws of *Scotland*.

BEAK, in Architecture, a little Fillet left on the Edge of a Larmier, which forms a Canal, and makes a kind of Pendant. *Chin-Beak* is also used for a Moulding, the same with the Quarter-round, except that its Situation is inverted. We find but few Examples hereof in the antient Buildings; but 'tis very frequent in the modern.

Beak, or *Beak-head*, of a Ship, is that Part of it which is fasten'd to the Stern, and is supported by a Knee; and is the becoming Part, or Grace of a Ship. See *Stern*.

BEAM, in Building, the largest Piece of Wood in a Building, being laid a-cross the Walls, and serving to support

port the principal Rafters of the Roof. No House has less than two of these *Beams*, *viz.* one at each Head: Into these the Girders of the Garret-Floor are also framed; and, if the Building be Timber, the Teazle Tenons of the Posts. The Proportions of Beams near *London*, are fix'd by Statute, as follows: A Beam 15 Foot long, must be seven Inches on one side its Square, and five on the other; If it be 16 Foot long, one side must be eight Inches, the other six: If 17 Foot long, one side must be 10 Inches, the other six: In the Country they usually make 'em stronger. Sir *H. Wotton* advises these to be of the strongest and most durable Timber. *Herrera* tells us, that in *Fer. Cortez*'s Palace, in *Mexico*, there were 7000 Beams of Cedar: But he must certainly use the Word *Beam* in a greater Latitude than what we do. In effect, the *French*, under *Poutre*, *Beam*, take in not only the Pieces which support the Rafters, but also those which sustain the Joists for the Cielings. Some of their best Authors have consider'd the Force or Strength of *Beams*, and brought their Resistance to a precise Calculation; particularly M. *Varignon*, and M. *Parent*; the System of the latter is as follows.

When, in a *Beam* breaking Parallel to its Base, which is supposed to be a Parallelogram, two Plans of Fibres, which were before contiguous, are separated, there is nothing to be consider'd in those Fibres, but their Number, Bigness, Tension before they broke, and the Lever by which they act; all these together making the Resistance of the *Beam* to be broke. Suppose then another *Beam* of the same Wood, where the Base is likewise a Parallelogram, and of any Bigness, with regard to the other, at Pleasure; the Height of each of these, when laid Horizontal, being divided into an indefinite Number of equal Parts, and their Breadth into the same Number, in each of their Bases will be found an equal Number of little quadrangular Cells, proportional to the Bases whereof they are Parts: These then will represent little Bases, or which is the same thing, the Thicknesses of the Fibres to be separated for the Fracture of each *Beam*; and since the Number of Cells is equal in each, the Ratio of the Bases of both *Beams* will be that of the Resistance of their Fibres, both with regard to Number and Thickness. Now, the two *Beams* being supposed of the same Wood, the Fibres, the most remote from the Points of Support, which are those which break the first, must be equally stretch'd when they break. Thus the Fibres, *v. g.* of the 10th Division, are equally stretch'd in each Case, when the first breaks; and in whatever Proportion the Tension be supposed, 'twill still be the same in both Cases; so that the Doctrine is entirely free, and unimbarrass'd with any System of Physicks. Lastly, 'tis evident the Levers whereby the Fibres of the two *Beams* act, are represented by the Height of their Bases; and of Consequence, the whole Resistance of each *Beam* is the Product of its Base by its Height; or, which is the same thing, the Square of the Height multiplied by the Breadth: Which holds, not only in case of Parallelogrammatick, but also of Elliptick Bases.

Hence, if the Bases of two *Beams* be equal, tho both their Heights and Breadths be unequal, their Resistance will be as the Heights alone; and by Consequence, one and the same *Beam* laid on the smallest side of its Base, will resist more than when laid flat, in proportion as the first Situation gives it a greater Height than the second: and thus an Elliptick Base will resist more, when laid on its greatest Axis, than on its smallest.

Since in *Beams* equally long, 'tis the Bases that determine the Proportion of their Weights or Solidities; and since their Bases being equal, their Heights may be different, two *Beams* of the same Weight may have Resistances differing to Infinity: Thus, if in the one the Height of the Base be conceiv'd infinitely great, and the Breadth infinitely small, while in the other the Dimensions of the Base are finite; the Resistance of the first will be infinitely greater than that of the second, tho their Solidity and Weight be the same. If therefore all required in Architecture were to have *Beams*, capable of supporting vast Loads, and at the same time have the least Weights possible, 'tis plain they must be cut thin as *Laths*, and laid edge-wise.

If the Bases of the two *Beams* be suppos'd unequal, but the Sum of the Sides of the two Bases equal, *v. g.* if they be either 12 and 12, or 11 and 13, or 10 and 14, *&c.* so that they always make 24; and further, if they be suppos'd to be laid edge-wise; pursuing the Series, it will appear, that in the *Beam* of 12 and 12 the Resistance will be 1728, and the Solidity or Weight 144; and that in the last, or 1 and 23, the Resistance will be 529, and the Weight 23: The first therefore, which is square, will have less than half the Strength of the last, with regard to its Weight. Hence M. *Parent* remarks, that the common Practice of cutting the *Beams* out of Trees as square as possible, is ill Husbandry: He hence takes occasion to determine geometrically, what Dimensions the Base of a *Beam*, to be cut out of any Tree propos'd, shall have, in order to its having the greatest possible Resistance; or, which is the same thing, a Circular Base being given, he determines the Rectangle of the greatest Resistance that can be inscribed, and finds that the Sides must be nearly as 7 to 5, which agrees with Observation.

Hitherto the Length of the *Beams* has been supposed equal; if it be unequal, the Bases will resist so much the less, as the *Beams* are longer. To this it may be added, that a *Beam* sustained at each End, breaking by a Weight suspended from its middle, does not only break at the middle, but also at each Extreme; or, if it does not actually break there, at least immediately before the Moment of the Fracture, which is that of the Æquilibrium between the Resistance and the Weight, its Fibres are as much stretch'd at the Extremes as in the Middle: So that of the Weight sustain'd by the middle there is but one third Part which acts at the middle, to make the Fracture; the other two only acting to induce a Fracture in the two Extremes. A *Beam* may either be supposed loaden only with its own Weight, or with other foreign Weights applied at any distance, or only with those foreign Weights; since according to M. *Parent* the Weight of a *Beam* is not ordinarily above $\frac{5}{70}$ part of the Load given it to sustain, 'tis evident that in considering several Weights they must be all reduced by the common Rules to one common Centre of Gravity. M. *Parent* has calculated Tables of the Weights that will be sustained by the middle, in *Beams* of various Bases and Lengths, fitted at each End into Walls, on a Supposition that a Piece of Oak of an Inch square and a Foot long, retain'd horizontally by the two Extremes, will sustain 315 *lib.* in its middle before it breaks, which 'tis found by Experience it will. See *Mem. French Academy*, *An.* 1708.

Beam-Compasses, an Instrument made in Wood or Brass, with sliding Sockets, or Cursors, serving to carry several shifting Points, in order to draw and divide Circles with very long Radii. They are of use in large Projections for drawing the Furniture, on Wall-Dials, *&c.* See Compasses.

Beam-Filling in Building, the filling up the vacant Space between the Raison and Roof, with Stones, or Bricks, laid between the Rafters on the Raison, and plaister'd on with Loom; frequent where the Garrets are not pargeted, or plaister'd.

Beam, among Hunters, that Part of the Head of a Deer, which bears the Antlers, Royals, and Tops; the little Streaks wherein are called *Circles*. From the *Saxon Beam*, a Tree; because they grow out of the Head, as Branches out of a Tree.

Beams of a Ship are the large, main, cross Timbers, which hold the Sides of a Ship from falling together, and which also support the Decks and Orlops. The *main Beam* is next the Main-Mast; and from it they are reckoned by *First*, *Second*, and *Third*. The *great Beam* of all is called the *Midship-Beam*.

BEAR, in Astronomy, a Name given to two Constellations; called the *Greater* and the *Lesser Bear*; or *Ursa Major*, and *Minor*: The Pole-Star is said to be in the Tail of the *Lesser*; because that Star is never above two Degrees distant from the North-Pole of the World. See Ursa *Major & Minor*.

Bear is also a Term used in Heraldry: Thus, he that hath a Coat of Arms, is said to *bear* in it the several Charges or Ordinaries which are in his Escutcheon; as, if there are three Lions Rampant in it, he is said *to bear three Lions Rampant*. See Charge, *&c.*

At Sea, when a Ship sails towards the Shore, she is said *to bear in with the Land*; when a Ship that was to Windward comes under another Ship's Stern, and so gives her the Wind, she is said *to bear under her Lee*; if a Ship sails into an Harbour with the Wind large, or before the Wind, she is said *to bear in with the Harbour*, &c. In Conding they say, *bear up the Helm*, that is, let the Ship go more large before the Wind; and *bear up round*, that is, let the Ship go between her two Sheets, directly before the Wind. There is likewise another Use of the Word, in reference to the Burden of a Ship, (which Word is derived from hence;) for, they say a Ship *bears*, when having too slender a Quarter she will sink too deep into the Water with an over-light Freight, and thereby can carry but a small Quantity of Goods.

BEARD. See Hair, and Tonsure.

Beard of a Comet, the Rays which the Comet emits towards that part of the Heavens to which its proper Motion seems to direct it; in which the *Beard* of the Comet is distinguished from the *Tail*, which is understood of the Rays emitted towards that part whence its Motion seems to carry it. 'Tis called *Beard*, from some fancied Resemblance it bears to the *Beard* of a Man. See Comet.

BEARER, in Architecture, a Post, or Brick-Wall, trimmed up between the two Ends of a Piece of Timber to shorten its Bearing, or to prevent its bearing with the whole Weight at the Ends only.

BEARER of a Bill of Exchange, &c. the Person in whose Hands it is, and in favour of whom the last Order or Endorsement was passed. When a Bill is said to be *payable to Bearer*, it is understood to be payable to him who first offers himself after it becomes due. To be paid a Bill of this kind, there needs neither Order nor Transfer: yet 'tis good to know to whom 'tis paid. See BILL OF EXCHANGE.

BEARERS, in Heraldry. See SUPPORTERS.

BEARING, in Geography and Navigation, the Situation of one Place from another, with regard to the Points of the Compass; or, the Angle, which a Line drawn thro the two Places makes with the Meridians of each. The *Bearings* of Places are usually determined from the Magnetick Needle: In the managing of these lies the principal Part of Surveying; since the *Bearing* and *Distance* of a second Point from a first being found, the Place of that second is found; or the *Bearings* of a third Point from two others, whose *Distance* from each other is known, the Place of the third is found: Instrumentally we mean; for, to calculate Trigonometrically, there must be more *Data*. Mr. *Collins* gives the Solution of a Problem in the *Philos. Transact.* where the *Distances* of three Objects in the same Plain being given, and the *Bearings* from a fourth Place in the same Plain observ'd, the *Distances* from the Place of Observation to the respective Objects are requir'd. See SURVEYING.

BEARING *of a Piece of Timber*, in Carpentry, the Space either between the two fix'd Extremes thereof, when it has no other Support; which is called *bearing at length*: or between one Extreme, and a Post, Brick-Wall, &c. trimm'd up between the Ends to shorten its *Bearing*.

BEASTS *of Chase*, in our Statute-Books, are five; the Buck, Doe, Fox, Martin, and Roe. *Beasts of the Forest* are, the Hart, Hind, Hare, Boar, and Wolf. *Beasts* and *Fowls of the Warren* are, the Hare, Coney, Pheasant, and Partridge. See GAME.

BEATIFICATION, in the *Romish* Church, an Act whereby the Pope declares a Person happy, after Death. *Beatification* differs from *Canonization*: in the former the Pope does not act as a Judge in determining the State of the *beatified*, but only grants a Privilege to certain Persons to honour him by a particular religious Worship, without incurring the Penalty of superstitious Worshippers; but in *Canonization* the Pope speaks as a Judge, and determines *ex Cathedra* upon the State of the *canoniz'd*. *Beatification* was introduc'd when 'twas thought proper to delay the *Canonization* of Saints, for the greater Assurance of the Truth, and Manifestation of the rigorous Steps taken in the Procedure. See CANONIZATION.

BEATING, in Medicine, a Term applied to the Agitation or Palpitation of the Pulse or Heart. Some Physicians distinguish 81 different Kinds of Simple *Beatings*, and 15 Compound ones. They compute about 60 *Beats* in the Space of a Minute in a temperate Man. See PULSE.

BEATING *of Gold and Silver*. See GOLD-BEATING, &c.

BEATS in a Watch, or Clock, are the Strokes made by the Fangs, or Pallets of the Spindle of the Ballance; or of the Pads in a Royal Pendulum. See CLOCK-WORK.

BEAU-PLEADER, a Writ on the Statute of *Marlbridge*, whereby it is provided that no Fine shall be taken of any Man in any Court for *fair-pleading*, i. e. for not *pleading* aptly, and to the purpose.

BEAUTY, a Term whereby we express a certain relation of some Object, either to an agreeable Sensation, or to an Idea of Approbation. When therefore I say a thing is *beautiful*, I either mean that I perceive something that I approve, or that something gives me Pleasure: Whence it appears, that the Idea affix'd to the Word *Beauty* is double; which renders the Word equivocal, and is the Source of all the Disputes on the Subject of *Beauty*. We must therefore distinguish between Ideas and Sensations. Ideas take up the Mind; Sensations interest the Heart. Tho we see nothing in an Object to interest us, we may yet discover something in its Idea to merit our Approbation. Such an Object therefore pleases, and does not please, *i. e.* it pleases the Idea, and not the Sensation. On the contrary, there are some Objects whose Ideas don't offer any thing laudable, which yet excite agreeable Sensations. There is therefore *Beauty* and *Beauty*. 'Tis exceeding hard to fix any general Characteristicks of *Beauty*: For, as the Ideas and Sensations of different Persons differ according to the Habitudes of the Body, and the Turn of the Mind; so do the relations of Objects to those Ideas and Sensations vary, whence what we call *Beauty* results. Hence arise those different Opinions of a *beautiful Thought*, a *beautiful Woman*, a *beautiful Painting*, &c. M. *Perrault* distinguishes two Kinds of *Beauties* in Architecture, which chime in pretty aptly with the two Species of *Beauty* above. The one he calls *positive* and *convincing*, such as the Richness of the Materials, Grandeur of the Structure, Neatness of the Workmanship, Symmetry, &c. The others he calls *arbitrary*, which depend on the Will, and might have their Proportion changed without Deformity. These only please by the Connexion, or Association of their Ideas with others of a different Kind, and which please of themselves; and owe their Beauty to that Prepossession of the Mind, whereby a thing whose Value we do know, insinuates an Esteem for others which we do not. Thus he observes, there are many things in Architecture which Reason and good Sense would judge deformed, and which however, Custom has not only made tolerable, but even *beautiful*, by their being always joined with other *Beauties* that are positive. Thus, being at first pleased with viewing 'em in Company, and merely on account of their Company, at length we become pleased with 'em alone; and thus we frequently fall in love with Deformities, and grow fond of Faults. Hence the Use of Foils appears founded on an ill Philosophy. If a *Beauty* takes off from a *Deformity*, the *Deformity* in its turn takes off from the *Beauty*: 'Tis the Foil therefore is the Gainer, the Diamond loses. The Diamond pleases, we are pleased in some measure with every thing about it, particularly the Foil; the Foil displeases, we are in some measure displeased with every thing about it, particularly the Diamond: The Mind can't be well pleased and displeased at the same time. By viewing the Diamond and Foil together, a Man might in a long Course of Time find the one almost as *beautiful* as the other. The Disparity would be always diminishing, till they came near a Level: By removing 'em a-part, they would by degrees return to their original State, *i. e.* the Diamond would recover, and the Foil lose its Lustre. See LOVE.

BECHICA, Medicines proper for Diseases of the Lungs and Breast; frequently also call'd *Pectorals*. *Bechick* is also used for any thing relating to a Cough, &c. The Word comes from the *Greek*, βῆξ, βηχὸς, *Cough*.

BED. The old *Romans* had various kinds of *Beds* for Repose; as, their *Lectus cubicularis*, or *Chamber-Bed*, whereon they slept; their *Table-Bed*, or *Lectus discubitorius*, whereon they eat, (for they always eat lying) there being usually three Persons to one *Bed*, whereof the middle Place was accounted the most honourable, as well as the *middle Bed*. They had also their *Lectus lucubratorius*, whereon they studied; and a *Lectus funebris*, or *emortualis*, whereon the Dead were carried to the Pile.

BED of the Carriage of a great Gun, is that thick Plank which lies immediately under the Piece; being, as it were, the Body of the Carriage.

BED-CHAMBER: with us, the *Gentlemen of the Bed-Chamber* are Persons of the first Rank, 11 in Number; whose Office is, each in his turn, to wait a Week in the King's *Bed-Chamber*, lying by the King on a *Pallat-Bed* all Night, and to wait on the King when he eats in private. The first of these is *Groom of the Stole*, or *Long-Robe*. See STOLE.

BED, in Gardening, a Piece of made Ground, rais'd above the Level of the rest.

BED, in Masonry, a Course, or Range, of Stones; and the Joint of the *Bed* is the Mortar between two Stones placed over each other.

BED, in speaking of Minerals and Fossils, signifies certain *Strata*, or Thicknesses of Matter disposed over each other. See STRATA and VEIN.

BED, or BEDDING-MOULDING, in Architecture, a Term used by the Workmen for those Members in a Cornice which are placed below the Coronet; and now a *Bed-Moulding* usually consists of these four Members, an O—G, a List, a large Boultine, and another List under the Coronet.

BEECH-OIL, an Oil drawn from the Fruit, or Mast, of the *Beech-Tree*. The *Beech-Mast* is a kind of Seed in form of a Nut, or Acorn, containing a whitish, oleaginous Pith, of a very agreeable Taste; whereof is made an Oil much valued in Sallades, &c. 'Tis very common in *Picardy*, and other Places, where the Mast abounds. They draw it cold, by Expression, after the Mast has been shell'd, and ground, or pounded. An Attempt was made a few Years ago, to introduce the Manufacture of *Beech-Oil* in *England*, and a Patent granted to the Proprietor, but without Success; the Country-People, it seems, turning their Mast to better account in feeding the Hogs with it, than in selling it to the Patentee, and his Co-Proprietors, for *Oil*. See OIL.

BEER, a popular Drink, prepared from Malt and Hops. *Mathiolus* takes the *Zythum* and *Curmi* of the Antients, to be the same with the *Beer* of our Days; and thinks the only Difference between *Zythum* and *Curmi*, to lie in some Circumstances of the Preparation, which render the one stronger than the other. See MALT-LIQUORS.

Tacitus, speaking of the antient *Germans*, *Dioscorides*, *Galen*, &c. condemn *Beer* as prejudicial to the Head, Nerves, and membranous Parts, as occasioning a more lasting and more uneasy Drunkenness than Wine, and as promoting a Suppression of Urine, and sometimes a Leprosy.

M. *Per-*

M. *Perrault*, *Rainssant*, &c. defend the Modern *Beer*; urging, that the Hops used with us, and which the Antients were Strangers to, having a Faculty of purifying the Blood, and removing Obstructions, serve as a Corrector, and free the Drink from the Inconveniences laid at the door of that of the Antients. For the Manner of preparing *Beer*, see BREWING; for its Qualities, see MALT-LIQUOR. The Word comes from the old *German*, *Biere*: *Vossius* derives it from the *Latin*, *bibere*, to drink; others from the *Hebrew*, *Bar*, Corn; others from *Bion*, a Drink mentioned by *Pliny*.

BEER-MEASURE. See MEASURE.

BEGLERBEG, a *Turkish* Title for a Governor of a Province, who has under him several *Sangiacks*, or Sub-Governors. There are 28 *Beglerbegs* in the *Ottoman* Empire. *Dius-Beglerbeg* is the Bassha of the Sea, or the Admiral of the *Turks*. *Beg*, in the *Turkish* Language, signifies Lord; and *Beglerbeg*, or *Beglerbegbi*, Lords of Lords.

BEGUARD, or BEGGHARD, the Name of an Heretical Sect in *Germany*, which sprung up towards the End of the 13th Century. Their Head was one *Dulcinus*. Their principal Tenets were, that Man, in this Life, might be impeccable; and, that he might arrive to a Degree of Perfection not to be exceeded; that this State was as happy as Heaven, which when once obtain'd, they were no longer obliged to observe the Fasts of the Church, nor obey their Superiors; that every intellectual Creature is self-happy; that it stands in need of nothing but the Light of Glory to raise it to the Vision and Enjoyment of God; that none, but the Imperfect, apply themselves to practise virtuous Actions; that *Jesus Christ* should not be adored in the Elevation of the Host, nor the Mysteries of his Incarnation be regarded: They condemn'd good Works, and spread abroad impure Doctrines. These Fanaticks, who wore the Habits of Monks, without paying regard to any Rule, or observing Celibacy, were condemn'd under Pope *Clement* V. at the Council of *Vienna*, in 1311.

BEGUINES are devout Societies of young Women, establish'd in several Parts of *Flanders*, *Picardy*, and *Lorrain*. They maintain themselves by the Work of their own Hands; they lead a middle kind of Life, between the Laick and Religious; but make no Vows. These Societies began at *Nivelle*, in *Flanders*, *A. D.* 1226, and soon spread into *France*. Their Habit was particular, but modest; they lived in common, and had Men of great Piety for their Governors. Some of them giving into absurd Opinions, Pope *Clement* V. abolished their Institution; upon which they ceas'd in *France*: But, *John* XXII. Successor to *Clement* V. explain'd that Decree, and declar'd only those Societies of the *Beguines* extinct, who had fallen into Heresy.

BELAY on board a Ship, signifies the same as *fasten*; thus they say, *belay the Sheet*, or *Tack*, that is, fasten it to the Kennel, &c.

BELCHING. See RUCTATION.

BELL, a popular Machine, rank'd by Musicians among the number of Musical Instruments *of Percussion*. Its Form needs no Description; its Parts are the *Body*, or *Barrel*, the *Clapper* with-in-side, and the *Ear* or *Cannon*, whereby it is hung to a large Beam of Wood; its Matter is a Metal compounded of twenty Pounds of Pewter to an hundred of Copper, call'd *Bell-Metal*. The Thickness of its Edges is usually $\frac{1}{12}$ of the Diameter, and its Height twelve times its Thickness. The *Bell-Founders* have a *Diapason*, or *Bell-Scale*, wherewith they measure the Size, Thickness, Weight, and Tone of their *Bells*. The Uses of *Bells* are summ'd up in the *Latin* Distich:

Laudo Deum verum, Plebem voco, congrego Clerum,
Defunctos ploro, Pestem fugo, Festa decoro.

For the *Method of Casting Bells*, &c. see FOUNDERY. Mr. *Hauksbee*, and others, find by Experiment, the Sound of a *Bell* struck under Water, to be a fourth deeper than in the Air: But *Mersenne* says, 'tis of the same Pitch in either Element. *Bells* are observ'd to be heard further, placed on Plains, than on Hills; and still further in Vallies, than on Plains: the Reason of which is not difficult to assign, if it be considered, that the higher the sonorous Body is, the rarer is its Medium; consequently, the less Impulse it receives, and the less proper Vehicle it is to convey it to a Distance.

The first *Bells* are said to have been made at *Nola*, in *Campania*, whereof St. *Paulinus* was Bishop; at least, 'tis said, he was the first who brought 'em into the Church. And hence, 'tis added, they had their *Latin* Names, *Nolæ* and *Campanæ*: But others say, they take these Names, not from their being invented in *Campania*, but because 'twas here the manner of hanging and balancing of 'em, now in Use, was first practis'd; at least, that they were ballanced and hung on the Model of a Ballance invented or used in *Campania*. For, in *Latin* Writers we find *Campana Statera*, for a Counter-poise, and in *Greek* καμπανίζειν, for *ponderare*, to load or weigh. *Polydore Virgil* ascribes the Invention of *Bells* to Pope *Sabinian*, St. *Gregory*'s Successor; but by Mistake; for St. *Jerome*, Cotemporary with *Paulinus*, makes mention of a *Bell*. In effect, Pope *Sabinian* did not invent *Bells*; but he was the first who appointed the Canonical Hours to be distinguish'd by 'em. We even find mention made of *Bells* in *Ovid*, *Tibullus*, *Martial*, *Statius*, and *Manilius*, and the *Greek* Authors, under the Titles of *Tintinnabula*, and *Sounding Brass*. *Suetonius*, *Dion*, *Strabo*, *Polybius*, *Josephus*, and others, mention 'em under the Names of *Petasus*, *Tintinnabulum*, *Æramentum*, *Crotalum*, *Signum*, &c. But these appear to have been little else but Baubles, and little like the huge *Bells* in use among us.

Hieronymus Magius, who has a Treatise express on *Bells*, (wrote, when in Chains, in *Turkey*, and which is accounted very remarkable, purely from his Memory, without the Assistance of any Books) makes large *Bells* a modern Invention. Indeed, we don't hear of any before the sixth Century: In 610, we are told, *Loup*, Bishop of *Orleans*, being at *Sens*, then besieg'd by the Army of *Clotharius*, frighted away the Besiegers by ringing the *Bells* of St. *Stephen*'s. The first large *Bells* in *England* are mention'd by *Bede* towards the latter End of that Century. The *Greeks* are commonly said to have been unacquainted with 'em till the ninth Century, when their Construction was first taught them by a *Venetian*. Indeed, 'tis not true that the Use of *Bells* was entirely unknown in the antient *Eastern* Churches, and that they call'd the People to Church, as at present, with wooden Mallets. *Leo Allatius*, in his *Dissertation of the Greek Temples*, proves the contrary from several antient Writers. 'Tis his Opinion, that *Bells* first began to be disused among 'em, after the taking of *Constantinople* by the *Turks*; who, it seems, prohibited 'em, lest their Sounds should disturb the Repose of Souls, which, according to them, wander in the Air. He adds, that they still retain the Use of *Bells* in Places remote from the Commerce of the *Turks*; particularly, very antient ones in Mount *Athos*: *F. Simon* thinks the *Turks* rather prohibited the *Christians* the Use of *Bells*, out of political, than religious Reasons; inasmuch as the Ringing of *Bells* might serve as a Signal for the Execution of Revolts, &c. See MINARET. The City *Bourdeaux* was deprived of its *Bells* for Rebellion; and when 'twas offer'd to have 'em restored, the People refus'd it, after having tasted the Ease and Conveniency of being freed from the constant Din and Jangling of *Bells*.

Matthew Paris observes, that antiently the Use of *Bells* was prohibited in Time of Mourning; tho at present they make one of the principal Ceremonies of Mourning. *Mabillon* adds, that 'twas an antient Custom to ring the *Bells* for Persons about to expire, to advertise the People to pray for 'em; whence our *Passing-Bells*. *Lobineau* observes, that the Custom of *ringing Bells*, at the Approach of Thunder, is of some Antiquity; but that the Design was not so much to shake the Air, and so dissipate the Thunder, as to call the People to Church, to pray the Parish may be preserved from that terrible Meteor.

The Custom of *baptizing*, or *blessing Bells*, is very antient. Some say 'twas introduced by Pope *John* XIII. in 972; but 'tis evidently of an older standing; there being an express Prohibition of the Practice in a Capitulary of *John* XIII. *Alcuin* says 'twas establish'd long before Pope *John* XIII. Yet this is only to be understood of an Order of that Pope, for restoring the Practice which had been disused. See BAPTISM.

Nankin, a City of *China*, was antiently famous for the Largeness of its *Bells*; but their enormous Weight having brought down the Steeple, the whole Building fell to Ruin, and the *Bells* have ever since lain on the Ground. One of these *Bells* is near 12 *English* Foot high, the Diameter $7\frac{1}{2}$, and the Circumference 23; its Figure almost Cylindric, except for a Swelling in the middle; and the Thickness of the Metal about the Edges, seven Inches. From the Dimensions of this *Bell*, its Weight is computed at 50000 Pounds, which is more than double the Weight of that of *Erfort*, said by Father *Kircher* to be the greatest *Bell* in the World. These *Bells* were cast by the first Emperor of the preceding Dynasty, about 300 Years ago. They have each their Name, the Hanger *Schoui*, the Eater *Che*, the Sleeper *Choui*, the Will *Fi*. Father *le Compte* adds, that there are seven other *Bells* in *Pekin*, cast in the Reign of *Toulo*, each of which weighs 120000 Pounds. But the Sounds even of their biggest *Bells*, are very poor; being struck with a Wooden in lieu of an Iron Clapper. The *Ægyptians* have none but wooden Clocks, except one brought by the *Franks* into the Monastery of St. *Anthony*.

BELL: The Sound of a *Bell* consists in a vibratory Motion of the Parts thereof, much like that of a Musical Chord. The Stroke of the Clapper, 'tis evident, must change the Figure of the *Bell*, and of round, make it oval: But the Metal having a great degree of Elasticity, that Part which the Stroke drove furthest from the Centre will fly back again, and that even somewhat nearer to the Centre than before: So that the two Points which before

were

were the Extremes of the longer Diameter, now become those of the shorter. Thus the Circumference of the *Bell* undergoes alternate Changes of Figure, and by means thereof gives that tremulous Motion to the Air wherein Sound consists. See SOUND.

M. *Perrault* maintains, that the Sound of the same *Bell*, or *Chord*, is a Compound of the Sounds of the several Parts thereof; so that where the Parts are homogeneous, and the Dimensions of the Figure uniform, there is such a perfect Mixture of all these Sounds, as constitutes one uniform, smooth, even Sound; and the contrary Circumstances produce Harshness. This he proves from the *Bell*'s differing in Tune according to the Part you strike; and yet strike it any where, there is a Motion of all the Parts. He therefore considers *Bells* as composed of an infinite Number of Rings, which, according to their different Dimensions, have different Tones, as Chords of different Length have: And when struck, the Vibrations of the Parts immediately struck, determine the Tone; being supported by a sufficient Number of consonant Tones in other Parts. See TUNE.

BELLOWS, a Machine used to give a brisk Agitation to the Air, by enlarging and contracting its Capacity by Turns. *Bellows* are of various Kinds, as *Domestick Bellows*, *Enamellers Bellows*, *Smiths Bellows*. See FORGE. The *Bellows* of an Organ are six Foot long, and four broad; each having an Aperture of four Inches, that the Valve may play easily. There should likewise be a Valve at the Nose of the *Bellows*, that one mayn't take the Air from the other. To blow an Organ of 16 Feet there are required four Pair of *Bellows*. There are some *Bellows* triangular, which only move on one Side. Others call'd *Lanthorn-Bellows*, from their resembling a Paper Lanthorn: These move each way, and yet still continue parallel to each other. The *Hessian Bellows* are a Contrivance for driving Air into a Mine for the Respiration of the Miners. This M. *Papin* improved, changing its Cylindrical Form into a Spiral one; and with this, working it only with his Foot, he could make a Wind to raise two Pound Weight. See the *Philos. Transact.*

BELOMANCY, a kind of Divination by Arrows; (from βέλος, *an Arrow*, and μαντεία, *Divination*,) practised in the *East*, but chiefly among the *Arabians*. 'Twas performed in different manners: One was to mark a Parcel of Arrows, and put eleven, or more of 'em, into a Sack; these were afterwards drawn out, and according as they were mark'd, or not, they judged of future Events. Another way was to have but three Arrows, upon one of which was wrote, *God orders it me*; upon another, *God forbids it me*; and upon the third was wrote nothing at all. These were put into a Quiver, out of which they drew one of the three at random; if it happen'd to be that with the first Inscription, the Thing they consulted about was done; if it chanced to be that with the second Inscription, 'twas let alone; but if it proved that without an Inscription, they draw'd over again. This was an antient Practice, and probably that which *Ezekiel* mentions, *ch.* xxi. 21. At least St. *Jerome* understands it so, and observes that the Practice was frequent among the *Assyrians* or *Babylonians*. Something like it is also mentioned in *Hosea*, *ch.* iv. only that *Rods* are there mentioned instead of *Arrows*, which is rather *Rhabdomancy* than *Belomancy*. *Grotius*, as well as *Jerome*, confounds the two together, and shews that it prevail'd much among the *Magi*, *Chaldeans* and *Scythians*; whence it passed to the *Sclavonians*, and thence to the *Germans*, whom *Tacitus* observes to make use of it. See RHABDOMANCY.

BELTS, in Astronomy, two *Fasciæ*, or Girdles, observ'd in *Jupiter*'s Body, more lucid than the rest, and terminated by Parallel Lines, being sometimes broader and sometimes narrower; nor do they constantly take up the same Places in his Disk. *Huygens* observed a *Belt* in *Mars* in 1656, much broader than those of *Jupiter*, and possessing the middle Part of his Disk, but very obscure. See JUPITER, &c.

BEN, or *Beben*, a Name given to a Medicinal Root, rank'd among the Cardiacs and Counter-Poisons; and to an Oil express'd from this Root, used by Perfumers, &c. The Root of *Ben* is divided into white and red: The first is insipid, leaving only a little Bitterness behind it on the Tongue; the red is fibrous, brown without, and reddish within. They are both brought from *Syria*, and have the same Virtues, being substituted for each other; they must be chosen dry, and are of an aromatick, astringent Taste.

BENCHERS in an Inn of Court, the Seniors of the House, who have the Government and Direction thereof; and out of whom is yearly chosen a Treasurer, &c.

BEND, in Heraldry, one of the eight honourable Ordinaries; containing a fifth when uncharged, but when charged a third part of the Escutcheon: It is made by two Lines drawn thwartways from the Dexter-Chief to the Sinister-Base Point; thus he beareth Or, a *Bend* Sable. A *Bend* is subdivided into a *Bendlet* which is the sixth part of the Shield, a *Garter* which is the Moiety of a *Bend*, a *Cost* which is the fourth part of a *Bend*, and a *Ribbon* which is the Moiety of a *Cost*. There is also a *Bend-Sinister*, which is drawn from the *Sinister-Chief Point* to the *Dexter-Base*, and this is subdivided into the *Scrape*, or *Scarp*, and the *Battoon*; which latter is the fourth part of the *Bend*. This *Battoon* is the most usual Mark of Illegitimacy; but then it never extends itself quite athwart the Shield, but is cut off a little at each End: When two streight Lines drawn within the *Bend* run nearly parallel to the outward Edges of it, that is called *Voiding*; and he that bears it, is said *to bear a Bend* voided thus: He beareth Ermine, a *Bend* voided Gules.

BEND: At Sea they say *bend the Cable*, when it is to be made fast to the Ring of the Anchor; and to *bend two Cables*, is the same as to tie them together. To *unbend the Cable*, is to loosen it from the Ring of the Anchor; which is done when a Ship designs to be long at Sea. To *bend a Main-Sail*, is to make it fast to the Yard in its proper Place. The *Bends* in a Ship are the same with the *Wales*, or *Wales*, which are the outermost Timbers of a Ship, on which Men set their Feet in climbing up: They are reckoned from the Water the first, second, and third *Bend*: They help much to strengthen the Ship, and have the Beams, Knees, and Foot-Hooks bolted into them.

BENDY, the Term in Blazonry for an Escutcheon's being divided *Bend-ways* into an even Number of Partitions; but if they are odd, the *Field* must first be named, and then the Number of the *Bends*.

BENEDICTINES, a Set of Religious, who profess to live by the Rule of St. *Benedict*. The *Benedictines* are divided into several Congregations. They wear a loose black Gown, with large wide Sleeves, and a Capuche on their Heads, ending in a Point behind. In the Canon Law they are called *Black Friars*, distinguishing them from the other Orders by their Habit, and not by the Name of their Patriarch St. *Benedict*. There is only this Difference between the antient *Monks* and the *Benedictines*, in that the former were mere *Monks*, without any Attachment to a particular Order. The List of Saints of the *Benedictin* Order is very ample; but they are accused by *Baronius*, and many other Writers, of putting those in the List who were never of that Order.

BENEFICE, in an Ecclesiastical Sense, a Church endow'd with a Revenue for the Performance of Divine Service; or, that Revenue itself, assign'd to an Ecclesiastical Person for Life, in return for the Service he is to do to that Church. All Church-Preferments, except Bishopricks, are called *Benefices*; and all *Benefices* are, by the Canonists, sometimes called *Dignities*: But we now ordinarily distinguish between *Benefice* and *Dignity*, using the Word *Dignity* for *Bishopricks*, *Deanaries*, *Arch-Deaconries*, and *Prebends*; and *Benefices* for PARSONAGES, VICARAGES, or DONATIVES; which see.

Benefices are divided by the *Canonists* into *Simple* and *Sacerdotal*: In the first there is no Obligation but to read Prayers, sing, &c. as Canons, Chaplains, Chantors, &c. The second is charg'd with a Cure of Souls, or the Direction and Guidance of Consciences, as *Vicarages*, *Rectories*, &c. The *Canonists* make three manners of *vacating* a *Benefice*, viz. *de Jure*, *de Facto*, and *by the Sentence of a Judge*. A *Benefice* is vacated *de Jure*, when the Person enjoying it is guilty of Crimes express'd in those Laws, as Heresy, Simony, &c. A *Benefice* is vacated *de Facto*, as well as *de Jure*, by the natural Death, or the Resignation of the Incumbent; and that Resignation may be either express, or tacit, as when he engages in a State, &c. inconsistent with it; as among the *Romanists* by Marrying, Entering a Religious Order, &c. A *Benefice* is vacant by the *Sentence of a Judge*, by way of Punishment for certain Crimes, as Concubinage, Perjury, Sorcery, &c. The *Romanists*, again, distinguish *Benefices* into *Regular* and *Secular*. *Regular*, or *Titulary Benefices*, are those held by a *Religious*, or a *Regular*, who has made Profession of some Religious Order, as an Abby, Priory, Conventual, &c. Or rather, a *Regular Benefice* is such as can't be conferr'd on any but *Religious*, either by its Foundation, by the Institution of a Superior, or by Prescription: For Prescription, 40 Years Possession by a *Religious*, without a Dispensation, makes the *Benefice Regular*. *Secular Benefices* are those that are only to be given to *Seculars*; of which kind are almost all their Cures. All *Benefices* are reputed *Secular*, till the contrary is made appear. They are called *Secular Benefices*, because held by *Secular Priests*, i. e. by such as live in the World, and are not engaged in any Monastick Order. Some *Benefices*, *Regular* of themselves, are *secularized* by the Pope's Bull. See REGULAR and SECULAR.

A *Benefice in Commendam* is that, the Direction and Management whereof, upon a Vacancy, is given or commended to an Ecclesiastick for a certain Time, till it may be conveniently provided for. See COMMENDAM.

The Term *Benefice* comes to us from the old *Romans*, who using to distribute part of the Lands they had conquered on the Frontiers of the Empire to their Soldiers, those who enjoy'd such Rewards were call'd *Beneficiarii*, and the Lands themselves *Beneficia*, as being held on the pure Beneficence and Liberality of the Prince. These *Benefices* at first were given for Life only, but afterwards became Hereditary and Patrimonial. From the *Romans* both the Name and the Thing passed into *France* and *England*, with this Difference, as Mr. *Blount* observes, that *Benefices* were not given as mere Gratuities for past Services, but as Warrants for future ones, and were accordingly held by the Tenure of serving, on occasion, in the Wars, &c. So that what was before a *Benefice*, became now converted into a *Fee*. Hence, doubtless, came the Term *Benefice* to be applied to Church-Livings; for, besides that the Ecclesiasticks held for Life, like the Soldiers, the Riches of the Church arose from the *Beneficence* of Princes.

As to the Origin of *Ecclesiastical Benefices*, 'tis hard to determine when the Effects of the Church were first divided; 'tis certain, till the fourth Century all the Revenues were in the Hands of the Bishops, who distributed them by their *Oeconomi*; they consisted principally in Alms and voluntary Contributions. As the Church came to have Inheritances, Part thereof was assign'd for the Subsistance of the Clergy, and call'd a *Benefice*, for which we find some footing in the fifth and sixth Century; but then there does not appear to have been any certain Partirion, nor any precise Quota allotted to each Particular, but the Allotments were absolutely discretional till about the twelfth Century. At first each was contented with a single *Benefice*, but Plurralities were, by degrees, introduced, on pretence of Equity: For, a single *Benefice* being sometimes scarce thought a Competency, the Priest was allow'd two: As his Quality, or Occasions, increas'd, so the Number of *Benefices* that were to support 'em were increas'd too. Hence some affecting to equal Princes in Quality, pretend to Revenues answerable thereto.

V. Ferrier observ'd, that in his Time there were five *Cases* by which *Benefices* were acquir'd: By the *Nominative*, as in royal Nominations; by the *Genitive*, as where the Children of Great Men, &c. are provided of *Benefices* by their Birth; by the *Dative*, as when speaking of a *Benefice*, 'tis said, *Date, & dabitur vobis*; by the *Accusative*, as where by virtue of an Accusation, either true or false, an Incumbent is dispossess'd, and another admitted; by the *Ablative*, as when *Benefices* are taken away by Force from the poor and helpless: but the *Vocative Case*, which is the most just and legitimate, is out of use. The *Nominative* is for the King; the *Genitive* for the Great; the *Dative* for the Rich; the *Accusative* for the Cunning; and the *Ablative* for the Ambitious; but the *Vocative* is reserved for the *Holy Ghost* alone.

BENEVOLENCE is used, both in our Statutes and Chronicles, for a voluntary Gratuity given by the Subjects to their Sovereign. The first *Benevolence*, *Stow* observes in King *Edward* the IV's Days, was granted that Prince in regard of his great Expences in Wars, &c. There was one given by Act of Parliament to King *Charles* II. In other Nations this is called *Subsidium Charitativum*, given sometimes by Tenants to their Lords, by the Clergy to their Bishops, &c.

BENJOYN, or, as 'tis commonly called, *Benjamen*, an excellent kind of Resin, imported from the Kingdom of *Lao*, and other Parts of the *East-Indies*. 'Tis procured by a Wound or Incision in a Tree, whose Leaves resemble those the Lemmon-Tree. 'Tis of a yellowish Colour, of an agreeable Scent, and easy to melt. There are three Sorts of it: The first is call'd *Amygdaloides*, because of its being interspers'd with several white Spots which resemble broken Almonds: This comes from *Siam*. The second is black and very odoriferous; it drops from young Trees, and comes from *Sumatra*; 'tis call'd *Benzoinum de Bominas*. The third Sort is also black, but less odoriferous; this is found in the Islands of *Java* and *Sumatra*. 'Tis used in Physick, as a Pectoral and Anti-Asthmatick; and thrown on live Coals, it serves to perfume Houses, &c.

BERENGARIANS, a Religious Sect who adher'd to the Opinions of *Berenger*, Archdeacon of *Angiers*, who oppos'd the Doctrine of Transubstantiation and the real Presence, a considerable time before *Luther*. He is further charged by the *Romanists* with decrying Marriage, and maintaining the common Use of all sorts of Women, and asserting Infant-Baptism of no effect. His Followers were divided on the Head of the Eucharist: Tho they all agreed that the Bread and Wine were not essentially chang'd, yet some allow'd it to be chang'd in effect, tho under an Impanation, which was the Opinion of *Berenger* himself: Others denied any Change at all, and resolved all into Figure; others again allow'd a Change in part; and others an entire Change, with this Restriction, that to those who presented themselves unworthily it was chang'd back again.

BERENICES *Hair*, or *Coma Berenices*, a Constellation in the Northern Hemisphere, consisting of Stars near the *Lion's Tail*.

BERGAMOT is a kind of Essence, drawn from a Fruit, produc'd by ingrafting the Lemon-Tree on the *Bergamot-Pear* Stock. 'Tis no more than the oily Fluid of these Lemons express'd by the Fingers. There is likewise a kind of Snuff of the same Name, which is only clean Tobacco, with a little of the Essence rubb'd into it.

BERGHMOTH, vulgarly call'd *Barmote*, a Court held on a Hill for deciding Pleas and Controversies among the *Derbyshire* Miners. From the *Saxon Berg*, *Mons*, and *Mote*, *Conventus*.

BERLIN, a particular kind of Vehicle of the Chariot-kind, much used of late; taking its Name from the City *Berlin* in *Germany*; tho some attribute the Invention of it to the *Italians*. 'Tis a very convenient Machine to travel in, being lighter, and less apt to be overturn'd, than a Chariot. The Body of it is hung high by Shafts to leathern Braces; there being a kind of Stirrup or Footstool for the Conveniency of getting into it: Instead of Side-Windows, there are Sheds to let down in bad Weather, and draw up in good.

BERME, in Fortification, is a small Space of Ground four or five Foot wide, left without between the Foot of the Rampart and the Side of the Moat, to receive the Earth that rolls down from thence, and to prevent its falling into the Moat. Sometimes, for more Security, the *Berme* is pallisadoed.

BERNARDINE, the Name of a religious Order extended over great part of *Europe*. This Order is an Improvement of that of St. *Benedict*, made by *Robert Abbe de Moleme*; and again by St. *Bernard Abbe de Clervaux*. Their usual Habi ti sa white Gown, with a black Scapulary; but when they officiate, they put on a large white Coul with great Sleeves, and a Hood of the same Colour.

BERIL, or BERYL, a precious Stone, much like Chrystal, brought from the *Indies*; there are some also found on the Banks of the *Euphrates*. There are several Kinds of *Berils*. Lapidaries reckon ten: The most esteemed are the *Beril*, the *Chrysoberil*, and the *Chrysoprasin*. The *Beril* borders much on the Sea-green; whence the *Latins* call it *Aqua Marina*, *Sea-Water*. To give it a Lustre, it must be cut Facet-wise: Polishing does not give it any Brillant, if cut any other way. The *Chrysoberil* is somewhat paler, and partakes more of the yellow. *Chrysoprasin* partakes most of the green. Some Authors take the *Beril* to be the Diamond of the Antients: This is certain, the ablest modern Jewellers sometimes mistake the one for the other. The *Beril* is sometimes found in Pieces large enough to form fine Vases. 'Tis said, there are many of 'em at *Cambaye*, *Martaban*, *Pegu*, and *Ceylon*.

The Properties of the *Beril* were very wonderful in the Opinion of the antient Naturalists: It kept People from falling into Ambuscades of Enemies, excited Courage in the fearful, cured Diseases of the Eyes and Stomach. It does none of these things now; because People are not simple enough to believe it has the Virtue to do 'em.

BERRY, a Grain, Fruit, or Seed, produced by several Trees and Shrubs for the Conservation, and Re-production of their Kind. *Berries* are of various Sizes, Forms, Properties, and Uses, according to the Plants whereon they grow: Some used in Medicine, as *Juniper-Berries*, *Buckthorn-Berries*, &c. Others in Dying, as *French* or *Yellow Berries*, &c. See GRAIN and SEED.

BESANT, a sort of Coin struck at *Constantinople*, in the Time of the Emperors, antiently called *Bisance*; 'twas pure Gold, or 24 Carats fine. Its Value is not determin'd. Hence the Gold offer'd by the King at the Altar, and on Festivals, is still call'd *Besant*, or *Bisant*.

BES, or BESSIS, the Mark, or eight Ounces, Part of the *As*; *Bes* for *Bis*, which is two *Triens*, which are each four in Value. See AS.

BESTIARII, among the antient *Romans*, those who combated with Beasts, or were expos'd to 'em. We usually distinguish two Kinds of *Bestiarii*: The first were those condemn'd to the Beasts, either as being Enemies, taken Prisoners, or as being Slaves, and guilty of some enormous Crime. These were all expos'd naked, and without Defence to the Beasts; nor did it ought avail to conquer and kill the Beast, fresh ones being continually let loose on 'em, till they were dead. The *Christians* were *Bestiarii* of this Kind, even some of 'em who were *Roman* Citizens, tho 'twas the Privilege of such to be exempt from it: But it seldom happen'd that two were requir'd for the same Man; on the contrary, one Beast frequently dispatch'd several Men. *Cicero* mentions

a Lion,

a Lion, which alone dispatch'd 200 *Bestiarii*. Those who succeeded the first were call'd ἔφεδροι, and the last ἔσχατοι. See MERIDIANI.

The second Kind of *Bestiarii*, *Seneca* observes, consisted of young Men, who, to become expert in managing their Arms, fought sometimes against Beasts, and sometimes against one another; and of Bravo's, who, to shew their Courage and Dexterity, expos'd themselves to this dangerous Combat. *Augustus* encourag'd this Practice in young Men of the first Rank; *Nero* exposed himself to it; and 'twas for the killing Beasts in the Amphitheatre, that *Commodus* acquir'd the Title of the *Roman Hercules*. *Vigenere* to these adds two Kinds of *Bestiarii* more: The first were those who made a Trade of it, and fought for Money; the second was where several *Bestiarii* armed, were let loose at once against a Number of Beasts.

BEVEL, in Masonry, and among Joiners, a kind of Square, one Leg whereof is frequently crooked, according to the Sweep of an Arch or Vault. 'Tis moveable on a Point or Centre, and so may be set to any Angle. Its Make and Use are pretty much the same as those of the common Square and Mitre, except that those are fix'd; the first at an Angle of 90 Degrees, and the second at 45; whereas the *Bevil* being moveable, may, in some measure, supply the Office of both, and yet, which 'tis chiefly intended for, supply the Deficiencies of both; serving to set off, or transfer, Angles either greater or less than 90 or 45 Degrees. Hence a *Bevil* Angle is used to denote any other Angle but those of 90 or 45 Degrees.

BEVILE, a Term in Heraldry signifying Broken, or opening like a Carpenter's Rule. Thus he beareth Argent a chief *Bevile* Vert, by the Name of *Beverlis*.

BEY, a Term used for a Governour of a maritime Country or Town in the Turkish Empire. The *Turks* write the Word *Begh*, or *Bek*, but pronounce it *Bey*. Properly it signifies *Lord*, but is particularly applied to a *Lord of a Banner*, whom in the same Language they call *Sangiakbeghi*, or *Bey*: *Sangiak*, which among them signifies *Banner*, or *Standard*, being the Badge of him who commands in a considerable Place of some Province, having under him a considerable Number of *Spahi's*, or Horse. Each Province in *Turkey* is divided into seven of these *Sangiacks*, or *Banners*, each of which qualifies a *Bey*; and these are all commanded by the Governour of the Province, whom they also call *Beghiler-Beghi*, or *Beyler-bey*, i. e. *Lord of the Lords*, or *Beys of the Province*. These *Beys* are in a great measure the same that *Bannerets* formerly were in *England*.

BEZOAR, or BEZOARD, a Medicinal Stone, esteem'd a Sovereign Counter-Poison, and an excellent Cardiac. 'Tis also given in Vertigo's, Epilepsies, Palpitation of the Heart, Jaundice, Cholick, and so many other Diseases, that were its real Virtues answerable to its reputed ones, it were doubtless a *Panacea*. Indeed, its Rarity, and the peculiar Manner of its Formation, have, perhaps, contributed as much to its Reputation, as any intrinsick Worth. At present it begins to be prized less, and a great many able Physicians discard it, as of no Use or Efficacy at all.

There are several Kinds of *Bezoar*; the Chief are the *Oriental*, the *Occidental*, and that of *Germany*. The *Oriental* is in the most Esteem, and is brought from several Parts of the *East-Indies*, chiefly *Golconda* and *Cananor*: 'Tis there found mingled with the Dung of an Animal of the Goat Kind call'd *Pazan*; in the Belly whereof this Stone is found: The Buds of a certain Shrub which the Animal uses to browze, are usually found in the middle of it, and supposed to be the Seed whence it arises. The *Bezoar* ordinarily grows of the Bigness of an Acorn, sometimes of that of a Pigeon's Egg. It is composed of several shining Skins, or Coats, like an Onion, sometimes of a Blood-Colour, sometimes a pale yellow, a brownish red, and Honey-Colour. The Number of *Bezoards* produced by each Animal is various, some yielding one, two, &c. to six, and others none at all. The larger the Stone the more valuable, its Price increasing like that of the Diamond. A Stone of one Ounce is sold in the *Indies* for 100 Franks, and one of four Ounces for 2000 Livres. *Oriental Bezoar* must be chose shining, of a Smell like that of Ambergreese, smooth to the Touch, and in large Pieces; its Figure is indifferent, its Colour usually Olive. *Bezoar* is easily sophisticated, and the Deceit as easily discover'd. The Methods of proving it are, 1*st*, to steep it three or four Hours in lukewarm Water; if the Water ben't ting'd, nor the *Bezoar* lose of its Weight, 'tis pure. 2*dly*, To try it with a sharp, red hot Iron; if it enters the Stone, and the Heat makes it fry and shrivel, 'tis factitious. 3*dly*, To rub it over a Paper smear'd with Ceruse; if it leave a yellow Teint, 'tis good.

Occidental Bezoar, or *Bezoar* of *Peru*, is very different from the first. 'Tis found in the Belly of several Animals, peculiar to the Country: In some 'tis the Bigness of a Nut, in others of a Pullet's Egg; in some 'tis oval, in others flat, in others round; 'tis usually of an Ash-Colour, sometimes dusky; and form'd of Scales, like the *Oriental*, but much thicker; 'tis smooth and even without-side, but when broke, looks as if it had been sublimated, by reason of the little shining Needles whereof it appears to be composed. The Animals that produce it are the Guanaco's, Jacho's, Vicunna's, and Taragua's; the *Bezoar* of which last is the most esteemed, this Animal being much like the Goat that produces the *Oriental*.

The *German Bezoar*, which some call *Cow's Eggs*, is found in the Stomach of some Cows, but more frequently in that of the Chamois or Isard. These are supposed to be nothing else but the Hair of those Animals, which being occasionally lick'd off by the Tongue, is swallow'd down, and being impregnated with the Saliva, &c. is condens'd into Balls. Some of these *Bezoars* weigh 18 Ounces, but they are not much esteem'd, tho they are used in some Medicines, and by the Painters in Miniature, to make their yellow Colours.

Besides these three Kinds of *Bezoar* which the Shops afford, there are three other Kinds much rarer, *viz.* the *Stone of the Hog*, that of *Malacca* or *Porcupine*, and that of the *Ape*. The first call'd by the *Dutch*, *Pedro de Porco*, and by the *Portuguese*, who first brought it into *Europe*, *Pedro de Vaparis*, found in the Gall-Bladder of a Boar in the *East-Indies*. In Figure and Size it resembles a Filbert, tho more irregular; its Colour not fix'd, but most commonly white with a Teint of blue; it is smooth and shining. The *Indians* attribute infinite Virtues to this *Bezoar*: They call it *Mastica de Solo*, and prefer it to the *Oriental Bezoar*; not so much on account of its being supposed the best Preservative in the World against Poisons, as on account of its being Sovereign in the Cure of the *Mardoxi*, a Disease they are very liable to, and which is not less dangerous than the Plague in *Europe*. The other Properties they ascribe to it are, that 'tis admirable against malignant Fevers, Small-Pox, and most Diseases of Women not with Child; Experience shewing, that it promotes Abortion in those who use it indiscreetly. To use it, they infuse it in Water, or Wine, till it has communicated a little Bitterness to it. To facilitate the Infusion, and at the same time preserve so precious a Stone, they usually set it in a gold Case pierced with Holes.

Bezoars of Porcupines and *Monkies* only differ from those of the *Hog*, in that they are found in the Gall-Bladders of those Animals; unless we say with *Tavernier*, that these two, which he calls *Malacca-Stones*, are not taken from the Gall-Bladders, but the Head of the Monkey and Porcupine; and that they are held in such Esteem by the Natives of *Malacca*, that they never part with 'em, unless as Presents to Ambassadors, or the greatest Princes of the East. Some add, that they are likewise found in *Siam*. Indeed, the Form, Colour and Properties of these three *Bezoars* are so near a-kin, that 'tis more than probable, that 'tis the same Stone under three different Names.

Bezoar is applied by the Chymists, to several of their Preparations, on account of the *Bezoardick* Qualities they are suppos'd to have.

Animal BEZOAR is the Heart and Lungs of the Viper pulverized together.

Mineral BEZOAR is an Emetick Powder of Antimony corrected with Spirit of Nitre, and softened by repeated Lotions, which carry off the purgative Virtue of the Antimony, and substitute a Diaphoretick one. It promotes Sweat like the Stone of that Name.

BEZOARDICUM *Joviale*, or *Bezoar of Jupiter*, a Regulus made by melting three Ounces of Regulus of Antimony and two of Block-Tin, which, powder'd and mix'd with six Ounces of Corrosive Sublimate, and distill'd off in a kind of Butter, and that dissolv'd in Spirit of Nitre, the Solution is distill'd three times; the *Bezoar* remaining at bottom, to be powder'd, wash'd, and mingled with Spirit of Wine, till it grow insipid.

BEZOARDICUM *Lunale*, or *of the Moon*, is made by mixing eight Ounces of rectified Butter of Antimony with one of fine Silver. This is dissolv'd in Spirit of Nitre, by gently pouring it on, fresh and fresh, till the Ebullition cease; when, the Spirit is drawn off by a gentle Heat, and the *Bezoar* manag'd as the former.

BEZOARDICUM *Martiale*, a Dissolution of *Crocus Martis* by Reverberation in Butter of Antimony, with Spirit of Nitre pour'd on it; the rest as in the first.

BIBITORY *Muscle*. See ADDUCENS OCULI, which is the same.

BIBLE, a *Book* by way of Eminence so call'd, containing the Scriptures, *i. e. the Old and New Testament*. *Bibles* are distinguish'd according to their Language, into *Hebrew*, *Greek*, *Latin*, *Chaldee*, *Syriack*, *Arabick*, *Coptick*, &c. an

Acquaintance with which making a considerable Article in Theological Criticism; we shall here subjoin some Account thereof.

Hebrew Bibles are either Manuscript or Printed. The best Manuscripts are those copied by the *Jews* of *Spain*. Those copied by the *Jews* of *Germany*, are less exact, but more common: The two Kinds are easily distinguish'd from each other; the former being in beautiful Characters, like the *Hebrew Bibles* of *Stephens* and *Plantin*; the latter in Characters like those of *Munster* and *Gryphæus*. *F. Simon* observes, that the oldest Manuscript *Hebrew Bibles* are not above 6 or 700 Years old; nor does Rabbi *Menahem*, who quotes a vast Number of 'em, pretend any of 'em exceed 600 Years.

The most antient printed *Hebrew Bibles* are those published by the *Jews* of *Italy*, especially of *Pesaro* and *Bresse*. Those of *Portugal* also printed some Parts of the *Bible* at *Lisbon*, before their Expulsion. This may be observ'd in the general, that the best *Hebrew Bibles* are those printed under the Inspection of the *Jews*; there being so many *Minutiæ* to be observ'd, that 'tis scarce possible for any other to succeed in it.

In the beginning of the sixth Century *Dan. Bombergua* printed several *Hebrew Bibles* in *Folio* and *4to* at *Venice*, most of which are esteem'd both by the *Jews* and *Christians*: The first in 1517, which is the least exact, and generally goes by the Name of *Felix Pratensis*, the Person who revised it: The second in 1526, with the Massora and the Commentaries of several Rabbins, and a *Hebrew* Preface by Rabbi *J. Benchajim*. In 1548 the same *Bombergua* printed the *Folio Bible* of Rabbi *Benchajim*, which is the best and most perfect of 'em all: 'Tis distinguish'd from the first of the same Rabbi, by the Comment of Rabbi *D. Kimchi* on the *Paralipomena*, which are not in the preceding. From this Edition it was, that *Buxtorf*, the Father, printed his *Hebrew Bible* of the Rabbins at *Basil*, in 1618; but in this are several Faults, especially in the *Commentaries* of the Rabbins, where that learned Man corrected some places that were against the *Christians*. In the same Year appear'd at *Venice* a new Edition of the *Bible* of the Rabbins by *Leo de Modena*, a Rabbin of that City, who pretended to have corrected a great Number of Faults in the former Edition; but, besides that 'tis much inferior to the other *Hebrew Bibles* of *Venice*, with regard to Paper and Print, it pass'd thro the Hands of the Inquisitors, who have alter'd many Passages in the *Commentaries* of the Rabbins.

For *Hebrew Bibles* in *4to*, that of *R. Stephens* is esteem'd for the Beauty of the Characters; but 'tis very incorrect. *Plantin* also printed several beautiful *Hebrew Bibles* at *Antwerp*; the best is that of 1566, in *4to*. *Manasseh Ben Israel*, a learned *Portuguese Jew*, published two Editions of the *Hebrew Bible* at *Amsterdam*, the one in *4to*, the other in *8vo*; the first has two Columns, and for that reason is commodious for the Reader. In 1634, R. *Jac. Lombroso* publish'd a new Edition in *4to* at *Venice*, with small literal Notes at the bottom of each Page, where he explains the *Hebrew* Words by *Spanish* Words. This *Bible* is much esteem'd by the *Jews* at *Constantinople*: In the Text they have distinguish'd between Words where the Point *Camets* is to be read with a *Camets-hatuph*, that is, by an o and not an a.

Of all the Editions of the *Hebrew Bible* in *8vo*, the most beautiful and correct are the two of *Jo. Athia*, a *Jew* of *Amsterdam*. The first, of 1661, is the best Paper; but that of 1667, the most exact: That however, publish'd since at *Amsterdam* by *Vander Hooght* in 1705, is preferable to any of 'em.

After *Athia*, three *Hebraising Protestants* engaged themselves in revising and publishing the *Hebrew Bible*, viz. *Clodius*, *Jablonski*, and *Opitius*. *Clodius*'s Edition was publish'd at *Frankfort* in 1677, in *4to*: At the bottom of the Page it has the various Readings of the former Editions; but the Author does not appear sufficiently vers'd in the Accenting, especially in the Poetical Books; besides that not being publish'd under his Eye, many Faults have crept in. That of *Jablonski* in 1699, in *4to*, at *Berlin*, is very beautiful, as to Letter and Print: but, tho the Editor pretends he made use of the Editions of *Athia* and *Clodius*, some Criticks find it scarce different in any thing from the *4to* Edition of *Bombergua*. That of *Opitius* is also in *4to*, at *Keil* in 1709; the Character is large and good, but the Paper bad: 'Tis done with a great deal of Care; but the Editor made use of no MSS. but those of the *German* Libraries; neglecting the *French* one, which is an Omission common to all three. They have this Advantage however, that besides the Divisions used by the *Jews*, both general and particular, into *Parasches* and *Pesukim*, they have also those of the *Christians*, or of the *Latin Bibles*, into Chapters and Verses; the *Keriketib* or various Readings, *Latin* Summaries, &c. which make 'em of considerable Use, with regard to the *Latin* Editions and the Concordances.

The little *Bible* of *R. Stephens* in *16to*, is much prized for the Beauty of the Character. Care, however, must be taken; there being another Edition of *Geneva* exceedingly like it, excepting, that the Print is worse, and the Text less correct. To these may be added some other *Hebrew Bibles* without Points, in *8vo.* and *24to*, which are much coveted by the *Jews*; not that they are more exact, but more commodious than the rest, and are used in their Synagogues and Schools: of these there are two beautiful Editions, the one of *Plantin*, in *8vo*, with two Columns, and the other in *24to*, reprinted by *Raphalenge* at *Leiden*, in 1610. There is also an Edition of them by *Laurens* at *Amsterdam*, in 1631, in a larger Character; another in *12mo* at *Frankfort*, in 1694, full of Faults, with a Preface of M. *Leusden* at the head of it.

Greek Bibles. There are a great Number of Editions of the *Bible* in *Greek*; but they may be all reduced to three or four principal ones, *viz.* that of *Complutum*, or of *Alcala de Henares*, that of *Venice*, that of *Rome*, and that of *Oxford*. The first was publish'd in 1515 by Cardinal *Ximenes*, and inserted in the *Polyglot Bible*, usually call'd the *Complutensian Bible*. This Edition is not just, the *Greek* of the *Seventy* being alter'd in a great many places according to the *Hebrew* Text. This Edition has been reprinted in the *Polyglot Bible* of *Antwerp*, in those of *Paris*, and in the *4to Bible* commonly call'd the *Bible of the Vatable*.

The second *Greek Bible* is that of *Venice* in 1518. Here the *Greek* Text of the *Septuagint* is reprinted just as it stood in the MS. full of Faults of the Copists, but easily amended. This Edition has been reprinted at *Strasburg*, *Basil*, *Frankfort*, and other Places, with some Alterations, to bring it nearer the *Hebrew*. The most commodious is that of *Frankfort*, there being added to this, little *Scholia* where are shewn the different Interpretations of the old *Greek* Translators: The Author of this Collection has not added his Name; but 'tis commonly ascribed to *Junius*.

The third *Greek Bible* is that of *Rome* in 1587, with *Greek Scholia* collected from the MSS. in the *Roman* Libraries by *Pet. Morin*. This fine Edition has been reprinted at *Paris* in 1628, by *J. Morin*, Priest of the Oratory, who has added the *Latin* Translation, which in the *Roman* was printed separately, with *Scholia*. The *Greek* Edition of *Rome* has been reprinted in the *Polyglot Bible* of *London*; to which are added, at bottom, the various Readings of the *Alexandrian* MS. This has been also reprinted in *England* in *4to* and *12mo*, with some Alterations. It has been again publish'd at *Franeker* in 1709, by *Bos*, who has added all the various Readings he cou'd find.

The fourth *Greek Bible* is that done from the *Alexandrian* MS. begun at *Oxford* by Dr. *Grabe* in 1707. In this the *Alexandrian* MS. is not printed such as it is, but such as 'twas thought it should be, *i. e.* 'tis alter'd wherever there appear'd any Fault of the Copists, or any Word inserted from any particular Dialect: This, some think a piece of Merit, but others a Fault; urging that the MS. should be given absolutely and entirely of itself, and all Conjectures, as to the Readings, to be thrown into the Notes.

Latin Bibles, how numerous soever, may be all reduc'd to three Classes, *viz.* the *Antient Vulgate*, made from the *Greek Septuagint*; the *Modern Vulgate*, the greatest part of which is done from the *Hebrew Text*; and the *New Latin Translations*, done also from the *Hebrew Text* in the 16th Century. We have nothing remaining of the *Antient Vulgate* used in the Primitive Times in the *Western* Churches, but the *Psalms*, *Wisdom*, and *Ecclesiastes*. *Nobilius* has endeavour'd to retrieve it from the Works of the antient *Latin* Fathers; but 'twas impossible to do it exactly, in regard most of the Fathers did not keep close to it in their Citations.

As to the *Modern Vulgate*, there are a vast Number of Editions very different from each other. Cardinal *Ximenes* has inserted one in the *Bible* of *Complutum*, corrected and alter'd in many Places. *R. Stephens*, and the Doctors of *Louvain*, have took a world of Pains in correcting the *Modern Vulgate*. The best Edition of *Stephens*'s *Latin Bible* is that of 1540, reprinted in 1545; in which are added, on the Margin, the various Readings of several *Latin* MSS. which he had consulted. The Doctors of *Louvain* revised the *Modern Vulgate* after *R. Stephens*; and added the various Readings of several *Latin* MSS. The best of the *Louvain* Editions are those, at the End of which are added the Critical Notes of *Francis Luke*, of *Bruges*.

All these Reformations of the *Latin Bible* were made before the Time of Pope *Sixtus* V. and *Clement* VIII. Since which, People have not dared to make any Alterations, excepting in Comments, and separate Notes. The Correction of *Clement* VIII. in 1592, is now the Standard throughout all the *Roman* Churches: That Pontiff made two Reformations; but 'tis the first of 'em that is follow'd. From this the *Bibles* of *Plantin* were done, and from those of

of *Plantin* all the reft; fo that the common *Bibles* have none of the After-Corrections of the fame *Clement* VIII. publifh'd at *Rome* in 1592. 'Tis a heavy Charge that lies on the Editions of Pope *Clement*, *viz.* that they have fome new Texts added, and many old ones alter'd, to countenance and confirm what they call the *Catholick Doctrine*: Witnefs that celebrated Paffage of St. *John*, *Tres funt in unum*. See VULGATE.

There are a great Number of *Latin Bibles* of the third Clafs, comprehending the Verfions from the Originals of the Sacred Books made within thefe 200 Years: The firft is that of *Pagninus*, a *Dominican*, printed at *Lions* in *4to*, much efteem'd by the *Jews*. This the Author improv'd in a fecond Edition: In 1542, there was a beautiful Edition of the fame at *Lions* in *Folio*, with *Scholia*, publifh'd under the Name of *Michael Villanovanus*, i. e. *Michael Servetus*, Author of the *Scholia*. Thofe of *Zurich* have likewife publifh'd an Edition of *Pagninus*'s Bible in *4to*. And *R. Stephens* reprinted it in *Folio*, with the *Vulgate*, in 1557, pretending to give it more correct than in the former Editions. There is alfo another Edition of 1586, with four Columns, bearing the Name of the *Vatable*: And we find it again in the *Hamborough* Edition of the *Bible*, in four Languages. In the Number of *Latin Bibles* is alfo, ufually, rank'd the *Verfion* of the fame *Pagninus* corrected, or rather render'd literal, by *Arias Montanus*; which Correction being approv'd of by the Doctors of *Louvain*, &c. was inferted in the *Polyglot Bible* of *Philip* II. and fince in that of *London*. There have been various Editions of it in *Folio*, *4to*, and *8vo*; to which have been added the *Hebrew* Text of the *Old Teftament*, and the *Greek* of the *New*. The beft of 'em all is the firft, which is in *Folio*, 1571.

Since the Reformation, there have been feveral *Latin* Verfions of the *Bible* from the Originals by *Proteftants*. The moft efteem'd are thofe of *Munfter*, *Leo de Juda*, *Caftalio*, and *Tremellius*: The three laft whereof have been reprinted various times. *Caftalio*'s fine *Latin* pleafes moft People; but there are fome who think it too much affected: the beft Edition thereof is that in 1573. *Leo de Juda*'s Verfion, alter'd a little by the Divines of *Salamanca*, was added to the antient *Latin* Edition, as publifh'd by *R. Stephens* with Notes, under the Name of *Vatable*. That of *Junius* and *Tremellius* is prefer'd efpecially by the *Calviniftis*, and has undergone a great Number of Editions.

One may add a fourth Clafs of *Latin Bibles*, comprehending the *Vulgate* Edition corrected from the Originals. The *Bible* of *Ifidorus Clarius* is of this Number: That Author not being contented with reftoring the antient *Latin* Copy, has corrected the Tranflator in a great number of places, which he thought ill render'd. Some *Proteftants* have follow'd the fame Method; and among others, *Andrew* and *Luke Oftander*, who have each publifh'd a new Edition of the *Vulgate*, corrected from the Originals.

Oriental BIBLES. At the head of the *Oriental* Verfions of the *Bible*, muft be placed that of the *Samaritan*, that being the moft antient of all, and admitting no more for *Holy Scripture* but the *Pentateuch*, or *Five Books of Mofes*. This Tranftation is made from the *Samaritan Hebrew* Text, which is a little different from the *Hebrew* Text of the *Jews*. This Verfion has never been printed alone; nor any where but in the *Polyglots* of *London* and *Paris*.

Chaldee BIBLES are no more than the Gloffes made by the *Jews* in the Time when they fpake the *Chaldee* Tongue. Thefe they call by the Name of *Targumim*, or *Paraphrafes*, as not being any ftrict Verfion of the Scripture. They have been inferted entire in the large *Hebrew Bibles* of *Venice* and *Bafil*; but are read more commodiouffly in the *Polyglots*, being there attended with a *Latin* Tranflation.

Syriack BIBLES. In the Year 1562, *Widmanftadius* printed the whole *New Teftament* in *Syriac* at *Vienna*, in a beautiful Character: After him there were feveral other Editions; and it was inferted in the *Bible* of *Philip* II. with a *Latin* Tranflation. *Gabriel Sionita* alfo publifhed a beautiful *Syriack* Edition of the *Pfalms* at *Paris* in 1525, with a *Latin* Interpretation. The whole *Bible* is printed in *Syriack* in the *Polyglots* of *London* and *Paris*.

Arabick BIBLES. In the Year 1516, *Aug. Juftinian*, Bifhop of *Nebio*, printed at *Genoa* an *Arabick* Verfion of the *Pfalter*, with the *Hebrew* Text and *Chaldee* Paraphrafe, adding *Latin* Interpretations. There are *Arabick* Verfions of the whole *Scriptures* in the *Polyglots* of *London* and *Paris*; and we have an Edition of the *Old Teftament* entire, printed at *Rome* in 1671, by Order of the Congregation *de propaganda Fide*; but 'tis of little Efteem, as having been alter'd by the *Vulgate* Edition. The *Arabick Bibles* among us, are not the fame with thofe ufed by the *Chriftians* in the *Eaft*. Some learned Men take the *Arabick* Verfion of the *Old Teftament*, printed in the *Polyglots*, to be that of *Saadias*: at leaft, in the main. Their Reafon is, that *Aben Ezra*, a great Antagonift of *Saadias*, quotes fome Paffages of his Verfion, which are the fame with thofe in the *Arabick* Verfion of the *Polyglots*; yet others are of opinion, that *Saadias*'s Verfion is not extant. In 1622, *Erpenius* printed an *Arabick Pentateuch*, call'd alfo the *Pentateuch of Mauritania*, as being made by the *Jews* of *Mauritania*, and for their Ufe. This Verfion is very litteral, and efteem'd very exact. The *four Evangelifts* have alfo been publifh'd in *Arabick*, with a *Latin* Verfion, at *Rome* in 1591, *Folio*. Thefe have been fince reprinted in the *Polyglots* of *London* and *Paris*, with fome little Alterations of *Gabriel Sionita*. *Erpenius* publifh'd an *Arabick New Teftament*, entire, as he found it in his MS. Copy, at *Leyden*, in 1616.

Coptick BIBLES. We have no Part of the *Bible* printed in *Coptick*; but there are feveral Manufcript Copies in the good Libraries, efpecially in that of the *French* King.

Æthiopick BIBLES. The *Æthiopians* have alfo tranflated the *Bible* into their Language. There have been printed feparately, the *Pfalms*, *Canticles*, fome Chapters of *Genefis*, *Ruth*, *Joel*, *Jonas*, *Sophonias*, *Malachias*, and the *New Teftament*; all which have been fince reprinted in the *Polyglot* of *London*. For the *Æthiopick New Teftament*, which was firft printed at *Rome* in 1548, 'tis a very unaccurate Piece, and is printed in the *Englifh Polyglot* with all its Faults.

Armenian BIBLES. There is a very antient *Armenian* Verfion of all the *Bible*, done from the *Greek* of the *Seventy*, by fome of their Doctors, about the Time of St. *Chryfoftom*. This was firft printed entire in 1664, by one of their Bifhops at *Amfterdam*, in *4to*; with the *New Teftament* in *8vo*.

Perfian BIBLES. Some of the Fathers feem to fay, that all the *Scripture* was formerly tranflated into the Language of the *Perfians*; but we have nothing now remaining of the antient Verfion, which was, doubtlefs, done from the *Septuagint*. The *Perfian Pentateuch* printed in the *London Polyglot*, is, doubtlefs, the Work of Rabbi *Jacob*, a *Perfian Jew*. In the fame *Polyglot* we have likewife the *four Evangelifts* in *Perfian*, with a *Latin* Tranflation; but this appears very modern, incorrect, and of little Ufe.

Gothick BIBLES. 'Tis generally faid, that *Wlphilas*, a *Gothick* Bifhop, who lived in the fourth Century, made a Verfion of the whole *Bible*, excepting the Book of *Kings*, for the Ufe of his Country-men. That Book he omitted, by reafon of the frequent Mention of the Wars therein; as fearing to infpire too much of the military Genius into that People. We have nothing remaining of this Verfion, but the *four Evangelifts*, printed in *4to* at *Dort*, in 1665, from a very antient MS.

Mufcovite BIBLES. An entire *Bible* in the *Sclavonick* Tongue, was printed at *Oftravia* in *Volhinia*, in the Year 1581; and this is what we commonly call the *Mufcovite Bible*. 'Twas printed at the Expence of *Con. Bafil*, Duke of *Oftravia*, for the common Service of all *Chriftians* who fpeak the *Sclavonick* Language, whereof the *Mufcovitifh* is a Dialect.

BIBLES *in Vulgar Tongues* are too numerous to be here rehearfed. See *F. Simon*'s CRITICAL HISTORY. See alfo the Word POLYGLOT, PENTATEUCH, &c.

BICEPS, in Anatomy, a Name common to feveral Mufcles, from their having two Heads. Such is the

BICEPS *Cubiti*, a Mufcle of the Arm, one of whofe Heads arifes from the upper Edge of the Cavity of the Head of the *Scapula*, and is round and tendinous, and inclos'd in the Channel in the Head of the *Humerus*. The other arifes from the *Proceffus Coracoides*; it is broad and tendinous: and both unite about the Middle and Fore-part of the Arm, and make one Belly, which is inferted by a ftrong and round Tendon into the Tuberofity, at the upper end of the *Radius*. Some of the Fibres of this Tendon form a large and thin *Aponeurofis*, which covers all the Mufcles of the Radius and Fingers externally. Care ought to be taken in *Blood-letting*, not to cut a-crofs, but according to the Length of the Fibres of this *Aponeurofis*. This, with the *Brachiæus internus*, bend the Arms.

BICEPS *externus*. See GEMELLUS.

BICEPS *Tibiæ*, a Mufcle of the Leg with two Heads; the one coming from the Tuberofity of the *Ifchium*, and the other from the middle of the *Linea afpera*; both which join together, and are inferted by one Tendon into the fuperior and external Part of the *Perone*. Its Ufe is to help to bend the *Tibia*, and is likewife employ'd in turning the Leg, together with the Foot and Toes, outward, when we fit down.

BIDENTALES, Priefts among the antient *Roman*, inftituted for the Performance of certain Ceremonies, on occafion of a Thunderbolt's falling in any Place. The firft and principal Part of their Office was, the facrificing of a Sheep of two Years old, which in their Language was call'd *Bidens*, as having Teeth on each Side; whence alfo the Place

ftruck

ſtruck with a Thunderbolt, was call'd *Bidental*. This was not allow'd to be walk'd over; but was encompaſs'd with a Wall, or Palliſade, and an Altar erected over it; whence alſo the Prieſts, who officiated at it to perform the preſcribed Expiation, took the Name *Bidentales*.

BIGA, a Chariot drawn by two Horſes. The *Bigæ* and *Quadrigæ* were the Chariots that run in the Liſt. The *Bigæ* are of a very antient ſtanding: all the Heroes in *Homer*, *Heſiod*, *Virgil*, &c. fought in 'em. Hence *Bigats*, or *Begats*, a kind of Coin whereon was repreſented Victory drawn in a Chariot by two Horſes. Many of the antient Medals call'd *Conſular*, are *Bigats*. The Word comes from the *Latin Bijuga*, of *bis* and *jugum*, double Yoke.

BIGAMY, a double Marriage, or the poſſeſſing of two Wives at the ſame time. Among the antient *Romans*, thoſe convicted of *Bigamy* were branded with a Note of Ignominy; and in *France*, were antiently puniſh'd with Death.

BIGAMY, in the Canon Law, is where a Perſon has eſpous'd two Women ſucceſſively, or ſimply, eſpous'd a Widow: Each of which the *Canoniſts* account Impediments to be a Clerk, or to hold a Biſhoprick without a Diſpenſation. This Point of Diſcipline they found on that of St. *Paul*, *A Biſhop muſt be the Husband of one Wife*. *Bigamy* they make of two Kinds; *Real*, as where the Party actually marries twice; and *Interpretative*, where he marries a Widow, or a Woman debauch'd before, which is eſteem'd a kind of double Marriage. Here *F. Doucin* diſtinguiſhes and obſerves, that *Ireneus* having been married twice, muſt in this Senſe have been guilty of *Bigamy*, and therefore made Biſhop of *Tyre* contrary to the Canons. He therefore thinks with St. *Jerom*, &c. that thoſe only who married two Wives after Baptiſm, came under the Incapacity of *Bigamy*: But St. *Ambroſe*, *Auguſtin*, &c. are expreſs, that 'tis *Bigamy*, whether the firſt Wife were married or contracted before, or after Baptiſm. By a Statute of *Edward* I. thoſe guilty of *Bigamy* were excluded the Benefit of the Clergy; but this is ſince repeal'd. The *Romaniſts* make a third kind of *Bigamy* by *Interpretation*; as, when a Perſon in holy Orders, or that has taken on him ſome Monaſtick Order, marries: This the Biſhop can diſpenſe withal, at leaſt on ſome Occaſions. There is alſo a kind of ſpiritual *Bigamy*; as, when a Perſon holds two incompatible Benefices, *v. g.* two Biſhopricks, two Vicarages, two Canonries, *&c. ſub eodem Tecto*.

BIGNESS. See MAGNITUDE.

BIGOT, a Perſon ſoliſhly obſtinate, or perverſely wedded to an Opinion. The Word comes from the *German Bey* and *Gott*, or the *Engliſh by God*. *Camden* relates, that the *Normans* were firſt call'd *Bigots*, on occaſion of their Duke *Rollo*, who receiving *Giſſa*, Daughter of King *Charles*, in Marriage, and with her the Inveſtiture of the Dukedom, refus'd to kiſs the King's Foot in token of Subjection, unleſs he would hold it out for that purpoſe: And being urged to it by thoſe preſent, anſwer'd haſtily, *No by God*; whereupon the King turning about, call'd him *Bigot*; which Name paſs'd from him to his People.

BILARIUS PORUS, or *Hepatick Duct*, a conſiderable Appendage of the Liver, form'd after the manner of a Vein, from the Concurrence of infinite ſmall Ramifications ſpringing from the Glands of the Liver, which unite into ſeveral Trunks, equal in Magnitude to the Branches of the *Hepatick Arteries*, which accompany 'em Branch for Branch thro the whole Subſtance of the Liver, and are wrapp'd up in the ſame *Capſula* with the *Porta*. Theſe Branches are about the Size of a Wheat-Straw, the biggeſt large enough to admit the little Finger; and are diſtinguiſhable from the *Porta* by their Contents, being always full of *Bile*. Beſides the *Capſula* common to this and the *Porta*, it has a thick white Coat proper to itſelf, like the Muſculous Coat of an Artery. On the concave Side of the Liver the ſeveral Ramifications meet, and form one Trunk, or Channel, properly call'd the *Bilary Pore*, about the Bigneſs of a Gooſe-Quill, which deſcending about two Inches, meets with the *Cyſtick Duct*, and together with it forms what we call the *Ductus communis*; which deſcending in a right Line, about four Inches, diſcharges itſelf into the *Duodenum*, by an oblique Inſertion, oftentimes at the ſame Aperture with the *Pancreatick Duct*. The *Porus Bilarius* communicates with the Gall-Bladder, by a *Duct* firſt deſcribed by Dr. *Gliſon*, and afterwards by M. *Perrault*, who gave it the Name of the *Cyſt-Hepatick Duct*. *Verheyen*, in *Oxen*, found two, three, or four of theſe *Cyſt-Hepatick Ducts*; and the like has been obſerv'd in a Dog and a Man. See CYST-HEPATICK DUCT.

BILDGE of a Ship, is the Bottom of her Floor: *Bildge-Water* therefore is that, which by reaſon of the Flatneſs of the Ship's Bottom, lies on her Floor, and cannot go to the Well of the Pump; and conſequently the *Dutch*, whoſe Ships are often of this Form, do much uſe a ſort of Pumps call'd *Bildge-Pumps*; or, as we call them, *Burr-Pumps*, to carry off the *Bildge-Water*. Alſo when a Ship ſtrikes on a Rock, they ſay, ſhe is *bildged*. And *Billage* is the Breadth of her Floor when ſhe lies a-ground.

BILE, a yellow, bitter Juice, ſeparated from the Blood in the Liver, collected in the *Porus Bilarius*, and Gall-Bladder, and thence diſcharged by the Common *Duct* into the *Duodenum*. The *Bile* is of two Kinds, *Hepatick* and *Cyſtick*: The firſt, properly call'd *Bile*, ſepatated immediately from the Glands of the Liver into the *Porus Bilarius*: The ſecond, call'd *Gall*, ſeparated likewiſe from the Glands of the Liver into the Gall-Bladder, by Roots or Ducts proper to itſelf. The *Cyſtick Bile* is thicker, a deeper yellow, and bitterer; is not evacuated continually, but only when its Receptacle is replete; in which Caſe the Contraction of the irritated Fibres propels it into the *Duodenum*. The *Hepatick* is thinner, more mild and pellucid, and is continually oozing out; being expell'd by the ſole Actions of the neighbouring Humours. The *Cyſtick Bile*, or Gall, reſiſts Acids, and, mix'd with other Fluids, gives 'em the like Property: It abſterges like Sope, and renders Oils capable of mixing with Water; it reſolves and attenuates Reſins, Gums, and other tenacious Bodies, rendering 'em homogeneal to itſelf. 'Tis neither alcalinus nor acid, but ſeems a Concretion of Oil, Salt, and Spirits diluted with Water. By a Chymical Analyſis Dr. *Drake* obſerves it affords ſome Sulphur, or Oil, ſome volatile Salt, a good deal of fix'd Salt, (in which particularly it differs from all other animal Liquors) and a pretty Quantity of *Caput Mortuum*, or Earth: the Baſis is Phlegm. The Effect of the *Bile* is, by mixing with the Chyle and the Fæces, to attenuate, reſolve, abſterge, and ſtimulate the *Fibræ motrices*, to mix together things very different, to bruiſe and blunt thoſe that are ſharp and ſaline, to divide thoſe that are coagulated, to open the Paſſages for the Chyle, to excite Appetite, to act the Part of a Ferment, and to aſſimilate crude things to things concocted. Theſe Effects the *Cyſtick Bile* has in a greater, the *Hepatick* in a leſs Degree. Dr. *Quincy* thinks their principal Uſe is to ſheath and blunt the Acids of the Chyle, entangling them with its Sulphurs, ſo as to prevent their being ſufficiently diluted in the Pancreatick Juice to enter the Lacteals: Which he thinks confirmed by this, that notwithſtanding the great Quantity of acid Salts in the Aliment in the Stomach, there are never any found in the Chyle after it has paſs'd the *Duodenum*, and been impregnated with the Chyle continually oozing out from the *Porus Bilarius*.

Borelli aſſerts, that Part of the *Bile* diſcharged into the Inteſtines, re-enters the *Meſaraick* Veins, and mixing with the Blood of the *Vena Porta*, is again percolated thro the Liver; and *Boerhaave* ſeems of the ſame Opinion. Some will have the *Cyſtick Bile* brought to its Receptacle three different Ways, and that 'tis even compoſed of three different Kinds of *Bile*, whence its new Properties. *Boerhaave* takes thoſe Properties to reſult from its ſtagnating in the Gall-Bladder; and, with *Malpighi*, thinks the bitter Part may probably take that Property in the Glandules between the Coats of the Gall-Bladder, which are furniſh'd from the *Cyſtick* Arteries; whence it proceeds bitter, and mixes with the reſt in the Bladder.

The *Bile* is a Juice of very great Importance; with regard to the good or ill Habitude of the Animal. Dr. *Woodward* has traced its Effects throughout the Body very minutely, and makes no Scruple to aſcribe moſt of the Diſeaſes thereof to ſome Diſorder of the *Bile*. This he takes to be the chief Spring in the Animal Machine, and from this accounts for moſt of the Phœnomena of a Body, whether healthy or diſeas'd: And yet the Antients took it to be no more than an Excrement, for which they could not find any Uſe. Many of the Moderns, from the ſmall Quantity of *Bile* ſecern'd, have been led into a Miſtake, that this Secretion is not the ſole End of ſo conſiderable a Viſcus as the Liver. Dr. *Keil* obſerves, that in a Dog whoſe common *Duct* was near as big as that of a Man, he gather'd at the Rate of about two Drams an Hour; tho in a human Body, there is Reaſon to think the Quantity ſecreted to be greater.

Sometimes the *Bile* from yellow becomes greeniſh, like Verdigreeſe, and frequently pale, like the Yolks of Eggs, and that without any other apparent Cauſe than a little Motion, a Convulſion, or a violent Paſſion of the Mind. This occaſions many and terrible Diſeaſes, as Nauſea's, an Abhorrence of Food, Anxiety, Sighing, Cardialgia's, Wind, Diarrhea's, Dyſenteries,, acute Diſeaſes, Fevers, and Convulſions. Sometimes it becomes black, and takes the Name of *Choler*: In this Caſe it ſometimes taſtes like a very ſharp Vinegar; ſometimes like putrified Blood, gnawing, burning, diſſolving, conſuming, occaſioning Inflammations, Gangrenes, Mortifications, violent Pains, and terrible Fermentations. Of *black Bile*, *Boerhaave* diſtinguiſhes three Kinds: Firſt, the mildeſt, ariſing from the Matter of the Blood, put in too great Motion, which hence takes the Name of *Aduſt*: The ſecond is an Aggravation of the firſt ariſing from the ſame Cauſes, only heighten'd: The third is a cor-

rupt, parch'd *Bile*, which, if it arose from a greenish, or palish *Bile*, is still worse. Too great an Evacuation of the *Bile*, either upwards or downwards, robs the Chilefaction of its main Instrument; hence it prevents Digestion, Secretion, Excretion of the Fæces, produces an acid Temperature, Cold, Weakness, Paleness, Swoonings, &c. If when prepared it be prevented its Discharge into the Intestines, it produces a Jaundice.

For the Manner in which the Secretion of the *Bile* in the Liver is effected, there are various Opinions. Some maintain, that the Pores of the Secretory Glandules of the Liver, have a certain Configuration and Magnitude, to which the Particles of the *Bile* floating in the Blood being just answerable, both in Bulk and Figure, are admitted in, and all the rest excluded. Others, with *Silvius* and *Lister*, not allowing any Difference in the Configuration, as knowing that the Pores of all the Vessels are Circular, and that Particles of all Kinds will be admitted, if small enough, have recourse to a Ferment which they suppose to reside in the Liver, by means whereof the Particles of the Blood, in their Passage thro the Secretory *Ducts*, assume the Form of *Bile*. But as this is little else than begging the Question, others have recourse to another Hypothesis; maintaining, that the Fluids contain'd in the Blood of the *Vena Porta*, while that enters the Substance of the Liver in its way to the Extremities of the *Vena Cava*, indifferently apply to the Apertures of the Secretory Tubules contiguous to the extreme Branches of the *Porta*, which are wide enough, and to the Roots of the *Cava*, which are not wide enough, to receive 'em; by which means being separated from the Society and the intestine Motion of the other and the essential Parts of the Blood, and being no longer agitated by the Vital Action of the Blood-Vessels, and exposed to the Action of the *Bilary* Vessels, they constitute a new Humour distinct from the Blood, call'd *Bile*, &c.

Lastly, Dr. *Keill* accounts for this Secretion of the *Bile* from the strong Attraction between the Particles whereof the *Bile* is composed. He observes, that the Heart and Liver being so near each other; were the *Cœliack* Artery to have carried all the Blood to the Liver, considering the Velocity of the Blood, so viscid a Secretion as the *Bile* con'd never have been effected. Nature therefore forms a Vein for the purpose, *viz.* the *Porta*, and by it sends the Blood from the Branches of the *Mesenterick* and *Cœliack* Arteries to the Liver; by which the Blood is brought a great way about, passing thro the Intestines, Stomach, Spleen, and Pancreas, e'er it arrives at the Liver: Thus its Velocity is exceedingly diminish'd, and the Particles that are to form the Gall have a sufficient time to attract one another, and unite before they come to their secerning Vessels. But, as if this Diminution of Velocity were not sufficient for the purpose, Nature has gone further; having made the Cavities of all the Arteries increase as they divide: thus the Sum of the Branches arising from the *Aorta*, is to the *Aorta* itself as 102740 to 100000. And yet, as if that Proportion were too little for the present Purpose, Nature has here taken a further Step, and increas'd the Branches springing from the *Mesenterick* Artery in a greater Ratio. Thus, in a Body which he examined, he found the Sum of the Branches more than double that of the Trunk; and therefore the Velocity of the Blood in the former, must be less than half that of the latter. He further shews, from a just Calculation, that the Time the Blood now takes in its Passage from the *Aorta* to the Liver is at least 26 Minutes: whereas, had an Artery gone directly from the *Aorta* to the Liver, it would have passed in little more than half a Second, *viz.* in 2437 times the Space it now takes up in its Passage. Whence it appears, that the Blood was not in a State fit to yield *Bile*, had it gone directly from the *Aorta* to the Liver; and that a longer Time, and more languid Motion, was necessary to have the *Bilious* Particles in a readiness to be separated. He adds, that were the Humours separated by the Glands at all Times and Places the same in the Blood, and not form'd after this manner, Nature won'd not have been at so much expence to retard the Blood's Velocity: Besides that, the *Bile* has another Advantage from the Use of the *Porta*; for, by running thro so many Parts e'er it reach the Liver, it leaves behind it most of its Lympha; by which means the Particles being brought nearer each other, are, by their mutual Attraction, sooner united. For the Parts concern'd in the Secretion of the *Bile*, see LIVER, BILARY PORE, GALL-BLADDER, &c. See also SECRETION.

The Word *Bile* comes from the *Latin Bilis*, which some fetch further from the *Greek* Βία, Violence, because *Bilious* People are inclined to Anger. Others fetch it from the *Latin bullire*, to boil. The *Bile* is a Part found in all Animals: even Pigeons, &c. which have no Gall-Bladder, yet have *Bile*; their Liver being found very bitter. M. *Tauvry* observes, that the *Bile* becomes one of the principal Causes of Thirst, by mixing with the Salival Juice.

BILINGUIS, in Law, the Name of the Jury which passes in any Case betwixt an *Englishman* and an *Alien*; whereof one Moiety to be *Natives*, the other *Foreigners*, if required. The Word in the *Latin* signifies *double-tongued*.

BILL, an Edge-Tool, fitted to a Handle, used to lop Trees, &c. When short, it is call'd an *Hand-Bill*; when long, an *Hedging-Bill*.

BILL is also a *Declaration* in Writing, expressing the Wrong and Grievance the Complainant hath suffer'd by the Party complain'd of; or else some Fault committed by him against some Law or Statute of the Realm. This *Bill* is commonly address'd to the *Lord Chancellor*; especially for unconscionable Wrongs done sometimes to others having Jurisdiction, according as the Law they are grounded on, directs. It contains the Facts complain'd of, the Damages sustain'd, and the Petition of Process against the Defendant for Redress.

BANK-BILLS: Instruments whereby private Persons become entitled to a Part in the *Bank-Stock*. They are form'd on the Model of the *Lombard-Bills*.

BILL *of Entry*, an Account of Goods enter'd at the *Custom-House*, both Inward and Outward; wherein is express'd, the Merchant importing or exporting, the Quantity of Goods, and the Sorts, and from whence imported, or to what Place exported.

BILL *of Exchange*, a Writing ordering the Payment of a Sum of Money in one Place, to any Person assign'd by the Remitter, in consideration of the like Value paid the Drawer in another Place. The whole Estate and Effects of Merchants usually consist in *Bills of Exchange*. There is some Dispute about the Nature and Sanction of a *Bill of Exchange*: Some take it to be the Contract of an Exchange; but the more general Opinion is, that it is a mere Contract of Buying and Selling; that the Money given the Person who gives the *Bill*, is the Price of Sale; and that paid at the appointed Place, the Thing bought and sold.

Bills of Exchange were unknown in the antient *Roman Jurisprudence*. According to the common Opinion, they are the Invention of the *Jews*; who being banish'd *France*, for some enormous Crimes charg'd on 'em, retired into *Lombardy*, about the 12th Century, and found means to withdraw their Effects, which they had lodg'd in the Hands of Friends, by secret *Letters* and *Bills*, conceiv'd in short, precise Terms, like the modern *Bills of Exchange*; and this by the Assistance of Merchants and Travellers. The Faction of the *Gibellins*, being expell'd *Italy* by the *Guelphs*, retired to *Amsterdam*, and used the same Means, for the Recovery of their Effects in *Italy*, as the *Jews* had done: Hence the *Dutch* Merchants took the Hint of negotiating *Bills of Exchange*; and soon spread the Practice throughout all *Europe*. The same *Gibellins* are said to be the Inventors of the *Rechange*, on account of Damages and Interests, when *Bills of Exchange*, which they call'd *Polizza di Cambio*, were not paid, but return'd on Protest.

That which gives the Essence, and Form to a *Bill of Exchange*, is the Cession, or Vendition of a Sum of Money made by the Drawer, to him, on whose Account it is drawn, to be receiv'd of his Correspondent in another Place; which Cession, or Vendition, is made, in the Mercantile Terms, *for Value receiv'd*, i. e. for a like Sum given by the Person for whose Sake the *Bill* is drawn, to the Drawer, in Money, Merchandize, or other Effects. So that there are three things necessary to establish the Quality of a *Bill of Exchange*; *1st*, That it be drawn by one City to another; *2dly*, That there be three Persons concern'd, the Drawer, the Person for whom 'tis drawn, and he on whom 'tis drawn; *3dly*, That it make mention, that the Value which the Drawer has receiv'd, is in another *Bill of Exchange*, in Money, Merchandize, or other Effects, which are to be express'd; otherwise 'tis no *Bill of Exchange*. When a *Bill of Exchange* is conceiv'd for *Value in my self*, 'tis not supposed the Drawer has receiv'd the Sum; but the Person, for whom 'tis drawn, stands Debtor to him for it: When a *Bill of Exchange* bears, *for which Sum I promise to furnish Bills of Exchange* to such a Place, the Person for whom the *Bill* is drawn, may compel him to give the *Bills*, or to return the Money.

BILL *of Lading*, an Instrument sign'd by the Master of a Ship, acknowledging the Receipt of the Merchant's Goods, and obliging himself to deliver them, at the Place to which they are consign'd, in good condition; of which *Bills* there are usually three: the first the Merchant keeps; the second is sent to the Factor to whom the Goods are consign'd; and the third is kept by the Master of the Ship.

BILL, in Law, a Security for Money under the Hand and Seal of the Debtor, without any Condition, or Forfeiture, in case of Non-Performance; in which it is distinguish'd from a Bond or Obligation.

BILL *of Parcels*, an Account of the particular Sorts and Prices of the Goods bought, given by the Seller to the Buyer.

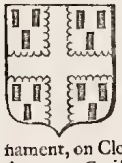
Bill, in Parliament, a Paper containing Propositions offer'd to the Houses, to be pass'd by them, and then presented to the King to pass into an Act or Law. See Parliament.

Bill *of Sale*, is when a Person wanting a Sum of Money, delivers Goods as a Security to the Lender, to whom he gives this *Bill*, impowering him to sell the said Goods, in case the Sum borrow'd is not repaid, with Interest, at the Time appointed.

Bill *of Store*, a kind of Licence granted at the *Custom-House* to Merchants, to carry such Stores and Provisions as are necessary for their Voyages, Custom-free.

Bill *of Sufferance*, a Licence granted at the *Custom-House*, to a Merchant, to suffer him to trade from one *English* Port to another, without paying Custom.

Billa Vera, *the Bill is true*. The Grand Inquest impannell'd and swore before the Justices of Eyre, *&c.* endorsing a *Bill* whereby any Crime punishable in that Court is presented to 'em, with these two Words, signify thereby, that the Presenter has furnished his Presentment with probable Evidence, and worthy further Consideration; whereupon the Party presented is said to stand indicted of the Crime, and bound to make an Answer thereto, either by confessing or traversing the Indictment. If the Crime touch his Life, it is yet refer'd to another Inquest, call'd the *Inquest of Life and Death*, by whom if he be found guilty, he stands convict of the Crime, and is condemn'd by the Judge. See Inquest, Indictment, *&c.*

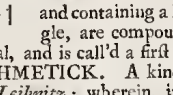


BILLET, in Heraldry, a Bearing in form of a long Square. *Billets* are said to be couch'd, or inverted, when their longest Side is parallel to the Top of the Shield, and the shortest perpendicular. These were antiently Pieces of Cloth of Gold, or Silver, longer than broad, placed at a distance by way of Ornament, on Clothes, and afterwards translated to their Coat-Armour. *Gwillim* mistakes, when he says a *Billet* represents a Letter seal'd up. A Coat is said to be *billeted*, when it is charg'd with *Billets*. Thus, he bears *Argent-Billette*, a *Cross engrail'd Gules*, by the Name of *Heath*. *Bloom* says, the *Billets* must be number'd when they are not above ten.

BILLIARDS, a very ingenious Game play'd on an oblong Table, with little ivory or wooden Balls, which are driven by crooked Sticks, made on purpose, into Hazards, or Holes, on the Edge and Corners, according to certain Laws, or Conditions of the Game. The Word comes from the *French Billard*; of *Billa* the *Balls* made use of, and that from the *Latin Pila*, a Ball.

BILLON, in Coinage, a kind of base Metal, either of Gold or Silver, in whose Mixture Copper predominates. According to M. *Bouteroue*, *Billon of Gold* is all Gold beneath Standard, or 21 Carats; and *Billon of Silver*, all below ten Pennyweights. But, according to others, and among the rest M. *Boizard*, Gold and Silver beneath the Standard, as far as twelve Carats, and six Pennyweights, are properly base Gold and Silver; and all under those, *Billon of Gold*, and *Billon of Silver*, in regard Copper is the prevailing Metal. The Word is *French*, form'd, according to *Menage*, from the *Latin*, *Binus Denarius*. We don't find 'tis naturaliz'd among us; but the Necessity we are frequently under of using it in the Course of this Work, requir'd its being explain'd.

BIMEDIAL, a Term in Mathematicks: when two Medial Lines, as A B and B C, commensurable only in Power, and containing a Rational Rectangle, are compounded, the whole A C shall be irrational, and is call'd a first *Bimedial Line*.



BINARY ARITHMETICK. A kind of *Arithmetick* first propos'd by M. *Leibnitz*; wherein, in lieu of the ten Figures in the common *Arithmetick*, and the Progression from 10 to 10, he has only two Figures in all his *Arithmetick*, and uses a more simple Progression from two to two; shewing it of considerable Advantage in the Sciences. All his Characters are 0 and 1. And the Cypher, here, multiplies every thing by 2, as in the common *Arithmetick* by 10: Thus, 1 is one; 10, two; 11, three; 100, four; 101, five; 110, six; 111, seven; 1000, eight; 1001, nine; 1010, ten, *&c.* which is built on the same Principles with the common *Arithmetick*.

Hence immediately appears the Reason of a celebrated Property of the Duplicate Geometrical Proportion in whole Numbers, *viz.* that one Number of each Degree being had, one may thence compose all the other whole Numbers above the double of the highest Degree. It being here, *v. g.* as if one should say, 111 is the Sum of 4, 2, and 1. Which Property may serve Essayors to weigh all kinds of Masses with a little Weight; and may be used in Coins, to give several Values with little Pieces. This Method of expressing Numbers once establish'd, all the Operations will be easy: In Multiplication particularly, there will be no need for a Table, or getting of any thing by heart.

100	4
10	2
1	1
111	7

He does not recommend this Method for common Use, because of the great Number of Figures used to express a Number: Adding, that if the ordinary Progression was from 12 to 12, or from 16 to 16, it would be still the more expeditious; but its Use is in discovering the Properties of Numbers, in making Tables, *&c.* What makes the *Binary Arithmetick* the more remarkable is, that it appears to have been the same with that used 4000 Years ago among the *Chinese*, and left in Ænigma by *Foby*, the Founder of their Empire, as well as of their Sciences.

M. *Lagni* has proposed a new System of *Logarithms*, on the foot of the *Binary Logarithms*; which he finds shorter, more easy, and natural, than the common ones.

Binary Number, that compos'd of two Units.

Binary Measure, in Musick, is that wherein you beat equally, or the Time of Rising is equal to that of Falling. See Time.

BINDING *of Books*. See Book-Binding.

BINOCLE, or Binocule, in Opticks, a double Telescope, *i. e.* consisting of two Tubes join'd together, by which a remote Object may be viewed with both Eyes at once. It was invented by *F. Rheita*, a *Capuchin*, who describes it in a Book call'd, *Oculus Henoc & Eliæ*. Since which *F. Cherubin* has wrote a large Volume thereon. See Telescope.

BINOMINAL, in Algebra, a Number produced by the Addition of two Numbers of incommensurable Magnitudes, or a Root consisting of two Parts, or Members, connected by the Sign +: Thus $a + e$, or $5 + 3$, is a *Binominal*, consisting of the Sum of those two Quantities: if it have three Parts, as $a + b + c$, it is call'd a *Trinominal*; if it have four Members, it is call'd a *Quadrinominal*; if more, a *Multinominal*. See Number.

BIOGRAPHER, an Author who writes the History, or Life of any Person, or Persons, as *Plutarch*, *Corn. Nepos*, &c. From the *Greek* βίος, *vita*, and γράφω, *scribo*.

BIQUADRATICK, the next Power above the Cube, or the Square of a Cube Root. See Extraction, Power, and Root.

BIQUINTILE, an Aspect of the Planets, when they are 144 Degrees distant from each other.

BIRDLIME, a viscid Substance, prepar'd various Ways, and from various Materials. The best used among us, is made from Holly-Bark, boil'd 10 or 12 Hours; when, the green Coat being separated from the other, 'tis cover'd up a Fortnight in a moist Place, pounded into a tough Paste, that no Fibres of the Wood be left, and wash'd in a running Stream till no Motes appear, put up to ferment four or five Days, skimm'd as often as any thing arises, and laid up for Use. To use it, a third part of Nut-Oil is incorporated with it over the Fire. The *Birdlime* brought from *Damascus* is suppos'd to be made of *Sebastens*, their Kernels being frequently found in it; but this does not endure either Frost or Wet: that brought from *Spain* is of an ill Smell; that of the *Italians* is made of the Berries of Misteto, heated, mix'd with Oil, as before; to make it bear the Water, they add Turpentine. 'Tis said, the Bark of our Lantone, or way-faring Shrub, makes *Birdlime* as good as the best.

BIRDS are distinguish'd as they belong to Land or Water: Of *Land Fowl*, some have crooked Beaks and Talons; and of these some are carnivorous and rapacious call'd *Birds of Prey*; some frugivorous, call'd by the general Name of *Parrots*. Of *Birds of Prey*, some prey in the Day-time; and of these are reckon'd a greater and lesser Sort: The greater are either of a more bold and generous Nature, as the *Eagle-kind*; or of a more cowardly and sluggish, as the *Vulture*: The lesser diurnal *Birds of Prey*, are the *Hawk-kind*, which are wont to be reclaim'd and mann'd, for Fowling, and call'd *Hawks*; and by the Falconers distinguish'd into *long-winged*, as the *Falcon*, *Lanner*, &c. whose Wings reach almost as far as the End of their Train; or *short-wing'd*, as the *Goss-Hawk* and *Sparrow-Hawk*, whose Wings, when closed, fall much short of the End of their Trains: Those of the *Hawk-kind* which are of a Nature more cowardly, and sluggish, or else indocile, are neglected by our Falconers, and so live at large; and of these also there is a greater Sort, as the *Buzzard-kind*; and a lesser, as the *Butcher-kind*, or *Shrike*, (about the Bigness of a *Blackbird*, and found in *England*.) The *Bird of Paradise* is Exotick. Of *Birds of Prey* with crooked Beaks and Talons, some are Nocturnal, as the *Owl-kind*, which prey by Night; and these are either horned, or eared, as the *Eagle-Owl*, *Horn-Owl*, &c. or without Horns, as the *Brown-Owl*, *Grey-Owl*, &c. There is a Sort of *Land Birds* with crooked Beak and Talons, call'd frugivorous, because tho they do sometimes eat Flesh, yet they eat Fruits too; and these are known by the general Name of *Parrots*, and are distinguish'd into three Sorts, according to their Bigness; the greatest Size being call'd *Maccaws*; the middle-sized, and most common, *Parrots*,

rots, and *Poppinjays*; and the least Sort, *Parrakeets*: and all this Kind make use of their Beak in climbing, and move the upper Jaw. *Land Birds* that have their Bill and Claws more streight, are distinguish'd into three Sizes; the greatest Kind are, such as by reason of the Bulk of their Bodies, and Smallness of their Wings, cannot fly at all; these are *Exotick Birds* of a singular Nature; such as the *Ostrich*, the *Cassowary*, and the *Dodo*: The middle-sized Kind are divided, by their Bills, into such as have large, thick, strong, and long ones; some of which feed promiscuously on Flesh, Insects, and Fruits, as the *Crow-kind*, which are wholly black; and the *Pie-kind*, which are party-colour'd: Some feed on Fish only, as the *Kings-fisher*; and some on Insects only, as the *Wood-pecker*: And into such as have a smaller and shorter Bill; whose Flesh is either white, as the *Poultry-kind*; or blackish, as the *Pigeon* and *Thrush-kind*. The least sized Kind of *Land Birds*, with streight Bills and Claws, are called *Small-Birds*; and these are of two Kinds; *soft-beaked*, which have slender, streight, and pretty longish Bills, most of them, and feed chiefly upon Insects; and *hard-beaked*, which have thick and hard Bills, and feed mostly on Seeds.

Water-Fowl, are such as frequent Waters and watry Places to seek their Food; and these are all cloven-footed, and generally have long Legs, and those naked, or bare of Feathers, a good way above the Knee, that they may the more conveniently wade in Waters. Of these they reckon two Kinds; a greater, as the *Crane*, *Jabiru*, &c. and a lesser, which are either piscivorous, feeding on Fish, as the *Heron*, *Spoon-Bill*, *Stork*, &c. or *Musduckers*; or insectivorous, of which some have very long Bills, which are sometimes crooked, as in the *Curlew* and *Whimbrell*; and sometimes streight, as in the *Woodcock* and *Godwit*: others have middle-sized Bills, as the *Sea-Pye* and *Red-Shank*, &c. and a third Sort have short Bills, as the *Lapwing* and *Plover*. Those are reckon'd short Bills, which exceed not an Inch and half; middle-sized Bills, to two Inches and half; and long Bills above two Inches and half. There is another kind of *Water-Fowl*, which swim in the Water; some of which are cloven-footed, as the *Moor-Hen*, and *Coot*, &c. but most are whole footed; and of these some few have very long Legs, as the *Flammant*, the *Avosetta*, and *Corrira*; but mostly they are short-legg'd: Of which some few have but three Toes on each Foot, as the *Penguin*, *Razor-Bill*, &c. but generally they have four Toes on each Foot, and these either all connected together by intervening Membranes, as in the *Pelican*, *Soland-Goose*, &c. or more usually with the Back-Toe loose; and this Kind are either *narrow-bill'd*, or *broad-bill'd*: Those with *narrow Bills* have them either blunt, and hooked at the Tip; of which Sort some are serrate, as in the *Diver-kind*; and some not toothed, as in the *Puffin*; or sharp-pointed and streighter; of which, some Sort have long Wings, as the *Gull-kind*; and some shorter, as those *diving Birds* call'd *Douckers*. Those with broad Bills may be divided into the *Goose-kind*, which are larger; and the *Duck kind*, which are smaller; and these latter into *Sea-Ducks*, or *River* and *Plasso-Ducks*. Most *Water-Fowls* have a short Tail; and none of this Kind have their Feet dispos'd like *Parrots* and *Wood-peckers*, that have two Toes forward, and two backward, none having more than one Back-Toe, and some none at all. See *Willoughby's* ORNITHOLOGIA.

BIRTH, *of a Fœtus*, its Delivery from the Mother. See FOETUS; for the Number of *Births* see MARRIAGE: Under which the Proportion of *Births* to Marriages, of *Births* to Burials, and of *Male-Births* to Females, are computed.

BIRTH, or *Birthing*, a Term among the Seamen for due Distance observed between Ships lying at an Anchor, or under Sail; and the Raising, or Bringing up the Sides of the Ship: Also the proper Place a-board to put their Chests, &c. is call'd the *Birth*; and a convenient Place to moor a Ship in, is also call'd by this Name.

BISHOP, a Prelate, or Person consecrated for the Spiritual Government and Direction of a Diocese. See DIOCESE. 'Tis a long Time that *Bishops* have been distinguish'd from mere *Priests*; but whether that Distinction be of divine or human Right, whether it was settled in the Apostolical Age, or introduced since, is much controverted. On the one Side stands the *New Testament*, wherein 'tis certain the Names *Bishop* and *Priest* are used indifferently: On the other Side is *Tradition*, the *Fathers*, and the *Apostolical Constitutions*. Indeed, there appear no Footsteps of any Institution of *Bishops*, distinct from *Priests* in the Scriptures; neither do the Opposers thereof pretend to shew any Mark of any other Form of Church-Government therein. So that it may seem probable, the Apostles did not settle any thing of this kind at all; but either left the Spiritual Oeconomy in the Hands of the *Priests*, or of those together with the People. Accordingly new Occasions requiring new Measures, in a little Time, the Functions of this *Priesthood* were divided, and the *Priests* distinguish'd into Degrees; the Political Part of Religion being assign'd principally to *Bishops*, and the Evangelical to the *Priests*, &c. Or rather, as some others will have it, the Functions of *Teaching* and *Preaching* were reserv'd to the *Bishop*, and that of *Ordination* superadded; which was their principal Distinction, and the Mark of their Sovereignty in their Diocese. See EPISCOPACY.

The Word comes from the *Saxon Bischop*, and that from the *Greek* Ἐπίσκοπος, an Overseer, or Inspector; which was the Title the *Athenians* gave those whom they sent into the Provinces subject to 'em, to see whether every thing were kept in Order; and the *Romans* gave the same Title to those who were Inspectors and Visitors of the Bread and Provision. It appears from a Letter of *Cicero*, that he himself had a *Bishoprick*, being *Episcopus Oræ & Campaniæ*. *Diocese* was also used for the Extent of this Government; and *Cicero* uses it in this Sense, Διοίκησις.

Bishops are of various Kinds, *Archbishops*, *Bishops*, and *Suffragan-Bishops*, which see; as also *Acephals*, *Metropolitans*, &c.

The Function of a *Bishop*, in *England*, may be consider'd as twofold, *viz.* what belongs to his *Order*, and what to his *Jurisdiction*. To the *Order* belong the Ceremonies of Dedication, Confirmation, and Ordination: To his *Jurisdiction*, by the Statute Law, belongs the Licensing of Physicians, Chirurgeons, and School-masters, the Uniting small Parishes, (tho this last Privilege is now peculiar to the *Bishop* of *Norwich*) to assist the Civil Magistrate in the Execution of Statutes relating to Ecclesiastical Matters, and to compel the Payment of Tenths, and Subsidies due from the Clergy: by the Common Law, he is to certify the Judges, touching legitimate and illegitimate Births and Marriages; and by that and the Ecclesiastical Law, he is to take care of the Probate of Wills, the Granting Administrations, to collate to Benefices, grant Institutions on the Presentation of other Patrons, command Induction, order the collecting and preserving the Profits of vacant Benefices for the Use of the Successors, defend the Liberties of the Church, and visit his Diocese once in three Years. To the *Bishop* belong Suspension, Deprivation, Deposition, and Degradation; and EXCOMMUNICATION, which see.

The *Bishops* of *England* are all *Barons* and *Peers*. *Barons* in a threefold manner, *viz. Feudal*, in regard of Lands and Baronies annex'd to their *Bishopricks*; by *Writ*, as being summon'd by *Writ* to Parliament; and by *Patent*, or *Creation*: Accordingly, they have the Precedence of all other *Barons*, and sit in the Upper House, both as *Barons* and *Bishops*. They have two special Privileges next to Regal: The first, that in their Courts they sit and pass Sentence, of themselves, and by their own Authority: The *Bishops* Courts are not like all other Courts; but, Writs are sent out in their own Name, *teste* the *Bishop*, not the King's Name, as the Kings Courts do. The second, That, like the King, they can depute their Authority to another, as their *Suffragan*, *Chancellor*, *Commissary*, &c. They have this Advantage over *Lay-Lords*, that in whatever *Christian* Country they come, their *Episcopal* Degree and Dignity is acknowledg'd; and they may, *quatenus Bishops*, ordain, &c. They have their Vote in the Trial and Arraignment of a *Peer*; but e'er Sentence of Death, &c. they withdraw, and vote by Proxy. They have several Immunities, as from Arrests, Outlawries, Distress, &c. Liberty to hunt in the King's Forests, &c. to have certain Tuns of Wine Duty-free, &c. Their Persons may not be seiz'd, as *Lay-Peers* may, upon Contempt, but their Temporalties alone. They may qualify as many Chaplains as a *Duke*, viz. Six. By Law, the Crime of *Episcopicide*, which a Clergyman commits by killing his *Bishop*, is equivalent to *Parricide*, viz. *Petty-Treason*. The *Bishops* in *England* are 24, *Archbishops* two, *Suffragans* none.

The Form of Consecrating a *Bishop* is different in different Churches. In the *Greek* Church, the *Bishop* Elect being, by the Assistant *Bishops*, presented for Consecration, and the Instrument of Election put in his Hand, after several Prayers, the first call'd *Diaconique*, the *Bishop* Elect demanding Consecration, makes Profession of his Faith; after which he receives a Benediction: He is then interrogated as to his Belief of the *Trinity*; to which he answers by a long Profession of Faith, and receives a second Benediction. Lastly, he is ask'd what he thinks of the Incarnation; to which he answers in a third Profession of Faith, with the Pastoral Staff: after which he is led up to the Altar; where, after certain Prayers, and three Crosses on his Head, he receives the *Pallium*, if he be an *Archbishop*, or *Patriarch*; he then receives the Kiss of Peace, of his Consecrator and two Assistants; and, sitting down, reads, prays, and gives the Communion to his Consecrator and others.

In the *Romish* Church, the *Bishop* Elect being presented by the Elder Assistant to the Consecrator, takes the Oath: He is then examin'd as to his Faith; and, after several Prayers, the *New Testament* is drawn open over his Head, and he receives the Unction on his Head by Chrisma. The

Pastoral Staff, *Ring*, and *Gospel*, are then given him; and, after Communion, the *Mitre* put on his Head: Each Ceremony being accompanied with proper Prayers, &c. the Process ends with *Te Deum*.

In *England*, the King being certify'd of the Death of a *Bishop* by the Dean and Chapter, and his Leave requested to elect another, the *Conge d'Elire* is sent to 'em, nominating the Person he would have chosen. The Election is to be within 20 Days after the Receipt of the *Conge d'Elire*; and the Chapter, in case of refusing the Person named by the King, incurs a *Præmunire*. After Election, and its being accepted of by the *Bishop*, the King grants a Mandate under the Great Seal for Confirmation; which the *Archbishop* consigns to the Vicar-General; consisting, mostly, in a solemn Citation of such as have any Objections to the *Bishop* Elect, a Declaration of their Contumacy in not appearing, and an Administration of the Oaths of Supremacy, and Canonical Obedience. Sentence being read by the Vicar-General, the Confirmation concludes with a Treat: Then follows the Consecration, by the *Archbishop* and two Assistant *Bishops*. The Ceremony is the same as in the *Romish* Church, save that, having put on the *Episcopal* Robes, the *Archbishop* and *Bishops* lay their Hands on his Head, and consecrate him with a certain Form of Words. After Communion they go to a Banquet.

The Translation of a *Bishop* to another *Bishoprick*, only differs in this, that there is no Consecration. *Note*, A *Bishop* differs from an *Archbishop* in this, that an *Archbishop* with *Bishops* consecrate a *Bishop*, as a *Bishop* with Priests ordain a *Priest*; that the *Archbishop* visits a Province, as the *Bishop* a Diocese; that the *Archbishop* convocates a Provincial Synod, as the *Bishop* a Diocesan one; and that the *Archbishop* has Canonical Authority over all the *Bishops* of his Province, as the *Bishop* over the Priests in his Diocese.

Bishop's-Court, an *Ecclesiastical Court* held in the Cathedral of each Diocese; the Judge whereof is the *Bishop's Chancellor*, antiently call'd *Ecclesiasticus*, and *Ecclesiæ Causidicus*, the Church-Lawyer; who judges by the Civil and Canon Law; and, if the Diocese be large, has his Commissaries in remote Parts, who hold what they call Consistory Courts, for Matters limited to him by his Commission.

BISMUTH, a Mineral Body, half Metallick; compos'd of the first Matter of Tin, while yet imperfect; and found in Tin Mines. Its Substance is hard, heavy, sharp, and brittle, of a large Grain, polish'd, white, and shining. 'Tis also call'd *Tin of Glass*; because, when broke, it shews a vast Number of little polish'd Substances like Glass: 'Tis also call'd *Marchasite*, by way of Excellence, because surpassing all others in Whiteness and Beauty. It contains an Arsenical Salt, very dangerous to take inwardly. Its Precipitate is a very white Magistery, which is mix'd with Waters and Pomatums to make a Fucus to beautify the Complexion, and preserve the Skin. There are also Flowers prepar'd from it, which take away Spots in the Face; whence 'tis otherwise call'd *Blanc de Perle*. See the Process in *Charras*.

Alonso Barba says, there has been lately found a Mine of *Bismuth* in *Bohemia*; and ranks it among the Metals: But *Bismuth* is properly the Regulus of the Stone call'd *Cobalt*; whence is prepar'd *Arsenick*, *Lapis Lazuli*, and *Bismuth*. M. *Stahl*, a *German* Physician, gives us its Preparation.

There is also an *Artificial Bismuth*, which is that ordinarily used, made by reducing Tin into thin *Laminæ*, or Plates, and cementing them by a Mixture of *white Tartar*, *Salt-Petre*, and *Arsenick*, stratified in a Crucible over a naked Fire. The same is also made of a Stone call'd *Zin*, using Lead instead of Tin, and a little Calamine Stone.

BISQUET, a Confectioner's Preparation of fine Flower, Eggs, and Sugar, with Anniseeds and Citron Peel, baked in the Oven in Tin or Paper Moulds.

Sea-Bisquet, a *Bread* much dried, by passing the Oven twice, to make it keep: For long Voyages they bake it four times, and prepare it six Months before the Embarkment. The Word comes from the *Latin bis*, and the *French cuit*, q. d. *twice baked*.

BISSECTION, in Geometry, the Division of any Quantity into two equal Parts; the same with *Bipartition*: Thus, to *bissect* any Line, is to divide it into two equal Parts.

BISSEXTILE, or *Leap-Year*, in Chronology, a Year consisting of 366 Days, happening once each four Years, by reason of the Addition of a Day in the Month of *February*, to recover the six Hours which the Sun spends in his Course each Year, beyond the 365 Days, ordinarily allow'd for it. The Day thus added, is also call'd *Bissextile*; *Cæsar* having appointed it to be the next after the 25th of *March*, which among them was the 7th of the *Calends* of *April*. Thus the 6th of the *Calends* of *March* is this Year reckon'd twice over; whence the *Intercalary Day*, and the *Year* when it happens, are both call'd by the Name *Bissextile*.

However, the Astronomers concern'd in reforming the *Calendar*, by Order of Pope *Gregory* XIII. observing that the *Bissextile* in four Years added 40 Minutes more than the Sun spent in returning to the same Point of the *Zodiack*, and computing that these supernumerary Minutes in 133 Years wou'd form a Day; to prevent any Changes being thus insensibly introduc'd in the Seasons, 'twas appointed, that in the Course of 400 Years, there shou'd be three *Bissextiles* retrench'd: Accordingly, in the Year 1700, there was no *Bissextile*, for that reason. By the Statute *de Anno Bissextili*, 21. *Hen.* III. To prevent Misunderstandings, the *Intercalary Day*, and that next before it, are to be accounted as one Day. See Year.

BISTER, or Bistre, among Painters, a Colour made of Chimney-Soot boil'd, and afterwards diluted with Water, serving to wash their Designs. Instead of this some use the Strokes of a Pen, some *Indian* Ink, others a black Stone, &c.

BIT, an essential Part of a *Bridle*; its Form and Use well known; its Parts and Kinds various.

For the several Parts of a *Bit*, those of a *Snaffle* or *Curb-Bit*, are, the *Mouth-Piece*, the *Cheeks* and *Eyes*, *Guard* of the *Cheek*, *Head* of the *Cheeks*, the *Port*, the *Welts*, the *Campanel* or *Curb* and *Hook*, the *Bosses*, the *Bolsters* and *Rabbets*, the *Water-Chains*, the *Side-Bolts*, *Bolts* and *Rings*, *Kirbles* of the *Bit* or *Curb*, *Trench*, *Top-roll*, *Flap* and *Jeive*.

The Kinds of *Bits* are, 1. The *Musroll*, *Snaffle*, or *Watering Bit*. 2. The *Cannon Mouth*. 3. The *Cannon* with a fast Mouth all of a Piece, only knee'd in the middle, to form a Liberty or Space for the Tongue. 4. The *Cannon Mouth*, with the Liberty in form of a Pigeon's Neck. 5. The *Cannon* with a Port Mouth and an Upset, or mounting Liberty. 6. The *Scotch Mouth* with an Upset. 7. The *Cannon Mouth* with a Liberty, after M. *Pignatel's* manner. 8. The *Masticadour*, or *Slavering Bit*. 9. The *Cats Foot Bit*. 10. The *Bastonet Bit*, &c.

BITE of a mad Dog. See Hydrophobia.

Bite of a Viper. See Viper.

Bite of a Tarantula. See Tarantula.

BITTERNESS, a particular Savour or Sensation, suppos'd to result from this, that all the Particles of the bitter Body are broken, blunted, and diminish'd, so as none of 'em remain long and rigid; which is confirm'd from this, that Foods burnt, and their Particles much comminuted and broken by the Fire, become *bitter*.

BITUMEN, an inflammable Matter, fat and unctuous. Naturalists distinguish three Kinds of *Bitumens*, hard, soft, and liquid or oily; and each of these they subdivide into several others. Among the hard *Bitumens* are rank'd *yellow Amber*, (some add *Ambergreese*) *Jet*, *Asphaltum* or *Bitumen of Judea*, *Pisasphaltum*, *Pit-Coal*, *Black-Stone*, and *Sulphurs*. The soft are, *Maltha*, *Bitumen of Colao*, *of Sirnam*, and *Copal*. Lastly, The *Naphta* of *Italy*, and *Petroleum*, are rank'd among the liquid *Bitumens*.

Of these *Bitumens* some are fossil, others are found floating on the Surface of certain Lakes, and others spring from the Earth like Fountains. Some *Bitumens* are so hard, that they are used in Forges, instead of Coals; others so glutinous, that they serve instead of Cement, or Mortar in Buildings; of which kind it was, that the famous Walls of *Babylon* were built: and others so liquid, that they are burnt in Lamps instead of Oil. The *Bitumen* in most Esteem is that of *Judea*. See Asphaltum; and the other *Bitumens* under their proper Heads. *Strabo* derives the Word from Πίσσα, Pitch.

BIVALVE, a Term used by the Writers of Natural History, for such Shell-Fish as have two Shells, as Cockles, Muscles, Oisters, &c. which are said to be of the *Bivalve-kind*; and also for the *Siliqua*, or Seed-Pods of such Plants as open all their whole Length to discharge their Seeds; such as Pease, Beans, &c. for those the Botanists say have a *Bivalve Siliqua*.

BIVENTER, in Anatomy, the sixth Muscle of the Jaw, and last of those serving to open it: 'Tis call'd *Biventer*, or *Digastricus*, as having two Bellies for its two Extremities, and a Tendon in the middle. It takes its Origin from a Scissure between the *Occipital Bone* and the *Mastoidal Apophises*, whence passing its Tendon thro a Hole in the *Stylohyoideus* and an *Annular Ligament* of the *Os Hyoides*, there arise some Fibres which join its second Belly; whence going fleshy, and returning upwards, it is inserted into the middle of the inferiour Part of the lower Jaw. By this Contrivance it is enabled to draw the Jaw downwards.

BLACK, something opake and porous, that imbibes all the Light falling on it, reflects none, and therefore exhibits no Colour. See Blackness. There are various Kinds of *Blacks* which pass in Commerce, *viz. Dyers Black*, *German Black*, *Ivory Black*, *Spanish Black*, *Lamp-Black*, &c.

Dyers Black, is one of the five Simple and Mother Colours used in *Dying*. 'Tis made differently, according to the different Quality and Value of the Stuffs to be *dyed*. For Broad-Cloths, fine Ratines, and Druggets, &c. they use Pastel, or Woad, and Indigo; the Goodness of the Colour con-

fists in there not being above six Pounds of Indigo to a Ball of Pastel, when the Pastel begins to cast its blue Flower; and in its not being heated for Use above twice. Thus blued, the Stuff is boil'd with Alum, or Tartar, then madder'd; and, lastly, the *Black* given with Galls, Copperas, and Sumac: To bind it, and prevent its smeering in Use, the Stuffs are well scower'd in the Fulling Mill, when white, and well wash'd afterwards. For Stuffs of less Value, 'tis sufficient they be well *blued* with Pastel, and *black'd* with Galls and Copperas: But no Stuff can be regularly *dyed* from *White* into *Black*, without passing thro the intermediate *Blue*. Yet there is a Colour call'd *cold Black*, or *Jesuits Black*, prepar'd of the same Ingredients as the former, but without being first *dyed Blue*. Here the Drugs are dissolv'd in Water that had boil'd four Hours, and stood to cool till the Hand wou'd bear it; then the Stuff dipp'd in it, and again taken out six or eight times. Some prefer this *Black* to the other, but on weak grounds. This Method of *Dying Black* is said to have been invented by the *Jesuits*, and to be still practis'd in their Houses, where they retain Numbers of *Dyers*. See GRAY. See also DYING.

German or *Frankfort* BLACK is made of the Lees of Wine burnt, then wash'd in Water, and ground in Mills for that Purpose, together with Ivory or Peach-Stones burnt. This *Black* makes the principal Ingredient in the Rolling-Press-Printers Ink. It is ordinarily brought from *Frankfort*, *Mentz*, or *Strasbourg*, either in Lumps, or Pouder. That made in *France* is less valued than that of *Germany*, by reason of the Difference between the Lees of Wine used in the one and the other; tho some prefer that made at *Paris* to that of *Frankfort*.

Ivory or *Velvet* BLACK, is made of *Ivory* burnt, ordinarily, between two Crucibles well luted; which being, thus, render'd perfectly black, and in Scales, is ground in Water, and made into Troches, or little Cakes, us'd by the Painters; as also by the Jewellers, to *blacken* the Bottom or Ground of their Coilers, wherein they set their Diamonds to give 'em their Teint or Colour.

Spanish BLACK, so call'd because first invented by the *Spaniards*, and most of it brought from them, is no other than burnt Cork; used in various Works, particularly among Painters.

Lamp-BLACK, or *Smoke*-BLACK, the Smoke of Rosin, prepar'd by melting and purifying the Rosin in Iron Vessels; then setting fire to it under a Chimney, or other Place made for the Purpose, and lined a-top with Sheep-Skins, or thick Linen Cloth, to receive the Vapour, or Smoke, which is the *Black*: In this manner they prepare vast Quantities of it at *Paris*. In *England* it is, ordinarily, prepar'd from the refinous Parts of Woods, burnt under a kind of Tent, which receives it: It is used on various Occasions, particularly in the Printers Ink; for which it is mix'd with Oils of Turpentine and Linseed, all boil'd together. It must be observ'd, that this *Black* takes fire very readily, and, when on fire, is very difficultly extinguish'd: The best Method of putting it out is, with wet Linen, Hay, or Straw; for Water alone won't do it.

Earth-BLACK is a kind of Coal found in the Ground, which, well pounded, is used by the Painters *in Fresco*.

There is also a kind of BLACK made of Silver and Lead, used to fill up the Strokes and Cavities of Things engrav'd.

BLACKNESS, the Quality of a black Body, or a Colour arising from such a Texture and Situation of the Superficial Parts of the Body, as does, as it were, deaden, or rather absorb, the Light falling on it, without reflecting any, or very little, of it to the Eye. In which Sense *Blackness* stands directly opposed to *Whiteness*; which consists in such a Texture of Parts, as indifferently reflects all the Rays thrown upon it, of what Colour soever they be. Sir *Isaac Newton*, in his *Opticks*, shews, that for the Production of *black* Colours, the Corpuscles must be less than those which exhibit any other Colours; because, where the Sizes of the component Particles are greater, there is too much Light reflected to constitute this Colour; but, if there be a little less than is requisite to reflect the white, and very faint blue of the first Order, they will reflect so little Light, as to appear intensely black; and yet may, perhaps, reflect it variously to and fro within them so long, till it happen to be stifled and lost; by which means they will appear *black*, in all Positions of the Eye, without any Transparency. And from hence it appears why Fire, and Putrefaction, by dividing the Particles of Substances, turn them *black*; why small Quantities of *black* Substances impart their Colours very freely, and intensely, to other Substances to which they are applied; the minute Particles of these, by reason of their very great Number, easily overspreading the gross Particles of others: Hence also appears, why Glass ground very elaborately with Sand, on a Copper-Plate, till it be well polish'd, makes the Sand, together with what by rubbing is worn off from the Glass and Copper, become very *black*; and why *black* Substances do, soonest of all others, become hot in the Sun's Light, and burn, (which Effect may proceed partly from the Multitude of Refractions in a little room, and partly from the easy Commotion of so very small Particles;) and also why *Blacks* are usually a little inclined towards a bluish Colour: for, that they are so, may be seen by illuminating white Paper, by Light reflecting from *black* Substances, where the Paper will usually appear of a bluish white; and the Reason is, that *black* borders on the obscure blue of the first Order of Colours; and therefore, reflects more Rays of that Colour than of any other. It is necessary also, to the Production of *Blackness* in any Bodies, that the Rays be stopp'd, retain'd, and lost in them; and these conceive Heat (by means of a Burning-Glass, &c.) more easily than other Bodies; because the Light which falls upon them is not reflected outwards, but enters the Bodies, and is often reflected and refracted in them, till it be stifled and lost. See LIGHT and COLOUR.

BLACK ROD, or Gentleman-Usher of the *Black Rod*, is Chief Gentleman-Usher to the King: He is call'd in the *Black* Book, *Lator Virgæ Nigræ & Hostiarius*, and elsewhere *Virgi-Bajulus*. His Duty is to bear the *Rod* before the King at the Feast of St. *George* at *Windsor*: He has also the keeping of the Chapter-House Door, when a Chapter of the Order of the *Garter* is sitting; and, in time of Parliament, attends the House of Peers. His Badge is a *Black Rod*, with a Lion Gold a-top. This *Rod* has the Authority of a Mace. The Office was formerly held by Patent.

BLACKS, or NEGRO's, a Nation of People, so call'd from the Colour of their Skin: For the Reason of their Colour, and the Commerce made with 'em, see NEGRO.

BLADDER, in Anatomy, a thin expanded membranous Body found in several Parts of an Animal, serving as a Receptacle of some Juice, or of some liquid Excrement; from whence it takes various Denominations, as *Urinary-Bladder*, *Gall-Bladder*, &c.

BLADDER, by way of Eminence, is a large Vessel, which serves as a Receptacle of the Urine of Animals, after its Secretion from the Blood in the Kidneys. It is situated between the Duplicature of the *Peritonæum*, and the lower Part of the *Abdomen*, between the *Os Sacrum* and the *Os Pubis*, above the strait Gut in Men, and in the Neck of the Womb in Women. It is tied to the Navel by the *Urachus* degenerated into a Ligament, its Sides to the *Umbilical Arteries*, and its Neck to the *Intestinum Rectum* in Women. It is compos'd of three Coats; the first a Covering of the *Peritonæum*; the second is compos'd of Muscular Fibres, which run irregularly several ways; and the third, which is full of Wrinkles for facilitating its Dilatation, is both glandulous and nervous. Its Glands separate a viscous and slimy Matter, which defends it from the Acrimony of the Salts in the Urine: Around its Neck there goes a small Muscle, call'd *Sphincter Vesicæ*, which contracts the Orifice of the *Bladder*, to prevent the Urine from dripping involuntarily, or till it thrust open the Passage, by the Contraction of the second Coat of the Blader, which is therefore call'd *Detrusor Urinæ*. The *Bladder* has Blood-Vessels from the *Hypogastricks*; and Nerves from the *Intercostals*. See URINE, &c.

BLAIN, a Distemper incident to Beasts, consisting in a Bladder growing on the Root of the Tongue against the Wind-Pipe, which at length swelling, stops the Wind. It comes by great chafing, and heating of the Stomach; whereby, as some judge, it still grows, and increaseth by more Heat.

BLANCHING, the Art or Manner of *Bleaching*, or *Whitening*. See BLEACHING.

BLANCHING *of Wax*. See WAX.

BLANCHING, in Coinage; the Preparation of the Pieces, given 'em before the striking, to give 'em the Lustre and Brillant. The *Blanching*, as now practis'd, is perform'd by heating the Pieces in a kind of Peel, with a Wood Fire, in manner of a Reverberatory, so as the Flame passes over the Peel. The Pieces being sufficiently heated, and cooled again, are put successively to boil in two other Peels of Copper, wherein are Aqua fortis, common Salt, and Tartar of *Montpellier*; when they have been well drain'd off this first Water in a Copper Sieve, they throw Sand and fresh Water over 'em; and when dry, they are well rubb'd.

The antient Method of *Blanching* was, by putting the Pieces, after heating, in a large Vessel of common Water, and some Ounces of Aqua fortis; but in different Proportions for Gold and Silver. This Method is now disus'd, partly by reason of its Expensiveness, and partly because it diminishes the Weight of the Metal. See COINING.

BLANK VERSE. See VERSE and RHYME.

BLATA BIZANTIA, or *Unguis Odoratus*, the upper Part of a Shell call'd by the *Latins Conchylium*. These Shells are of different Magnitudes; but the Figure, in all, is that of a Claw of a Wild Beast; whence its second Name; the first being occasion'd by its being usually brought from *Constantinople*, the antient *Bizantium*. The *Blata Bizantia*

tia is very thin, of a brown Colour, burns readily; and in burning ſmells ill. Its Uſe in Phyſick is the ſame with that of *Caſtoreum*, viz. for Vapours. Inſtead of the *Blata Bizantria*, which is very rare, is frequently ſubſtituted another kind of Shell, of leſs Virtue, call'd *Solen*.

BLAZE, *in the Manege*. See STAR.

BLAZING-STAR. See COMET.

BLAZONING, in Heraldry, the Art of Deciphering the Arms, or Armories of Noble Houſes, *&c.* or of Naming all the Parts in their proper and particular Terms. There is this Difference between *Arms* and *Blazon*; that the firſt are the Device or Figures bore on the Coat, or Shield; and *Blazon*, the Deſcription thereof in Words. See ARMS and DEVICE. In *Blazoning* a Coat, 'tis a ſpecial Rule, to begin with the *Field* firſt, and then proceed to the *Blazon* of the *Charge*. If the *Field* be taken up with ſeveral things, whether of one or various kinds, that which lies next and immediately on the *Field*, muſt be firſt named; then thoſe more remote. After the Metal-Colour of the *Field* is named, the Manner of the Diviſion of the *Eſcutcheon* by Line, whether downright, or bend-ways, muſt be expreſs'd. After the *Field* in Colour, and the *Line* and *Charge*, if there be more Parts of the *Field* poſſeſs'd by the *Charge* than one, the principal Part of the *Field* muſt be named firſt. The Arms of all Emperors, Kings, and Princes, are *blazon'd* by Planets; thoſe of the Nobility by precious Stones; and Baronets, Knights, Eſquires, and Gentlemens Coats, by Metal and Colour. It muſt farther be obſerv'd, that Metal muſt never be put on Metal, nor Colour on Colour; for, in ſo doing, the Arms are falſe. It may be added, that when Lions ſtand upright in a Coat, they are call'd *Rampant*; when walking forward, *Paſſant*; when they look you in the Face, *Paſſant Guardant*: In other Poſtures they have other Terms, as *Saliant*, *Regardant*, &c. which ſee. Wolves and Bears are term'd after the manner of Lions; Gryphons (inſtead of *Rampant* and *Saliant*) are term'd *Sergreant*; Lions, Gryphons, and Eagles, are alſo *Langued* and *Armed*; Swans, *Membred*; Hawks, *Jeſs'd* and *Bell'd*; Cocks, *Armed*, *Creſs'd*, and *Jowlop'd*. And note, All theſe Things are to be expreſs'd in *Blazon*, when met with, *viz.* when the Tongues, Bills, and Claws, are found of different Colours from the Body: When a living Creature proceeds from the Bottom of the *Ordinary*, 'tis term'd *Iſſuant*; when over two Colours, *Jeſſant*; if it proceed from the middle of any *Ordinary*, or common *Charge*, *Naiſſant*.

There are various Etymologies of the Word *Blazon*: The moſt probable brings it from the *German*, *blaeſen*, to blow a Horn; it being the Cuſtom of thoſe who preſented themſelves at the Liſts in the antient Tournaments, *to blow a Horn*, to notify their coming. After this the Heralds ſounded their Trumpets, and then *blazon'd* the Arms of thoſe who preſented themſelves; deſcribing them aloud, and ſometimes expatiating on the Praiſes and high Exploits of the Perſons who bore them.

BLEACHING, or BLANCHING, the Art and Manner of *Whitening* Linens, Stuffs, and Silks, *&c.* The Proceſs in each is as follows.

For bleaching Silk. While 'tis yet raw, 'tis put in a thin Linen Bag, and thrown into a Veſſel of boiling River-Water, wherein Soap has been diſſolv'd, then boil'd two or three Hours, and the Bag being turn'd ſeveral times, taken out, beaten, and waſh'd in cold Water, ſlightly wrung out, and throwo into a Veſſel of cold Water mix'd with Soap and a little Indigo: The Indigo gives it the bluiſh Caſt always obſerv'd in white Silks. After taking out of the ſecond Veſſel, 'tis wrung out, and all the Water and Soap expreſs'd, ſhook out to untwiſt and ſeparate the Threads, and hung up in the Air, in a kind of Stove made on purpoſe, wherein is burnt Sulphur; the Vapour whereof gives the laſt Degree of *Whiteneſs* to the Silk. See SILK.

To bleach Woollen Stuffs. There are three Manners of *Whitening* Stuffs; the firſt with Water and Soap; the ſecond with Vapour of Sulphur; the third with Chalk, Indigo, and Vapour of Sulphur. For the firſt, the Stuffs being taken from the Fulling-Mill, are put into ſoap'd Water, pretty hot, and work'd a-freſh by Force of Arms over a Bench, which finiſhes the *Whitening* the Fulling-Mill had begun; and laſtly, waſh'd out in clear Water and dried: This is call'd the Natural Way of *Bleaching*. In the ſecond Method, they begin with waſhing the Stuff in River-Water; 'tis then laid to dry on Poles, and, when half dry, ſpread out in a kind of Stove well cloſed, wherein is burnt Sulphur; the Vapour whereof diffuſing itſelf, ſticks by little and little over all the Stuff, and gives it a fine *Whitening*: this is commonly call'd *Bleaching* by the Flnwer. In the third Method, after the Stuffs have been waſh'd, they are thrown into cold Water, impregnated with Chalk and Indigo; after they have been well agitated here, they are waſh'd a-freſh in Eldar Water, half dried on Poles, and ſpread in a Stove to receive the Vapour of the Sulphur; which finiſhes their *Bleaching*. This is not eſteem'd the beſt Method of *Bleaching*, tho agreeable enough to the Sight. It may be here obſerv'd, that when a Stuff has once receiv'd the Steam of Sulphur, 'twill ſcarce receive any beautiful Dye, but *Black* or *Blue*.

To bleach fine Linens. After taking 'em from the Loom, while yet raw, they are ſteep'd a Day in clear Water, waſh'd out and clear'd of their Filth, and thrown into a Backing Tub, fill'd with a cold Lixivium, or Lie. When taken out of the Lie, they are waſh'd in clear Water, ſpread in a Meadow and water'd from time to time, with Water from little Dikes, or Canals, along the Ground, by means of Scoops, or hollow Peels of Wood, call'd by the *Dutch*, who pretend to be the Inventors of 'em, *Gieter*. After lying a certain time on the Ground, they are paſs'd thro a new Lie, pour'd on, hot; and again waſh'd in clear Water, and laid a ſecond Time on the Ground, and every thing repeated as before; then paſs'd thro a ſoft gentle Lie, to diſpoſe 'em to reſume the Softneſs which the other harſher Lies had taken from 'em, waſh'd in clear Water, ſoap'd with black Soap, and that Soap again waſh'd out in clear Water: they are then ſteep'd in Cow's Milk, the Cream firſt skimm'd off, which finiſhes their *Whitening*; and Scowering gives 'em a Softneſs, and makes 'em caſt a little Nap: When taken out of the Milk, they are waſh'd in clear Water for the laſt time. After all this Proceſs, they give the Linen its firſt Blue, by paſſing it thro a Water wherein a little Starch, Smalt, and *Dutch* Lapis have been ſteep'd. Laſtly, the proper Stiffneſs and Luſtre is given with Starch, pale Smalt, and other Gums, the Quantity and Quality whereof may be adjuſted according to occaſion. In fine Weather, the whole Proceſs of *Bleaching* is atchiev'd in a Month's Time; in ill Weather, it takes up ſix Weeks, or more.

To bleach coarſe Linens. They are taken from the Loom, and laid in wooden Frames, full of cold Water; where, by means of wooden Hammers, work'd by a Water-Mill, they are beat ſo, as inſenſibly to waſh and purge themſelves of their Filth; then ſpread on the Ground, where the Dew which they receive for eight Days, takes off more of their Rawneſs; then put in a kind of wooden Tubs, or Pans, with a hot Lie over 'em. Thus lixiviated, they are again purg'd in the Mill, laid a-freſh on the Ground, and, after eight Days more, paſs'd thro a ſecond Lie, and all things repeated, till ſuch time as they have acquir'd their juſt Degree of *Whiteneſs*. For *Bleaching* of Hair, ſee HAIR. For *Bleaching* of Wax, ſee WAX, *&c.*

BLEEDING, an Operation in Chirurgery, conſiſting in the Opening of a Vein with a Lancet, for the evacuating of corrupted or redundant *Blood*. *Bleeding* is the ſureſt and moſt efficacious Species of Evacuants. It was very rare among the Antients, but is frequent among the Moderns. *Oſtienſis* obſerves, that at *Rome* Perſons of Quality are not allow'd *to be let blood*, even in their moſt dangerous Diſeaſes, without Leave from the Pope. The *Hippopatamus* is ſaid to have firſt taught Men the Uſe of *Bleeding*: For that Animal being overcharg'd with *Blood*, rubs herſelf againſt a pointed Bulruſh, and opens a Vein; till finding her Plenitude diſcharged, ſhe welters in the Mire to ſtanch the *Blood* again. See STIPTICK: See alſo PHLEBOTOMY.

BLEMISH, a Term in Hunting, when the Hounds, or Beagles, finding where the Chace has been, make a Proffer to enter, but return.

BLEMMYES, People ſuppos'd to be without Heads, and to have their Eyes and Mouth in their Breaſt; mention'd by *P. Mela*, and other antient Authors. They are ſuppos'd to have inhabited Part of *Æthiopia*. Some Authors derive the Fable of the *Blemmyes* from this, that their Heads were hid between their Shoulders, by hoiſting thoſe up to an extravagant Height. *Bochart* derives the Word *Blemmyes* from בלי, which implies a Negation, and מוחו, *Brain*: In which Senſe the *Blemmyes* muſt have been People without Brains.

BLIGHT, or BLAST, a Diſeaſe incident to Plants, and affecting 'em variouſly; the whole Plant ſometimes periſhing of it, and ſometimes only the Leaves, which will be ſcorch'd and ſhrivel'd up, the reſt remaining green and flouriſhing. This Diſeaſe ſeldom happens, but upon the blowing of ſharp Eaſtern Winds, which are moſt frequent with us about *March*; whence that Month proves, of all others, the moſt fatal to Plants: From this Circumſtance, ſome imagine the Colds that then reign being exaſperated by the Eaſtern Winds, effect *Blights*; but Mr. *Bradley* furniſhes us with a better Account: for, on this Principle, it were hard to ſay, why one Plant, or one Part of a Plant, ſhould be *blighted* more than another. He obſerves, then, that Caterpillars generally attend thoſe Winds, and that they infect ſome one kind of Tree more than another, and even ſome particular Branches more than others; and thence infers, either that the Eggs of thoſe Inſects, or the Inſects themſelves, are brought to us by the Eaſterly Winds; or that the Temperature of the Air, when the Eaſtern Winds blow, is neceſſary to hatch thoſe Creatures, ſuppoſing the Eggs to have been already laid on the infected Parts. Now, each of

these Causes seem to have their Effect: Those *Blights* attended with large Worms or Caterpillars, seem hatch'd by the Eastern Winds; and those others, which only produce the small Insects, that occasion the Curling of the Leaves of Trees, may proceed from Swarms of 'em, either ready hatch'd, or in the Egg, brought with the Wind. The Coldness of those Winds he shews to be no Objection against their being fitted to hatch Insects; different Insects requiring vastly different degrees of Heat. To this he shews, that every Insect has its proper Plant, or Tribe of Plants, which it naturally requires for its Nourishment, and will feed on no other; and in which, therefore, it lays its Eggs: 'Tis no wonder then, that one kind of Tree should be infected, and all the rest escape. That Wind, *v.g.* which brings, or hatches, the Caterpillars on the Apple-Tree, will not infect the Pear, Plum, or Cherry; because, were the Shoals of Insects natural to the Apple, to light on those other Trees mention'd, they would either want their proper Matrix to hatch in; or, were they ready hatch'd, would perish for want of proper Food. So that 'tis morally impossible, all kinds of Plants should be *blighted* at the same time, unless the Eggs of every kind of Insect natural to each Tree, could be brought at one time with the Wind; or, that an Easterly Wind cou'd contain in it at once, as many different Degrees of Cold, or Heat, as wou'd be requir'd to hatch and maintain each different Class of Insects. Nor is it any Objection, that in *Blights* there are not frequently any Animals immediately perceivable. By the Microscope, we discover Animalcules a Million of times less than the smallest which comes under ordinary Notice: These, the gentlest Air may be conceiv'd capable of blowing from Place to Place; so that 'tis no wonder if they be brought to us from the remotest Regions, especially the North-East Parts of *Great Tartary*, &c. where the Cold is intense enough to give 'em Life; and from whence there is not Sea enough, by the Warmth and Saltness of whose Vapours they may be suffocated. Those brought from the North-East Parts of *America*, may be probably destroy'd by passing the vast *Atlantick* Ocean, which may be the reason why the North-West Wind is not so infectious.

What confirms this Doctrine of *Blights* is, that the more knowing among Country-People, while the Eastern Winds blow, use to guard against *Blites* by burning Heaps of Weeds, Chaff, and other Combustibles, on the Wind-side of their Orchards, that the Smoke may either poison the Insects, or their Eggs, as they pass along. It may be added, that these Fires are often made with good Success, to destroy the Caterpillars, even after they were hatch'd, and had began to devour the Trees. Another Method of preserving Trees from *Blights* is, by sprinkling Pepper-Dust; which, 'tis said, is present Death to all Insects, and even all Animals. Corn is liable to *Blights* like other sorts of Grain. The *Blight* of Wheat, call'd *Smut*, is prevented by washing the Wheat in three or four Waters, stirring it well all the time, and skimming off the light Wheat, then steeping it 30 or 40 Hours in Water impregnated with Salt, with the Addition of some Alum, till it be capable of sustaining a Body of twice the specifick Gravity of an Egg; when taken out, some slack'd Lime is sifted on it, to dry it fit for sowing the next Day: Such a Process secures the Grain from being infested with any kind of Vermine.

BLINDNESS, a Privation of the Sensation of Sight, arising from a total Depravation of the Organs thereof, or an involuntary Obstruction of their Functions. The Causes of *Blindness* are various; proceeding from *Cataracts*, *Gutta Serena's*, &c. which see. *Aldrovandus* tells us of a Sculptor, who became *blind* at 20 Years of Age, and yet 10 Years after made a perfect Marble Statue of *Cosmo* II. *de Medicis*; and another of Clay, like *Urban* VIII. *Bartholin* tells us of a *blind* Sculptor in *Denmark*, who distinguish'd perfectly well, by mere Touch, not only all Kinds of Wood, but all the Colours; and *F. Grimaldi* gives us an Instance of the like kind, beside the *blind* Organist lately living in *Paris*, who is said to have done the same. *F. Zaha* gives abundance of Instances of the amazing Sagacity of *blind* People, in his *Oculus Artificialis*. The Author of the Embassy of D. *Garcia de Silva Figueroa* into *Persia* tells us, that in several Parts of that Kingdom are found vast Numbers of *blind* People of all Ages, Sexes, and Conditions; by reason of little Flies which prick the Eyes and Lips, and enter the Nostrils, carrying certain *Blindness* with 'em. See SIGHT.

The Chymists say their Vessels are *blind*, which have no Opening but at one Side. See COECUM.

BLINDS, in Fortification, Defences made of Wood, or Branches interwoven and laid a-cross between two Rows of Stakes about the Height of a Man, and four or five foot apart. They are used particularly at the Heads of Trenches, when they are extended in Front towards the Glacis; serving to shelter the Workmen.

BLISTER. See VESICATORY.

BLOCK, a Piece of Marble, as it comes out of the Quarry, e'er it has assum'd any Form from the Workman's Hand. See MARBLE.

BLOCK, in Falconry, the Perch whereon the Bird of Prey is kept. This is to be cover'd with Cloth.

BLOCKADE, the Siege of a Place, intended to be taken by Famine; wherein all the Passages, and Avenues, are seiz'd, and shut up, so as no Supplies of Provision can be brought in. A *Blockade*, in strictness, is no regular Siege; inasmuch as there is not any Design of an Attack. A *Blockade* is form'd by the Cavalry. The Word is sometimes also used at the Beginning of a Siege, when Forces are sent to seize the principal Avenues, where the *Besiegers* intend to fix their Quarters. It comes from the *German Blochus*, a wooden House; or from the *Gaulish Blocal*, Barricade: Others derive it from the *Latin buculare*, to shut up the Passage.

BLOCK-LAND was formerly that which we now call *Freehold Land*, or *Land* held by Charters; and it was by that Name distinguish'd from *Folk-land*, which was *Copyhold Land*.

BLOCKS, a-board a Ship, are Pieces of Wood in which the Shivers are placed, and wherein the Running-Ropes go: Of these, some are single, some double; and some have three, four, or five Shivers in them. They are named and distinguish'd by the Ropes they carry, and the Uses they serve for.

BLOMARY, the first Forge in an Iron-Mill thro which the Metal passes after it is melted out of the Mine. See IRON.

BLOOD, a warm, red Liquor or Humour, circulating, by means of Arteries and Veins, through every Part of the Body. While in its Vessels, it appears to the naked Eye, uniform and homogeneous; but, when let out and cold, separates spontaneously into two different Parts; the one red and fibrous, which coheres into a Mass, and is call'd the *Cruor*; the other thin and transparent, which retains its Fluidity when cold, and, being suppos'd specifically heavier than the other, sustains and bears it up, and is call'd the *Serum*. The Proportion of the *Serum* to the *Cruor*, Dr. *Drake* makes at a Medium, as one and an half to one: But Mr. *Boyle*, more accurately, makes the *Serum* $\frac{23}{15}$ of the whole *Blood*; and Dr. *Jurin* $\frac{25}{17}$ of the whole Weight, or $\frac{3}{4}$ of the Bulk.

By the Microscope, the *Blood* appears to consist of little red Globules, swimming in an aqueous Liquor, suppos'd to be the *Cruor* and *Serum*, that appear so distinct when let out. M. *Leewenhoeck* computes these Globules to be twenty five thousand times smaller than the smallest Grains of Sand; and Dr. *Jurin* makes 'em still less. Upon an accurate Mensuration, he found the Diameter of one, equal to $\frac{1}{2500}$ of an Inch, or $\frac{1}{324}$ of an ordinary Hair of the Head. Dr. *Drake* thinks, that tho the rapid Motion of the *Blood* may make the *Cruor* appear round, and perhaps, by a kind of Whirling, or Rotation, really convolute 'em; yet that their Figure is not naturally Globular, when let out, as appears from their Cohesion, or hanging together in a Lump; which spherical Bodies, touching in a very few Points, are not apt to do: But, on the contrary, this Property, he thinks, argues an Implication of their Fibres within one another: Which is confirm'd by what Dr. *Adams* observ'd by his Microscope, *viz.* that immediately after Emission of *Blood*, 'tis so far from exhibiting any red Globules, that it appears to consist of infinite Branches, running in no certain Order, and variously colour'd.

By a Chymical Analysis, the *Blood* is found to consist of *Phlegm*, as the Basis or Vehicle of Volatile Salts; of *Oil*, which, by some nice Examiners, has been found of two Kinds; and of *Caput mortuum*, or Earth; which, tho it may consist of divers Substances, essentially different from each other, yet all we get out of it is a little fix'd Salt. From the best Experiments in this kind it appears, that in seven Ounces of human Blood, there are five Ounces two Drachms of Phlegm, three Drachms of a subtile, spirituous Oil, two Grains of a thicker Oil, two Drachms of Salt, and about two of Earth. Dr. *Jurin* adds, that the *Serum*, upon a Chymical Analysis, exhibits a great deal of Phlegm, and of the other Principles a small Quantity; and, on the contrary, the *Cruor* yields less Phlegm, but the other Principles much more copiously than the *Serum*. From which Data he concludes, that the Globules consist of some Phlegm united with the Oil and Salts, and a small Quantity of Earth; but in what Proportion, and how, and in what Parts they are form'd, &c. is not determin'd. Indeed, it must be consider'd, that the Principles which the Chymists thus produce separate, may possibly be much alter'd by the Fire. Thus, 'tis past doubt, the Oils drawn from the *Blood* by Fire, are vastly different from the natural Oil which circulates with the *Blood*. To which may be added, that the *Caput mortuum* remaining after Distillation, may, possibly, be a new Production, which had no Existence under any Form resembling that in the *Blood*.

The

The Source, or Origin, of the *Blood* is the *Chyle*, which passing the *Lacteals*, is deliver'd into the *Subclavian*; where, mixing with the *Blood*, they proceed together to the *Right Ventricle* of the Heart; and there, being yet more intimately mix'd, they circulate together thro the whole Body; till after several Circulations, and Secretions, at the several Strainers of the Body, they are assimilated so as to make one uniform compound Mass, which appears to be nothing else but *Chyle*, alter'd by the Artifice of Nature, and exalted into *Blood*; there being no Appearance of any thing extraneous mix'd with the Liquor circulating in the *Blood-Vessels*, but *Chyle*; excepting what had been before separated from it, for some particular Purposes, which being once served, it is returned to it again: unless, perhaps, it may receive some Portion of Air in the Lungs. That there is Air mix'd in the *Blood*, and circulating with it, is past doubt; but, whether any more than was at first contain'd in the Food whereof the *Chyle* is form'd, is a Question not yet decided. The principal Arguments urg'd for it, are, the Necessity of Respiration; which is accounted for on another Principle: and the florid Colour the *Blood* receives in the Lungs, and first shews in the *Vena Pulmonalis*; which is countenanced by an Experiment made with the red grumous Part of the *Blood* after Coagulation on *Blood-letting*; for, upon turning the Under-Surface, which was before black, upwards, and exposing it to the Air, by its Contact therewith it acquires a florid Colour, like that of the *Blood* in the *Vena Pulmonalis*. But this Effect others account for from the extraordinary Agitation and Comminution of the Blood in the Lungs.

Indeed, Dr. *Keill* and some others go further. Mr. *Boyle* having examin'd the Specifick Gravity of *Blood*, and found that of the *Serum* to be greater than that of *Blood*, in the Proportion of 1190 to 1040, *i.e.* nearly as 8 to 7, it follow'd, that the *Cruor*, or *Blood-Globules*, were specifically lighter than the *Serum*, and that in a great degree; which was further confirm'd by the *Globules* being sustain'd in the *Serum*, both while circulating, and when let out. Hence it was conjectur'd, that these *Globules* were nothing else but thin Vesicles fill'd with a subtle aerial Substance: And this Opinion was confirm'd from its being observ'd, in viewing the Circulation by a Microscope, that a *Blood-Globule*, in passing thro a very narrow Vessel, wou'd change its Shape from a Globular to an Oval Form, and wou'd again recover its former Figure, as soon as it was got thro its narrow Passage; which Appearance was naturally enough ascribed to the Elasticity of the included Air: And, from this Conjecture, were accounted for a great Number of the Phænomena of the Animal Oeconomy, particularly Dr. *Keill's Theory of Muscular Motion*. But this Principle Dr. *Jurin* has examin'd, and appears to have overthrown. He made several Experiments, in some of which the *Cruor* before suspended a-top of the *Serum*, by its Adhesion to the Sides of the Porringer being cut off, and put in another Vessel of *Serum*, immediately sunk. In others, the *Cruor* buoy'd up in the *Serum*, even without any Adhesion to the Sides of the Glass, and merely by the Bubbles of Air adhering to its Surface, upon including it in a Receiver, and exhausting the Air, the Bubbles bursting, the *Cruor* wou'd sink; whence he concludes, the *globular* Part of the *Blood* to be heavier than the *serous*: And, from other Experiments, he ascertains the Proportion of the Gravity of *Blood* to that of *Serum*, to be as 1054 to 1030; whence the Quantity of the *Globules* being before fix'd at $\frac{1}{4}$ of the whole, the precise Gravity of the *Globules* beyond that of the *Serum* is easily determined. The *Blood-Globules*, therefore, are not *Vesicles* fill'd with Air, or any other fluid Substance lighter than *Serum*: Which is further confirm'd from this, that *Blood-Globules* are not found to dilate, or undergo any Alteration, in an exhausted Receiver, when view'd thro a Microscope; whereas, were they fill'd with any elastick Fluid, they would either burst, or at least dilate into 70 or 80 times the Space.

As to the Heat of the *Blood*, Authors are exceedingly divided about the Cause thereof: The Antients ascrib'd it to a vital Flame, or innate Heat lodg'd in the Heart, and thence communicated to the *Blood*. Dr. *Willis* imagines a kind of Accension in the *Blood*; and thinks its Heat results from its being, as it were, set on fire, and persevering in that State. Dr. *Henshaw* solves it from an Ebullition consequent on the Mixture of two Fluids, so dissimilar as the *Chyle* and *Blood*. Others have recourse to the chymical Principles of Alcali and Acid; others to the mutual Action of the Principles, or component Parts of he *Blood*, by means whereof an intestine Motion, and by that means an intestine Heat, or Incalescence, is effected. Dr. *Drake*, with more Reason, attributes the Heat of the *Blood* to the Spring of the Air inclos'd together with it in the Vessels: For, Air being inclosed in the *Blood-Vessels*, will endeavour to expand it self, and, consequently, if it have Force enough, will drive outwards the Parts of the Body that inclose it; by which means it causes the *Blood* to beat against the Sides of the Vessels, which having musculous, contractile Coats, do in their Turns compress it again, and so cause a reciprocal *Æstus* in the *Blood*, greater than the mere circulatory Motion cou'd; whence the Parts of the Solids, or containing Vessels, being put into a constant Agitation, a Heat is produced in both, which they mutually impart to each other. *Lastly*, Dr. *Boerhaave* accounts for it from the Action of the Heart, and the Re-action of the *Aorta*: For, the *Blood*, driven by the Heart obliquely against the Sides of the *Aorta*, presses them, and spends almost its whole Momentum against the Curvity thereof, and is, by its Figure and Elasticity, press'd back again. Every Moment of Time, therefore, each Particle of *Blood* acquires a new Motion, a new Nisus and Rotation: Hence follows a perpetual Attrition, Attenuation, rubbing off of Angles, and a Similitude and Homogeneity of all the Parts; and hence the *Mass* derives its Fluidity, Heat, Division into Particles accommodated to all Vessels, Pressure into the Lateral Tubes, &c.

Nor is the Cause of the *Redness* of the *Blood* less obscure: The Chymists account for it from the Exaltation of its Sulphur; others from the Mixture of saline and subacid Juices with sulphureous; and others from the Colour of the Heart. The *French* Philosophers attribute this *Redness* to the Smallness of the Size, and Roundness of the Figure of the Particles that compose the *Cruor*; notwithstanding, that *red* being the Colour, of all others, least refrangible, and the *Globular* Figure, of all others, most refrangible, that Figure seems, of all others, least apt to produce this Colour. Others fetch the Colour of the *Blood* from the Impregnation of the Air in the Lungs: For, that Air is dispos'd to produce such an Effect, appears from the Experiment above. But others, more reserv'd, extend this Effect of the Air no further, than to account for the Difference of *Redness* between the *Venal* and *Arterial Blood*; supposing, that after its Colour has been heighten'd, and render'd more florid by the Mixture of the Air in the Lungs, it retains it pretty well in the Arteries; but that circulating in the Body, and carried thro the Veins, the Air transpires, by degrees, thro the Pores of the Vessels, and leaves the Liquor of a paler Dye. *Boerhaave* accounts for the Colour of the *Blood* from the same Cause as for its Heat, *viz.* from the Action of the Heart, and Re-action of the Sides of the *Aorta*. *Borelli*, to ascertain the Cause of the *Redness*, took a Parcel of the *Cruor*, after it had separated itself as far as spontaneously it wou'd from the *Serum*, and washing it frequently in Water, found it separable into a viscous, slippery Substance, consisting of white, or colourless Fibres, (which rose to the Surface of the Water, and there gather'd into a Skim, or coherent Pellicle of a reticular Texture) and a deep *red* Ponder, which precipitated pretty plentifully to the Bottom. Hence it appears, that the *red* Colour of the *Blood* is imparted to it by *red* tinging Particles, as in the common Case of Dyers. By examining the *red* Precipitate apart, and finding which of the Elements it consisted chiefly of, a Man who wou'd reason about the Colour of the *Blood* from Principles of the Chymists, might carry that Matter nearer an Issue.

However, this *red* Colour, tho generally found in all terrestrial Animals, is not yet absolutely necessary and essential; there being whole Species which have their circulating *Liquor*, or *Blood*, white and limpid: To which Dr. *Drake* adds an Instance of a pure white *Blood*, like Milk, which he let out of the *Median* Vein of a Man, and which, when cold, did not separate into a Crassamentum, as the *red* usually does; nor yield a Skim, or Cream, or turn sour upon keeping, as Milk does. Dr. *Beal* gives us another Instance of the like kind; and Dr. *Lower* adds a third, of a Person who bled so long at the Nose, till at last the Broth he drank, flow'd, little alter'd, that Way as *Blood*.

From the Principles, or constituent Parts of the *Blood* above-recited, variously combined and distributed by the Circulatory Motion impress'd by the Heart, (see CIRCULATION,) and by the Oscillatory, expansive Motion of the interspers'd Air, and the Re-action of the Contractile Vessels, flow all the Properties, and Operations of the *Blood*. From this Mixture of Elements, and their lax Composition, it becomes susceptible of various Alterations and Impressions; the principal whereof are, *Coagulation*, which usually attends it out of the Body, sometimes in it, and scarce ever without an artificial Procurement, but always mortal: and *Dissolution*, which is just opposite to the former, and consists in such a Comminution of the Fibrous Parts of the *Blood*, as indispose it for a Separation of the *Cruor* from the *Serum*. This is frequently the Consequence of Malignant and Pestilential Fevers, &c. and is likewise occasion'd by some Kinds of Poisons. These two contrary Affections of the *Blood*, Dr. *Drake* ascribes to the opposite Kinds of Salts, Acids, and Volatile Alcalies. For tho, adds he, in a human Body no sincere Acid is found, nor cou'd it, indeed, be consistent with Life; yet it may, and does often enter the *Blood* so compounded, as to bridle the Volatile, Alcalious Salt of the *Blood*, and so hinder the due Attenuation

and Mixture of the several Parts; as is the Case in a *Diabetes*, and, perhaps, in a *Chlorosis*, where the *Blood* is thick and torpid: On the other hand, where the Alcalious are too redundant, the *Blood* is render'd too thin and fluid, so that the Difference of its constituent Parts is lost.

Another Affection frequent in the *Blood* is, a too great abundance of Oils, or saline Particles, by means whereof the active Parts of the *Blood* are too much clogg'd, and those Parts which should be secreted for peculiar Uses in the Body, are detain'd; and perhaps the Solids, thro which it passes, too much lubricated, their Tone vitiated, shrunk, relax'd, &c. whence that Sluggishness and Inactivity of very fat People. The contrary Affection to this is, the defect of Oil in the *Blood*; which being, as it were, its Balsam, lines and preserves the Parts from being fretted and corroded by the Salts, whose Spicula, or Edges, are, as it were, sheathed in this soft Balsamick Matter, and their Attrition against the solid Parts prevented. This State of the *Blood* is usually attended with a general Atrophy, and a Fretting and Corrosion, of some particular Parts; whence serous Defluxions, Apostumations, and Ulcers, especially in the Lungs, whose tender, vesiculous Substance is more easily annoy'd than any other, by the Acrimony of the saline *Serum*.

There are other less considerable Affections of the *Blood*, resulting from its Temperature and Mixture, with regard to the earthy Parts; the Consequences of which are, the Stone, &c. and others that don't originally spring from any Dyscrasy, or undue Mixture of the Elements, but from an Alteration in its Motion; such as an Augmentation, or Diminution, of its progressive Motion, or the like Changes in its elastick Motion; whence supernatural Fermentations are induced: The Occasions here may be various; sometimes Fevers, and other Disorders occasion'd by Surfeits, Debauches, catching Cold, violent Exercise, &c. whence Atonias; at other times, some latent Malignity of the Air, whence Epidemical Diseases.

The *Blood* thus variously compounded and circumstantiated, visits even the minutest Parts of the Body, by means of its Circulative Motion: The Cause and Course whereof see under CIRCULATION. In this Round, those Particles of the *Blood* which conform best to the Figure and Structure of the Parts thro which they pass, are apposited to 'em, either for their Accretion, or for the Reparation of such as the constant rapid Force of the *Blood* wears off.

About the Matter of Nutrition, or the Source whence the Nourishment is deriv'd, great Contests have arose among the Physicians and Anatomists; some contending for a nutritious Juice convey'd thro the Lungs; some setting up the *Lymph*, others the *Chyle*, some the *Serum* of the *Blood*, some the *Cruor*, as the universal *Succus alibilis*, &c. However, all these, except they who bring the Nutriment thro the Nerves, make the *Blood* the *Vehicle*, that conveys the Alimentary Parts thro the Body, whatsoever they be, and whencesoever derived: But, perhaps it was on the score of its Heterogeneity, or Composition of different Elements, that they did not make it self the Nutritious Fluid, without restraining that Faculty to some particular Parts thereof. But Dr. *Drake* makes no Scruple to say, that the *Blood*, in its largest Acceptation, as consisting of all the Parts before described, is simple and homogeneous enough for the Purposes of Nutrition; and that every Part thereof contributes something, either materially or instrumentally, to the Augmentation, or Reparation, of the Parts thro which it passes. See NUTRITION.

For the Manner in which the *Blood* is form'd, and how the *Chyle* is assimilated into *Blood*, see SANGUIFICATION.

The Quantity of *Blood* in a human Body, has been variously estimated by various Authors. Where note, That in Computations of this Kind, not only the Fluid contain'd in the Veins and Arteries, but also that in the Lymphæducts, Nerves, and the other Vessels secreted from it, and return'd to it, are included. This Dr. *Lower* computes, in an ordinary Man, at about 20 Pounds; Dr. *Moulin* at about $\frac{1}{10}$ of the Weight of the whole Man, which may amount to about 8 or 10 Pounds: But Dr. *Keill*, from a more accurate Calculation, built on the Proportion of the Coats to the Vessels, shews, that in a Body weighing 160 Pounds, 100 Pound thereof are *Blood*. Hence he proposes a Method of determining the Velocity of the *Blood*: For, as each Ventricle of the Heart is capable of receiving an Ounce of *Blood*; being full in their *Diastole*, we may suppose they throw out about an Ounce each *Systole*. Now, the Heart beats about 4000 times in an Hour; therefore, every Hour 4000 Ounces, or 250 Pound of *Blood*, passes thro the Heart. So that a Quantity of *Blood* equal to the whole Mass, passes in two Hours and a half: but, the Sum of the Sections of the Branches of an Artery being always greater than that of the Trunk, the Velocity of the *Blood* will constantly decrease as the Artery divides; and the Ratio of its greatest to its least Velocity in the Arteries may be thus found, as 5223 to 1. Again, the Veins are to the Arteries, as 441 to 324; wherefore, as the *Blood* returns to the Heart by the Veins, its Velocity will be still further diminish'd, and may be found to move more slowly in the Veins than in the *Aorta*, 7116 times. Again, the farther the *Blood* goes off the Heart, the more slowly it returns. The Times of these are directly as the Spaces, and reciprocally as the Velocities; consequently, some Parts may be some thousands of times longer in returning to the Heart than others. From the Diameter of the *Aorta*, and the Quantity of *Blood* driven out every Pulse, the Velocity of the *Blood* in the *Aorta* is easily determin'd, and found to be at the rate of 52 Feet in a Minute. But Dr. *Jurin* shews, that in any two Arteries transmitting equal Quantities of *Blood*, the *Momentum* of the *Blood* is greater in the Artery more remote from the Heart than in that nearer; and that its *Momentum* is greater in all the capillary Arteries together, than in the *Aorta*; and, lastly, that the *Momentum* of the *Blood* is greater in any of the Veins, than in the Artery corresponding to it; and therefore greater in the *Vena Cava* than the *Aorta*.

Lastly he shews, that the *Momentum* of the *Blood* in the *Vena Cava*, is equal to that of the Quantity of *Blood* thrown out into the *Aorta* at each *Systole*, whose Velocity is such as won'd pass the whole Length of the Arteries and Veins in the Interval of Time between two Pulses; and that the absolute *Momentum* of the *Blood* in the *Cava*, without any regard to the Resistance, is equal to the *Momentum* of a Weight of 30 Pounds passing over the Space of an Inch in a Second. But note, that the Motion of the *Blood* is here supposed equable, which in reality it is not. See HEART.

As to the Transfusion of the *Blood* of one Animal into the Veins of another, first set on foot by Dr. *Lower*, see the Method and Effects thereof under TRANSFUSION.

In the *Philosophical Transactions* we have several very uncommon Instances of spontaneous *Bleeding*; particularly of a Child that *bled* at the Nose, Ears, and hind-part of the Head, for three Days; from that to the sixth, she sweat *Blood* from the Head; on the sixth, *bled* at the Head, Shoulders, and Waste; and for three Days more continued to *bleed* at the Toes, Bend of the Arms, Joints of the Fingers of each Hand, and at the Fingers Ends till she died: After her Death were found, in the Places whence the *Blood* issued, little Holes like the Prickings of a Needle. For the Stanching of *Blood*, see STIPTICK.

BLOOD *of Jesus Christ*, a military Order instituted at *Mantua* in 1608, by *Vin. Gonzagua* IV. The Devise of this Order was, *Domine probasti me*; or that, *Nihil hoc triste recepto*. *Hermant* speaks of this Order, and observes it took its Name from some Drops of the *Blood of Christ*, said to have been preserv'd in the Cathedral Church of *Mantua*. Their Number was restrain'd to 20, besides the Grand Master; the Office whereof was attach'd to himself and his Successors.

There is also a Congregation of Nuns at *Paris* call'd by the same Name, reform'd from the *Bernardines*.

BLOOD-LETTING. See PHLEBOTOMY.

BLOOD-SHOTTEN, a Distemper of the Eyes, where the *Blood-Vessels* are greatly distended, so as to make the Eyes appear red.

BLOODY-HAND, one of the four kinds of Trespasses in the King's Forest, by which the Offender being taken with his Hands or other Part *bloody*, is judg'd to have killed the Deer, tho he be not found Hunting or Chasing.

BLOSSOM. See FLOWER.

BLOWING *of Glass*, one of the Methods of forming the divers kinds of Works in the *Glass* Manufacture. 'Tis perform'd by dipping the End of an Iron Pipe in the melted *Glass*, and *blowing* thro it with the Mouth, according to the Circumstances of the *Glass* to be *blown*. See GLASS.

BLUE, one of the Primitive Colours, otherwise call'd *Azure*. See COLOUR.

The Painters BLUE is made different, according to the different kinds of *Paintings*. In *Limning*, *Fresco*, and *Miniature*, they use indifferently *Ultramarine*, *blue Ashes*, and *Smalt*; these are their natural *Blues*, excepting the last, which is partly natural, partly artificial: See each under its proper Head. In *Oil* and *Miniature* they also use *Indigo prepared*; see INDIGO; as also a *factitious* ULTRAMARINE, which see. Enamellers and Painters on Glass have *Blues* proper to themselves; each preparing 'em as their own manner. See ENAMELLING, and PAINTING *on Glass*.

BLUE *of the Dyers*, is one of their simple, or Mother-Colours, used in the Composition of others: 'Tis made of *Woad*, *Indigo*, and a *Pastel* brought from *Normandy*: Of the three, the *Pastel* is esteem'd the best, and the most necessary: *Woad*, tho of less Force and Effect, yet makes a tolerable Colour: *Indigo* only makes a spurious Colour; yet it may be used along with *Pastel*, if it be well prepar'd, and ben't mix'd in too great a Proportion. *Woad* having but little Substance, can neither be used alone, nor is it capable of correcting the *Indigo*, without the Assis-

tance of *Pastel*. Some *Dyers* heighten their *Blue* by adding Brasil and other Woods. The ways of brightening *Blues* are, by passing the Stuff, when dyed and well wash'd, thro luke-warm Water; or, which is much better, by working and fulling the *dyed* Stuff with melted Soap, and then scouring it well. *Blues* are *dyed* immediately from the *Whites*, without any other Preparation than Fulling.

Turnsol Blue, is a *Blue* used in Painting on Wood, made of the Seed of that Plant. 'Tis prepar'd by boiling four Ounces of *Turnsol* in a Pint and half of Water wherein Lime has been slack'd. See Turnsol.

Flanders Blue, is a Colour bordering on *Green*, seldom used but in Landskips.

Antiently, *Blue* was the Symbol of the Sea; for which Reason, in the *Circensian* Games the Combatants who represented the Sea were clad in *Blue*; and those who had distinguish'd themselves by any notable Exploit at Sea, were rewarded with a *blue Ensign*.

BLUEING *of Metals*, is the heating any Metal till it assume a *blue* Colour; particularly practis'd by Gilders, &c. who *blue* their Metals e'er they apply the Gold or Silver Leaf. See Gilding.

BLUENESS, the quality of a Body that is *blue*; or, such a Size and Texture of the Parts that compose the Surface of a Body, as disposes 'em to reflect the *blue* or *azure* Rays of Light, and those only, to the Eye. See Light and Colour. For the *Blueness* of the Skies, Sir *Isaac Newton* observes, that all the Vapours, when they begin to condense and coalesce into natural Particles, become first of such a Bigness as to reflect the *azure* Rays, e'er they can constitute Clouds of any other Colour. This, therefore, being the first Colour they begin to reflect, must be that of the finest and most transparent Skies, in which the Vapours are not arrived to a Grossness sufficient to reflect other Colours.

M. *de la Hire*, and before him *Leonardo da Vinci*, observes, that any *black* Body view'd thro a thin *white* one, gives the Sensation of *blue*; and this he assigns as the Reason of the *Blueness* of the Sky, the immense Depth wherein being wholly devoid of Light, is view'd thro the Air illuminated and whitened by the Sun. For the same Reason, he adds, it is, that Soot mix'd with a *white* makes a *blue*; for *white* Bodies being always a little transparent, and mixing themselves with the *black* behind, give the Perception of *blue*. From the same Principle he accounts for the *Blueness* of the Veins on the Surface of the Skin, tho the Blood they are fill'd with be a deep red; for red, he observes, unless view'd in a clear, strong Light, appears a dark brown bordering on black: Being then in a kind of Obscurity in the Veins, it must have the Effect of a black; and this, view'd thro the Membrane of the Vein and the white Skin, will produce the Perception of *Blueness*.

BLUSHING, a Phænomenon in the Animal Oeconomy, excited from a Sense of Shame, &c. It is supposed to be produced from a kind of Consent, or Sympathy, between several Parts of the Body, occasion'd by the same Nerve being extended to 'em all. Thus the fifth Pair of Nerves being branch'd from the Brain to the Eye, Ear, Muscles of the Lips, Cheeks, Palate, Tongue, Nose, &c. hence a thing seen, or heard, that is shameful, affects the Cheeks with Blushes, driving the Blood into the minute Vessels thereof, at the same time that it affects the Eye and Ear. For the same Reason it is, as Mr. *Derham* observes, that a savoury Thing seen or smelt, affects the Glands and Parts of the Mouth: If a Thing heard be pleasing, it affects the Muscles of the Face with *Laughter*; if melancholy, it exerts it self on the Glands of the Eyes, and occasions *Weeping*, &c. And to the same Cause Dr. *Willis* ascribes the Pleasure of *Kissing*.

BOAT, a little floating Vessel, for the Navigation of Rivers, Lakes, &c. The *Boat* acquires various Names, according to its various Structure, and the various Uses it is appointed for, and the Places where it is to be used. The several *Boats*, and their Names, are,

A Jolly Boat,	*A Canoe*,
A Long Boat,	*A Cruckle*,
A Skiffe,	*A Currycurry*,
A Pinnace,	*A Deal-Hooker*,
A Water Boat,	*A Felucca*,
A Yaul,	*A Ferry-Boat*.
A Gondola,	*A Praw*,
A Greenland Boat,	*A Flying Praw*,
A Bermudas Boat,	*A Punt*,
A Ballon of Siam,	*A Tilt-Boat*,
A Horse Boat,	*A Tod-Boat*,
A Periaga,	*A Well-Boat*,
A Pleasure-Boat,	*A Wherry*.
A Ponton,	

Boats for Ships.

De Chales proposes the Construction of a *Boat*, which, what Burden soever it bear, shall not only sail against the Current without either Sails or Oars, but also advance so much the faster, as the Rapidity of the Water is greater. Its Make is the same with that of the others, excepting only a Wheel added to its Side, with a Cord, which winds round a Roller as fast as the Wheel turns. See Vessel.

M. *de la Hire* has given us an Examen of the Force necessary to move *Boats*, both in stagnant and running Water, either with Ropes fasten'd to 'em, or with Oars, or with any other Machine: wherein he shews, that the larger the Surface of the *Oars* plung'd in the Water, and the smaller that of the *Boat* presented to the Water is; and again, the longer that Part of the *Oar* between the Hand and the Place where the *Oar* rests on the *Boat*, and the shorter that between this last Point and the Water; the freer will the *Boat* move, and the greater Effect will the *Oar* have. See Rowing.

Hence 'tis easy to calculate the Force of any Machine that shall be apply'd to *Rowing*; *v.g.* If we know the Absolute Force of all the Men who *Row*, it must be chang'd into a Relative Force, according to the Proportion of the two Parts of the *Oar*; *i.e.* if the Part out of the *Vessel* be double the other, and all the Men together can act with the Force of 900 Pounds; we compute first, that they will exert 300: Which 300, multiply'd by the Surface the *Vessel* presents to the Water, gives a Solid of Water of a certain Weight; whose Weight may be found, and of Consequence the Velocity impress'd on the *Vessel* by the *Oars*. Or the Velocity of the *Oars* may be found in the same manner, by multiplying the 300 Pounds, by the Surface of all the Parts of the *Oars* plung'd in the Water. Nor would there be any Difficulty in finding first the Relative Forces, then the Absolute ones; the Velocities either of the *Oars*, or of the *Vessel* being given, or the Proportion of the two Parts of the *Oar*.

BOAT-SWAIN, is an Officer on Board a Ship, who has Charge of her Rigging, Ropes, Cables, Anchors, Sails, Flags, Colours, Pendants, &c. He takes care of the Ship's *Long-Boat*, and its Furniture; and steers her, either by himself or his *Mate*. He calls out the several Gangs aboard, to the due Execution of their Watches, Works, &c. and he is likewise a kind of *Provost-Marshal*, who sees and punishes all Offenders who are sentenc'd by the Captain, or a Court-Martial of the Fleet.

BOCARDO, in Logick, the fifth Mode and the third Figure. In a Syllogism in *Bocardo*, the first Proposition is particular and negative, the second universal and affirmative; and the Medium, or middle Term, the Subject in the two Propositions. Thus,

Some Animal is not Man,
Every Animal has a Principle of Sensation,
Therefore something has a Principle of Sensation besides Man.

BODY, in Physicks, a solid, extended, palpable Substance; composed, according to the *Peripateticks*, of *Matter*, *Form*, and *Privation*; according to the *Epicureans* and *Corpuscularians*, of an Assemblage of hooked, heavy *Atoms*; according to the *Cartesians*, of a certain Quantity of *Extension*; according to the *Newtonians*, of a *System*, or Association of solid, massy, hard, impenetrable, moveable Particles, rang'd or dispos'd in this or that Manner; whence result Bodies of of this or that Form; distinguish'd by this or that Name. These Elementary or Component Particles of Bodies must be infinitely hard; vastly harder than the Bodies compounded of 'em; nay, so hard as never to wear, or break in pieces. "This Sir *Isaac Newton* observes to be necessary, in order "to the *World's* persisting in the same State, and *Bodies* "continuing of the same Nature and Texture in several "Ages. For should the *Component Particles* break or "wear, the Nature and Frame of Things depending on "them, would be chang'd. *Water* and *Earth* composed of "old worn *Particles*, and Fragments of Particles, would not "be of the same Nature and Texture now with *Water* and "*Earth* composed of *Entire Particles* in the beginning: "And therefore, that Nature may be lasting, the Changes "of *Bodies* are to be placed only in the various Separations, "and new Associations and Motions of these *permanent* "*Particles*. *Bodies* don't break in the midst of *solid Par*"*ticles*, but in the joinings of those *Particles*, which only "touch in a few Points. These *Particles* have not only "a *Vis Inertiæ*, accompany'd with such passive Laws of "Motion as naturally result from that Force; but like"wise with certain active Principles, such as that, *v.g.* of "*Gravity*, (See Gravity.) And that which occasions "Fermentation and the Cohesion of *Bodies*. See Fermen"tation and Cohesion. For the rest, *Bodies* being on"ly particular *Associations* or *Systems* of primitive *Parti*"*cles* of Matter, have the same Properties, and follow the "same Laws with *Matter*." See Matter; see also Particles.

The Existence of Bodies, or of external *Objects*, is a Thing not to be demonstrated in any Manner whatever. The

The Order in which we arrive at the Knowledge of the Existence of *Bodies*, seems to be this; We first find we have *Sensations*; then observe we have not those Sensations when we please; and thence conclude, we are not the absolute Cause thereof, but that there is requir'd some other Cause for their Production. Thus we begin to know, that we don't exist alone, but that there are several other *Things* in the World together with us. But even this Dr. *Clark* owns to fail of a Demonstration of the Existence of a *corporeal World*: He adds, that all the Proof we have of it is this; That God would not create us such, as that all the Judgments we make about *Things* existing without us, must necessarily be false. If there be no External *Bodies*, it follows, that 'tis God who represents the Appearances of *Bodies* to us; and that he does it in such a manner as to deceive us. Some think this has the Force of a Demonstration: 'Tis evident God can't deceive us; 'tis evident he does deceive and delude us every Moment, if there be no *Bodies*; 'tis evident therefore, there must be *Bodies*.

Against the *Existence of Bodies*, or any External *World*, Mr. *Berkley* argues very strenuously, " That neither our " Thoughts, Passions, nor Ideas form'd by the Imaginati- " on, exist without the *Mind*, he observes is allow'd; and " that the various Sensations impress'd on the *Mind*, " whatever *Objects* they compose, cannot exist otherwise " than in a *Mind* perceiving them, is not less evident: " This appears from the meaning of the Term *Exist*, " when apply'd to sensible Things. Thus, the Table I write " on exists; *i.e.* I see and feel it; and were I out of my " Study, I should say it existed; *i.e.* Were I in my Study, " I should see and feel it as before. There was an Odor; " *i.e.* I smelt it, &c. But the *Existence* of unthinking " *Beings*, without any Relation to their being perceiv'd, is " unintelligible; their *Esse* is *Percipi*: Nor is it possible " they should have any Existence out of the *Mind* that " perceives them." The Notion of *Bodies*, he endeavours to shew founded on the Doctrine of *Abstract Ideas*: " What are Light and Colours, Heat and " Cold, Extension and Figures, in a word, the Things " we see and feel, but so many Sensations, Notions, Ideas, " or Impressions on the *Sense*? And is it possible to separate, even in Thought, any of these from Perception? " The several *Bodies* then, that compose the Frame of the " World, have not any Subsistence without a *Mind*; their " *Esse* is to be perceiv'd or known; and as long as they are " not perceiv'd by Me, nor any other thinking Being, they " have no shadow of Existence at all.—— The *Things* we " perceive, are Colour, Figure, Motion, &c. that is, the " Ideas of those *Things*: But has an Idea any Existence " out of the Mind? To have an Idea, is the same thing " as to perceive: That therefore wherein Colour, Figure, " &c. exist, must perceive them. 'Tis evident, therefore, " there can be no unthinking *Substance*, or *Substratum* of " those Ideas. But you will argue, If the Ideas themselves " don't exist without the *Mind*, there may be Things like " 'em, whereof they are Copies or Resemblances, which " exist without the *Mind*: 'Tis answer'd, an *Idea* can be " like nothing but an *Idea*; a *Colour* or *Figure* can be like " nothing else but another *Figure* or *Colour*. It may be " farther ask'd, whether those supposed *Originals*, or *External Things* whereof our Ideas are the Pictures, be " themselves perceiveable or not? If they be, they are " Ideas; if they be not, I appeal to any one whether it be " Sense to say, A *Colour* is like somewhat which is Invisible; hard or soft, like somewhat Intangible, &c. Some " distinguish between Primary and Secondary Qualities; " the former, *viz.* Extension, Solidity, Figure, Motion, " Rest and Number, they maintain have a real Existence " out of the *Mind*: For the latter, under which come all " other sensible Qualities, as Colours, Sounds, Tastes, &c. " they allow the Ideas we have of 'em, are not Resemblances of any *Things* existing without the *Mind*, or " unperceiv'd; but depend on the Size, Texture, Motion, " &c. of the minute Particles of Matter: Now 'tis certain, that those Primary Qualities are inseparably united " with the other Secondary ones, and cannot even in " Thought be abstracted from them; and therefore must " only exist in the *Mind*. Can any Man conceive the Extension and Motion of a *Body*, without all the other sensible Qualitys? For my part, I find it impossible to " frame an Idea of a *Body* extended and moving, without " giving it some Colour, &c. In effect, Extension, Figure and Motion, abstracted from all other Qualities, are " Inconceivable: Where the others, therefore, are, there " these too must be; *i.e.* in the *Mind*, and no where else. " Again, Great and Small, Swift and Slow, are allow'd to " exist no where without the *Mind*; being merely relative, " and changing, as the Frame or Position of the Organ " changes: The Extension therefore that exists without the " *Mind*, is neither great nor small, the Motion neither " swift nor slow; *i.e.* they are nothing.—— That Number is a Creature of the *Mind*, is plain (even tho the " other Qualities were allow'd to exist) from this; that " the same thing bears a different Denomination of Number, as the *Mind* views it with different Respects: Thus " the same Extension is 1, or 3, or 36, as the *Mind* considers it, with reference to a Yard, a Foot, or an Inch. " Nay, many of the modern Geometricians hold, that a " finite Line may be divided into an infinite Number of " Parts, and each of those Infinitesimals into an infinity of " others; and so on, *in Infinitum*: So that the same " Thing is either Unity or Infinity; either no Number or " all Number. In effect, after the same manner as the " modern Philosophers prove Colours, Tastes, &c. to have " no Existence in Matter, or without the *Mind*; the same " thing may be proved of all sensible Qualities whatsoever. Thus, they say, Heat and Cold are only Affections of the *Mind*, not at all Patterns of *real Beings* existing in *corporeal Substances*; for that the same *Body* " which seems cold to one hand, seems warm to another. " Now why may we not as well argue, that Figure and " Extension are not Patterns or Resemblances of Qualities " existing in Matter; because to the same Eye, at different " Stations, or to Eyes of different Structure at the same " Station, they appear various? Again, Sweetness, 'tis " proved, does not exist in the Thing sapid; because the " Thing remaining unalter'd, the Sweetness is chang'd to " Bitterness, as in a Fever, or otherwise vitiated Palate. " Is it not as reasonable to say, that Motion does not exist " out of the *Mind*? since if the Succession of Ideas in the " *Mind* become swifter, the Motion, 'tis acknowledg'd, " will appear slower, without any external Alteration.— " Again, were it possible for solid figur'd Bodies to exist " out of the *Mind*, yet it were impossible for us ever to " know it: Our Senses, indeed, give us Sensations or " Ideas, but don't tell us that any Thing exists without " the *Mind*, or unperceiv'd, like those which are perceiv'd: " This the Materialists allow. No other way therefore remains, but that we know 'em by *Reason*'s inferring their " Existence from what is immediately perceiv'd by Sense. " But how should Reason do this, when 'tis confess'd there " is not any necessary Connection between our Sensations " and these *Bodies*? 'Tis evident from the *Phænomena* of " Dreams, Phrensies, &c. that we may be affected with " the Ideas we now have, tho there were no *Bodies* existing without them: Nor does the Supposition of external " *Bodies* at all forward us, in conceiving how our Ideas " should come to be produc'd. The Materialists work " themselves unable to conceive in what manner *Body* can " act on *Spirit*; or how it should imprint any Idea on the " *Mind*. To suppose therefore *Bodies* existing without " the *Mind*, is little else than to suppose, God has created " innumerable *Beings* entirely useless, and serving to no " Purpose at all. On the whole, it appears that the *Existence of Bodies* out of a *Mind* perceiving 'em, is not only " impossible, and a Contradiction in Terms; but were it " possible, nay real, it were impossible we should ever " know it. And again, that supposing there are no such " Things, yet we should have the very same Reason to " suppose there were that we now have: Suppose, *v.g.* an " Intelligence affected with the same Train of Sensations, " impress'd in the same Order, and with the same Vividness; would it not have all the Reason to believe the " Existence of *Bodies* represented by his Ideas that we " have?—— All our Ideas and Sensations are visibly Inactive; nay, the very Being of an Idea implies Passiveness " and Inertness: So that it is impossible for an Idea to do " any thing; or, in strictness, be the Cause of any thing: " It cannot therefore be the Resemblance or Pattern of " any active *Being*; unless Opposites can be said to resemble one another.

" Now we find a continual Succession of Ideas in the " *Mind*; but these, it has been proved, don't depend on " any External *Body* as their Cause: It remains therefore, " that their Cause is an Incorporeal active *Substance* or " *Spirit*. For that I am not the Cause of my own Ideas, " is plain from this, that when I open my Eyes in broad " Day-light, I can't help seeing various Objects. Now the " fix'd Rules or Methods wherein the *Mind* we depend on " excites in us the Ideas of Sense, are call'd *Laws of Nature*: These we learn by Experience; which teaches us, " that such and such Ideas are attended with such and " such other Ideas in the ordinary Course of Things.— " Ideas are not any how, and at random produced; there " is a certain Order and Connexion establish'd among 'em, " like that of Cause and Effect: And there are several " Combinations of 'em made in a very regular artful Manner, which we call *Bodies*; and the System of those, *the World*. In strictness, however, the Connexion of Ideas " does not imply the Relation of Cause and Effect; but, " only of a Mark or Sign of the Thing signify'd: The " Fire I see is not the Cause of the Pain I feel, but the " Mark that forewarns me of it. The Noise I hear, is " not

" not the Effect of this or that Motion or Collision of Natural *Bodies*, but the Sign thereof. The *Cartesians* own " somewhat like this: The Action of *Bodies* on our " Organs, say they, is not the Efficient Cause of our " Ideas and Perceptions, but only the *Occasional Cause*, " which determines God to act on the *Mind*, according to " the Laws of the Union of the *Soul* and *Body*. See " CAUSE. Mr. *Berkeley*, indeed, taking away *Bodies*, takes " away what these Philosophers account the Occasions of " their Ideas: By an *Occasion*, he says, must either be " meant the Agent that produces an Effect, or something " observ'd to accompany or go before it, in the ordinary " Course of Things: But Matter is allow'd to be passive " and inert, and can't therefore be an Agent or Efficient " Cause; and this Matter primitively and in it self, is allow'd imperceivable, and devoid of all particular sensible Qualities; *i. e.* it has not this or that particular " Colour, this or that particular Figure, *&c.* but has Colour in the General, Figure in the Abstract, *&c.* but an " Abstract is no Object of Sense: Matter therefore can't " be the Occasion of our Ideas in the latter Sense."

How far the great Argument of the Maintainers of a material World, *from the Impossibility of God's deceiving us, and from the Evidence that he does so, if there be no such thing*, will go against this Reasoning, we leave to the Reader. See EXTERNAL *World*.

For the Colours of BODIES: Sir *Isaac Newton* shews, that *Bodies* appear of this or that Colour, as they are dispos'd to reflect most copiously the Rays of Light originally endu'd with those Colours. See LIGHT and COLOUR. But the particular Constitutions whereby they reflect some Rays more copiously than others, remain yet to be discover'd. However, some of the Laws and Circumstances thereof, he delivers in the following *Propositions*.

1. Those Surfaces of transparent *Bodies*, reflect the greatest Quantity of Light, which have the greatest Refracting Power; *i. e.* which intercede Mediums, that differ most in their refractive Densities: And in the Confines of equally refracting Mediums, there is no Reflexion. 2. The least Parts of almost all Natural *Bodies*, are in some measure transparent; and the Opacity of those *Bodies*, arises from the multitude of Reflexions caus'd in their internal Parts. See OPACITY, *&c.* 3. Between the Parts of Opake and Colour'd *Bodies*, are many Spaces, either empty, or replete with Mediums of different Densities; as Water between the tinging Corpuscles, wherewith a Liquor is impregnated; Air between the aqueous Globules, that constitute Clouds or Mists: and even Spaces, void both of Air and Water, between the Parts of hard *Bodies*, are not yet perhaps wholly void of all Substance. See MEDIUM. 4. The Parts of the *Bodies*, and their Interstices, must be less than of some definite Bigness, to render them opake and colour'd. 5. The transparent Parts of *Bodies*, according to their several Sizes, reflect Rays of one Colour, and transmit those of another, on the same Grounds that thin Plates or Bubbles do reflect, or transmit those Rays: And this appears to be the Ground of all their Colour. See COLOUR. 6. The Parts of *Bodies*, on which their Colours depend, are denser than the Medium which pervades their Interstices. 7. The Bigness of the component Parts of Natural *Bodies*, may be conjectur'd from their Colours; on this Principle, that transparent Corpuscles, of the same Thickness and Density with a Plate, do exhibit the same Colour. 8. The Cause of Reflexion, is not the impinging of Light on the solid or impervious Parts of *Bodies*, as commonly believ'd. See REFLEXION. 9. *Bodies* reflect and refract Light, by one and the same Power variously exercis'd, in various Circumstances. See REFRACTION; see also LIGHT, RAY, *&c.*

BODIES, are distinguish'd into *Animate* and *Inanimate*; *i. e.* into those inform'd by a *Soul*, and those which are not; or those that have Life, and those that have none.

Some consider *Bodies*, either as *Natural* and *Sensible*; *viz.* as form'd by Physical Causes, and cloth'd with Physical Qualities: (In which Sense, *Body* makes the Object of *Physicks*.) See PHYSICKS. Or, as *Intellectual* or *Quantitative*, in the General or Abstract; and according to the three Dimensions: In which Sense, *Body* makes the Subject of *Geometry*. See GEOMETRY.

BODY, with regard to *Animals*, is us'd in opposition to the Soul; *viz.* for that Part compos'd of Bones, Muscles, Canals, Juices, Nerves, *&c.* In which Sense, *Body* makes the Subject of *Anatomy*. See ANATOMY.

The human BODY, consider'd with regard to the various voluntary Motions it is capable of performing, is an Assemblage of an infinite Number of Levers, drawn by Cords: If consider'd with regard to the Motions of the Fluids it contains, 'tis another Assemblage of an Infinity of Tubes and hydraulick Machines. Lastly, If consider'd with regard to the Generation of those same Fluids, 'tis another infinite Assemblage of Chymical Instruments and Vessels; as Philters, Alembics, Recipients, Serpentines, *&c.* and the whole is a Compound which we can only admire; and whereof the greatest Part escapes our Admiration itself: The principal Chymical *Apparatus* in the whole *Body*, is that wonderful Laboratory the Brain: 'Tis in this, that precious Extract, call'd *Animal Spirits*, the only material Movers of the whole Fabrick, is secreted from the Blood. See BRAIN, SPIRITS, BLOOD, HEART, *&c.*

In the Machine of the *Animal* BODY, the Retainers to the Doctrine of *Trituration* maintain the *Brain* to do the Office of the *Beam* of a Press, the *Heart* of a *Piston*, the *Lungs* of *Bellows*, the *Mouth* of a *Millstone*, and the *Teeth* of *Pestles*; the *Stomach* of a *Press*, the *Intestines* of a *Reservoir*, the *Vessels* of *Sieves* or *Strainers*, and the *Air* of a *Pondus*, or Spring that sets the Machine a going. See TRITURATION.

The *Soul*, *Rohault* well observes, is not the Form of the *Human Body*: So far is the Animal Life from depending on the *Soul*, because of its ceasing when the *Soul* is separated; that on the contrary, the Continuance of the *Soul* depends entirely on the Disposition of the *Body*: the former never quitting the latter, till its Oeconomy or Order is interrupted. The *Cartesians* maintain the *Soul* and *Body* to be too disproportionate, for Thoughts or Ideas of the *Soul* to be caus'd by the Motions of *Bodies*, and *vice versa*: Thus, their reciprocal Motions not being able to be the direct Cause of the one and the other, are only deem'd the Occasion, or occasional Cause. God, on occasion of the Motion of a *Body*, impresses an Idea or Sensation on the *Soul*; and again, on occasion of an Idea of the *Soul*, communicates a Motion to the *Body*: of consequence, God is, as it were, the Mediator of all the Commerce between *Soul* and *Body*. See CAUSE.

Physicians divide the *Body* into three Venters, or Cavities, the *Head*, *Thorax*, and *lower Venter*; which see: The rest of the *Body* they call *Members*. See PARTS.

BODY, *Corpus*, is also apply'd by Anatomists to several particular Parts of the Animal Fabrick: As the *Callous Body* of the Brain; the *Cavernous* or *Spongeous Bodies* of the Penis, *&c.* See CORPUS *Callosum*, CORPORA *Cavernosa*, &c.

BODY *in Geometry*. The *Regular* or *Platonick Bodies*, are those whose Sides and Angles are equal; of these there are only Five, *viz.* The *Tetrahedron*, consisting of four Angles; the *Octahedron* of eight; the *Icosihedron* of twenty; the *Dodacahedron* of twelve Pentagons; and the Cube of six Squares. See REGULAR *Body*.

BODY *in Law*. A Man is said to be bound, or held, in *Body* and Goods; that is, he is liable to remain in Prison, in default of Payment. In *France*, by an Ordonnance of 1667, all Restraints of *Body*, for Civil Debts, are null after four Months, unless they exceed 200 *Livres*. A Woman, tho in other Respects she cannot engage her Person but to her Husband, may be *taken by the Body*, when she carries on a separate Trade.

BODY *in War*, is an Assemblage or Collection of Forces, Horse and Foot, united and marching under some Chief. An Army, rang'd in Form of Battle, is divided into three *Bodies*; the Vant-Guard, the Rear-Guard, and the *Main Body*; which last is ordinarily the General's Post. See CORPS.

BOGOMILES or BOGARMITES, a Sect of Hereticks, sprung from the *Manichees*, or rather the *Paulicians* in the 12th Century. The Chief hereof, *Basil*, was burnt, by Order of the Emperor *Alexander Commenius*. They denied the Trinity; maintain'd, that God had a human Form, that the World was created by evil Angels, and that it was the Archangel *Gabriel* that became incarnate. They rejected the Books of *Moses*, and only admitted seven Books of Scripture: They maintain'd the Lord's Prayer to be the only Eucharist; that the Baptism of the *Catholicks* was that of St. *John*, and theirs that of *Jesus Christ*; and that all those of their Sect conceiv'd the Word, or *Logos*, as much as the Virgin. Lastly, That there was no other Resurrection but Repentance. *Du Cange* derives the Name from two Words in the *Bulgarian* Language, *Bog*, *deus*, and *Mika*, *miserere*, have Mercy.

BOILING, *Ebullition*, in Physicks, the Agitation of a fluid Body, arising from the Application of Fire, *&c.* The Phænomenon of *Boiling* may be thus accounted for: The minute Particles of the Fuel being detach'd from each other, and impell'd *in Orbem*, with a great Velocity, (*i. e.* being converted into Fire) pass the Pores of the containing Vessel, and mix with the Liquid. By the Resistance they here meet withal, their Motion is destroy'd; *i. e.* they communicate it wholly to the quiescent Water; hence arises, at first, a small intestine Motion in the Water, and from the continued Action of the first Cause, the Effect is increas'd, and the Motion of the Water continually accelerated: So that the Water, by degrees, becomes sensibly agitated. But, now, the Particles of the Fire striking on those in the lowest Surface of the Water, will not only give 'em an Impulse upwards, contrary to the Laws of Æquilibrium, but will likewise render 'em specifically lighter than before, so as to determine 'em to ascend according to the Laws of Æquilibrium: And this, either by inflating 'em into little Vesicles, by the

Attraction of the Particles of Water around 'em; or by breaking and separating the little Spherules of Water, and so increasing the Ratio of their Surface to their solid Content. There will therefore be a constant Flux of Water from the Bottom of the Vessel to the Top; and consequently a reciprocal Flux from the Top to the Bottom: *i. e.* The upper and under Water will change Places; and hence we have the Reason of that Phænomenon, of the Water's being hot at Top sooner than at Bottom. Again, an intense Heat will diminish the specifick Gravity of Water, so as not only to make it mount in Water, but also in Air; whence arise the Phænomena of *Vapour* and *Smoak*: Tho the Air inclosed in the Interstices of the Water, must be allow'd a good share in this Appearance: for that, Air being dilated, and its Spring strengthned by the Action of the Fire, breaks its Prison, and ascends thro the Water into the Air; carrying with it some of the contiguous Spherules of Water, so many as shall hang in its *Villi*, or as can adhere immediately to it. The Particles of Air in the several Interstices of the fluid Mass thus expanded, and moving upwards, will meet and coalesce in their Passage; by which means great Quantities of the Water will be heav'd up, and let fall again alternately; as the Air rises up, and again passes from the Water: For the Air, after Coalition, tho it may buoy up a great heap of Water, by its Elasticity while in the Water, yet can't carry it up together with itself into the Atmosphere; since when once got free from the upper Surface of the Water in the Vessel, it will unbend itself in the Atmosphere, and so its Spring and Force become just equal to that of the common unheated Air. Add to this, that were the Spring and Motion of the Air sufficient to carry up the Water with it, yet it would not have that Effect; but the Water won'd run off at the Extremities of the Air; all, except so much as should be either entangled in its *Villi*, or immediately adhere to its Surface by Attraction: And hence we see the Reason of the principal Phænomenon of *Boiling*, *viz.* The fluctuating of the Surface of the Water. See EBULLITION, and EFFERVESCENCE.

Water, only lukewarm, *boils* very vehemently in the Recipient of an Air-Pump, when the Air is exhausted: The Reason is obvious; for the Pressure of the Atmosphere being taken off from its Surface, the Air included in the Interstices of the Water, dilated by a feeble Heat, has Spring enough to heave up the Water, and disengage itself.—— When the Water ceases *boiling*, it is again excited thereto by pouring cold Water upon the Recipient; and when it *boils* the most vehemently, ceases by pouring on hot Water: The Reason whereof is scarce guess'd at. See HEAT, FIRE, &c.

BOLE, in Medicine, is us'd, in the general, for several Kinds of Earths that enter *Galenical* Preparations, and are used by Painters and other Artists. See EARTHS.

BOLE-ARMONIAC, or *Ammoniac*, is a kind of Earth, of considerable Medicinal Virtue, brought from *Armenia*. The Physicians sometimes call it *Rubrica Synopica*, from the City of *Synope*, where it is suppos'd to be found. 'Tis of a pale red Colour, and partakes much of the Nature of Stone; but soft, far, friable, easily pulveriz'd, and sticks to the Tongue. 'Tis esteem'd Deficcative and Stiptic; in which Quality 'tis us'd in several Diseases, both internal and external. This *Bole* is easily falsify'd; and the Merchants frequently sell *Lemnian-Earth* in lieu thereof. *Matthiolus* says, 'tis found in Gold, Silver, and Copper Mines. See AMMONIAC.

BOLE *of the Levant*, is a Medicinal Earth brought from the *Levant*; nearly of the same Nature, and having the same Uses with the *Bole-Armoniac*. *Pomet* says, there is no such thing among us, as either true *Bole-Armoniac*, or *Bole of the Levant*; and that all the *Boles* now in use, are brought either from the Provinces of *France*, or the neighbouring Countries. But this does not seem sufficiently warranted; and the New *Tarifs*, or Duties on Goods imported into *France*, which mention 'em both, make it credible that there are of either kind imported into that Kingdom. Indeed, it appears, that 'tis the *Levant Bole* which passes among us for the *Armoniac*: It enters several Compositions, particularly *Diascodium*, to give it the Colour, &c.

BOLLANDISTS, a modern Term, now become of some Consequence in the Republick of Letters. The *Bollandists*, are certain *Jesuits of Antwerp*, who have been a considerable Time, and continue still employ'd in collecting the Lives of the Saints. As we find frequent Occasion to quote that learned Body in this Work, and are indebted to 'em for several excellent Observations that occur therein; the Reader will not be displeas'd to find the Occasion of their Name.

In the beginning of the XVIIth Century, F. *Heribert Rosweide*, a Jesuit of *Antwerp*, laid a Design of collecting the Lives of the *Saints*, as wrote by the Original Authors, with Notes, like those added to his Lives of the *Fathers*, to clear obscure Passages, and distinguish the Genuine from the Spurious: He died in 1629, e'er the Work was begun. The Year following, *J. Bollandus*, a Jesuit of the same House, took up the Design; and whereas *Rosweide* only proposed to collect the Lives already composed, *Bollandus* undertook, where there was no Life of a Saint extant, to compose new ones from the Authors who had mention'd 'em. In 1635, he took in *G. Henschenius* a Partner with him; and in 1641, publish'd the *Saints of the Month of January*, in two large Volumes, Folio. In 1650, *F. Papebroch* became an Associate; and, *Henschenius* dying, F. *Baert*, *Janning*, *Sollier*, and *Raye* were call'd in, who are still alive, and continue the Work: whereof, in 80 Years, there have appear'd 24 Volumes, for the first six Months of the *Roman* Calendar.

BOLT-HEAD, the same as *Matras*; a Vessel used by the *Chymists*, see MATRAS.

BOLTING, a Method of Pleading, or Arguing, in use in the Inns of Court; inferior to *Mooting*. The Case is argued first by three *Students*, then by two *Barristers*; a *Senior* sitting Judge. The Word came from the *Saxon Bolt*, *an House*, because done privately within Doors for Instruction. See BENCHER, and MOOTING.

BOLTS *of Iron*, in Building, are distinguish'd into three Kinds, *Plate*, *Round*, and *Spring-Bolts*.

BOLTS, or Iron Pins in a Ship are of several sorts: As, *Ring-Bolts*, serving for the bringing to of the Planks, &c. *Drive-Bolts*, used to drive out others; *Set-Bolts*, employ'd for forcing the Planks and other Works, and bringing them close to one another; *Rag-Bolts*, on each side full of Jags or Barbs, to keep them from flying out of their Holes; *Clench-Bolts*, for the same end clench'd, or fasten'd at the Ends where they come thro; *Fore-Bolts*, made like Locks with an Eye at each end, whereinto a Forelock of Iron is driven to prevent starting out; *Fender-Bolts*, made with long and thick Heads, struck into the uttermost Bends or Wales of a Ship, to save her Sides from Bruises and Hurts.

BOLUS or BOLE, in Medicine, an extemporaneous Form of a Medicine, of a soft Consistence, somewhat exceeding that of an Electuary, and of the Quantity of one Dose; contrived principally for the sake of such as have an Aversion to potable Medicines; as also for the better Conveyance of certain Preparations of *Mercury*, *Antimony*, &c. which by their Weight would sink to the bottom of the Glass, were they mix'd with Fluids. There are *Bolus's* of various kinds, made with Electuaries, Confections, Conserves, Pulps, Pouders, Salts, Oils, Essences, Extracts, Syrups, &c. some of which Ingredients must always have Solidity or Drineſs enough, to give a Consistence to those that are Liquid.

BOMB, a large *Granada*, or hollow Iron Ball, or Shell fill'd with Gunpouder, and furnish'd with a *Fusee*, or wooden Tube full of a Combustible Matter; to be thrown out from a Mortar. See MORTAR.

The Method of preparing a *Bomb* is as follows: A hollow Iron Globe A B, (Tab. *Pyrotechnia*, Fig. 1.) is cast pretty thick, having a round Aperture A, by which it may be fill'd and lighted; and circular Handles C D, for the commodious putting it into the Mortar. To prove whether it be staunch, after heating it red-hot on the Coals, it is expos'd to the Air, so as it may cool gently: for since Fire dilates Iron, if there be any hidden Chinks or Perforations, they will thus be open'd and enlarg'd; and the rather, because of the Spring of the included Air continually acting from within. This done, the Cavity of the Globe is fill'd with hot Water, and the Aperture well stopp'd; and the outer Surface wash'd with cold Water and Soap: So that if there be the smallest Leak, the Air, rarefy'd by the Heat, will now perspire, and form Bubbles on the Surface. If no Defect be thus found in the Globe, its Cavity is fill'd with whole Gunpouder; a little Space, or Liberty is left, that when a wooden Tube A E, of the Figure of a truncated Cone, is driven thro the Aperture, and fasten'd with a Cement made of Quick Lime, Ashes, Brickdust, and Steel-filings work'd together in a glutinous Water; or, of four Parts of Pitch, two of Colophony, one of Turpentine, and one of Wax; the Pouder mayn't be bruis'd. This Tube is fill'd with a Combustible Matter, made of two Ounces of Nitre, one of Sulphur, and three of Gunpouder-dust, well ramm'd. This Fusee set on fire, burns slowly till it reach the Gunpouder, which goes off at once, bursting the Shell to pieces with incredible Violence: Whence the use of *Bombs* in besieging Towns. Special Care, however, must be taken, that the Fusee be so proportion'd, as that the Gunpouder don't take Fire e'er the Shell arrives at the destin'd Place; to prevent which, the Fusee is frequently wound round with a wet clammy Thread.

Bombs being made of different Magnitudes, it may be proper to exhibit some of their Dimensions; as in the following Table:

Diam. of Bomb.	Thickness of Bomb.		Diam. of Apert.	Quant. of Gunpond.	Weight of Bomb.
17, In. 10	2 In.	2,10	,20	48 lb.	490 lb.
11, 8	1	,18	,16	15	130
8	0,10	,13	,10	4	40

Others

Others make the Thickness of the *Bomb* $\frac{1}{8}$, or $\frac{1}{9}$, or $\frac{1}{10}$ of the whole Diameter; and the Diameter of the Aperture $\frac{1}{6}$ or $\frac{1}{7}$ of the same.

Bombs only differ from *Hand Granadas*, in that the latter are much less, and instead of Mortars are thrown out of the Hand; see GRANADA. The Word BOMB comes from the Latin, *Bombus, crepitus*, or *sibilus Ani*, by reason of the Noise it makes. M. *Blondel*, who has wrote the Art of throwing *Bombs*, observes, that the first *Bombs* were those thrown into the City of *Wachtendouch* in *Guelderland*, in 1588; others pretend they were in use a Century before, *viz.* at the Siege of *Naples* by *Charles* VIII. in 1495.

BOMBARD, a Piece of Artillery antiently in use, exceedingly short and thick, and with a very large Opening: Some also call it *Basilic*. There were some of these said to have carry'd Balls of 300 Pound Weight; *Froissart* mentions one of 50 Foot long. To load 'em, they made use of Cranes, *&c.* The *Bombard* is supposed to have been in use before the Invention of Cannons, see CANNON and ORDNANCE. Some derive the Word, by Corruption, from *Lombard*, as supposing 'em first us'd in *Lombardy*: *Menage*, after *Vossius*, derives it from the *Greek* Βομβος, or the *Latin bombus*, à *bumbo & ardeo*; others from the *German Bombarden*, the plural of *Bomber*, *Balista*.

BOMBARDIER, an Engineer, or Person whose Business is to take care of the firing and throwing *Bombs* out of Mortars: He first drives the Fusee, then fixes the Shell, loads, and fires. See BOMB.

BOMB-CHEST, is a kind of *Chest* fill'd with Gunpuder, *Bombs*, &c. plac'd under Ground, to tear and blow it up into the Air, with those who stand upon it. These *Bomb-Chests* are frequently us'd to drive Enemies from a Post they have seiz'd, or are about to take possession of; and are set on fire by means of a Saucidge fasten'd at one End. See MINE.

BOMB-KETCH, is a small Vessel, strengthen'd with large Beams, for the use of Mortars at Sea.

BONA NOTABILIA, in Law. Where a Person dying has Goods, or good Debts, in another Diocese or Jurisdiction within that Province, besides his Goods in the Diocese where he dies, amounting to the Value of 5 *l.* at least, he is said to have *Bona notabilia*; in which Case, the Probat of his Will, *&c.* belongs to the Archbishop of that Province.

BONA PATRIA, a Jury or Assize of Countreymen, or good Neighbours, see JURY.

BONE, in Anatomy, a similar Part of the Body, white, hard and brittle, not distendible, and void of Sensation; giving Support, and Form to the whole Fabrick. The *Bones* of the Body are all cover'd with a peculiar Membrane, call'd the *Periosteum*, which is extremely sensible, (see its Description and Office in its Place:) They are most of 'em likewise hollow, and fill'd with an oily Substance call'd Marrow; see MARROW. Dr. *Havers*, describing the Texture of the *Bones*, observes, that they consist of *Lamellæ*, or Plates lying one upon another; and those, again, of Fibres running lengthwise, some to the Extremities of the *Bones*, others not so far; but none of 'em terminating there in distinct Ends, as they seem to do; but in lieu of that continu'd transversly, and as it were arch'd: The Fibres of one Side, meeting and uniting with those of the other; and this at each Extremity. So that the Fibres are a Continuation of each other; tho not in the same uniform Order, but in very long *Ellipses*; not all of a length, however, but in each Plate, shorter and shorter than other.

These *Lamellæ*, or Plates, are differently disposed in different *Bones*; *v. g.* In those that have a large Cavity, they are contiguous on each side, and very closely united; in those again whose Cavities are small, or which are altogether spongious within, many of the internal *Laminæ* are placed at a distance from each other, having betwixt 'em little *bony* Cells; and even in *Bones* that have a larger Cavity, some of these lesser Cells are usually found at each Extremity. In such *Bones* as have their Plates contiguous, there are Pores thro and between the Plates, besides those made for the Passage of the Blood-Vessels: The first penetrate the *Laminæ* transversly, and look from the Cavity to the external Surface of the *Bone*; the second run longitudinally between the Plates: The first are found in every *Lamina*; tho the nearer the Cavity, the greater the Number of Pores; but they don't lie directly over one another, so as to form any continu'd Passage from the Cavity to the Surface. The second are seldom found but by good Glasses: A Medullary Oil is diffus'd, by these, throughout the Plates; and to those, the first kind seem only subordinate; serving to bring the Oil into 'em.

The Marrow in the Cavity of the *Bones*, is invested with a Membrane, wherein are included little Bags, or *Lobules*; and in these Bags are *Vesiculæ*, or glandulous Bladders; serving both for the Secretion of the Medullary Oil from the Blood, and for the Reception and Conservation of the same. They seem to have Passages into each other, as have also the Bags; whereby the Oil has a freer Course to the Joints and Substance of the *Bone*. The use of the Marrow, is to oil the Substance of the *Bone*, and to prevent its being too dry and brittle; it also lubricates the Articulation of the *Bones*, and hinders their Ends from being worn, or overheated with Motion; and it moistens the Ligaments by which they are ty'd to each other: in which it is assisted by the Mucilaginous Glands, found in all the Articulations of the *Bones*; see MUCILAGINOUS.

The *Bones* are generally bigger at their Extremities than in the Middle; that the Articulations might be firm, and the *Bones* not so easily dislocated: But to render the Middle of the *Bone* strong withal, so as to sustain its allotted Weight, and resist Accidents, the Fibres are there more closely compacted together, and support one another: To which it may be added, that the *Bone* being hollow, is not so easily broken, as if it had been solid and smaller: For of two *Bones* of equal Length, and of equal Numbers of Fibres, the Strength of the one to the Strength of the other, will be as their Diameters. See GIANT.

The *Bones* are join'd and connected together various Ways, according to the various Purposes they are to serve: Some being intended for Motion; others for Rest, and the Support of the incumbent Parts only. That Jointure intended for Motion, is call'd *Arthrosis*, or *Articulation*; that for Rest, *Symphisis*, or *Coalition*. Articulation is divided into two Kinds, *Diarthrosis* and *Synarthrosis*; and each of these again subdivided into several others, see ARTICULATION, DIARTHROSIS, *&c.* *Symphisis* is divided into *Sutura*, *Harmonia*, and *Gomphasis*; which see. Besides these, are five other Kinds of Connexion, *viz. Syssarchosis*, *Synchondrosis*, *Syneurosis*, *Syntenosis*, and *Synymensis*; which see.

The Number of the *Bones* is various in various Subjects; ordinarily 'tis about 250; *viz.* 61 in the Head, 67 in the Trunk, 62 in the Arms and Hands, and 60 in the Legs and Feet: The Variations are in the number of the *Sesamoidea*, the *Teeth*, and the *Sternum*. See the Names of the several *Bones* in the following Table; their Figures, and Places in the Plate, *Anatomy*; and particular Descriptions of each under their proper Heads.

Os Frontis	1	*Vertebræ Cervicis*	7	The *Os Femoris*	2
— *Occipitis*	1	— *Dorsi*	12	*Rotula*	2
Ossa Parietalia	2	— *Lumborum*	5	*Tibia*	2
— *Temporum*	2	— *Ossis Sacri*	6	*Fibula*	2
Ossicula Auditus	8	*Os Coccygis*	3	*Ossa Tarsi*	14
Os Ethmoides	1	*Scapulæ*	2	— *Metatarsi*	10
— *Sphænoides*	1	*Claviculæ*	2	— *Digitorum*	28
— *Mali*	2	*Costæ*	24		—
— *Maxillare*	2	*Sternum*	1		60
— *Unguis*	2	*Ossa Innominata*	2		—
— *Nasi*	2		64	In all	245
— *Palati*	2		—		—
Vomer	1	The *Humerus*	2		
Maxilla Inferior	1	*Ulna*	2	Besides the *Ossa Sesamoidea*, which are said to be found to the Number of 48.	
Dentes Incisivi	8	*Radius*	2		
— *Canini*	4	*Ossa Carpi*	16		
— *Molares*	20	— *Metacarpi*	8		
Os Hyoides	1	— *Digitorum*	30		
	—		—		
	61		60		

Dr. *Havers* divides the Blood-Vessels of the *Bones* into Nutritious and Medullary; the one furnishing Matter for the Nutrition, the other for the Lubrication of the *Bones*. The Chief of the Nutritious enter the Ends of the *Bone*, *viz.* the Arteries at one End, and the Veins at the other. The Medullary commonly enter the Sides of the *Bone*, and that obliquely; but both by the same *Foramen*.

The Medullary Oil is dispens'd from the Cavity where it is deposited, throughout the whole Substance of the *Bone*; passing first thro the transverse Pores of the first internal *Laminæ* into the longitudinal ones; where it proceeds till it finds other transverse Pores, when it alters its Course again, and exsudes further: Thus it passes alternately thro and between the Plates, till it is diffused throughout. This is the Method of its Conveyance in *Bones*, the Plates whereof are contiguous: Where the Plates are at a Distance, as in *Bones* that have no great Cavity, the small Caverns abovementioned contain Medullary Glands; whence the Plates have the Benefit of the Marrow without the former Method of Conveyance.

Thus are all the *Bones* stock'd with Pores, *&c.* excepting the *Teeth*; which have this further Distinction, that they have Nerves inserted into 'em: whereas in all the other *Bones*, the Nerves go no farther than the *Periosteum*.

Besides the large Cavities in the Inside, most *Bones* have superficial Cavities, or *Sinus*'s, which may be distinguish'd into *Sulci*, or Furrows, the longer sort; and *Pits* the shorter ones. On the Outside are also observ'd Prominences, whereof there are two Kinds; the one a continu'd Part of the *Bone*, jetting apparently above its plane Surface, for the more commodious Insertion of the Muscles, *&c.* call'd *Apophysis*;

physis; the other an additional *Bone*, growing to another by mere Contiguity, being generally more soft and porous than the other, and call'd an *Epiphysis*, or Appendage. If the Protuberance be round, it is call'd the *Caput*, under which is the *Cervix*; if flat, *Condylus*; if sharp, *Corone*.

The general Uses of the *Bones*, are to support and strengthen the Body, like Beams and Pillars in Building; to defend some of the more essential Parts, as the Brain, &c. to give Shape to the Body, and to assist in Motion.

BONONIAN STONE, a small, gray, weighty, soft, sulphurous *Stone*, about the bignes of a large Walnut; when broken, having a kind of crystal or sparry *Talc* within: found in the Neighbourhood of *Bologne*, or *Bononia* in *Italy*, (whence it takes its Name) and in other Parts of that Country, particularly at the Foot of Mount *Palermo*; where a *Shoemaker*, one *Vincenzo Casciarlo*, having gather'd some Pieces and carry'd 'em home, in hopes by the Fire to draw Silver out of 'em; instead of what he expected, found that admirable Phænomenon they exhibit, which consists in this, that having been expos'd to the Light, they retain it, and shine, for the space of six or eight Hours, in the Dark. M. *Homberg* was the Person who first taught us the manner of preparing and calcining the *Bononian Stone*, having made a Journey to *Italy* on purpose to learn it. When prepar'd, 'tis a kind of *Phosphorus*, under the Appearance of a calcin'd *Stone*. 'Tis said, the Art of preparing and calcining the *Bononian Stone* is lost; there having been but one, an Ecclesiastick, who had the true Secret, and who is since dead, without communicating it to any Person; see *Philosoph. Transact.* N° 21. M. *Elpigni* observes, that one *Zagonius* had a Method of making Statues and Pictures of the *Bononian Stone*, which would shine variously in the Dark; but he adds, The Person dy'd without discovering his Secret, *Philos. Trans.* N° 134. See PHOSPHORUS.

BONNET, in Fortification, a Work raised beyond the *Counterscarp*, having two Faces, which form a saliant Angle, and as it were a small Ravelin without any Trench: Its Height is about three Foot, and it is environ'd round with a double Row of Pallisadoes, ten or twelve Paces distant from each other; hath a Parapet three Foot high, and is like a little advanced *Corps du Guard*.

BONNET *a Prestre*, or *Priest's-Cap*, is an Outwork, having at the Head three saliant Angles, and two inwards: It differs from the *Double Tenaille* only in this, that its Sides, instead of being parallel, are made like a Swallow's Tail; that is, narrowing, or drawing close at the Gorge, and opening at the Head.

BONNETS, in the Sea-Language, small Sails, set on upon the Courses, on the Main-sail and Fore-sail of a Ship, when too narrow or shallow to clothe the Mast; or to make more way in calm Weather. The Words are, *Lace on the Bonnet*; that is, fasten it to the Course: *Shake off the Bonnet*; that is, take it off the Course.

BOOKBINDING, the Art of *binding*, or covering *Books*. No doubt, the Art of *Binding* is almost as antient as the Science of Composing *Books*; and that both the one and the other follow'd immediately the first Invention of Letters; see LETTER. Whatever the Matter were whereon Men first wrote, there was a Necessity for uniting the several Parts together; as well for the making one Piece, as for the better preserving 'em: Hence the Origin of *Binding*; for which, in all appearance, we are indebted to the *Egyptians*, that learned People, among whom the Arts and Sciences began to flourish so early.

The Manner of binding BOOKS *in Volumes, i. e.* of sewing the Leaves together, to roll 'em on round Pieces or Cylinders of Wood, appears the most Antient; tho that of *binding* 'em square, and of sewing several Quires over one another, lays claim to good Antiquity. The first of the two, which we may call *Egyptian binding*, held a long time after the Age of *Augustus*; but 'tis now disus'd, excepting in the *Jewish* Synagogues, where they continue to write the *Books* of the Law on Velloms sew'd together; making, as it were, only one long Page, with two Rollers, and their Clasps of Gold or Silver at each Extremity. The Form now in use, is the *square Binding*; which is said to have been invented by one of the *Attali*, Kings of *Pergamus*; to whom we likewise owe the manner of preparing *Parchment*; call'd in *Latin*, from the Name of his Capitol, *Pergamena*, or *Charta Pergamea*: See PARCHMENT.

Manner of binding Books. The first Operation is to fold the Sheets according to the Form, *viz.* into two for Folio's, four for Quarto's, eight for Octavo's, &c. which they do with a slip of Ivory or Box, call'd a *Folding-stick*: In this the Workman is directed by the Catch-Words and Signatures at the Bottom of the Pages; see PRINTING. The Leaves thus folded, and laid over each other in the Order of the Signatures, are beaten on a Stone with a Hammer, to press and flatten 'em, so as they may take less Room in the *Binding*: They are then sew'd in the *Sewing-Press*, with a long Needle a little crook'd. What they call *sewing*, is the fixing to the Back certain Cords, call'd *Band*, at a proper Distance from each other, and in a convenient Number; which is done by drawing a Thread thro the Middle of each Sheet, and giving it a turn round each Band, beginning with the first and proceeding to the last: They ordinarily put six Bands in a Folio, and five in the rest. To cut the Edges of the *Book*, 'tis fasten'd in a *Cutting-Press*, between two Boards, somewhat longer than the *Book*, and the Knife gradually conducted over the Extremities of the Leaves, by means of a Skrew to which it is fasten'd: Of the two Cutting-Boards, that behind is higher than the other, and serves to sustain the Edges of the *Book*; that before, which is lower, serving to direct the Knife, which slides undemeath. See PRESS.

The Edges finish'd, the *Book* is *put into Boards*; that is, the Pastboards are fitted to it, whereon the Leather, the *Book* is to be cover'd withal, is afterwards apply'd. The Pastboard is first well beaten on the Stone with a Hammer, and is fitted on by means of the Bands; the Ends whereof are pass'd thro three Holes, punch'd on the Edge of the Pastboard against each Band: The Pastboards are then cut even with the Edges of the *Book*, by means of a long sharp Instrument with a wooden Handle, which the Workman applies to his Shoulder, and conducts the other End with his Hand, by the Edge of a Ruler laid on the Pastboard. After this, *in the French Binding*, a *Book* is put in Parchment, *i. e.* a slip of Parchment, the Length of the *Book*, is apply'd on the Inside of each Pastboard; so, however, as that being cut or indented in the Places against the Bands, it comes out between the Edge of the Pastboard and the Leaves of the *Book* to cover the Back: This Preparation, call'd *Indorsing*, seems peculiar to the *French Binders*; who are enjoin'd by Ordonnance to back their *Books* with Parchment, on the Penalty of 30 Livres, and the *Re-binding* of the *Book*: 'Tis done in the Press, where the Back being grated with an Iron Instrument with Teeth, to make the Past take hold, wherewith the Parchment is first fasten'd; they afterwards add strong Glue to fortify it.

The Headband is now added; which is an Ornament of Silk of several Colours, or even, sometimes, of Gold or Silver, plac'd at each Extreme of the Back, across the Leaves; and wove, or twisted, sometimes about a single, and sometimes a double piece of roll'd Paper. This, besides its being an Ornament, also serves to fix the Sheets at Top and Bottom. In this State there remains nothing but to Bevil the inner Edges of the Pastboards; take off the four Angles, to facilitate the opening of the *Book*; and to blacken, gild, or marble the Edges: in order to fit the *Book* for covering. See MARBLING, &c.

Manner of Gilding Books on the Edges. The *Book* is put between two Boards, and very stiffly squeez'd in the Press; in which State, the Edge is scrap'd with a little crooked Iron Instrument, which, being moderately sharp, takes off any unevenness left in the Cutting. On the Edge thus scrap'd is laid a Ground for the Gold. This Ground is a Composition of the *Armenian* Bole, red Chalk, black Lead, and a little Tallow beaten together, and steep'd in hot Size, made of Parchment, much the same with that used in Gilding in Water; see GILDING. The Ground being well dried, is glazed lightly with the Whites of Eggs beaten; and over this the Gold is apply'd. The Gold here us'd, is in the Leaf, as prepar'd by the *Gold-beaters*. The Instrument wherewith they take it up, consists of two Branches of Iron, moveable on a Rivet in the Middle; somewhat like an X, or a Pair of Scissars without Rings. When the Workman has laid the Leaf Gold in fit order, he rubs the Ends of the Branches against his Cheek, which gives 'em the degree of Warmth necessary to make the Gold stick thereto: The Gold thus taken up, is apply'd on the Edge of the *Book*, and spread smooth with a Hair Brush: And the Edge thus cover'd with Gold, is dry'd by the Fire, without taking it out of the Press, and afterwards burnish'd; see BURNISHING. On the Gold thus apply'd, they antiently made Ornaments, with hot Irons of various Forms and Devises; the Practice of which seem'd to have been retriev'd in *France* about the beginning of the XVIIIth Century, and carry'd to a good Perfection by the Abbot *de Seuil*, and others; and call'd by a new-invented Name, *Antiquing*: But as the Modern Taste seems rather inclin'd to Simplicity, 'tis probable these *Antiquo*-Modern Ornaments will be dropp'd again.

For the Covers; tho the Skins us'd herein, undergo several Preparations in the Hands of other Workmen; yet there are some still left for the *Binder*, and peculiar to his Art: These we shall explain, in *Calf*, as being the Leather most us'd; and, as being that to which all the rest, with a little Variation, may be refer'd. The Calfskin, then, being well soak'd in Water, is scrap'd with a kind of blunt two-handed Knife, and cut into square pieces of the proper Sizes

with Shears, and in this State laid on the Stone, and the Edges pared thin on the Side to be apply'd to the Pastboard, with a Knife for that purpose. It may be easily imagin'd, that none of these Preparations, except the last, are us'd in Morocco, Sheep, or in Vellom, Velvet, &c. wherewith *Books* are sometimes cover'd; in regard the Water won'd spoil 'em. The Cover is next smear'd over with Past made of Wheat-Flower; then stretch'd over the Pastboard on the Outside, and doubled over the Edges within-side: after having first taken off the four Angles, and indented and plaited it at the Headbands. They then *cord the Book*, or *bind* it firmly between two Boards with a kind of Whip-cord, to make the Cover stick the stronger to the Pastboards and the Back; as also to form the Bands or Nerves the more accurately: In this Operation the Workman arms his Hand with Leather, to enable him to pinch it the harder; and uses a pair of Pinchers to bring the Thread nearer each Band. The *Book* is now set to dry; and when dry, uncorded and put in the Press between two thicker Boards; then beaten on the Flat with a Hammer; Paper glu'd on the Pastboards within-side; and the Cover marbled or sprinkled, if requir'd, with a Pencil dipp'd in a black Colour, and struck against the Finger or a Stick for the Purpose, so as to throw off little Specks and Stains of the Colour. Some mark the Covers with Clouds, in Imitation of Marble, by means of Aqua fortis applied thereon. The Cover is now glaz'd twice with the White of an Egg beaten; and at last polish'd with a Polishing-Iron, pass'd hot over the glaz'd Cover, see POLISHING. If the *Book* be requir'd to be Letter'd, they glue a piece of red Morocco on the Back, between the first and second Band, to receive the Title in Gold Letters; and sometimes a second between the next Bands underneath, to receive the N° of the Volume. The *Binding*, properly so call'd, is now compleat; and there remains nothing but the Gilding Work on the Back and Cover; which, as it makes a Part of the *Bookbinder's* Business among us, (tho with the *French*, &c. it is a distinct Profession) we shall here subjoin.

Manner of Gilding Books on the Backs and Covers. In ordinary *binding*, they gild little else but the Backs, and the outward Edges of the Cover. On the Backs are gilt the Title of the Book, &c. with Flowers, Roses, Knots, Stars, &c. between the Bands: on the Covers are sometimes added, Compartiments, Arms, &c. All these Ornaments are made with each its several Gilding-Iron, engraven in Relievo; either on the Points of Punchions, as those of Letters, Roses, Stars, &c. or around little Cylinders of Steel, as the Lines, Embroideries, &c. The Punchions make their Impression by being press'd flat down; and the Cylinders by being roll'd along by an Iron Ruler, by means of a double Branch; in the Middle whereof, they are fitted on an Iron Stay, or Axis, that passes the Middle of their Diameters.

To apply the Gold, they glaze those Parts of the Leather whereon the Irons are to be apply'd, lightly over with a Pencil or Sponge; and, when half dry, lay over them pieces of Leaf Gold cut out near the Size; and on these Stamp the Punchions, or roll the Cylinders, both the one and the other reasonably hot. If the Figures be large, and require a great Relievo, as Arms, &c. they are beat down with a Mallet or Hammer. The Gilding thus finish'd, they rub off the superfluous Gold with a pretty stiff Brush; leaving nothing cover'd with Gold, but the Places whereon the hot Irons had left their Impressions.

BOOK-KEEPING. *Books* are either kept single, as among Retail Dealers; or double, as among great Merchants: For the first, a *Journal* or *Day-book*, and a *Ledger* or *Post-book* are sufficient; for the second, there are several others requir'd. All Authors agree, that it was the *Italians*, particularly those of *Venice*, *Genoa* and *Florence*, who first introduc'd the Method of *keeping Books* double, or in two Parts: Hence, among us, 'tis call'd *The Italian Method*. In this, there are three *Books* indispensibly necessary; *viz.* the *Wast-book*, *Journal*, and *Ledger*: Besides, there are others, to the Number of thirteen, call'd *Auxiliary Books*, used as occasion requires; *viz.* the *Cash-book*, *Debt-book*, *Book of Numero's*, *of Invoices*, *of Accompts-Currant*, *of Commissions*, *Orders*, *Advices*, *of Acceptances*, *of Remittances*, *of Expences*, *of Copies of Letters*, *of Vessels*, and *of Workmen*.

1. The *Wast-book*, or Memorandum-book, is the first, and most essential: In this, all kinds of Matters are, as it were, mix'd and jumbled together; to be afterwards separated and transferr'd into the others: so that this may be call'd the Elements of all the rest. It may be kept two ways; the first by entering things down simply as they happen, *v. g. Bought of such a one, sold to such a one, paid such a one, lent so much*, &c. the second by entering, at once, each Article, Debtor and Creditor: This last is esteem'd the best; in regard, forming a kind of little Journal, it saves the keeping any other.

2. *Journal-Book*, or Day-book, wherein the Affairs of each Day are enter'd orderly down, as they happen, from the Wast-book. Each Article in this *Book* to consist of seven Parts; *viz.* the Date, Debtor, Creditor, Sum, Quantity and Quality, how payable, and the Price. By an Ordonnance of the Year 1673, all Traders in *France*, whether by Wholesale or Retail, are oblig'd to keep a Journal, containing all their Affairs; Debts active and passive, Bills of Exchange, &c. For want of keeping this, and surrendring it up, on a Failure, they are to be reputed fraudulent Bankrupts, and subjected to the Penalties thereof.

Model of an Article in a Journal.

						l.	s.	d.
			15th July, 1723.					
Wine *Dr. to* Cash ——	*L.* 160 : — : —		*Bought of* Duval, *ready Money*, 16 *Pipes of*					
Burgundy, at	——	——	*L.* 10.	——	——	——	160	0	0

3. *Ledger*, or Great *Book*; call'd also *Post-book*, *Book of Extracts*, &c. is a huge Volume, usually rul'd into six Columns: This is the Wast-book still further digested; and is extracted immediately from the Journal. In this all the Accompts dispers'd in the Journal, are drawn out and stated in *Debtor* and *Creditor*. To form each Accompt, two Pages are requir'd, opposite to each other; that on the Left serving for Debtor, the other for Creditor: Each Article to consist of five Parts, or Members; the Date, the Person whom we credit, or are credited by; the Subject, *i. e.* the thing credited or indebted for; the Page where it is found, and the Sum or Amount of the Article. Two Instances, the one of an Article of Credit, the other of Debt; will illustrate the Form and Use of this *Book*.

Model of an Article in Debtor.

			l.	s.	d.
1701.	Anthony Roberts *Dr.*				
May 14.	*To* Cash, *paid by his Order to* Wilks	F°. 16	1900	0	0

Model of an Article in Creditor.

			l.	s.	d.
	Cr.				
	By Cash, *for his Remittance on* James.	F°. 16	1900	0	0

To facilitate the Use of the *Ledger*, there is an Alphabet, to serve as an Index or Repertory; consisting of 24 Leaves, each cut on the Edge, and mark'd with one of the 24 Letters; wherein, the initial Letters of the Persons Names with whom you have Accompts, are inserted, with the Folio of the Ledger, where the Account is stated.

The *Cash-book* is the most important of all the *Auxiliary* ones; 'tis so call'd, because it contains, in Debtor and Creditor, all the Cash that comes in or goes out of the Merchant's Stock. In this are enter'd all the Sums receiv'd and pay'd daily; those receiv'd on the Left hand, with the Person's Name, of whom receiv'd, for what, for whom, and in what Species: Those paid, on the side of Creditor; mentioning, likewise, the Species, the Reason why, the Person to whom, and for whom the Payment is made. For Instance;

Model of an Article in Debt.

Cash *Dr.*

		l.	s.	d.
	June 29th, 1708.			
Recd.	*Of* Paul Simon *for* 2 *Tonn of Wax, sold the* 6*th Instant*,			
	A Purse of — *L.* 1000 : — : —			
	Pieces of Eight, L. 108 : — : —	1108	0	0
	L. 1108 : — : —			

Model of an Article in Credit.

Cr.

		l.	s.	d.
	May 14th, 1711.			
Pay'd.	*To* Tim. Hall *for* 2 *Tonn of Wax, bought the* 2*d Instant*,			
	A Purse of — *L.* 1000 : — : —			
	Pieces of Eight, L. 300 : — : —	1300	0	0
	L. 1300 : — : —			

Debt-Book, or Book of Payments. A *Book* wherein is enter'd the Day whereon all Sums fall due, whether to be paid, or receiv'd by Bills of Exchange, Merchandizes, or otherwise: To the end, that by comparing Receipts and Payments, Provision may be made in Time for a Fund for Payment; by receiving Bills, *&c.* due, or taking other Precautions. Two Models will suffice for the Use and Form of this *Book*: it must only be observ'd, that like the Ledger it must be on two opposite Pages; Moneys to be receiv'd on the Left hand, those to be paid on the Right.

Model of the Page of Receipt.

May	1708 To Receive.	*l.*	*s.*	*d*
1	*Remittance of* John Vassor, *of the* 10*th of* March, *on* Pits.	600	0	0
	Of Cade, *for Wool sold the* 6*th of* July. —— ——	150	0	0
2	*Of* Dikes *by Bond of* 23*d of* May *last.* —— ——	2000	0	0
	Remittance of Price, *of the* 23*d of* October *on* Page.	170	0	0

Model of the Page of Payment.

Jan.	1708 To Pay.	*l.*	*s.*	*d.*
1	*To* Charles Horn, *for a Purchase of the* 1*st of* July.	700	0	0
	To R. Hart, *a Note under Hand of the* 5*th of* August.	400	0	0
2	*Remittance of* Lucas *of* 15*th of* December, *to* Hall.	1700	0	0
	My own Bill of 25*th of* October, *to Bearer.* ——	100	0	0

Book of Numero's, or Wares, is kept for the easy Knowledge of all the Goods brought in, sent out, or remaining in a Warehouse. On the Left hand Page are enter'd the Quantity, Quality, and Number or Mark of the Goods brought in; on the Right, the Discharge of the Goods out of the Warehouse, against the respective Articles of the first. Thus,

N° 1	*A Bale of white Pepper* ——*weighing*	400 *l.*
2	*A Piece of Crimson Damask.* ——*Ells*	63

March 1	*Sold to* Charles Mitchell.
Apr. 10	*Sent to* Nichols *of* Bristol.

Book of Invoices. A *Book* to save the Journal from the Erasures inevitable, in taking Accompts or Invoices of the several Goods receiv'd, sent, or sold; where 'tis necessary to be very particular. The Invoices here enter'd, are to be those of Goods bought, and set to Accompt of some other; those of Goods sold by Commission; of Goods sent away to be sold on our Accompt; and those of Goods in Partnership, whereof we have the Direction, or whereof others have the Direction.

Book of Accompts Currant, is kept in Debtor and Creditor, like the Ledger; and serves for Accompts sent to Correspondents, to be regulated in concert with 'em, e'er they are enter'd in the Ledger: And 'tis properly a Duplicate of the Accompts Currant, kept to have recourse to on occasion.

Book of Commissions, Orders, or *Advices.* In this are enter'd all Commissions, Orders, *&c.* receiv'd from Correspondents. The Margins hereof are to be very large; to give room against each Article to insert the necessary Memoirs relating to their Execution. Some content themselves with cancelling the Articles when executed.

Book of Acceptances, is destin'd for the registring all Bills of Exchange, notify'd by Letters of Advice from Correspondents; to be able to know, on the Bill's being presented, whether they have Orders to accept 'em or not. When they chuse to decline accepting a Bill, against the Article thereof, in the Book they put *P*, *i. e.* Protest; that on offering the Bill, the Bearer may be told he may protest it: On the contrary, if they accept it, they write against it an *A*; adding the Date, or Day of Acceptance. And this, upon being transferr'd to the Debt-Book, is cancell'd.

Book of Remittances. A *Book* serving to Register Bills of Exchange, as they are remitted by Correspondents, to require the Payment thereof. If they be protested for want of Acceptance, and return'd to those who remitted 'em; mention is made thereof against each Article, by adding a *P* in the Margin, and the Date of the Day when they were return'd; then cancell'd. The *Book* of Acceptances and Remittances, have so near a Relation to each other, that many Merchants, *&c.* make but one of the two, which they keep in Debtor and Creditor; putting Acceptances of the Side of Debt, and Remittances to that of Credit.

Book of Expences. A Detail of the petty Expences, both Domestick and Mercantile; which, at the End of each Month are summ'd up, and make an Article for the Journal.

Book of Vessels, is kept in Debtor and Creditor; a particular Accompt being kept for each Vessel. To the Side of Debtor, are put Victualling, Fitting out, Wages, *&c.* To the Side of Creditor, are put every thing the Vessel has produc'd; whether by way of Freight or otherwise. Lastly, the Total of each is enter'd in the Journal; upon balancing the Accompt of each Vessel.

Book of Workmen, is particularly in use among Merchants who have Manufactures or Works in their Hands. 'Tis kept Debtor and Creditor for each Workman employ'd. On the Side of Debt is put the Matters given 'em to work; and on that of Credit, the Works they return.

These *Books* are kept the same, as to Substance, in most Trading Cities in *Europe*; but not as to Coin: Each being regulated by that Coin which has Course in the State where they are. See COIN.

BOOKS, in Terms of Commerce, the Registers wherein Merchants, *&c.* keep their Accompts. See BOOK-KEEPING.

BOOM, in the Sea-Language, a long Piece of Timber, with which the Clue of the Studding-sail is spread out; called also the *Studding-sail Boom.* It is sometimes likewise used to spread, or *boom* out the Clue of the Main or Foresail. They say a Ship comes *Booming*, when she makes all the Sail she can.— Also those Poles with Bushes or Baskets on the Top, which are plac'd to direct how to steer into a Channel, are call'd *Booms*, and by some *Beacons.*

BOOT, *Brodequin*, a kind of Torture for Criminals; to extort a Confession, by means of a *Boot*, or rather a Stocking, or Buskin of Parchment; which being put on the Leg moist, and brought near the Fire, in shrinking, squeezes the Leg violently, and occasions intolerable Pain. There is also another kind of *Boot*; consisting of four thick strong Boards bound round with Cords: Two of these are put between the Criminal's Legs, and the two others plac'd, one on the Side of one Leg, and the other on t'other; then, squeezing the Legs against the Boards, by the Cords, the Criminal's Bones are broken, *&c.* The *Boot* is now disus'd in *England*; but subsists still in some other Countries, particularly *Scotland.*

BOOTES, in Astronomy, a Constellation of the Northern Hemisphere near the Pole it self; see CONSTELLATION.

The Stars in the Constellation *Bootes*, in *Ptolomy's* Catalogue are 23; in *Tycho's* 28; and in Mr. *Flamstead's* Catalogue 45. Their Longitudes, Latitudes, Magnitudes, *&c.* are as follow;

Stars in the Constellation BOOTES.

Names and Situation of the Stars.	Signs.	Longitude. ° ′ ″	Latitude Nor. ° ′ ″	Magnit.
	♑	10 51 56	28 11 26	6
		9 43 34	30 32 0	6
		9 29 51	33 59 22	6
Middle of 3 in the fore Leg		13 37 50	26 32 8	4
Southern		14 51 57	25 12 47	4
5				
		12 26 17	30 14 28	5 6
Last of the Tail of Ursa Major	♏	22 34 24	54 24 0	3
	♑	14 10 50	27 31 38	7
North of the Leg		14 59 00	28 6 41	3
		11 00 38	36 33 10	5
10				
Inform. before the preced. Thigh		14 27 1	31 28 30	7 6
		12 13 5	36 53 16	7 6
In the preced. Thigh		15 43 4	35 41 3	5
	♏	27 9 24	56 34 48	7
	♑	22 8 42	24 51 0	6
15				
		23 26 33	22 15 30	6
Bright one 'twixt Thighs, *Arcturus*		19 53 52	30 57 0	1
Preced. in the North Hand	♏	25 36 39	58 54 41	4
	♑	23 23 52	25 10 15	6
In the preced. Arm		2 37 32	54 39 20	4
20				
		22 11 11	28 27 0	5
Middle one in the Hand	♏	26 46 14	58 55 33	4
That following Arcturus	♑	22 38 00	31 45 14	6
Last of 3 in the Hand	♏	28 14 00	60 10 4	4
Small one following the N. Hand	♑	1 35 46	58 55 5	6 7
25				
Preced. against the Girdle		18 25 50	42 27 57	4
		22 49 58	35 6 13	7
In the preced. Shoulder		13 18 18	49 33 0	3
Subseq. against the Shoulder		19 31 33	41 8 24	5
South in the following Leg		27 30 5	30 23 18	3 4
30				
In the posterior Heel		28 4 21	27 53 42	3
	♏	0 53 28	22 41 32	4 5
	♑	29 37 33	25 59 55	6
That following the preced. Arm		9 58 2	55 27 39	6
		23 36 32	40 0 9	6
35				

Names and Situation of the Stars.	Signs.	Longitude. °	′	″	Latitude Nor. °	′	″	Magn.
North in the hind Leg		28	27	45	31	17	7	4 5
Agst. posterior Thigh, under the Gird.		23	44	35	40	38	21	3
In the hind Leg		29	10	33	33	47	28	4
First of 3 over the Head		11	2	48	57	54	1	6
40		20	6	51	52	57	48	6 7
In the posterior Hand		29	26	43	40	11	33	5
In the Head		19	53	41	54	10	38	3
In the Wrist of the poster. Hand		29	10	20	42	11	40	5
In the Extrem. of the Staff's Handle	♏	0	54	38	40	29	15	5
Middle over the Head	♎	13	28	53	60	33	37	6
45								
In the Staff, near the Hand	♏	0	34	22	41	54	43	6
Posterior over the Head	♎	13	17	58	61	7	22	7
South of the middle ones in the Staff	♏	0	51	10	45	4	7	5
In the hind Shoulder	♎	28	48	8	49	0	10	3
	♏	0	55	3	49	9	16	6
50								
That follow the Staff tow^d. the Crown	♎	2	44	45	46	49	30	5
North of the middle ones in the Staff	♎	28	11	44	53	26	56	4
South in the Extrem. of the Staff		28	21	36	57	6	25	5
More North		28	24	27	57	14	40	5 4
Another following this	♏	0	46	9	57	14	46	6
55								

BORAX, a Mineral Salt, used in soldering, brazing, and casting Gold and other Metals; known to the Antients under the Name of *Chrysocolla*. *Pliny* divides *Borax* into Natural and Artificial: The *Natural*, according to him, is only a slimy Humor running in Mines of Gold, Silver, Copper, and even Lead; which being congeal'd and harden'd by the Winter's Cold, becomes of the Consistence of Pumice-Stone. For *Artificial Borax*, he says, 'tis made by letting Water run in the Veins of the Mine, all the Winter long, till *June*; and letting the Mine dry, the rest of the Year. So that Artificial *Borax*, according to him, is no more than the Mineral putrify'd and corrupted. The same Author distinguishes *Borax* into Black, Green, Yellow and White; assuming their several Colours, as well as Values, from the several Mines whereof they are form'd. The Natural, according to him, is heavier than the Factitious.

The Moderns, in like manner, distinguish two Kinds of *Borax*; *Natural*, call'd Crude; and *Artificial*, which is purify'd and refin'd. The Natural is a Mineral Salt, of the common Form, dug out of the Earth in several Parts of *Persia*; and found also at the Bottom of a Torrent, running in the Mountains of *Purbeth*, near the *Frontiers* of *White Tartary*: When taken up, 'tis expos'd to the Air; where it acquires a kind of reddish Fat, which serves to feed it, and prevent its calcining. When in its Perfection, 'tis sent to *Amadabat*, in the Territories of the Great *Mogol*, where the *European* Merchants buy it. There is another kind of Artificial *Borax*; drier, and of a greyish Colour, like *English* Copperas; only differing from the former, by its being longer expos'd to the Air.

For Artificial *Borax*, it was the *Venetians* who first found out the Art of preparing it; or, rather, of purifying the Natural: 'Tis done by dissolving it in Water; then filtrating and crystallizing it: using, for that purpose, Cotton Matches; about which the *Borax* crystallizes, like Sugar candy and Verdigrease on Wood. The *Dutch*, after refining it, reduce it into little Pieces, like tagged Points; and 'tis thus commonly us'd.

Borax, refin'd, either in the *Dutch* or *Venetian* manner, should be clear and transparent, almost insipid to the Taste; and above all, Care must be taken it have no Mixture of *English* Allom. *Borax* is of some use in Medicine, as it enters the Composition of the Unguent *Citrin*. 'Tis also used in the Preparation of a *Fucus* for the Ladies.

Agricola says, there is a fossile Nitre, as hard as that whereof the *Venetians* make *Borax*: In which he has Reason; this Nitre being nothing but the *Persian Borax* abovemention'd. What he adds, that the *Venetian Borax* is made of the Urine of young People who drink Wine, beat in a Mortar to the Consistence of an Unguent; then mix'd with Iron Rust and Nitre: is not only false, but is a Misrepresentation of a Passage in *Pliny*, *Hist. Nat.* L. 33. c. 5.

BORDERS, among Florists, are such Leaves as stand about the middle Thrum of a Flower. See FLOWER.

BORD-HALFPENNY, or *Brod-halfpenny*. Money paid in Markets, and Fairs, for setting up Boards, Tables, and Stalls, for the Sale of Wares.

BORD-LANDS, Lands antiently kept by the Lords in their Hands, for the Maintenance of their *Board* or Family. This was also antiently call'd *Bordage*.

BORD-*Service*. A Tenure of *Bord-Lands*; where the Tenants are to pay so much *per* Acre, in lieu of finding Provision for their Lord's *Board*, or Table.

BORDURE, in Heraldry, a kind of Addition on the Limb of a Shield, in Form of a Hem, or Girdle, encompassing it all round, and serving as a Difference; see DIFFERENCE. The *Bordure* must be about one sixth Part of the Breadth of the Shield. A simple *Bordure*, is that which is of the same Colour or Metal throughout; and is the first Addition of younger Brothers: There are others, *Componed*, *Counter'd*, *Ingrail'd*, *Indented*, and *Charg'd* with other Pieces; which make different Additions for younger Brothers, in several Degrees. If the Line which constitutes the *Bordure* be streight, and the *Bordure* Plain, as they call it in Blazoning, the Colour of the *Bordure* alone is named; He beareth Gules, a *Bordure* Or. If a *Bordure* be charg'd with any Parts of Plants or Flowers they say, *Verdoy* of Trefoils. If it consist of Ermins, Vairy, or any of the Furs, the Term is, *Purflew* of Ermins. If the *Bordure* be charg'd with Martlets, the Word is: *Charg'd* with an Enaluron of Martlets, &c.

BOREAS, a *Greek* Name, now in popular use, for the North Wind; tho *Pezron* observes, antiently, and with much greater Propriety, it signify'd the North-East Wind, at the Time of the Summer Solstice: He adds, that the Word comes from the *Celtic* Word *Bore*, *Morning*; in regard their principal Light, in that Season, came from that Quarter, whence also those Winds usually blew. The common Etymologies fetch it either from the *Greek* Βοῆ, *Clamour* or *Noise*; or Βοσκ, *Esca*, *Food*; because it occasions an Appetite, or because it is good for the Fruits of the Earth, which yeild us Food: Others from the *Hebrew*, *Birjah*, Food; or *Beri*, Calmness; *bor*, Purity; or *bar*, Corn. The Antients suppos'd *Boreas* only blew out of *Thrace*.

BOREE, or BOUREE, a kind of Dance, compos'd of three Steps join'd together with two Motions; and begun with a Crotchet, rising. The first Couplet contains twice four Measures, and the second twice eight. It consists of a balance Step and a *Coupee*: 'Tis suppos'd to come from *Auvergne*.

BOROUGH, or BEROW, or BURGH, is frequently us'd for a Town Corporate; or a Corporation which is not a City. See CITY. In which Sense, a *Borough* and Corporation are the same thing; see CORPORATION, &c.

Borough, in its Original Saxon *Borhoe*, was primarily meant of a Company consisting of ten Families, who were bound and combin'd together as each other's Pledge. *Bracton*, L. 3. Tr. 2. c. 19. Afterwards, as *Verstegan* has it, *Burg*, and *Burgh*, came to signify a Town that had something of a Wall or Inclosure about it: But, in later Times, the same Appellation was bestow'd on several of the *Villæ Insigniores*, or Country Towns of more than ordinary Note, not wall'd. See TOWN, VILLAGE, &c.

BOROUGH, or *Burgh*, is now particularly appropriated to such Towns, and Villages as send *Burgesses*, or Representatives to Parliament: See BURGESS.

Boroughs are equally such, whether they be incorporated or not; there being great Numbers of our *English Boroughs* not incorporated: And, on the contrary, several Corporations that are not *Boroughs*; ex. gr. *Kingston*, *Deal*, *Kendal*, &c.

BOROUGHS, are distinguish'd into those *by Charter*, or *Statute*; or *by Prescription*, or *Custom*. See PRESCRIPTION, &c.

The Number of *Boroughs* in *England*, is 149; some whereof send one, some two Representatives. See PARLIAMENT.

BOROUGH-ENGLISH, in Law, a Customary Descent of Lands or Tenements in some Places, whereby they come to the Youngest, instead of the Eldest Son; or, if the Owner have no Issue, to the Youngest, instead of the Eldest Brother: for that the Youngest is supposed, in Law, the least able to shift for himself.

BOROUGH-HEAD, or *Headborough*, is the Chief Man of the Decury, or Hundred; chose by the rest to speak and act in their behalf. In many Parishes it signifies also a kind of Constable; where many of them are chosen as his Assistants, to serve Warrants, &c.

ROYAL BOROUGHS, in *Scotland*, are Corporations made for the Advantage of Trade, by Charters, granted by several of their Kings; having the Privilege of sending Commissioners to represent 'em in Parliament, besides other peculiar Privileges. These form a Body of themselves, and send Commissioners, each, to an annual Convention at *Innerskeithing*; to consult the Benefit of Trade, and the general Interest of the *Boroughs*.

BOSCAGE, a Place set with Trees, a Grove or Thicket. In a Law Sence it signifies Mast, or such Sustenance as Woods and Trees yeild to Cattel: And, among Painters, a Picture representing much Wood and Trees.

BOSPHORUS, in Geography, a Streight, Channel, or narrow Sea, which, it is ſuppoſed, a Bullock may ſwim over.

This Name is now confin'd to two Streights in the Mediterranean Sea; *viz.* the *Boſphorus* of *Thrace*, commonly call'd, the Streights of *Conſtantinople*, or Channel of the *Black Sea*; and the *Cymmerian Boſphorus*, now more commonly call'd the Streights of *Kaphe*, or *Kaderleri*, from two Cities ſtanding on it.

The Word is originally *Greek*, and is form'd from βοῦς, *bos*, and φέρω, *I carry*; or from βοῦς and πορθ, *Paſſage*. The Etymology of the Word is pretty well agreed on; but the Reaſon why it was given, is extremely controverted: *Nymphius* tells us, on the Authority of *Accarion*, that the *Phrygians*, deſiring to paſs the *Thracian* Streight, built a Veſſel, on whoſe Prow was the Figure of a Bullock. *Pliny*, *Dionyſius*, *Val. Flaccus*, *Polybius*, *Callimachus*, &c. ſay, that *Io* being transform'd into a Cow by *Juno*, paſs'd this Streight; which hence was call'd *Boſphorus*. *Arrian* tells us, that the *Phrygians* were enjoin'd by the Oracle, to follow the Rout which a Bullock ſhould mark out to 'em; and that upon ſtirring one up, it jump'd into the Sea to avoid their Purſuit, and ſwam over this Streight. Others ſay, that an Ox, tormented by a Gad-fly, threw it ſelf in and ſwam over; and others, that antiently the Inhabitants of theſe Coaſts, when they would paſs over, join'd little Boats together, and had 'em drawn over by Bullocks, &c. The *Cimmerian Boſphorus* ſeems to have been ſo call'd, from its reſemblance to the *Thracian*.

BOSSAGE, or *Boſcage*, in Architecture, is us'd for any Stone that has a Projecture, and is laid in its Place in a Building uncut; to be afterwards carv'd into Mouldings, Capitals, Arms, &c. *Boſſages*, are alſo what we otherwiſe call Ruſtick Work; conſiſting of Stones which ſeem to advance beyond the naked of a Building, by reaſon of Indentures, or Channels left in the Joinings; uſed chiefly in the Corners of Buildings, and thence call'd Ruſtick *Quoins*. The Cavity or Indenture is ſometimes round, ſometimes ſquare, ſometimes cham frain'd, or bevel'd; ſometimes in the Diamond Form: Sometimes it is inclos'd with a Cavetto, ſometimes with a Liſtel.

BOTANY, the Science of Herbs; or that part of Medicine, and Agriculture, which treats of Plants, whether Medicinal or others; their ſeveral Kinds, Forms, Virtues and Uſes. The Word comes from the *Greek* βοτάνη, *Herb*; and that from βοτὸς, *Victuals*; and βοτὰς from βόω, *I feed*; becauſe moſt Animals feed on Herbs. See MEDICINE, and GARDENING.

The moſt eminent *Botaniſts* among the Antients, were *Hippocrates*, *Paracelſus*, *Dioſcorides*, *Pliny*, *Galen*, &c. In the XVIth Century, the antient *Botany*, which had been loſt a great many Ages, was induſtriouſly reviv'd; principally by *Leoniceuus*, *Breſavolus*, *Cordus*, *Fuchſius*, *Matthiolus*, *Dalechampius*, &c. In the ſame Century a Number of other Hands were added to the Oar; by whoſe Induſtry, the Art was firſt brought into a Syſtem or Body; as *Geſner*, *Dodoneus*, *Ceſalpinus*, *Cluſius*, *Lobel*, *Columna Proſper Alpinus*, the two *Baubins*, *Plukenet*, &c. Others have come ſince, and contributed to bring it ſtill nearer Perfection; *viz.* *Moriſon*, *Malpighi*, *Herman*, *Ray*, *Magnol*, *Tournefort*, *Sloan*, &c. See HERB, PLANT, &c.

BOTE, in our old Law-Books, ſignifies Compenſation, Recompence, or Amends: Hence *Man-bote* or *Mon-bote*, amends for a Man ſlain, who was bound to another; hence alſo *Boteleſs*; where no Judgment or Favour will acquit a Man; as, *v. g.* for Sacrilege, &c. Hence alſo our common Phraſe, *To boot*. See HEDE-BOTE, PLOW-BOTE, HOUSE-BOTE, &c.

BOTTOMAGE, or BOTTOMRY, is when the Maſter of a Ship borrows Money upon the *Bottom* or Keil of it; ſo as to forfeit the Ship it ſelf to the Creditor, if the Money be not paid at the Time appointed, with the Intereſt of forty or fifty Pounds *per Cent.* at the Ship's ſafe Return: But if the Ship miſcarry, the Lender loſes his Money, and therefore the Intereſt is uſually ſo great. Others ſtate it thus; one Man lends Money to a Merchant who wants it to traffick, and is to be paid a greater Sum at the Return of the Ship; ſtanding to the Hazard of the Voyage: So that tho the Intereſt be illegal, yet it is not eſteem'd Uſury.

BOTTONY, a Term in Heraldry, for one of their Croſſes, of this Figure; Argent a Croſs *Bottony* Sable, by the Name of *Winwood*.

BOUCHE *of Court*, or vulgarly BUDGE *of Court*, is to have Meat and Drink ſcot-free there: In which Sence the *French* ſay, *Avoir Bouche a la Cour*, to be in Ordinary at Court. This Privilege is ſometimes only extended to Bread, Beer and Wine. 'Twas a Cuſtom antiently in uſe, as well in the Houſes of Noblemen, as in the King's Court. See MOUTH.

BOULDER-WALLS, a kind of *Walls* built of round Flints or Pebbles, laid in a ſtrong Mortar; uſed where the Sea has a Beach caſt up, or where there are plenty of Flints. See WALL.

BOULTINE, in Architecture, the Workman's Term for a Moulding, whoſe Convexity is juſt ¼ of a Circle; placed next below the Plinth, in the Tuſcan and Dorick Capital. See QUARTER-ROUND, and ECHINUS.

BOURGERMESTERS, or *Burgmeſters*, the Chief Magiſtrates in the Cities of *Germany*, *Holland* and *Flanders*. To them belongs the giving of Orders for the Government, Adminiſtration of Juſtice, Policy, and Finances of the Place: Tho the Authority and Office of a *Bourgermeſter* is not every where alike; each City having its Particular Laws and Statutes. The Word is form'd from the two *Flemiſh* Words, *Borger*, Burgeſs or Citizen, and *Meeſter*, Maſter. Some expreſs it in *Latin*, by *Conſul*, others by *Senator*. M. *Bruneau* obſerves, that *Bourgermeſter*, in *Holland*, anſwers to what we call Alderman and Sheriff in *England*; Attorney at *Compiegne*, Capitoul at *Tholouſe*, Conſul in *Languedoc*, &c.

BOUTANT, in Architecture. An *Arc-boutant*, is an Arch or Buttreſs, ſerving to ſuſtain a Vault; and which is it ſelf ſuſtained by ſome ſtrong Wall or Maſſive-work. A Pillar *boutant*, is a large Chain or Jaumb of Stone, made to ſupport a Wall, Terraſs, or Vault. The Word is *French*, and comes from the Verb *Bouter*, *to but*, or *a-but*.

BOUTS RIMEZ, a popular Term in the *French* Poetry; ſignifying certain *Rhimes*, diſpos'd in Order, and given to a Poet together with a Subject, to be fill'd up with Verſes ending in the ſame Word, and in the ſame Order. The Invention of the *Bouts Rimez*, is owing to one *Du Lot*, a Poet, in the Year 1649. In fixing the *Bouts*, 'tis uſual to chuſe ſuch as ſeem the wildeſt, and have the leaſt Connexion. Some good Authors fancy, that theſe *Rhimes* are of all others the leaſt perplexing; and furniſh the moſt new Matter of all others. *Sarraſin* has a Poem on the Defeat of the *Bouts Rimez*. The Academy at *Toulouſe* have contributed towards keeping in Countenance the *Bouts Rimez*; by propoſing each Year a Sett of 14, to be fill'd up on the Glories of the *Grand Monarque*: The victorious Sonnet to be rewarded with a fine Medal. An Inſtance hereof is the following one, fill'd up by *P. Commire*.

Tout eſt grand dans le Roi, l'Aſpect ſeul de ſon buſte,
Rend nos fiers Ennemis plus froids que des Glacons:
Et Guillaume n'attend que le Tems des Moiſſons,
Pour ſe voir Soccomber ſous un bras ſi robuſte.
Qu'on ne nous vante plus les Miracles d' Auguſte;
Louis de bien regnir lui feroit des Leçons:
Horace en vain l' egale aux Dieux dans ſes Chanſons.
Moins que mon Heros il etoit ſage & juſte, &c.

BOW, a Beam of Wood, or Braſs, with three long Screws, that govern or direct a Lath of Wood or Steel to any Arch: Us'd commonly to draw Draughts of Ships, Projections of the Sphere; or, wherever it is requiſite, to draw large Arches.

Bow is alſo an Inſtrument formerly us'd at Sea; conſiſting of a large Arch of 90 Degrees graduated; three Vanes, and a Shank or Staff; a Shade-Vane, a Sight-Vane, and an Horizon-Vane.

Bow *of a Ship*, is that Part of her which begins at the Loof, and compaſſing Ends at the Stem, and ends at the Sternmoſt Part of the Fore-Caſtle. If a Ship hath a broad *Bow*, they call it *a bold Bow*; if ſhe hath a narrow thin *Bow*, they ſay ſhe hath *a lean Bow*. The Piece of Ordnance that lies in this Place, is call'd the *Bow Piece of Ordnance*; and the Anchors that hang there, are call'd, her *Great* or *Little Bower*.

BOWBEARER, an under Officer of the Foreſt, who is to obſerve and take notice of all manner of Treſpaſs to Vert or Veniſon; and to attach, or cauſe to be attach'd, the Offenders, in the next Court of Attachment.

BOWER, an Anchor carry'd at the Bow of the Ship, is call'd her *Bower*: There are uſually carry'd two there, the firſt and ſecond *Bower*; but the greateſt Anchor is carry'd in the Hold.

BOWLING, or rather Bow-LINE, a Rope faſten'd to the Leach, or middle Part of the Outſide of the Sail in a Ship, fix'd in three or four Parts of the Sail; call'd the *Bowling-bridle*: The Mizen-*Bowling* is faſten'd to the lower End of the Yard. All Sails have the *Bowling*, except the Sprit-ſail, and Sprit-ſail-top-ſail: and therefore thoſe Sails cannot be uſed cloſe by a Wind; the uſe of the *Bowling* being to make the Sails ſtand ſharp, or cloſe, or by a Wind. The Terms are, *Sharp the Bowling*, *Haul up the Bowling*, *Set faſt the Bowling*; that is, Pull it up hard, more forward on: But when they ſay, *Eaſe the Bowling*, *check*, or *run up the Bowling*; they mean, Let it more ſlack. A *Bowling-Knot*, is a Knot that will not ſlip; by which the *Bowling*-Bridle is faſten'd to the Crengles.

BOWSE,

BOWSE, a Sea Term, signifying as much as Hale or Pull: Thus haling upon a Tack, is call'd *bowsing* upon a Tack; and when they would have the Men pull all together, they cry, *Bowse away*.

BOW-SPRIT, or *Bolt-sprit*, the Mast of a Vessel standing foremost on the Prow; resting slopeways on the Head of the Main Stern, and having its lower End fasten'd to the Partners of the Fore-mast, and farther supported by the Fore-stay: It carries the Sprit-sail, Top-sail, and Jack-staff. The *Bow-sprit* should be two Thirds of the Length of the Main-mast, and its Thickness equal to the Mizen-mast: When it is twelve Fathoms five Foot long, its Yard must be eight Fathoms two Foot long; and the Top-mast of the *Bow-sprit*, three Fathoms one Foot.

BOYAR, or BOIAR, a Term us'd for a Lord or Grandee, in *Muscovy*. According to *Becman*, *Boyars* are what in other Countries are call'd the upper Nobility: He adds, that the Czar of *Muscovy*, in his Diploma's, names *Boyars* before *Waywodes*.

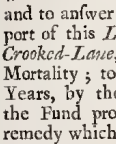
BOYAU, in Fortification, a Gut, or Branch of the Trenches: Or a Ditch cover'd with a Parapet, serving for a Communication between two Trenches. *Boyau* is also a Line, drawn winding about, in order to inclose several Tracts of Ground, or to attack some Works. See DITCH, TRENCH, &c.

BOYLE'S LECTURES, a Course of *Sermons* or *Lectures*, set on foot by the Honourable *Robert Boyle* Esq; in 1691. Their Design, as express'd by the Institutor, is to prove the Truth of the Christian Religion against Infidels, without descending to any Controversies among Christians; and to answer new Difficulties, Scruples, &c. For the Support of this *Lecture*, he assign'd the Rent of his House in *Crooked-Lane*, to some Learned Divine within the Bills of Mortality; to be elected for a Term, not exceeding three Years, by the late Archbishop *Tennison*, and others. But the Fund proving precarious, the Salary was ill pay'd: To remedy which Inconveniences, the said Archbishop procur'd a yearly Stipend of 50 Pound, for ever, to be paid Quarterly; charg'd on a Farm in the Parish of *Brill*, in the County of *Bucks*.

BRACE, is commonly taken for a Couple or Pair; and apply'd by Huntsmen to several Beasts of Game; as a *Brace* of Bucks, Foxes, Hares, &c. Also a *Brace* of Greyhounds, is the proper Term for two.

BRACE, in Architecture, a Piece of Timber, fram'd in with Bevil Joints. Its use is to keep the Building from swerving either way. When a *Brace* is fram'd into a King-piece, or principal Rafter, it is called by some a *Strut*.

BRACE, *Bracchio*, or *Brasse*, a long Measure, answering to our *Fathom*; see FATHOM.



BRACED, a Term in Heraldry, for the intermingling of three Chevronells, thus; Azure a Chief Or, and three Chevronells *braced* in the Base of the Escutcheon, by the Name of *Fitz-hugh*.

BRACES, are Ropes belonging to all the Yards of a Ship, except the Mizen, two to each Yard: There is a Pendant seized to the Yard-Arms, at whose other End there is a Block, through which the *Brace* is reeved. Their use is to *square the Yard*; that is, to set it square; *To brace the Yard*, that is, to bring it to either Side; *to traverse the Yard*, that is, to set it any way overthwart; and *To right the Yard*, is, to bring it so as it shall stand at Right Angles with the Length of the Ship: All *Braces* come afterward on; the Main-*brace* comes to the Poop, the Main-topsail-*brace* to the Mizen-top, and thence to the Main Shrouds; the Fore and Fore-top-sail *Braces* come down by the Main, and Main-top-sail Stays, and so of the rest: But the Mizen Bowling serves for a *Brace* to that Yard; and the Cross-Jack *Braces* are brought forward to the Main Shrouds, whenever a Ship sails close by a Wind. See YARDS.

BRACHMANS, the Philosophers, or Sages of the *East-Indies*. These have been famous in all Antiquity for their Severity of Life. The *Greeks* gave 'em the Name of *Gymnosophists*; tho *Clemens*, *Porphyry*, &c. make the *Brachmans* only a Branch of the *Gymnosophists*; whom they divide into two Sects, the *Brachmans* and *Samanæi*. There are some in the *Indies* who still bear the same Name, and live in the same manner as the Antients. The *Portugueze* call 'em *Brames*; we, usually, *Bramines*. Some say, the *Brachmans* derive their Name from the Patriarch *Abraham*; whom, in their Language, they call *Brachme*: Others borrow it from their God *Brachma*; which some take to be the same with *Abraham*. Hence *Postel* gives 'em the Name of *Abrachmanes*. F. *Thomassin* fetches it from the *Hebrew*, *Barach*, *fugit*, *aufugit*, to fly or escape; because the *Brachmans* retire into the Country, and live in Desarts. The same Author gives us another Derivation of *Brachmans*, *viz.* from the *Hebrew Barach*, *benedicere*, *orare*, to bless, pray; this being their principal Occupation.

Porphyry observes, that the *Brachmans* succeeded into the Order, &c. by Right of Family; whereas the *Samanæans* were elected into it: The former there fore were all of the same Family, the latter of various. The *Brachmans* were perfectly at Liberty, paid no Taxes, nor were under the Command of any Person: They liv'd on Herbs, Pulse and Fruits; abstaining from all Animals, and thinking it an Impiety to touch 'em. The greatest part of the Day and Night they spent, in singing Hymns in honour of the Deity; Praying and Fasting continually. The greatest Part of 'em liv'd in Solitude, without marrying, or possessing any Estates. There was nothing they appear'd to wish so earnestly for as Death; looking on Life as a burdensome thing, and waiting with Impatience for the Separation of their Soul and Body. This is the Idea *Porphyry* gives of 'em. *Kircher* observes, that the *Brachmans* held the Opinion of *Pythagoras*, relating to the Soul and its Transmigration; and lead a Life in all respects agreeable to his: Or rather, 'twas from the *Brachmans* that *Pythagoras* borrow'd his Opinions, his manner of Living, &c. The modern *Brachmans* themselves, fetch their Origin from the famous Philosopher *Xaca*.

The Modern *Bramines* are the Priests or Divines of the Idolatrous *Indians*: These are much conversant in Astrology and Astronomy. They have so great a Veneration for Cows, that they look on themselves as bless'd, if they can but die with the Tail of one of 'em in their Hand. They sometimes make Processions of 400 Leagues, drawing after 'em whole Cities and Towns; feeding the People, when stopp'd at the Passages of Rivers overflow'd, in a manner which they take to be Miraculous; giving 'em every thing they desire, without making any Provision. *A. Rogers* distinguishes six Sorts of 'em; the *Weistnorea*, the *Seivia*, the *Smaerta*, the *Schaerwaecka*, the *Pasenda*, and the *Tsectea*.

M. *Marshall* observes, that whenever they write any thing, they put a Figure of one in the first Place; to shew, as they say, that they acknowledge but one God. They account the World the Body of God, the highest Heavens his Head, the Fire his Mouth, the Air his Breath, the Water his Seed, and the Earth his Legs and Feet. They maintain a pre-existent State; and from that, account for the Tempers and Manners of Men in this: They also maintain the *Metempsychosis*, but in a grosser Sense than *Pythagoras*; believing, that the Souls of all Men pass into Reptiles, Insects, and Vegetables, for their Punishment and Purgation. They compute the World to be about 3892850 Years old; and seem to have some obscure Traditions of the *Mosaic* Paradise, *Adam*, *Eve*, and the Deluge. They have also a Notion of God's being incarnate, and living some time among Men. Their Religion consists in leading a pure Life, washing away their Sins in the River *Ganges*, muttering over divers Prayers, and doing strange and incredible Penances. They burn their Dead with much Ceremony; and strewing his Ashes on the Place where he first laid after his Death, they judge, from some Impression they imagine made on it, into what Body his Soul was gone; *viz.* if the Impression of the Foot of a Dog or Ox, &c. appear, they give out he is transmigrated into one of those Animals; if there be no Impression, he is then gone to the Starry Region. They have abundance of *Cabalistic* Notions; *v.g.* say they, the Numbers 28,35,2,7,—6,3,32,31,—34,29,8,1—4,5,30,33, written in the same Order in the Squares of a square Figure, and your Enemy's Name written under it, while you wear it he can't hurt you, &c. See *Phil. Transf.* N° 268. See LIGATURE.

BRACHIÆUS, or *Brachiæi*, a Name given to two Muscles of the Elbow, the one external, the other internal.

The *Brachiæus Externus* arises about the middle and posterior Part of the *Humerus*. It joins its Fibres with the *Musculus Longus* and *Brevis*; and being externally Tendinous, they, together, cover all the Elbow, and are inserted into the *Olecranum*.

Brachiæus Internus, lies partly under the *Biceps*; it arises by a fleshy Beginning from the middle and internal Part of the *Humerus*; and is inserted into the upper and fore-Part of the *Cubitus*, by a very short but strong Tendon: It serves to bend the Arm.

BRACHYGRAPHY, from βραχύς, *brevis*, short, and γράφω, *scribo*, to write; is the Art of Short-hand Writing.

BRADS, a kind of Nails used in Building, having no spreading Heads as other Nails have: Of these some are call'd Joiners *Brads*, and are for hard Wainscot; others *Batten Brads* for soft Wainscot; and some *Bill Brads* or *Quarter-Heads*, us'd when a Floor is laid in haste, or for shallow Joists subject to warp. See NAILS.

BRAILS *in a Ship*, small Ropes reev'd through Blocks, which are seized on either side the Ties, a little distance off upon the Yard, so that they come down before the Sails of a Ship, and are fasten'd at the Skirt of the Sail to the Crengles: Their use is, when the Sail is furl'd across, to hale up its Bunt, that it may the more readily be taken up or let

fall: These *Brails* belong only to the two Courses and the Mizen-sail. The Word is, *Hale up the Brails*; or, which is all one, *Brail up the Sails*; for the Meaning is, that the Sail should be haled up, in order to be furl'd, or bound close to the Yard.

BRAIN, in its general Sense, that large, soft, whitish Mass, inclos'd in the *Cranium* or Skull; wherein all the Organs of Sense terminate, and the Soul is supposed principally to reside. The *Brain* is encompass'd with two *Meninges*, or Membranes, call'd *Dura* and *Pia Mater*; see MENINGES. Its Figure is the same with that of the Bones that contain it; *viz.* roundish, oblong, and flat on the Sides: It is divided into three principal Parts, *viz.* the *Cerebrum*, or *Brain* strictly so call'd, the *Cerebellum*, and the *Medulla oblongata*: The two latter of which see under their proper Heads, CEREBRUM and MEDULLA.

The *Cerebrum*, or *Brain*, properly so call'd, is that large globulous Part which fills the fore and upper Part of the Skull: It is divided by a Duplicature of the *Dura Mater*, call'd from its Figure *Falx*, into two equal Parts, call'd *Right* and *Left Hemispheres*: Tho the Figure of the *Brain* be pretty far from a Sphere. It is also separated from the *Cerebellum* by another Duplicature of the same *Dura Mater*. The *Brain* consists of two Kinds of Substance, the one Cineritious, or of an Ash-colour, soft and moist; which being the Exterior, is call'd the *Cortex*, or Cortical Part of the *Brain*: the Thickness of this is about half an Inch, tho by reason of the *Sinus*'s and Sutures in the *Brain* it appears more. The other, or inner Substance, is white, more solid, as well as more dry than the Cortex, and is call'd the *Marrow* or *Medullary*, and sometimes the *Fibrous* Part, in contra-distinction to the other, which is call'd the *Glandulous* Part.

The *Cortex*, according to *Malpighi*, is form'd from the minute Branches of the Carotid and Vertebral Arteries; which being woven together in the *Pia Mater*, send from each Point thereof, as from a Basis, little Branches, which, being twisted together into the Form of a Gland, inclose the *Medulla*, ordinarily to the Thickness of half an Inch; but in some places make deeper *Sinus's* and Furrows within it. These Branches make Circumvolutions like the Intestines; each of which may be resolv'd into others, like, but less than the first: This Part, therefore, most other Authors take to be Glandulous; or, an Assemblage of innumerable minute Glands, contiguous to each other, destin'd for the Secretion of Animal Spirits from the Blood, brought hither by the Carotids, *&c.* These Glandules, *Malpighi* observes, are of themselves oval, but by the mutual Compressure become angular; they run waving within each other: Several of these connected, form others somewhat larger; and these again unite into others, from the Aggregate whereof are form'd Tubes, of which the outer Cortex is compos'd. These little Glands consist of the Branches of the Arteries which bring the Blood; of the Veins arising at their Extremities, which carry it back again; of Secretory Tubes secerning the Animal Spirits, and of Excretory Ducts for discharging 'em into the *Medulla*: Tho these are too minute to have ever been seen. See CORTEX.

The Inner, or Medullary Part of the *Brain*, consists of infinitely fine Fibres, arising from the least and minutest Branches or Filaments of the Glands of the Cortex; as is distinctly seen in the *Cerebellum*, tho scarce visible in the *Cerebrum*: These receive the Fluid separated and subtliz'd, from the Glands of the Cortex; and by means of the Nerves, which are no more than Productions of this Part, distribute it all over the Body. Authors, here, however, are divided; the generality, with *Malpighi*, making the Substance of the Cortex Glandulous, as above; others, with *Ruysch* and *Leewenhoeck*, denying any thing like Glands in it; and allowing nothing but little *Cryptæ*, or Sinks, opening laterally to the Arteries; and thence receiving a Juice already secern'd from the Blood, and transmitting it to the *Medulla*. This Doctrine, it seems, is the Result of Anatomical Injections and Microscopical Observations; but the other appearing the most consistent with the Oeconomy of Nature in other things, is generally adher'd to.

The Cortex covers the whole Medullary Substance both of the *Brain* and *Cerebellum*; so as wherever the Cortical Substance ends, there the Medullary commences; and this in the Appendices, Ventricles, Interstices, and Sinus's of the *Medulla*, as well as in the External Surface. Something Medullary, therefore, arising from every Point of the Cortex; at its first rise, it must needs be exceedingly fine and slender: But being join'd with other Parts of the same kind, it gradually thickens, and at length becoming sensible, constitutes the *Medulla Cerebri*, the *Corpus Callosum*, the *Medulla oblongata* and its Legs, the *Thalami* of the Optic Nerves, the *Medulla Cerebelli*, and its Production into the *Medulla oblongata*; which, with these Additions, forms the *Corpora Pyramidalia* and *Olivaria*, and is extended into the Spinal Marrow. And from the same Medullary Substance, both in the *Cranium*, and in the Case form'd by the Union of the *Vertebræ*, arise all the Nerves. See NERVES; see also CORPORA *Pyramidalia*.

Tho the primary *Fibrillæ*, or Filaments, when united, seem to form one compact Body or Mass: yet *Boerhaave* shews, they are really distinct and separate from each other; that thus arising from each Part of the Cortex, and tending as it were to the Centre of the Sphere, they first form the *Medulla*; that others, reflected hence and collected above, form the *Corpus Callosum* and *Fornix*; and below, form the *Corpus Callosum* and Legs of the *Medulla oblongata*; that the like *Fibrillæ* arising from the *Cerebellum*, join with 'em: the Result of which Juncture, is the *Medulla Spinalis*. And lastly, that the like *Fibrillæ* arising from the Cortex, continued within the Cavities of the *Medulla*, join with 'em, and add fresh Consistence thereto.

Hence we see the Reason of the Bulk, Figure, and Position of the Cortex of the *Brain*, as well as the Use and Necessity of the Cavities call'd *Ventricles of the Brain*: Of these Ventricles there are four, one in each Hemisphere; separated by a thin transparent Substance, running all along from the *Fornix* under the *Corpus Callosum*, and distinguish'd by the Name of the *Septum Lucidum*: These are call'd the *Lateral Ventricles*. The third is under the *Fornix*, and call'd *Rima*; the fourth between the *Cerebellum* and *Medulla oblongata*: To these are owing the *Callus's* or Knots found in various Parts of the *Brain*; as fresh Accessions of Fibres arrive from the several Places to the *Cerebellum*.

From the whole, it appears past doubt, that the Fibres of the *Brain* are exceedingly minute Canals; that they receive an Humor, infinitely the most subtile, fluid, moveable and solid of any in the whole Body; prepar'd and secreted by the artful Structure of the Cortex, driven into these Tubules by the force of the Heart, and from every Part hereof collected into the *Medulla oblongata*: And this is what some call *Animal Spirits*, others the *Nervous Juice*; the great Instrument of Sensation, muscular Motion, *&c.* See SPIRITS, MUSCLE, SENSATION, *&c.*

In the Space between the two Hemispheres of the *Brain*, under the *Falx*, or rather under the *Longitudinal Sinus* of the *Dura Mater*, is a white Substance, of a Texture more compact than the rest of the *Medulla* of the *Brain*; and for that reason call'd *Corpus Callosum*, which runs along the whole Tract of the *Falx*, and receives from each side the Terminations of the *Medulla*, interspers'd between the several Windings of the Cortex, and suppos'd by some to be a kind of Base or Support to it: The manner wherein this is form'd, is shewn above. We shall only add, that on occasion hereof, some Authors, M. *Astruc* for Instance, instead of two Substances, *viz.* the *Cortex* and *Medulla*, divide the *Brain* into three; *viz.* the Uppermost, or *Cineritious*, which constitutes the *Cortex*; the Middle, which is whiter and denser than the first, and therefore call'd the *Callous*; and the Lowest or Inmost, which being intermix'd with *Radii* or *Striæ* of the White and Cineritious Substance, he calls the *Striated Part*: He adds, that the Fluid secreted in the Cortex, is convey'd into innumerable minute hollow Medullary *Fibrillæ*, of the same nature with the Callous Substance, and contiguous thereto. This middle, or callous Part, he observes, is not distinguish'd by any appearance of Fibres, but is uniform, homogeneous, elastick, and not unlike the Pith of the Eldar Tree: for which Reason, he thinks it a probable Conjecture, that it consists of innumerable Cells, communicating with each other, divided by the Interposition of membranaceous, flexil, elastick, vibratile Parietes or Columns; which being flow'd over by the Spirits, and continually expos'd to the Shakings thereof, constitute the Fibres of the *Brain*.

Now the secreted Fluid flowing equally from each Point of the Cineritious Substance into the Callous, must equably fill and distend the Cells thereof: And lest any Place should want its share, Provision is made for a strict Communication; not only by the Apertures of the Cells into each other, but also by the Structure of the *Brain*; the upper Parts communicating with the under, by the *Septum Lucidum*; the Lateral with the Lateral, by the *Lata Commissura*; lastly, the fore Parts by the hind Parts, by the *Crura*, *Brachia*, and Roots of the *Fornix*. These Cells, he continues, being fill'd, the Spirits will proceed to the contiguous *Striæ* of the Medullary Substance; which arising from the Cortex, compose the Striated Part of the *Brain*: And these *Striæ* render'd narrower and slenderer, and passing without the Surface of the *Brain*, constitute the first Principles of the Nerves, *&c.*

The other Parts of the *Brain*, are the *Fornix*, a Production of the *Medulla*; which, at its Extremity next the *Cerebellum*, sends out two Processes or Legs, by whose Juncture is form'd a kind of Arch, thence call'd *Fornix*, which separates the third Ventricle from the two upper ones: At the Bottom of the *Fornix* are two Holes, by which the third Ventricle has a Communication with the others; that before is call'd *Vulva*, and that behind *Anus*. The third Ventricle,

Ventricle, or *Rima*, which is in the *Medulla oblongata*, has likewise two Apertures; the one the Orifice of the *Infundibulum*, or Funnel, which is a Canal reaching to the *Glandula Pituitaria*: The other is a Duct, whereby the third Ventricle communicates with the fourth in the *Medulla oblongata*, under the *Cerebellum*. That fourth Ventricle is in the form of a Quill, whence it is sometimes call'd *Calamus*.

In the Lateral Ventricles are found the *Plexus Choroides*, which is an Assemblage of minute Veins and Arteries; and four Eminences, the first the *Corpora Striata*, the others the *Thalami Nervorum Opticorum*.

At the Entrance of the Canal reaching from the third Ventricle to the fourth, is situated the *Pineal Gland*; so call'd from the Figure of a Pine-Apple, which it resembles: This Gland, *Des Cartes* supposes to be the Seat of the Soul. Behind the Pineal Glands are four Eminences; two upper and greater, call'd *Nates*; and two smaller and lower, call'd *Testes*. See MEDULLA OBLONGATA, to which all these Parts properly belong; see also each Part under its proper Head, NATES, TESTES, THALAMI, PINEAL, PLEXUS, CALAMUS, &c.

The Vessels of the *Brain*, are Nerves, Arteries, and Veins. By turning up the *Brain*, the Origin or Base of the Nerves proceeding from it, are distinctly seen: These are in Number ten Pair, *viz.* the *Olfactory*, *Optic*, *Movers of the Eyes*, *Pathetic*; the fifth Pair, and sixth Pair, call'd also the *Gustatories*, the *Auditory Nerves*, *Par vagum*, and the ninth and tenth Pair.

The Blood-Vessels of the *Brain*, are the two *Internal*, *Carotid*, and the *Vertebral Arteries*. The first piercing the *Dura Mater*, communicate with the *Cervicals*; and proceeding thence, send a Branch to the *Plexus Choroides*; till arriving at the *Pia Mater*, and making several Turns and Circumvolutions thereon, they terminate, at last, in the little Glands that constitute the Cortex. The Vertebral Arteries passing the *Dura Mater*, go along the under side of the *Medulla oblongata*; till giving Branches to the Spinal Arteries, they join in one Branch call'd the *Cervical Artery*, which communicates with the *Carotides* by two Branches, as before. The Veins of the *Brain* don't run along by the Sides of the Arteries, as in other Parts of the Body, but rise from their Extremities in the Cortex; whence they discharge themselves into the Sinus of the *Dura Mater*. See CAROTID, CERVICAL, &c.

For the great Bulk of the *Brain*, this Reason may be assign'd; *viz.* that on account of the exceeding Subtility and Fineness of the Animal Spirits, and the Slowness in which their Secretion must be effected; together with the great Quantity of 'em requir'd in discharging the animal Functions; there must of necessity be an infinite Number of Glands to separate and prepare 'em. From the same Principle, we see why the *Brain* is much bigger in Men than in other Animals; and in other Animals, why, *cæteris paribus*, it is biggest in those which discover the greatest share of Sagacity, *v. g.* in Monkeys, &c. A considerable Stock of Animal Spirits being to be employ'd in the Affairs of Cogitation, Memory, &c. Accordingly, Anatomists observe, that in Fools the *Brain* is smaller *(cæteris paribus)* than in Men of Sense: This, some may account for, by supposing it the Cause of the Folly; a sufficient Stock of Spirits being wanting to reason, &c. strongly: And others from the Oeconomy of Nature, which proportion'd the Stock of Spirits to the Expence that would be requir'd.

From the Texture, Disposition, and Tone of the Fibres of the *Brain*, Philosophers ordinarily account for the Phænomena of *Sensation* and *Imagination*; which see. Dr. *Astruc* goes further, and from the Analogy between the Fibres of the *Brain*, and those of Musical Instruments, solves the Phænomena of Judgment and Reasoning, and the Defects and Perfections of both. He lays it down as an Axiom, that every simple Idea is produc'd by the Oscillation of one determinate Fibre; and every compound Idea from cotemporary Vibrations of several Fibres: That the greater or less degree of Evidence follows the greater or less Force wherewith the Fibre oscillates. He hence proceeds to shew, that the Affirmation or Negation of any Proposition, consists in the equal or unequal Number of Vibrations, which the Moving Fibres, representing the two Parts of the Proposition, *viz.* the Subject, make in the same Time: *i. e.* If the Vibrations of the Fibre that gives the Idea of the Subject, and those of the Fibre which gives the Idea of the Attribute of Proposition, be *Isochronal*, or make an equal Number of Vibrations in the same Time, we are determin'd to the Affirmation of the Proposition; if *Eterocronical*, or their Vibrations be unequal, the Soul will be determin'd to a Negation, &c. Hence result Consonant, Dissonant, Harmonical Fibres, &c. The Evidence and Certainty of a Judgment, Affirmative or Negative, he deduces from the greater or less Consonance or Dissonance of the Fibres of the Subject and Attribute; and a right or wrong Judgment in the natural or depraved Tone of the Fibres of the *Brain*.

Hence he takes occasion to observe, that the Fibres of the *Brain*, from their Analogy to those of Musical Instruments, may be perverted several ways; *viz.* by being render'd too dry or too moist, too stiff or too lax, &c. In a Phrensy, he thinks the Fibres too dry, and too much distended by the Heat of the Blood, &c. In a Mania, these Fibres he thinks too rigid, as well as too dry and distended: In a Lethargy, they are too much soften'd by Phlegm; in Idiotism, or Foolishness, they are sometimes too soft, and sometimes too hard. Lastly, He thinks that in a Melancholy, by the repeated successive Vibrations which the attentive Meditation of a Thing induces, two or more Fibres, which of themselves exhibit dissimilar and unequal Ideas, are (the other Parts remaining sound) sensibly brought to an *Isochronism*: So as the Soul judging well in other respects, yet in this always makes a false Judgment.

The *Brain* does not appear absolutely necessary to animal Life. We have several Instances in Authors, particularly in the *Philosophical Transactions*, of Children brought forth alive, and surviving their Birth for some time, without any *Brain*: And we have Anatomical Instances, of Animals surviving the loss of their *Brain*. Of the first kind, we have a History from *Paris*, of a Child, deliver'd at Maturity; and living four Days, not only without a *Brain*, but even a *Head*: instead of both which, was a Mass of Flesh like Liver found. M. *Denys* gives us another Instance, of a Child born in 1673, which, setting aside the Head, was well form'd, but without any *Brain*, *Cerebellum*, or *Medulla oblongata*: It had not any Cavity for a *Brain*, the Skull, if such it might be call'd, being solid: Nor was this any way connected to the *Vertebræ*; so that the Marrow in the *Spine* had no Communication with the Head: The Optic Nerves terminated in the solid Bone. M. *le Duc* gives a third Instance, in 1695, where there was neither *Cerebrum*, *Cerebellum*, or *Medulla oblongata*, nor even *Spinal Marrow*; the Cavity that should contain them being extremely shallow, and full of a black livid Substance, like congeal'd Blood: He adds, this was the third Subject of this kind he had met with. Dr. *Preston*, indeed, tells us, that M. *du Verney* found here a Spinal Marrow, tho of much less Consistence than ordinary; in which, however, he could distinguish all the four Tunics, and the two Substances; *viz.* the Cortical and Fibrous Part, as in the *Brain*. In a word, he takes this to be a *Brain* it self, as much as that in the Skull; nay more so, being more necessary to Life, and more sensible, than either the *Brain* or *Cerebellum*: A Wound or Compression in the first being always mortal; not so in the latter, as appears from the Experiments of M. *du Verney* and M. *Chirac*; the first of whom took out the *Brain* and *Cerebellum* of a Pigeon; notwithstanding which, it liv'd, sought Food, had Sense, and perform'd the common Functions of Life: The latter took out the *Brain* from a Dog, yet it liv'd; upon taking out the *Cerebellum* it dy'd; but blowing into the Lungs, he observes, he could keep the Animal alive, an Hour after the Loss of the *Cerebellum*. Upon separating the *Medulla oblongata* of another Dog from the *Spinal Marrow*, and removing it with the *Brain* and *Cerebellum*, he kept the Dog alive by blowing into the Lungs. To which may be added, many Instances given by Mr. *Boyle*; not only of Animals living a long time after the Separation of the Head from the Body, but even of the Copulation and Impregnation of some Insects under those Circumstances: Whence it appears, that the Spinal Marrow is sufficient, on Occasion, for the Business of Sensation, Motion, Secretion of Animal Spirits, &c.

BRAN, the Skins or Husks of Corn ground, separated from the *Farina*, or Flower, by a Sieve. Of *Wheat-Bran* it is the Starch-makers make their Starch; which is nothing else but the *Fæcula* remaining at the Bottom of the Vessels, wherein the *Bran* has been steep'd in Water. See STARCH.

BRANCHES, in Architecture, the Arches of Gothic Vaults. These Arches, traversing from one Angle to another, Diagonal-wise; form a Cross between the other Arches which make the Sides of the Square, whereof the Arches are Diagonals. See VAULT, OGIVE, &c.

BRANCHES *of a Bridle*, in the Manage, two crooked Pieces of Iron which support the Mouth bit, the Chain, and the Curb; and which are fasten'd, on one Side to the Headstall, on the other to the Reins: serving to keep the Horse's Head under Command. What way soever the *Branches* of the Bit incline, the Horse's Mouth always goes to the contrary. The Duke of *Newcastle* is very particular on the Head of *Branches*; explaining their several Kinds, and their Effects, which are perfectly like those of a *Lever*. The *Branch* is always to be accommodated to the Design, either of bringing in, or raising a Horse's Head; and to the Degree: Accordingly, we have *strong* and *hardy Branches*, *gentle Branches*, *rude Branches*, &c.

With

With regard to their Form and Structure, *Branches* are either ſtreight, in form of a Piſtol, for young Horſes, to form their Mouth; or, after the Conſtable of *France*'s Faſhion, for Horſes that already carry the Head well: Others are in form of a Gigot or Leg; others of a bent Knee; others in the *French* Faſhion, *&c.*

Note, Theſe are *Laws* in the Manage, 1. That the farther the *Branch* is from the Horſe's Neck, the more effect it will have. 2. That ſhort *Branches*, *cæteris paribus*, are ruder, and their Effects more ſudden than thoſe of others. 3. That the *Branch* be proportion'd to the Length of the Horſe's Neck.

Branch, or Bough, in Botany, a Jet or Arm of a Tree, emitted from its Trunk: *Quintiny* calls it, a Part of a Tree, which coming from the Trunk, helps to form the Head. The Word, according to *Salmaſius*, comes from the *Latin Branca*; in the lower *Latin*, they ſaid *Barga*: Others derive it from *Brachium*, an Arm; and others from *Branchiæ*, the Gills of Fiſhes.

The *Branches* of Trees are obſerv'd, almoſt conſtantly, to ſhoot from the Trunk at an Angle of 45 Degrees: The Reaſon is, that the whole Spreading being generally confin'd within an Angle of 90 Degrees, as the moſt becoming and uſeful Diſpoſition; that ſpace could not be well fill'd up any other way, than by forming all the Interſections which the Shoots and *Branches* make, with Angles of 45 Degrees only. A ſtrong Argument, that the Plaſtick Capacities of Matter, are under the Guidance of a wiſe Being.

Branches are diſtinguiſh'd into various Kinds: A *Wood Branch*, *Quintiny* ſays, is ſuch a one, as ſhooting out from a Cut of the preceding Year, is naturally of a conſiderable Thickneſs. A *Fruit Branch*, is that which ſhoots out of a moderate Length and Breadth from the ſame Cut: *Fruit Branches*, he adds, have large Eyes, and are very near each other. A *Branch half Wood*, is that, which being too ſlender for a *Wood Branch*, and too groſs for a *Fruit Branch*, is cut, at the Length of two or three Inches, to make it produce a better Jet, whether Wood or Fruit. Spurious *Wood Branches*, are ſuch as come contrary to the Order of Nature; or otherwiſe than from Cuts of the preceeding Year; or which coming on ſuch Cuts, are big in the Place where they ſhould be ſmall. To underſtand this Order of Nature, it muſt be obſerved, 1. That *Branches* ſhould never come, except on thoſe of the laſt Cut; ſuch, therefore, as ſhoot from other Parts are ſpurious. 2. That the Order of the new *Branches* is, if there be more than one, that the extreme *Branch* is thicker and longer than that immediately under it; and this bigger and longer, again, than the third, *&c.* Hence, if any be big where it ſhould be ſmall, it is call'd *Spurious*. There are, however, ſome Exceptions: In Trees that are vigorous, and yet bear a handſome Figure, there can't well be too many *Fruit Branches*; provided they make no Confuſion; but for *Wood Branches*, there ſhould not ordinarily be above one ſuffer'd to grow, of the ſeveral which ſhoot from each Cut of the preceeding Year. See Pruning.

BRANCHIA, a Name given by the *Greek* Naturaliſts to the Gills of Fiſhes; which are Parts compos'd of Cartilages and Membranes, in form of a Leaf, and ſerving inſtead of Lungs to reſpire by. *Galen* obſerves, they are full of little Foramina, big enough to admit Air and Vapours, but too fine to give Paſſage to Water. *Pliny* held, that Fiſhes reſpir'd by their Gills; but obſerves that *Ariſtotle* was of another Opinion: To whom we may add Dr. *Needham*. The Word *Branchia*, comes from the *Greek* βραγχια, which ſignify'd the ſame thing.

BRANDY, a ſpirituous, inflammable Liquor, drawn from Wine, and other Liquors by Diſtillation; ordinarily *in Balneo Mariæ*; ſometimes alſo by the Flame of a Fire. See Distillation. The Veſſels uſed herein, are uſually Copper: and ſome Diſtillers, to cool the Liquor more readily, make the Neck of the Matras, which is very long, and winding like a Serpent, paſs through a Veſſel of cold Water.

To diſtil Brandy, they fill the Cucurbit half full of the Liquor from which it is to be drawn; and raiſe it, with a little Fire, till about one ſixth Part be diſtill'd; or till they perceive that what falls into the Receiver is not at all inflammable. The Liquor thus diſtill'd the firſt time, is call'd *Spirit of Wine* or *Brandy*; which Spirit, purify'd by another, or ſeveral more Diſtillations, is what we call *Spirit of Wine rectify'd*. The ſecond Diſtillation is made in *Balneo Mariæ*, and in a Glaſs Cucurbit; and the Liquor put therein, diſtill'd to about one half the Quantity: Which half is further rectify'd, as long as the Operator thinks fit. To abridge theſe ſeveral Diſtillations, which are long and troubleſome, they have invented a Chymical Inſtrument; whereby the Rectification of Spirit of Wine is perform'd at one ſingle Diſtillation: The Deſcription and Figure of which Inſtrument may be ſeen in *Glaſier's Chymiſtry*.

To try the Goodneſs of Rectify'd Spirit of Wine, it muſt be lighted into a Blaze: if then it conſumes wholly, without leaving any Impurity behind; or, which is ſurer ſtill; if after putting a little Gun-pouder in the Bottom of the Spirit, the Gunpouder take fire when the Spirit is conſum'd, the Liquor is good. Thoſe who deal in *Brandy*, (we ſpeak only of that made with Wine) chuſe it white, clear, of a good Taſte, and ſuch as will bear the Teſt or Proof; *i.e.* ſuch as in pouring into a Glaſs, forms, a-top of it, a little white Lather, which, as it diminiſhes, makes a Circle, call'd by the *French Brandy* Merchants, the *Chapelet*, or *Bead-Roll*: there being no *Brandy* but that well deflegmated, and wherein there is no Humidity left, wherein the *Chapelet* is entirely form'd.

The chief uſe of *Brandy*, is as a Drink; eſpecially in the cold Northern Countries; among the *Negros* in *Guinea*, who ſell one another for a few Bottles of *Brandy*; and among the Savages of *Canada*, and other Parts of *N. America*, who are infinitely fond of it. It is of ſome uſe too in Medicine; being ſaid to ſtrengthen the Nerves: And in Dying, when rais'd into rectify'd Spirit of Wine; being accounted one of the Dyers Non-colouring Drugs.

Beſides the *Brandy* made of Wine; there is other made of Malt-Liquors, of Cyder, Syrop, Sugar and Moloſſes, of Fruits, Berries, *&c.*

The greateſt Part of the *Brandies* in uſe, and thoſe too, the beſt, are prepared in *France*: Of the *French Brandies*, thoſe of *Nantes* and *Poitou* are the moſt eſteem'd; as being of a better Taſte, finer and ſtronger, and enduring the Teſt of the *Chapelet* longer than any of the reſt: Thoſe of *Anjou*, *Touraine* and *Orleans*, claim the ſecond Place.

Brandy makes a very conſiderable Article in the *French* Commerce: The Number of Foreign Veſſels, wherewith all their Ports are full in Time of Peace, and which are loaden, in good meaſure, with *Brandy*, is incredible. *Nantes* alone furniſhes 174000 Gallons *per Annum*, and *Bourdeaux* above twice as much; the other Places in proportion. The *Dutch* take off their Hands almoſt as much as all the reſt of *Europe*. *Poland* and *Sweden* are the only Nations which are not their Cuſtomers; theſe preferring the *Brandies* of their own Countries, made of Grains, to the Wine-*Brandies* of *France*.

Of *Brandy*, both plain and rectify'd, are prepared various Kinds of ſtrong Liquors, with the Addition of other Ingredients, Sugars, Spices, Flowers, Fruits, *&c.* which are afterwards clarify'd, by paſſing 'em thro a ſtraining Bag, or filtering 'em thro Brown Paper. See Clarification. A great part of theſe are brought from *Montpellier*; where they are ſuppos'd to be better prepar'd than any where elſe. See Water.

BRASIL, or BRAZIL, a Wood ſo call'd, becauſe firſt brought from *Braſil*, a Province of *S. America*: It is denominated variouſly, according to the Places whence it is brought. Thus we have *Braſil* of *Fernambouc*, *Braſil* of *Japon*, of *Lamon*, of St. *Martha*; and laſtly *Braſillet*, brought from the *Antilles*.

The *Braſil-Tree* ordinarily grows in dry barren Places, and in the middle of Rocks; it is very thick and large, uſually crooked and knotty: Its Flowers, which are of a beautiful red, exhale a very agreeable Smell, which ſtrengthens the Brain. Tho the Tree be very thick; it is cover'd with ſo thick a Bark, that when the Savages have taken it off the Wood, a Trunk, which before was the Thickneſs of a Man, is ſcarce left equal to that of his Leg.

Braſil Wood is very heavy, dry, crackles much in the Fire, and ſcarce raiſes any Smoak, by reaſon of its extreme Dryneſs. None of the ſeveral Kinds have any Pith, except that of *Japon*: that of *Fernambouc* is eſteem'd the beſt. It muſt be choſen in thick Pieces, cloſe, ſound, without any Bark; and ſuch as, upon ſplitting, of pale becomes reddiſh; and when chew'd has a ſugar Taſte. It is much us'd in Turned Works, and takes a good Poliſh; but its chief uſe is in Dying, where it ſerves for a red Colour: 'Tis a ſpurious Colour, however, it gives; and eaſily evaporates and fades: Nor is the *Wood* to be us'd without Allum and Tartar. From the *Braſil* of *Fernambouc*, is drawn a kind of *Carmine*, by means of Acids. There is alſo a liquid *Lacca* made of it, for Miniature. See Red.

BRASS, *Orichalcum*; or, as the *French* call it, *Yellow Copper*; a factitious Metal, compos'd of Copper, and *Lapis Calaminaris*. The Method of Preparation is as follows. The *Lapis* being calcin'd, and ground fine as Flour, is mix'd with ground Charcoal; and incorporated, by means of Water, into a Maſs: Thus prepar'd, about ſeven Pounds of the *Calamine* is put into a Melting-Pot of about a Gallon; and over it, about five Pounds of *Copper*; which is let down into a Wind-Furnace eight Foot deep, remaining there about 11 Hours; in which Time 'tis converted into *Braſs*. After melting, it is caſt into Plates, or Lumps: 45 Pounds of crude *Calamine*, produces 30 Pounds burnt, or calcin'd. They ſometimes uſe *Braſs-ſkruff* inſtead of

Copper; but that is not always to be procur'd in Quantities sufficient, being no more than a Collection of Pieces of old *Brass*. Pure *Brass* is not malleable unless hot; when cold it breaks: After melting twice, 'tis no longer in a Condition to bear the Hammer at all: to work it, they put 7 Pounds of Lead to 100 of *Brass*; which renders it more soft and pliable. *Brass* is us'd in the casting of Guns: The best Proportion for Gun-Metal, 'tis said, is for 11 or 12 thousand Weight of Metal, to use ten thousand Pound of Copper, nine hundred Pounds of Tin, and six hundred Pound of *Brass*. See COPPER.

The best *Brass* Guns are made of malleable Metal, not of pure Copper and *Calamine* alone; but it is necessary to add coarser Metals, to make it run close and sounder, such as Lead and Pot-Metal. Bell-Metal is a Composition of *Brass* and Tin: and Pot-Metal of *Brass* and Lead; 20 Pound of Lead, is usually put into 100 Pound of Pot-Metal. The Manufacture of *Brass*, was kept a Secret in *Germany* for many Ages.

BRASS *of Corinth*, has been famous in all Antiquity: *L. Mummius* having sack'd and burnt that City, 146 Years before our Saviour's Time, 'tis said this precious Metal was form'd from the immense Quantities of Gold, Silver and Copper wherewith *Corinth* abounded, thus melted and run together by the Violence of the Conflagration. The Statues, Vessels, *&c.* form'd of this Metal were inestimable. Those who speak of it accurately, distinguish it into three Kinds; in the first, Gold is the prevailing Metal, in the second Silver; in the third, Gold, Silver, and Copper, are equally blended.

BRAZING, the Soldering or joining of two Pieces of Iron by means of thin Plates of *Brass*, melted between the two Pieces to be join'd. If the Work be very fine, as when the two Leaves of broken Saws are to be join'd, it is cover'd with beaten *Borax*, moisten'd with Water that it may incorporate with the *Brass-dust* which is here added; and the Piece is expos'd to the Fire without touching the Coals, till the *Brass* be observ'd to run. Lastly, to *braze* with a still greater degree of Delicacy; they use a Solder made of *Brass*, with a tenth Part of *Tin*; or another, one third *Brass*, and two thirds *Silver*; or *Borax* and *Rosin*: Observing, in all these manners of *brazing*, that the Pieces be join'd close throughout; the *Solder* only holding in those Places that touch. See SOLDERING.

The Method of *brazing* among *Farriers*, &c. is by beating the two Pieces, when hot, over one another.

BREACH, in Fortification, is the Ruins made in any Part of the Works of a Town, *&c.* either by playing Cannon, or springing Mines; in order to storm the Place, or take it by assault. They say, *Make good the Breach*, *Fortify the Breach*, *Make a Lodgment on the Breach*, *Clear the Breach*, &c.

BREAK-BULK, is to begin to take the Ship's Lading or Cargo out of the Hold.

BREAK-GROUND, in Fortification, signifies to begin Works for carrying on a Siege of a Town or Fort, *&c.*

BREAST, *Mamma*, in Anatomy, a prominent fleshy Part of the human Body, on the Outside of the *Thorax*; whose use is to separate the Milk. The *Breasts* are much more perfect, more conspicuous, and of more use in Women than in Men: Their Magnitude is various; always biggest in Times of Gestation and Lactation. Their Figure represents a large Section of a Globe, having in the middle a Prominence terminating in a blunt Point, call'd the *Papilla*, or Nipple; in the Extremity of which are Perforations, to which reach Lacteal Tubes: About the Nipple is a pale brownish Circle, call'd the *Areola*.

The internal Substance of the BREASTS, is compos'd of a great Number of Glands, of various Sizes, and an oval Figure, intermix'd with Globules and Vessels of Fat. Their excretory Ducts, as they approach the Nipple, join and unite together, till at last they form seven, eight, or more small Pipes, called *Tubuli Lactiferi*, which have several cross Canals, by which they communicate with one another, to obviate the Inconveniencies that might accrue from the casual Obstruction of one or more of 'em. These Tubes are not every where of equal Capacity, but in some Places more, in others less dilated; so as to form Cells, which seem contrived to hinder the spontaneous Efflux, and to create a Necessity of Sucking to fetch out the Contents. The *Breasts* have Arteries and Veins from the Subclavian and Intercostal; and Nerves from the Vertebral Pairs, and from the sixth Pair of the Brain: Of the Concurrence of these *Tubuli* or Pipes, is the Substance of the *Papilla* in great measure form'd; among which is interspers'd a glandulous Substance, serving to keep 'em from pressing too close on each other; and with it are intermix'd abundance of Fibres drawn from the external Teguments of the *Papillæ*; by means whereof, the Lacteal Tubes are constring'd, and the Motion of the Milk modify'd. Besides these Vessels, are abundance of fatty Globules, called *Ductus Adeposi*, which some would have only to fill up the Interstices of the Glands: but Dr. *Drake*, after *Malpighi*, thinks they contribute to the Composition of the Milk; which seems nothing else but Water and Oil artfully united. See MILK. In Virgins the Tubes which compose the Glands of the *Breasts*, like a Sphincter-Muscle, contract so closely, that no part of the Blood can enter them: But when the Womb grows big with a *Fœtus*, and compresses the descending Trunk of the great Artery; the Blood flows in a greater Quantity, and with a greater Force thro the Arteries of the *Breasts*, and forces a Passage into their Glands; which being at first narrow, admits only of a thin Water: but growing wider by degrees, as the Womb grows bigger, the Glands receive a thicker Serum; and after Birth they run with a thick Milk; because that Blood which before flow'd to the *Fœtus*, and for three or four Days afterwards by the *Uterus*, beginning then to stop, does more dilate the Mammillary Glands. In Men, the *Breasts* are very small, and chiefly for Ornament; tho Physical Histories give Instances of those who have had Milk in them.

BREATHING. See RESPIRATION.

BREEZE, a shifting Wind, blowing from the Sea and Land alternately for some certain Hours of the Day or Night; only sensible near the Coast. The *Sea-Breeze*, *Dampier* observes, commonly rises in the Morning about nine, proceeding slowly in a fine small black Curl on the Water towards the Shore: It increases gradually till 12, and dies about five. Upon its ceasing the *Land-Breeze* commences, which increases till 12; and is succeeded in the Morning by the *Sea-Breeze* again. See WIND.

BREGMA, the same as *Parietalia Ossa*; see CRANIUM.

BREST, in Architecture, a Term us'd by some, for that Member of a Column, otherwise called the *Thorus* or *Tore*. See TORUS.

BREST-SUMMERS, in Timber-Building; are Pieces in the outward Parts of the Building, and in the middle Floors, (not in Garrets or Ground-Floors) into which the Girders are fram'd. In the inner Parts of a Building, the Pieces into which the Girders are fram'd, are call'd *Summers*.

BREVE, in Grammar. Syllables are distinguish'd into *Longs* and *Breves*, according as they are pronounc'd quicker or more slow: The Time of a *Breve* is half that of a *Long*; or, as the Grammarians express it, a *Breve* is one Time, and a *Long* two. See ACCENT.

BREVE, in Musick, is a Note or Character of Time, form'd like a Square, without any Tail; and equivalent to two *Measures*, or *Minims*. See CHARACTERS *of Musick*.

BREVE VAS. See VAS BREVE.

BREVIARY, an Office perform'd daily in the *Roman* Church, and which the Ecclesiasticks are to repeat at home, when they can't attend in Publick. The *Breviary* of *Rome* is general, and may be us'd in every Place: but on the Model of this have been built various others, peculiarly appropriated to each Diocese, and each Order of Religious.

The *Breviary* is compos'd of Matines, Lauds, prime, third, sixth, ninth Vespers, and the *Completa* or *Post Communio*; that is, of seven different Hours: on account of that saying of *David*, *Septies in Die laudem dixi tibi*. The Obligation of reciting the *Breviary* every Day, which was at first universal, by degrees was reduc'd to the Clergy and Beneficiaries alone, who are bound to do it on Pain of mortal Sin, and of refunding their Revenues, in proportion as they are delinquent herein. In the XIVth Century, there was a particular Reserve to Bishops, to pass on occasion, three Days without rehearsing the *Breviary*.

The Institution of the *Breviary* not being very antient, the Lives of the Saints were inserted in it, agreeable to the Opinions of the Times; *i. e.* full of ridiculous ill-attested Facts; which gave a handle to several Reformations thereof by several of their Councils, particularly those of *Trent* and *Cologne*; several Popes, as *Pius* V. *Clement* VIII. and *Urban* VIII. as also by several of their Cardinals and Bishops, each of whom lopp'd off some of the Extravagancies, and brought it nearer the Simplicity of the Primitive Offices; as owning that in the antient Church there was nothing read but from the Scriptures. Cardinal *Quignon* carry'd the Reformation the farthest; leaving out the Office of the Virgin, the Verses, Responses, and a great part of the Lives of the Saints.

The *Breviaries* that now obtain, are almost infinite: Their difference consists principally in Form and Disposition, and the Number and Order of Psalms, Hymns, Paternosters, Ave Maries, Credo's, Magnificats, Cantemus's, Benedictus's, Canticamus's, Nunc Dimittis's, Miserere's, Allelujah's, Gloria Patri's, *&c.*

The most Eminent, besides the *Roman Breviaries*, are, that of the *Benedictines*, that of the *Bernardines*, of the *Chartreux*, of the *Præmonstrantes*, of the *Dominicans*, the *Carmelites*, the *Franciscans*, and *Jesuits*; that of *Cluni*, of the Church of *Lyons*, the Church of *Milan*, and the *Mozarabic Breviary*, us'd in *Spain*. But in effect, there is scarce a Church in the Communion of *Rome*, in *France*, *Flanders*,

Spain, *Germany*, &c. but what has something particular in the Form and Manner of its *Breviary*: The Differences are generally inconsiderable.

The *Breviary* of the *Greeks*, which they call ὡρολογιον, *Horologium*, Dial, is the same, to a Trifle, in almost all the Churches and Monasteries that follow the *Greek* Rites. The *Greeks* divide the Psalter into 20 Parts, καθίσματα; which are a kind of Rests, Pauses, or Stations: and each Pause is again subdivided into three Parts. In the general, the *Greek Breviary* consists of two Parts; the one containing the Office for the Evening, call'd μεσονυκτιον; the other that for the Morning, consisting of Matines, Lauds, first, third, sixth, ninth Vespers, and *Completa*.

The *Breviary* of the *Maronites*, has some more considerable Differences. Among the People who speak the *Sclavonic* Language, or any of its Dialects, the *Breviary* is rehears'd in the vulgar Tongue; as among the *Maronites* in *Syriac*, among the *Armenians* in *Armenian*. Those who rehearse the *Breviary* in the *Sclavonic*, are divided as to the Rite: some following the *Roman* or *Latin* Rite, as the Inhabitants of *Dalmatia*, and the neighbouring Coasts: Those who live farther within the Continent, as in *Hungary*, *Bosnia*, *Sclavonia*, &c. and in *Poland*, *Lithuania*, and *Muscovy*, follow the *Greek* Rite. The *Breviaries* of the *Cophtæ* and *Abyssinians*, are much alike.

Menage derives the Word *Breviary* from this; that the antient Monks, in their Journeys, &c. had little Books, wherein were collected the Psalms, Lessons, &c. read in the Choir out of large Volumes: And F. *Mabillon* tells us, he has seen two such Books in the Archives of the *Bernardines*; they were not above three Fingers broad: he observes, their Letter was exceedingly small, and consisted mostly in Abbreviations; expressing a whole Period in a few Syllables: Whence they had a good Title to the Appellation of *Breviaries*, q. d. *Abridgments*.

BREVIATOR, an Officer under the Eastern Empire; whose Office was to write and transcribe *Briefs*. *Calvin* observes, that at *Rome* those are still call'd *Breviators*, who dictate and write the Pope's *Briefs*.

BREVIS *Cubiti*, is a Muscle that rises from the superior and posterior Part of the *Humerus*; which joining its fleshy Fibres with the *Brachiæus Externus* and *Longus*, and becoming Tendinous, covers the Elbow, and is inserted into the *Olecranium*, to extend the Arm.

Brevis *Palmaris*, lies under the *Aponeurosis* of the *Palmaris*, and arises from the *Bone* of the *Metacarpus*, that sustains the little Finger; and from that Bone, and that of the *Carpus* which lies above the rest, it goes transversly, and is inserted into the eighth Bone of the *Carpus*. It helps in making the Palm of the Hand concave.

Brevis *Radii*, comes from the External and Upper-part of the *Ulna*; and passing round the *Radius*, is inserted into its upper and fore-part, below the Tendon of the *Biceps*. This, with the *Longus Radii*, are call'd the *Supinatores*: their Office being to turn the Palm upwards.

BREWING, the Preparation of Ale, or Beer from Malt. The Process is as follows: A Quantity of Water being boil'd, is left to cool, till the height of the Steam be over; when, so much is pour'd to a Quantity of Malt in the Mashing-Tub, as makes it of a Consistence stiff enough to be just well row'd up: After standing thus $\frac{3}{4}$ of an Hour, a second Quantity of the Water is added, and row'd up as before. Lastly, the full Quantity of Water is added; and that in proportion as the Liquor is intended to be strong or weak: This part of the Operation is call'd *Mashing*. The whole stands two or three Hours, more or less, according to the Strength of the Wort, or the Difference of Weather, and is then drawn off into a Receiver; and the Mashing repeated for a second Wort, in the same manner as for the first; only the Water to be cooler than before, and to stand only half the Time. The two Worts then mix'd, the intended Quantity of Hops are added, and the Liquor close cover'd up, gently boil'd in a Copper the space of an Hour or two; then let into the Receiver, and the Hops strain'd from it into the Coolers. When cool, the Barm or Yest is apply'd; and it is left to work, or ferment, till it be fit to tun up.

For Small Beer there is a third Mashing, with the Water near cold, and not left to stand above $\frac{3}{4}$ of an Hour, to be hopp'd and boil'd at Discretion. For Double Beer or Ale, the two Liquors resulting from the two first Mashings, must be us'd as Liquor for a third Mashing of fresh Malt for Fine Ale. The Liquor thus *brew'd*, is further prepar'd with Molosses.

For Yest, some use Castle Soap, others Flour and Eggs, others an essential Oil of Barley; others a Quintessence of Malt, others of Wine, and others the *Sal Panaristus*.

For the Preparation of the Matter, and the Properties of the Liquors thus *brew'd*, see Malt and Malt-Liquor; see also Beer and Ale. For the *brewing* of Malt Spirits, see Distillation.

BRIBERY, in Law, a great Misprision, when any Person in Judicial Place, takes any Fee, Pension, Gift, Reward, or Brocage for doing his Office, but of the King only.

BRICK, a fat reddish Earth, form'd into long Squares, 4 Inches in Breadth, and 8 or 9 in Length, by means of a wooden Mould; and then bak'd or burnt in a Kiln, to serve for the Uses of Building.

Bricks appear to be of a very antient standing; the Tower of *Babel* being built thereof, as appears both from Sacred History, and from the Remains thereof still in being. Under the first Kings of *Rome*, they built with massive squar'd Stones, which they learnt from the *Tuscans*: Towards the latter Time of the Republick, they began to use *Brick*; borrowing the Practice from the *Greeks*: And the greatest, as well as the most durable Buildings of the succeeding Emperors, as the *Pantheon*, &c. were built therewith. In the Time of *Gallien*, the Buildings were compos'd of an Order of *Brick* and an Order of *Tofus*, a soft gritty Stone, alternately. After him, they laid aside the use of *Bricks*, and resumed Flints. In the *East* they bak'd their *Bricks* in the Sun: The *Romans* us'd 'em crude; only leaving 'em to dry in the Air a long space of Time, *viz.* four or five Years. The *Bricks* us'd by the *Greeks* were principally of three Kinds; the first call'd δίδωρον, *i. e.* of two Palms: the second τετράδωρον, of four Palms; and the third πεντάδωρον, of five Palms. They had other *Bricks*, just half each of these, which they join'd together to render their Works more solid, as well as more agreeable to the Eye, by the diversity of Figures and Sizes of the *Bricks*.

The *Bricks* among us are various; acquiring various Names, according to their various Forms, Dimensions, Uses, Method of making, Place, &c. The principal are, 1. *Compass Bricks*, of a circular Form, us'd in steyning of Walls. 2. *Concave*, or *hollow Bricks*, on one side flat, like a common *Brick*, on the other hollow'd: They are us'd to convey Water. 3. *Cogging Bricks*, are us'd to make the indented Work, under the Coping of Walls built with great *Bricks*. 4. *Coping Bricks*, which are form'd on purpose for coping of Walls. 5. *Dutch*, or *Flemish Bricks*, us'd to pave Yards and Stables, and for Soapboilers Fatts, and Cisterns. 6. *Clinkers*, are such *Bricks* as are glazed by the heat of the Fire in making. 7. *Feather-edg'd Bricks*, are like the common *Statute Bricks*, only thinner on one Edge than on the other, and are us'd to pen up the Brick Pannels in Timber Buildings. 8. *Samel* or *Sandal Bricks*, are such as lie outmost in a Kiln or Clamp, and consequently are soft and useless; as not being thoroughly burnt. 9. *Great Bricks*, are 12 Inches long, 6 broad, and 3 thick: The Weight of one is about 15 Pounds; so that 100 will weigh 1500, and 1000 of them 15000 Pounds Weight: Their use is to build Fence-Walls; together with, 10. *Pilaster*, or *Buttress Bricks*, which are of the same Dimensions with them, only they have a Notch at one End, of half the Breadth of the *Brick*: Their use is to bind the Work at the Pilaster of Fence-Walls, which are built of *Great Bricks*. 11. *Paving Bricks*, or *Tiles*, are of several Sizes in several Countys and Places. 12. *Place Bricks*, are such as are made in a Place prepared on purpose for them, near the Building they are to be used in. 13. *Statute*, or *Small Common Bricks*; these ought to be 9 Inches long, $4\frac{1}{2}$ broad, and $2\frac{1}{2}$ thick; 100 of these usually weigh about 550 Pounds, and 1000, 5500 Pounds; and about 407 in number, are a Tonn Weight: These are commonly us'd in paving Cellars, Hearths, Sinks, &c. 30 or 32, if true measure, will pave a Yard Square, and 330 will pave a Square of 100 Foot, laid flat; but if laid Edg-ways, there must be double the Number.

Barbaro, in his Comment on *Vitruvius*, recommends another Form of *Bricks*, *viz.* Triangular ones, every Side a Foot long; and some an Inch and half thick: These, he observes, wou'd have many Conveniencies above the rest; as being more commodious in the Management, of less Expence, and of fairer Shew; adding much Beauty and Strength to the Mural Angles, where they fall gracefully into an indented Work. And Sir *H. Wotton* wonders they have never been taken into use; being recommended by so great an Authority.

The Earth whereof *Bricks* are made, must not be sandy, which will make 'em both heavy and brittle; nor must it be too fat, which will make 'em crack in drying. They should be made either in the Spring or Autumnal Season: when made, they must be shelter'd from the Sun if it be too hot, and yet be expos'd to the Air to dry. If they be made in frosty Weather, they are to be cover'd with Sand; if in hot Weather, with wet Straw. When they are well dried, they are burnt.

Bricks are burnt, either in a *Kiln* or *Clamp*: Those in the first, being set in it, and the Kiln cover'd with Pieces of Bricks, they put in Wood, to dry them with a gentle Fire; and this they continue till they are pretty dry, which is

is known, by the Smoak's turning from a whitish dark, to a black transparent Smoak. They then cease to put in Wood, and proceed to burn with Bush, Furze, Straw, Heath, Brake, or Fern Faggots; having first damm'd up the Mouth of the Kiln with pieces of *Bricks* pil'd upon one another, and clos'd with wet *Brick-Earth*, instead of Mortar: They then continue to put in more Faggots, till the Kiln and its Arches look white, and the Fire appear a-top of the Kiln. Then they slacken the Fire for an Hour, and let all cool by degrees: 48 Hours burning is generally sufficient. About *London*, they burn *Bricks* in Clamps, built of the *Bricks* themselves, after the manner of Arches in Kilns; with a Vacancy between each Brick's Breadth, for the Fire to play thro; but with this Difference, that instead of arching, they truss or span it over, by making the *Bricks* project one over another, on both sides the Place, for the Wood and Coals to lie in, till they meet, and are bounded by the *Bricks* at the Top, which close all up. The Place for the Fuel is carry'd up straight on both sides, till about three Foot high; then they fill it almost with Wood, and over that lay a covering of Sea-Coal; then over-span the Arch: But they strew Sea-Coal also over the Clamp, betwixt all the Rows of *Bricks*; then they fire the Wood, and that fires the Coal: and when all is burnt out, they conclude the *Bricks* burnt enough.

Goldman observes, that *Bricks* will have double the Strength, if, after one burning, they be steep'd in Water, and burnt afresh. If the Earth be too fat, it must be temper'd with Sand; and that trod out again, first by Cattle, then Men. *Bricks* made of common Earth, melt, nay vitrify, by too much Heat: For which Reason, the Kilns are made of Stones that will themselves calcine, that the Vehemence of the Fire may be broken by 'em: Besides which, they usually place other *Bricks*, made of an argillous Earth which would melt, next the Fire.

Oil of Bricks, is an Oil of Olives, imbib'd by the Substance of *Bricks*, and afterwards distill'd from it. The Pieces of *Brick* being heated red hot in live Coals, are extinguish'd in an Earth half saturated with Oil of Olives: Being then separated and pounded grossly, the *Brick* imbibes the Oil. 'Tis then put in a Retort, and plac'd in a Reverberatory Furnace; and by Fire is drawn an Oil, which the Apothecaries call *Oleum de Lateribus*; and the Chymists, *Oil of Philosophers*, us'd to resolve Tumors, in the Spleen, in Palsies, and Epilepsies.

BRIDGE, a Work of Masonry, or Timber, built over a River, Canal, or the like, for the Convenience of crossing the same. Some learned Men make *Janus* to have been the first Inventor of *Bridges*, Ships, and Crowns; because in several *Greek*, *Sicilian*, and *Italian* Coins, there are represented on one side a *Janus* with two Faces, and on the other a *Bridge*, or a Crown, or a Ship. According to the Testimony given thereof by *Athenæus*, Lib. 15. one of the most notable Exploits of *Julius Cæsar*, was the expeditious making a *Bridge of Boats* over the *Rhine*. *Xerxes* is said to have made a *Bridge of Ships* over the *Hellespont*. See Ponton.

Bridge *of Communication*, is a *Bridge* made over a River; by which two Armies or Forts, separated by the River, have a free Communication with one another.

Draw-Bridge, is such a one as may be drawn, or taken up, by means of a Sweep or Counterpoise; and which shuts up against the Gate, *&c.* There are others with Pitfalls, and Beams, sustain'd by two large Stakes 15 Foot high; one Part whereof lowers as the other rises.

BRIDLE *of an Horse*, is an Assemblage of various Members, or Parts; as the Bit or Snaffle, (see Bit;) the Head-stall, or Leathers from the Top of the Head to the Rings of the Bit; the Fillet, over the Forehead, and under the Foretop; Throat-band, which buttons from the Head-band under the Throat; Reins, the Part held in the Hand; Nose-band, going thro Coops at the back of the Head-stall, and buckled under the Cheeks; the Trench, the Cavezan, Martingal, and Chaff-halter.

BRIEF, or BREVE, in Law, a Writ whereby a Man is summon'd or attach'd to answer any Action; or more largely, it is taken for any Writ in Writing, issued out of any of the King's Courts of Record at *Westminster*, whereby any thing is commanded to be done in order to Justice, or the Execution of the King's Command: and 'tis call'd *Brief*, or *Breve*, *quia breviter intentionem proferentis exponit*; because couch'd in a few plain Words, without Preamble, *&c.*

The Word *Brief* is also us'd for Letters Patent, or a Licence granted to a Subject, to make a Collection for any Publick or Private Loss; see Writ.

Apostolical Briefs, are the Letters which the Pope dispatches to Princes, and other Magistrates, touching any Publick Affairs: They are so call'd, as being very concise, written on Paper, without Preface or Preamble; in which they are distinguish'd from *Bulls*, which are more ample, and always wrote on Parchment, and seal'd with Lead or green Wax; whereas *Briefs* are seal'd with red Wax, and with the Seal of the *Fisherman*, or St. *Peter* in a Boat, in the Condition of a Fisherman; a Seal never apply'd but in the Pope's Presence. The *Brief* is headed with the Name of the Pope apart; and commences with *Dilecto filio salutem*, &c. *Apostolicam Benedictionem*, &c. and proceeds directly to the Matter in hand, without further Preamble. They are not subscrib'd by the Pope, nor with his Name, but with that of his Secretary. Pope *Alexander* VI. instituted a College of Secretaries for *Briefs*; since which time, they have been made much longer and more ample than before. Formerly *Briefs* were only dispatch'd about Affairs of Justice, but now they are likewise us'd for Graces and Dispensations.

BRIGADE, in the Military Art, a Party or Division of a Body of Soldiers, whether Horse or Foot. There are two sorts of *Brigades*, according to the *French* way of accounting. A *Brigade* of an Army; which is a Body of Horse of 10 or 12 Squadrons; Or of Foot, of 5 or 6 Battalions. And this way an Army is sometimes divided into eight *Brigades*; four of Horse, and four of Foot. A *Brigade* of a Company of Cavalry is its third Part, when it consists only of 50 Officers; but its sixth when it consists of 100.

The Word *Brigade* is *French*; some derive it from *Brigand* or *Brigue*, a secret Intrigue. *Du Cange* fetches it from *Brigand*, an ill-disciplin'd Soldier, who scours the Country, and plunders it of every thing, without waiting for the Enemy; as the Armies of *Arabs*, *Tartars*, &c. The Origin of the Word *Brigand* is, again, deduced from *Brigandine*; a Weapon wherewith the Army rais'd by the *Parisians*, during the Captivity of their K. *John* in *England*, notorious for their Robberies, were arm'd.

Brigadier, an Officer that commands a *Brigade* of Horse and Foot in an Army: He is very considerable, and goes next to the *Mareschal de Camp*.

Brigade-*Major*, is an Officer appointed by the *Brigadier* to assist him in the Management and ordering his *Brigade*; and he acts there, as a Major-General does in an Army.

BRIGANDINE, a Coat of Mail, or a kind of antient defensive Armour; consisting of thin jointed Scales or Plates, pliant and easy to the Body. Some confound it with *Haubergeon*, and some with a *Brigantine*, a low long Vessel.

BRIGANTINE, is a small, flat, open, light Vessel, which goes both with Sails and Oars, and is either for Fighting or giving Chase. It hath usually 10 or 12 Benches on a side for the Rowers, a Man and an Oar to each Bench. They are principally us'd by the *Corsairs*: All the Hands aboard being Soldiers; and each having his Musket ready under his Oar.

BRINGERS-UP, in a Battalion, are the whole last Rank of Men in it, or the last in every File.

BROCADE, or BROCARD, in Commerce, a Stuff, or Cloth of Gold, Silver, or Silk, rais'd and enrich'd with Flowers, Foliages, or other Figures, according to the Fancy of the Manufacturer. Formerly, the Term was restrain'd to Cloths wove, either wholly of Gold, both Woof and Warp; or of Silver, or of both together: But by degrees, it came likewise to pass for such as had Silk intermix'd, to fill up, and terminate the Flowers of Gold and Silver. At present, any Stuff of Silk, Satin, or even simple Taffaty, when wrought, and enrich'd with Flowers, *&c.* obtains the Denomination of *Brocade*.

BROKERS, are of two Kinds: The first *Exchange-Brokers*, who deal in Matters of Money and Merchandize, between *Englishmen* and Strangers; by drawing the Bargain to Particulars, and the Parties to Conclusion: for which they have a Fee or Reward. These, in our old Law-Books, are call'd *Broggers*; and in *Scotland*, *Broccarii*; *i. e.* according to *Skene*, Modiators or Intercessors in any Contract, *&c.* These make it their Business to know the Alteration of the Course of the Exchange, to inform Merchants how it goes, and to notify to those, who have Money to receive or pay beyond Sea, who are proper Persons for negotiating the Exchange with; and when the Matter is accomplish'd, that is, when the Money is paid, thay have for *Brokerige* two Shillings *per* 100 Pounds Sterling.

In *France*, till the Middle of the XVIIth Century, their *Exchange-Brokers* were called *Courtiers de Change*; but by an Arret of Council, in 1639, the Name was chang'd for that more creditable one of *Agents de Change*, *Banque*, & *Finance*: And in the Beginning of the XVIIIth Century, to render the Office still more honourable, the Title of *King's Counsellors* was added. At *Grand-Cairo*, and several Places of the *Levant*, the *Arabs* who do the Office of *Exchange-Brokers*, are call'd *Consuls*: The manner of whose negotiating with the *European* Merchants, has something in it so very particular, that we have referr'd it to a distinct Article: See Consul. The *Exchange-Brokers* at

Amsterdam, call'd *Makclaers*, are of two Kinds; the one like the *English*, call'd *Sworn Brokers*, because of the Oath they take before the *Bourgermesters*; the others negotiate without any Commission, and are call'd *Walking Brokers*. The first are in Number 395; whereof 375 are Christians, and 20 Jews: The others are near double that Number: So that in *Amsterdam* there are near 1000 *Exchange-Brokers*. The difference between the two consists in this; that the Books and Persons of the former are believ'd and own'd in the Courts of Justice; whereas, in Case of Dispute, the latter are disown'd, and their Bargains annull'd. The Fee of the Sworn *Exchange-Brokers* of *Amsterdam*, is fix'd by twn Regulations, of 1613, and 1623, with regard to Matters of Exchange, to 18 Sols for 100 Livres, or 600 Florins; *i.e.* 3 Sols for 100 Florins, payable, half by the Drawer, and half by the Person who pays the Money. But Custom has made considerable Alterations herein.

In the East, all Affairs are transacted by *Brokers*, whom the *Persians* call *Delal*, *i.e.* Great Talkers. The manner of making their Markets is very singular: After the *Brokers* have launch'd out into long, and usually impertinent Discourses; coming towards a Conclusion, they only talk with their Fingers. The Buyer and Seller's *Broker*, each take the other by the Right Hand, which they cover with their Coat, or a Handkerchief: The Finger stretch'd out, stands for six; bent, for five; the Tip of the Finger for one; the whole Hand 100; and the Hand clench'd, 1000. They will express even Pounds, Shillings, and Pence by their Hands. During all this mystick Commerce, the two *Brokers* appear as cold and compos'd, as if there were nothing passing between 'em.

The other kind of *Brokers*, are *Pawn-Brokers*, who let out Money to necessitous People upon *Pawns*: These are more properly call'd *Friperers*. The Word comes from the Saxon *Breacan*, to break; whence *Brokos*, a broken Dealer: None but broken Tradesmen and Freemen of the City, being formerly allow'd to be *Brokers*.

In the Cities of *Italy*, there are Companies establish'd by Authority, for the letting out Money on *Pawns*; call'd *Mounts of Piety*: An honourable Title, little becoming such Institutions; inasmuch as the Loan is not *gratis*. In some Parts of *Italy*, they have likewise *Mounts of Piety* of another kind, wherein they only receive ready Money, and return it again with Interest at so much *per Annum*. At *Boulogne* they have several of these *Mounts*; which are distinguish'd into *Frank* and *Perpetual*. The Interest of the former is only four *per Cent.* in the latter at seven.

Stock Brokers, are they who buy and sell Shares in the Joint-Stocks of a Company or Corporation, for any Person that shall desire them.

BRONCHIA, in Anatomy, the little Tubes into which the Bottom of the *Trachea* is branch'd, at its Entrance into the Lungs; and which are distributed thro every Part thereof, serving for the Conveyance of the Air in Respiration. The *Bronchia* consists of Cartilages like the *Trachea*; only here the Cartilages are perfectly circular, without any membranous hard Part: They are join'd together by the Membranes that invest 'em, and are capable of being shot out lengthwise in Inspiration; and of being drawn into each other in Expiration. The Word is *Greek*, where it signifies the same thing. See Lungs.

BRONCHIAL, a particular Artery of the Lungs, call'd the *Bronchial Artery*. It arises from the descending Trunk of the *Aorta*, and distributes it; and embracing the *Trachea*, pursues the Course of the *Bronchia*, accompanying all their Branches thro their whole Progress. There is also a *Bronchial Vein*, which accompanies the Artery, and divides into the same Number of Branches with it: The Artery brings Blood to the *Bronchia*, for the Nutrition thereof, and of the Vesicles of the Lungs; and the Vein carries it off again to the *Cava*, where it soon terminates. The *Bronchial* Artery is sometimes single; but more frequently double; sometimes triple.

BRONCHIC-*Muscles*; see Sternothyroidei.

BRONCHOCELE, a Tumor, with a large round Neck, rising on the *Bronchial* Part of the *Trachea*, very frequent in the *Alps*: The *Latins* call it *Hernia Gutturis*. The Word is form'd from the *Greek* βρόγχος, *Bronchia*, Windpipe; and κηλη, swelling.

BRONCHOTOMY, or *Laryngotomy*, in Chirurgery, the Operation of cutting into the Windpipe to prevent Suffocation, *&c.* in a *Squinancy*. 'Tis thus perform'd; the Body of the Patient being prepar'd, an Incision is made between the *Annuli*, or Rings of the *Aspera Arteria*, an Inch below the Bottom of the *Larynx*; the Skin and Integuments divided, and the Muscles remov'd; a Silver Tube is apply'd, and the Cause of the Disease remov'd; and the Wound heal'd; nourishing Clysters being apply'd in the mean time, if Deglutition be impracticable. See Larvngotomy. The Word comes from the *Greek* βρογχος, Windpipe; and τεμνω, *seco*.

BROOMING, or *Breaming of a Ship*; is burning off the Filth she has contracted on her Sides, with Straw, Reeds, *&c.* when she is on a Carcen, or on the Ground; so that it is a kind of Graving.

BROTHER, a Term of Relation between two Male Children, sprung from the same Father or Mother. The Antients apply'd the Term *Brother* indifferently to almost all who stood related in Collateral Lines, as Uncles and Nephews, Cousins German, *&c.* This we learn, not only from a great many Passages in the Old Testament, but also from profane Authors: *Cicero*, in his *Philippicks*, says, "*Antonia* was both Wife and Sister of *Mark Anthony*; "because she was Daughter of his Brother *C. Antonius*." And as to Cousins German, *Tullus Hostilius*, in *Dionysius Halicarnassus*, calls the *Horatii* and *Curatii* Brothers; because they were Sister's Children. Among us, 'tis customary for Kings to give the Title *Brother* to each other: The Unction in Coronation being esteem'd to settle a kind of *Brotherhood*. Nor is the Custom modern; *Menander* mentions a Letter of *Cosroes*, King of *Persia*, to the Emperor *Justinian*, beginning thus; Cosroes *King of Kings*, &c. *to the Emperor* Justinian *My Brother*. Kings now also give the same Appellation to the Electors of the Empire: And the like was given by the King of *France* to the present King of *Sardinia*, while only Duke of *Savoy*.

The *Latin* Word is *Frater*; which *Scaliger* and *Vossius* derive from φρήτωρ, for φράτωρ; which properly signifies a Person who draws Water in the same Well: φρέαρ, in *Greek*, signifying *Well*; and φρατρία, a Company of People, who have a Right to draw Water out of the same Well. The Word came originally from the City *Argos*, where there were only a few Wells distributed in certain Quarters of the City; to which those of the same Neighbourhood alone repair'd. In the Civil Law, *Brothers*, *Fratres*, in the plural, comprehends *Sisters*; as, *Lucius & Titia*, *Fratres*, L. 38. de Famil. *Tres Fratres*, *Titius*, *Mævius*, & *Seia*, L. 35. de Pactis.

Brother, is particularly us'd between Monks of the same Convent; as, *Brother Zachary*, *Brother Bonaventure*, &c. In *English* we more usually say *Friar Zachary*, &c. from the French *Frere*, *Brother*. This Appellation they borrow from the Primitive Christians, who all call'd each other *Brothers*: But 'tis principally us'd for such of the Religious as are not Priests; for those in Orders are generally honour'd with the Title of *Fathers*, *Patres*, *Peres*; whereas the rest are only simply *Brothers*. The Monks of St. *Dominic*, are particularly call'd *Preaching Brothers*; or, *Friars Predicants*: Those of St. *Francis*, *Minor Friars*; those of *Charity*, *Ignorant Friars*, &c. See Franciscans, Dominicans, *&c.* In the Military Orders, the Knights are also call'd *Brothers*: In the Order of *Malta*, there is a particular Class, call'd *Serving Brothers*; consisting of such as cannot give Proofs of their Nobility. In *Latin* they are call'd, *Fratres Clientes*. See Malta.

Brothers *by Adoption*, see Adoption. *Fratres Consanguinei*, are two *Brothers*, who have only the same Father: And *Fratres Uterini*, those who are only descended from the same Mother.

Brothers *of the Rosy-Cross*; see Rosicrucian.

BROWNISTS, a Religious Sect, which sprung out of the Church of *England*, towards the Close of the XVIth Century; Their Leader, *Robert Brown*, originally of *Northampton*. The Occasion of their Separation was not any Fault they found with the Faith, but with the Discipline and Form of Government of the Establish'd Church. They equally charg'd Corruption on the Episcopal Form; and on that of the *Presbyterians*, by Consistories, Classes, and Synods: Nor would they join with any other Church; because they were not assur'd of the Conversion and Piety of the Members that compos'd 'em; on account of the Toleration of Sinners, with whom they maintain'd it an Impiety to communicate. They condemn'd the solemn Celebrations of Marriages in the Church; maintaining, that Matrimony being a Political Contract, the Confirmation thereof must come from the Civil Magistrate. They would not allow any Children to be baptiz'd of such as were not Members of the Church, or of such as did not take sufficient Care of those baptiz'd before. They rejected all Forms of Prayers; and held that the Lord's Prayer was not to be recited as a Prayer; being only given for a Rule or Model, whereon all our Prayers are to be form'd. See Separatist.

BRUMALIA, a Feast of *Bacchus*, celebrated among the antient *Romans* for the space of 30 Days; commencing on the 24th of *November*, and ending the 26th of *December*. The *Brumalia* were instituted by *Romulus*; who used, during this Time, to entertain the Senate. The Word comes from *Bruma*, Winter; in regard of the Time when the Feast was held: Others will have it from *Brumus*, or *Bromius*, Names of *Bacchus*.

BRYONY, the Root of a Plant of the same kind with the *Mechoaca*: It was formerly in great Reputation as a Purgative; but has now lost the greatest part thereof; yet it

it evacuates pretty ſtrongly, ſometimes by Vomiting, but more frequently by Urine: Whence ſome Authors recommend it, as excellent for purging Seroſities; and even as a Specifick in the Dropſy. M. *Boulduc* found, by a Chymical Analyſis, that it conſiſted only of ſaline Principles, without any Reſin: Wherein it differs from *Mechoacan*, which, in other reſpects, it much reſembles. He adds, it has more virtue taken in Subſtance than in any other manner; which is common to this and other Purgatives.

BUBBLE, in Commerce, a Cant Name, lately given to a ſort of Projects, for the raiſing of Money on imaginary Grounds; very frequent in the Years 1720,—21. See STOCKS.

The pretended Deſign of theſe Undertakings, was to raiſe a Stock, for the retrieving, ſetting on foot, or carrying on ſome promiſing and uſeful Branch of Trade, Manufacture, Machinery, or the like. In order to which, Propoſals were given out, ſhewing the Advantages of the Deſign, and inviting Perſons into it. The Sum neceſſary to carry on the Affair, together with the Profits expected from it, were divided into a certain Number of *Shares*, or *Subſcriptions*, to be purchas'd by Perſons diſpos'd to adventure therein. The real Deſign, in ſome, was to raiſe a Sum for the private Advantage of the Projectors; to be laid out by them in the *South-Sea Stock*, &c. in hopes, by the Riſe thereof, to be able to refund the Subſcribers Money, with Profit to themſelves. In others the Deſign was, abſolutely to defraud the Adventurers of their Subſcription-Money, without any View to Reſtitution. There was a third kind ſomewhat different; the Projectors of theſe, to proceed the more ſecurely, propos'd to have Books open'd, and Subſcriptions taken in at ſome time to come; and in the mean time took Money, by way of Premium, to entitle Perſons to be admitted Subſcribers, as ſoon as the Affair ſhould be ripe, for dividing into Shares. Several thouſand Shares were, thus, very frequently beſpoke in one Day; and Premiums, from one Shilling to ſome Pounds, pay'd thereupon, to the Profits of the Projectors. See SUBSCRIPTION.

The number of *Bubbles*, and their Qualities, were very extraordinary: Some of 'em too authoriz'd by Patents; and in others, the Projectors and their Proprietors form'd into Corporations: Some for Fiſheries, ſome for Inſurances, ſome for the digging of Mines, &c. Poſterity, doubtleſs, will be ſurpriz'd to hear of others for cleaning the Streets, others for furniſhing Shoes, others for Stockings, others for Phyſick, others for the Maintenance of Baſtard Children, others for the buying bad Titles, others for the lending of Money, &c.

BUBBLES, in Phyſicks, little round Drops or Veſicles of any Fluid fill'd with Air, and form'd on its Surface, upon the Addition of more of the Fluid, as in raining; or in its Subſtance, upon a vigorous inteſtine Commotion of its Parts. *Bubbles* are dilatable or compreſſible, *i.e.* take up more or leſs room, as the included Air is more or leſs heated, or more or leſs preſs'd from without; and are round, becauſe the included *Aura* acts equably from within all around. Their Coat or Cover is form'd of the minute Particles of the Fluid, retain'd either by the Velocity of the Air, or by the brisk Attraction between thoſe minute Parts and the Air. 'Tis theſe little *Bubbles*, riſing up from Fluids, or hanging on their Surface, which form the white Skum a-top; and 'tis theſe ſame *Bubbles* which form the Steam or Vapour flying up from Liquors in boiling, &c. the manner of which ſee under BOILING, VAPOUR, &c.

BUBO, in Medicine, a Tumor ariſing on the Glands of the Groin and Armpits, with Inflammation and Pain; owing to the overflowing of the Blood in thoſe Glands, mix'd with ſome peccant Humour. There are two Kinds of *Bubo*'s, the one call'd *Benign*, or Mild, the other *Malignant*. Malignant, are divided into *Peſtilential* and *Venereal*: Peſtilential ariſe on a Peſtilential Fever, &c. Venereal *Bubo*'s are the Product of impure Embraces; and frequently the Forerunner of the Pox. When a *Bubo* is encompaſs'd with a Circle of ſeveral Colours, 'tis a Sign it is Peſtilential, and generally Mortal. The Word comes from the *Greek* βουβών, *Inguen*; the uſual Place of ſuch Tumors.

BUBONOCELE, a Tumor ariſing in the Groin; occaſion'd by the Deſcent of the Epiploon or Inteſtines. 'Tis a Species of *Hernia* or Rupture; tho Chirurgeons call it an Incomplete one; and is common to Women as well as Men. The Word comes from the *Greek* βουβων, *Inguen*, and κηλη, Tumor.

BUCANEERS, or BOUCANEERS, a popular Term in the *Weſt Indies*, us'd properly for a kind of Savages who prepare their Meat on a Grate, or Hurdle made of *Braſil* Wood, plac'd in the Smoak at a good height from the Fire, and call'd *Boucan*: whence alſo the little Lodges rais'd for the Preparation of their Food are call'd *Boucans*; and the Action of dreſſing it *Boucaning*. Meat *boucan'd*, is ſaid to have an excellent Taſte, the vermil Colour of a Roſe, and a charming Smell; all which it retains many Months. *Oexmelin*, from whom we have this, adds, that the neighbouring People ſend their Sick hither, that by eating their *boucan'd* Meat they may be recover'd.

The Origin of the Word is referr'd to the *Caribbee Indians*, who uſing to cut their Priſoners of War in pieces, and lay 'em on Hurdles with Fire underneath; which they call'd *Boucaning*, *i. e.* Roaſting and Smoaking together: hence our *Bucaneers* took both their Name and their Cuſtom; with this Difference, that what the former did to Men, theſe did to Animals caught in Hunting. The *Spaniſh* call thoſe in their Territories *Matadores*; from *Toros*, killers of Bulls, and *Monteros*, runners in the Wood: The *Engliſh* call theirs *Cowlierdiers*, or Cow-killers. The *Bucaneers* are of two diſtinct Profeſſions; the one only hunt Bulls for their Skins, the other Boars for their Fleſh. The Art of *boucaning*, *Oexmelin* deſcribes thus; the Boar being flea'd, and the Bones ſtripp'd out, is cut into Pieces of the Length of the Arm and ſalted, and the next Day laid on the *Boucan*; which conſiſts of 20 or 30 Bars laid acroſs, half a Foot from each other: Under this they raiſe a thick Smoak, adding the Skin and Bones of the Boar to heighten it. This is found vaſtly better than any ſimple Fuel; in regard the Volatile Salts of thoſe Parts, are by this means communicated to the Fleſh, which give it ſuch a Reliſh, as that after a little of this *boucaning*, the niceſt Palate will eat it without further Preparation.

BUCCALES-GLANDULÆ, are Glands diſperſed over the inner Side of the Cheeks and Lips, which ſeparate a Spittle uſeful in Maſtication and Digeſtion. See MOUTH.

BUCCELLARII, a kind of Soldiers kept by the *Greek* Emperors, in the Provinces and Countries; ſo call'd becauſe ſubſiſted by the Emperor, or becauſe he was at the Expence of their eating; from *Buccella*, a Diminutive of *Bucca*, Mouth: Theſe being in that Country, what the *Commenſales*, or Beef-Eaters are at Court. The *Buccellarii*, in the Army where the Emperor commanded, march'd before and behind him, as his Guard. There were alſo another kind of *Buccellarii*, under the *Greek* Emperors; *viz.* the Ελληνογαλατται, *Greeks of Galatia*, who furniſh'd the Soldiery with Bread.

The firſt kind of *Buccellarii*, according to ſome Authors, were Men whom the Emperors employ'd in putting certain Perſons to Death ſecretly. The *Nomic* Gloſſes interpret the Word *Envoy*, as alſo *Stationary Soldier*; or a Perſon retain'd in the Service of any one: And the *Baſilicks* explain it in the ſame Senſe; deriving it from βυκκα, *Mouth*, *Bread*; as ſignifying a Perſon who eat the Bread of another, on account of his Service. Among the *Viſigoths*, *Buccellarius* was a general Name for all Clients or Vaſſals, who liv'd at the Expence of their Lords.

BUCCINA, an antient Military, or rather Muſical Inſtrument, uſed in War. 'Tis uſually taken for a kind of Trumpet; which Opinion *Feſtus* confirms, by defining it a crooked Horn, plaid on like a Trumpet. *Vegetius* alſo obſerves, that the *Buccina* was bent into a Circle; in which it differ'd from a Trumpet, *Tuba*. *Varro* adds, they were call'd Horns, *Cornua*, becauſe originally made of the Horns of Cattel; as is ſtill done among ſome People. *Servius* ſeems to ſay, that they were at firſt made of Goats Horns: And the Scriptures call the Inſtruments us'd, both in War and in the Temple, *Keren Jobel*, Rams Horns; and *Saphoroth Haijobelim*, *Buccinæ*, of Rams. The Muſical Inſtruments us'd in a Military March, are *Buccinæ*, Trumpets, Lituus, Clarions, Cornets, Fifes, Drums, Tymbals, &c. which ſee. The Marine *Buccinæ*, given by Poets and Painters to Tritons and Sea-Gods, are Shells twiſted in form of Snails. The Word comes from *Bucca*, Mouth; becauſe plaid on by the Mouth.

BUCCINATOR, or *Trumpeter*, in Anatomy, a Muſcle on each ſide the Face, common to the Lips and Cheeks; making the inner Subſtance of the latter: Its Fibres run from the *Proceſſus Coronæ* of the lower Jaw, to the Angle of the Mouth, and adhere to the upper Part of the Gums of both Jaws: Thro its middle paſs the upper *Ductus Salivales*. By this is contracted the Cavity of the Mouth, and the Meat is thruſt forward to the Teeth in Maſtication. It has its Name from *Buccina*, Trumpet; becauſe, when ſwell'd, it enlarges the Cheeks, as in ſounding a Trumpet.

BUCENTAURE, or BUCCENTAUR, the Name of a large Veſſel, us'd by the *Venetians* in the Ceremony of eſpouſing the Sea, perform'd each *Aſcenſion*-Day with much Pomp. *P. Juſtiniani*, gives a very preciſe Deſcription of the *Buccentaur*; and adds, that its Origin is carry'd up as high as the Year of Chriſt 1311; tho others carry it higher, to the Year 1177, when the Emperor *Frederick Barbaroſa* came to *Venice*, to make Peace with the Republick and the Pope: At which Time the Pope, in Conſideration of the Services the State had done him, in ſheltering him in their City when he had been driven out of his own, granted them ſeveral Privileges; and made a preſent to the *Doge* of a Gold Ring, which is the Origin of that yearly caſt by the *Doge*, from the *Buccentaur*, into the Sea. The Word comes from the *Greek*, βυκεντουρος; com-

pos'd of βȣ, a Particle of Augmentation, us'd to denote an enormous Greatness; and κένταυρȣ, Centaur. *Justiniani* adds two other Etymologies of this: the first from *bis*, and *taurus*, or rather *Centaurus*, the name of one of *Æneas*'s Vessels in *Virgil*: The other from *Bucentaurus*, for *Ducentaurus*, a Word forg'd to signify a Vessel capable of of holding 200 Men.

BUCEPHALUS, *Bullock's Head*, from the *Greek* βȣς, *bos*, and κεφαλη, Head. It was the Custom among the Antients to impress some Mark on their Horses; the most common were a Σ, *Sigma*, a Κ, *Kappa*, and a *Bullock's Head*. Hence those mark'd with Σ's, were call'd Σȣμφορεȣς; those with a Κ, Κοπποδιȣς; and those with a *Bull's Head*, Βȣκεφαλοι, *Buccephali*. This Mark was stamp'd on the Horse's Buttocks, and his Harnesses; as appears from the Scholiast on *Aristophanes's Clouds*, *Hesychius*, &c.

BUCKLER, a piece of defensive Armour, us'd by the Antients to screen their Bodies from the Blows of their Enemies. See the *Buckler* of *Achilles* describ'd in *Homer*, that of *Æneas* in *Virgil*, that of *Hercules* in *Hesiod*: *Ajax*'s *Buckler* was lin'd with seven Bulls Hides. The Shield succeeded the use of the *Buckler*: Yet the *Spaniards* still retain the *Sword and Buckler* in their Night-Walks. The Word comes from *Bucularium*; on account of the Buckles wherewith the Antients adorn'd their *Bucklers*. In the Days of corrupt *Latin*, we frequently find *Buccula Clypei*, the Buckle of the *Buckler*. *Thomassin* derives it from *Bucca*, Mouth or Throat; because it was usual to have Heads, &c. represented on *Bucklers*. See SHIELD.

Bucklers on Medals, are either us'd to signify publick Vows render'd to the Gods for the Safety of a Prince; or that he is esteem'd the Defender and Protector of his People: These were call'd *Votive Bucklers*, and were hung at Altars, &c.

BUCOLICKS, *Pastorals*, a Term used for a kind of Poems relating to Shepherds, and Flocks. *Bucolick* Poetry is the most ancient of all the Kinds of Poetry; and is supposed to have had its Origin in *Sicily*, amidst the Mirth and Diversions of the Shepherds; and to have been inspir'd by Love and Idleness: By degrees, their Rural Gallantries were brought under Rules, and became an Art. The Concerns of the Flocks, the Beauties of Nature, and the Pleasure of a Country Life, were their principal Subjects. *Moschus* and *Bion*, were the most agreeable among the antient *Bucolick* Poets. *Fontenelle* observes, that *Theocritus*'s Stile is sometimes a little too *Bucolick*. Some Authors attribute the Invention of *Bucolick* Poetry to a Shepherd call'd *Daphnis*; and others to *Bucolius*, Son of *Laomedon*: But this appears all Fiction. The Word is deriv'd from the *Greek* βȣς, and κολον, *cibus*, Meat; hence βȣκολεω, to feed Cattle; and βȣκολȣς, *bubulus*, Herdsman.

BUD, is a weaned Calf of the first Year; so called, because the Horns are then in the *Bud*.

BUDS, among Gardeners, the first Tops of most Sallad Plants, &c. which are preferable to all other less tender Parts. See CYON.

BUFF, in Commerce, a sort of Leather prepar'd from the Skin of the *Buffelo*, a wild Beast resembling an Ox, but longer and bigger; having large thick Horns, short black Hair, and a very small Head; common enough in the *Levant*, particularly about *Smyrna*, *Constantinople*, &c. where, as well as in *Italy*, they are frequently tam'd, and wrought, as we do Oxen.

The Skin of this Animal being dress'd in Oil, after the manner of Shammy, or *Chamois*, makes what we call *Buff*-Skin; antiently much used among the Military Men, for a kind of Coats or Doublets; and still retain'd by some of our Grenadiers, as well as the *French Gend'armery*, on account of its exceeding Thickness and Firmness. 'Tis also used for Waste-Belts, Pouches, &c. This Skin makes a very considerable Article in the *English*, *French*, and *Dutch* Commerce, at *Constantinople*, *Smyrna*, and the Coasts of *Africa*.

The Skins of Elks, Oxen, and other like Animals, when dress'd in Oil, and prepar'd after the same manner as that of the *Buffelo*, are likewise denominated *Buff*; and us'd for the same Purposes. In *France*, there are a good number of considerable Manufactures destin'd for the Preparation of such Skins; particularly at *Corbeil*, *Paris*, and *Rouen*: Their first Institution is owing to the Sieur *Jabac*, a Native of *Cologne*. The manner of Preparation see under the Article CHAMOIS.

BUFFET, or BUFET, was antiently a little Apartment, separated from the rest of a Room, by slender Wooden Columns, for the disposing China and Glass Ware, &c. call'd a Cabinet: 'Tis now, properly, a large Table in a Dining Room, call'd also a Side-Board, for the Plate, Glasses, Bottles, Basons, &c. to be placed, as well for the Service of the Table as for Magnificence. The *Buffet*, among the *Italians*, call'd *Credenza*, is enclos'd within a Ballustrade, Elbow high.

BUFFOON, an Actor in Farce, or a Mimick, who diverts the Publick by his Pleasantries and Follies. This is reputed the Talent of the *Italian* Comedians. Some Authors make the Origin of *Buffoonry* very antient, deriving it from a Feast instituted in *Attica*, by K. *Erictheus*, on occasion of a Priest, call'd *Buphon*: Who after having sacrific'd the first Bullock on the Altar of *Jupiter Polion*, or Guardian of the City, fled hastily away, without any apparent Reason; leaving the Ax and other Instruments of Sacrifice on the Ground, nor con'd either be stopp'd, or ever found afterwards. The Instruments were hereupon deliver'd up to the Judges, and solemnly try'd; the Ax found Guilty, and the rest acquitted. This Sacrifice was kept up in the same manner the following Years: The Priest fled, as the first; and the Ax condemn'd. As the whole Ceremony was perfectly Burlesque, the Words *Buffoons* and *Buffoonries* have been since apply'd to all ridiculous Mummeries and Farces: This History is related by *Rhodoginus*. *Menage*, after *Salmasius*, derives the Word from *Buffo*; a Name given to those who appear'd on the *Roman* Theater with their Cheeks blow'd up; that receiving Blows thereon, they might make the greater Noise, and set the People a laughing.

BUGGERY, Sir *Edward Coke* defines, *Carnalis Copula contra Naturam, & hoc vel per confusionem Specierum*; *viz.* a Man or Woman with a brute Beast: *vel Sexuum*, a Man with a Man, or a Woman with a Woman: each kind is Felony, without Benefit of Clergy. In antient Times, such Offenders were burnt by the Common Law. *Buggery* is generally excepted out of a General Pardon. The Practice is said to have been introduc'd into *England* by the *Lombards*: It is supposed to take its Name from the antient *Bulgarians*.

BUILDING, *D'aviler* defines, any Place erected by Art, whether for Convenience, for Religion, or Magnificence. See HOUSE, TEMPLE, THEATER.

A *Regular Building*, is that whose Plan is Square, its opposite Sides equal, and the Parts dispos'd with Symmetry. An *Irregular Building*, is that, on the contrary, whose Plan is not contain'd within equal or parallel Lines, either by the Nature of its Situation, or the Artifice of the *Builder*; and whose Parts have not any just Relation to one another in the Elevation. An *Insolated Building*, is that which is not attach'd, join'd, or contiguous to any other; or is encompass'd with Streets, or any open Square, or the like; as St. *Paul's*, the *Monument*, &c. A *Building* is said to be *engag'd*, when it is encompass'd with others, and has no Front towards any Street or publick Place, nor any Communication without, but by a back Passage. An *interr'd*, or *sunk Building*, is that whose Area is below the Level of the adjacent Street, Court, or Garden, &c. and whose lowest Courses of Stone are hid.

Felibien considers three Kinds of *Buildings* in Architecture; 1. *Sacred Buildings*; as the Temples of the Antients, and our Churches and Chappels. 2. *Publick Buildings*; as Basilicks, or Courts of Justice, Tombs, Theaters, Amphitheaters, Triumphal Arches, Gates, Bridges, Aqueducts, &c. 3. Palaces, and private Houses: Each of which see under their proper Heads, BASILIC, CHURCH, AMPHITHEATER, &c.

BUILDING is also us'd for the constructing or raising of an Edifice; in which Sense it comprehends, as well the Expenses, as the Invention and Execution of the Design thereof. See ARCHITECTURE.

In *Building* there are three Things in view, *viz.* Commodity, Firmness, and Delight: To attain these Ends, Sir *Henry Wotton* considers the whole Subject under two Heads, *viz.* the Seat or *Situation*, and the *Work*. For the Situation, either that of the *Whole* is to be consider'd, or that of its *Parts*.

For the first, regard must be had to the Quality, Temperature, and Salubrity of the Air; the Cooveniency of Water, Fuel, Carriage, &c. and the Agreeableness of the Prospect. For the second, the chief Rooms, Studies, Libraries, &c. to lie towards the East; Offices that require Heat, as Kitchens, Distillatories, Brew-houses, &c. to the South: Those that require a cool fresh Air, as Cellars, Pantries, Granaries, &c. to the North: As also Galleries for Painting, Museums, &c. which require a steady Light. He adds, that the antient *Greeks* and *Romans*, generally situated the Front of their Houses to the South: But the modern *Italians* vary from this Rule. Indeed, in this Matter, regard must still be had to the Country; each being oblig'd to provide against its respective Inconveniences: So that a good Parlour in *Egypt*, might make a good Cellar in *England*. See SITUATION.

For the second Head, the Situation being fix'd on, the next thing to be consider'd is the *Work*: Under this come, first the principal Parts, then the Accessories, or Ornaments.

Under the Principals, are, first, the *Materials*; then the *Form* or Disposition. The Materials are either Stone, as

Marble, Free-ſtone, Brick, for the Walls, &c. or of Wood, as Fir, Cypreſs, Cedar, for Poſts and Pillars of upright uſe; Oak, for Beams, Summers, Crop-work, or for Joining and Connection. See STONE, BRICK, WOOD, TIMBER, &c.

For the Form or Diſpoſition of a *Building*, it muſt either be Simple or Mix'd: The ſimple Forms are either Circular or Angular; and the Circular ones either compleat, as juſt Spheres, or deficient, as Ovals.

The circular *Form* is very commodious, of the greateſt Capacity of any; ſtrong, durable beyond the reſt, and very beautiful: but then it is found of all others the moſt chargeable; much room is loſt in the bending of the Walls, when it comes to be divided; beſides an ill Diſtribution of Light, except from the Centre of the Roof: On theſe Conſiderations it was, that the Antients only us'd it in Temples and Amphitheaters, which needed no Compartition. Oval Forms have the ſame Inconveniences, without the ſame Conveniences; being of leſs Capacity.

For Angular Figures, Sir *H. Wotton* obſerves, that *Building* neither loves many nor few Angles: The Triangle, *v. g.* is condemn'd above all others, as wanting Capacity and Firmneſs; as alſo, being irreſolvable into any other Regular Figure in the inward Partitions, beſides its own. For Figures of 5, 6, 7, or more Angles, they are fitter for Fortifications than Civil Buildings. There is, indeed, a celebrated *Building* of *Vignola*, at *Caprarole*, in Form of a Pentagon; but the Architect had prodigious Difficulties to grapple with, in diſpoſing the Lights, and ſaving the Vacuities. Such *Buildings* then, ſeem rather for Curioſity than Conveniency: and for this Reaſon, Rectangles are pitch'd on, as being a Medium between the two Extremes. But again, whether the Rectangle is to be a juſt Square or an Oblong, is diſputed. Sir *Henry Wotton* prefers the latter, provided the Length don't exceed the Breadth by above one third.

Mix'd Figures, partly Circular and partly Angular, may be judg'd of from the Rules of the Simple ones; only they have this particular Defect, that they offend againſt Uniformity. Indeed Uniformity and Variety may ſeem to be oppoſite to each other: but Sir *H. Wotton* obſerves, they may be reconcil'd; and for an Inſtance, mentions the Structure of the Human Body where both meet. Thus much for the firſt grand Diviſion, *viz.* the *Whole* of a *Building*.

For the ſecond Diviſion, or the *Parts* of a Fabrick, *Baptiſta Alberti* compriſes 'em under five Heads; *viz.* the Foundation, Walls, Apertures, Compartitions, and Cover.

For the *Foundation*, to examine its Firmneſs, *Vitruvius* orders the Ground to be dug up; an apparent Solidity not to be truſted to, unleſs the whole Mold cut thro be found ſolid: He does not indeed limit the Depth of the Digging; *Palladio* limits it to a ſixth Part of the Height of the *Building*: This Sir *Henry Wotton* calls the Natural Foundation, whereon is to ſtand the Subſtruction, or Ground-work, to ſupport the Walls, which he calls the Artificial Foundation: This then is to be level; its loweſt Ledge, or Row of Stone only, cloſe laid with Mortar, and the broader the better; at the leaſt, twice as broad as the Wall: Laſtly, ſome add, that the Materials below ſhould be laid juſt as they grew in the Quarry; as ſuppoſing 'em to have the greateſt Strength in their natural Poſture. *De Lorme* enforces this, by obſerving, that the breaking or yeilding of a Stone in this Part, but the Breadth of the Back of a Knife, will make a Cleft of above half a Foot in the Fabrick above. For *Pallification*, or piling the Ground-Plot, ſo much commended by *Vitruvius*, we ſay nothing; that being requir'd only in a moiſt marſhy Ground, which ſhould never be choſen: Nor perhaps are there any Inſtances of this kind, where it was not Neceſſity that drove 'em to it. See FOUNDATION.

For the *Walls*, they are either entire and continued, or intermitted; and the Intermiſſions are either Columns or Pilaſters. Entire, or contin'd Walls, are variouſly diſtinguiſh'd; by ſome, according to the Quality of the Materials, as they are either Stone, Brick, &c. others only conſider the Poſition of the Materials; as when Brick, or ſquare Stones are laid in their Lengths, with Sides and Heads together, or their Points conjoin'd, like a Network, &c. See MASONRY. The great Laws of Muring, are, that the Walls ſtand perpendicular to the Ground-work; the Right Angle being the Cauſe of all Stability: that the maſſieſt and heavieſt Materials be loweſt, as fitter to bear than be born; that the Work diminiſh in Thickneſs, as it riſes; both for eaſe of Weight and Expence: that certain Courſes, or Ledges of more ſtrength than the reſt, be interlaid, like Bones, to ſuſtain the Fabrick from total Ruin, if the Under-parts chance to decay: And laſtly, that the Angles be firmly bound; theſe being the Nerves of the whole Fabrick, and commonly fortify'd, by the *Italians*, on each ſide the Corners, even in Brick *Buildings*, with ſquar'd Stones; which add both Beauty and Strength. See WALL.

The Intermiſſions, as before obſerv'd, are either Columns or Pilaſters; whereof there are five Orders, *viz. Tuſcan*, *Doric*, *Ionic*, *Corinthian*, *Compoſite*; each of which ſee diſtinctly conſider'd under its reſpective Head. Columns and Pilaſters are frequently, both for Beauty and Majeſty, form'd Archwiſe; the Doctrine of which, ſee under ARCH.

For the *Apertures*, they are either Doors, Windows, Stair-caſes, Chimneys, or Conduits for the Suillage, &c. which ſee under their Heads, DOOR, WINDOW, &c. Only with regard to the laſt, it may be obſerved, that Art ſhould imitate Nature in theſe ignoble Conveyances, and ſeparate them from Sight, where a running Water is wanting, into the moſt remote, loweſt, and thickeſt Part of the Foundation; with ſecret Vents, paſſing up thro the Walls, like a Tunnel, to the open Air; which the *Italians* all commend for the Diſcharge of noiſom Vapors.

For the *Compartition*, or Diſtribution of the Groundplot into Apartments, &c. Sir *H. Wotton* lays down theſe Preliminaries; That the Architect never fix his Fancy on a Paper Draught, how exactly ſoever ſet off in Perſpective; much leſs on a mere Plan, without a Model, or Type of the whole Structure, and every Part thereof, in Paſtboard or Wood; that this Model be as plain and unadorn'd as poſſible, to prevent the Eye's being impos'd on, and that the bigger this Model, the better. In the Compartition it ſelf, there are two general Views, *viz.* the Graceſulneſs, and Uſefulneſs of the Diſtribution, for Rooms of Office and Entertainment; as far as the Capacity thereof, and the Nature of the Country will allow. The Graceſulneſs will conſiſt in a double Analogy or Correſpondency; firſt, between the Parts and the Whole, whereby a large Fabrick ſhould have large Partitions, Entrances, Doors, Columns, and, in brief, all the Members large: The ſecond, between the Parts themſelves, with regard to Length, Breadth, and Height. The Antients determin'd the Length of their Rooms, that were to be Oblongs, by double their Breadth; and their Height by half their Breadth and Length added together. When the Room was to be preciſely Square, they made the Height half as much more as the Breadth: which Rules, the Moderns take occaſion to diſpenſe with; ſometimes ſquaring the Breadth, and making the Diagonal thereof the Meaſure of the Height; and ſometimes more. This deviating from the Rules of the Antients, is aſcrib'd to *M. Angelo*.

The ſecond Conſideration in the Compartition, is the Uſefulneſs; which conſiſts in the having a ſufficient number of Rooms of all Kinds, with their proper Communications, and without Diſtraction. Here the chief Difficulty will lie in the Lights and Staircaſes. The Antients were pretty eaſy on both thoſe Heads, having generally two cloiſter'd open Courts, one for the Women's Side, the other for the Men: Thus the Reception of Light into the Body of the *Building* was eaſy; which among us muſt be ſupply'd, either by the open Form of the *Building*, or by graceful Refuges or Breaks, by terraſſing a Story in danger of Darkneſs, and by Abajours, or Sky-Lights. For caſting the Staircaſes, it may be obſerv'd, that the *Italians* frequently diſtribute the Kitchen, Bake-houſe, Buttery, &c. under Ground, next above the Foundation, and ſometimes level with the Floor of the Cellar; raiſing the firſt aſcent into the Houſe 15 Foot, or more: which, beſide the removing of Annoyances out of the Sight, and gaining ſo much room above, does, by elevating the Front, add a Majeſty to the whole. Indeed, Sir *H. Wotton* obſerves, that in *England* the natural Hoſpitality thereof, won't allow the Buttery to be ſo far out of ſight; beſides that, a more luminous Kitchen, and a ſhorter Diſtance between that and the Dining-Room, are requir'd, than that Compartition will well bear. In the Diſtribution of Lodging Rooms, 'tis a popular and antient Fault, eſpecially among the *Italians*, to caſt the Partitions ſo, as when the Doors are all open, a Man may ſee through the whole Houſe; grounded on the Ambition of ſhewing a Stranger all the Furniture at once: an intolerable Hardſhip on all the Chambers, except the Inmoſt, where none can arrive but thro all the reſt, unleſs the Walls be extreme thick for ſecret Paſſages: nor will this ſerve the Turn, without at leaſt three Doors to each Chamber; a thing inexcuſable, except in hot Countries: Beſides its being a weakning to the *Building*, and the Neceſſity it occaſions of making as many common great Rooms as there are Stories, which devours a great deal of room, better employ'd in Places of Retreat; and muſt likewiſe be dark, as running thro the Middle of the Houſe. In the Compartition, the Architect will have occaſion for frequent Shifts; thro which his own Sagacity, more than any Rules muſt conduct him. Thus he will be frequently put to ſtruggle with Scarcity of Ground; ſometimes to damn one room for the Benefit of the reſt, as to hide a Buttery under a Staircaſe, &c. at other times, to make thoſe the moſt beautiful which are moſt in Sight; and to leave the reſt, like a Painter, in the Shadow, &c.

For the *Covering* of the *Building*; this is the laſt in the Execution, but the firſt in the Intention: for who would *build*,

build, but to shelter? In the Covering, or Roof, there are two extremes to be avoided, the making it too heavy or too light: The first will press too much on the Underwork; the latter has a more secret Inconvenience; for the Cover is not only a bare Defence, but a Band or Ligature to the whole *Building*; and there requires a reasonable Weight. Indeed, of the two Extremes, a House top-heavy is the worst. Care is likewise to be taken, the Pressure be equal on each Side; and *Palladio* wishes, that the whole Burden might not be laid on the outward Walls, but that the Inner likewise bear their Share. The *Italians* are very curious in the Proportion and Gracefulness of the Pent or Slopeness; dividing the whole Breadth into nine Parts, whereof two serve for the height of the highest Top or Ridge from the lowest: But in this Point, regard must be had to the Quality of the Region; for, as *Palladio* insinuates, those Climates which fear the falling of much Snow, ought to have more inclining Pentices than others. See COVERING.

Thus much for the principal or essential Parts of a *Building*: For the Accessories, or Ornaments, they are fetch'd from Painting and Sculpture. The chief things to be regarded in the first, are, that no Room have too much, which will occasion a Surfeit; except in Galleries, &c. that the best Pieces be placed where there are the fewest Lights: Rooms with several Windows are Enemies to Painters, nor can any Pictures be seen in Perfection, unless illumin'd, like Nature, with a single Light: That in the Disposition regard be had to the Posture of the Painter in working, which is the most natural for the Posture of the Spectator; and that they be accommodated to the Intentions of the Room they are us'd in: See PAINTING. For Sculpture, it must be observ'd, that it ben't too abundant; especially at the first approach of a *Building*, or at the Entrance; where a *Dorick* Ornament, is much preferable to a *Corinthian* one; that the Niches, if they contain Figures of white Stone, be not colour'd in their Concavity too black, but rather dusky; the Sight being displeas'd with too sudden Departments from one extreme to another. That fine Sculptures have the Advantage of nearness, and coarser of Distance; and that in placing of Figures aloft, they be reclin'd a little forwards: Because, the visual Ray extended to the Head of the Figure, is longer than that reaching to its Feet, which will of necessity make that Part appear further off; so that to reduce it to an erect Posture, it must be made to stoop a little forwards. M. *le Clerc*, however, won't allow of this Resupination, but will have every Part in its just Perpendicular. See STATUE.

To judge of a *Building*, Sir *H. Wotton* lays down the following Rules: 1. That before fixing any Judgment, a Person be inform'd of its Age; that, if the apparent Decays be found to exceed the Proportion of Time, it may be concluded, without further Inquisition, either that the Situation is naught, or the Materials or Workmanship too slight. If it be found to bear its Years well, let him run back, from the Ornaments and Things which strike the Eye first, to the more essential Members; till he be able to form a Conclusion, that the Work is commodious, firm, and delightful; the three Conditions, in a good *Building*, laid down at first, and agreed on by all Authors. This, he esteems the most Scientifical Way of judging. *Vassari* proposes another, *viz.* by passing a running Examination over the whole Edifice, according to the Structure of a well-made Man; as, whether the Walls stand upright on a clean Footing and Foundation; whether the *Building* be of a beautiful Stature; whether, for the Breadth, it appear well burnish'd; whether the principal Entrance be on the middle Line of the Front, or Face, like our Mouths; the Windows, as our Eyes, set in equal Number and Distance on both Sides; the Offices, like the Veins, usefully distributed, &c. Lastly, *Vitruvius* gives a third Method of judging; summing up the whole Art under these six Heads: Ordination, or the settling the Model and Scale of the Work; Disposition, the just Expression of the first Design thereof; (which two, Sir *H. Wotton* thinks he might have spar'd, as belonging rather to the Artificer than the Censurer:) Eurithmy, the agreeable Harmony between the Length, Breadth, and Height of the several Rooms, &c. Symmetry, or the Agreement between the Parts and the Whole; Decor, the due Relation between the *Building* and the Inhabitant: Whence *Palladio* concludes, the principal Entrance ought never to be limited by any Rule, but the Dignity and Generosity of the Master. And lastly, Distribution, the useful casting of the several Rooms, for Office, Entertainment, or Pleasure. These last four are ever to be run over, e'er a Man pass any determinate Censure: And these alone, Sir *Henry* observes, are sufficient to condemn or acquit any *Building* whatever. See EURITHMY, SYMMETRY, &c.

Dr. *Fuller* gives us two or three good Aphorisms in *Building*; as,

1st, *Let not the common Rooms be several, nor the several Rooms common. i. e.* The common Rooms not to be private or retir'd, as the Hall, Galleries, &c. which are to be open, and the Chambers, &c. retir'd.

2d, *A House had better be too little for a Day, than too big for a Year.* Houses therefore to be proportion'd to ordinary Occasions, not extraordinary.

3d, *Country Houses must be Substantives, able to stand of themselves.* Not like City *Buildings*, supported and shelter'd on each Side by their Neighbours.

4th, *Let not the Front look asquint on a Stranger; but accost him right, at his Entrance.*

5th, *Let the Offices keep their due Distance from the Mansion House; those are too familiar, which are of the same Pile with it.*

BULB, in Botany, an oblong Root, nearly round, composed of several Skins, or Coats, laid one over another; and cased, as it were, within one another; sending forth from its lower Part a great number of Fibres. The Roots of the common Onion, the Daffodil, the Hyacinth, are of the *bulbous* Kind. The Name is also given to tuberous Roots, compos'd of a solid continued Substance, without any Skins laid over one another: Thus, the Roots of Saffron and Colchique are call'd *bulbous* Roots. See ROOT.

Dr. *Grew* observes, that in *bulbous* Plants, as well as many Perennial ones, the Root is annually renew'd, or repair'd, out of the Trunk or Stalk it self: That is, the Basis of the Stalk, continually and insensibly descends below the Surface of the Earth; and hiding it self therein, is, both in Nature, Place, and Office, chang'd into a true Root. Thus, in Brownwort, the Base, sinking by degrees, becomes the upper Part of the Root; the next Year the lower Part; and the next another rots away; a fresh supply coming.

BULIMY, or BOULIMIA, a Disease, occasioning a disorderly and ravenous Appetite; call'd also *Appetitus Caninus*. In the *Philosophical Transactions*, we have an Account of a Person affected with a *Bulimy*, insomuch that he wou'd eat up an ordinary Leg of Veal at a common Meal, and feed on Sow-thistles, &c. cur'd by giving up several Worms, of the Length and Thickness of a Tobacco-Pipe. The Word comes from the *Greek* βοῦς, *bos*, and λιμὸς, *Hunger*; as if the Patient had an Appetite sufficient to eat an Ox.

BULK *of a Ship*, is her whole Content in the Hold, for stowage of Goods. See BREAK-BULK.

Bulk-Heads, are Partitions made across a Ship, with Boards of Timber, whereby one Part is divided from another. The *Bulk-Head afore*, is the Partition between the Fore-Castle, and Graling in the Head, and in which are the Chase-Ports.

BULL, a Letter dispatch'd from the *Roman* Chancery, seal'd with Lead; answering to the Edicts, Letters Patents, and Provisions, of secular Princes. If the *Bulls* be Letters of Grace, the Lead is hung on Silk Threads; if they be Letters of Justice, and Executory, the Lead is hung by a Hempen Cord.

The *Bull* is the third kind of *Apostolical Rescript*, and the most in use, both in Affairs of Justice and Grace. It is wrote on Parchment; by which it is distinguish'd from a simple *Signature*, which is on Paper. A *Bull* is properly a *Signature* enlarg'd: What the latter comprehends in a few Words, the former dilates and amplifies. Yet the *Bull* is not to take in more Matter than the *Signature*; being only to amplify the Stile in Clauses of Ceremony. The *Bull*, in the Form wherein it is to be dispatch'd, is divided into five Parts; *viz.* the Narrative of the Fact; the Conception; the Clause; the Date; and the Salutation, in which the Pope takes on himself the Quality of *Servant of Servants*, *Servus Servorum Dei*. Properly speaking, 'tis the Seal, or pendant Lead alone that is the *Bull*; it being that which gives it the Title and Authority. The Seal presents, on one Side, the Heads of St. *Peter* and St. *Paul*; on the other, the Name of the Pope, and the Year of his Pontificat. *Bulls* are wrote in an old round *Gothic* Letter.

By *Bulls*, Jubilees are granted; without 'em no Bishops, in the *Romish* Church, are allow'd to be consecrated. In *Spain*, *Bulls* are requir'd for all kinds of Benefices; but in *France*, &c. simple *Signatures* are sufficient; excepting for Bishopricks, Abbeys, Dignities, and Priories Conventual. According to the Laws of the *Roman* Chancery, no Benefice exceeding 24 Ducats *per Annum*, should be conferr'd but by *Bulls*: But the *French* would never submit to this Rule, except for such Benefices as are tax'd in the Apostolical Chamber; for the rest, they reserve the Right of dissembling the Value, expressing it in general Terms; *Cujus & illi forsan annexorum fructus 24 Ducatorum Auri, de camera secundum communem estimationem, Valorem Annuum non excedunt.* The *Bulls* brought into *France*, are limited and moderated by the Laws and Customs of the Land, before they are register'd; nor is any thing admitted till it have been well examin'd, and found to contain nothing contrary to the Liberties of the *Gallican* Church: Those Words, *proprio motu*, in a *Bull*, are sufficient to make the whole be rejected. Nor do the *Spaniards* admit 'em implicitly; but, having been examin'd by the

King's Council; if there appear any Reasons for not executing 'em, notice thereof is given to the Pope by a Supplication; and the *Bull*, by this means, remains without Effect: And the like Method of proceeding with the Court of *Rome*, is observ'd by the rest of the Courts of *Europe*.

To *fulminate Bulls*, is to make the Publication thereof, by one of the three Commissaries to whom they are directed; whether he be Bishop or Official. This Publication is sometimes oppos'd; but when it is, the Fault is not charg'd on the Pope who issu'd it, but an Appeal is brought to him against the Person who is suppos'd to make it: Thus the Fault is laid, where 'tis known not to be just, to evade affronting the Pontiff.

The *Bull in Cœna Domini*, is a *Bull* read every Year, on *Maunday-Thursday*, in the Pope's Presence; containing various Excommunications and Execrations, against Hereticks, those who disobey the See, who disturb or oppose the Exercise of Ecclesiastical Jurisdiction, &c.

After the Death of a Pope, no *Bulls* are dispatch'd during the Vacancy of the See: To prevent any Abuses therefore, as soon as the Pope is dead, the Vice-Chancellor of the *Roman* Church takes the Seal of the *Bulls*; and, in the Presence of several Persons, orders the Name of the deceas'd Pope to be eras'd; and covers the other Side, on which are the Faces of St. *Peter* and *Paul*, with a Linen Cloth; sealing it up with his own Seal, and giving it thus cover'd to the Chamberlain, to be preserv'd, so as no *Bulls* may be seal'd with it in the mean time.

The Word *Bull*, is deriv'd from *bullare*, to seal Letters; or from *bulla*, a Drop or Bubble: Others derive it from the *Greek* βουλὴ, Council; *Pezron* from the Celtic *Buil*, and *bul*, Bubble.

Golden Bull, is an Ordonnance, or Statute, made by the Emperor *Charles* IV. in 1356. said to have been drawn up by that celebrated Lawyer *Bartoli*: This is the Fundamental Law of the Empire. Till this time, the Form and Ceremony of the Election of an Emperor, were dubious and undetermin'd; and the Number of Electors not fix'd. This solemn Edict regulated the Functions, Rights, Privileges, and Preeminences of the Electors. The Original, which is in *Latin*, on Vellom, is kept at *Frankfort*. On the Backside are several Knots of black and yellow Silk; to which hangs a Seal of Gold.

'Tis call'd the *Golden Bull*, because the Emperors of the East used, antiently, to seal their Edicts with a Golden Seal, call'd *Bulla*. This Ordonnance, containing 30 Articles, was approv'd of by all the Princes of the Empire, and remains still in force. The Election of the Emperor was to be in the Hands of seven Electors; three of 'em Ecclesiasticks, *viz.* the Archbishops of *Mentz*, *Treves*, and *Cologne*; and four Seculars, *viz.* the King of *Bohemia*, Prince *Palatine*, Duke of *Saxony*, and Marquis of *Brandenburg*. See Elector.

Golden Bulls were in use among the Eastern Emperors for a considerable Time; Leaden ones being confin'd to Matters of smaller moment. *Spelman* mentions a *Golden Bull*, in a Treaty of Alliance between our *Henry* VIII. and *Francis* I. of *France*; and there are other Instances in *Du Cange* and *Altaserra*.

BULLET, an Iron or Leaden Ball, or Shot, wherewith Fire-Arms are loaded. *Bullets* are of various Kinds, *viz.* *Red Bullets*, made hot in a Forge; intended to set Fire to Places where combustible Matters are found. *Hollow Bullets*, or Shells, made Cylindrical, with an Aperture and a Fusee at one End, which giving Fire to the Inside, when in the Ground it bursts, and has the same Effect with a Mine. *Chain Bullets*, which consist of two Balls, join'd by a Chain three or four Foot apart. *Branch Bullets*, two Balls join'd by a Bar of Iron 5 or 6 Inches apart. *Two-headed Bullets*, call'd also *Angels*, two halves of a *Bullet* join'd by a Bar, or Chain: These are chiefly us'd at Sea, for cutting of Cords, Cables, Sails, &c. Some derive the Word from the Latin *Botellus*, others from the *Greek* βάλλειν, to throw. According to *Mersenne*, a *Bullet* shot out of a great Gun, flies 92 Fathom in a Second of Time, which is equal to 589⅔ *English* Feet; and, according to *Huygens*, would be 25 Years in passing from the Earth to the Sun: But according to some very accurate Experiments of Mr. *Derham*, it flies, at its first Discharge, 510 Yards in five half Seconds; which is a Mile in a little above 17 half Seconds: Allowing therefore the Sun's Distance 86051398 *English* Miles, a *Bullet* would be 32 Years and a half in its Passage. See Sound.

BULLION, Gold and Silver in the Mass or Billet. It is also the Place where Gold and Silver is brought to be try'd and exchang'd.

BULWARK, the same, in the antient Fortification, with a *Bastion* in the Modern; see Bastion.

BUMICILLI, a Sect of Mahometans in *Africa*. These are said to be great Sorcerers; they fight against the Devils, as they say; and frequently run about cover'd with Blood and Bruises, in a terrible Fright: They sometimes counterfeit a Combat with 'em at noon Day; and, in the Presence of Numbers of People, for the Space of two or three Hours, with Darts, Javelins, Scimiters, &c. laying desperately about them, till they fall down on the Ground oppress'd with Blows: After resting a Moment, they recover their Spirits and walk off. What their Rule is, is not well known; but they are said to be an Order of Religious.

BUNT *of a Sail*, is the middle Part of it, which is purposely form'd into a kind of Bag, or Cavity, that the Sail might receive the more Wind: It is chiefly us'd in Top-sails; for Courses are for the most part cut square, or at least with a small Allowance, for *Bunt* or Compass. They say, *the Bunt holds much Leeward Wind*; that is, the *Bunt* hangs too much to Leeward. The *Bunt-lines* are small Lines made fast to the Bottom of the Sails, in the middle Part of the Bolt-Rope, to the Crengle; and so are reeved thro a small Block, seized to the Yard: Their use is to trice up the *Bunt* of the Sail, for the better furling it up.

BUOY, at Sea, a piece of Wood or Cork, sometimes an empty Cask well clos'd, swimming on the Water, and fasten'd by a Chain or Cord to a large Stone, piece of broken Cannon, &c. thrown into the Sea, to mark the dangerous Places near a Coast, as Rocks, Sholes, Wrecks of Vessels, Anchors, &c. In lieu of these *Buoys*, are sometimes placed pieces of Wood, in form of Masts, in the conspicuous Places. Sometimes large Trees are planted in a particular manner; in number, two at the least, to be taken in a right Line, the one hiding the other; so as the two may appear to the Eye no more than one.

Buoy is also a piece of Wood, or a Barrel, at Sea, fasten'd so as to float directly over the Anchor; that the Men who go in the Boat to weigh the Anchor, may certainly know where it lies.

BURDEN, the Drone or Base in some Musical Instruments, and the Pipe or Part that plays it; as in an Organ, a Bagpipe, &c. See Drone. Hence the *Burden* of a Song, &c. is that Part repeated at the End of each Stanza. The Word comes from the French *Bourdon*, a Staff; or a Pipe made in form of a Staff, imitating the gross murmurs of Bees or Drones. This is what the Antients call'd, *Proslambanomenos*.

Burden *of a Ship*, is its Content, or the Number of Tonns it will carry. To determine the *Burden* of a Ship, multiply the Length of the Keel, taken within Board, by the Breadth of the Ship, within Board, taken from the Midship Beam from Plank to Plank, and the Product by the Depth of the Hold, taken from the Plank below the Keelsey, to the under Part of the upper Deck Plank; and divide the last Product by 94, and the Quotient is the Content of the Tonnage requir'd. See Ship.

BURGAGE, is a Tenure proper to Cities, Boroughs, and Towns, whereby the Burghers, Citizens, or Townsmen, hold their Lands or Tenements of the King, or other Lords, for a certain yearly Rent. *Swinburn* says, it is a kind of Soccage.

BURGESSES, the Inhabitants of a Borough, or wall'd Town: tho the Word is also apply'd to the Magistrates of such Towns; as the Bailiff and *Burgesses* of *Leominster*. The Word *Burgesses* is now ordinarily us'd for the Representatives of such Borough-Towns in Parliament: *Filius vero* Burgensis, *Ætatem habere tunc intelligitur cum diserte scriverit denarios numerare & pannos ulnare*, &c. In other Countries, *Burgess* and Citizen are confounded together, but with us they are distinguish'd. See Borough.

BURG-GRAVE, a Judge or Governor in several Cities and Castles of *Germany*: The *Burg-gravate* is perpetual. The Word is form'd from *Burg*, City, and *Grave*, Judge or Count.

BURGLARY, signifies the robbing of an House; but, in a legal Sense, is a Felonious entering into another Man's Dwelling, wherein some Person is, or into a Church in the Night time; to the end to commit some Felony, or to kill some Person, or to steal something thence, or to do some other felonious Act, altho he executes it not. The same Offence by Day, we call House-breaking, &c. It shall not have Benefit of Clergy.

BURGMOTE, a Court of a City or Borough; see Mote.

BURLESQUE, a kind of Poetry, merry, jocular, and bordering on the Ridicule. The Word, and the Thing too, seem to be both Modern. F. *Kavassor* maintains, in his Book *De ludicra Dictione*, that it was absolutely unknown to the Antients; against the Opinion of others, that one *Raintovius*, in the Time of *Ptolomy Lagus*, turn'd the serious Subjects of Tragedy into Ridicule; which, perhaps, is a better Plea for the Antiquity of Farce than *Burlesque*. The *Italians* seem to have the justest Claim to the Invention of *Burlesque*. The first in this kind was *Bernica*; he was follow'd by *Lalli*, *Caparali*, &c. From *Italy* it pass'd into *France*, and became there so much the Mode, that in 1649 appear'd a Book under the Title of, *The Passion of our Saviour in burlesque Verse*. Thence it came to *England*; but the good Sense of the *English* never adopted or own'd it, notwithstanding one or two have excell'd in it.

BURN, in a Medicinal Sense, a Solution of the Continuity of a Part of the Body, by the Impression of Fire: or a Mark remaining on the Thing *burnt*. Of *Burns*, Physicians make several Degrees: The first, when there are only a few Pustules rais'd on the Skin, with a Redness, and a Separation of the *Epiderma* from the genuine Skin. The second when the Skin is burnt, dried, and shrunk, but without any Crust or Scab. The third is, when the Flesh, Veins, Nerves, &c. are shrunk, and form a Scab. *Lusitanus* recommends an Unguent, made of the Ashes of Lawrel Leaves burnt, with Hog's Fat dropp'd on 'em, for a *Burn*; or, on occasion, the Unguent *Populeum*, with Vine Leaves laid over it. *Panarole* observes, that Clay laid on a *Burn* abates the Pain; and the Brewers in *Holland*, use a Decoction of Ivy for the Cure of *Burns*.

Burns, however, are not only Diseases, but in some Cases Remedies. M. *Homberg* observes, that in the Isle of *Java*, the Natives cure themselves of a Cholick, otherwise Mortal, by *burning* the Soles of their Feet; and cure themselves of a *Panaris*, by dipping their Finger in boiling Water several times. Travellers relate many other Cases of other Diseases cur'd by *burning*: And we see the Effects of it our selves, in Horses, Hounds, Birds of Prey, &c. A kind of Moss, brought from the *Indies*, has been likewise us'd for the Gout; apply'd, by *burning* it on the Part affected: and M. *Homberg* gives us Instances of two Women cur'd, the one of a violent Disease in the Head and Eyes, and the other of a Disease in the Legs and Thighs, by the accidental *burning* of those Parts. He adds, that *burning* may cure in three manners; either by putting the peccant Humors into a greater Motion, and making 'em take new Routs; or by dissolving and breaking their Viscidity, or by destroying the Canals which brought them in too great Quantities. See CAUSTIC, and CAUTERY.

BURNING, the Action of Fire on some *Pabulum* or Fuel, whereby the minute Parts thereof are torn from each other, put into a violent Motion; and, assuming the Nature of Fire themselves, fly off *in Orbem*. See FIRE.

BURNING, or BRENNING, in our antient Customs, was an infectious Disease, got in the Stews, by conversing with lewd Women; suppos'd to be the same that we now call the *Venereal Disease*: Whence that Disease is argu'd to be much more antient than the common Epocha of the Siege of *Naples*: See VENEREAL DISEASE, and CLAP.

The chief Objection against *Burning* being the same with the *Venereal* Disease, is, that the Remedies prescrib'd against the former, would be ineffectual in the latter: But, beside that it is not to be expected, the Measures of the antient Physicians should be calculated for the removing of any Malignity in the Mass of Blood or other Juices, as in the Modern Practice; inasmuch as they look'd on the Disease as merely local, and the whole of the Cure to depend on the Removal of the Symptoms: Besides this, it is matter of frequent Observation, that some Diseases grow more violent, and others more remiss in course of Time: So that the Remedies which might have avail'd for the antient *Brenning*, may now fail as to the modern *Pox*.

The Process for the Cure, as deliver'd by *J. Arden*, Chirurgeon to K. *Henry* IV. is thus——*Contra* Incendium *Virgæ Virilis interius ex calore & excoriatione fiat talis Syringa* (i. e. *injectio*) *lenitiva. Accipe lac Mulieris masculum nutrientis & parum zacarium, Oleum Violæ & Ptisanæ: quibus commixtis per Syringam infundatur.*

In an antient MS. written about the Year 1300, is a Receipt for *Brenning of the Pyntyl yat Men clepe the Apegalle*; *Galle* being an old Word for a running Sore. And in another MS. written 50 Years after, is a Receipt for *Burning in that Part by a Woman*. *Simon Fish*, a zealous Promoter of the Reformation, in his *Supplication of Beggars*, presented to K. *Henry* VIII. 1530, speaking of the *Romish* Priests, says, *They catch the* Pocks *of one Woman, and bare 'em to another; they be* burnt *with one Woman, and bare it to another: They catch the* Lepry *of one Woman, and bare it to another*. And *Boord*, a Priest and Physician in the same Reign, begins one of his Chapters of his *Breviary of Health*, thus: *The 19th Chapter doth shew of the* burning *of an Harlotte*. The same Author adds, that if a Man be *burnt* with an Harlot, and do meddle with another Woman within a Day, he shall *burn* the Woman he shall meddle withal: And as an immediate Remedy against the *Burning*, he recommends the washing the *Pudenda* two or three times with Whitewine, or else with Sack and Water.— In another MS. of the Vocation of *John Bale* to the Bishoprick of *Ossory*, written by himself, he speaks of Dr. *Hugh Weston* (who was Dean of *Windsor* in 1556, but deprived by Cardinal *Pole* for Adultery) thus: "At this Day is leacherous *Weston*, who is "more practis'd in the Art of *Breech-burning* than all the "Whores of the Stews.——*He not long ago* brent *a Beggar of St.* Botolph's *Parish*.——" See STEWS.

BURNING-GLASS, or *Burning Mirror*, a Machine, whereby the Sun's Rays are collected into a Point; and by that means their Force and Effect extremely heighten'd, so as to burn Objects placed therein. *Burning Glasses* are of two Kinds, the first Convex, which transmit the Rays of Light, and in their Passage refract or incline them towards its Axis; having the Property of *Lens's*, and acting according to the Laws of Refraction: See LENS, and REFRACTION. The second, which is the more usual, are Concave; very improperly call'd *Burning Glasses*, being usually made of Metal: These reflect the Rays of Light, and in that Reflexion, incline them to a Point in their Axes; having the Properties of *Mirrors*, and acting according to the Laws of Reflexion: which see under MIRROR and REFLECTION.

The first, or Convex kind, Authors suppose to have been unknown to the Antients; but the latter are generally allow'd. Historians tell us, that *Archimedes*, by means hereof, burnt a whole Fleet. Now tho the Effect related be very improbable, yet does it sufficiently prove such things were then known. The Machines here us'd, no body doubts, were Metallick and Concave; and had their *Focus* by Reflexion: It being agreed, that the Antients were unacquainted with the Refracted *Foci* of Convex Glasses. Yet, M. *de la Hire* has discover'd even those, in the *Clouds* of *Aristophanes*; where *Strepsiades* tells *Socrates*, of an Expedient he had to pay his Debts, by means of a round transparent Stone or Glass, us'd in lighting of Fires; by which he intended to melt the Obligation: which in those Days was written on Wax. The Glass here us'd to light the Fire, and melt the Wax, M. *de la Hire* observes, could not be Concave; since a reflected *Focus* coming from below upwards, would have been exceedingly improper for that Purpose: And the old Scholiast of *Aristophanes*, confirms the Sentiment. *Pliny* makes mention of Globes of Glass and Crystal, which being expos'd to the Sun, burnt the Clothes and Flesh on Peoples Backs; and *Lactantius* adds, that a glass Sphere, full of Water, and held in the Sun, lighted the Fire even in the coldest Weather: which incontestably proves the Effects of Convex Glasses. Indeed, there is some Difficulty in conceiving how they should know they *burnt*, without knowing they *magnify'd*; which 'tis granted they did not, till towards the Close of the XIIIth Century, when Spectacles and Telescopes were first thought on. For as to those Passages in *Plautus* which seem to intimate the Knowledge of Spectacles, M. *de la Hire* observes, they don't prove any such thing: And he solves this, by observing, that their *Burning Glasses* being Spheres, either solid, or full of Water, their *Foci* would be one fourth of their Diameter distant from 'em: If then their Diameter were suppos'd half a Foot, which is the most we can allow, an Object must be at an Inch and a half's Distance to perceive it magnify'd: Those at greater Distances do not appear greater, but only more confus'd, thro the Glass than out of it. 'Tis no wonder, therefore, the magnifying Property of Convex Glasses was unknown, and their *burning* one known: 'Tis more wonderful there should be 300 Years between the Invention of Spectacles and Telescopes.

Every Concave Mirror, or *Speculum*, collects the Rays dispers'd thro its whole Concavity, after Reflexion, into a Point or *Focus*, and is therefore a *burning Mirror*.

Hence, as the *Focus* is there where the Rays are the most closely contracted, if it be a Segment of a large Sphere, its Breadth must not subtend an Arch above 18 Degrees; if it be a Segment of a smaller Sphere, its Breadth may be 30 Degrees. Indeed, *Kircher* observes, that of all *Burning* Mirrors, those are the best, whose Breadth does not subtend an Arch of 18 Degrees; so that Experience and Demonstration go together.

As the Surface of a Mirror, which is a Segment of a larger, receives more Rays than another of a less, if the Latitude of each subtend an Arch of 18 Degrees; or even more, or less, provided it be equal: the Effects of the greater Mirror will be greater than those of the less.

And, as the *Focus* is contain'd between the fourth and fifth Part of the Diameter, Mirrors that are Segments of greater Spheres, burn at a greater Distance than those which are Segments of a smaller.

Since, lastly, the *Burning* depends on the Union of the Rays, and the Union of the Rays on the Concave Spherical Figure; 'tis no wonder, that even wooden Mirrors, gilt, or those prepared of Alabaster, &c. cover'd with Gold; nay, even that those made of Paper, and cover'd with Straw, should be found to *burn*.

Among the Antients, the *Burning Mirrors* of *Archimedes* and *Proculus* are eminent; by one of which, the *Roman* Ships besieging *Syracuse*, under the Command of *Marcellus*, according to the Relations of *Zonaras*, *Tzetzes*, *Galen*, &c. and by the other, the Navy of *Vitellian* besieging *Byzantium*, according to *Tzetzes*, were burnt. Among the Moderns, the most remarkable *Burning Mirrors*, are those of *Settala*, of *Villette*, and *Tschirnhaus*. *Settala*, Canon of *Padua*, made a Parabolical Mirror, which according

cording to *Schottus*, burnt Pieces of Wood, at the Distance of 15 or 16 Paces.

M. *Tschirnhaus*'s Mirror, at least, equals the former, both in Bigness and Effect: The following Things are noted of it in the *Acta Eruditorum*. 1. Green Wood takes fire instantaneously, so as a strong Wind can't extinguish it. 2. Water boils immediately, and Eggs in it are presently edible. 3. A Mixture of Tin and Lead, three Inches thick, drops presently: An Iron or Steel Plate becomes red-hot presently, and a little after burns into Holes. 4. Things not capable of melting, as Stones, Bricks, &c. become soon red-hot, like Iron. 5. Slate becomes first white, then a black Glass. 6. Tiles are converted into a yellow Glass, and Shells into a blackish yellow one. 7. A Pumice Stone emitted from a *Volcano*, melts into a white Glass: And, 8. A piece of a Crucible also vitrifies in eight Minutes. 9. Bones are soon turn'd into an opake Glass, and Earth into a black one. The Breadth of this Mirror is near three *Leipsick* Ells, its *Focus* two Ells distant from it: It is made of Copper, and its Substance is not above double the Thickness of the Back of a Knife.

Villette, a *French* Artist of *Lyons*, made a large Mirror, bought by *Tavernier*, and presented to the King of *Persia*; a second, bought by the King of *Denmark*; a third presented by the *French* King to the *Royal Academy*; a fourth has been in *England*, where it was publickly expos'd. The Effects hereof, as found by Dr. *Harris* and Dr. *Desaguliers*, are, that a Silver Sixpence is melted in 7" and $\frac{1}{2}$; a King *George*'s Halfpenny in 16", and runs with a Hole in 34. Tin melts in 3", Cast Iron in 16", Slate in 3"; a fossile Shilling calcines in 7"; a piece of *Pompey*'s Pillar at *Alexandria*, vitrifies in the black Part in 50", in the white in 54; Copper Ore in 8": Bone calcines in 4", vitrifies in 33. An Emerald melts into a Substance like a Turquois Stone; a Diamond weighing 4 Gr. loses $\frac{7}{8}$ of its Weight: The Asbestos vitrifies; as all other Bodies will do, if kept long enough in the *Focus*: When once vitrify'd, the Mirror can go no further with them. This Mirror is 47 Inches wide; and is ground to a Sphere of 76 Inches Radius: so that its *Focus* is about 38 Inches from the Vertex. Its Substance is a Composition of Tin, Copper, and Tin-Glass.

Every *Lens*, whether Convex, Plano Convex, or Convexo Convex, collects the Sun's Rays, dispers'd o'er its Convexity, into a Point, by Refraction; and is therefore a *Burning Glass*. The most considerable of this kind known, is that made by M. *de Tschirnhausen*: The Diameters of his *Lenses* are three and four Feet; the *Focus* at the Distance of 12 Feet, and its Diameter an Inch and half. To make the *Focus* the more vivid, 'tis collected a second time by a second *Lens* parallel to the first; and plac'd in that Place where the Diameter of the Cone of Rays form'd by the first *Lens*, is equal to the Diameter of the second: So that it receives 'em all; and the *Focus* from an Inch and a half, is contracted into the Space of eight Lines, and its Force increas'd proportionably. Its Effects, among others, as related in the *Acta Erudit. Lipsii*, are, That it lights hard Wood, even moisten'd with Water, into a Flame, instantly; that Water, in a little Vessel, begins to boil presently; all Metals are melted; Brick, Pumice Stone, *Delphi* Wares, and the Asbestos Stone, are turn'd into Glass; Sulphur, Pitch, &c. melted under Water: The Ashes of Vegetables, Woods, and other Matters, transmuted into Glass. In a word, every thing apply'd to its *Focus*, is either melted, turn'd into Calx, or into Smoak; and the Colours of Jewels, and all other Bodies, Metals alone excepted, are chang'd by it. He observes, that it succeeds best when the Matter apply'd is laid on a hard Coal well burnt.

Tho the Force of the Solar Rays be here found so stupendous; yet the Rays of the Full Moon, collected by the same *Burning Glass*, don't exhibit the least Increase of Heat.

Further, as the Effects of a *Burning Lens* depend wholly on its Convexity, 'tis no wonder that even those prepar'd of Ice produce Fire, &c. A *Lens* of that kind is easily prepar'd, by putting a piece of Ice into a Skuttle, or hollow Segment of a Sphere, and melting it over the Fire, till it accommodate it self to the Figure thereof.

Nor will those ignorant of Dioptrics, be less surpriz'd to see Flame, and the Effects thereof, produced by means of the Refraction of Light in a Glass Bubble fill'd with Water. See LENS.

Wolfius tells us, that an Artist of *Dresden* made *burning Mirrors* of Wood, bigger than those of M. *Tschirnhaus* or *Villette*, which had Effects at least equal to any of 'em. *Traberus* teaches how to make *burning Mirrors* of Leaf Gold; *viz.* by turning a Concave, laying its Inside equally with Pitch, and covering that with square Pieces of the Gold, two or three Fingers broad, fastening 'em on, if need be, by Fire. He adds, that very large Mirrors may be made, of 30, 40, or more Concave Pieces, artfully join'd in a turn'd wooden Dish or Skuttle; the Effects of which will not be much less, than if the Surface was continuous.

Zahnius adds, further, that *Newman*, an Engineer at *Vienna*, in 1699, made a Mirror of Pasthboard, cover'd within side with Straw glu'd to it; by which all kind of Metals, &c. were melted. See MIRROR.

BURNING *of Land*, call'd also vulgarly *Denshiring*, *quasi Devonshiring*, or *Denbyshiring*, as being most used there: A Method of preparing and fertilizing Lands barren, sour, heathy and rushy, for Corn; by paring off the Turf, and drying, and *burning* it on the Ground. The same Method also obtains for Meadows and Pasture Ground, moist, claiey, or rushy.

BURNING *Mountains*. See VULCANO, EARTHQUAKE, MOUNTAIN, &c.

BURNISHING, the Action of smoothening or polishing a Body, by a violent rubbing it with any thing. Thus Bookbinders *burnish* the Edges of their Books, by rubbing 'em with a Dog's Tooth. Gold and Silver are *burnish'd* with a Wolf's Tooth, a Dog's Tooth, or the bloody Stone, Tripoli, a piece of white Wood and Emery. Hence *Burnisher*, is a round polish'd piece of Steel, serving to smooth and give a Lustre to Metals: Of these there are various Kinds, of various Figures; strait, crooked, &c. Half *Burnishers*, are us'd to solder Silver, as well as to give it a Lustre.

Deer are said to *burnish* their Heads, when rubbing off a white downy Skin from their Horns against a Tree, they thrust 'em into a reddish Earth, to give 'em a new Colour and Lustre.

BURR, or BURR-DOCK, is an Herb, whose broad Leaves, Roots, and Seeds, are sometimes us'd in Physick.

BURR-PUMP, or *Bilge Pump*, a kind of Pump so call'd, because it holds much Water; see PUMP.

BURSARS, in *Scotland*, are Youths chosen, and sent as Exhibitioners to the Universities, one each Year, by each Presbytery; by whom they are to be subsisted for the Space of four Years, at the Rate of 100 *l. per Annum*, Scots.

BUSHEL, a Measure of Capacity for things Dry; as Grains, Pulse, dry Fruits, &c. The *English Bushel* contains 4 Pecks, or 8 Gallons, or $\frac{1}{8}$ of a Quarter. See MEASURE.

At *Paris*, the *Bushel* is divided into two *half Bushels*; the *half Bushel* into two Quarts; the Quart into two half Quarts; the half Quart into two Litrons; and the Litron into two half Litrons. By a Sentence of the *Provost* of the Merchants of *Paris*, the *Bushel* is to be eight Inches, two Lines and a half high, and ten Inches in Diameter; the Quart four Inches nine Lines high, and six Inches nine Lines wide; the half Quart four Inches three Lines high, and five Inches Diameter; the Litron three Inches and a half high, and three Inches ten Lines in Diameter. Three *Bushels* make a Minot, six a Mine, 12 a Septier, and 144 a Muid: See MUID. In other Parts of *France* the *Bushel* varies: 14 $\frac{1}{2}$ *Bushels* of *Amboise* and *Tours*, make the *Paris* Septier. 20 *Bushels* of *Avignon*, make three *Paris* Septiers; 20 *Bushels* of *Blois*, make one *Paris* Septier; 2 *Bushels* of *Bourdeaux*, make one *Paris* Septier; 32 *Bushels* of *Rochel*, make 19 *Paris* Septiers. *Note*, Oats are measur'd in a double Proportion to other Grains; so that 24 *Bushels* of Oats make a Septier, and 248 a Muid. The *Bushel* of Oats is divided into four Picotins, the Picotin into two half Quarts, or four Litrons. For Salt, four *Bushels* make one Minot, and six a Septier. For Coals, eight *Bushels* make one Minot, 16 a Mine, and 320 a Muid. For Lime, 3 *Bushels* make a Minot, and 48 Minots a Muid.

Du Cange derives the Word from *Busellus*, or *Bustellus*, or *Bisellus*, a diminutive of *Buz*, or *Buza*, us'd in the corrupt *Latin* for the same thing. Others derive it from *Bussulus*, an Urn wherein Lots are cast.

BUSKIN, *Cothurnus*, a kind of Stocking among the Antients, in manner of a little Boot, covering the Foot and Mid-leg, and ty'd beneath the Knee; very rich and fine, and us'd principally on the Stage by the Actors in Tragedy. The *Buskin* is said to have been first introduc'd by *Sophocles*: It was of a Quadrangular Form, and might be wore indifferently on either Leg. It was so thick, as by means hereof, Men of ordinary Stature might be rais'd to the Pitch and Elevation of the Heroes they personated: In which it was distinguish'd from the *Sock*, wore in Comedy; which was a low, popular Dress. *Dempster* observes, that it was not Actors alone who wore the *Buskin*, but Girls likewise us'd 'em to raise their Height; Travellers and Hunters to defend themselves from the Mire, &c. As the *Buskin* was the distinguishing Mark of Tragedy on the Stage, we find it in Classick Authors frequently us'd to signify Tragedy it self.

BUST, or BUSTO, in Sculpture, &c. a Term us'd for the Figure, or Portrait of a Person *in Relievo*; shewing only the Head, Shoulders, and Stomach; the Arms being lopp'd off: ordinarily placed on a Pedestal, or *Console*. *Felibien* observes, that tho in Painting one may say a Figure appears

in Busto; yet it is oot properly call'd a *Bust*, that Word being confined to things *in Relievo*. The *Bust* is the same with what the *Latins* call'd *Herma*, from the Greek *Hermes*, *Mercury*; the Image of that God being frequently represented in this manner among the *Athenians*.

Bust, is also us'd, especially by the *Italians*, for the Trunk of an human Body, from the Neck to the Hips. Some derive the Word from the German *Brust*, Stomach: *Menage* fetches it from *Busque*, a piece of Wood, Ivory, Whalebone, or the like, which the Women apply to that Part of the Body; call'd by the *Italians Busto* to keep themselves streight.

Bust, or Bustum, in Antiquity, a Pyramid or Pile of Wood, whereon were antiently plac'd the Bodies of the Deceas'd, in order to be burnt. The *Romans* borrow'd the Custom of burning their Dead from the *Greeks*. The Deceas'd, crown'd with Flowers, and dress'd in his richest Habits, was laid on the *Bustum*. The nearest Relations lighted it with Torches; turning their Faces from it, to shew that it was with Reluctance that they did this last Office. After the *Bustum* was consum'd, the Women appointed to collect the Ashes, enclos'd 'em in an Urn, which was deposited in the Tomb. Some Authors say, it was only call'd *Bustum* after the burning, *quasi Bene ustum*: before the Burning it was call'd *Pyra*; during it, *Rogus*; and afterwards *Bustum*.

BUSTUARII, a kind of Gladiators, among the antient *Romans*, who fought about the *Bustum*, or Pile of a deceas'd Person, in the Ceremony of his Obsequies. The Practice at first was, to sacrifice Captives on the Tomb, or at the *Bustum* of their Warriors: Instances of which we have in *Homer*, at the Obsequies of *Petroclus*, and among the *Greek* Tragedians. Their Blood was suppos'd to appease the Infernal Gods; and render 'em propitious to the *Manes* of the Deceas'd. In after Ages, this Custom appear'd too barbarous; and in lieu of these Victims, they appointed Gladiators to fight; whose Blood, 'twas suppos'd, might have the same Effect. According to *Val. Maximus* and *Florus*, *Marcus* and *Decius*, Sons of *Brutus*, were the first, at *Rome*, who honour'd the Funerals of their Father with these kind of Spectacles, in the Year of *Rome* 489. Some say, the *Romans* borrow'd this Custom from the *Hetrurians*; and they from the *Greeks*. The Word comes from *Bustum*, which see.

BUTCHERY, a Place set apart, either for the Slaughter of Cattel, or for the exposing their Flesh to sale; otherwise call'd *Shambles*. *Nero* built a noble one at *Rome*; on which Occasion was struck that Medal, whose Reverse is a Building supported by Columns, and enter'd by a Perron of four Steps; the Legend, MAC. AUG. S. C. *Macellum Augusti Senatus-Consulto*.

Among the antient *Romans* there were three Kinds of Establish'd *Butchers*; *viz.* two Colleges, or Companies, compos'd each of a certain number of Citizens, whose Office was to furnish the City with the necessary Cattel, and to take care of preparing and vending the Flesh. One of these Communities, was at first confin'd to the providing of Hogs, whence they were call'd *Suarii*; and the other were charg'd with Cattel, especially Oxen; whence they were call *Pecuarii*, or *Boarii*. Under each of these was a subordinate Class, whose Office was to kill, prepare, &c. call'd *Lanii*, and sometimes *Carnifices*. *Brisson*, *Modius*, and others, mention a pleasant way of selling Meat, us'd for some Ages among this People: The Buyer was to shut his Eyes, and the Seller to hold up some of his Fingers; if the Buyer guess'd aright, how many it was the other held up, he was to fix the Price; if he mistook, the Seller to fix it. This Custom was abolish'd by *Apronius*, Prefect of *Rome*; who in lieu thereof introduc'd the Method of selling by Weight.

Menage, after *Turnebius*, derives the Word from *Buccarius*, of *Bucca*; because the *Butcher* cuts Meat for the *Mouth*: Thus also we find, *beccarius* from *beccus*. *Lancelot* derives it from the Word βουτης, *Killer of Cattel*; *Labbe*, *a Bovina seu Bubula carne*.

BUTLERAGE *of Wines*, the Imposition upon Sale Wine, brought into the Land; which the King's *Butler*, by virtue of his Office, may take of every Ship, *viz.* two Shillings of every Tonn imported by Strangers.

BUTMENTS, in Architecture, those Supporters or Props, on, or against which the Feet of Arches rest: Also little Places taken out of the Yard, or the Ground-plot of an House, for a Buttery, Scullery, &c. are sometimes called *Butments*. The Word comes from the French *Bouter*, to abut or terminate on any thing.

BUTT, in the Sea Language, the End of any Plank, which joins to another on the Outside of a Ship, under Water: Hence when a Plank is loose at one end, they call it *springing a Butt*; to prevent which, Ships are usually bolted at the *Butt-Heads*, that is, at the Plank's End.

Butt, or *Pipe of Wine*; a Measure containing two Hogsheads, or one hundred twenty six Gallons.

A *Butt* of Currants, is from fifteen to twenty two hundred Weight.

BUTTER, a fat, unctuous Substance, prepared, or separated from Milk; which is an Assemblage of three different Substances, *Butter*, *Cheese*, and a *Serum*, or Whey. See Milk. The Word comes from the *Greek* βουτυρον; as supposing it prepar'd only from Cow's Milk. It was late e'er the *Greeks* appear to have had any Notion of *Butter*; *Homer*, *Theocritus*, *Euripides*, and the other Poets, make no mention of it; and yet are frequently speaking of Milk and Cheese: And *Aristotle*, who has collected abundance of Curiosities relating to the other two, is perfectly silent on this. *Pliny* tells us, that *Butter* was a delicate Dish among the barbarous Nations; and was that which distinguish'd the Rich from the Poor: The *Romans* us'd *Butter* no otherwise than as a Medicine, never as a Food. *Schookius* observes, that 'tis owing to the Industry of the *Dutch*, that there is any such thing as *Butter* in the *East Indies*: that, in *Spain*, *Butter* is only us'd Medicinally, for Ulcers; and adds, that the best Opiate for making the Teeth white, is the rubbing 'em with *Butter*. *Cl. Alexandrinus* observes, that the antient Christians of *Egypt* burnt *Butter* in the Lamps at their Altars, instead of Oil; and the *Abyssians*, according to *Godignus*, still retain a Practice much like it: *Clemens* finds a Religious Mystery in it. In the *Roman* Churches, it was antiently allow'd, during *Christmass* time, to use *Butter* instead of Oil; by reason of the great Consumption thereof other ways. *Schookius* has a just Volume, *De Butyro & Aversione Casei*; where the Origin and Phænomena of *Butter* are handled in form: He enquires whether *Butter* was known in *Abraham's* Days, and whether it was the Dish he entertain'd the Angels withal: He examines how it was prepar'd among the *Scythians*; whence arise its different Colours; teaches how to give it its natural Colour; how to churn it, salt it, keep it, &c.

Butter, in Chymistry, is us'd to express several Preparations in Chymistry, as *Butter* of Antimony, of Arsenic, of Wax, of *Saturn*, &c. so call'd from their Form, Consistence, &c. See Antimony, Arsenic, Wax, &c.

BUTTOCK *of a Ship*, is her full Breadth right astern from the Jack upwards. According as a Ship is built, broad or narrow at the Transom, she is said to have a broad or narrow *Buttock*.

BUTTONS, an Article in Dress, whose Form, and Use is too familiar to need a Description. The Matter whereof *Buttons* are made is various; as Metal, Silk, Mohair, &c. *Metal Buttons*, again, are various; both with regard to the Matter, and Manner of making: Besides those cast in Moulds, much in the manner of other small Works, (see Foundery) there are now made great Quantities, with thin Plates, or Leaves of Gold, Silver, and Brass; especially of the two last. The Invention of these *Buttons* being very late, as not having been set on foot before the Beginning of the XVIIIth Century; and their Structure very Ingenious, tho of ill use, we shall here subjoin it.

Manner of making plated Buttons. The Metal to be us'd being reduc'd into thin Plates, or Leaves, of the Thickness intended, (either by the Goldsmith or Brasier) is cut into little round Pieces, of a Diameter proportionable to the wooden Mould they are to cover: This cutting is perform'd with a sharp Punch, on a leaden Block or Table. Each piece of Metal thus cut, and taken off from the Plate, is reduc'd to the Form of a *Button*, by beating it successively in several spherical Cavities, with a round Piece of Iron in form of a Punchion; still beginning with the flattest Cavity, and proceeding to the more Spherical, till the Plate have got all the Relievo requir'd: And the better to manage so thin a Plate, they form 10 or 12 to the Cavities at once; and also boil the Metal to make it more ductile. The Inside thus form'd, they give an Impression to the Outside, by working it with the same Iron Punchion, in a kind of Mould, like the Minter's Coins, engraven *en creux*, or indentedly; and fasten'd to a Block or Bench. The Cavity of this Mould, wherein the Impression is to be made, is of a Diameter and Depth suitable to the sort of *Button* to be struck in it; each Kind requiring a particular Mould. Between the Punchion and the Plate is plac'd some Lead, which contributes to the better taking off all the Stroaks of the Graving; the Lead, by reason of its Softness, easily giving way to the Parts that have Relievo; and as easily insinuating it self into the Trace, or Engraving of the Dentures: The Plate thus prepared, makes the Upper-part, or Shell of the *Button*. The lower Part is form'd of another Plate, made after the same manner, but flatter, and without any Impression. To this last, is solder'd a little Eye made of Wire of the same Metal; for the *Button* to be fasten'd by. The two Plates are solder'd together, with a wooden Mold, cover'd with Wax, or other Cement, between; in order to render the *Button* firm and solid: For the Wax entering all the Cavities form'd by the Relievo of the other side, sustains it, prevents

vents its flattening, and preserves its Bosse or Design. Ordinarily, indeed, they content themselves to cover the naked Mould with the Shell; and in this Case, for the fastening, pass a Thread or Gut across thro the middle of the Mould.

BUTTRESS, a kind of Butment built archwise; or a Mass of Stone or Brick, serving to prop or support the Sides of a Building, Wall, &c. on the Outside, where it is either very high, or has any considerable Load to sustain on the other side, as a Bank of Earth, &c. The Theory and Rules of *Buttresses*, are one of the *Desiderata* in Architecture.

BUTTRESS, or BUTTRICE, is likewise a Tool, that Farriers make use of to pierce the Sole of an Horse's Foot, which is overgrown; to pare the Hoof; to fit the Shoe, and to cut off the Skirts of the said Sole, that overcast the Shoe.

BY-LAWS, or BILAWS, Orders made in Court-Leets, Court-Barons, &c. by common Consent, for the Good of those who prescribe them; and which extend further than the Publick Law binds. In *Scotland*, they are call'd *Laws of Burlaw*, or *Birlaw*; which are made and determin'd by Consent of Neighbours, elected by common Consent in *Burlaw*-Courts; wherein Cognizance is taken of Complaints 'twixt Neighbour and Neighbour. The Men thus chosen are Judges or Arbitrators, and call'd *Burlaw-Men*.

C A B

C, THE third Letter of the Alphabet; form'd, according to *Scaliger*, from the κ of the *Greeks*, by retrenching the Stem or right Line: Others derive it from the כ *Caph* of the *Hebrews*, which has, in effect, the same Form; allowing only for this, that the *Hebrews*, reading backwards, and the *Latins*, &c. forwards, each have turn'd the Letter their own way. However, the *c* not being the same as to Sound with the Hebrew *Caph*; and it being certain the *Romans* did not borrow their Letters immediately from the *Hebrews*, or other Orientals, but from the *Greeks*; the Derivation from the *Greek* K is the more probable. F. *Montfaucon*, in his *Palæographia*, gives us some Forms of the *Greek* K, which come very near that of our *C*; this, for Instance, ϛ: And *Suidas* calls the *C*, the Roman *Kappa*. All Grammarians agree, that the *Romans* pronounc'd *q* like our *c*, and *c* like our *k*. F. *Mabillon* adds, that *Charles* the Great was the first who wrote his Name with a *C*; whereas, all his Predecessors of the same Name wrote it with a *K*: The same Difference is observ'd in their Coins.

C was a Numeral Letter among the *Romans*, signifying an hundred: according to the Verse,

Non plus quam centum C *litera fertur habere.*

Some add, that a Dash over it, made it signify an hundred thousand; but it won'd be hard to find an Instance hereof among the Antients. In proper Names, *C.* was us'd for *Caius*; as, *C. Cæsar*, &c. Their Lawyers us'd it single for *Codice* and *Consule*, &c. double, *CC*, for *Consulibus*. *C* was also us'd in their Courts, as a Letter of Condemnation, and stood for *condemno*; in opposition to *A*, which signify'd *absolvo*. See A.

In Musick, a Capital *C* denotes the highest Part in a thorough Bass.

CABBALA, or CABALA, or KABBALA, a Term us'd in various Senses, which Authors generally confound. It is originally *Hebrew*, קבלה *Kabbalah*; and, properly, signifies *Tradition*: whence the Verb קבל *Kibbel*, to receive by Tradition, or from Father to Son; especially in the *Chaldee* and *Rabbinical Hebrew*. Hence *Cabbala* is primarily used for a Sentiment, Opinion, or Explication of Scripture; or a Custom or Practice transmitted from Father to Son.

As to the Origin of the *Cabbala*: The *Jews* believe, that God gave to *Moses* on Mount *Sinai*, not only the Law, but also the Explication of that Law; and that *Moses*, after his coming down, retiring to his Tent, rehears'd to *Aaron* both the one and the other. When he had done, *Aaron* standing on the Right Hand, his Sons, *Eleazer* and *Ithamar*, were introduc'd to a second Rehearsal: This over, the 70 Elders that compos'd the *Sanhedrim* were admitted; and lastly the People, as many as pleas'd: To all which, *Moses* again repeated both the Law and Explanation, as he receiv'd 'em from God. So that *Aaron* heard it four times, his Sons thrice, the Elders twice, and the People once. Now, of the two Things which *Moses* taught 'em, the *Laws*, and the *Explanation*, only the first was committed to Writing; which is what we have in *Exodus*, *Leviticus*, and *Numbers*: As to the second, or the Explication of those Laws, they were contented to impress it well in their Memory, to teach it their Children; they, to theirs, &c. Hence, the first Part they call simply the *Law*, or the *Written Law*; the second, the *Oral Law*, or *Cabbala*. Such is the original Notion of the *Cabbala*.

Some Rabbins, however, pretend their Fathers receiv'd the *Cabbala* from the Prophets, who receiv'd it from the Angels. R. *Abr. ben Dior* says expressly, that the Angel *Raziel* was *Adam*'s Master, and taught him the *Cabbala*; that *Japhiel* was *Shem*'s Master; *Tsedekiel*, *Abraham*'s; *Raphael*, *Isaac*'s; *Peliel*, *Jacob*'s; *Gabriel*, *Joseph*'s; *Meratron*, *Moses*'s; *Malathiel*, *Elias*'s, &c.

C A C

Among these Explications of the Law, which, in reality, are little else but the several Interpretations and Decisions of the Rabbins on the Laws of *Moses*, some are *Mystical*; consisting of odd abstruse Significations given to a Word, or even to the Letters whereof it is compos'd: whence, by different Combinations, they draw Meanings from Scripture, very different from those it seems naturally to import. The Art of interpreting Scripture, after this manner, is call'd more particularly *Cabbala*: And 'tis in this last Sense the Word is more ordinarily us'd among us.

This *Cabbala*, call'd also *Artificial Cabbala*, (to distinguish it from the first Kind, or simple Tradition) is distinguish'd into three Sorts: The first, call'd *Gematria*, consists in the taking Letters as Figures, or Arithmetical Numbers, and in explaining each Word by the Arithmetical Value of the Letters whereof it is compos'd; which is done various ways. See GEMATRIA.

The second is call'd *Notaricon*; and consists either in the taking each Letter of a Word for an entire Diction; *v. g.* בראשית the first Word of *Genesis*, for תכסי הומות כרקיע שרצ שמים: Or in making one entire Diction out of the Initial Letters of many; as out of these, גבכור לעולם ארני אתה: *Thou art great in Eternity, Lord*; by only taking the Initial Letters, they form the *Cabbalistic* Name of God, אגלא *Agla*, mention'd by *Galatine*. See NOTARICON.

The third kind, call'd *Themura*, q. d. *changing*, consists in the changing and transposing the Letters of a Word; which is done various Ways: 1. By separating 'em; and thus, *v. g.* from *Breschit*, i. e. *in Principio*, they make *Bres-chit*, i. e. *posuit Fundamentum*; just as in playing with Words, we sometimes separate *Sum-mus*, *Ter-minus*, *Sus-tinea-mus*. 2. By transposing the Letters, and ranging 'em in a different manner: thus, from the same Word *Breschit*, they make another Signification, 1st *in Thisri*; and because this is taken from the first Word in the History of the Creation of the World, they thence conclude, the World was created on the first Days of the Month of *Thisri*. 3. By taking one Letter for another, with respect to the different Relations they acquire, in considering the Alphabet different Ways: thus, by dividing the *Hebrew* Alphabet of 22 Letters, into two Parts, and taking the first of either of these for the first of the other, the second for the second, &c. by this means, of *Tabeel*, an unknown Name mention'd in *Isaiah*, they form *Remla*, the Name of a King of *Israel*. Another manner of changing the Letters, is by taking the Alphabet two ways, first in the common way, then backwards, and changing mutually the two first Letters, then the two second, &c. By this means, of קבי *the Hearts of those who rise against me*, they make שדים *the Chaldeans*; and thence conclude, that those God here spake of are *Chaldeans*. These two last Kinds are also call'd צירוף *Association*, *Combination*.

The *Cabbala* hitherto spoke of, may be call'd *Speculative Cabbala*; in opposition to the following, which may be call'd *Practical Cabbala*.

CABBALA, is also taken for the Use, or rather Abuse, which Magicians make of some Passages of Scripture. All the Words, Terms, Magic Figures, Numbers, Letters, Charms, &c. used in Magic, as also in the Hermetical Science, are compriz'd under this Species of *Cabbala*. But 'tis only the Christians that call it by this Name, on account of the Resemblance this Art bears to the Explications of the *Jewish Cabbala*: For the *Jews* never use the Word *Cabbala*

bala in any such Sense, but ever with the utmost Respect and Veneration. 'Tis not, however, the Magic of the *Jews* alone which we call *Cabbala*, but the Word is also us'd for any kind of Magic: in which Sense it is, that the Abbe *de Villars* takes it, in his *Comte de Gabalis*; where he exposes the ridiculous Secrets of the *Sacred Cabbala*, as the *Cabalists* call it. These suppose there are elementary People, under the Names of *Sylphs*, *Gnomes*, *Salamanders*, &c. and hold, that this Science introduces People into the *Sanctuary of Nature*. They pretend, the *Hebrews* knew these aerial Substances; that they borrow'd their *Cabalistic* Knowledge from the *Egyptians*; and have not yet forgot the Art of conversing with the Inhabitants of the Air. See SYMBOL.

CABBALLA, or CABBALLISTS, is also us'd to express that Sect among the *Jews*, which follows and practises the *Cabballa*; or interpret Scripture according to the Art of *Cabballa*, taken in the second Sense above laid down. The *Jews* are divided into two general Sects; the *Karaites*, who refuse to receive either Tradition, or the Thalmud, or any thing but the pure Text of Scripture. See CARAITES. And the *Rabbinists* or *Thalmudists*; who, beside this, receive the Traditions, and follow the *Thalmud*; see THALMUD. And these latter are again divided into two other Sects; pure *Rabbinists*, who explain the Scripture in its natural Sense, by Grammar, History, and Tradition; and *Cabbalists*, who to discover hidden mystical Senses, which they suppose God to have couch'd therein, make use of the *Cabbala*, and the mystical Rules and Methods abovemention'd. There are Visionaries among the *Jews*, who believe that Jesus Christ wrought his Miracles by virtue of the Mysteries of the *Cabbala*. Some learned Men are of Opinion, that *Pythagoras* and *Plato* learn'd the *Cabbalistic* Art of the *Jews* in *Egypt*; and fancy they see evident Footsteps thereof in their Philosophy: Others, on the contrary, say, it was the Philosophy of *Pythagoras* and *Plato*, that first furnish'd the *Jews* with the *Cabbala*. Be this as it will, 'tis certain that in the first Ages of the Church, most of the Hereticks gave into the vain Notions of the *Cabbala*: Particularly the *Gnostics*, *Valentinians*, and *Basilidians*. Hence arose the ABPAΞAΣ, and the multitude of Talismans, wherewith the Cabinets of the Virtuosi are stock'd. See TALISMAN, &c.

The Word *Cabballa* is not only apply'd to the whole Art; but also to each Operation perform'd according to the Rules of that Art. R. *Jac. ben Ascher*, sirnam'd *Baal Hatturim*, has compil'd most of the *Cabbala's* invented on the Books of *Moses* before his Time.

CABINET, the most retir'd Place in the finest Apartment of a Building; set apart for Writing, Studying, or preserving any thing very precious. A compleat Apartment consists of an Hall, Antichamber, Chamber, and Cabinet; with a Gallery on one side. See APARTMENT. Hence a *Cabinet* of Paintings, of Curiosities, Mosaic *Cabinet*, *Cabinet* of a Garden, &c.

CABINS, or CABANES, in a Ship, are little Lodges and Apartments for the Pilots and other Officers of the Ship to lie in; very narrow, and in form of Armories or Presses; us'd in several Parts of the Ship, particularly the Poop and the Sides. The Word comes from the *Italian Capanna*, a little Straw Hut; and that from the *Greek* καπάνη, a Stall or Manger.

CABIRIA, or CABBIRES, were Feasts held by the antient *Greeks* of *Lemnos* and *Thebes*, in honour of some *Samothracian* Deities, call'd *Cabires*. These Gods, according to the Scholiast of *Apollonius*, were four; *Axierus*, who was *Ceres*; *Axiocersa*, *Proserpine*; *Axiocersus*, *Pluto*; and *Casmilus*, *Mercury*: The Feast was very antient, and prior even to the Time of *Jupiter*; who is said to have restor'd it: It was held by Night. Children above a certain Age were here consecrated; which Consecration was suppos'd to be a Preservative against all Dangers of the Sea, &c. The Ceremony of Consecration, consisted in placing the initiated Youth on a Throne, the Priests dancing round him: The Badge of the Initiated was a Girdle or Scarf. When a Person had committed any Murder, the *Cabiria* gave him an Asylum. *Meursius* is very particular in the Proof of each of these Points.

CABLE, a thick long Rope, ordinarily of Hemp, serving to hold Ships firm at Anchor, to tow Vessels in large Rivers, &c. The Term is sometimes also apply'd to the Cordage us'd to raise massy Loads, by means of Cranes, Wheels, and other like Engines: Tho, in strictness, *Cable* is not apply'd to Ropes of less than three Inches Circumference. See CORDAGE, ROPE, &c.

Every *Cable*, of whatever Thickness it be, is compos'd of three *Hawsers*; each Hawser of three *Strands*; each Strand of three *Twists*; each Twist of a certain Number of *Caburns*, or Threads of Rope-Yarn, more or less, as the Cable is to be thicker or smaller.

To make a *Cable*: after forming the Strands, as in the Article of ROPEMAKING, they use Staves; which they first pass between the Strands whereof the Hawsers are compos'd; and afterwards between the Hawsers whereof the *Cable* is compos'd: that the one and the other may turn the better, and be intertwisted the more regularly together. And to prevent any entangling, a Weight is hung at the End of each Hawser and Strand. The *Cable* being twisted as much as needs, is untwisted again three or four Turns, that the rest may the better retain its State.

The number of Threads each kind of *Cable* is to be compos'd of, is ever proportion'd to its Length and Thickness; and 'tis by this Number of Threads, that its Weight and Value are ascertain'd. A *Cable* of 3 Inches Circumference, or 1 Inch Diameter, consists of 48 ordinary Threads, and weighs 192 Pounds; one of 10 Inches Circumference, of 485 Threads, and weighs 1940 Pounds; a *Cable* of 20 Inches, of 1943 Threads, and weighs 7772 Pounds.

The Seamen say, *The Cable is well laid*, when it is well wrought, or made. *Serve the Cable*, or *plat the Cable*, *i. e.* bind it about with Ropes, Clouts, &c. to keep it from galling in the Hawse. *To splice a Cable*, is to make two Pieces fast together, by working the several Strands of the Rope one into another. *To coil the Cable*, is to roll it up round in a Ring; of which, the several Rolls one upon another are call'd *Cable Tire*. They say, *Pay more Cable*, that is, let it more out from the Ship; that the Boat which carries the Anchor may the more easily drop it into the Sea: And sometimes they say, *Pay cheap the Cable*, that is, put or hand it out apace. In the same Sense they say also, *Veer more Cable*; that is, let more out. When two *Cables* are splic'd together, it is call'd *a Shott of a Cable*.

Every Merchant Vessel, how small soever, has three *Cables*, *viz.* the *Main* or *Master Cable*, which is that of the chief Anchor; the *Common Cable*, and the *small one*. The ordinary Length of these *Cables*, is 110 or 120 Fathoms, or Braces. Hence, at Sea,

CABLE, or CABLE'S-LENGTH, is also us'd for a Measure of 120 Fathom. See FATHOM.

The Word *Cable*, comes from the Hebrew *Chebel*, Cord. *Du Cange* derives it from the Arabic, *Habl*, Cord, or *habala*, *vincire*. *Menage*, from *Capulum*, or *Cabulum*; and that from the *Greek* κάμηλος, or the *Latin*, *Camellus*.

CABLED-FLUTES, in Architecture, such *Flutes* as are fill'd up with Pieces in form of *Cables*. See FLUTING.

CABLED, in Heraldry, is when a Cross is form'd or cover'd with Ropes, or twisted *Cables*. See CROSS.

CABOSSED, or CABOCHED, in Heraldry, a term originally *Spanish*; us'd where the Head of a Beast is cut off behind the Ears, by a Section parallel to the Face; or by a perpendicular Section: in contra-distinction to *Couping*; which is done by a horizontal Line; besides that, 'tis farther from the Ears than *Cabossing*. See COUPING.

CACAO, or COCOA, in Natural History and Commerce, a kind of Nut, about the Size of a moderate Almond; the Seed or Fruit of a Tree of the same Name, growing in several Parts of the *West-Indies*; chiefly in the Provinces of *Guatimala* and *Nicaragua*, and the *Antilles* Islands. The native *Mexicans* call the *Cacao* Tree, *Cucuhua guahuitl*; and the *Spaniards*, *Cacaotal*. It resembles our Cherry-Tree; but is so very delicate, and the Soil it grows in so hot, that to guard it from the Sun, they always plant it in the Shade of another Tree, call'd *Mother of Cocoa*. The Fruit is enclos'd in a kind of Pod, of the Size and Figure of a Cucumber; except that it begins and ends in a Point. Within the Pod, which is half a Finger thick, is form'd a Tissue of white Fibres, very succulent, a little acid, and proper to appease Thirst. In the middle of these Fibres are contain'd 10, sometimes 12, and sometimes more, as far as forty, Grains or Seeds, of a Violet Colour, and dry as Acorns. Each Grain, which is cover'd with a little Bark or Rind, when stripp'd thereof, separates into five or six unequal Pieces, in the middle whereof is a Kernel or Pippin, having a tender Bud, very difficult to preserve. Of this Seed, with the Addition of *Vanille*, and some other Ingredients, the *Spaniards*, and, after their Example, the rest of *Europe*, prepare a Kind of Conserve, or Cake; which, diluted in hot Water, makes that delicious, wholesom Drink, call'd *Chocolate*: *For the Preparation*, &c. *whereof*, *see* CHOCOLATE.

This precious Almond, the *Spaniards* make so considerable a Trade of, that there are some make 5000 *l.* Sterling, *per Annum*, from a single Garden of *Cacoa's*. There are two Kinds of *Cacoa's*; the most common, which is likewise the best, is of a dark Colour, bordering on red, and round: The other, call'd *Patlaxe*, is white, larger, thicker, and flatter; its Quality is Deficcative. Some Druggists, however, sell four Kinds; *viz.* the *great* and *little Caragne*, and the *great* and *little Cacoa of the Islands*: which, however, may be probably reduc'd to the two Kinds above mention'd: It being only the Greatness and Smallness that multiplies the Names and Kinds.

The *Cacao* Nuts, are esteem'd by the *Mexicans* as Anodine; and us'd, eaten raw, to assuage Pains of the Bowels. They also procure a kind of Butter or Oil from 'em, as sweet

ſweet as that of Almonds, and drawn in the ſame manner; excellent for Burns.

In ſome Parts of *America*, the *Cacoa* Grains are us'd by the *Indians* as Money; 12 or 14, are eſteem'd equivalent to a *Spaniſh Real*, or 6 ⅜ Sterling. See COINS.

CACHEXIA, or CACHEXY, in Medicine, an ill Habit or Diſpoſition of Body; wherein, the Nutrition is deprav'd throughout the whole Habit, at once: frequently leading towards a Dropſy; and accompany'd with a Swelling, or Bloating of the fleſhy Parts; a paleneſs or lividneſs of Complexion, &c. It ordinarily ariſes from a Debility, or Foulneſs of the *Ventricle* or *Viſcera*; ſometimes from an Ulcer in the Reins, in Perſons that have the Stone. The external Cauſes are unwholeſom Food, frequent Drunkenneſs, exceſſive Study, much waking, ſuppreſſion of the Menſes, immoderate Loſs of Blood, Chronic Fevers, Obſtructions, &c.

Boerhaave aſcribes the Diſorder, either to the vitiated State of the nutritious Juice, to ſome Diſorder of the Veſſels that are to receive it, or to the Defect of the Faculty that ſhou'd apply it. The Juice, he obſerves, may be deprav'd, either from the Quality of the Food; as if it be farinaceous, leguminous, fat, fibrous, ſharp, aqueous, or viſcous; from the want of Motion; from the Organs vitiated by too much Weakneſs, or too much Strength: And theſe, again, may be occaſion'd by immoderate Secretions and Evacuations of any kind, the Schirroſity of ſome of the Viſcera, or the Retention of ſomething that ſhould be ſecern'd: And hence, a Diminution of the Solids, or a Repletion of the Liquids with things that can't paſs: Whence two notable ill Effects of this Evil; *viz.* a Leucophlegmatia, and an Anaſarcous Dropſy. Now, according to the various Colour, Quantity, Tenacity, Acrimony, and Fluidity of the nutritious Liquor, ariſe various Diſorders, as the Effects of the *Cachexia*; *v. g.* paleneſs, yellowneſs, lividneſs, greenneſs, blackneſs, or redneſs of the Skin; heavineſs, windineſs, palpitation of the Heart and Arteries, increas'd with the leaſt Motion; crude thin Urine; ſpontaneous watry Sweats; and, at length, a Leucophlegmatia and Dropſy. For the Veſſels that receive the nutritious Juice, there can't well be aſſign'd any univerſal Fault; unleſs their too great Contractility and Laxity, and the Diſorders accruing from 'em, may be admitted as ſuch. Laſtly, Nutrition is impeded and perverted, by a Defect in the Faculty that ſhould apply it; as when the circulating Force is either too languid or too violent. The Word comes from the *Greek* καχεξία; form'd from the *Greek* κακή, *ill*, and ἕξις, *Diſpoſition*. The *Cachexia* is more frequently call'd *Cacochymia*, which ſee.

CACHOU, a medicinal Aromatic Drug, rank'd among the Number of Perfumes; call'd alſo *Terra Japonica*. Notwithſtanding the great uſe of *Cachou*, before that of Coffee and Tea; and its being ſtill frequently us'd by many People, eſpecially in *France*, its Nature and Origin is yet but little known; even among the ableſt Phyſicians: Some from its being call'd *Japon Earth*, rank it among the medicinal Earths, and pretend 'tis found on the Tops of Mountains, cover'd with the Roots of Cedars, whoſe Food it is: and that being waſh'd in the River, and dry'd in the Sun, 'tis form'd into a kind of Paſte; which brought into *Europe*, ſerves as the Baſis of ſeveral Paſtels, or Fucus's, call'd *Cachou*. Others, with more Probability, range it among the Gums; and maintain it to be form'd of the inſpiſſated Decoction of a Tree in the *Eaſt Indies*, call'd *Cachous*; growing chiefly in the Kingdom of *Cochinchina*. Laſtly, others, to whoſe Opinion we rather incline, take it to be a factitious Compoſition of ſeveral other Drugs; eſpecially the Juice of Areca, Extract of Liquorice, and *Calamus Aromaticus*, and the Bark of a Tree, call'd by the *Indians Catechu*; which may probably be the ſame with that above mention'd.

Be it Earth, Gum, or Compoſition, *Cachou* is of much eſteem in Medicine: Among other Effects attributed to it, 'tis ſuppos'd to ſtop a Cough, and fortify the Stomach; beſides its ſweetening and perfuming the Breath, when taken in an impalpable Ponder, mix'd with Gum Tragacanth.

CACOCHYMIA, a deprav'd Habit of Body, conſiſting in its being replete with ill Humors, from various Cauſes; ſee CACHEXIA. When the Repletion is merely with Blood, 'tis call'd a *Plethora*; ſee PLETHORA. *Gorræus* gives the Name *Cacochymia* to the Abundance and Exceſs of any ill Humor; whether it be Bile, Pituita, &c. provided there be only one that thus offends in Quantity: *Plethora* he calls the Abundance or Exceſs of all the Humors together. The Word comes from the *Greek* κακόν, *ill*, and χυμός, Juice. See PLETHORA.

CACOPHONIA, or CACOPHONY, in Grammar, the meeting of two Letters, or two Syllables, that make a harſh diſagreeable Sound. The Word is ſometimes alſo us'd in Singing; it comes from the *Greek* κακὸς, and φωνὴ, Voice.

CADARIANS, a Sect of *Mahometans*, who attribute the Actions of Men to Men alone, and not to any ſecret Power determining the Will; contrary to the reſt of the *Muſſulmen*, who are ſtrict *Predeſtinarians*. The Author of this Sect, was *Maabed ben Kalid-Al Giohni*. The Word comes from the *Arabic* קדר, *Kadara*, Power. *Ben Aun* calls the *Cadarians*, the *Magi*, or *Manichees* of the *Muſſulmen*.

CADE, a Cag, Caſk, or Barrel; us'd in the *Book of Rates* for a determinate Number of ſome ſorts of Fiſh; as a *Cade* of Herrings, is a Veſſel containing the Quantity of 500 Herrings, and of Sprats 1000. See MEASURE.

CADENCE, according to the antient Muſicians, is a Series of a certain Number of Muſical Notes, in a certain Interval, which ſtrikes the Ear agreeably; and eſpecially at the Cloſe of a Song, Stanza, &c. A *Cadence* ordinarily conſiſts of three Notes. There are three Kinds of *Cadences*: The principal, or final *Cadence*; uſually conſiſting of a fourth and a fifth to make an *Octave*, as being the moſt excellent of Conſonances: The Entry, or mediate, ſometimes call'd the attendant *Cadence*; in regard the final one is always expected: and the dominant, or prevailing *Cadence*; ſo call'd, as being higher than either of the other: as the Mediate has its Name from its being in the middle, between the Dominant and Final. The modern Muſicians make *Cadence* the Relation of two Notes ſung together, as *ut* and *re*; and when the laſt of theſe Notes is follow'd with two Crotchets, the *Cadence* is ſaid to be double.

CADENCE, in the modern Muſick, may be defin'd, a certain Concluſion of a Song, or of the Parts thereof in divers Places of a Piece; which divide it, as it were, into ſo many Members or Periods. The *Cadence* is, when the Parts fall and terminate on a Chord or Note; the Ear ſeeming naturally to expect it. A *Cadence* is either perfect or imperfect: A perfect *Cadence*, is that which conſiſts in two Notes, ſung after each other, or by Degrees conjoin'd in each of the two Parts; 'tis call'd perfect, becauſe it ſatisfies the Ear better than the other. The *Cadence* is imperfect, when its laſt Meaſure is not in Octave, nor in Uniſon, but in a Sixth or Third: As when the Baſs, in lieu of deſcending a Fifth, only deſcends a Third; or when deſcending a Fifth, or, which is the ſame thing, aſcending a Fourth, it makes an Octave with the Treble, in the firſt Meaſure, and a third Major with the Second: 'Tis call'd Imperfect, becauſe the Ear does not acquieſce in this Concluſion, but expects the Continuation of the Song. The *Cadence* is ſaid to be broke, when the Baſs, in lieu of falling a Fifth, which the Ear expects, riſes a Second, either Major or Minor. Every *Cadence* is in two Meaſures: Sometimes it is ſuſpended; in which Caſe 'tis call'd a Repoſe, and only conſiſts of one Meaſure: as when the two Parts ſtop at the Fifth, without finiſhing the *Cadence*.

M. *Rouſſeau* diſtinguiſhes two Kinds of *Cadence*, with regard to the Baſs Viol: A *Cadence* with, and without a Reſt. The *Cadence* with a Reſt, is when the Finger that ſhould ſhake the *Cadence*, ſtops a little before it ſhakes, on the Note immediately above that which requires the *Cadence*: The *Cadence* without a Reſt, is when that ſtop is omitted. There are alſo ſimple *Cadences*, and double ones; the Double ones are various: The more Double are thoſe made on a long Note; the leſs Double, thoſe on a Short Note. The final *Cadence*, ſhould always be preceded by a double one. The *Cadences* are always to be accommodated to the Character of the Air. The Word comes from *Cadencia*, fall; a *Cadence* being the Fall or Concluſion of a piece of Harmony; proper to terminate either the Whole, or a Part. Some Muſicians call a *Shake* a *Cadence*; but that is to confound Terms. From this Muſical *Cadence* ariſes,

CADENCES, in Singing, are the ſame with Points and Virgula's in Diſcourſe. The Singing-Maſters ſay, the *Cadence* is a Gift of a Maſter, proper for making the Shakes delicate. When the Voice is harſh, the two Notes whereof the *Cadence* conſiſts, muſt be ſtruck in the Throat, the one after the other; as alſo on the Harpſicol, in ſtriking the two Fingers on the two Stops that make the Shake.

CADENCE *in Dancing*, when the Steps follow the Notes and Meaſures of the Muſic.

CADENCE, in the Manage, the equal Meaſure and Time a Horſe is to keep in his Motions, Airs, &c.

CADENCE, in Oratory, when the Sounds end agreeable to the Ear.

CADENCE, in Poetry, a certain Meaſure of Verſe, varying as the Kinds of Verſe vary; differing, *v. g.* in Sapphics, from what it is in Heroics or Iambics. See METRE, QUANTITY, &c.

CADETS, the younger Brothers of a Family: a Term naturaliz'd in our Language from the *French*. At *Paris*, among the Citizens, the *Cadets* have an equal Portion with the Eldeſt: In other Places, the Eldeſt has all. According to the Cuſtom of *Spain*, one of the *Cadets*, in great Families, takes the Mother's Name. See BROTHER.

CADETS, are alſo a kind of young Volunteers, who enter into the Army without being put on the Liſt, or receiving Pay; only to learn the Art of War, and fit themſelves for Employments. Formerly there were only allow'd two

Cadets in each Company. In 1682, the King of *France* eſtabliſh'd Companies of *Cadets*, wherein the young Gentry were train'd up to War.

CADI, or KADHI, a Name given to the Judges of Civil Cauſes, among the *Turks* and *Saracens*. The Term, however, is ordinarily reſtrain'd to the Judges of Cities; thoſe in Provinces being call'd *Mollas*.

CADIL-ESCHER, or CADILESCHER, a Chief Juſtice among the *Turks*. Each *Cadileſcher* has his particular Diſtrict: *Ricaut* makes but three in the Empire; that of *Europe*, *Natolia*, and *Cairo*. The Word comes from the Arabic *Kadi*, Judge; the Particle *Al*; and *Aſchar*, Army; as being at their firſt Inſtitution, Judges of the Soldiery.

CADIZADELITES, a Sect among the *Muſſulmen*. The *Cadizadelites* are a kind of *Stoic Mahometans*, who avoid all Feaſting and Diverſion, and affect an uncommon Gravity in all they do or ſay: Thoſe of 'em who inhabit the Frontiers of *Hungary*, &c. agree in many Things with the Chriſtians; and drink Wine, even in the Faſt of *Ramazan*. They read the *Sclavonic* Tranſlation of the Bible, as well as the Alcoran. *Mahomet*, according to them, is the H. S. who deſcended on the Apoſtles in the Day of Pentecoſt.

CADMIA, in Pharmacy, a Mineral, whereof there are two Kinds, *viz. Natural* and *Artificial*: the *Natural Cadmia*, again, is of two Kinds; the one containing Metallic Parts, and call'd *Cobalt*; which ſee: The other containing none, call'd *Calamine*, or *Lapis Calaminaris*; which ſee. The *Artificial Cadmia* is prepar'd from Copper, in Furnaces; of this there are five Kinds; the firſt call'd *Botrytis*; as being in form of a Bunch of Grapes; the ſecond, *Oſtracitis*, as reſembling a Sea-ſhell; the third, *Placitis*, becauſe reſembling a Cruſt; the fourth, *Capnitis*; and the fifth, *Calamitis*, which hangs round certain Iron Rods, wherewith the Matter of the Copper is ſtirr'd in the Furnace; which being ſhaken off, bears the Figure of a Quill, call'd in Latin, *Calamus*. The *Cadmia Botrytis* is found in the Middle of the Furnace; the *Oſtrytis* at the Bottom; the *Placitis* at the Top; and the *Capnitis* at the Mouth of the Furnace.

Cadmia is deſiccative and deterſive, us'd in moiſt ſtinking Ulcers; which by means hereof are brought to *cicatrize*. The *Botrytis* and *Placitis*, are alſo very good in Diſeaſes of the Eyes.

CADRITES, a kind of Religious among the *Mahometans*. Their Founder was *Abdul Cadri*, a great Philoſopher and Lawyer; whence they fetch their Name, *Cadrites*. They live in Common, and in a kind of Monaſteries; which, however, they are allow'd to quit, if they requeſt it, and to marry; on condition of their wearing black Buttons on their Garments, to diſtinguiſh 'em from the reſt of the People. In their Monaſteries, each *Friday*, they paſs the greateſt Part of the Night in running round, holding each others Hand, and crying inceſſantly *Hhai*, *living*, one of the Names of God: One of their Number plays all the Time on a Flute, to animate 'em in this extravagant Dance.

CADUCEUS, *Mercury*'s Rod; or a Wand, twiſted with two Serpents. The Poets attribute wondrous Virtues to the *Caduceus*; as that of throwing People into a Sleep, raiſing the Dead, &c. It was alſo us'd by the Antients as a Symbol of Peace and Concord: Thus, we read, the *Romans* ſent the *Carthaginians* a *Javelin* and a *Caduceus*, offering 'em their Choice, whether of War or Peace. The Word is deriv'd *a Cadendo*, becauſe it *laid* Contentions and Wars. Among the *Romans*, thoſe who denounc'd War were call'd *Feciales*; and thoſe who went to demand Peace, *Caduceatores*; becauſe they bore a *Caduceus* in their Hand. The *Caduceus* found on Medals, is a common Symbol, ſignifying good Conduct, Peace, and Proſperity. The Rod expreſſes Power, the two Serpents Prudence, and the two Wings Diligence.

CADUCUS MORBUS, in Medicine; ſee EPILEPSY.

CÆCUM, or rather COECUM, *Inteſtinum*, or *Blind-Gut*, is the firſt of the great Guts. It is four or five Fingers breadth long, and about the Bigneſs of a Swan's Quill; call'd *Cæcum*, becauſe only open at one end, where it is ty'd to the Beginning of the Colon, as an Appendage thereto; ſo that the Excrements come and go out at the ſame Orifice. Its other End is not tied to the Meſentery, but to the right Kidney, by means of the *Peritonæum*. The true uſe of this Part is not yet determin'd. Some account it as a ſecond Stomach; wherein the Food, after having detach'd all its Chyle thro the Lacteals, undergoes a further Digeſtion, ſo as to part with more Chyle through the Lacteals below it. Dr. *Liſter* aſſigns the uſe of the *Cæcum* to be, to keep the Excrements which paſs into its Cavity, (as moſt of thoſe of ſound Animals he thinks do) till they are ſufficiently drain'd, bak'd, and harden'd, to receive the Figure to be given 'em by the *Colon* and *Rectum*. He adds, to confirm this, that wherever there are elegantly figur'd Excrements of the firſt kind, there is a capacious *Cæcum*; and *vice verſa*. This indeed is true, that ſome Animals, which are naturally looſe, have either no *Cæcum* at all, or very little; as the *Talpa*, *Echinus Terreſtris*, *Gula*, &c. Nature's End, in thus providing for the Figuration of the Excrements, he takes to be, firſt, to prevent Diarrheas; ſecondly, to abide Hunger the better; (thus it is that Snails, in Winter, reſt with full Inteſtines:) Laſtly, to heighten the Digeſtion and Fermentation in the Stomach and ſmall Guts.

Dr. *Muſgrave* gives us an Account, in the *Philoſophical Tranſactions*, of the *Cæcum* of a Dog being cut out, without any Prejudice to the Animal. M. *Giles* gives us another, of the *Cæcum* of a Lady being diſtended ſo as to form a Tumor, that held almoſt three Chopines of a thin, greyiſh, almoſt liquid Subſtance, whereof ſhe dy'd. And Mr. *Knowles*, a third, of a Boy's *Cæcum* being vaſtly extended and ſtuff'd with Cherry-ſtones, which likewiſe prov'd Mortal.

Some ſay, the Name, *Cæcum*, is miſtaken; not allowing this to be the *Cæcum* of the Antients, which they imagine to be the thick globous Part, of the *Colon*, immediately appended to the *Ileum*; and therefore give this Part the Name of *Appendicula Vermiformis*. See INTESTINES.

CAG, or KEG, is a Barrel, or Veſſel, containing from four to five Gallons. See MEASURE.

CAIMACAM, *Lieutenant*, a Dignity in the *Ottoman* Empire. There are ordinarily three *Caimacams*; one conſtantly attending the Grand Signior, another the Grand Vizier, and a third reſiding conſtantly at *Conſtantinople*, in quality of Governor; who examines Affairs of Policy, and regulates 'em in great meaſure. The *Caimacam* that attends the Vizier, only officiates when at a diſtance from the Grand Signior; his Function ceaſing, when the Vizier is with the Sultan. The *Caimacam* of the Vizier is his Secretary of State, and the firſt Miniſter of his Council. The Word is compos'd of the two *Arabic* Words, *Caim macham*, he who holds the Place, or diſcharges the Function of another.

CAINITES, or CAINIANS, a Sect of antient Hereticks, ſo call'd from *Cain*; whom they eſteem'd as their Father. The *Cainites* were a Branch of the *Gnoſtics*: They held, that *Cain* and *Eſau*, *Lot*, and thoſe of *Sodom*, were born of a moſt eminent Celeſtial Virtue; that *Abel*, on the contrary, was born of a Virtue much leſs eminent: To *Cain*, and others of the ſame Order, who, according to them, had a mighty Knowledge of all Things, they aſſociated *Judas*; whom they held in ſo much eſteem, that they had a Book among 'em call'd the Goſpel of *Judas*. S. *Epiphanius* relates, and at the ſame time refutes their Errors.

CALAMINARIS LAPIS, *Calamine Stone*, *Calamite*, or *Cadmia*, a kind of foſſile bituminous Earth, of ſome uſe in Medicine, but of more in Foundery; being us'd to dye Copper yellow, *i. e.* to convert it into Braſs. It is either of a greyiſh Colour, as that of *Germany* and *England*; or reddiſh, as that about *Liege*, and in ſome Parts of *France*; accounted the beſt, becauſe yellow by Calcination. It is dug out of Mines, uſually in ſmall Pieces; having always Eyes, ſometimes Veins, of Lead uſually; tho not always found in Lead-Mines. We have Mines of *Calamine* at *Wrington* in *Somerſetſhire*. It is generally dug in barren rocky Ground; its Courſes running, uſually, at 6 a-Clock, as they call it, *i. e.* from Eaſt to Weſt; ſometimes at 9, and ſometimes at 12; or perpendicular, which is accounted the beſt. When dug, it is waſh'd, or *buddled*, as they call it, in a running Water, which carries off the impure and earthy Parts; leaving the Lead, *Calamine*, and other ſparry Parts at bottom: They then put it in a Sieve, and ſhaking it well in Water, the Lead mix'd with it ſinks to the bottom, the ſparry Parts get to the top, and the *Calamine* lies in the middle: Thus prepar'd, they bake it in an Oven four or five Hours; the Flame being ſo contriv'd as to paſs over, and ſo to heat and bake the *Calamine*; ſtirring and turning it all the while with Iron Rakes. This done, they beat it to Pouder; picking out of it what Stones they find; and thus it is fit for uſe. For the manner of applying it in the Preparation of Braſs. See BRASS.

Beſides the two *Natural Calamines*, there are *Artificial* ones: The beſt is that call'd *Pompholix*; which ſee.

Calamine is of ſome medicinal Virtue, being aſtringent, deſiccative, and deterſive; much us'd for taking off Films from the Eyes of Horſes, &c.

CALAMITA, in Pharmacy, a Term ſometimes us'd for *Styrax*, becauſe frequently put up in Quills. See STYRAX.

CALAMITES. See CADMIA, and CALAMINARIS.

CALAMUS *Aromaticus*, call'd alſo *Calamus Verus*, and *Calamus Amarus*, and *Acorus*; a kind ofRuſh, of the Thickneſs of a Gooſe's Quill, two or three Foot high, growing in the *Levant*. Its chief, and almoſt only uſe, is for Treacle: It muſt be choſen grey-whitiſh without, and reddiſh within; its Pulp white, and its Taſte inſupportably bitter.

CALAMUS *Scriptorius*, in Anatomy, is a Dilatation of the fourth Ventricle of the Brain; ſo called from its Figure, which reſembles that of a Quill.

CALATRAVA, a Military Order, instituted in 1158, by *Sancho* III. King of *Castile*, on the following Occasion: The *Moors* going to attack the little City *Calatrava*, and the Templers, who held it, surrendering it up to the King, on a Suspicion of their Inability to defend it, *Diego Velasquez*, a *Cistercian* Monk, but a Man of Quality, persuaded *Raimond* Abbat of *Fitera*, a Monastery of *Cistercians*, to beg *Calatrava* of the King. He obtain'd it; and *Raimond* and *Diego* put themselves in it; being follow'd by a great number of People, who join'd 'em out of Zeal, for the Defence of *Calatrava*. The *Moors* abandoning the Enterprize, many of those who came to the Defence of the City, enter'd the Order of the *Cistercians*; and that under a Habit more fit for Military than Monastic Exercises. Accordingly, they began to make Excursions on the *Moors*; which was the Rise of the Order of *Calatrava*. The first Grand Master was *Garcias*; under whose Government the Order was confirm'd by *Alexander* III. in 1164. In 1489, *Ferdinand* and *Isabella*, with the Consent of Pope *Innocent* VIII. remitted the Grand-Mastership of *Calatrava* to the *Spanish* Crown: So that the Kings of *Spain* are now become perpetual Administrators thereof. The Knights bear a Cross Gules, fleurdeliz'd with Green, *&c.* Their Rule and Habit was originally that of the *Cistercians*; but their Dress was a little shorten'd on account of their Exercises; and in process of Time they were permitted a secular Habit.

CALCANEUS, in Anatomy, the same as *Os Calcis*, or the *Heel-Bone*: It lies under the *Astragalus*, to which it is articulated by *Ginglimus*; behind it is a large Protuberance, which makes the Heel, and into which the *Tendo Achillis* is inserted.

CALCANTHUM, is Vitriol Rubify'd. Some maintain *Calcanthum* and *Colcothar* to be the same Thing: but *Pomet* is of another Sentiment, and takes *Calcanthum* to be nothing else but Vitriol. See VITRIOL, and CHALCITIS.

CALCINATION, the Action of *calcining* any Matter; *i. e.* of reducing it into a *Calx*, or a very subtile Pouder, or even only into Ashes, by Fire; sometimes also termed *Chymical Pulverisation*. *Calcination* is the next degree of the Power of Fire beyond that of *Fusion*: For when Fusion is longer continu'd, not only the more subtile Particles of the Body it self fly off, but the Particles of Fire likewise do insinuate themselves in such Multitude, and are so dispersed and blended throughout its whole Substance, that the Fluidity which was first caus'd by the Fire, can no longer subsist: From this Union arises a third kind of Body, which being very porous and brittle, is easily reduc'd to Pouder. For the Fire having penetrated every where into the Pores of the Body, the Particles are both hinder'd from mutual contact, and divided into minute Atoms; so that they are easily reducible into the finest Pouder.

Chymists, Goldsmiths, and Founders, distinguish two Kinds of *Calcination*; the one call'd *Actual*, the other *Potential*. Actual *Calcination*, is that effected by actual Fire, of Wood, Coals, or other Fuel, rais'd to a certain Heat, according to the Nature of the Substance to be *calcin'd*. Potential *Calcination*, is that procur'd by potential Fire, *viz.* by Waters, Drugs, *&c.* which have, as it were, the Force of Fire; as Strong Waters, Corrosive Spirits, *&c.* Gold is *calcin'd* in the Fire of a Reverberatory, with Mercury, and Sal Ammoniac. See GOLD. Silver with common Salt and Alkali Salt. See SILVER. Copper with Salt and Sulphur; Iron with Sal Ammoniac and Vinegar; Tin with Antimony, Lead and Sulphur; Mercury with Aqua fortis: This last, also, with most other Minerals, *calcines* with Fire alone, without any other Ingredient.

CALCINATION *Philosophical*, is when Horns, Hoofs, *&c.* are hung over boiling Water, or other Liquor, till they have lost their Mucilage, and are easily reducible into Pouder.

CALCULATION, the Act of computing several Sums, by adding, subtracting, multiplying, or dividing. See ARITHMETIC. An Error in *Calculation* is never protected or secur'd by any Sentence, Decree, *&c.* In stating Accompts there is always understood, *salvo errore calculi*. The Word *Calculus* is us'd in this Sense, in allusion to the Practice of the Antients, who us'd *Calculi*, or little Stones, in making Computations, in taking Suffrages, and in keeping Accompts, *&c.* as we now use Counters, Figures, *&c.*

CALCULATION is particularly us'd to signify the Computations in Astronomy and Geometry; for making Tables of Logarithms, Eclipses, Ephemerides, *&c.* See ECLIPSE, *&c.*

CALCULATION *of Clock and Watch-Work*. See CLOCK and WATCH-WORK.

CALCULUS, in Medicine, the Disease of the Stone in the Bladder, or Kidneys; See STONE, LITHOTOMY, *&c.* In the Bladder 'tis usually call'd *Lithiasis*; and in the Kidneys *Nephritis*; which see. The Term is pure *Latin*, and signifies, literally, a little Pebble, or Flint. Whence also, the Term *Calculation*. See CALCULATION.

CALCULUS, or *Methodus Differentialis*, in Mathematicks, is a Method of differencing Quantities; or of finding an infinitely small Quantity, which being taken infinite times, shall be equal to a given Quantity: or, as others define it, the Arithmetic of infinitely small Differences between variable Quantities.

The Foundation, then, of this *Calculus*, is an infinitely small Quantity, or an Infinitesimal, which is a Portion of a Quantity, incomparable to that Quantity; or that is less than any assignable one, and therefore accounted as nothing: the Error accruing by omitting it being less than any assignable one, *i. e.* less than nothing. Hence two Quantities, only differing by an Infinitesimal, are equal. The better to conceive the Nature of an Infinitesimal, suppose, that in measuring the Height of a Mountain, while you are looking thro the Sights, the Wind blows off the smallest Grain of Dust; the Height of the Mountain is, then, less by the Diameter of the Dust than before: But as the Mountain is still found the same Height, whether the Dust be there or not, its Diameter has nothing to do in the present Case, and passes for nothing, *i. e.* is infinitely small. Thus, in Astronomy, the Diameter of the Earth is an Infinitesimal, in respect of the Distance of the Fix'd Stars: And the same holds in abstract Quantities. The Name *Infinitesimal*, therefore, is merely respective, and involves a Relation to another Quantity; not any real *Ens* or Being.

Now Infinitesimals are call'd *Differentials*, or differential Quantities, when they are consider'd as the Differences of two Quantities. Sir *Isaac Newton* calls 'em *Fluxions*; considering them as the momentary Increments of Quantities; *v. g.* of a Line generated by the Flux of a Point; or of a Surface by the Flux of a Line, *&c.* The *differential Calculus*, therefore, and the Doctrine of *Fluxions* are the same thing under different Names: The former, given by M. *Leibnitz*, and the latter by Sir *Isaac Newton*; each of whom lay claim to the Discovery. See FLUXIONS. There is, indeed, a Difference in the manner of expressing the Quantities, resulting from the different Views wherein the two Authors consider the Infinitesimals; the one as Increments, the other as Differences: *Leibnitz*, and most Foreigners, express the Differentials of Quantities by the same Letter as variable ones; only prefixing the Letter d; thus the Differential of x is call'd dx; and that of y, dy: Now dx is a positive Quantity, if x continually increase; negative if it decrease.

The *English*, with Sir *Isaac Newton*, instead of dx, write $\dot{x}$ (with a Dot over it) for dy, $\dot{y}$, &c. which Foreigners object against, on account of that Confusion of Points, which they imagine arises, when Differentials are again differenc'd; besides, that the Printers are more apt to overlook a Point than a Letter.

Stable Quantities being always express'd by the first Letters of the Alphabet $da = o$, $db = o$, $dc = o$; wherefore $d(x + y - a) = dx + dy$, and $d(x - y + a)\, dx - dy$. So that the Differencing of Quantities is easily perform'd, by the Addition or Subtraction of their Compounds.

To difference Quantities that mutually multiply each other; The Rule is, first, Multiply the Differential of one Factor into the other Factor, the Sum of the two Factors is the Differential sought: thus, the Quantities being xy, the Differential will be $x\,dy + y\,dx$, i. e. $d(xy) = x\,dy + y\,dx$. Secondly, if there be three Quantities mutually multiplying each other, the Factum of the two must then be multiply'd into the Differential of the third: thus, suppose vxy, let $vx = t$, then $vxy = ty$; consequently $d(vxy) = t\,dy + y\,dt$: But $dt = v\,dx + x\,dv$. These Values, therefore, being substituted in the antecedent Differential, $t\,dy + y\,dt$, the Result is $d(vxy) = vx\,dy + vy\,dx + xy\,dv$. Hence 'tis easy to apprehend how to proceed, where the Quantities are more than three.

If one variable Quantity increase, while the other y decreases, 'tis evident $y\,dx - x\,dy$ will be the Differential of xy.

To difference Quantities that mutually divide each other: The Rule is, first, multiply the Differential of the Divisor into the Dividend, and, on the contrary, the Differential of the Dividend into the Divisor; subtract the last Product from the first, and divide the Remainder by the Square of the Divisor; the Quotient is the Differential of the Quantities mutually dividing each other. See FLUXION.

CALCULUS *Exponentialis*, is a Method of differencing exponential Quantities, and summing up the Differentials or Fluxions of *Exponentials*. By *exponential Quantity*, is here understood a Power, whose Exponent is variable; *v.g.* x^x a^x.

To difference an exponential Quantity: There is nothing requir'd but to reduce the exponential Quantities to Logarithmic ones; which done, the differencing is manag'd as in Logarithmic Quantities: Thus, suppose the Differential of the Exponential Quantity xy requir'd, let

$$x^y = 3$$

Then will $y\,lx = l\,3$

$$l\,x\,y\,dx : x = d\,3 : 3$$

$$3\,l\,x\,dy + 3\,y\,dx : x = d\,3$$

That is, $x^{y-1}\,l\,x\,dy + y\,x\,dx = d\,3$. See EXPONENTIAL.

CALCULUS *Integralis*, is a Method of integrating, or summing up Fluxions or Differential Quantities; *i. e.* from a Differential Quantity given, of finding the Quantity from whose differencing the given Differential results. The *Integral Calculus* therefore, is the Inverse of the Differential one: whence the *English*, who usually call *Differentials*, *Fluxions*, give this *Calculus*, which ascends from the Fluxions, to the flowing or variable Quantities; or, as Foreigners express it, from the Differences to the Sums; by the Name of the *Inverse Method of Fluxions*. See FLUXIONS. Hence, the Integration is known to be justly perform'd, if the Quantity found according to the Rules of the *Differential Calculus*, being differenc'd, produce that propos'd to be summ'd. See SUMMATORY *Calculus*.

Suppose $\int$ the Sign of the Sum, or Integral Quantity; then $\int y\,dx$ will denote the Sum, or Integral of the Differential $y\,dx$.

To integrate, or sum up a Differential Quantity. 'Tis demonstrated, first, that $\int dx = x$: secondly, $\int (dx + dy) = x + y$; thirdly, $\int (x\,dy + y\,dx) = x\,y$; fourthly, $\int (m\,x\,m - 1\,dx) = x\,m$; fifthly, $\int (n : m)\,x\,(n-m) : m\,dx = x\,n : m$; sixthly, $\int (y\,dx - x\,dy) : y^2 = x.\,y$. Of these the fourth and fifth Cases are the most frequent; wherein the differential Quantity is integrated, by adding a variable Unity to the Exponent, and dividing the Sum by the new Exponent multiply'd into the Differential of the Root; *v. g.* in the fourth Case, by $m - 1 + 1)\,dx$, i. e. by $m\,dx$.

If the Differential Quantity to be integrated, don't come under any of these Formula's, it must either be reduc'd to an integrable Finite; or an infinite Series, each of whose Terms may be summ'd.

It may be here observ'd, that, as in the Analysis of Finites, any Quantity may be rais'd to any degree of Power; but, *vice versa*, the Root can't be extracted out of any requir'd: So in the Analysis of Infinites, any variable or flowing Quantity may be differenc'd; but, *vice versa*, any Differential can't be integrated. And as in the Analysis of Finites, we are not yet arriv'd at a Method of extracting the Roots of all Equations; so neither has the *Integral Calculus* arriv'd at its Perfection: And as in the former we are oblig'd to have recourse to Approximation; so in the latter we have recourse to infinite Series, where we can't attain to a perfect Integration.

CALCULUS *Literalis*, or *Literal Calculus*, is the same with *Specious Arithmetic*; so call'd, from its using the Letters of the Alphabet, in contra-distinction to *Numeral Arithmetic*, which uses Figures. In the Literal *Calculus*, given Quantities are express'd by the first Letters, *a b c d*; and Quantities sought by the last *z y x*, &c. Equal Quantities are denoted by the same Letters.

CALCULUS *Situs*, is a new kind of *Calculus*, propos'd by M. *Leibnitz*, built on the Consideration of the Situation of Quantities; not of their Magnitudes, as in the rest. This *Calculus* he makes the Foundation of a new Analysis, which he calls *Analysis Situs*.

CALEFACTION, a School Term for the Action of Fire in heating a Body: 'tis us'd particularly in Philosophy and Pharmacy; where *Calefaction* is distinguish'd from *Coction*; the first being apply'd, where the thing is only heated without boiling. See COCTION.

CALENDAR, a Distribution of Time, accommodated to the Uses of Life; or a Table, or Almanack, containing the Order of Days, Weeks, Months, Feasts, &c. happening throughout the Year. See TIME, YEAR, MONTH, FEAST, &c.

The *Roman Calendar*, which continues still in use, owes its Origin to *Romulus*; but has undergone various Reformations since his Time. That Legislator distributed Time into several Periods, for the use of the People under his Command: But as he was much better vers'd in Matters of War than of Astronomy, he only divided the Year into ten Months; making it begin in the Spring, on the first of *March*: imagining, the Sun made his Course thro all the Seasons in 304 Days. His *Calendar* was reform'd by *Numa*, who added two more Months, *January* and *February*, placing 'em before *March*: So that his Year consisted of 355 Days, and begun on the first of *January*. He chose, however, in Imitation of the *Greeks*, to make an Intercalation of 45 Days, which he divided into two; intercalating a Month of 22 Days at the end of each two Years; and at the end of each two Years more, another Month of 23 Days: which Month, thus interpos'd, he call'd *Mercedonius*, or the intercalary *February*. But these Intercalations being ill observ'd by the Pontiffs, to whom *Numa* committed 'em, occasion'd great Disorders in the Constitution of the Year; which *Cæsar*, as Sovereign Pontiff, endeavour'd to remedy: To this End he made choice of *Sosigenes*, a celebrated Astronomer of those Times; who found, that the Dispensation of Time in the *Calendar*, could never be settled on any sure footing, without having regard to the annual Course of the Sun. Accordingly, as the Sun's yearly Course is perform'd in 365 Days six Hours, he reduc'd the Year to an equal number of Days: The Year of this Correction of the *Calendar*, was a Year of Confusion; they being oblig'd, in order to swallow up the 65 Days that had been imprudently added, and which occasion'd the Confusion, to add two Months besides the *Mercedonius*, which chanc'd to fall out that Year; so that it consisted of 15 Months, or 445 Days. This Reformation was made in the Year of *Rome* 708; 42 or 43 Years before Christ.

The *Roman*, call'd also the *Julian Calendar*, from its Reformer *Julius*, is dispos'd into Quadriennial Periods; whereof the three first Years, which he call'd *Communes*, consist of 365 Days; and the fourth, *Bissextile*, of 366; by reason of the six Hours, which in four Years make a Day, or somewhat less: for in 134 Years, an Intercalary Day is to be retrench'd. On this account it was, that Pope *Gregory* XIII. with the Advice of *Clavius* and *Ciaconius*, appointed that the hundredth Year of each Century should have no *Bissextile*, excepting each IVth Century: that is, a Subtraction is made of three Bissextile Days in the Space of four Centuries; by reason of the 11 Minutes wanting in the six Hours whereof the Bissextile consists. See BISSEXTILE.

This Reformation of the *Gregorian Calendar*, or the *New Stile*, as we call it, commenc'd on the 4th of *October*, 1582, when ten Days were thrown out at once; so many having crept into the Computation since the Time of the Council of *Nice*, in 325; by the Defect of 11 Minutes.

Julian Christian CALENDAR, is that wherein the Days of the Week are determin'd by the Letters A, B, C, D, E, F, G; by means of the Solar Cycle, and the New and Full Moons, especially the Paschal Full Moon, with the Feast of Easter, and the other Moveable Feasts depending thereon; by means of Golden Numbers, rightly dispos'd thro the *Julian* Year. See GOLDEN *Number*.

In this *Calendar*, the Autumnal Equinox is suppos'd to be fix'd to the 21st Day of *March*; (see EQUINOX:) and the Cycle of 19 Years, or the Golden Numbers, constantly to indicate the Places of the New and Full Moons: yet both are erroneous. See CYCLE. And hence arose a very great Irregularity in the Time of Easter; See EASTER. To shew this Error the more apparently, let us apply it to the present Year: In this Year, then, the Vernal Equinox falls on the 10th of *March*; and therefore comes too early by 11 Days. The Paschal Full Moon falls on the 7th of *April*; and therefore too late, with regard to the Cycle, by three Days: *Easter*, therefore, which should be on the 10th of *April*, will be on the 17th. The Error, here, lies only in the post-Position of the Moon, thro the Defect of the Lunar Cycle. If the Full Moon had fell on the 11th of *March*, *Easter* wou'd have fallen on the 13th of *March*: and therefore the Error arising from the Anticipation of the Equinox, would have exceedingly augmented that arising from the post-Position.

These Errors, in Course of Time, were so multiply'd, that the *Calendar* no longer exhibited any regular *Easter*. Pope *Gregory* XIII. therefore, by the Advice of *Aloysius Lilius*, in 1582, threw 10 Days out of the Month of *October*, to restore the Equinox to its Place, *viz.* the 21st of *March*; and thus introduc'd the Form of the *Gregorian* Year, with such a Provision, as that the Equinox should be constantly kept to the 21st of *March*. The New Moons and Full Moons, by Advice of the same *Lilius*, were not to be indicated by Golden Numbers, but by Epacts. See EPACT. The *Calendar*, however, is still retain'd in *England*, and the other Protestant States of the North; without this *Correction*.

Gregorian CALENDAR, is that, which by means of Epacts rightly dispos'd thro the several Months, determines the New and Full Moons, and the Time of *Easter*; with the Moveable Feasts depending thereon, in the *Gregorian* Year. The *Gregorian Calendar* therefore differs from the *Julian*, both in the Form of the Year, (see YEAR;) and in that Epacts are substituted in lieu of Golden Numbers: For the Use and Disposition whereof, see EPACT.

Tho the *Gregorian Calendar* be preferable to the *Julian*, yet is it not without its Defects: (perhaps, as *Tycho Brahe* and *Cassini* imagine, 'tis impossible ever to bring the thing to a perfect Justness.) For, first, the *Gregorian* Intercalation does not hinder, but that the Equinox sometimes lags behind the 21st of *March*, as far as the 23d, and sometimes anticipates it, falling on the 19th: And the Full Moon, which falls on the 20th of *March*, is sometimes the Paschal;

Paschal; yet not so accounted by the *Gregorians*. On the other hand, the *Gregorians* account the Full Moon of the 22d of *March*, the Paschal; which yet, falling before the Equinox, is not Paschal. In the first Case therefore, *Easter* is celebrated in an Irregular Month; in the latter, there are two *Easters* in the same Ecclesiastical Year. In like manner, the Cyclical Computation is founded on mean Full Moons; which yet may precede or follow the true ones by some Hours. The Paschal Full Moon may, also, fall on *Saturday*, which is yet referr'd by the Cycle to *Sunday*: Whence, in the first Case, *Easter* is celebrated eight Days later than it should be; in the other it is celebrated on the very Day of the Full Moon, with the *Jews* and *Quartadeciman* Hereticks; contrary to the Decree of the Council of *Nice*. *Scaliger*, and *Calvisius*, shew other Faults in the *Gregorian Calendar*; arising from the Negligence and Inadverteney of the Authors. This *Calendar* is adher'd to by the *Romanists*, throughout *Europe*, &c. and us'd wherever the *Roman* Breviary is us'd. The Protestant States of *Germany* and *Holland* have likewise come into it. See *Reformed* CALENDAR.

Reformed, or *Corrected* CALENDAR; that which setting aside all Apparatus of Golden Numbers, Epacts, and Dominical Letters, determines the Equinox, with the Paschal Full Moon, and the Moveable Feasts depending thereon, by Astronomical Computation, according to the *Rudolphine* Tables.

This *Calendar* was introduc'd among the Protestant States of *Germany*, in the Year 1700; when 11 Days were at once thrown out of the Month of *February*: So that in 1700, *February* had but 18 Days: By this means, the *Corrected Stile* agrees with the *Gregorian*. This Alteration in the Form of the Year they admitted for a Time; in expectation that the real Quantity of the Tropical Year being at length more accurately determin'd by Observatioo, the *Romanists* wou'd agree with 'em, on some more convenient Intercalation.

Construction of a CALENDAR, or *Almanack*.

1. Compute the Sun's and Moon's place for each Day of the Year; or take 'em from *Ephemerides*. See SUN, and MOON. 2. Find the Dominical Letter, and by means thereof, distribute the *Calendar* into Weeks. See DOMINICAL LETTER. 3. Compute the Time of *Easter*, and thence fix the other Moveable Feasts. See EASTER. 4. Add the Immoveable Feasts, with the Names of the Martyrs. 5. To every Day add the Sun's and Moon's Place, with the Rising and Setting of each Luminary; the Length of Day and Night; the *Crepuscula*, and the Aspects of the Planets. 6. Add, in the proper Places, the chief Phases of the Moon. See PHASES. The Sun's Entrance into the Cardinal Points; *i. e.* the Solstices and Equinoxes: together with the Rising and the Setting, especially Heliacal, of the Planets and chief Fix'd Stars. Means for each wheteof, will be found under the proper Heads in this Dictionary.

The Duration of the *Crepuscula*, or the End of the Evening, or Beginning of the Morning Twilight; together with the Sun's Rising and Setting, and the Length of Days, may be transferr'd from the *Calendars* of one Year, into those of another: the Differences in the several Years being too small to be of any Consideration in Civil Life.

Hence it appears, that the Construction of a *Calendar* has nothing in it of Mystery or Difficulty; if Tables of the heavenly Motions be but at hand.

The *Gelalean* CALENDAR, is a Correction of the *Persian Calendar*, made by Order of Sultan *Gelaleddan*, in the 467th Year of the Hegyra; of Christ 1089.

The Name *Calendar* is here given, from the Word *Calendæ*, wrote antiently in large Characters at the Head of each Month.

CALENDAR, is also us'd for the Catalogue, or *Fasti*, antiently kept in each Church, of the Saints; both universal, and those particularly honour'd in each Church; with their Bishops, Martyrs, &c.

There are still some of these *Calendars* extant; particularly a very antient one of the Church of *Rome*, made about the middle of the IVth Century: comprehending also the Festivals both of the Heathens and Christians, which were then very few in number. F. *Mabillon* has also printed the *Calendar* of the Church of *Carthage*; made about the Year 483. The *Calendar* of the Church of *Ethiopia*; and that of the *Cophtæ*, publish'd by *Ludolphus*, seem to have been made after the Year 760. The *Calendar* of the *Syrians*, printed by *Genebrard*, is very imperfect: That of the *Muscovites*, publish'd by F. *Papebroch*, in most respects agrees with that of the *Greeks*, publish'd by *Genebrard*. The *Calendar* publish'd by *Dom. d'Acherry*, under the Title of *The Solar Year*, is no more than the *Calendar* of the Church of *Arras*. The *Calendar* publish'd in 1687, at *Ausburg*, by *Beckius*, is apparently that of the antient Church of *Ausburg*, or rather *Strasbourg*, wrote towards the Close of the 10th Century. The *Mosarabique Calendar*, still us'd in the five Churches of *Toledo*; the *Ambrosian* of *Milan*; and those of *England*, before the Reformation; have nothing in 'em but what is found in those of the other *Western* Churches; *viz.* the Saints honour'd throughout, and those peculiar to the Church where they are us'd.

These antient *Calendars* are not to be confounded with the antient Martyrologies: For each Church had its peculiar *Calendar*; whereas the Martyrologies regarded the whole Church in general: containing the Martyrs and Confessors of all the Churches. From all the several *Calendars* was form'd one Martyrology: so that Martyrologies are posterior to *Calendars*. See MARTYROLOGY.

CALENDS, CALENDÆ, in the *Roman* Chronology, the first Day of each Month. See MONTH. The *Calends* were reckon'd backwards, or in a retrograde Order: Thus, *v. g.* the first of *May* being the *Calends* of *May*, the last, or 30th of *April*, was the *Pridie Calendarum*, or second of the *Calends* of *May*; the 29th of *April*, the third of the *Calends*, or before the *Calends*: and so back to the 13th, where the Ides commence; which are, likewise, number'd invertedly to the fifth, where the Nones begin; which are number'd after the same manner to the first Day of the Month, which is the *Calends* of *April*. See NONES, and IDES. The Rules of Computation by *Calends*, are included in the following Verses.

Prima Dies Mensis cujusque est dicta Calendæ:
Sex Majus Nonas, *October*, *Julius*, & *Mars*;
Quatuor at reliqui: *Dabit* Idus *quilibet Octo*.
Inde Dies reliquos omnes dic esse Calendas;
Quas retro numerans dices a Mense sequente.

To find the Day of the *Calends* we are in, see how many Days there are yet remaining of the Month, and to that Number add two: For Example; suppose it the 22d of *April*; 'tis then the 10th of the *Calends* of *May*. For *April* contains 30 Days; and 22 taken from 30, there remains 8; to which two being added, the Sum is 10.

The Word comes from the Latin *Calare*, to call, proclaim; because on the Day of the *Calends*, or first of the Month, the Pontiff, with a loud Voice, proclaim'd the Day whereon the Nones were to be; whether on the fifth or seventh Day of the Month: Or rather, because originally the inferior Pontiff had it in charge to watch when the New Moon should first appear, in order to declare it to the People; which they call'd *Calare*, apparently from the *Greek* καλεω, *voco*. The *Calends*, according to *Varro*, were dedicated to *Juno*. On the *Calends* of *March*, the *Romans* us'd to take their Leases, &c. in regard the Year, as fix'd by *Romulus*, commenc'd on that Day. The *Calends* of *March* was a fatal Day to Debtors, because then their Leases expir'd; which occasion'd *Horace* to call them *Tristes*.

The *Roman* Writers themselves are at a loss for the Reason of this absurd and whimsical manner of computing the Days of the Month: yet is it still kept up in the *Roman* Chancery; and by some Authors, out of a vain Affectation of Learning, preferr'd to the common, more natural, and easy manner. See YEAR, DAY, NONES, IDES.

CALENTURE, is an inflammatory Fever, frequent at Sea, attended with a Delirium; wherein the Patients imagine the Sea to be green Fields; and, if not prevented, will leap over-board: which way they are frequently lost.

CALIDUCTS, a kind of Pipes, or Canals, dispos'd along the Walls of Houses and Apartments; us'd by the Antients for the Conveyance of Heat to several remote Parts of the House, from one common Furnace. See STOVE, FIRE, &c.

CALIDUM *Innatum*, or Innate Heat; a Term the Antients had many vague Notions about: but Geometrical Reasoning has taught us to affix a more distinct Idea hereto: For 'tis hence we know, that this *innate Heat* is no more than the Attrition of the Parts of the Blood; occasion'd by its circulatory Motion, especially in the Arteries; wherein, being propell'd from a circular Base, towards the Apex of an hollow Cone, with a Force begun in the Heart, it meets with a double Resistance; *viz.* against the Sides of the Arteries, and against the preceding Blood. For whereas the Blood contains in it Parts that are fitted to excite Heat, whenever they can get at liberty; that is, if the Parts inclosing them can be got asunder: and whereas the Parts inclosing such Corpuscles cannot be got asunder, unless by some Nisus of the Parts of Blood with one another, whereby the Attrition and Abrasion of the cohering Particles is produc'd; it follows, that the Heat will be so much the greater, by how much such a Nisus, and Attrition of the Parts among one another is increas'd. And with the same Resistances, (that is, the Sections of the Arteries, and the Quantity of Blood remaining the same) and an increas'd Force of the Heart, and circular Motion of the Blood, the Nisus and Attrition of the Parts of Blood amongst one another, must necessarily be increas'd; both by the preceding Blood being struck harder upon, by the Protrusion of a succeeding Blood, coming on with an increas'd Velocity; and the occasioning thereby also more frequent

Strokes against the Sides of the Arteries; by which means, an increas'd Velocity of Blood increases the Heat: and consequently does its Heat depend upon its Circulation. From hence it appears, that at the same Distances from the Heart, the Heat of equal Quantities of Blood will be as their Velocities: and, that in the same Velocities of Blood, the Heat will be reciprocally as the Distances from the Heart. For since, in homogeneal and simple Bodies, nothing else is requir'd to disengage the Particles exciting Heat, but a Nisus and Attrition of Parts, produc'd by the Force of the Heart; to which is always proportional the Velocity of the Blood; and the Re-action, or Resistance of the Arteries and the antecedent Blood; it follows, that if the Resistance or Re-action is not alter'd, which it will not be at the same distance from the Heart; then the Heat of the Blood will not be alter'd, unless by an Alteration of the Impetus, or Velocity impress'd upon the Blood from the Heart: That is, as Effects are proportional to their Causes, the Heat of the Blood, at the same Distances from the Heart, will be proportional to its Velocity. In the same manner it appears, that if the Velocities impress'd by the Heart be equal, there can be no change in the Heat of the Blood, but from a diversify'd Resistance, or Re-action of the Arteries and antecedent Blood. But the Resistance of the preceding Blood is proportional to its Quantity; and its Quantity is reciprocally proportional to the Distance from the Heart; (for the nearer the Blood is to the Heart, so much the greater will be its Quantity between any given Place and the Extremity of the Artery.) And therefore the Resistance of the Arteries will also be so much the greater, by how much nearer they are to the Heart: For in this case, the Resistance is proportional to the Velocity; and the Velocity of the Blood is greatest at the least Distances from the Heart. Hence the Heat of the Blood may be consider'd as a Rectangle, under the Velocity and the Distance: that is, if in two Persons the Velocity be as three, and the Distances wherein we would determine the Heat, be as much more in one as in another; that is, as two to one; the Heat of one will be six, and the other three: that is, the Heat of the first will be double that of the second. If the Distance of the first be as two, and the Velocity as four; but the Distance of the second as three, and the Velocity as one; the Heat of the first will be as eight, and of the second as three: and so the Heat of the first, will be more than double the Heat of the second.

CALIPPIC PERIOD, in Chronology, a Series of 76 Years, returning perpetually round; which elapsed, the Middle of the New and Full Moons, as its Inventor *Calippus*, an *Athenian*, imagin'd, return'd to the same Day of the Solar Year. *Meton*, 100 Years before, had invented the Period or Cycle of 19 Years; (see METONIC CYCLE.) assuming the Quantity of the Solar Year, 365 *d.* 6 *h.* $18'\ 56''\ 50'''\ 31''''\ 34'''''$; and the Lunar Month 29 *d.* 12 *h.* $45'.\ 47''\ 26'''\ 48''''\ 30'''''$. But *Calippus* considering that the *Metonic* Quantity of the Solar Year was not exact, multiply'd *Meton's* Period by 4, and thence arose a Period of 76 Years, call'd the *Calippic*. The *Calippic Period* therefore contains 27759 Days: And since the Lunar Cycle contains 235 Lunations, and the *Calippic Period* is quadruple of this, it contains 940 Lunations. See PERIOD.

It is demonstrated, however, that the *Calippic Period* it self is not accurate; that it does not bring the New and Full Moons precisely to their Places, but brings 'em too late by a whole Day in 553 Years.

CALIPH, or CALYPH, or KALIPH, the first Ecclesiastical Dignity among the *Saracens*: or, as *d'Herbelot* defines it, the Name of a Sovereign Dignity among the *Mahometans*, vested with absolute Power over every thing, relating both to Religion and Policy. The Word is *Arabic*, and signifies Successor, or Heir: And, in effect, *Abubeker*, the first *Caliph*, was *Mahomet's* Successor; whose Successors, again, assum'd the Title of *Caliphs* of *Syria*. In a little time, however, there arose several other *Caliphs*, who usurp'd the Supreme Power in *Persia*, *Egypt*, and *Africa*. *Pisasire*, who reign'd in 958, was the last *Caliph* of *Syria*: after whom, the *Turks* becoming Masters thereof, the *Caliph* sunk into *Sovereign Pontiff*. And the same happen'd in *Egypt*, where the *Caliph* has only left the Title of *Grand Priest of* Mahomet. *Vatier* observes, that they call'd themselves *Vicars of God*; and that the Mahometan Sultans and Kings fell down before 'em, and kiss'd their Feet: For which Reason, *V. de Beauvais*, calls 'em their *Popes*. The *Caliph* of *Bagdad*, tho otherwise little more than a Name, still retains the antient Right of adopting and confirming the Kings of *Arabia* and *Syria*. *Nicod* observes, that the Governors of *Cairo* had formerly the Title of *Caliph*. There were also *Caliphs* of *Carvan*, in *Tunis*; and of *Spain*; who also bore the Title of King.

The Word comes from the *Arabic*, *Hhalapha*, which signifies not only to *succeed*, but also to be in the Place of another; not only as *Heir*, but as *Vicar*. In which Sense, *Erpenius* observes, it is, that the Emperors and Sovereign Pontiffs were call'd *Caliphs*, as being God's Vicars and Lieutenants: contrary to the more popular Opinion, that they take the Name *Caliph*, as being *Mahomet's* Successors.

CALIX, CHALICE, or CALICE, the *Cup*, or Vessel us'd to administer the Wine in, in the Eucharist; and, by the *Romanists*, in the Mass. *Bede* affirms, that the *Chalice*, us'd by Jesus Christ at the Supper, had two handles, and held just half a Pint; which the Antients imitated. In the primitive Times the *Chalices* were of Wood: Pope *Zephyrine* first appointed 'em to be of Silver and Gold. Others say, *Urban* I. and *Leo* IV. forbad Tin and Glass; as did likewise the Council of *Calcuth* in *England*: *Horn*, *Lindanus*; and *Beatus Rhenanus*, who had seen some of the antient *Chalices* in *Germany*, observe, that they had a Pipe, or Tube, fitted artfully to 'em, thro which the People suck'd, instead of drinking. The Word comes from the *Greek* κύλιξ.

CALIX, in Botany, is apply'd to a Flower, whose Body, or even a Part of it, is form'd in manner of a Cup or *Chalice*; as the Cup or Body of a Tulip, &c.

CALIX is more particularly us'd for that outward greenish Cover which encompasses and defends the Foliage, or Leaves of a Flower. See FLOWER. The *Calix* is sometimes of one entire Piece; as in Pinks, &c. and in some broke into several, as in Roses, &c. The *Calix* is also call'd *Perianthium*. See PERIANTHIUM.

Saffron has no *Calix*; its Flower comes out of the Earth before its Leaves. See SAFFRON.

CALIXTINS, a Name given to those among the *Lutherans*, who follow the Sentiments of *George Calixtus*, a celebrated Divine, who oppos'd the Opinions of St. *Augustin*, on Predestination, Grace, and Free Will: So that the *Calixtins* are esteem'd a kind of *Semi-Pelagians*. *Calixtus* maintain'd, that there is in all Men a certain Power of Understanding and Willing; with Natural Knowledge sufficient: And that a good use being made of these, God will give us all the Means necessary to arrive at the Perfection to which Revelation directs 'em.

CALIXTINS, is also a Term, apply'd by the *Romanists* to such as communicate in both Kinds; as the People of *Bohemia*, &c. tho, in other Respects, of the same Faith with themselves: These they don't make Hereticks, but only Schismaticks: The Word is deriv'd from *Calix*, Cup.

CALKING, or CAUKING *of a Ship*, implies the driving in Oakam, or somewhat of that kind into the Seams, or Commissures of the Planks, to prevent the Ship's leaking.

CALL, (in Hunting) is a Lesson blown upon the Horn, to comfort the Hounds. Amongst Fowlers, *Calls* are artificial Pipes, made to catch several sorts of Birds, by imitating their Notes.

CALLENDER, or CALANDER, a Machine us'd in the Manufactures, for pressing certain Cloths, Stuffs of Silk or Woollen, and even Linens; and to make 'em smooth, even, and glossy: 'Tis also us'd for watering, or giving the Waves to Tabbies and Mohairs. It consists of two large wooden Rollers, round which the Pieces of Stuff are wound: these are put between two large close-polish'd Planks of Wood; the lower serving as a fix'd Base; and the upper moveable, by means of a Skrew like that of a Crane; with a Rope, fasten'd to a Spindle which makes its Axis: This upper Part is of a prodigious Weight, sometimes 50 or 60 thousand Pound. 'Tis this Weight that gives the Polish, and that makes the Waves on the Stuffs about the Rollers, by means of a shallow Indenture or Engraving cut in it. The Rollers are taken off, and put on again, by inclining the Machine. The Word comes from the Latin *Cylindrus*; in regard the whole Effect of the Machine depends on a Cylinder. *Borel*, indeed, derives the Name of it from that of a little Bird, of the Swallow Kind; in regard of the Agreement between the Feathers of the Bird, and the Impression of the Machine.

CALLIGRAPHUS, was antiently a Copist or Scrivener, who transcrib'd fair, and at length what the Notaries had taken down in Notes, or Minutes; which comes pretty near to what we call *Ingrossing*. The Minutes of Acts, &c. were always taken in a kind of Cypher, or Short-Hand; such as the Notes of *Tiro* in *Gruter*: by which means the Notaries, as the *Latins* call'd 'em, or the Σημειόγραφοι and Ταχύγραφοι, as the *Greeks* call'd 'em, were inabled to keep pace with a Speaker, or Person who dictated. These Notes being understood by few, were copy'd over fair, and at length by Persons who had a good Hand, for sale, &c. and these were call'd *Calligraphi*; a Name frequently met with in the Primitive Writers. It comes from the *Greek* κάλλος, *beauty*, and γράφω, *I write*; *q. d.* εἰς κάλλος γράφων, *who writes for Beauty or Ornament sake*.

CALLIPER, or rather CALIBRE, the Aperture of a Piece of Artillery, or any other Fire-Arm; or the Diameter of the Mouth of a Cannon, &c. or of the Ball it carries. Hence,

CALLIPER, or CALIBRE-*Compasses*, is a Rule or Instrument, wherein a Right Line is so divided, as that the first Part being equal to the Diameter of an Iron or Leaden Ball of one Pound Weight, the other Parts are to the first, as the Diameters of Balls of two, three, four, &c. Pounds, are to the Diameter of a Ball of one Pound. The *Calliper* is us'd by Engineers, from the Weight of the Ball given, to determine its Diameter, or *Calliper*; or *vice versa*.

The *Calliper*, (Tab. Fortification, Fig. 2.) consists of two thin pieces of Brass, six Inches long; join'd by a Rivet, so as to move quite round each other: The Head, or one End of the Piece is cut circular; and one half of its Circumference divided into every 2d Deg. On the other Half are Divisions from 1 to 10; each, again, subdivided into 4: The use of which Divisions and Subdivisions, is, that when the Diameter of a Bullet, &c. not exceeding 10 Inches, is taken, the Diameter of the Semicircle, will, among the Divisions, give the Length of that Diameter taken between the Points of the *Callipers*, in Inches and fourth Parts.

The Degrees on the Head, serve to take the Quantity of an Angle; the Method of which is obvious. If the Angle be inward, apply the outward Edges to the Planes that form the Angle; the Degree cut by the Diameter of the Semicircle, shews the Quantity of the Angle sought. For an outward Angle, open the Branches till the Points be outwards, and applying the streight Edges to the Planes that form the Angle, the Degrees cut by the Diameter of the Semicircle shew the Angle requir'd; reckoning from 180, towards the Right Hand.

On one Branch of the *Callipers*, on the same Side, are, first, 6 Inches; and each of these subdivided into ten Parts. Secondly, a Scale of unequal Divisions, beginning at two, and ending at 10; each subdivided into four Parts. Thirdly, two other Scales of Lines, shewing, when the Diameter of the Bore of a Piece is taken with the Points of the *Callipers* outwards, the Name of the Piece, whether Iron or Brass; *i.e.* the Weight of the Bullet it carries; or that 'tis such or such a Pounder, from 1 to 42 Pounds.

On the other Branch of the *Callipers*, on the same Side, is a Line of Chords to about 3 Inches Radius; and a Line of Lines on both Branches, as on the Sector; with a Table of the Names of the several Pieces of Ordnance. On the same Face is a Hand grav'd, and a Right Line drawn from the Finger towards the Centre of the Rivet; shewing, by its cutting certain Divisions made on the Circle, the Weight of Iron Shot, when the Diameter is taken with the Points of the *Callipers*. Lastly, on the Circle, or Head, on the same Side, are graved several Geometrical Figures inscrib'd in each other, with Numbers; as a Cube, whose Side is supposed one Foot; a Pyramid on the same Base and Altitude, and the Proportions of their Weight, &c. a Sphere, inscrib'd in a Cube; a Cylinder, Cone, Circle, Square, &c.

In Architecture, CALLIPER, or CALIBRE, is us'd for the Bulk, Thickness, Volume, or Diameter of any round thing, &c. Thus, they say, these two Columns are of the same *Callibre*, *i. e.* the same Diameter.

The Gagers also sometimes use *Callipers*, to embrace the two Heads of any Cask, in order to find its Length.

CALLOSITY, a little *Callus* form'd in any part of the Skin; or a white, solid, dry, insensible Flesh; generated by the Congestion of a dry, pituitous Excrement, covering the Circumference of an Ulcer, Wound, &c. and in the Place where good Flesh should grow. The Chirurgeon is always to take care that Ulcers close without *Callosities*. See CALLUS.

CALLUS, a kind of Nodus, or Ligature, which joins the Extremities of a fractur'd Bone. The Formation of a *Callus* may be as follows. The Juice that feeds the Bone, running along its Fibres, becomes extravasated in the Place where those Fibres are broke: So that stopping, and gathering together round the Extremities of the Fracture, it there dries, knits, and hardens, to a Consistence like a strong Glue; leaving only a little Inequality in the Place where it is form'd.

Callus's frequently grow so firm as to supply the Place of Bones. In the *Phil. Transact.* we have an Instance of a *Callus* supplying the Place of the *Os Humeri*; taken out, upon its being Carious, by Mr. *Fowler*; and another of a *Callus's* supplying the Place of the *Os Femoris*; and the Person as strong as ever, and walking without any Lameness, by Mr. *Sherman*.

CALLUS, is also a hard dense Knob, or Substance, rising on the Hands, Feet, &c. by much Friction and Pressure against hard Bodies.

CALOGERI, CALOGERS, or CALOYERS, Monks, or Religious, in *Greece*, both Male and Female; inhabiting, particularly, Mount *Athos*, but disseminated throughout all the Churches of the East. They follow the Rule of St. *Basil*, and make Vows like the Western Religious. There has never been any Reform among 'em, but they still retain their original Institution, keep their former Habit, &c. to a Tittle. *Tavernier* observes, they live a very retir'd austere Life, eating no Flesh; and keeping four Lents; besides a great Number of Fasts, with great Strictness: They eat no Bread till they have earn'd it by the Labour of their Hands. During their Lents, some don't eat above once in three Days, others but twice in seven. Most of the Night they spend in Weeping, &c. Some Authors observe, that the Word *Caloger* is apply'd particularly to such, among their Religious, as are become Venerable by Age, and the Austerity of their Life. It may be added, that tho *Calogers*, among us, be a general Name, and comprehend all the *Greek* Monks; yet, in *Greece* it self, their Priests, or Regulars, are call'd *Icromonaches*.

The *Turks* use the Word *Calogers* for their Dervices, or Religious Mussulmen. The Word comes from the *Greek* καλόγερος; which is form'd from καλὸς and γέρων, i.e. *a good old Man*.

CALOMEL, in Pharmacy, the Name ordinarily given to *Mercurius Dulcis*. It rather seems to have first belonged to the Æthiops Mineral; from καλὸς, *pulcher*, fair; and μέλας, *niger*, black: for that white or pale Bodies rubb'd herewith, become black. But some will have it given to *Mercurius Dulcis*, from the Authority of a whimsical Chymist, who employ'd a Black in his Laboratory; whose Complexion, as well as that of the Mercury, he alluded to in the Term: the Medicine being *fair*, and the Operator *black*. See MERCURIUS DULCIS.

CALOTTE, in Architecture, a round Cavity or Depressure, in form of a Cup, or Cap, lathed and plaister'd; us'd to diminish the Rise or Elevation of a moderate Chapel, Cabinet, Alcove, &c. which, without such an Expedient, wou'd be too high for other pieces of the Apartment. It takes its Name from

CALOTTE, a Cap or Coif of Hair, Satin, or other Stuff; used first for Necessity, but now become an Ecclesiastical Ornament, in *France*, &c. It was first wore by Cardinal *Richlieu*: The red *Calotte* is the Badge of a Cardinal.

CALQUING, or CALKING, a Term in Painting, &c. us'd where the Backside of any Design is cover'd with a black or red Colour; and the Strokes or Lines trac'd thro on a wax'd Plate, Wall, or other Matter; by passing lightly over each Stroak of the Design with a Point, which leaves an Impression of the Colour on the Plate or Wall.

CALTROP, *Chausse-trape*, an Instrument with four Iron Points, dispos'd Triangular-wise; so as there are always three Points bearing on the Earth, the fourth being in the Air: *Budeus* calls it *Calciatrappa*. Several of these are fix'd in the Ground where the Cavalry is to pass, to stick into the Horses Feet, and embarrass 'em.

CALVA, or CALVARIA, the Scalp, or upper Part of the Head; so call'd from its growing bald first. See HEAD.

CALVARY, a Term us'd in Catholic Countries for a kind of Chapel of Devotion, rais'd on a Hillock near a City; in Memory of the Place where Jesus Christ was crucify'd near *Jerusalem*. Such is the Church of St. *Valerian*, near *Paris*; which is accompany'd with several Chapels, in each whereof is represented in Sculpture one of the Mysteries of the Passion. The Word comes from the Latin *Calvarium*, and that from *Calvus*; in regard the Top of that Hillock was bare, and destitute of Verdure: which is also signify'd by the *Hebrew* Word *Golgotha*.

CALVINISM, the Doctrine and Sentiments of *Calvin* and his Followers, with regard to Matters of Religion. *Calvinism* subsists in its greatest Purity, in the City of *Geneva*; whence it was first propagated over *France*, the *United Provinces*, and *England*. In *France* it was abolish'd by the Revocation of the Edict of *Nants*, in 1685. It has been the prevailing Religion in the *United Provinces*, ever since the Year 1572. In *England* it has dwindled since the Time of Queen *Elizabeth*; and is now confin'd among the Dissenters: Tho it still subsists, a little allay'd, in the Articles of the Establish'd Church; and in its Rigour in *Scotland*. Of the thirteen *Swiss Cantons*, there are six who profess *Calvinism*; which likewise obtains in the *Palatinate*. The distinguishing Tenets of *Calvinism*, are, 1*st*, That Predestination and Reprobation are prior to the Prescience of good or evil Works. 2*dly*, That Predestination and Reprobation depend on the mere Will of God; without any regard to the Merits or Demerits of Mankind; 3*dly*, That God gives those whom he has predestinated a Faith which they cannot lose; a necessitating Grace, which takes away the Freedom of Will; and that he imputes no Sin to 'em. 4*thly*, That the Righteous cannot do any good Work, by reason of Original Sin, which cleaves to 'em. 5*thly*, That Men are justify'd by Faith only. The modern *Calvinists* reject or palliate some of these Articles.

In *France*, the *Calvinists* are distinguish'd by the Name of *Huguenots*; and, among the common People, by *Parpaillots*. In *Germany* they are confounded with the *Lutherans*, under the general Title *Protestants*; only sometimes distinguish'd by the Name *Reformed*. F. *Gaulier* attributes an hundred Heresies to 'em; but F. *Francis Feu-*

Ardent improves vastly on the Lift; making 'em no less than one thousand four hundred.

CALVITIES, in Medicine, Baldness, or a falling off of the Hair, without being able to grow again; the Moisture of the Head, which should feed it, being dry'd up by some Disease, by old Age, or by immoderate use of Pouder. See HAIR.

CALX, literally signifies, *Lime*; or a Stone burnt, or calcin'd in a Kiln for that Purpose, to be us'd in the making of Mortar, &c. See LIME, MORTAR, &c.

CALX, in Chymistry, is a kind of Ashes, or fine friable Pouder, which remains of Metals, Minerals, &c. after they have undergone the Violence of a Fire for a long time; and by that means have lost all their humid Parts. Or, CALX, is what remains of a Body after Calcination. See CALCINATION. Gold and Silver, after they have been reduc'd to a *Calx*, may be again recover'd to their former Form and Nature. *Calx of Tin*, is call'd *Putty*; of considerable use in polishing Steel Mirrors, &c. *Calx of Brass*, is call'd *Æs ustum*. See ÆS USTUM. *Calx of Lead*, is call'd *Cerussa*. See CERUSS. For *Calx of Antimony*, see ANTIMONIUM *Diaphoreticum*.

CALX, in Anatomy; See CALCANEUS.

CAMAIEU, a Stone, whereon are found various Figures, and Representations of Landskips, &c. form'd by a kind of *Lusus Naturæ*; so as to exhibit Pictures without Painting. The Word is us'd also for those precious Stones, as Onyx's, Sardoins, and Agats, whereon the Lapidaries employ their Art to aid Nature, and perfect those Representations. The Word comes from *Camechuia*, a Name the Orientals give to the Onyx, when they find, in preparing it, another Colour; as who should say, *a second Stone*.

CAMAIEU is also us'd for a Painting, wherein there is only one Colour; and where the Lights and Shadows are manag'd on a Gold or Azure Ground: When the Ground is yellow, the *French* call it *Cirage*; when grey, *Grisaille*. This kind of Work is chiefly us'd to represent Bassо Relievo's: The *Greeks* call Pieces of this Kind μονοχρώματα; the Word is borrow'd from the Stone, call'd by the Latins *Cameus*, and by us *Camayeu*; which see. Some derive it from the *Greek* καμαι, *low*; because Bas-Relievo's are usually express'd herein.

CAMALDOLI, an Order of Religious, founded by St. *Romuald*, in 1009, in the horrible Desart of *Camaldoli*; situate in the State of *Florence*, on the *Apennines*. Their Rule is that of St. *Benedict*; and their Houses, by the Statutes, are never to be less than five Leagues from Cities. The *Camaldolites* han't bore that Title from the Beginning of the Order: Till the Close of the XIth Century they were call'd *Romualdins*, from the Name of their Founder. Till that Time, *Camaldolite* was a particular Name for those of the Desart of *Camaldoli*; and *D. Grandis* observes, was not given to the whole Order, in regard it was in this Monastery that the Order commenc'd; but because the Regulation was best maintain'd here.

CAMBER-BEAM, in Building, a piece of Timber cut Archwise, or with an Obtuse Angle in the Middle, commonly us'd in Platforms; as Church Leads, and other Occasions, where long and strong Beams are requir'd. A *Camber-Beam* is much stronger than another of the same Size; since being laid with the hollow Side downwards, as they usually are, they represent a kind of Arch.

CAMBRING: The Seamen say, *a Deck lies Cambring*, when it doth not lie level, but higher in the Middle than at either End: Also, if the Ship's Keel is bent in the Middle upwards, (which may happen from her lying aground on a place, where neither her Aft nor Fore-part do touch it; and from many other Reasons taken from her Make) they say, *She is Camber-keeled*.

CAMELEON, in Natural History, a little Animal, famous among Antient and Modern Writers, for a Faculty, it is suppos'd to have, of changing its Colour, and assuming those of the Objects near it.

The *Cameleon*, or *Chameleon*, is of the Lizzard Kind; only its Head is somewhat bigger than the common Lizzard. It has four Feet, and a long flat Tail; whereby it can hang to the Branches of Trees, as well as with its Feet. In *Egypt* there are some a Foot long, including the Tail; but those of *Arabia* scarce exceed half that Length. Its Snout is long, its Back sharp; its Skin, from the Head to the last Joint of the Tail plaited, and rough, say some, like a Saw: Dr. *Goddard* says, 'tis grain'd, like a Shagreen; the biggest Grains, or globular Inequalities, being about the Head; the next on the Ridge of the Back. Its Head is without any Neck, as in Fishes: It has two little Apertures in the Head, that serve for Nostrils; it has no Ears, nor does it either make or receive any Sound. Its Eyes are big, and versatile this or that way, without moving the Head: ordinarily, it turns one of 'em quite the contrary way to the other. The Tongue is half the Length of the Animal; consisting of a white Flesh, round as far as the Tip, which is flat and hollow; somewhat like an Elephant's Proboscis, or Trunk; and accordingly, some call it *a Trunk*. This it can dart out very nimbly, and draw back again, over a Bone which reaches from the Root, half its Length; much as a Silk Stocking is drawn off and on the Leg.

'Tis a common Tradition, that the *Cameleon* lives on Air; but Experience shews the contrary. The great Use of its Tongue is to catch Flies, by shooting it briskly upon 'em, and entangling 'em in its Proboscis: Some say, the Tongue is tipp'd with a glutinous Matter, which the Flies stick to; that at the *Academy of Sciences*, they frequently observ'd to catch and swallow Flies: They found also the Signs of 'em in its Excrements; and, when it was dissected, the Stomach and Intestines were found full of 'em. M. *Perrault* assures us, when at Rest, and in the Shade, its Colour is somewhat various: That at *Paris*, was of a blueish grey; but, when expos'd to the Sun, this grey chang'd into a browner or darker grey: and its less illumin'd Parts into divers Colours; forming Spots, half the bigness of a Finger's End, some of 'em of an Isabella Colour: The Grains of the Skin, not illumin'd at all, resembled a Cloth, mix'd of divers Colours. That at *London*, describ'd in the *Philosophical Transactions*, by Dr. *Goddard*, was mix'd of several Colours, like a medley Cloth: The Colours discernable, were a Green, a sandy Yellow, and a deeper Yellow, or Liver Colour; but one might easily imagine some Mixture of most, or all Colours. He adds, that upon Excitation, or Warming, it suddenly became full of black Spots, of the bigness of a great Pin's Head, equally dispers'd on the Sides, &c. all which afterwards would vanish. M. *Perrault* observes somewhat like this of the *Paris Cameleon*; *viz.* that upon handling and stirring it, it wou'd appear speckled, or stain'd with dark Spots, bordering on green. He adds, that wrapping it up in a Linen Cloth, for two or three Minutes, it wou'd be taken out whitish; tho not constantly so: Nor did it take the Colour of any other Stuff it was wrapp'd in. So that what *Theophrastus* and *Plutarch* wrote, that it assumes all the Colours it comes near, excepting white, is contrary to Experience. *Monconys* assures us, that the *Cameleon*, when plac'd in the Sun, appears green; tho in a Place where there is no Grass, or other green Object: that by the Candle it appears black, tho plac'd on white Paper; and that, when shut up in a Box, it becomes yellow and green: and he asserts, it never takes any other than these four Colours.

Naturalists are very little agreed, as to the Reason or Manner of the Change of Colour: Some, as *Seneca*, maintain 'tis done by Suffusion; others, as *Solinus*, by Reflexion; others, as the *Cartesians*, by the different Disposition of the Parts that compose the Skin, which give a different Modification to the Rays of Light: Others, as Dr. *Goddard*, ascribe the Change to the Grains of the Skin; which, in the several Postures, he thinks, may shew several Colours; and, when the Creature is in full Vigour, may have, as he terms it, *rationem Speculi*; that is, the Effect of Mirrors, and reflect the Colours of Bodies adjacent.

These Hypotheses are all deficient enough, and there is still room for a new one of our own: The *Cameleon*, then, is represented to us as an exceedingly lean skinny Animal; insomuch that the *Italians* call it *a living Skin*. M. *Perrault* observes, of that which he dissected in the King's Library, that one Hour it appear'd to be a mere Skin, and nothing else; and yet the next it would appear fat and plump. Hence we gather, that it must have an extraordinary Command over the Skin, as to Tension or Laxness; since by swelling its Bulk its Skin will be fill'd, the Fibres thereof stretch'd, and the Pores lessen'd: and again, by withdrawing its grossness, the Skin will be left lank and shrivell'd, one Part wrapping over another: Which is confirm'd by what we have already observ'd, that its Skin is usually seen to be full of *Rugæ*, or little Plaits. Now, the Animal having it in its Power to fill the Skin more or less, has it in its Power not only to alter the Tone and Texture of the Fibres, upon which their reflexive Quality, in a great measure depends; but also to bring Parts into sight which before lay conceal'd, or to conceal such as before lay open: and 'tis more than probable, that the Parts which are ordinarily cover'd, are of a somewhat different Colour from those constantly open to the Air.

On these Principles, we believe, all the Phænomena in the *Cameleon*'s Colour may be solv'd. The Animal, 'tis evident, has a Power to reflect different colour'd Rays from the same Parts; also to make certain Parts reflect, and to prevent others reflecting: and hence that variety, that medley of Colours. See RAY, COLOUR, REFLEXION, &c.

Matthiolus relates several superstitious Notions of the Antients touching the *Cameleon*; as that its Tongue torn out, while alive, help'd the Bearer to gain his Law-Suit; that burning its Head and Throat with Oaken Wood, or roasting its Liver on a red Tile, made it thunder and rain. That its Right Eye, torn out while living, and steep'd in Goat's Milk, took away Pearls in the Eye; that its Tongue

tie'd

ty'd about a Woman with Child, made her Delivery safe. That its right Jaw remov'd all Fear; that its Tail stopp'd the Course of Rivers: *Pliny* assures us, *Democritus* had compos'd a whole Book of such Follies.

CAMELEON, in Astronomy, is one of the Constellations of the Southern Hemisphere, added by the Moderns. See CONSTELLATION.

CAMELOT, or CAMLET, a Stuff, sometimes of Wool, sometimes Silk, and sometimes Hair, especially that of Goats, with Wool or Silk; in some, the Warp is Silk and Wool twisted together, and the Woof Hair. *England*, *France*, *Holland*, and *Flanders*, are the chief Places of this Manufacture; *Bruxels* exceeds 'em all in the Beauty and Quality of its *Camelots*: Those of *England* are reputed the second.

Figured CAMELOTS, are those of one Colour, whereon are stamp'd various Figures, Flowers, Foliages, *&c.* by means of hot Irons, which are a kind of Moulds, pass'd, together with the Stuff, under a Press. These are chiefly brought from *Amiens* and *Flanders*: the Commerce of these, was antiently much more considerable than at present.

Water CAMELOTS, those which, after weaving, receive a certain Preparation with Water; and are afterwards pass'd under a hot Press, which gives 'em a Smoothness and Lustre.

Waved CAMELOTS, are those whereon Waves are impress'd, as on Tabbies, by means of a *Callendar*, under which they are pass'd and repass'd several times. See CALLENDAR.

The Manufacturers, *&c.* of *Camelots*, are to take care they don't acquire any false or needless Plaits; it being almost impossible to get 'em out again: This is notorious, even to a Proverb; thus we say, a Person *is like Camlet, he has taken his Plait.*

Menage derives the Word from *Zambelot*, a *Levantine* Term for Stuffs, made with a fine Hair of a *Turkish* Goat: whence the Word *Turkish Camelot*. Others call it *Capellote*, from *Capelle*, She-Goat. *Bochart* makes *Zambelot*, a Corruption of the Arabic *Giamel*, or *Camel*. Others fetch *Camelot* from the bare Latin *Camelus*: So that *Camelot* should properly signify, a Stuff made of Camels Hair.

CAMERA OBSCURA, *Dark Chamber*, in Opticks, a Machine or Apparatus, representing an Artificial Eye; whereon the Images of External Objects are exhibited distinctly, and in their native Colours; either invertedly or erect. See *Artificial* EYE.

The first Invention of the *Camera Obscura*, is ascrib'd to *Bap. Porta*.

The Use of the CAMERA OBSCURA is manifold: It serves to very good Purposes in explaining the Nature of Vision; and hence it is that some call it *the Artificial Eye*. It affords very diverting Spectacles; both by exhibiting Images perfectly like their Objects, and each cloth'd with their native Colours; and by expressing, at the same time all, their Motions: which latter, no other Art can imitate. By means of this Instrument, especially the third Contrivance under mention'd, a Person unacquainted with Designing, will be able to delineate Objects to the last accuracy and justness; and another well vers'd in Painting, will find many Things herein to perfect his Art.

The Theory of the CAMERA OBSCURA, is contain'd in the following Proposition.

If an Object A B, (Tab. *Opticks*, Fig. 16.) radiate thro a small Aperture C, upon a white Wall opposite thereto; and the Place of Radiation behind the Aperture b C a be dark: the Image of the Object will be painted on the Wall, in an inverted Situation.

Demonst. For the Aperture C being very small, the Rays issuing from the Point B, will fall on b; those from the Points A and D, will fall on *a* and *d*: wherefore, since the Rays issuing from the several Points are not confounded; when reflected from the Wall, they will carry with 'em a certain Species of the Object, and exhibit its Appearance on the Wall. But since the Rays A C and B C intersect each other in the Aperture, and the Rays from the lowest Points fall on the highest; the Situation of the Object will of necessity be inverted.

Corollary. Since the Angles at D and *d* are Right, and the Vertical ones at C are Equal; B and *b*, and A and *a*, will be also Equal; consequently, if the Wall, whereon the Object is delineated, be parallel to it, *a b* : AB :: *d* C : DC. That is, the Height of the Image will be to the Height of the Object; as the Distance of the Object from the Aperture, is to the Distance of the Image from the same.

Construction of a CAMERA OBSCURA, wherein the Images of External Objects shall be represented distinctly, and in their genuine Colours, either in an inverted, or an erect Situation. 1. Darken a Chamber, one of whose Windows looks into a Place set with various Objects; leaving only one little Aperture open in the Window. 2. In this Aperture fit a Lens, either Plano-convex, or Convex on both Sides; to be a Portion of a large Sphere. 3. At a due Distance, to be determin'd by Experience, spread a Paper, or a white Cloth, unless there be a white Wall for the Purpose; for on this, the Images of the desir'd Objects will be delineated invertedly. 4. If 'tis rather desir'd to have 'em appear erect, 'tis done either by means of a concave Lens, placed between the Centre and the Focus of the first Lens; or by receiving the Image on a Plane *Speculum*, inclin'd to the Horizon, under an Angle of 45°; or by means of two Lens's included in a Draw-Tube, in lieu of one. *Note*, If the Aperture don't exceed the Bigness of a Pea, the Objects will be represented, even tho there be no Lens at all us'd.

To render the Images clear and distinct, 'tis necessary the Objects be illumin'd by the Sun's Light: They will be still brighter, if the Spectator first stay a quarter of an Hour in the Dark. Care must be likewise taken, that no Light escape thro any Chinks; and that the Wall ben't too much illumin'd. Farther, the greater Distance there is between the Aperture and the Wall; the larger and more distinct will the Images be: but the Rays becoming, thus, too much dilated, the Brightness of the Image is weakned, till at length it becomes invisible.

Construction of a portable CAMERA OBSCURA. 1. Provide a little Chest, or Box of dry Wood, (Tab. *Opticks*, Fig. 17.) of the Figure of a Parallelolipiped; its Breadth about 10 Inches, and its length two or more Feet; according to the different Magnitude of the Diameter of the Lens's. 2. In the Plane B D fit a sliding Tube E F with two Lens's; or, to set the Image at a less Distance from the Tube, with three Lens's convex on both Sides: The Diameter of the two outer, or forwarder, to be $\frac{60}{100}$ of a Foot; that of the Inner less, *v. g.* $\frac{40}{100}$. 3. Within the Chest, at a proper distance from the Tube, set up an oil'd Paper, perpendicularly, G H, so as Images thrown upon so may be seen thro. 4. Lastly, in I make a round Hole, it as a Person may look conveniently thro it with both Eyes.

If then the Tube be turn'd towards the Objects, (the Lens's being at their proper Distance, to be determin'd by Experiment) the Objects will be delineated on the Paper G H, erect, as before.

Another Portable CAMERA OBSCURA.

1. In the middle of a *Cistula*, or Chest, (Tab. *Opticks*, Fig. 18.) raise a little Turret, either round or square H I, open towards the Object A B. 2. Behind the Aperture, incline a little plain Mirror *a b*, to an Angle of 45°, which may reflect the Rays, A *a* and B *b*, upon a Lens convex on both Sides G, included in a Tube G L. 3. At the Distance of the Focus thereof, place a Table cover'd with a white Paper E F, to receive the Image *α β*. 4. Lastly, in N M make an oblong Aperture to look through.

CAMISADE, in the Art of War, an Attack, by surprize, in the Night, or at the Point of Day; when the Enemy are suppos'd a-bed. The Word is said to have took its rise from an Attack of this Kind; wherein, as a Badg, or Signal to know one another by, they bore a Shift, *Chemise*, or *Camise*, over their Arms.

CAMISARD, a Term whereby the *French* distinguish the *Calvinists* of the *Cevennes*; from a League or Faction form'd by 'em against the *French*, in 1688, and the following Years; wherein either their Attacks were so sudden, and had so much of the *Camisade* in 'em; or they plunder'd Linen for Shifts, or wore Clothes that resembled Shifts, so as to occasion the Name; for Authors give all these Derivations: to which may be added another more probable than any, *viz.* from *Camis*, a high, or beaten Road; the Roads being infested by the *Camisards*.

CAMP, a Spot of Ground, where an Army rests, intrenches it self, or plants a Piquet-Watch, to lodge secure in Tents or Barracks. The *Camp* is sometimes cover'd by an Intrenchment; sometimes only by the advantage of its Post: Sometimes 'tis inclos'd with *Chevaux de Frise*, laid across each other; the ordinary Practice of the old Prince of *Orange*. The chief Skill of a General lies in the Art of *Incamping* well: This the *Romans* were unacquainted with, till the War with *Pyrrhus*; from whose *Camp* they learn'd to model their own. Till then, they knew not how to post themselves to advantage, nor with any Order in their *Camp*.

An *Incampment*, or *standing Camp*, is always to have the Advantage of Water and Forrage, and the means of covering and retrenching it self. *Rhoe*, describing the great *Mogul's Camp*, says, 'tis 20 *English* Miles round, and contains more Space than the largest City in *Europe*. that 'tis compos'd of 800000 Men, and 40000 Elephants.

Flying-CAMP, is a strong Body of Horse or Dragoons, to which are sometimes added Foot; commanded usually by a Lieutenant-General. This is always in Motion; both to cover the Garisons in Possession, and to keep the Adversary in continual Alarm.

CAMPAIGN, a Military Term, signifying the Space of Time during which Armies are maintain'd every Year in the Field. The *Germans* begin their *Campaign* very late; usually waiting for Harvest: The *French* are always early, and begin sometimes in Winter.

CAMPANULOUS, or CAMPANIFORMIS, those Plants whose Flowers resemble the Shape of a Bell; from *Campana*, a Bell. See FLOWER, and PLANT.

CAMPECHE, a kind of Wood brought from *America*, us'd in Dying. The Heart of the Tree, which alone is us'd, is at first red; after it has been fell'd some time, it becomes black; and, if steep'd in Water, gives a black Tincture, such as may be wrote withal. 'Tis very heavy, burns admirably, and gives a clear lasting Flame.

CAMPHOR, or CAMPHIRE, a white, shining, transparent, odoriferous, volatile Gum, or Resin, of a bitterish Taste, and very hot in the Mouth; flowing from a Tree frequent in the Island of *Borneo*, and the neighbouring mountainous Coasts of *India*, resembling a Walnut Tree. It distils from the Tree in manner of a Gum; and, 'tis said, most plentifully in the Time of Earthquakes and Storms. M. *Lemery* says, the *Camphor* is found at the Foot of the Tree; where it thickens into little Grains of different Figures and Sizes; very dry, friable, light, of a bitterish Taste, *&c.* These little Grains falling on one another, adhere lightly together, and form Masses; which being squeez'd a little by the Fingers, granulate again into small Corpuscles, like Salt.

Some Authors make two different Kinds of *Camphor*, according to the different Parts of the Tree where they are found: That in the Veins of the Wood, is said to be different from that which oozes out upon breaking the Bark. The *Camphor*, as is said, being at first red, is whiten'd either by the Sun or the Fire. In effect, we have but little of the Raw Natural *Camphor* among us; the *Dutch* take care that it comes all refin'd by Sublimation; and prepar'd to our Hands.

Manner of Refining crude CAMPHOR.

The Method us'd to refine it, is to lay it to sublime in subliming Pots: when the Vessel is half full, it is stopp'd, and plac'd over a gentle Fire; where only the purest Part rises at first; but, by degrees, the whole is sublim'd, except a *Caput Mortuum*, or earthy Part sticking at Bottom: They then melt it with a gentle Heat, and run it into Moulds to give it what Figure they please. 'Tis so volatile, and apt to evaporate in Smoke, that the Merchants ordinarily inclose it in Line-seed, that the Viscosity of that Grain may keep its Particles together.

Camphor has various Uses; as in Fireworks, in making Vernish, *&c.* In the Courts of the Eastern Princes, 'tis burnt, together with Wax, to illumine the Night. 'Tis exceedingly inflameable, so as to burn and preserve its Flame in Water; and in burning it consumes wholly, leaving no Scorium behind: But its principal use is in Medicine. 'Tis the most efficacious Diaphoretic known; its great Subtilty diffusing it self thro the Substance of the Parts, almost as soon as the warmth of the Stomach has set it in Motion. 'Tis us'd in a Caries of the Bones, as a Detergent in Wounds, to resist a Gangreen, *&c.* When mix'd with the subtile Salts of Cantharides, it prevents their injuring the Bladder; its exquisite Fineness inabling it to follow them into the fine Meanders thereof, and to sheath their Asperities. Dr. *Quincy* observes, that *Camphor* begins to be mix'd, and that to good purpose, with Mercurials, to guard against their stimulating Properties, and to send 'em into the finest Passages, to operate by Fusion, and the bare Force of Impulse. For not only *Mercurius Dulcis* or *Calomel*, may be hereby restrain'd from manifest Operation in the Glands about the Mouth; but also the Mineral *Turbith*, which of it self acts very strongly by Stool and Vomit, when mix'd with *Camphor*, will be much less felt in those Respects; and will go into the fartherst Circuit of Motion, and promote the cutaneous Discharge, in a more efficacious manner than any Medicine of less specifick Gravity.

M. *Lemery* endeavour'd at a Chymical Analysis of *Camphor*; but either its Parts were too fine and volatile to be carry'd to any greater degree of Purity or Subtilty by any Chymical Process; or it was owing to the close Union of its Principles, which, in all appearance, must be an Oil and a volatile Salt; that they could not be separated.

Camphor, he observes, does not dissolve in aqueous or phlegmatic Liquors; but in sulphurous ones it does: not in Alcalines, nor even in some Acids: But in Spirit of Nitre it dissolves perfectly; and is the sole Resin that does so. This Dissolution is ordinarily called *Oil of Camphor*; and 'tis to this the medicinal Virtue of *Camphor* in Wounds, Gangreens, and Caries are ascrib'd. They use not to take it internally, for fear of its sharpness and corrosiveness: tho M. *Lemery* has found good Effects from two or three Drops by the Mouth, in Obstructions and Fits of the Mother: indeed, he generally mix'd it with as much Oil of Amber.

There is a common Verse to the Discredit of *Camphor*, as if its Smell emasculated:

Camphora *per Nares castrat odore Mares.*

But the Proverb, according to *Scaliger* and *Tulpius*, is false. *Camphor*, being boil'd in Aqua vitæ, in a close Place, till the whole be evaporated; if a lighted Torch or Candle be introduc'd, the Air in the whole Place will immediately catch Fire, and appear in a Flame, without doing any Damage to the Place or the Spectators.

It has been found, in *Ceylon*, that the Root of the Tree which yields Cinnamon, yields, by Incision, a Liquor that has a strong smell of *Camphor*, and many of its Virtues: whence Naturalists, by mistake, have suppos'd that all *Camphor* came from that Tree. There is a smell of *Camphor* in several Plants, as in *Camphoreta*, *Abrotonum*, *Rosemary*, &c.

Artificial CAMPHOR, is prepar'd with Sandarach, and white Vinegar distill'd, kept 20 Days in Horse-dung, and afterwards expos'd a Month to the Sun to dry; at the End of which, the *Camphor* is found, in form of the Crust of a white Loaf: This is also call'd *Juniper Gum*, *white Vernish*, and *Mastic*.

The Word *Camphor* comes from the Arabic *Capur*, or *Caphur*; which signify the same thing.

CAMPUS MARTII, or MAII, in our antient Customs, an anniversary Assembly of our Ancestors, on *May*-Day; where they confederated together to defend the Kingdom against Foreigners and all Enemies. *Leg.* Edw. Confess. *Denuo in* Campo Martio *convenere, ubi illi qui Sacramentis inter illos pacem confirmavere, Regi omnem culpam imposuere seni.* Dunelm.

CAMUS, a Person with a low, flat Nose, hollow'd or sunk in the Middle. The *Tartars* are great Admirers of *Camus* Beauties. *Rubruguis* observes, that the Wife of the great *Cinghis Kam*, a celebrated Beauty, had only two Holes for a Nose.

CANAL, in Anatomy, a Conduit or Passage, through which any Juices or Fluids of the Body flow. See DUCT, and CHANNEL.

CANAL *of a Larmier*, the hollow'd Plafond or Soffit of a Cornice; which makes the Pendant Mouchette. See LARMIER and SOFFIT.

CANAL *of the Volute*, in the *Ionic* Capital, is the Face of the Circumvolutions, enclos'd by a Listel.

CANALES *Semicirculares*, in Anatomy, are three *Canals*, in the Labyrinth of the Ear: See EAR. They are of three different Sizes, *Major*, *Minor*, and *Minimus*. In different Subjects, they are frequently different; but are always alike in the same: The Reason, *Valsalva* ingeniously conjectures to be, that as a Part of the tender Auditory Nerve is lodg'd in these *Canals*, so they are of three several Sizes, the better to suit all the Variety of Tones; some of the *Canals* suiting some Tones, and others others. And tho there be some difference in the Form and Size of these *Canals* in different Persons; yet lest there should be any Discord in the Auditory Organs of the same Man, these *Canals* are always in exact Conformity to one another, in the same Man.

CANALIS, or CANALICULUS *Arteriosus*, in Anatomy, a Vessel, observ'd in *Fœtus's*, but which after Delivery, grows useless, and disappears. It is a little Tube, which joining the Pulmonary Artery and *Aorta*, serves to convey the Blood out of one into t'other, without passing thro the Lungs. See FOETUS, and CIRCULATION.

CANCELIER, in Falconry, is when a light flown Hawk, in her stooping, turns two or three times upon the Wing, to recover her self before she seizes.

CANCELLING, in the Civil Law, an Act whereby a Person consents, that some former Act be render'd null and void; this is otherwise call'd Rescission. In the proper Sense of the Word, *to cancel*, is to bar an Obligation, by passing the Pen from top to bottom, or across it; which makes a kind of Chequer or Lattice, which the *Latins* call *Cancelli*. The Word comes originally from the *Greek* κίγκλιζω, to incompass, or pale a thing round.

CANCER, in Astronomy, one of the 12 Signs of the Zodiack; ordinarily represented on the Globe in form of a Crab, and thus mark'd, ♋. See SIGN, and CONSTELLATION.

The Stars in the Constellation of *Cancer*, *Ptolomy* makes 13; *Tycho* 15; but Mr. *Flamstead* no less than 71. Their Order, Names, Places, Longitude, Latitude, Magnitude, *&c.* he lays down in the *Britannick Catalogue*, as follows.

Stars in the Constellation CANCER.

Names and Situation of the Stars.	Signs. Longitude. ° ′ ″	Latitude ° ′ ″	Magnit.
	♋ 23 49 13	4 52 46 A	6
In Extremity of preced. North Foot	22 49 38	4 43 11 B	6
	24 24 46	3 12 35 A	6
Subsequent and more Southern	23 4 11	4 27 15 B	6
	24 45 22	4 0 29 A	7

Names and Situation of the Stars.	Signs.	Longitude. °	′	″	Latitude. °	′	″		Magn.
		24	10	40	1	35	13	B	8
In the preced. and more Sothly. Foot		26	18	34	7	5	30	A	5
		24	36	38	2	16	12	B	7
In the preced. North Foot, *South*		25	9	26	1	19	13	B	5
		27	1	42	6	24	35	A	7
10									
In the second North Foot, upper		24	47	23	5	36	4	B	6 7
under		24	54	49	5	18	44	B	4
		27	22	31	5	19	31	A	6
Agaiost the Tail, *Ptolem.* 25.	♊	27	0	22	2	17	52	A	5 6
		27	48	15	5	42	25	A	7
15									
		28	30	17	6	41	26	A	7
Agst. the Extrem. of the 2d So. Foot		29	56	19	10	19	6	A	4 3
The North of the 3d North Foot		26	38	3	7	27	32	B	6
In the Origin of the 3d North Foot		27	29	33	4	20	33	B	6
In the Back, behind the Tail		29	27	6	1	2	39	A	6
20									
	♋	1	22	2	8	30	57	A	7
The first in the 4th North Foot	♋	27	52	13	8	25	40	B	6 7
The second		28	10	35	7	30	0	B	6
In the Orig. of preced. North. Claw		28	44	18	5	10	36	B	7
Subsequent, and more Southerly	♋	0	20	20	2	7	51	A	7
25									
The last of three	♋	28	7	9	8	27	31	B	6
	♋	1	34	58	6	22	16	A	6
The second	♋	29	15	40	4	53	44	B	6 7
	♋	1	39	24	4	45	26	A	7
The third	♋	29	55	16	4	59	48	B	6
30									
The Preced. So. of □ of the Breast	♋	1	24	42	0	47	46	A	6 5
Fourth and Subsequent		0	15	14	5	5	16	B	7 8
Preced. North in the □ of the Breast		1	5	29	1	32	33	B	6 7
		3	38	1	8	31	50	A	6
		1	53	21	0	51	52	B	7
35									
The preced. in the 3d Southern Foot		4	48	42	8	39	1	A	6
The Subsequent		5	4	30	8	40	4	A	6
Nebulous Stars in the middle of the Breast, call'd *Præsepe*		2	50	50	1	18	18	B	7
		3	5	25	1	6	22	B	6
		3	5	9	1	18	37	B	7
40									
Subseq. No. in the □ call'd *N. Asellus*		3	13	0	3	9	41	B	4
Preced. in the 4th South Foot		5	29	18	5	20	41	A	6
		1	11	49	12	10	46	B	7
Southern Star in □ call'd *So. Asellus*		4	23	40	0	3	46	B	4
In the North Claw	♋	2	0	53	10	23	40	B	5
45									
In the Extrem. of the 4th So. Foot	♋	6	32	22	7	44	58	A	6
Subsequent in the Southern Foot		6	31	15	5	39	1	A	6
First over the Northern Claw		2	12	44	14	18	33	B	7
First of those following the N. Claw		3	23	2	10	15	12	B	6
		6	37	13	2	16	16	A	6
50									
Second		3	26	1	10	21	47	B	6
Third		3	41	1	10	24	34	B	6
Preced. in the Middle of the N. Claw		3	6	12	12	35	34	B	5 6
Fourth		4	10	51	10	8	24	B	6 5
Second		2	59	35	14	59	41	B	5 6
55									
That preced. the Southern Claw		8	46	33	5	30	32	A	7
2d and Subs. in Middle of the Claw		3	59	42	12	29	1	B	7
First in the Orig. of the South. Claw		8	2	56	1	53	16	A	6
Second and Southern		8	3	51	1	36	45	A	6
Third		3	41	0	14	40	46	B	6
60									
In the Southern Claw		9	18	40	5	6	27	A	4 3
The last of four at		4	7	20	14	37	49	B	6
Fifth of those following the N. Claw		5	30	37	10	30	5	B	6 7
In the Northern Eye		6	42	57	7	15	3	B	6
Last of those following the N. Claw		6	0	44	10	38	38	B	6 7
65									
In the Extr. of the Apert. of N. Claw		6	18	14	12	34	6	B	6 7
		7	23	58	9	46	2	B	6 7
Subsequent in the Southern Claw		11	50	44	5	36	8	A	4 5
In the Southern Eye		8	52	45	5	23	24	B	5 6
		9	7	14	5	24	49	B	8
70									
In the Aperture of the South. Claw		11	41	7	1	8	31	A	7
		12	19	48	0	58	45	A	6

Tropic of CANCER, in Astronomy, a lesser Circle of the Sphere, parallel to the Equator; and passing through the beginning of the Sign *Cancer*. See TROPICK; see also SPHERE.

CANCER, in Medicine, a hard, rugged, round, immoveable Tumor, of an Ash, Livid, or Lead Colour; incompass'd round with branch'd turgid Veins, full of black muddy Blood: so call'd, as some will have it, from the Resemblance it bears to the Crab-fish, call'd *Cancer*; or, as others say, because, like that Fish, when once it has got hold, 'tis scarce possible to drive it off. It begins without any Pain, and appears, at first, like a Chicory Pea; but grows apace, and becomes very painful. The *Cancer* arises principally on the lax glandulous Parts, as the Breasts and Emunctories: 'Tis most frequent in Women, especially such, says *Stolterfoth*, as are barren, or live in Celibacy. The Reason of its appearing in the Breast more than other Parts, is, that being full of Glands, with Lymphaticks and Blood-Vessels among 'em, the smallest Contusion, Compression, or Punction, extravasates those Liquors; which growing, by degrees, acrimonious, form the *Cancer*. Hence, the Masters of the Art say, that a *Cancer* is that in the Glands, which a Caries is in the Bones, and a Gangreen in the fleshy Parts. The *Cancer*, however, is sometimes found in other soft, spongy Parts of the Body; and there have been some found in the Teeth, Belly, Neck of the Matrix, Ureter, Lips, Nose, Cheeks, Abdomen, Thighs, and even the Shoulders, as *Stolterfoth* shews.

Cancers are divided, according to their several Stages, into Occult and Ulcerated; the first is form'd as above. Ulcerated *Cancers*, are known by their roughness and fullness of Holes, thro which oozes a filthy, stinking, glutinous Matter, frequently yellowish; by their pungent Pain, which resembles the pricking with a thousand Pins; by their blackness; the swelling of the Lips of the Ulcer; and the Veins about it, which are blackish, swell'd, various, resembling, as above, the Foot of a Cray-fish. Sometimes the Extremities of the Blood-Vessels are gnaw'd off, and the Blood issues out. In a *Cancer* of the Breast, the adjacent Flesh is sometimes so consum'd, that one may see into the Cavity of the Thorax. It occasions a slow Fever, a Loathing, oftentimes Faintings, sometimes a Dropsy, and lastly Death. The immediate Cause of a *Cancer*, seems to be a too corrosive volatile Salt, approaching to the Nature of Arsenic, form'd by the Stagnation of Humours, *&c.* *Stolterfoth* observes, that it has been frequently cur'd by Mercury and Salivation. A *Cancer* arising on the Legs, is call'd a *Lupus*; on the Face, or Nose, a *Noli me tangere*: Some take the ulcerous *Cancer* to be nothing else but an infinite Number of little Worms, which devour the Flesh by degrees. The *Cancer* is allow'd the most horrible Evil that befals the Body: 'Tis usually cur'd while yet a small Tumor, of the bigness of a Nut, or at most of a small Egg, by Extirpation: When it seizes the Breast, or is burst into an Ulcer, Amputation takes place.

CANDIDATE, a Person who stands for some Post, or aspires to enter any Body, or Society. The Word comes from the Latin *Candidatus*, of *Candidus*, white: Those who aspir'd to Offices in antient *Rome*, being call'd *Candidati*, from their wearing a very white shining Habit at the Assemblies, in order to distinguish themselves from the Croud. In the Time of *Gordian*, and afterwards, the Term *Candidati* was likewise given to the Soldiers who compos'd the Emperor's Guard; who were chosen out of all the Legions, and much confider'd at Court. *Cedrenus* observes, that it was the younger *Gordian* who instituted these, as also the *Protectores* and *Scholares*. The *Scholares* were chose out of the Troops, and consisted of Persons who best understood the Art of War: Out of these *Scholares* were chose the *Candidati*, who were such as appear'd the most vigorous, and had most of the Martial Air; proper to inspire Terror, says the Chronicon of *Alexandria*. The *Protectores* were a middle Order, and were properly the Emperor's Body Guards.

CANDLE, a Composition of Tallow, or Wax, around a Wick; us'd for the giving of Light. A Tallow *Candle*, to be good, must be half Sheep's Tallow, half Cows; that of Hogs making 'em gutter, give an ill smell, and a thick black Smoak. See TALLOW.

Tallow *Candles* are of two Kinds; the one *dipp'd*, the other *moulded*: The first, which are those in ordinary use, are of an old standing; the latter are said to be the Invention of the Sieur *le Brez*, at *Paris*. The Manufacture of the two Kinds is very different, excepting in what relates to the melting of the Tallow, and making the Wick, which is the same in each.

Method of making CANDLES.

The Tallows being weigh'd and mix'd in their due Proportion, are cut or hack'd into Pieces, to facilitate their melting, and thrown into a Peel or Boiler, having a Cavity of some depth running round the Top, to prevent its boiling over. Being, thus, perfectly melted, and skimm'd, a certain Quantity of Water is thrown in, proportion'd to the Quantity of Tallow, which serves to precipitate the Impurities of the Tallow, which had escap'd the Skimmer, to the Bottom of the Vessel. The Tallow, however, intended for the three first Dips, must have no Water; in regard, the dry Wick, imbibing the Water readily, makes the *Candles* spit and crackle in the burning. The melted Tallow is now empty'd thro a Sierce into a Tub, having a Tap for letting it out, as occasion requires. The Tallow thus prepar'd, may be us'd after having stood three Hours; and will continue fit for use 24 Hours in Summer, and 15 in Winter.

For the Wicks, they are made of spun Cotton, which the Chandlers buy in Skeins; and wind off three or four together, according to the intended Thickness of the Wick, into Pelotons, or Clues, whence they are cut out with an Instrument

ſtrument contriv'd for that Purpoſe, into Pieces of the Length of the *Candle* requir'd; then put on the Rods, or Broches, or elſe plac'd in the Moulds, as the *Candles* are intended to be dipp'd or moulded.

Making of dipp'd CANDLES.

The liquid Tallow being drawn off from the Tub abovemention'd, into a Veſſel call'd the Mould, Sink, Abyſs, *&c.* of an angular Form, perfectly like a Priſm, except that it is not equilateral; the Side on which it opens being only ten Inches high; and the others, which make its height, 15. On the Angle, form'd by the two great Sides, it is ſupported by two Feet, and is plac'd on a kind of Bench, in form of a Trough, to catch the Droppings, as the *Candles* are taken out, each Dip. At a convenient Diſtance from this, is ſeated the Workman, who takes two Rods, or Broches, at a time, ſtrung with the proper Number of Wicks; *viz.* ſixteen, if the *Candles* are to be of eight in the Pound; twelve if of ſix in the Pound, *&c.* and holding 'em equidiſtant, by means of the ſecond and third Finger of each Hand, which he puts between 'em, he immerges the Wicks two or three times for their firſt Lay; and, holding 'em ſome time over the opening of the Veſſel to let 'em drain, hangs 'em on a Rack, where they continue to drain and grow dry. When dry, they are dipp'd a ſecond time, then a third, as before; only for the third Lay they are but immerg'd twice, in all the reſt thrice. This Operation is repeated more or leſs, according to the intended Thickneſs of the *Candle*. With the laſt Dip they Neck 'em; *i. e.* plunge 'em below that part of the Wick where the other Lays ended.

It muſt be obſerv'd, that during the Operation, the Tallow is ſtirr'd from time to time, and the Stock ſupplied with freſh Tallow. When the *Candles* are finiſh'd, their piqu'd Ends, or Bottoms, are taken off; not with any cutting Inſtrument, but by paſſing them over a kind of flat brazen Plate, heated to a proper pitch by a Fire underneath; which melts down as much as is requiſite.

Method of making Mould CANDLES.

Theſe *Candles* are made in Moulds, of different Matters: Braſs, Tin, and Lead are the moſt ordinary. Tin is the beſt, and Lead the worſt. Each *Candle* has its Mold, consiſting of three Pieces, the Neck, Shaft, and Foot: the Shaft is a hollow Metal Cylinder, of the Diameter and Length of the *Candle* propos'd: At the Extremity of this is the Neck; which is a little Metallic Cavity, in form of a Dome; having a Molding within-ſide, and pierc'd in the Middle with a Hole big enough for the Wick to paſs through. At the other Extremity is the Foot, in form of a little Tunnel, thro which the Liquid Tallow runs into the Mold. The Neck is ſolder'd to the Shaft, but the Foot is moveable, being apply'd when the Wick is to be put in, and taken off again when the *Candle* is cold. A little beneath the Place where the Foot is apply'd to the Shaft, is a kind of String of Metal, which ſerves to ſupport that part of the Mold, and to prevent the Shaft from entering too deep in the Table to be mention'd hereafter. Laſtly, in the Hook of the Foot, is a Leaf of the ſame Metal, ſolder'd within-ſide, which advancing into the Centre, ſerves to keep up the Wick; which is here hook'd on, preciſely in the Middle of the Mould. The Wick is introduc'd into the Shaft of the Mould, by a piece of Wire, which being thruſt thro the Aperture of the Hook, till it come out at the Neck, the Wick is ty'd to it; ſo that in drawing it back, the Wick comes along with it, leaving only enough a-top for the Neck; the other End is faſten'd to the Hook, which thus keeps it perpendicular. The Moulds, in this Condition, are diſpos'd in a Table pierc'd full of Holes, the Diameter of each being about an Inch: theſe Holes receive the Moulds inverted, as far as the String in the Foot. Being thus placed perpendicularly, they are fill'd with melted Tallow, (prepar'd as before) drawn out of the Tap into a Tin Pot; and thence pour'd into the Foot. After the Moulds have ſtood long enough to cool, for the Tallow to have come at its Conſiſtence, the *Candle* is taken out, by taking off the Foot, which brings the *Candle* along with it. Thoſe who aim at Perfection in their Work, bleach or whiten their *Candles*, by faſtening them on Rods or Broches, and hanging them out to the Dew, and earlieſt Rays of the Sun, for eight or ten Days: Care being taken to ſkreen 'em in the Day-time from the too intenſe Heat of the Sun; and in the Night from Rain, by wax'd Cloths.

Wax CANDLES are made of a Cotton or Flaxen Wick, ſlightly twiſted, and cover'd with white or yellow Wax: Of theſe there are ſeveral Kinds; ſome call'd *Tapers*, us'd to illumine Churches, Proceſſions, Funeral Ceremonies, *&c.* See TAPER; and others us'd on ordinary Occaſions. For the firſt Kind, their Figure is Conical, ſtill diminiſhing from the Bottom, which has a Hole to receive the Hook of the Candleſtick, to the Top which ends in a Point: The latter are Cylindrical. The firſt are either made with a Ladle, or with the Hand.

Manner of making Wax CANDLES *with the Ladle.*

The Wicks being twiſted, and cut, of the proper Length, a Dozen of 'em are ty'd by the Neck, at equal Diſtances, round an Iron Circle, ſuſpended directly over a large Baſon of Copper, tinn'd, and full of melted Wax: a large Ladle full of this Wax, is pour'd gently, by Inclination, on the Tops of the Wicks, one after another; ſo that running down, the whole Wick is thus cover'd: the Surplus returning into the Baſon; where 'tis kept warm by a Pan of Coals underneath it. They thus continue to pour on the Wax, till the *Candle* arrive at its deſtin'd Bigneſs. It muſt be obſerv'd, that the three firſt Ladles are pour'd on at the Top of the Wick, the fourth at the Height of $\frac{1}{4}$, the fifth at $\frac{1}{2}$, and the ſixth at $\frac{3}{4}$; by which means the *Candle* arrives at its pyramidal Form. The *Candles* are then taken down hot, and laid aſide of each other, in a Feather-Bed folded in two, to preſerve their Warmth, and keep the Wax ſoft: They are then taken and roll'd, one by one, on an even Table, uſually of Wallnut-tree, with a long ſquare Inſtrument of Box, ſmooth at Bottom. The *Candle* being thus roll'd and ſmooth'd, its big End is cut off, and a conical Hole made in it.

Manner of making Wax CANDLES *by the Hand.*

The Wick being diſpos'd, as in the former, they begin to ſoften the Wax, by working it ſeveral times in hot Water, contain'd in a Braſs Caldron, tinn'd, very narrow and deep. A piece of the Wax is then taken out, and diſpos'd, by little and little, around the Wick, which is hung on a Hook in the Wall, by the Extremity oppoſite to the Neck: ſo that they begin with the big End, diminiſhing ſtill, as they deſcend towards the Neck. In other reſpects, the Method is the ſame here, as in the former Caſe; only that they are not laid in the Bed, but are roll'd on the Table, juſt as they are form'd. It muſt be obſerv'd, however, that in the former Caſe, Water is always us'd to moiſten the ſeveral Inſtruments, to prevent the Wax from ſticking; and in the latter, Lard, or Oil of Olives, for the Hands, Table, *&c.*

Cylindrical Wax CANDLES, are either *for the Table*, or *Drawn*. The firſt kind are made of ſeveral Threads of Cotton, looſely ſpun, and twiſted together, cover'd with the Ladle, and roll'd, as the Conical ones, but not pierc'd.

Wax CANDLES *drawn*, are ſo call'd, becauſe actually drawn, in the Manner of Wire, by means of two large Rollers, or Cylinders of Wood, turn'd by Handles, which turning backwards and forwards ſeveral times, paſs the Wick thro melted Wax, contain'd in a Braſs Baſon; and at the ſame time thro the Holes of an Inſtrument, like that us'd for drawing Wire, faſten'd at one Side of the Baſon: ſo that, by little and little, the *Candle* acquires any Bulk, at pleaſure, according to the different Holes of the Inſtrument thro which it paſſes: By this Method, may four or five hundred Ells length be drawn, running. The Invention of this, we owe to *Pierre Bleſimare*, of *Paris*, about the Middle of the laſt Century.

The Word *Candle* comes from the Latin *Candor*, of *Candeo*; whence, the *Greek* καυδήλα. Sale, or Auction by *Inch of Candle*; is, when a Piece of *Candle* being lighted, People are allow'd to bid while it burns, but as ſoon as extinct, the Commodity is adjudg'd to the laſt Bidder. There is alſo a kind of *Excommunication by Inch of Candle*; wherein, the Time a lighted *Candle* continues burning, is allow'd the Sinner to come to Repentance, but after which, he remains excommunicated to all Intents and Purpoſes.

CANDLEMAS, a Feaſt of the Church, held on the ſecond of *February*, in honour of the Purification of the Holy Virgin. *Bede* ſays, "'Tis happy for the Church to "have chang'd the Luſtrations of the Heathens, held in "the Month of *February*, around the Fields, for the Pro-"ceſſions with *Candles*, &c." This Cuſtom was inſtituted by Pope *Gelaſius*, who abrogated the *Lupercalia*. The Feaſt takes its Name from the Number of lighted *Candles*, at the Proceſſion; antiently us'd among us, and ſtill among the *Romaniſts*.

CANDYING, properly ſignifies the turning of any thing *white*: 'Tis particularly us'd by the Confectioners, where white Sugar, us'd in their Preparations, is thicken'd and criſtalliz'd on the Surface of the Veſſel, in manner of Ice.

Sugar-CANDY, or *candied*, is a Preparation of Sugar, criſtalliz'd by melting ſix, or ſeven times. See SUGAR.

CANE, or CANNA, a Meaſure of Length, frequent in *Italy*, and the South Parts of *France*; more or leſs long, according to the Places where it is us'd. At *Naples*, the *Canna* is equal to 7 Foot $3\frac{1}{2}$ Inches, *Engliſh* Meaſure: The *Canna* of *Thoulouſe*, and the upper *Languedoc*, is equal to the Varre of *Arragon*, and contains 5 Feet $8\frac{1}{2}$ Inches; at *Montpellier*, in *Provence*, *Dauphine*, and the lower *Languedoc*, to 6 *Engliſh* Feet $5\frac{1}{2}$ Inches. See MEASURE.

CANEPHORA, a young Girl, who in the antient Sacrifices bore a Baſket, wherein every thing neceſſary for the Sacrifice was contain'd. The Baſkets were uſually crown'd

crown'd with Flowers, Myrtles, &c. The *Canephora*, in these Ceremonies, always march'd the first; the Philosopher or Priest next, and the Choir of Music follow'd. The *Canephoræ* were always Girls of Condition; and were attended by an old Woman who carry'd 'em a Seat.

CANEPHORIA, was a Ceremony, which made Part of a Feast, celebrated by the Maids the Eve of their Marriage-Day; call'd also *Proselia*; which see. The *Canephoria*, as practis'd at *Athens*, consisted in this; that the Maid conducted by her Father and Mother, went to the Temple of *Minerva*; carrying with her a Basket full of Presents, to engage the Goddess to make the Marriage happy; or rather, as the Scholiast of *Theocritus* has it, the Basket was intended as a kind of honourable Amends made to that Goddess, the Protectress of Virginity, for abandoning her Party; or a Ceremony to appease her Wrath.

CANICULA, a Name proper to one of the Stars of the Constellation *Canis Minor*; call'd also simply the *Dog-star*: by the *Greeks*, *Procyon*. *Canicula* is the 10th in Order in the *Britannic Catalogue*, in *Tycho*'s and *Ptolomy*'s 'tis the 2d. 'Tis situate in the Thigh of the Constellation; its Magnitude between a first and second: Its Longitude, Latitude, &c. see among those of the other Stars of that Constellation. *Canicula* rises on the 16th of *July*: Its rising and setting with the Sun, occasions what we call

CANICULAR, or *Dog-Days*, the Time during which the Sun rises and sets with *Canicula*, which it does from the 24th of *July* to the 28th of *August*. Some Authors tell us from *Hippocrates* and *Pliny*, that the Day *Canicula* rises, the Sea boils, Wine turns, Dogs begin to grow mad, the Bile increases and irritates, and all Animals grow languid; and that the Diseases ordinarily occasion'd in Men, are burning Fevers, Dysenteries, and Phrensies. The *Romans* sacrific'd a brown Dog every Year to *Canicula* at its rising, to appease its Rage. They suppos'd *Canicula* to be the Occasion of sultry Weather, usually felt in the Dog-Days; but by Mistake: in five or six thousand Years more, *Canicula* may chance to be charg'd with bringing Frost and Snow; for it will rise in *November* or *December*. The *Egyptians* and *Ethiopians* began their Year at the rising of *Canicula*; reckoning to its rise again the next Year, which is call'd the *Annus Canarius*.

CANINE *Appetite*, an inordinate Hunger, to the Degree of a Disease. See BULIMIA.

CANINI DENTES, in Anatomy, are two Teeth in each Jaw; one on each side the *Incisores* and *Molares*. They are pretty thick and round, and end in a sharp Point; have each one Root, which is longer than the Roots of the *Incisores*. Their proper use is to pierce the Aliment; because the Fore-Teeth are not only apt to be pulled outwards by the Things we hold and break with them, but likewise because they are less subject to Blows than the *Molares*: therefore above two thirds of them are bury'd in their *Alveoli*, or Sockets; by which their Resistance of all lateral Pressures, is much greater than that of the *Molares*.

CANINUS *Musculus*, the same as *Elevator Labii Superioris*; see ELEVATOR.

CANIS MAJOR, *the Great Dog*, in Astronomy, a Constellation of the Southern Hemisphere. See CONSTELLATION.

The Stars in the Constellation *Canis Major*, *Ptolomy* makes 28; *Tycho* observ'd only 13; in the *Britannic Catalogue* they are 32. Their Order, Names, Places, Longitude, Latitude, Magnitude, &c. are as follows.

Stars in the Constellation CANIS MAJOR, *or* Great Dog.

Names and Situation of the Stars.	Sign.	Longitude. °	′	″	Latitude. °	′	″	Magnit.
Preced. of the bright *Informes*	♊	17	51	51	57	24	15	2
Subs. before poster. Feet of the Dog		22	7	5	59	14	20	2
In the preced. posterior Foot		3	6	8	53	24	57	2 3
In the Extrem. of the anterior Foot	♋	2	52	58	41	17	47	2
Inform. under the posterior Foot		4	12	39	56	44	8	5
5								
Preced. of two in the lower Knee		6	20	54	46	36	17	5
Subseq. and South of the same		7	21	25	46	5	36	5
		7	16	48	41	46	23	7
South. in the upper Knee		7	25	41	42	21	25	5
North. in the same Knee		7	41	57	41	19	24	5
10								
Exceeding bright one in Mouth, *Sirius*		9	49	1	39	32	8	1
		9	59	38	37	19	38	5
South. and preced. in the Breast		10	58	50	43	52	11	6
In the lower Leg		14	3	13	55	21	25	4
In the North Ear		11	52	53	34	44	34	5
15								
Preced. of the Contig. in the Breast		12	55	56	42	54	49	6
Preced. of two in the Shoulder		13	50	34	46	48	52	5
South. of the Contig. in the Breast		13	26	56	43	2	18	7
In the Head		12	44	29	36	41	50	4
Third of those following in Breast	♋	13	34	59	42	45	40	6
20								
South in the Neck	♋	12	32	8	39	39	32	4
Bright one under Belly, betw. Thighs		16	24	46	51	23	57	2 3
		17	12	31	50	16	0	4
North. of two in the Neck		15	17	41	38	1	50	3
Subseq. of two in the Shoulder		16	41	25	46	10	13	5 4
25								
Bright one in the Middle of the Body		19	3	30	48	29	37	2 3
		20	12	26	47	53	49	7
		20	59	52	48	12	38	6
		21	18	34	48	36	51	5
		21	56	10	46	15	37	6
30								
		22	3	25	46	38	30	5
Bright one in the Tail	♋	25	12	16	50	38	56	2 3

CANIS MINOR, *Caniculus*, or the *Little Dog*, in Astronomy, a Constellation of the Southern Hemisphere; call'd by the *Greeks*, *Procyon*. See CONSTELLATION.

The Stars in the Constellation *Canis Minor*, in *Ptolomy*'s Catalogue are 2; in that of *Tycho Brahe* 5; in the *Britannic Catalogue* 15. Their Order, Names, Places, Longitude, Latitude, Magnitude, &c. are as follows.

Stars in the Constellation CANIS MINOR.

Names and Situation of the Stars.	Sign.	Longitude. °	′	″	Latitude. °	′	″	Magnit.
	♋	16	48	34	10	16	12	6
In the Head		17	19	58	12	56	42	6
North in the Neck		17	51	52	13	31	30	3
South in the Neck		18	1	23	12	51	51	6
Under these as in the Shoulder		18	18	14	14	49	14	6
5								
Informis, over the Neck		17	56	31	9	45	18	6
North. against preced. poster. Foot		20	10	40	19	37	58	6
Middle		20	14	7	18	13	51	7
South		20	28	33	18	6	22	6
In the Thigh, *Procyon*.		21	30	21	15	57	55	1 2
10								
Informis, towards the Tail of ♋		22	11	5	10	17	57	6 5
In the hind Leg		25	19	47	18	53	0	5
		26	57	30	18	6	10	6
Preced. in the △ of *Inf.*		28	39	12	23	47	56	5
follow. this to the Sou. North		28	30	1	21	29	56	5
15								
		27	56	51	17	47	51	5
Latter in the said △	♌	0	49	33	22	37	35	4

CANKER, is a Speck made by a sharp Humour, which gnaws the Flesh almost like a Caustic; very common to Children, in their Mouth especially. It is also a Disease incident to Trees; proceeding chiefly from the Nature of the Soil. See DISEASES *of Plants*.

CANNON, in War, a Piece of Artillery; or a Military Machine for throwing Iron, Lead, or Stone Bullets, by force of Gun-pouder, to a Place directly opposite to the Axis of the Cylinder, whereof it consists. See GUN, and ORDNANCE.

The Parts and Proportions of a *Cannon* about 11 Foot long, are, its Barrel, or Cavity, 9 Foot; its Fulcrum, or Support, 14; and its Axis 7; the Bore, or Diameter of the Mouth 6 Inches, and two Lines the play of the Ball: The Diameter of the Ball therefore 6 Inches; and its Weight 33 Pounds $\frac{1}{3}$. The Metal thick about the Mouth, 2 Inches; and at the Breech 6. It weighs about 5600 Pounds: Its Charge is from 18 to 20 Pounds. It carries, Point-blank, 600 Paces; and loads ten times in an Hour, sometimes fifteen; in a Day 120. Its Bed 15 Foot broad, and 20 long, for the Rebound. It requires 20 Horses to draw it.

For a *Battering-Piece*, whose Ball is 36 Pounds, there must be two Cannoneers, three Chargers, and 30 Pioneers.

Cannons are distinguish'd from the Diameters of the Balls they carry; but this Distinction is different in different Nations. The Proportion of their Length to their Diameter, depends rather on Experience, than any Reasoning *à priori*; and has been accordingly various, in various Times and Places: The Rule is, that the Gun be of such a Length, as that the whole Charge of Pouder be on Fire e'er the Ball quit the Piece. If it be made too long, the Quantity of Air to be driven out before the Ball, will give too much Resistance to the Impulse; and that Impulse ceasing, the Friction of the Ball against the Surface of the Piece, will take off some of its Motion. Formerly, *Cannons* were made much longer than at present; till some made by chance $2\frac{1}{2}$ Foot shorter than ordinary, taught 'em that the Ball moves with a greater Impetus through a less Space than a larger. This *Gustavus* K. of *Sweden* prov'd by Experience in 1624: An Iron Ball, 48 Pounds Weight, being found to go farther from a new short *Cannon*, than another Ball of 96 Pounds out of an old, longer Piece; whereas, in other respects, 'tis certain the larger the Bore and Ball, the greater the Range.

The

The Names of the several *Cannons*, their Length, their Weight, and that of their Balls, as they obtain among us, are as in the following Table.

NAMES of CANNON.	Weight of an Iron Ball.	Weight of the *Cannon*.	Length of the *Cannon*.
Cannon Royal	48 *lib.*	8000 *lib.*	12 *Feet*
Demi-Cannon large	36	6000	12
Demi-Cannon ordinary	32	5600	12
Demi-Cannon least	30	5400	11
Culverin largest	20	4800	12
Culverin ordinary	17 *lib.* 5 oz.	4500	12
Culverin least	15	4000	11
Demi-Culverin ordinary	10 11	2700	11
Demi-Culverin least	9	2000	10
Saker ordinary	6	1500	10
Saker least	4 12	1400	8
Minion largest	3 12	1000	8
Minion ordinary	3 4	800	7
Falcon	2 8	750	7
Falconet	1 5	400	6
Rabinet	8	300	5. 6 *Dig.*
Base	5	200	4. 6

The greatest Range of a *Cannon*, is ordinarily fix'd at an Elevation of 45°. Dr. *Halley* shews it to be at 44$\frac{5}{8}$. See PROJECT. M. *S. Julien* adjusts the Ranges of the several Pieces of *Cannon*, from the Weight of the Ball they bear: the Charge of Gun-pouder being always supposed in a subduple Ratio of the Weight of the Ball: Thus,

Weight of a leaden Ball.	Horizontal Range.	Greatest Range.	Weight of a leaden Ball.	Horizontal Range.	Greatest Range.
33 *lib.*	600 *Paces.*	6000	12	450	5000
24	700	6000	8	400	1500
16	800	8000	12	150	1500

The same Author adds, that a Ball thrown to the Distance of 600 Paces, sinks 9, 10, 11, 12, nay, 13 Foot within Ground. For the *Method of casting Cannons*, see FOUNDRY.

For the *Metal* of *Cannons*, 'tis either Iron, or, which is more usual, a Mixture of Copper, Tin, and Brass: the Tin is added to the Copper, to make the Metal more dense and compact: So that the better or heavier the Copper is, the less Tin is requir'd. Some to 100 Pounds of Copper, add 10 of Tin, and 8 of Brass: Others, 10 of Tin, 5 of Brass, and 10 of Lead. *Braumius* describes a Method of making *Cannon* of Leather, on occasion: And 'tis certain the *Sweeds* made use of such in the long War of the last Century; but these burst too easily to have much effect. 'Tis found by Experience, that of two *Cannon* of equal Bore, but different Lengths; the longer requires a greater Charge of Pouder than the shorter, in order to reach the same Range. The ordinary Charge of *a Cannon*, is to have the Weight of its Gun-pouder half that of its Ball. After each thirty Discharges, the *Cannon* is to be cool'd, with two Pints of Vinegar, mix'd with four of Water, pour'd into the Barrel; the Touch-hole being first stopp'd.

Cannons are made Cylindrical, that the Motion of the Ball might not be retarded in its Passage; and that the Pouder, when on Fire, might not slip between the Ball and the Surface of the *Cannon*, which wou'd hinder its effect. *Wolfius* would have the *Cannon* always decrease, as it goes towards the Mouth or Orifice: in regard, the Force of the Pouder always decreases, in proportion to the Space thro which it is expanded. The new *Cannons*, after the *Spanish* manner, have a Cavity, or Chamber at bottom of the Barrel, which helps their Effect. A *Cannon* is found to recoil two or three Paces after Explosion; which some account for from the Air's rushing violently into the Cavity, as soon as it is discharg'd of the Ball: but the real Cause, is, the Pouder's acting equally on the Breech of the *Cannon*, and the Ball. See MORTAR, GUN, BOMB-PROJECT, GUN-POUDER, &c.

Larrey makes Brass *Cannon* the Invention of *J. Owen*; and says, the first known were in *England*, in 1335. *Cannons*, however, he owns, were known before; and observes, that at the Battel of *Cressi*, in 1346, there were five Pieces of *Cannon* in the *English* Army; which were the first that had been seen in *France*: And *Mezeray* adds, that King *Edward* struck Terror into the *French* Army, by five or six Pieces of *Cannon*; it being the first time they had seen such thundering Machines. The first *Cannons* were call'd *Bombards*, from the Latin *bombus*; by reason of the Noise. The Word *Cannon*, *Menage* derives from the Italian *Canone*, an Augmentative of *Canna*; in regard, a *Cannon* is long, streight, and hollow, like a *Cane*.

CANOE, a little Vessel, or Boat, us'd by the *Indians*, made all of one Piece, of the Trunk of a Tree hollow'd. The Savages frequently make 'em of Bark, chiefly that of the Birch-Tree; yet big enough to hold four or five Persons. See BOAT.

CANON, a Person who possesses a Prebend, or Revenue allotted for the Performance of Divine Service, in a Cathedral, or Collegiate Church. *Canons* are of no great Antiquity: *Pasquier* observes, that the Name *Canon* was not known before *Charlemaign*: at least, the first we hear of, are in *Gregory de Tours*, who mentions a College of *Canons*, instituted by *Baudiin* XVI. Archbishop of that City, in the Time of *Clotharius* I. For, antiently, *Canons* were only Priests, or inferior Ecclesiasticks, who liv'd in Community; residing by the Cathedral Church, to assist the Bishops; depending entirely on their Will, supported by the Revenues of the Bishoprick; and living in the same House, as his Domesticks, or Counsellors, &c. They even inherited his Moveables, till the Year 816; when this was prohibited by the Council of *Aix la Chapelle*. By degrees, these Communities of Priests, shaking off their Dependance, form'd separate Bodies; whereof the Bishops, however, were still Heads. In the Xth Century, there were Communities or Congregations of the same kind, establish'd even in Cities, where there were no Bishops: These were call'd *Collegiates*; in regard, they used the Terms *Congregation* or *College* indifferently: The Name *Chapter*, now given to these Bodies, is much more modern. Under the second Race of the *French* Kings, the *Canon* or Collegiate Life, had spread it self all over the Country; and each Cathedral had its Chapter, distinct from the rest of the Clergy. But they were not yet destin'd to a Life so easy as now-a-days. They had the Name *Canon*, from the *Greek* κανὼν, which signifies three different things, *a Rule*; *a Pension*, or *fix'd Revenue to live on*; and *a Catalogue*, or *Matricula*. Hence, some say, they were call'd *Canons*, by reason of the *Pension* or Prebend; (whence some also call 'em *Sportulantes Fratres*:) Others say, they were call'd *Canons*, because oblig'd to live according to Canonical *Rules* and Institutions, which were given 'em; and others, as M. *de Marca*, because their Names were inserted in the *Matricula*, or Catalogue of the Cathedral. In time, the *Canons* freed themselves from their Rules, the Observance relax'd, and, at length, they ceas'd to live in Community, yet still form'd Bodies; pretending to other Functions besides the Celebration of the Common Office in the Church, yet assuming the Rights of the rest of the Clergy; making themselves a necessary Council of the Bishop; taking upon them the Administration of the See during a Vacancy, and the Election of a Bishop to supply it. There are even some *Chapters* exempt from the Jurisdiction of the Bishop, and owning no Head but their Dean. After the Example of Cathedral *Chapters*, Collegiate ones also continu'd to form Bodies, after they had abandon'd living in Community.

Antient CANONS, and those still subsisting in the *Romish* Church, are of various Kinds; as, *Cardinal Canons*, which are those attach'd, and, as the *Latins* call it, *Incardinati* to a Church, as a Priest is to a Parish. *Domicellary Canons*, were young *Canons*, who not being in Orders, had no Right in any particular Chapters. *Expectative Canons*, were such as without having any Revenue or Prebend, had the Titles and Dignities of *Canons*, a Voice in the Chapter, and a Place in the Choir; till such time as a Prebend should fall. *Foreign Canons*, were such as did not officiate in the *Canonries* to which they belong'd: To these were oppos'd *Mansionary Canons*, or *Canons Residentiary*. *Honorary Canons*, are the same with *Lay Canons*: In a Manuscript Ordinary, at *Rouen*, is mention made of *Canons of thirteen Marks*; which, perhaps, was the Revenue of their *Canonate*. In the Church at *London*, were *Canons Minor*, or *little Canons*, who officiated for the *great* ones. At *Lucca* there are *Mitred Canons*. There were also *Canons of Poverty*; *Canons ad Succurrendum*, who were made *Canons* at the Point of Death, to partake of the Prayers of the Chapter. *Tertiary Canons*, or those who had only the third Part of the Revenues of the *Canonate*.

Charlemaign ordain'd, that those who were admitted into the Cleric, that is, into the *Canonic* Life, should be oblig'd to live Canonically, and according to the Rule prescrib'd 'em; obeying their Bishops as Monks do their Abbat: By this Means it was, that the Spirit of Monachism became introduc'd into Cathedrals; for the Clerks being ty'd to certain Rules, became half Monks; and instead of applying themselves to the Function of the Priesthood, shut themselves up in Cloisters: whence the Houses where they resided took the Name of *Monasteries*, and were to be kept inclosed; as appears by the Synodical Statutes of *Hincmar*, in 874. So that there were two kinds of Monasteries; the one for Monks, the other for *Canons*. Singing, in a little time, became their chief employ; and 'tis now almost the whole Business they have left: the Bishops looking on 'em as little else but their Chaplains.

In the VIIIth Century, S. *Chrodegand* made a Rule for the *Canons*, which was receiv'd by 'em all, and is still extant

tant, in 34 Articles, drawn chiefly from that of St. *Benedict*, but accommodated to the Cleric Life. In this were prescrib'd their Penances, Habits, &c. There was a second Rule made in 816, at the Request of *Charlemaigne*, by the Bishops then conven'd at *Aix la Chapelle*, on account of the *Roman* Indiction; compos'd of Extracts from the Fathers and Councils.

Canons *Regular*, are *Canons* that still live in Community; and who, like *Religious*, have, in process of Time, to the Practice of their Rules, added the solemn Profession of Vows: They are called *Regulars*, to distinguish them from those *Canons* who abandon living in Community; and at the same time, the Observance of the *Canons* made as the Rule of the Clergy, for the Maintenance of the antient Discipline. See Regular.

Canons subsisted in their Simplicity till the XIth Century, when some of them separating from the Community, took with them the Name of *Canons*, or *acephalous Priests*, because they declin'd to live in Community with the Bishop; and those who were left, thenceforth acquir'd the Denomination of *Canons Regular*. The *Regulars* have adopted most of the Professions of the Rule of St. *Augustin*. 'Tis disputed to which Class the *Canons Regular* belong, whether to the Clergy or the Religious; both the Cleric and Monastic State being united in 'em. The Point of Priority and Precedence is hotly contested, both between the *Regular Canons* and the Priests; and the *Regular Canons*, and simple Monks: The double Capacity of the *Canons*, is the Foundation of this Controversy.

Canons *Secular*, or *Lay Canons*, are such among the Laity, as have been admitted, out of Honour and Respect, into some Chapters of *Canons*; such are the Counts of *Anjou*, in the Church of St. *Martin de Tours*; the Kings of *France*, of St. *Hilary* in *Poitiers*, &c. the Emperor, of St. *Peters*, &c.

Canoness, in the *Romish* Church, a Maid who enjoys a Prebend, affected, by the Foundation, to Maids; without being oblig'd to renounce the World, or make any Vows: There are few of these, except in *Flanders* and *Germany*: They are rather look'd upon as a Seminary and Retreat of Girls for Marriage, than an Engagement for the Service of God.

Canonesses *of St.* Augustin, are a kind of Religious, who follow the Rules of St. *Augustin*; of which there are various Congregations. See Augustins.

Canonry, or Canonate, the Benefice fill'd by a *Canon*. The *Canonate* is distinguish'd from Prebend, in that the Prebend may subsist without the *Canonate*, whereas the *Canonate* is inseparable from the Prebend: 'Tis to the *Canonate*, not the Prebend, that the Right of Suffrages and other Privileges are annex'd. See Prebend.

CANON, in its more proper Sense, is a Law, or Rule of Ecclesiastical Discipline; and particularly, a Decree of a Council. *Canons* are Decisions of Matters of Religion; or Regulations of the Polity and Discipline of a Church, made by Councils, either General, National, or Provincial; as, the *Canons* of the Council of *Nice*, of *Trent*, &c. See Council, and Canon *Law*.

There have been various Collections of the *Canons* of the Eastern Councils; but four principal ones, each ampler than the preceding ones. The first, according to *Usher*, *A.D.* 380, containing only those of the first Oecumenical Council, and the five Provincial ones: They were but 164 in number. To these, *Dionysius Exiguus*, in the Year 520, added the 50 *Canons* of the Apostles, and those of the other General Councils. The *Greek Canons*, in this second Collection, end with those of the Council of *Calcedon*; to which are subjoin'd, those of the Council of *Sardica*, and the *African* Councils. The fourth and last Collection, comes down as low as the second Council of *Nice*; and 'tis on this that *Balsamon* and *Zonaras* have commented.

There is a great Dispute about the Apostolical *Canons*, usually ascrib'd to St. *Clement*. *Bellarmin*, *Baronius*, &c. will have them to be genuine *Canons* of the Apostles: *Hincmar*, *de Marca*, *Beveridge*, &c. take them to be fram'd by the Bishops, who were the Apostles Disciples in the IId or IIId Century. *Daille*, &c. maintain them to have been forg'd by some Heretick in the VIth Century. The *Greek* Church allow 85 of them, and the *Latins* only 50.

Canon is also used for the authoriz'd Catalogue of the Sacred Writings; See Scripture, Bible, Testament. The antient *Canon*, or *Catalogue of the Books* of the Old Testament, was made by the *Jews*, and is ordinarily attributed to *Esdras*. This is the *Canon* allow'd to have been follow'd by the Primitive Church, till the Council of *Trent*; and, according to St. *Jerom*, consisted of no more than 22 Books; but that Council enlarg'd the *Canon* very considerably, taking into it the Books which we call *Apocryphal*; and enjoining all these to be receiv'd as Books of Holy Scripture, upon Pain of Anathema, and being attainted of Heresy. The *Romanists*, in defence of this *Canon*, say, that 'tis the same with that of the Council of *Hippo*, held in 393, and with that of the third Council, at which were present 47 Bishops, and among the rest, St. *Augustin*; who declar'd they receiv'd it from their Fathers. Some of the Fathers distinguish the inspir'd Writings into three Classes, *Proto-Canonical*, *Deutero-Canonical*, and *Apocryphal*. See Deutero-Canonical, and Apocryphal.

Paschal Canon, a Table of the Moveable Feasts, shewing the Day of Easter, and the other Feasts depending on it, for a Cycle of 19 Years. The *Paschal Canon* is suppos'd to be the Calculation of *Eusebius* of *Cesarea*, and to have been done by Order of the Council of *Nice*. See Easter, Feast, Cycle, &c.

Canon is also us'd in some Orders of Religious, for the Book that contains their Rules, Constitutions, &c. *Canon*, again, is us'd for the Catalogue of Saints acknowledg'd and canoniz'd in the *Romish* Church. See Saint, and Canonization.

Canon is also used, by way of Excellence, in the *Romish* Church, for the secret Words of the Mass, from the Preface to the *Pater*; in the Middle of which the Priest makes the Consecration: The common Opinion is, that the *Canon* commences with *Te igitur*, &c. The People are to be on their Knees, hearing the *Canon*; and are to rehearse it to themselves, so as not to be heard. The *Canon* is pretended to have been put into its present Form by St. *Jerom*, by Order of Pope *Siricius*. The Council of *Trent* declare the *Canon of the Mass* to have been fram'd by the Church; and to be compos'd of the Words of Jesus Christ, his Apostles, and the first Popes: Some call it *Action*.

Canon, in Musick, is a Rule, or Method of determining the Intervals of Notes. See Interval.

Ptolemy, rejecting the *Aristoxenian* Way of measuring the Intervals in Musick, by the Magnitude of a Tone, (which was suppos'd to be form'd by the Difference between a *Diapente* and a *Diatesseron*) thought that musical Intervals should be distinguish'd, according to the Ratio's or Proportions which the Sounds terminating those Intervals bear to one another, when consider'd according to their degree of Acuteness or Gravity; which, before *Aristoxenus*, was the old *Pythagorean* Way. He therefore made the *Diapason* consist in a double Ratio; the *Diapente* in a Sesquialteral; the *Diatessaron*, in a Sesquitertian, and the Tone it self in a Sesquioctave; and all the other Intervals, according to the Proportion of the Sounds that terminate them: Wherefore, taking the *Canon*, (as 'tis call'd) for a determinate Line of any length, he shews how this *Canon* is to be cut accordingly, so that it may represent the respective Intervals: and this Method answers exactly to Experiment, in the different Lengths of musical Chords. From this *Canon*, *Ptolemy* and his Followers, have been call'd *Canonici*; as those of *Aristoxenus*, were call'd *Musici*. See Musick.

Canon *in Trigonometry*, and *Algebra*, a general Rule for the Solution of all Cases, of a like Nature with the present Inquiry: Thus, every last Step of an Equation is a *Canon*; and, if turn'd into Words, becomes a Rule to solve all Questions of the same Nature with that propos'd. For the *Construction of the Canon of Sines*; see Sines. For Tangents, see Tangent. For Logarithms, see Logarithm, &c.

Natural Canon *of Triangles*, is the *Canon* of Sines, Tangents, and Secants taken together: So called, because serving principally for the Solution of Triangles. See Triangle.

Artificial Canon, is the *Canon* of Artificial Sines, Tangents, &c. i. e. of Cosines, Cotangents, &c. See Cosine, Cotangent, &c.

Canon *Law*, a Collection of Ecclesiastical Statutes, Constitutions, Decisions, and Maxims, taken from the antient Councils, the Decrees of Popes, and the Reports and Resolutions of the Primitive Fathers. See Law.

The *Canon Law* that obtain'd throughout the West, till the XIth Century, was the Collection of *Canons* made by *Dionysius Exiguus*, in 520; the *Capitularies* of *Charlemaigne*, and the Decrees of the Popes, from *Siricius* to *Anastasius*. No regard was had to any thing not compris'd in these; and the *French* still maintain the Rights of the *Gallican* Church, to consist in their not being oblig'd to admit any thing else, but to be at Liberty to reject all Innovations made in the *Canonical Jurisprudence* since that Compilation; as well as all Papal Decrees before *Siricius*. Indeed, between the VIIIth and XIth Centuries, the *Canon Law* was mix'd and confounded with the Papal Decrees, from St. *Clement* to *Siricius*; which till then had been unknown: This gave occasion to a new Reform, or Body of the *Canon Law*; which is the Collection still extant, under the Title of *The Concordance of the discording Canons*, made in 1151, by *Gratian*, a Benedictin Monk, from Texts of Scripture, Councils, and Sentiments of the Fathers, in the several Points of Ecclesiastical Polity. This Work he divided according to the Order of Matters,

not of Times and Councils, as had been done before: So that upon the Appearance of this, all the antient Collections immediately sunk. It is divided into three Parts: the first into 108 Distinctions; the second into 36 Causes, and the third into five distinct Parts: The second Part of the *Canon Law*, consists of the Decrees of the Popes, from 1150, to Pope *Gregory* IX. in 1229. In 1297, Pope *Boniface* continu'd the Papal Decrees as far as his Time: This Part the *French* make particular Exception to, by reason of that Pope's Differences with their K. *Philip* the Fair. To these, Pope *John* XXII. added the *Clementines*, or the five Books of the Constitutions of his Predecessor *Clement* V. And to all these were after added, 20 Constitutions of the said Pope *John*, call'd the *Extravagants*; and some other Constitutions of his Successors. All these compose the *Body*, or *Corpus of the Canon Law*; which, including the *Comments*, makes three Volumes in Folio; the Rule and Measure of Church Government: Indeed, with us, since the Reformation, the *Canon Law* has been much abridg'd and restrain'd; only so much of it obtaining, as is consistent with the Common and Statute Laws of the Realm, and the Doctrine of the Establish'd Church. See Common Law, Statute, &c.

CANONIZATION, a Declaration of the Pope, whereby, after a great deal of Solemnity, he enters into the List of Saints, some Person who has liv'd an exemplary Life, and suppos'd to have wrought Miracles. See Saint, and Miracles.

F. *Mabillon* observes, that the Term *Canonization* is not of so much Antiquity as the Thing: The Word being never met with before the XIIth Century; tho St. *Uldric*, Bishop of *Ausburg*, was *canoniz'd* in 983. *Du Cange* adds, that *Canonization* was, at first, no more than a bare Order of the Pope, whereby those who had distinguish'd themselves by their Piety, &c. were appointed to be inserted in the *Canon* of the Mass. *Mabillon* distinguishes two Kinds of *Canonization*; a General, and Particular: The first made by a General Council, or a Pope; the second, by a Bishop, a particular Church, or a particular Council: And there are Instances likewise of *Canonizations*, at least of something very like them, by Abbots. At first, only Martyrs were *canoniz'd*; by degrees they came to Confessors. See Martyr, &c.

Canonization antiently consisted in inserting the Saint's Name in the Sacred *Dyptiques*, or *Canon* of Saints; in appointing a proper Office for invoking him, and erecting Churches under his Invocation, with Altars for Mass to be celebrated on; taking up the Body from the Place of its first Burial, and the like Ceremonies: By degrees, other Ceremonies were added; Processions made, with the Saint's Image carry'd in triumph; the Day of his Death declar'd a Feast. And to render the Thing still more solemn, *Honorius* III. in 1225, added several Days Indulgence.

'Tis a great Dispute among the Learned, when the Right of *Canonization*, which 'tis own'd was antiently common to Ordinaries, especially Metropolitans and Princes, with the Pope, became first peculiar to the Pope: Some say, *Alexander* III. made this Reserve to the Holy See. The Jesuits of *Antwerp*, in their *Propylæum*, say, 'twas not establish'd till two or three Ages ago; and then by a mere Custom, which pass'd tacitly into a Law; which appears not to have been generally receiv'd in the Xth and XIth Centuries. This, however, is pretty certain, that it was generally allow'd before Pope *Alexander* III. the Archbishop of *Vienne* in *France*, and his Suffragans, acknowledge it in an authentic manner in the Year 1231, by a Letter written to *Gregory* IX. desiring him to canonize *Stephen*, Bishop of *Die*, who dy'd in 1208. *Quia nemo*, say they, *quantalibet Meritorum prerogativa polleat, ab Ecclesia Dei pro sancto habendus, aut venerandus est, nisi prius per sedem Apostolicam ejus sanctitas fuerit approbata.* The Term *Canonization* takes its rise from the Custom of inserting the Names of the Saints in the Canon of the Mass, as abovesaid, before there were any Martyrologies in the Church. See Martyrology.

CANTALIVERS, in Building, Pieces of Wood fram'd into the Front, or other Sides of a House, to sustain the Moulding and Eves over it: These seem, in effect, to be the same with Modillions, except that the former are plain, and the latter carv'd. They are both a kind of Cartouses, set at equal Distances under the Corona of the Cornice of a Building. See Modillion; see also Cornice, and Corona.

Cantaliver-*Cornice*, is a *Cornice* with *Cantalivers* or Modillions under it; see Cantalivers.

CANTATA, in Musick, a Song, or Composition, intermix'd with Recitatives, little Airs, and different Motions: ordinarily intended for a single Voice, with a thorough Bass; sometimes for two Violins, or other Instruments. See Song.

The *Cantata* passed from *Italy* into *France*, and thence to us: It has something in it extremely fantastical and capricious, and seems only to please by its Novelty. The Word is *Italian*, where it signifies the same thing.

CANTHARIDES, in Medicine, a Drug much us'd for the raising of Blisters. See Blister. *Cantharides* are the Principal of the Tribe of Epispasticks, or Vesicatories. See Epispastic, &c.

Cantharides are a kind of venomous Insects, with Feet and Wings, like little Flies; hence also call'd *Spanish Flies*. They are form'd of a kind of little Worms, hatch'd on Wheat, the Leaves of the Poplar, &c. There are various Kinds of *Cantharides*: the best are those which appear with different Colours, having yellow Lines running across their Wings; thick, and fresh. They are kill'd by laying them over a very strong Vinegar, which is made to boil for that purpose; after which they are dry'd, and may be preserv'd two Years. *Cantharides* are very sharp and corrosive, abounding with a subtile, caustick, volatile Salt; whereby they become exceedingly injurious to the Bladder, so as to ulcerate it, even when apply'd externally, if suffer'd to lye on too long. They are much commended in Fevers; as they raise and strengthen a low trembling Pulse, give Relief in delirious Ravings, soporiferous Stupors, Loss of Reason, &c. (the common Symptoms of high and dangerous Fevers) reduce continual Fevers to regular and distinct Remissions; and so make way for the Bark: cleanse and open the obstructed Glands, and Lymphaticks; bring on critical Sweats, &c. Dr. *Morgan* accounts for these Effects of *Cantharides* thus: 'The subtile and volatile pungent 'Parts of which the *Cantharides* consist, being carry'd in- 'to the Blood, and passing with the Lymph or Serum into 'the glandular Pipes, act there by dissolving, attenuating, 'and rarifying the viscid Cobesions of the Lymph; and 'by stimulating the nervous Coats of the Vessels throw off 'their stagnant Viscidities, and thus restore the Circulation 'and free Drain of Lymph from the Arteries to the Veins; 'cleanse the Expurgatory Glands, and bring on critical 'Sweats, and Urines. Thus, the extremely subtile, ac- 'tive, and pungent volatile Salts, deriv'd from the *Cantha-* '*rides*, purge the Glands and Lymphaticks universally; 'much after the same manner as common Catharticks do 'the Guts.' *Philosop. Princip. of Medicine*, p. 304.

Cantharides are seldom, if ever, to be us'd internally: In the *Philosoph. Transact.* indeed, we have Instances of their internal Application, and that with success, by Mr. *Tonge*, in Dropsical and other Cases; sometimes mix'd with Camphor, and sometimes without; only well wash'd down with large Draughts of Posset, Ptisan, Emulsions, or the like. The form wherein he tells us he uses to administer this fiery Insect, is that of a soft Pill, or Bolus, compos'd of *three Cantharides præpar. Troch. e Myrrha* ʒss. *Sem. Amei.* gr. vi. *Rob. Cynosb.* q. s. This, in stubborn Suppressions of the *Menses* and *Lochia*, in difficult Childbirth, and Retention of the *Secundine*, he finds does Wonders: He adds, that the Heat or Pain it occasions in the Neck of the Bladder, is much short of what he has an hundred times seen, and sometimes felt, from the Application of an Epispastick to the Back. But their principal use is in Vesicatories, to raise Blisters on the Skin; and by that means to turn off and discharge some Flux of ill Humours. See Vesicatory.

Cantharides take their Name from *Cantharus*, an Animal, otherwise call'd *Scarabæus venenosus*. *Cantharides* are sometimes apply'd to the Temples for the Tooth-ach: The Farriers use them in several Diseases of Horses. They must be chosen new, dry, and whole: they won't keep above two Years, without mouldering into a Dust, of no use.

CANTHUS, in Anatomy, the Corner, or Angle of the Eye; see Eye. That Corner next the Nose, is called the *great*, *inner*, and *domestick Canthus*; and by some Physicians the *Fountain*: The other, towards the Temples, is call'd the *little*, or *external Canthus*. *Du Laurens* derives the Word from the *Greek* κνθιζειν, to itch.

Canthus, in Chymistry, the Lip of a Vessel; or that Part of the Mouth of a Vessel, which is a little hollow'd, or depress'd, for the easy pouring off a Liquor: Hence to pour by Decantation, is to pour thro that place. See Decantation.

CANTON, a Quarter of a City, or Country, consider'd as separated and detach'd from the rest of that City, &c. Hence the *Swiss Cantons*, or the Divisions of *Switzerland*, thirteen in number; each a Republick in it self, and together forming the *Helvetic* Body. The Word, probably, comes from the Italian *Canton*, a large Part of an angular Stone.

Canton, in Heraldry, one of the nine honourable Ordinaries. See Ordinary. The *Canton* is a square Portion of the Escutcheon parted from the rest: It has not any fix'd Proportion; tho regularly it should be less than a Quarter: 'tis often only a ninth Part, and us'd as an Addition, or Difference, frequently, to express Bastardy. 'Tis sometimes plac'd at the right Corner, and sometimes at the left; in which latter Case, it is call'd a *Canton sinister*. Its form is express'd in the

the adjoining Figure: Thus, he bears *Ermin, a Canton Argent, charged with a Cheveron Gules.*

CANTON, is also us'd for the Spaces left between the Branches of a Cross or Saltier.

CANTONED is us'd in Architecture, when the Corner of a Building is adorn'd with a Pilaster, an angular Column, rustick Quoins, or any thing that projects beyond the naked of the Wall.

CANTONED, in Heraldry, is when the four *Cantons*, or Spaces round a Cross, or Saltier, are filled up with any Pieces. He bears *Gules, a Cross Argent, canton'd with four Scollop Shells.* The Word is also us'd when there are little Pieces in the *Cantons*, or Spaces of any principal Figure of an Escutcheon.

CANVAS, or CANEVAS, properly, a coarse Cloth, usually very open, and wove regularly in little Squares; us'd for the Ground of Tapestry Work, Painting, *&c.* Hence *Canvas* is us'd, especially among the *French*, for the Model, or first Words whereon an Air, or Piece of Musick is compos'd, and given to a Poet to regulate and finish. The *Canvas* of a Song, is certain Notes of the Composer, which shew the Poet the Measure of Verses he is to make. Thus, *Du Lot* says, he has *Canvas* for ten Sonnets against the Muses.

CANULA, or CANNULA, in Chirurgery, a little Tube, or Pipe, which the Chirurgeons leave in Wounds and Ulcers, that they dare not, or chuse not to heal up; because still suppurating. The *Canula* is of Gold, Silver, or Lead; and is perforated, that the *Pus* entering within it, may fall upon a Sponge, dipp'd in Spirit of Wine, and plac'd at the Orifice, to keep the Ulcer warm, and to prevent the external Air from entering: Some of these *Cannulæ* have Rings, whereby to keep them fast in the Wound; and others have Holes with Ribbons thro 'em, to bind 'em down. Some are round, others oval, others crooked.

There is a particular kind of these *Cannulæ*, form'd taperwise, with a Skrew fasten'd to one End, in manner of a Cock: Its use is, for the Discharge of the Water out of the Abdomen, after Tapping, in an *Ascites*, or Dropsy. To this End it is inserted into the Body, thro a Hole near the Navel; made with a pointed Instrument, and sometimes a Punch; and is fasten'd in its Place by a Bandage, and guarded from any Injury of the Clothes, *&c.* by a Case, or Cover. It has this advantage over the common Tapping; that by means thereof, the Water is drawn out when, and in what measure the Patient pleases. See TAPPING, and DROPSY.

There are likewise a kind of *Cannulæ* for the Application of actual Cauteries; they are made very shallow, and are, in effect, little more than Hoops; thro the Aperture whereof, the actual Cautery is convey'd; which, by this means, is kept from damaging the adjacent Parts. See CAUTERY, and CAUSTIC.

CAP, a Garment serving to cover the Head, and made nearly of the Figure thereof: The *Æra* of Caps and Hats, is referr'd to the Year 1449; the first seen in these Parts of the World being at the Entry of *Charles* VII. into *Rouen*: From that time they began, by little and little, to take place of the Hoods, or Chaperons, that had been us'd till then. M. *le Gendre*, indeed, goes further back; they began, says he, under *Charles* V. to let fall the Angles of the Hood upon the Shoulders, and to cover the Head with a Cap, or Bonnet: When this Cap was of Velvet, they call'd it *Mortier*; when of Wool, simply *Bonnet*: the first was lac'd, the latter had no Ornament besides two Horns, rais'd a moderate Height, one of which serv'd in covering and uncovering. None but Kings, Princes, and Knights, were allow'd the Use of the Mortier. See MORTIER.

The *Cap* was the Head-dress of the Clergy and Graduates. *Pasquier* says, 'that it was antiently a part of the Hood wore by the People of the Robe; the Skirts whereof being cut off, as an Incumbrance, left the round *Cap* an easy commodious Cover for the Head; which round *Cap* being afterwards assum'd by the People, those of the Gown chang'd it for a square one, first invented by a *Frenchman*, call'd *Patroullet*: He adds, that the giving of the *Cap* to the Students in the Universities, was to denote that they had acquir'd full Liberty, and were no longer subject to the Rod of their Superiors; in Imitation of the antient *Romans*, who gave a *Pileus*, or *Cap*, to their Slaves, in the Ceremony of making them free: whence the Proverb, *Vocare servos ad Pilcum.* Hence, also, on Medals, the *Cap* is the Symbol of Liberty, whom they represent holding a *Cap* in her right Hand, by the Point.

The *Chinese* have not the use of the *Hat*, like us; but wear a *Cap* of a peculiar Structure, which the Laws of Civility will not allow them to put off; 'tis different for the different Seasons of the Year: That us'd in Summer, is in form of a Cone, ending at top in a Point. 'Tis made of a very beautiful kind of Mat, much valu'd in that Country, and lin'd with Sattin; to this is added, at top, a large Lock of red Silk, which falls all around as low as the Bottom: so that, in walking, the Silk fluctuating regularly on all Sides, makes a graceful Appearance: Sometimes, instead of Silk, they use a kind of bright red Hair, the Lustre whereof no Weather effaces. In Winter they wear a Plush *Cap*, border'd with Martlet's or Fox's Skin; the rest like those for the Summer. Nothing can be neater than these *Caps*; they are frequently sold for eight or ten Crowns: but they are so short that the Ears are expos'd. See TURBANS; see also HATS.

Square-CAP. The *Cap*, or *Bonnet*, is a Mark, or Ornament of certain Characters: Thus Churchmen, and the Members of Universities, Students in Law, Physick, *&c.* as well as Graduates, wear *square Caps.* In most Universities, Doctors are distinguish'd by peculiar *Caps*, given them in assuming the Doctorate. *Wickliff* calls the Canons of his Time *Bifurcati*, from their *square Caps.* *Pasquier* observes, that in his Time, the *Caps* wore by the Churchmen, *&c.* were call'd *square Caps*; tho, in effect, they were round, yellow *Caps.*

The *Cap* is sometimes also us'd as a Mark of Infamy: In *Italy*, the *Jews* are distinguish'd by a *yellow Cap*; at *Lucca* by an *orange* one. In *France*, those who had been Bankrupts, were oblig'd ever after to wear a *green Cap*; to prevent People from being impos'd on in any future Commerce. By several Arrets in 1584, 1622, 1628, 1688, it was decreed, that if they were at any time found without their *green Cap*, their Protection should be null, and their Creditors impower'd to cast them into Prison: but the Thing is not now executed. See BANKRUPT.

CAP, in a Ship, is a square Piece of Timber, put over the Head, or upper End of a Mast, having a round Hole to receive the Mast. By these *Caps*, the Top-masts, and Top-gallant-masts, are kept steady and firm in the Tresseltrees, where their Feet stand; as those of the lower Masts do in the Steps. See MAST.

Priest's-CAP, in Fortification. See BONNET *à Pretre.*

CAPACITY, in a Logical Sense, an Aptitude, Faculty, or Disposition to retain, or hold any thing. Our Law allows the King two *Capacities*, a *Natural*, and a *Political*; in the first he may purchase Lands to him and his Heirs; in the latter to him and his Successors. The Clergy have the like.

CAPARASON, or CAPARISON, the Covering, or Clothing laid over an Horse; especially a Sumpter, or Horse of State. Antiently, *Caparasons* were a kind of Iron Armour, wherewith Horses were cover'd in Battel. The Word is *Spanish*, being an Augmentative of *Cape*, *Caput*, Head.

CAPE, or *Promontory*, in Geography, a *Head-Land*; or a piece of Land running out beyond the rest, into the Sea. *Sicily* was call'd by the Antients *Trinacria*, by reason of its three *Capes*, or Promontories; represented on Medals, by three Mens Legs join'd together at the head of the Thigh, and bent in the Knee; which pretty nearly resembles the Triangular Figure of that Island. See PROMONTORY, CHERSONESUS, *&c.*

CAPE, in Law, a Writ touching Plea of Lands and Tenements; so term'd, (as most other Writs are) from the Word which carries the chief Intention or End of it. The Writ is divided into *Cape Magnum*, and *Cape Parvum*; which in their Effect or Consequence are alike, as to the taking hold of Things immoveable: in the following Circumstances they differ; 1st, In that the *Cape Magnum*, or *grand Cape* lies before; and the *Cape Parvum*, or *petit Cape*, after. *Cape Magnum* summons the Defendant to answer to the Default; and besides to the Demandant: *Cape Parvum* only to the Default. *Ingham* says, 'tis call'd *petit Cape*, not because of small force; but because contain'd in few Words.

Cape Magnum is thus defin'd in the old *Nat. Brev.* 'Where a Man hath brought a *Precipe quod reddet* of a 'Thing that touches Plea of Land, and the Tenant makes 'default at the Day to him given in the original Writ; 'then this Writ shall be for the King to take the Land 'into his Hands: and if the Tenant come not at the Day 'given him by the Writ, he loses his Land.'

Cape Parvum, or *petit Cape* is thus defin'd, *Ibid.* 'Where 'the Tenant is summon'd in Plea of Land, and comes at 'the Summons, and his Appearance is recorded; and at 'the Day given him, prays the View; and having it 'granted, makes default: then shall this Writ issue for the 'King, *&c.*

CAPE *ad Valentiam*, a Species of *Cape Magnum*, so call'd from the End to which it tends: It is thus describ'd, 'Where I am impleaded of Lands, and I vouch to warrant 'another, against whom the Summons *ad Warrantandum* 'hath been awarded, and the Sheriff comes not at the Day 'given; then, if the Defendant recover against me, I shall 'have a Writ against the Vouchee; and shall recover so 'much in value of the Lands of the Vouchee, if he has 'so much: otherwise, I shall have Execution of such 'Lands and Tenements as descend to him in Fee; or, if 'he purchase afterwards, I shall have a Re-summons 'against

'against him: And if he can say nothing, I shall recover 'the Value.'

CAPELLA, in Astronomy, a Star of the first Magnitude in the preceding Shoulder of *Auriga*. In *Ptolemy*'s and *Tycho*'s Catalogues, 'tis the third in order of that Constellation. In the *Britannic Catalogue*, the fourteenth: Its Longitude is 17°, 31′, 41″; its Latitude 22°, 51′, 47″. See AURIGA.

CAPER. See CAPRE.

CAPHAR, a Toll or Duty, impos'd by the *Turks* on the Christian Merchants, who carry or send Merchandises from *Aleppo* to *Jerusalem*. The Toll of *Caphar* was first settled by the Christians themselves when Masters of the Holy Land, for the Support of Troops and Forces, posted in the more difficult passes, to watch the *Arabs*, and prevent their Pillages. But the *Turks*, who have continu'd, and even rais'd the Toll, abuse it; exacting arbitrary Sums of the Christian Merchants and Travellers, on pretence of guarding them from the *Arabs*; with whom they yet frequently keep an Understanding, and even favour their Robberies.

CAPHORA. See CAMPHOR.

CAPI-AGA, or CAPI-AGASSI, a *Turkish* Officer. The *Capi-Aga* is Governor of the Gates of the Seraglio; or grand Master of the Seraglio: This is the first Dignity among the white Eunuchs. The *Capi-Aga* is always near the Person of the Grand Signior: He introduces Ambassadors to their Audience: No body enters, or goes out of the Grand Signior's Apartment but by his means. His Office gives him the Privilege of wearing the Turban in the Seraglio, and to go every where on Horseback. He accompanies the Grand Signior to the Apartment of the Sultana's, but stops at the Door without entering. His Appointment is very moderate; the Grand Signior bears the Expence of his Table, and allows him at the Rate of about 60 *French* Livres *per* Day: But his Office brings him in abundance of Presents; no Affair of Consequence coming to the Emperor's Knowledge, without passing thro his Hand. The *Capi-Aga* cannot be *Bashaw* when he quits his Post. See AGA.

CAPIAS, a Writ, of two sorts; one before Judgment, call'd *Capias ad Respondendum*; in an Action Personal, when the Sheriff, upon the first Writ of Distress, returns, *Nihil habeat in balliva nostra*. The other is a Writ of Execution after Judgment, which is also of various Kinds; as, *Capias ad satisfactendum*, *Capias pro Fine*, *Capias Utlagatum*, after Judgment, &c.

CAPIAS *ad satisfaciendum*, is a Writ of Execution after Judgment; lying where a Man recovers in an Action Personal, as for Debt, Damage, &c. in which Cases, this Writ issues to the Sheriff, commanding him to take the Body of him against whom the Debt is recover'd; who is to be kept in Prison till he make Satisfaction.

CAPIAS *conductos ad proficiscendum*, an original Writ, which lies, by the Common Law, against any Soldier who has covenanted to serve the King in War, and appears not at the Time and Place appointed. It is directed to two of the King's Serjeants at Arms, to arrest and take him wherever he may be found; and to bring him *Coram Concilio nostro*, with a Clause of Assistance.

CAPIAS *pro Fine*, is where one being by Judgment fin'd to the King, upon some Offence against a Statute, does not discharge it according to the Judgment: By this Writ, therefore, his Body is to be taken, and committed to Prison till he pay the Fine.

CAPIAS *Utlagatum*, a Writ which lies against one outlaw'd, upon any Action, Personal or Criminal; by which the Sheriff apprehends the Party outlaw'd, for not appearing on the Exigent, and keeps him in safe Custody till the Day of Return; when he presents him to the Court, to be there further order'd for his Contempt. See OUTLAWRY.

CAPIGI, a Porter, or Doorkeeper of the *Turkish* Seraglio. There are about 500 *Capigis*, or Porters in the Seraglio, divided into two Companies; one consisting of 300, under a Chief called *Capigi-Bassa*: who has a Stipend of three Ducats *per* Day: The other consists of 200, distinguish'd by the Name of *Cuccicapigi*; and their Chief *Cuccicapigi-Bassa*, who has two Ducats. The *Capigis* have from seven to fifteen Aspers *per* Day; some more, others less. Their Business is to assist the Janizaries in the Guard of the first and second Gates of the Seraglio: Sometimes all together; as when the Turk holds a General Council, receives an Embassador, or goes to the Mosque: and sometimes only in part; being rang'd on either side, to prevent People entering with Arms, any Tumults being made, &c. The Word, in its Original, signifies Gate. See SERAGLIO.

CAPILLAMENT, literally signifies *Hair*; being form'd of the Latin *Capillus*, of *Caput*; q. d. *Hair of the Head*. Hence the Word is figuratively apply'd to several things, which, on account of their Length and Fineness, resemble Hairs: As,

CAPILLAMENTS *of the Nerves*, are the fine Fibres, or Filaments, whereof the Nerves are compos'd. 'Is not 'Vision perform'd chiefly by the Vibrations of this Me'dium, excited in the Bottom of the Eye by the Rays of 'Light; and propagated thro the solid, pellucid, and uni'form *Capillaments* of the Optic Nerves, to the *Sensorium*?' *Newt. Opt.* p. 328. See FIBRE, and NERVE.

CAPILLAMENTS, in Botany, more usually call'd *Stamina*; are those small Threads, or Hairs, which grow up in the Middle of the Flower; and are headed with little Knobs; call'd *Apices*. See STAMINA, and APICES.

CAPILLARY, of the Latin *Capillus*, a Hair; is apply'd to several Things, to intimate their exceeding Smallness, Fineness, &c. resembling that of a Hair: As *Capillary* Vessels, *Capillary* Fracture, &c.

CAPILLARY *Vessels*, in Anatomy, are the least, minutest, insensible Ramifications of the Veins and Arteries; which, when cut, or broke, yield but very little Blood. See VEIN, and ARTERY. The *Capillary* Vessels shou'd be conceiv'd as vastly finer than Hairs. See INOSCULATION, CIRCULATION, &c.

CAPILLARY, or CAPILLACEOUS *Plants*, are a Species of Plants, thus denominated from their Form, and manner of growing. The *Capillaries* have no principal Stalk, or Stem, with Branches, &c. shooting out of the same; but grow from the Ground, like Hairs from the Head: They bear their Seed in little Tufts, or Prominencies, on the backside of their Leaves. The principal of these, is the *Capillus Veneris*, or *Adianthum*; from which the rest take their Name. See PLANT.

The *Capillaries* are distinguish'd into those with an undivided Leaf, as the *Hæmionitis*, and the *Phyllitis*; or with a singly divided Leaf: and these have the Leaf either cut, or jagged in, but not divided into *Pinnæ*, clear home to the main Rib; as, *Polipodium*, *Lonchitis*, *Scolopendria*, *Adianthum*, *Aerostichon Thal.* Or else divided quite home to the Rib, and hanging like *Pinnæ*; as the *Chama felix Marina*, and the *Trichomanes*: Others have the Leaf doubly divided, or at least once subdivided, the first Division being into Branches, and the second into *Pinnæ*; as the *Hemionitis Multifida*, the *Filex Mas*, *Filex Palustris*, *Filex Saxatilis*. The *Adianthum album*, and *nigrum*, and others, have the Leaf trebly divided, or thrice subdivided; first into Branches, then into little Twigs, and after this into *Pinnæ*; these are, the *Felix Scandens* of *Brasil*, the *Felix Florida*, or *Osmunda Regalis*; the *Felix mas Ramosa*, the *Felix Fœminæ Vulgaris*, the *Adianthum album Floridum*, and the *Drioptesis nigra*.

All the *Capillaries* are reputed of use in Medicine, especially in the making of Syrops; to which, wonderful Virtues are attributed. But, in effect, only the *Capillary* of *Montpellier*, *Adianthum album Monspeliense*, and that of *Canada*, *Adianthum album Canadense*, are regularly us'd for that Purpose: The rest only serve to counterfeit 'em.

The Antients thought that the *Capillaries* were all without Seed; and some of the Moderns, particularly *Dodonæus*, have given into the Opinion. But *Bauhinus*, and other of the more accurate Observers, maintain they have all their Seed. *Cæsius* says, he has seen them with a Microscope: Since him, Mr. *W. Cole* has observ'd 'em with still more Curiosity; he tells us, the *Capsulæ*, or Seed Vessels, are in some less by half than a small grain of common Sand, in others much less; yet some of them contain about 100 Seeds. See SEED.

CAPILLARY *Tubes*, in Physicks, are little Pipes, whose Canals are the narrowest possible; nor such, whose Diameters do not exceed that of a common *Hair*; for none such can be made: The Diameter of *Capillary Tubes*, is a half, third, or fourth of a Line. See TUBE.

The Ascent of Water, &c. *in* CAPILLARY *Tubes*, is a famous Phænomenon which has long embarass'd the Philosophers: Let one End of a small Tube, open at both Ends, be immerg'd in Water, and the Liquor within the Tube will rise to some sensible Height above the external Surface: or, immerge two or more Tubes in the same Fluid, one of them a *Capillary* one, and the other considerably larger; the Water will ascend considerably higher in the *Capillary Tube* than the other; and this in the reciprocal Ratio of the Diameters of the Tubes. This Effect, Authors have commonly imputed to the unequal Pressure of the Air in unequal Tubes: The Air, say they, consists of ramose, spongy Parts, intermingled and embarass'd among each other: now, a Column of such Air being suppos'd perpendicularly incumbent on the Canal of a small *Capillary Tube*; part of the Pressure of the Column will be spent on the Sides, or Surface of the Tube; so that the Column will not act with its whole Weight on the subjacent Fluid, but will lose a greater or less proportion of its Weight, as the Diameter of the Tube is the smaller. But this Solution is destroy'd, by the Experiment's succeeding *in Vacuo*, as well as in open Air.

Others, as Mr. *Hauksbee*, &c. have recourse to the Attraction of the *Annuli* of the concave Surface of the Tube; to which Opinion the ingenious Dr. *Morgan* subscribes: 'Part of the Gravity of the Water in the Tube, says that 'Author, being taken off, by the attractive Power of the 'internal concave Surface of the Glass; the Fluid within 'the Tube, by the external greater Weight or Pressure, 'must ascend so far, as to compensate for this Diminution 'of Gravity by the Attraction of the Glass. He adds, 'that as the Power of Attraction in Tubes, is in a reciprocal Ratio of the Diameters; by lessening the said Diameter, or by supposing the Tubes still smaller and smaller, 'Water, or any other Fluid, may be thus rais'd to any assignable Height.' *Phil. Princ. of Medicine*, p. 88, *&c.*

But this Author is somewhat overseen: For since in every *Capillary Tube*, the Height to which the Water will spontaneously ascend, is reciprocally as the Diameter of the Tube; it follows, that the Surface containing the suspended Water is always a given Quantity. But the Column of Water suspended in every Tube, is as the Diameter of the Tube: Therefore, if the Attraction of the containing Surface be the Cause of the Water's Suspension; it will follow, that equal Causes produce unequal Effects; which is absurd. And, again, not only his Solution, but his Phænomenon also is stretch'd too far: For 'tis not in all Fluids the Phænomenon obtains; but in Mercury the very contrary is found: the Fluid in a Tube, not rising so high as the Level of that in the Vessel; and the Defect being found the greater as the Tube is smaller.

We must, therefore, recur to Dr. *Jurin*'s Solution of this Phænomenon, which is well supported by Experiments: 'The Suspension of the Water, on that Gentleman's System, 'is owing to the Attraction of the Periphery of the concave 'Surface of the Tube, to which the upper Surface of the 'Water is contiguous and adheres:' This being the only Part of the Tube, from which the Water must recede upon its subsiding; and consequently the only one which, by the Force of its Cohesion and Attraction, opposes the Descent of the Water. This he shews to be a Cause proportional to the Effect; in regard, the Periphery, and the suspended Column, are both in the same Proportion as the Diameter of the Tube. The Suspension thus accounted for, the seemingly spontaneous Ascent will easily be solv'd: For since the Water that enters a *Capillary Tube* as soon as its Orifice is dipp'd therein, has its Gravity taken off by the Attraction of the Periphery, with which its upper Surface is in Contact, it must necessarily rise higher; partly by the Pressure of the stagnant Water, and partly by the Attraction of the Periphery, immediately above that which is already contiguous to it. See Ascent.

Capillary *Fracture*. See Capillation.

CAPILLATION, or *Capillary Fracture*, according to some Writers, is a Fracture in the Skull, so small that it can scarce be perceiv'd; but yet often proves mortal. See Fissure.

CAPISTRUM, in Surgery, a Bandage for the Head. See Bandage.

CAPITAL, of the Latin *Caput*, is us'd on various Occasions, to express the Relation of a *Head*, Chief, or Principal: Thus,

Capital *City*, intimates the principal City of a Kingdom, Province, or State: as *London* is the *Capital*, or *Capital City* of *England*; *Moscow* of *Russia*; *Constantinople* of the *Ottoman* Empire; *Rouen* of *Normandy*, &c. See Metropolis, and City.

Capital, or Capital *Stock*, in Commerce, is the Fund, or Stock of a trading Company or Corporation; or the Sum of Money they jointly furnish, or contribute to be employ'd in Trade. See Stock, and Fund. The *Capital* of the *East India* Company, at its first Erection, was 36989 *l.* Sterling, which was afterwards doubled; and is now computed at 739782 *l.* 500 Pounds in the *Capital Stock* of the Company, entitles the Person to a Vote in the General Courts thereof. The Power given by Parliament to the *South Sea* Company, to increase their *Capital*, was the Source of all the Mischief which ensu'd. See Company.

Capital *Crime*, is that which subjects the Criminal to a *Capital* Punishment; *i.e.* to the Loss of his Head, or his Life. See Crime, and Punishment.

Capital *Medicines*, in Pharmacy, are the great, or principal Preparations of the Shops; remarkable for the number of Ingredients, extraordinary Virtues, *&c.* such as *Venice Treacle*, *Mithridate*, &c. See Mithridate, *&c.*

Capital *Lees*, are the strong Lees made by the Soap-boilers, from Pot-Ashes. See Soap. They are also us'd in Surgery, as a Caustic; and to make the *Lapis Infernalis*.

Capital *Letters*. See Capitals.

Capital, in Architecture, the uppermost Part of a Column or Pilaster, serving as the *Head* or Crowning thereof; plac'd immediately over the Shaft, and under the Entablature. See Shaft, and Entablature.

Capital *of a Column*, properly, is that whose Plan is round. See Column.

Capital *of a Pilaster*, is that whose Plan is square; or at least rectilineal. See Pilaster.

The *Capital* is a principal, and essential Part of an Order, of Column or Pilaster: It is made different in the different Orders; and is that which chiefly distinguishes and characterizes the Orders. See Order.

The Tuscan Capital, is the most simple and unadorn'd: Its Members, or Parts, are but three, *viz.* an *Abacus*; under this an *Ovolo*, or quarter Round; and under that, a *Neck*, or *Colarino*. The Neck terminates in an *Astragal*, or Fillet, belonging to the *Fust*, or Shaft.

The Character of this *Capital*, whereby it is distinguish'd from the *Doric*, &c. is that the *Abacus* is square, and quite plain, and has no Ogee or other Moulding; and that there are no Annulets under the *Ovolo*. Indeed, Authors vary a little as to the Character of the *Tuscan Capital*. *Vignola* gives the *Abacus* a Fillet, in lieu of an *Ovolo*. *Vitruvius* and *Scamozzi*, add an *Astragal* and Fillet, between the *Ovolo* and Neck: *Serlio* only a Fillet; *Philander* rounds the Corners of the *Abacus*. In the *Trajan* Column there is no Neck; but the *Astragal* of the Shaft, is confounded with that of the *Capital*. The Height of this *Capital* is the same with that of the Base, *viz.* one Module, or Semidiameter. Its Projecture is equal to that of the Cincture at the Bottom of the Column; *viz.* $\frac{2}{5}$ of the Module. See Tuscan.

The Doric Capital, beside an Abacus, an Ovolo, and a Neck, in common with the *Tuscan*, has three Annulets, or little square Members, underneath the Ovolo, in lieu of the Astragal in the *Tuscan*; and a Talon, Cima, or Ogee, with a Fillet over the Abacus. Authors vary, too, as to the Characters of this *Capital*: *Palladio*, *Vignola*, &c. put Roses under the Corners of the *Abacus*, and in the Neck of the *Capital*. The Height of this *Capital*, *Vitruvius*, &c. makes one Module; and its Projecture 37 Minutes and an half. See Doric.

The Ionic Capital is compos'd of three Parts; an Abacus, consisting of an Ogee and a Fillet; under this a Rind, which produces the Volutes, or Scrolls, the most essential Part of this *Capital*; and at the Bottom, an Ovolo, or quarter Round: The Astragal, under that Ovolo, belongs to the Shaft; the middle Part is called a Riod, or Bark, from its suppos'd Resemblance to the Bark of a Tree laid on a Vase, whose Brim is represented by the Ovolo; and seeming to have been shrunk up in drying, and to have twisted into the Volutes. See Volute, and Scroll. The Ovolo is adorn'd with *Eggs*, as they are sometimes call'd, from their oval Form: The *Greeks* call it the *Echinos*. See Echinos, Egg, *&c.* The Height of this *Capital*, M. *Perrault* makes 18 Minutes; its Projecture one Module, seven Tenths.

The Differences in the Character of this *Capital*, flow mostly from the different Managements of the Volutes; and consist in this: That in the Antique, and some of the Modern, the Eye of the Volute answers not the Astragal of the Top of the Shaft, as *Vitruvius*, and most of the Moderns make it: That the Face of the Volutes, which usually makes a Flat, is sometimes curv'd and convex'd, so as the Circumvolutions go advancing outwards; as is frequent in the Antique. That the Border, or Rim of the Scroll in the Volute, is somerimes not only a plain Sweep, as ordinarily; but the Sweep is accompany'd with a Fillet. That the Leaves which invest the Ballister, are sometimes long and narrow; sometimes larger and broader: That the two Faces of the Volutes, are sometimes join'd at the outer Corner; the Ballusters meeting in the inner, to make a Regularity between the Faces on the Front and Back of the Building, with those of the Sides. That among the Moderns, since *Scamozzi*, the *Ionic Capital* has been alter'd, and the four Faces made alike; by taking away the Ballister, and hollowing all the Faces of the Volutes inwards, as in the *Composite*. That *Scamozzi*, and some others, make the Volutes to spring out from the Ovolo, as from a Vase; after the manner of the modern *Composite*: whereas, in the Antique, the Bark passes between the Ovolo and Abacus, quite straight, only twisting at its Extremities to form the Volute. And lastly, that of late Years, the Sculptors have added a kind of little Festoons, springing from the Flower, whose Stalk lies on the first Circumvolution of the Volute; and suppos'd to represent the Locks of Hair, hanging down on both sides of the Face. See Ionic.

The Corinthian Capital is much the richest: It has no Ovolo; and its Abacus is very different from those of the *Tuscan*, *Doric*, or *Ionic*; as having its Faces circular, hollow'd inward, with a Rose in the middle of each Sweep. Instead of an Ovulo, and Annulers, here is only a Brim of a Vase; and the Neck is much lengthen'd and enrich'd with a double Row, of eight Leaves in each, bending their Heads downwards; and between them, small Stalks arising: whence spring the Volutes; which don't resemble those of the *Ionic Capital*; and which, instead of the four in the

 Ionic,

Ionic, are here 16; four on each side, under the four Horns of the Abacus, where the Volutes meet in a small Leaf, which turns back towards the Corner of the Abacus. The Leaves are divided, each making three Ranges of lesser Leaves, whereof they are compos'd; each lesser Leaf is, again, generally parted into five, call'd *Olive Leaves*; sometimes into three, and call'd *Laurel Leaves*. The middle Leaf, which bends down, is parted into Eleven. In the Middle, over the Leaves, is a Flower, shooting out between the Stems and Volutes, like the Rose in the Abacus. The Height of this *Capital* is two Modules $\frac{1}{2}$, and its Projecture one $\frac{1}{2}$.

The Differences in the Character of this *Capital*, are, that in *Vitruvius*, &c. the Leaves are in form of the *Acanthus*; whereas in the Antique, they are more ordinarily Olive Leaves: That their Leaves are usually unequal, the undermost being made commonly tallest, sometimes shortest; tho sometimes they are all equal. Sometimes the Leaves are raffled; sometimes quite plain: The first Row generally belly out towards the Bottom, but are sometimes straight: sometimes the Horns of the Abacus are sharp at the Corners, which seems agreeable to the Rules of *Vitruvius*; but they are more commonly cut off. There is some difference too in the Form and Size of the Rose. Again, the Volutes are sometimes join'd to each other; sometimes wholly separate: Sometimes the Spires of the Volutes continue twisting even to the End in the same Course; and sometimes turn back again near the Centre, in the form of an S. See CORINTHIAN.

The Composite CAPITAL, is so called, because compos'd of Members borrow'd from the *Capitals* of other Columns. It takes a quarter Round, or Ovolo, from the *Doric*; an Astragal under this, together with Volutes, or Scrolls, from the *Ionic*; and a double Row of Leaves from the *Corinthian*, which it resembles in most other things; consisting, generally, of the same Members and the same Proportions. In the Middle of the Abacus is a Flower; and under the Horns, Leaves which return upward; as in the *Corinthian*. Indeed, instead of Stalks in the *Corinthian*, the *Composite* has small Flowers, lying close to the Vase or Bell; twisting round towards the middle of the Face of the *Capital*, and terminating in the Rose. The Height of the *Composite Capital*, is two Modules $\frac{1}{2}$, and its Projecture one Module $\frac{1}{2}$, as in the *Corinthian*.

The Differences of the Character of this *Capital*, consist in this; that the Volutes, which ordinarily descend, and touch the Leaves, are in some Works of the Antique separated from them: That the Leaves, which are generally unequal in Height, the lower Rank being tallest, are sometimes equal: That the Volutes of the Moderns generally spring out of the Vase; whereas, in the Antique, they ordinarily run straight the Length of the Abacus, over the Ovolo, without striking into the Vase: That the Volutes, whose Thickness is contracted in the Middle, and enlarg'd above and below in the Antique, have their Sides parallel in the Works of the Moderns: And lastly, that the Volutes, which have been hitherto, both by the Antients and Moderns, made as if solid, are now made much lighter and more aity; the Folds standing hollow, and at a distance from each other. See COMPOSITE.

For the Proportions of the several Members of the Capitals *of Columns*, see COLUMN. See also *each Member* under its proper Head; as, ABACUS, ACANTHUS, VOLUTE, ECHINUS, &c.

Some Architects distinguish the *Tuscan* and *Doric Capitals*, which have no Ornaments, by the Title of *Capitals of Mouldings*; and the three others, which have Leaves and Ornaments, they call *Capitals of Sculpture*.

Angular CAPITAL, is that which bears the Return of an Entablature, at the Corner of the Projecture of a Frontispiece.

CAPITAL *of a Balluster*, is that Part which crowns the *Balluster*; which sometimes bears a Resemblance to the *Capitals* of some Columns; particularly the *Ionic*. See BALLUSTER.

CAPITAL *of a Triglyph*, is the Flat-band over the *Triglyph*; called by *Vitruvius Tænia*. See TRIGLYPH. 'Tis sometimes also a *Triglyph* which does the Office of a *Capital* to a *Doric* Pilaster.

CAPITAL *of a Niche*, is a kind of little Canopy over a shallow Niche, covering or crowning a Statue. See NICHE.

CAPITAL *of a Bastion*, in Fortification, is a Line drawn from the Angle of the Polygon, to the Point of the Bastion; or from the Point of the Bastion to the Middle of the Gorge. The *Capitals* are from 35 to 40 Fathom long, from the Point of the Bastion to the Point where the two Demigorges meet. See BASTION.

CAPITALS, in Printing, are the *Majusculæ*, or initial Letters, wherein Titles, &c. are compos'd, and all Periods, Verses, &c. commence; call'd also *uncial* Letters. See UNCIAL. All proper Names of Men, Countries, Kingdoms, Terms of Arts, Sciences, and Dignities, are to begin with *Capitals*. The *English* Printers have carried *Capitals* to a pitch of Extravagance; making it a Rule, to begin almost every Substantive with a *Capital*; which is a manifest Perversion of the Design of *Capitals*, as well as an Offence against Beauty and Distinctness. Some of 'em begin now to retrench their superfluous *Capitals*, and to fall into the Measures of the Printers of other Nations. See LETTERS, CHARACTERS, and PRINTING.

CAPITATÆ *Plantæ*, in Botany, are such Plants whose Flowers are compos'd of many edg'd and hollow little Flowers; thus call'd by Mr. *Ray*, because their scaly Calyx (or Cup of the Flower) most usually swells out into a large and round Belly, containing within it the pappous Seed; as in *Carduus*, *Centaury*, *Knapweed*, *Cinera*, *Cirsium*, *Lappamai*, *Cijanus*, &c.

CAPITATION, or *Poll-Money*, a Tax, or Imposition rais'd on each Person, in consideration of his Labour, Industry, Office, Rank, &c. This kind of Tribute is very antient, and answers to what the *Greeks* call'd κεφαλικον. The *Latins* call it *Tributum*; by which Taxes on the Person, are distinguish'd from Taxes on Merchandise; which were called *Vectigalia, quia vehebantur*. *Capitations* are never practis'd amongst us, but in Exigencies of State. See POLL, FUAGE, &c.

CAPITE, in Law, a Tenure, whereby a Person held of the King, immediately, as of his Crown; either by Knight's-Service, or Soccage. See TENURE, and SERVICE. But by a Statute, 12 *Car.* II. all such Tenures by Knight's-Service of the King, or of any other Person, Knights Services *in Capite*, or Soccage, with all Rights, &c. are annull'd. See SOCCAGE, and FEE.

CAPITOL, in Antiquity, a famous Fort, or Castle, on the *Tarpeian* Mount at *Rome*, wherein was a Temple dedicated to *Jupiter*, thence denominated *Capitolinus*, in which the Senate antiently assembled; and which still serves as the City Hall, or Town-house, for the meeting of the Conservators of the *Roman* People. The first Foundations of the *Capitol* were laid by *Tarquin* the Elder, in the Year of *Rome* 139. His Successor, *Servius*, rais'd the Walls; and *Tarquin* the Proud finish'd it, in the Year 221. But it was not consecrated, till the third Year after the Expulsion of the Kings, and Establishment of the Consulate. The Ceremony of the Dedication of the Temple, was perform'd by the Consul *Horatius*, in 246. The *Capitol* consisted of three Parts; a *Nave*, sacred to *Jupiter*; and two Wings, or Isles, to *Juno* and *Minerva*: It was ascended to by Stairs; *Lipsius* reckons 100 in number, by reason there were so many in the Ascent of the *Tarpeian* Rock. The Frontispiece and Sides were incompass'd with Galleries, wherein those who had the Honour of a Triumph, entertain'd the Senate at a magnificent Banquet, after the Performance of Sacrifice to the Gods. Both inside and outside were inrich'd with infinite Ornaments; the Statue of *Jupiter*, with his golden Thunderbolt, his Scepter and Crown, were the most distinguish'd. In the same *Capitol* there were likewise a Temple to *Jupiter* the Guardian, and another to *Juno*; with the Mint: and on the Descent of the Hill, the Temple of *Concord*. The *Capitol* was burnt under *Vitellius*; and rebuilt under *Vespasian*. It was burnt a second time by Lightning, under *Titus*, and restor'd by *Domitian*. It had its Name *Capitol*, from a Man's Head found fresh, and yet bleeding, upon digging the Foundation of the Temple, built in honour of *Jupiter*. *Arnobius* adds, that the Man's Name was *Tolus*, whence *Caput-tolium*.

Antiently, the Name *Capitol* was likewise affected to all the principal Temples, in most of the Colonies throughout the *Roman* Empire; as, at *Constantinople*, *Jerusalem*, *Carthage*, *Ravenna*, *Capua*, &c. That of *Tholouse*, has given the Name of *Capitouls* to its *Echevins*, or Sheriffs.

CAPITOLINI *Ludi*, were annual Games, or Combats instituted by *Camillus*, in honour of *Jupiter Capitolinus*, and in Commemoration of the *Capitol*'s not being surpriz'd by the *Gauls*. *Plutarch* tells us, that a part of the Ceremony consisted in the Publick Cryers putting up the *Hetrurians* to Sale by Auction. They also took an old Man, tying a Golden *Bulla* to his Neck, such as were wore by their Children, and expos'd him to the publick Derision. *Festus* says, they dress'd him in a *Prætexta*, and hung a Bull at his Neck; not as accounting him a Child, but because this was an Ornament of the Kings of *Hetruria*.

There was also another kind of *Capitoline* Games, instituted by *Domitian*, and celebrated each five Years; wherein there were Rewards and Crowns bestow'd on the Poets, and put on their Heads by the Emperor himself. These Games became so celebrated, that the manner of accounting Time by *Lustres*, which had obtain'd till then, was chang'd; and they began to count by *Capitoline* Games, as the *Greeks* by *Olympiads*. The Feast was not for Poets alone, but also for Champions, Orators, Historians, Comedians, Magicians, &c.

CAPITULAR, or CAPITULARY, an Act pass'd in a Chapter, either of Knights, Canons, or Religious. See CHAPTER.

The

The *Capitulars* of *Charlemaign*, *Charles* the Bald, &c. are the Laws, both Ecclesiastical and Civil, made by those Emperors, &c. in the General Councils, or Assemblies of the People: which was the way the Constitutions of most of the ancient Princes, &c. were made; each Person present, tho a Plebeian, setting his Hand to 'em. Some distinguish these from Laws; and say, they were only Supplements to Laws. They had their Name, *Capitularies*, because divided into Chapters or Sections. In these *Capitularies* did the whole *French Jurisprudence* antiently consist. In process of Time, the Name was chang'd for that of *Ordonnances*.

Some distinguish three kinds of *Capitularies*, according to the Difference of their subject Matter: Those on Ecclesiastical Affairs, are real Canons, extracted from Councils; those on Secular Affairs, real Laws; those relating to particular Persons, or Occasions, private Regulations.

CAPITULATION, a Treaty made with the Garison, or Inhabitants of a Place besieg'd; whereby they surrender themselves up, on certain Articles, and Conditions stipulated between 'em. See SIEGE.

CAPITULATION, is also one of the Treaties of the *Pacta Conventa*, or the Contract drawn up by the Electors, before the Election of an Emperor; which the Emperor is to ratify before his Coronation, and to observe inviolable in the Course of his Reign. These *Capitulations* of the Empire, have only been in use since the Time of *Charles* V. and were occasion'd, by the Jealousy the *German* Princes entertain'd of the too great Power of the Emperor. *Frederic*, Duke of *Saxony*, firmam'd *the Wise*, passes for the Author of the Imperial *Capitulations*; he declining the Empire, which was offer'd him after the Death of *Maximilian*, and advising the Electors to chuse *Charles* V. under such Conditions as might secure the Liberty of the Empire. The *Leopoldin Capitulation* contains 47 Articles.

CAPITULUM, in Botany, the Head, or flowering Top of any Plant; being compos'd of many Leaves and Threads, or *Stamina*, closely connected in a globous, circular, or discous Figure; as the Flowers of Bluebottles, Scabious, Carduus, &c. See FLOWER.

CAPNOMANCY, or CAPNOMANTIA, a kind of Divination, us'd by the Antients in their Sacrifices: the Rule was, when the Smoak was thin, and light, and rose straight up, 'twas a good Omen; if the contrary, 'twas an ill one.

There was another Species of *Capnomancy*, consisting in the Observation of the Smoak rising from Poppy and Jessamin Seed, cast upon lighted Coals. The Word comes from the *Greek* καπνὸς, Smoak; and μαντεία, Divination.

CAPONNIERE, in Fortification, a cover'd Lodgment, four or five Foot broad, encompass'd with a little Parapet about two Foot high, serving to support several Planks laden with Earth. The *Caponniere* is large enough to maintain 15 or 20 Soldiers; and is usually plac'd on the Extremity of the Counterscarp, having little Embrasures frequently made therein.

CAPRA, *She-Goat*, a Constellation in the Northern Hemisphere, consisting of three Stars, compriz'd between the 45th and 55th Degree of Latitude. The Poets say, 'tis *Amalthea*'s Goat, which suckled *Jupiter* in his Infancy. *Horace* making mention of it, calls it, *Insana sydera Capræ*.

CAPRE, or CAPER, the Bud, or Blossom of a Shrub of the same Name, gather'd green, e'er it expand into a Flower; dry'd in a dark Place, till wither'd, then infus'd in Vinegar; to which, at last, Salt is added; after which, it is put up in Barrels to be us'd as a Pickle, chiefly in Sauces; and sometimes also in Medicine, as being very Apertive, and entering several Compositions in Pharmacy. All the *Capers* throughout *Europe*, are brought from about *Toulon*, in *France*; except some small salt *Capers* from *Majorca*, and a few flat ones from about *Lyons*. The Bark of the *Caper*-Tree, when dry'd, is prescrib'd by the *French* Physicians in Oppilations of the Spleen.

CAPRÆ *Saltantes*, in Meteorology, a fiery Meteor, or Exhalation, which sometimes appears in the Atmosphere, and is not fir'd in a straight Line, but with Inflexions, and windings in and out. See METEOR.

CAPREOLUS, in Botany, the Clasper, or Tendril, by which the Vines, and such-like creeping Plants, fasten themselves to those things which are design'd to support them. See CLASPER.

CAPREOLATÆ *Plantæ*, are such Plants as turn, wind, and climb along the Surface of the Earth, by means of their *Capreoli*, or Tendrils; as Gourds, Melons, Cucumbers, &c. See CLASPERS.

CAPRICORN, in Astronomy, one of the Signs of the Zodiack, mark'd thus ♑. See SIGN.

The Antients accounted *Capricorn* the 10th Sign; and when the Sun arriv'd thereat, it made the Winter Solstice, with regard to our Hemisphere: But the Stars having advanc'd a whole Sign towards the East, *Capricorn* is now the 11th Sign; and 'tis at the Sun's Entry into Sagittary, that the Solstice happens: tho the antient manner of speaking is still retain'd. See SOLSTICE, and PRECESSION. This Sign is represented on antient Monuments, Medals, &c. as having the Fore-part of a *Goat*, and the Hind-part of a *Fish*; which is the Form of an *Ægypan*: sometimes, simply under the Form of a *Goat*.

The Stars in the Constellation *Capricorn*, in *Ptolomy*'s and *Tycho*'s Catalogues, are 28; Mr. *Flamstead*, in the *Britannic Catalogue*, makes near double that Number, *viz.* 51: The Order, Names, Longitudes, Latitudes, Magnitudes, &c. whereof, are as follow.

Stars in the Constellation CAPRICORN.

	Names and Situation of the Stars.	Signs.	Longitude. °	′	″	Latitude. °	′	″		Magnit.
		♑	28	6	58	7	27	4	B	7
	In the Extrem of the preced. Horn		28	10	28	7	13	18	B	6
			29	11	41	7	15	34	B	6
			27	26	1	2	3	23	A	6
	The preced. Star in the subseq. Horn		29	27	19	7	1	31	B	4
5										
	The last of the contiguous Stars		29	32	21	6	58	6	B	3
	That under the Eye		28	21	44	0	29	29	B	6
	The middle Star in the subseq. Horn	♒	0	6	56	6	35	52	B	6
	Most South. of 3 in the subseq. Horn	♑	29	43	57	4	37	27	B	3
	Foremost of 3 in the Nose	♒	0	23	55	0	56	6	B	6
10										
	North of these		0	51	9	1	14	17	B	6
	South of those in the Nose		0	54	10	0	26	9	B	5 6
			3	28	57	3	19	30	B	6
	North of two in the Neck		3	58	44	3	23	26	B	6
	More South		3	20	53	0	15	46	B	6
15										
	That under the upper Knee	♒	2	50	11	6	58	23	A	5
			3	50	59	3	22	34	A	6
	In the lower and bent Knee		3	37	5	8	55	5	A	6
			6	47	24	0	28	9	A	6 7
			7	34	16	1	51	10	A	6 7
20										
			8	17	2	0	29	38	A	6
	Preced. and Nor. of 3 in Mid. of Body		8	25	55	2	57	43	A	5
	Preced. of 2 in the Back		9	31	40	0	33	0	A	5
	That in the Shoulder		7	30	46	8	3	38	A	6
	South. in the middle of the Body		8	57	52	4	31	8	A	6
25										
	Second in the middle of the Body		9	24	57	3	36	46	A	6
	Subsequent		9	22	7	3	58	9	A	6
	Last of 3 in the middle of the Body		10	42	44	4	29	50	A	6
			12	10	39	0	43	40	B	6
			12	2	31	2	7	23	A	6
30										
			12	16	0	1	39	3	A	7
	Subseq. of 2 in the Back		13	21	50	1	20	13	A	5
			12	33	35	5	17	26	A	6
	1st of contiguous ones under Belly		12	36	49	6	57	36	A	5
			13	8	8	5	50	27	A	6
35										
	Subseq. of the same		13	15	20	6	31	45	A	6
			15	10	57	5	22	15	A	6
			15	8	37	5	31	19	A	6
	Preced. in South. Fin		15	52	52	4	56	56	A	4
	Preced. in Root of the Tail		17	27	42	2	31	18	A	4 3
40										
			15	42	16	8	53	38	A	6
			18	40	49	0	9	13	A	6
	Subseq. in South. Fin		17	19	5	4	48	36	A	5
	Preced. in North Part of the Tail		18	53	46	0	37	44	A	6
	Subsequent		19	0	0	1	1	54	A	6
45										
	North. in Extrem. of the Tail		21	5	31	4	13	51	B	6
	Another, subsequent		21	19	31	3	56	38	B	6
	Middle in North. Part of the Tail		20	41	4	1	57	24	B	5
	Subseq. in Root of the Tail		19	13	14	2	32	19	A	3
			20	36	58	1	38	24	B	6
50										
	Subseq. in North. Part of the Tail	♒	21	29	12	0	39	10	A	5

Tropic of CAPRICORN, a lesser Circle of the Sphere, parallel to the Equator; passing thro the Beginning of *Capricorn*. See TROPIC.

CAPRIOLE, in Horsemanship, the *Goat-leap*; is when an Horse, at the full Height of his Leap, jerks or strikes out with his hind Legs as near and even together, and as far out as he can stretch them; in which Action, he clacks, or makes a noise with them. The *Capriole* is the most difficult of all the high Airs: There are several kinds of *Caprioles*; as, a *right Capriole*, *back Capriole*, *side Capriole*, *broke Capriole*, *open Capriole*, &c. The Word comes from *Capreolus*.

CAPSQUARES, in Gunnery, are those strong Plates of Iron, which come over the Trunnions of a Gun, and keep her in the Carriage: They are fastned by hinges to the Paizeplate, that it may lift up and down. They form a part of an Arch in the Middle, to receive a third Part of the Thickness of the Trunnions; for two thirds of them are let into the Carriage, and the other End is fasten'd by two Iron Wedges, which are call'd the Forelocks, and Keys.

CAPSTAN,

CAPSTAN, or CAPSTAND *of a Ship*, a large Cylinder, or Barrel, plac'd perpendicularly on the Deck of a Ship, and turn'd by four Levers, or Bars, which croſs it; and by means of a Cable, which winds round the Cylinder, ſerves to draw up vaſt Burdens, faſtned to the End of the Cable. By the *Capſtan* it is, that Veſſels are drawn aſhoar, and hoiſted up to be refitted; the heavieſt Goods are unloaded; Anchors weigh'd, Sails hoiſted, &c. There are two *Capſtans* in a Veſſel; the *Main* plac'd behind the Mainmaſt, ſtanding on the firſt Deck, and reaching four or five Feet above the ſecond: 'Tis alſo call'd *double Capſtan*, becauſe ſerving two Decks for drawing of Anchors; and becauſe its Force may be doubled by applying Hands on each Deck. It has Bars, Whelps, a Panel, &c. for turning and ſtopping it.

The *Jeer Capſtan*, or *little Capſtan*, ſtands on the ſecond Deck, between the Mainmaſt and the Mizzen: Its uſe is, chiefly, to heave upon the jeer Rope, or to heave upon the Viol, to hold off by when the Anchor is weighing; and other Occaſions, where a leſs Force is requir'd, than to weigh the Anchors, &c. The Terms belonging to the uſe of the *Capſtans*, are, *Come up Capſtan*; that is, ſlack the Cable which you heave by; in which Senſe alſo they ſay, *Launch out the Capſtan*: *Pawl the Capſtan*, is, ſtop it from going back.

The *French* call that an *Engliſh Capſtan*, where there are only half Bars us'd; and which, for that Reaſon, is only half perforated: This is thicker than the others. There is alſo a *flying Capſtan*, which may be mov'd from place to place.

CAPSULA, a Diminutive of the Latin *Capſa*, literally ſignifying a little Box, or Caſe; particularly a Bag, or Sachel, wherein Boys carry their Books, &c. to School: Whence *Capſarius*, or *Capſularius*, among the *Romans*, was a Servant who attended the Youth of Condition to the School or Academy, and carry'd their Bag, &c.

CAPSULA, among the Botaniſts, is that part of a Fruit wherein the Seed is contain'd; as in Pears, Apples, &c. which have a little Coat, in form of a Purſe, wherein the Kernels, or Pippins are incloſ'd. See FRUIT.

CAPSULATE *Plants*, *Capſulatæ Plantæ*, are ſuch as have a tetrapetalous regular Flower, conſiſting of four diſtinct Petala in each Flower, and which bear their Seeds in ſhort *Capſulæ*; by which they are diſtinguiſh'd from the *Siliquoſæ*, which have their Seed in long Caſes, or *Capſulæ ſeminales*; and all the other Branches of this Genus of Plants.

CAPSULÆ *Atrabilares*, in Anatomy, call'd alſo *Renes ſuccenturiati*, and *Glandulæ Renales*; are two Glands ſituate near the Reins, call'd *Atrabilares* from a black Liquor found in their Cavity; and *Succenturiati* and *Renales*, from their Poſition. See SUCCENTURIATI, BILARES, and RENALES.

They are about the bigneſs of a *Nux Vomica*; their Figures are ſomewhat various; in ſome round, in others triangular, ſquare, &c. The Membrane wherewith they are cover'd is very fine: Their Cavity is pretty large for their bulk. Their uſe is very obſcure; probably 'tis to ſecrete the black Humour found in their Cavity; which being afterwards diſcharg'd by their Duct into the Emulgent, mixes with the Blood; and ſerves, according to ſome, as a Ferment; according to others, only to dilute its Thickneſs: In a *Fœtus*, they are almoſt as big as the Kidneys. See BILE.

CAPSULA *Communis*, or *of the Porta*, is a Membrane ariſing from the *Peritonæum*, and incloſing the Trunk of the *Vena Porta*, after its Entrance into the Liver, as a Caſe, or Cover; dividing it ſelf into the ſame Number of Branches; and accompanying all, even its ſmalleſt Ramifications. See PORTA. The ſame *Capſula*, or Membrane, likewiſe incloſes the *Porus Bilarius*; whence it takes the Name of *Capſula Communis*. See PORUS BILARIUS.

CAPSULA *Cordis*, a Membrane inveſting the Heart; more uſually call'd the *Pericardium*. See PERICARDIUM.

CAPSULÆ *Seminales*, are the ſame with *Veſiculæ Seminales*. See VESICULÆ *Seminales*.

CAPSULA, in Chymiſtry, is an Earthen Veſſel, in form of a Pan; wherein things are frequently plac'd, that are to undergo very violent Operations of the Fire.

CAPTAIN, a Military Officer, whereof there are various Kinds and Degrees, diſtinguiſh'd by their various Commands: As,

CAPTAIN *of a Company*, or *Troop*; the Officer who commands a Company of Foot, or Troop of Horſe, under the Colonel. See COMPANY, and TROOP.

In the like Senſe, we ſay, *A Captain of Dragoons*, of *Grenadiers*, of *Marines*, of *Invalids*, &c. See DRAGOON, GRENADIER, &c.

In the Horſe and Foot Guards, the *Captains* are ſtyl'd *Colonels*; being uſually Perſons of the prime Nobility, and General Officers of the Army. See COLONEL, and GUARDS.

In the Colonel's Company of a Regiment, *i. e.* the firſt Company, or that whereof he himſelf is *Captain*, the commanding Officer is call'd *Captain Lieutenant*. See CAPTAIN *Lieutenant*.

Lieutenant CAPTAIN, is the *Captain's* Second; or the Officer who commands the Company under the *Captain*, and in his abſence. See LIEUTENANT. In ſome Companies, &c. he is call'd *Captain Lieutenant*.

CAPTAIN *Lieutenant*, is he who commands a Troop, or Company, in the Name and Place of ſome other Perſon, who has the Commiſſion, with the Title, Honour, and Pay thereof; but is diſpens'd withal, on account of his Quality, from performing the Functions of his Poſt. Thus, the Colonel, being uſually likewiſe *Captain* of the firſt Company of his Regiment; that Company is commanded by his Deputy, under the Title of *Captain Lieutenant*. So alſo in *England*, *France*, &c. the King, Queen, Prince, Dauphine, &c. have uſually the Titles, Dignities, &c. of *Captains of the Guard*, *Gens d'Armes*, &c. the real Duty of which Offices, is perform'd by *Captains Lieutenant*.

Reformed CAPTAIN, is one, who, upon a Reduction of the Forces, has his Commiſſion and Company ſuppreſs'd; yet is continu'd *Captain*, either as Second to another, or without any Poſt or Command at all. See REFORMED.

CAPTAIN *General*, of an Army, is the General, or Commander in chief. See GENERAL.

CAPTAIN *of Militia*, is he who commands a Company of Train'd-Bands, or Light-Horſe. See MILITIA.

CAPTAIN, in the *Turkiſh* Empire, and Army. See CAPITAN.

CAPTAIN *of a Ship*, is a Sea Officer; whereof there are two Kinds; the one of a Ship of War, the other of a trading Veſſel.

CAPTAIN *of a Man of War*, is the commanding Officer of a Ship, Galley, Fireſhip, or the like: In ſuch Veſſels, the Pilot commands the Seamen, and the *Captain* the Soldiers, or Marines. See MARINES.

CAPTAIN *of a Merchant Ship*, is the Maſter thereof; or he who has the Command or Direction of the Ship, her Crew, Lading, &c. This Officer is more ordinarily call'd the *Maſter*; eſpecially in ordinary Voyages. See MASTER *of a Ship*.

On the *Mediterranean*, he is call'd the *Patron* or *Patroon*; and in great Voyages, as to the *Eaſt Indies*, *South Sea*, &c. the *Captain*.

The Proprietor of the Veſſel appoints the *Captain*, or *Maſter*; and the *Captain* is to form the Crew, chuſe and hire the Pilots, Mates, Seamen, &c. tho when the Proprietor and Maſter reſide on the ſame Spot, this is uſually done in Concert with the Proprietor. See SHIP.

CAPTION, in Law: When a Commiſſion is executed, and the Commiſſioners Names ſubſcrib'd to a Certificate, declaring when and where the Commiſſion was executed, this is call'd *Caption*. The *Caption* uſually commences with theſe Words, *Virtute iſtius commiſſionis nos*, &c. or, *Executio iſtius commiſſionis patet in quadam ſchedula annexata*, &c.

CAPTIVE, a Slave, or Perſon taken by the Enemy; particularly the Pyrates, and *Corſairs*. See SLAVE, PYRATE, &c.

CAPTURE, a Prize, or Prey; particularly that of a Ship taken at Sea: Thus we ſay, The French *Captures*, to the Number of 25, were brought into Port; ſee PRIZE. It is alſo an Arreſt, or Seizure of a Criminal, Debtor, &c. at Land. See SEIZURE, and ARREST.

CAPUCHINS, Religious of the Order of St. *Francis*, in its ſtricteſt Obſervance. See FRANCISCAN. The *Capuchins* are thus call'd, from *Capuce*, or *Capuchon*, a ſtuff Cap, or Cope, wherewith they cover their Head. They are clothed with Brown, or Gray; always bare-footed; are never to go in a Coach, nor ever ſhave the Beard. The *Capuchins* are a Reform made from the Order of *Minors*, commonly call'd *Cordeliers*, ſet on foot in the XVIth Century, by *Matthew Baſchi*, a religious Obſervant of the Monaſtery of *Monteſiaſerne*; who, being at *Rome*, was advertis'd ſeveral times from Heaven, to practiſe the Rule of St. *Francis* to the Letter. Upon this, he made Application to Pope *Clement*, in 1525, who gave him Permiſſion to retire into a Solitude; and not only him, but as many others as wou'd embrace the ſtrict Obſervance: which ſome did, in effect. In 1528 they obtain'd the Pope's Bull. In 1529, the Order was brought into compleat form; *Matthew* was elected General, and the Chapter made Conſtitutions. In 1543, the Right of Preaching was taken from the *Capuchins* by the Pope: but in 1545, 'twas reſtor'd to them again with Honour. In 1578, there were already 17 General Chapters in the Order of *Capuchins*.

CAPUT, a *Latin* Term, literally ſignifying *Head*; retain'd in its primitive Form and Uſe in divers Arts: As,

CAPUT *Baroniæ*, the Head of the Barony; in our Cuſtoms, is the antient, or chief Seat or Caſtle of a Nobleman: which is not to be divided among the Daughters, in caſe there be no Son to inherit; but is to deſcend entire to

to the Eldest Daughter, *cæteris filiabus aliunde satisfactis*. See BARONY.

CAPUT *Draconis*, or the *Dragon's Head*, in Astronomy, the Name of the Moon's ascending Node. See DRAGON'S-*Head*; see also NODE.

CAPUT *Gallinaginis*, or *Galli Gallinacei*, Cock's Head, is a kind of *Septum*, or spongeous Border, at the Extremities or Apertures of each of the *Vesiculæ Seminales*; serving to prevent the Seed coming from one side, from rushing upon, and so stopping the Discharge of the other. Some will have its use to be, to prevent the Impulse of the Seed from dilating the Orifices of the *Vesiculæ*, and so oozing out, except when assisted by the Compression of the surrounding Parts; as in Copulation: But this, according to Dr. *Drake*, is rather the Office of a distinct Caruncle plac'd at each Orifice, and acting as a Valve. See VESICULÆ *Seminales*, SEED, and GENERATION.

CAPUT *Mortuum*, in Chymistry, the *Fæces* remaining of any Body, after all the volatile and humid Parts, as the Phlegm, Spirit, Salt, *&c.* have been extracted therefrom, by Force of Fire. What remains after Distillation, is only properly call'd *Fæces*. See FÆCES. E'er it be *Caput Mortuum*, it must likewise have pass'd the Retort. See DISTILLATION, and RETORT.

The *Caput Mortuum*, call'd also *Terra damnata*, is found in form of a friable, porous Matter, without Taste or Smell: 'Tis rank'd among the Chymical Elements; and suppos'd to constitute the dry, fix'd, earthy, and solid Part of all mix'd Bodies. As an Element, it is more commonly express'd by the Name *Earth*. See EARTH.

'Tis what the Chymists call *a passive Element*, or *Principle*; serving as the Basis or Support of the active ones. See PRINCIPLE.

The Term is sometimes more immediately restrain'd to the Remains of Vitriol, after Distillation; otherwise call'd *Calcothar Vitrioli*. See CALCOTHAR.

The *Caput Mortuum* is never pure, but there is still some active Principle remaining in it, and particularly a fix'd Salt. See SALT. Thus the *Calcothar Vitrioli*, expos'd to the Air, is re-converted into Vitriol. See VITRIOL; see also ELEMENT.

CAR, CARR, or CARRE, a kind of rolling Throne, us'd in Triumphs, and at the splendid Entries of Princes. See CHARIOT.

Plutarch relates, that *Camillus* having enter'd *Rome* in Triumph, mounted on a *Car* drawn by four white Horses, it was look'd on as too haughty an Innovation. See TRIUMPH.

CAR, is also us'd for a kind of light open *Chariot*. *Pontanus*, L. III. *de Stellis*, observes, that *Erictbonius* was the first that harness'd Horses, and join'd 'em in a *Car*, or Chariot. See CHARIOT.

The Word is from the antient *Gaulish*, or *Celtic*, *Carr*; mention'd by *Cæsar*, in his Commentaries, under the Name *Carrus*.

The *Car*, on Medals, drawn either by Horses, Lions, or Elephants, usually signifies, either a *Triumph*, or an *Apotheosis*: Sometimes a Procession of the Images of the Gods, at a solemn Supplication; and sometimes of those of some illustrious Family at a Funeral. The *Car* cover'd, and drawn by Mules, only signifies a *Consecration*, and the Honour done any one of having his Image carry'd at the Games of the *Circus*. See CONSECRATION, *&c.*

The *Car* us'd by the Ladies, was call'd *Pilentum*, *Carpentum*, and *Basterna*. See BASTERNA.

CARABE, or KARABE, yellow Amber reduc'd to Powder. See AMBER.

CARABINE, a Fire-Arm, or little Harquebuss, with a Lock; antiently us'd in the Army, but now disus'd, by reason of the Time lost in cocking it. There are some of these *Carabines* still in use, having the inside of the Barrel furrow'd spirally, which carry the Ball to a very great distance. The *Carabine* was formerly the Arms of the Light Horse, who were hence also call'd *Carabineers*: These made separate Companies, and sometimes Regiments in an Army; serving to guard the Officers, to seize Posts, and to do other Offices requiring Expedition. There are still some of those *Carabineers* in the *French* Horse; two in each Company.

Gaja derives the Word from the Spanish *Cara-* and the Latin *binus*: Intimating the *Carabineers* to be People with two Faces, from their manner of Fighting; sometimes advancing, and sometimes retiring.

CARACOL, in the Manage, a Motion which the Cavalier makes half round; or a half turn from Left to Right; changing Hands; that his Enemy may be uncertain on which side he intends to attack: whether in Front, or Flank.

CARACOL, is also the half turn each Horseman in an Army makes after his Discharge, to pass from the Front of the Squadron to the Rear. The Word comes from the *Arabic*, and that from the *Hebrew*, *Carac*, *involvere*. But we have it immediately from the *Spanish*; where it signifies properly *a Snail*, and figuratively the Evolution describ'd above.

CARACOL is sometimes also us'd in Architecture, for a Staircase in a Helix, or spiral Form. See STAIRCASE.

CARACT, CARAT, or KARAT, is properly the Name of the Weight, which expresses the degree of Goodness, Title, Perfection, or Imperfection of Gold. See GOLD.

The Coiners fix the highest Purity and Perfection of Gold at 24 *Carats*; and the several Degrees are estimated from the Divisions hereof, which are call'd *Grains*: But 'tis observ'd, that what care soever is taken in purifying Gold, to clear it from Dross, it can never be brought to 24 *Carats*; but still comes short $\frac{1}{4}$ of a *Carat*, or a Grain: this Grain they call a *Sixteenth*; and this sixteenth they subdivide into two *Eighths*; and each of those eighths into two *Sixteenths*: On which Calculation, they say, Gold may be purify'd as far as the first Sixteenth of the second Eighth, but no further. See GRAIN.

Gold of 22 *Carats*, is that which has 22 Parts of fine Gold, and two of Silver, or other Metal; or that which in refining loses 2 Parts in 24 of its Weight. The Goldsmiths generally work on Gold of 22 *Carats*.

The *Carat Fine*, as above, is the 24th Part of the Goodness of a Piece of Gold; the *Carat Price*, is the 24th Part of the Value of a Piece of Gold: as, if the Piece be 384, the *Carat Price* is 16 Pounds. We also sometimes say, the *Carat Weight*, which is the 24th Part of the Weight of the Piece, or 192 Grains.

Menage, from *Alciat*, derives the Word *Carat* from the *Greek* κεράτιον, which was a kind of small Weight: But *Savot*, with more probability, from χαράγιον, a Tribute-Penny, or small Coin struck for that purpose. Others derive it simply from the Latin *Character*.

CARACT is also the Weight us'd in weighing Diamonds and precious Stones; and consists of four Grains. See DIAMOND, and GRAIN.

Thus, the Great *Mogol*'s Diamond is said to weigh 279 *Caracts*. These Grains are somewhat less heavy than those us'd in Gold, *&c.* In this Sense, the Word is suppos'd to be deriv'd from the *Greek* κεράτιον, a Fruit which the *Latins* call *Siliqua*, and we *Carab-bean*; each of which may weigh about four Grains of Wheat: whence the Latin *Siliqua* has also been us'd for a Weight of four Grains.

CARAITES, a Sect among the antient *Jews*; whereof there are still some subsisting in *Poland*, *Russia*, *Constantinople*, *Cairo*, and other Places of the *Levant*: Some call them *Carraini*; others *Carrei*, and *Caraitæ*.

Leon de Modena, a Rabbin of *Venice*, observes, that of all the Heresies among that People, before the Destruction of the Temple, there is none now left but that of the *Carraini*; a Name deriv'd from *Micra*, which signifies the pure Text of the Bible; because of their keeping to the *Pentateuch*, observing it to the Letter, and rejecting all Interpretation, Paraphrase, and Constitution of the Rabbins. *Aben Esra*, and some other Rabbins, treat the *Caraites* as Sadducees; but *Leon de Juda* calls them, more accurately, *Sadducees reform'd*; in regard they believe the Immortality of the Soul, Paradise, Hell, Resurrection, *&c.* which the antient Sadducees deny'd. He adds, however, that they were doubtless originally real Sadducees, and sprung from among them: But M. *Simon*, with more probability, supposes them to have risen hence, That the more knowing among the *Jews*, opposing the Dreams and Reveries of the Rabbins, and using the pure Text of Scripture to refute their groundless Traditions, they had the Name *Carraim* given them; which signifies as much as the barbarous Latin, *Scriptuarii*, *i. e.* People attach'd to the Text of Scripture. The other *Jews* give them the odious Name *Sadducees*, from their Agreement with those Sectaries on the Head of Traditions. See SADDUCEES.

Scaliger, *Vossius*, and *Spanheim*, rank the *Caraites* among the *Sabeans*, *Magi*, *Manichees*, and *Mussulmen*, but by mistake: *Wolfgang*, *Fabricius*, &c. say, the Sadducees and *Essenі* were call'd *Caraites*, in opposition to the Pharisees: others take them for the Doctors of the Law, so often mention'd in the Gospel: But these are all Conjectures. *Josephus* and *Philo* make no mention of them; which shews 'em to be more modern than either of those Authors. In all probability, this Sect was not form'd till after the Collection of the second Part of the Talmud, or the *Gemara*; perhaps not till after the compiling of the *Mischna* in the IIId Century. The *Caraites* themselves, pretend to be the Remains of the ten Tribes led captive by *Salmanassar*. *Wolfius*, from the *Memoirs of Mardocheus*, a *Caraite*, refers their Origin to a Massacre among the *Jewish* Doctors, under *Alexander Jannæus*, their King, about 100 Years before Christ: For *Simeon*, Son of *Schetach*, and the Queen's Brother, making his Escape into *Egypt*, there forg'd his pretended Traditions; and at his Return to *Jerusalem*, publish'd his Visions; interspersing the Law

after his own Fancy, and supporting his Novelties on the Notices which God, he said, had communicated by the Mouth of *Moses*, whose Depository he was: He gain'd many Followers; and was oppos'd by others, who maintain'd, that all which God had reveal'd to *Moses* was written. Hence the *Jews* became divided into two Sects, the *Caraites*, and *Traditionaries*: Among the first, *Juda*, Son of *Tabbai*, distinguish'd himself; among the latter, *Hillel*. *Wolfius* reckons not only the Sadducees, but also the Scribes, in the Number of *Caraites*. But the Address of the Pharisees prevail'd against 'em all; and the Number of *Caraites* decreas'd: *Anan* indeed, in the VIIIth Century, retriev'd their Credit a little; and Rabbi *Schalomon* in the IXth. Matters went pretty well with them till the XIVth, but since that Time they have been on the declining hand.

The *Caraites* are but little known; their Works coming only into very few Hands, even among the greatest *Hebraists*. *Buxtorf* never saw more than one; *Selden* two; M. *Trigland* says, he has recover'd enough to speak of them with assurance. He asserts, that soon after the Prophets had ceas'd, the *Jews* became divided on the Subject of Works, and Supererogation: some maintaining their Necessity from Tradition; whilst others, keeping close to the written Law, set 'em aside; and it was from these last that *Caraitism* commenc'd. He adds, again, that after the Return from the *Babylonish* Captivity, the Observation of the Law being to be re-establish'd, there were several Practices found proper for that End; and these once introduc'd, were look'd upon as essential, and appointed by *Moses*; which was the Origin of *Pharisaism*; as a contrary Party, continuing to keep close to the Letter, founded *Caraitism*. See PHARISEES.

The modern *Caraites*, *Leon de Modena* observes, have their Synagogues, and Ceremonies; pretending to be the sole proper *Jews*, or Observers of the Laws of *Moses*; calling the rest by the Term *Rabbanim*, or *Followers of the Rabbins*: These hate the *Caraites* mortally; refusing to ally, or even converse with them, and treating them as *Mamzerim*, or Bastards; because of their rejecting the Constitutions of the Rabbins in Marriages, Repudiations, Purifications of Women, &c. This Aversion is so great, that if a *Caraite* would become a *Rabbinist*, he would never be receiv'd by the other *Jews*. See RABBINS.

The *Caraites*, however, don't absolutely reject all kind of Traditions; but only such as don't appear well grounded. *Selden*, who is very express on this Point, in his *Uxor Hebraica*, observes, that besides the mere Text, they have certain Interpretations, which they call *Hereditary*, and which are proper Traditions. Their Theology only seems to differ from that of the other *Jews*, in that it is purer, and clearer of Superstition: They give no credit to the Explications of the *Cabbalists*, chimerical Allegories, nor to any Constitutions of the Talmud, but what are conformable to the Scripture, and may be drawn from it by just and necessary Consequences: Of these we shall give three notable Instances.

The first relating to the *Mezouzot*, or Parchments which the *Jews* tie at all the Gates thro which they use to pass. The second regarding the *Thephillin* or *Philacteries*, mention'd in the New Testament: And the third, the Prohibition of eating Milk, with Flesh. The two first, the *Jews* pretend, are formally ordain'd in *Deuteronomy*, where 'tis said, "Thou shalt bind them as a Sign on thy Hands, "and they shall serve thee as Frontlets (Headstalls) be-"tween thy Eyes; thou shalt write them on the Posts of "thy House." The *Caraite Aaron*, in his Comment on these Words, maintains, they are not to be taken literally, as the Rabbins do, but figuratively; as intimating, that the *Jews*, whether entering or going out, should be always mindful of them. For the *Thephillin*, the *Caraites* rally the *Rabbinists* on their praying with their *Phylacteries*, or Thongs of Leather fasten'd to their Forehead; comparing them to bridled Asses. This Passage the *Caraites* interpret figuratively; and in their Interpretation agree with S. *Jerom*, who takes notice of the Delusion of the *Pharisees*, "in writing the Decalogue on Parchment, rolling it up, "and tying it to their Forehead with Thongs, to have it "always before their Eyes." For the third Point, the Rabbins say, 'tis commanded in that Text, "Thou shalt "not seeth a Kid in his Mother's Milk;" but the *Caraites* get clear of it by explaining the Passage by another, "Thou shalt not take the Mother when with young," which is natural. Nor have the *Jews* any thing to object in behalf of their Interpretation, but its being that of their Doctors. Thus the *Caraites* exempt themselves from an infinite Number of Ceremonies and Superstitions, which the Rabbins have establish'd among the other *Jews*. See TRADITION.

Yet, in many Things, they retain all the Superstition of the Rabbins. *Schupart*, in his Treatise *de Secta Karræorum*, treating of their *Dogmata*, observes, that they are in all respects as precise and ceremonious as the most rigid Traditionary, in what relates to the Observation of the Sabbath, Passover, Feast of Atonement, of Tabernacles, &c. That they observe Prayers and Fastings; and wear the *Zitzit*, or pieces of Fringe, on the Corners of their Garments. They hold, that all Sin is effac'd by Repentance; in which they differ from the Rabbins, who hold, that some are only effac'd by Death. As for Circumcision, they don't believe it necessary, with the Traditionaries, that there be Blood shed: Add, that when a Child dies before it be eight Days old, the *Rabbinists* circumcise it after 'tis dead, that it mayn't appear uncircumcis'd at the Resurrection; whereas the *Caraites*, when they perceive the Child in danger, chuse rather to circumcise it e'er the eighth Day. In Matters of Divorce, the *Caraites* agree with the other *Jews*; and observe the same Rules and Restrictions in the killing and dressing of Beasts; but differ from 'em in the Kinds of legal Impurities and Pollutions.

Peringer observes of the *Caraites* in *Lithuania*, that they are very different, both in Aspect, Language, and Manners, from the *Rabbinists*, wherewith that Country abounds. Their Mother Tongue is the *Turkish*; and this they use in their Schools and Synagogues. In Visage they resemble the Mahometan *Tartars*. Their Synagogues are posited North and South; and the Reason they give for it, is, that *Salmanassar* brought them from the Northward: So that, in Praying, to look to *Jerusalem*, they must turn to the South. He adds, that they admit all the Books of the Old Testament; contrary to the Opinion of many of the Learned, who hold that they reject all but the *Pentateuch*.

Caleb, a *Caraite*, reduces the Difference between them and the *Rabbinists* to three Points: 1st, In that they deny the Oral Law to come from *Moses*, and reject the *Cabbala*. 2d, In that they abhor the *Talmud*. 3d, In that they observe the Feasts, as the Sabbaths, &c. much more rigorously than the Rabbins do. To this may be added, that they extend the Degrees of Affinity, wherein Marriage is prohibited, almost to Infinity. See CABALLA.

CARANNA, is a hard, brittle, resinous Gum, brought from some Parts of the *West Indies*, as *Carthagena* and *New Spain*; of an aromatick Flavour, and us'd in Medicine.

CARAVAN, or CARAVANNE, in the East, is a Troop, or Company of Travellers, Merchants, and Pilgrims, who for the greater Security march in a Body, thro the Deserts, and other dangerous Places, infested with *Arabs* and Robbers. See CARAVANSERA.

There is a Chief, or *Aga*, who commands each *Caravan*, and has under him a Number of Janizaries, or other Forces, sufficient for their Defence. The *Caravans* incamp every Night near Wells or Rivulets, known to the Guides; and observe a Discipline as regular as in War. They chiefly use Camels for their Vehicles, by reason of their enduring a world of fatigue, eating little, and passing three or four Days without drinking.

The Grand Signior gives one fourth Part of the Revenues of *Egypt*, to defray the Expence of the *Caravan* that goes yearly to *Mecca*, to visit *Mahomet*'s Tomb: The Devotees, in this *Caravan*, are about 40000; accompany'd with Soldiers to protect them from the Pillage of the *Arabs*, and follow'd with eight or nine thousand Camels, laden with all necessary Provisions for so long a Passage across Deserts. Days Journeys are distinguish'd in the East, into Journeys of *Horse-Caravans*, and *Caravans of Camels*: those of Horses are equal to two of Camels. There are several *Caravans* go yearly from *Aleppo*, *Cairo*, and other Places, to *Persia*, *Mecca*, *Thebes*, &c.

There are also *Sea Caravans* establish'd on the same Footing, and for the same Purposes: Such is the *Caravan of Vessels*, from *Constantinople* to *Alexandria*.

The Word comes from the Arabic *Cairaran*, or *Cairaan*; and that from the Persian *Kerran*, which signifies the same thing.

The Term *Caravan* is also us'd for the Voyages or Campaigns, which the Knights of *Malta* are oblig'd to make at Sea, against the *Turks* and *Corsairs*; in order to arrive at the Commandries and Dignities of the Order. They are thus call'd, because the Knights have frequently seiz'd the *Caravan* going from *Alexandria* to *Constantinople*.

CARAVANSERA, a large publick Building, or Inn, destin'd to receive and lodge the *Caravans*: see CARAVAN.

Of these *Caravanserai's*, or, as *Chardin* calls 'em, *Caravanserai*, there are a great Number throughout the East; erected out of the Charity and Magnificence of the Princes, &c. of the several Countries.

Those of *Schiraz* and *Casbin*, in *Persia*, are said to have cost 60000 Crowns: They are open to People of all Religions and Countries, without any Questions ask'd, or any Money requir'd.

The *Caravanserai* are usually huge square Buildings, with a spacious Court in the middle thereof. They are encompass'd with Galleries and Arches, under which runs a

kind of *Banquette*, or Elevation, ſome Feet high, where Travellers reſt themſelves, and make their Lodging as well as they can; their Baggage, and the Beaſts that carry 'em, being faſten'd at the Foot of the *Banquette*. Over the Gate, there are frequently a ſort of little Chambers; which the *Caravanſerakier* lets out, at a very dear rate, to ſuch as have a mind to be to themſelves.

Tho the *Caravanſera's* ſerve in lieu of Inns; yet there is this eſſential Difference between them and our Inns, that the Traveller finds nothing at all in the *Caravanſera*, neither for himſelf nor his Cattle; but muſt carry all his Proviſions and Neceſſaries with him. They are chiefly built in dry, barren, deſart Places; and are generally furniſh'd with Water from a great Diſtance, and at a vaſt Expence: There being no *Caravanſera* without its Well of Water. There are ſeveral of 'em in Cities; where they ſerve not only as Inns, but as Shops and Warehouſes. There are few Cities in the Eaſt without their *Caravanſerai*; eſpecially within the Dominions of *Turky*, *Perſia*, and the Great *Mogul*. Thoſe of *Iſpahan* and *Agra*, *Schiras* and *Casbin*, are diſtinguiſh'd for their Magnificence and Commodiouſneſs.

In *Turky*, none but the Grand Signior's Mother and Siſter, with the Viſiers and Baſhaws who have been in three Battles againſt the Chriſtians, are allow'd to build a *Caravanſera*. The Word comes from the Turkiſh *Karwan*, or *Kerwan*, *Caravan*; and *Sarai*, Houſe, Palace, Inn.

CARAVANSERAKIER, the Director, Steward, or Intendant of a *Caravanſera*. At *Iſpahan*, there are *Caravanſera's* in manner of Halls, or Exchanges, where Goods are laid up, and expos'd to view; for which the *Caravanſerakier* is accountable, in conſideration of a certain Fee. See CARAVANSERA.

CARAWAY, or CARWAY, a Medicinal Seed, produc'd from a Plant of the ſame Name, by Botaniſts call'd *Carvi Officinarum*, or *Cuminum Pratenſe*. See SEED.

The Seed or Grain of the *Carvi* or *Caraway*, is narrow, longiſh, furrow'd on the Back, and of a briſk aromatic Taſte It is eſteem'd Stomachic, and Diuretic; diſpels Wind, ſtrengthens Digeſtion, &c. The *Engliſh* and *Germans* make great uſe of it; particularly in Biſkets, Comfits, and other Foods and Confections,

CARBUNCLE, in Medicine, a Malignant Tumor, ariſing ſometimes on one Part, and ſometimes another; accompany'd with a painful Heat, Mortification, Lividneſs, and at laſt a Blackneſs: It begins with one or more Puſtles, under which is form'd a putrid Ulcer; ſometimes with a Scab, without any Puſtle; the Ulcer being form'd under the Scab. Round the Tumor is a Kernel, very painful; ſometimes red, and ſometimes livid, or blackiſh. The *Carbuncle* is owing to a ſharp, cauſtic, malignant, ſaline Humor, which gnaws and corrupts the Part whereon it is diſcharg'd.

The *Greeks* call it *Anthrax*, the French *Charbon*, Coal, from the Reſemblance of its Scab to a Coal. It is ſometimes peſtilential, and ſometimes not. When it ariſes without Puſtles, it is properly call'd *Pruna*; when with, *Ignis Perſicus*.

CARBUNCLE, in Natural Hiſtory, a fabulous Kind of precious Stone, whereof *Pliny* and the Antients relate Wonders. The *Carbuncle*, in reality, is only a large *Ruby*, of a deep red Colour: the Term being never apply'd, but when the Stone exceeds 20 Carats Weight. See RUBY.

The Antients, and moſt of the Modems after them, have all along ſuppos'd the *Carbuncle* to be taken from the Dragon's Head: And we read of many a Cavalier, who went to combat with Dragons, on purpoſe to gain this invaluable Jewel. *Vartoman* aſſures us, that the King of *Pegu* us'd no other Light in the Night time, but that of his Carbuncle, which caſt a blaze like that of the Sun.

The Name is form'd of the Latin *Carbunculus*, q. d. a burning Coal: For which Reaſon the *Greeks* call it ἄνθραξ, Coal. *Pliny*, treating of the *Carbuncle*, Lib. XXXVII. cap. 7. diſtinguiſhes twelve Sorts thereof.

CARBUNCLE, in Heraldry, a Charge, or Bearing, conſiſting of eight Radii, or Spokes; four whereof make a common Croſs, and the other four a Salteer; as in the adjoining Figure. Some call theſe Radii *Battons*, or *Staves*; becauſe round, and enrich'd with Buttons, or pearl'd, like Pilgrims Staves; and frequently tipp'd, or terminated with Flower-de-Luces. Others blazon 'em, Royal Scepters, plac'd in Salteer, Pale and Feſſe.

CARBUNCULATION, is the blaſting of the new-ſprouted Buds of Trees or Plants, either by exceſſive Heat, or exceſſive Cold. See BLIGHT.

CARCASE, or CARCASS, the Corpſe, or Body of a dead Animal, whoſe Fleſh is, moſt of it, cut off, conſum'd, or dry'd. See SKELETON.

Thus, we ſay, The *Carcaſſes* of the Soldiers, Horſes, &c. were ſeen long afterwards on the Field of Battel.——The *Carcaſs* of a Fowl, Capon, Partridge, Leveret, Rabbit, &c. is what remains thereof, after the four Members, or Limbs, have been cut off, *viz.* the Legs and Wings.

CARCASE, in Architecture, is the Shell, or Ribbs of a Houſe; containing the Partitions, Floors, Rafters, &c. made by the Carpenter, &c. See HOUSE, BUILDING, and TIMBER. The *Carcaſe* is otherwiſe call'd the *Framing*, ſee FRAMING.

CARCASS, or CARCUS, in War, a kind of *Bomb*, uſually oblong, or oval, rarely circular; conſiſting of a Shell, or Caſe, ſometimes of Iron, with Holes; more commonly of a coarſe ſtrong Stuff, pitch'd over, and girt with Iron Hoops; fill'd with combuſtible Matters, as Hand Granades, Ends of Muſkets, loaden Piſtols, and Preparations of Gunpouder, &c. Its uſe is to be thrown out of a Mortar, to ſet Houſes on Fire, and do other Execution. See BOMB, and MORTAR.

For the Compoſition of a Carcaſs, to burn, *Wolfius* preſcribes ten Parts of Gunpouder pounded; two of Nitre; one of Sulphur, and one of Colophony: Or ſix of Gunpouder; four of Nitre; four of Sulphur; one of beaten Glaſs; ½ one of Antimony; ½ one of Camphor; one of Sal Armoniac; and ½ of common Salt. For the Shell, or Caſe, he takes two Iron Rings, ſome chuſe Plates; fitting one at one Extreme, near the Aperture at which the *Carcaſs* is to be fir'd, and the other at the other: others make the Aperture in one of the Plates. Theſe he braces with Cords drawn lengthwiſe; and acroſs theſe, at right Angles, laces others; making a Knot in each Interſection: Between the Folds of the Cords, he makes Holes, and into theſe fits Copper Tubes, filling 'em half full of Pouder and leaden Bullets, ramming the whole with Tow, &c. The Shell thus prepar'd, he immerges it, the Aperture firſt ſtopt, in a liquid Matter; conſiſting of four Parts of melted Pitch, 20 of Colophony, one of Oil of Turpentine, and as much ground Gunpouder as will reduce it to the Conſiſtence of a Paſt. After Immerſion, 'tis to be cover'd over with Tow, and immerg'd afreſh, till it become of the Bigneſs proper for the Mortar.

It has the Name *Carcaſs*, becauſe the Circles which paſs from one Ring, or Plate, to the other, ſeem to repreſent the Ribs of a human *Carcaſs*.

CARCINOMA, in Medicine, a Tumor, more uſually call'd a *Cancer*. See CANCER.

The Word comes from καρκινος, *Cancer*, and νεμω, *depaſco*, to feed upon.

CARCUSS, in War, the ſame as *Carcaſs*; ſee CARCASS.

CARDAMOMUM, or CARDAMUMS, a Medicinal Seed, of the Aromatic kind, contain'd in *Capſulæ*, or Pods, brought from the *Eaſt Indies*.

This Seed is diſtinguiſh'd into three Kinds, according to the ſeveral Sizes of the Pods; *viz.* great, middle, and ſmall: but the Taſte, Smell, Colour, and Form of the Grain, is the ſame in all; being of a purple Colour, angular, of a ſharp biting Taſte, and a ſtrong penetrating Smell. The firſt kind is alſo call'd *Grains of Paradiſe*; but the laſt excells the reſt, both in Smell, Taſte, and Virtue: 'Tis this that enters the Compoſition of Venice Treacle. The *Cardamums* do warm, and deterge; they ſtrengthen the nobler Parts, diſſipate Wind, and help Digeſtion; and are us'd in Diſeaſes of the Brain, Stomach, and Womb.

The Plants of the *Cardamum* Family, afford ſomething very remarkable, as to the manner of their Propagation: When ripe, their Pods fly open, and dart out their Seed upon a ſlight touch of the Hand. Nay, what is more, Mr. *Ray* tells us, the *Cardamum Impatiens* breaks its Pod, and emits its Seed not only if touch'd, but if only the Hand be ſtretch'd out, as if about to touch it: and *Johnſton* and *Gerrard* affirm it to be true. See SEED, and SEMINATION.

CARDIAC, in Medicine, vulgarly call'd *Cordial*, a Remedy antiently ſuppos'd to exert it ſelf immediately in comforting and ſtrengthning the Heart: but the modern Phyſicians rather ſuppoſe it to produce its Effect, by putting the Blood into a gentle Fermentation, whereby the Springs, before decay'd, are repair'd and invigorated; and the Tone and Elaſticity of the Fibres of the Veſſels reſtor'd: the Conſequence of which, is a more eaſy and briſk Circulation. See CORDIAL, STRENGTHNER, &c.

The Word comes from the *Greek* καρδια, *Cor*; the Heart being reputed the immediate Seat of its Operation.

CARDIACUS *Plexus*, in Anatomy, a *Plexus*, or piece of Network, form'd of a Ramification of the *Par vagum*, or eighth Pair of Nerves. See PLEXUS *Cardiacus*, NERVE, and PAR *vagum*.

CARDIALGIA, CARDIALGY, or CARDIACUS *Dolor*, in Medicine, a violent Pain, felt towards the upper Orifice of the Stomach, accompany'd with a Palpitation of the Heart, Fainting, and a Propenſion to Vomit; better known by the Name of *Cardiac Paſſion*, or *Heart-burn*. See HEART.

'Tis

'Tis occasion'd by sharp Humours, which prick and vellicate that Orifice, and the adjoining Parts. The Word comes from the *Greek* καρδια, *Heart*, and αλγ, *Pain*.

Blanchard makes the Disease consist in a Gnawing, and Contraction of the *Par vagum*, and the intercostal Nerves implanted in the Stomach; proceeding from a pungent vellicating Matter in the Stomach it self: which, by reason of the Consent of Parts, affects the Heart; straitning and contracting it so, as sometimes to occasion swooning. See CONSENT *of Parts*.

CARDINAL, a Term serving to express the Relation, or Quality of Prime, Principal, most Considerable; or, the Foundation of any thing. Thus, we say, the four *Cardinal* Virtues, *viz.* Prudence, Justice, Fortitude, and Temperance; which are the Basis of all others. So, the *Cardinal* Points, *Cardinal* Winds, &c.

The Word is form'd of the Latin *Cardo*, a Hinge; it being on these Fundamental Points, that all the rest of the same kind seem to turn.

CARDINAL *Points*, in Cosmography, are the four Intersections of the Horizon, with the Meridian, and the prime vertical Circle. See POINT.

Of these, two, *viz.* the Intersection of the Horizon and Meridian, are called *North* and *South*, with regard to the Poles they are directed to. See NORTH, and SOUTH.

To determine the Places of those Points, see MERIDIAN *Line*. The other two, *viz.* the Intersection of the Horizon and first Vertical, are call'd *East* and *West*. See EAST, and WEST.

The *Cardinal Points*, therefore, coincide with the four *Cardinal* Regions of the Heavens; and are 90° distant from each other. The intermediate Points are call'd *Collateral Points*; see COLLATERAL *Points*.

CARDINAL *Points of the Heaven*, or, *of a Nativity*, are the Rising and Setting of the Sun; the Zenith and Nadir. See RISING, SETTING, ZENITH, and NADIR.

CARDINAL *Winds*, are those that blow from the *Cardinal* Points. See WIND.

CARDINAL *Numbers*, in Grammar, are the Numbers one, two, three, &c. which are indeclinable; in opposition to the *Ordinal Numbers*, second, third, fourth, &c. See NUMBER.

CARDINAL, is particularly us'd for an Ecclesiastick Prince, or one who has a Voice, both active and passive, in the *Romish* Conclave, at the Election of a Pope. See CONCLAVE.

The *Cardinals* compose the Pope's Council, or Senate: In the *Vatican* is a Constitution of Pope *John*, which regulates the Rights and Titles of the *Cardinals*; and which declares, that as the Pope represents *Moses*, so the *Cardinals* represent the 70 Disciples, who, under the Pontifical Authority, decide private and particular Differences.

Cardinals, in their first Institution, were only the principal Priests, or Incumbents of the Parishes of *Rome*. In the primitive Church, the chief Priest of a Parish, who immediately follow'd the Bishop, was call'd *Presbyter Cardinalis*; to distinguish him from the other petty Priests, who had no Church, nor Preferment: The Term was first apply'd to them in the Year 150; others say, under Pope *Silvester*, in the Year 300. These *Cardinal* Priests were alone allow'd to baptize, and administer the Eucharist. When the *Cardinal* Priests became Bishops, their *Cardinalate* became vacant; they being then suppos'd to be rais'd to a higher Dignity. Under Pope *Gregory*, *Cardinal* Priests, and *Cardinal* Deacons, were only such Priests or Deacons, as had a Church or Chapel under their Cure: And this was the original use of the Word. *Leo* IV. in the Council of *Rome* held in 853, calls them *Presbyteros sui Cardinis*; and their Churches, *Parochias Cardinales*.

The *Cardinals* continu'd on this footing till the XIth Century: But as the Grandeur and State of his Holiness became exceedingly augmented, he would have his Council of *Cardinals* make a better figure than the antient Priests had done. 'Tis true, they still preserv'd their antient Title; but the Thing express'd by it was no more. 'Twas a good while, however, e'er they had the Precedence over Bishops, or got the Election of the Pope into their Hands: but when they were once possess'd of those Privileges, they soon had the red Hat and Purple; and growing still in Authority, became at length superior to the Bishops, by the sole Quality of being *Cardinals*.

Du Cange observes, that originally there were three Kinds of Churches: The genuine Churches were properly call'd *Parishes*; the second *Deaconries*, which were Chapels join'd to Hospitals, and serv'd by Deacons; the third were simple *Oratories*, where particular Masses were held, and were discharg'd by local and resident Chaplains. He adds, that to distinguish the Principal, or Parish Churches from the Chapels, and Oratories, the Name *Cardinales* was given them. Accordingly, Parish-Churches gave Titles to *Cardinal* Priests; and some Chapels also, at length, gave the Title of *Cardinal Deacons*. Others observe, that the Term *Cardinal* was given not only to Priests, but also to Bishops and Deacons, who were attach'd to certain Churches; to distinguish 'em from those who only serv'd 'em *en passant*, and by Commission. Titulary Churches, or Benefices, were a kind of Parishes, *i. e.* of Churches assign'd each to a *Cardinal* Priest; with some stated District depending on it, and a Font for administring of Baptism, in Cases where the Bishop himself could not administer it. These *Cardinals* were subordinate to the Bishops; and accordingly, in Councils, particularly that held at *Rome* in 868, subscrib'd after them. It was not, however, only at *Rome*, that Priests bore this Name; for we find there were *Cardinal* Priests in *France*: Thus, the Curate of the Parish of St. *John de Vignes*, is call'd in old Charters the *Cardinal* Priest of that Parish. The Title of *Cardinal* is also given to some Bishops, *quatenus* Bishops; *e. gr.* to those of *Mentz* and *Milan*: The Archbishop of *Bourges* is also, in antient Writings, call'd *Cardinal*; and the Church of *Bourges* a *Cardinal* Church. The Abbot of *Vendome* calls himself *Cardinalis Natus*.

The *Cardinals* are divided into three Classes, or Orders; containing 6 Bishops, 50 Priests, and 14 Deacons; making, in all, 70: which constitute what they call the *Sacred College*. See COLLEGE. The *Cardinal Bishops*, who are, as it were, the Pope's Vicars, bear the Titles of the Bishopricks affected to 'em; the rest take such Titles as are assign'd 'em: The Number of *Cardinal* Bishops has been fix'd; but that of *Cardinal* Priests and Deacons, and consequently the Sacred College itself, is always fluctuating. Till the Year 1125, the College only consisted of 52, or 53: The Council of *Constance* reduc'd them to 24; but *Sixtus* IV. without any regard to that Restriction, rais'd them again to 53, and *Leo* to 65. Thus, as the Number of *Cardinal* Priests was antiently fix'd to 28, new Titles were to be establish'd, in proportion as new *Cardinals* were created. For the *Cardinal Deacons*, they were originally no more than seven, for the 14 Quarters of *Rome*; but they were afterwards increas'd to 19, and again diminish'd.

Some say, the *Cardinals* were so call'd from the Latin *Incardinatio*, the Adoption any Church made of a Priest of a foreign Church, driven thence by Misfortune; and add, that the use of the Word commenc'd at *Rome* and *Ravenna*; the Revenues of the Churches of which Cities being very great, they became the common Refuge of the unhappy Priests of all other Churches. According to *Onuphrius*, it was Pope *Pius* IV. who first enacted, in 1562, that the Pope should be chosen only by the Senate of *Cardinals*: whereas, till that Time, the Election was by all the Clergy of *Rome*. Some say, the Election of the Pope rested in the *Cardinals*, exclusive of the Clergy, in the Time of *Alexander* III. in 1160. Others go higher still, and say, that *Nicholas* II. having been elected at *Sienna*, in 1058, by the *Cardinals* alone, occasion'd the Right of Election to be taken from the Clergy, and People of *Rome*; only leaving 'em that of confirming him by their Consent; which was at length, however, taken from them. *P. Papebroch* conjectures, that it was *Honorius* IV. who first introduc'd Bishops into the Sacred College; by admitting the Bishops Suffragans of the Pope, to whom, of right, it belong'd to name him; and of these constituting the first Class of *Cardinals*.

The *Cardinals* began to wear the red Hat at the Council of *Lyons*, in 1243. The Decree of Pope *Urban* VII. whereby 'tis appointed that the *Cardinals* be address'd under the Title of *Eminence*, is of the Year 1630: till then they were call'd *Illustrissimi*. See EMINENCE.

The Term *Cardinal* has also been apply'd to Secular Officers: thus, the Prime Ministers in the Court of the Emperor *Theodosius*, are call'd *Cardinales*. And *Cassiodorus*, L. VII. *Formul.* makes mention of the *Cardinal Prince* of the City of *Rome*. And in the List of Officers of the Duke of *Bretagne*, in 1447, we meet with one *Raoul de Thorel*, *Cardinal* of *Quillart*, Chancellor, and Servant of the Vicount *de Rohan*: which shews it to have been an inferior Quality.

CARDING, in the Manufacturies, a Preparation of Wool, Cotton, Hair or Line, by passing it between the Iron Points, or Teeth, of two Instruments, call'd *Cards*, to comb, disintangle, and range the Hairs or Fibres thereof; and to dispose it for spinning, &c. See SPINNING, and WOOL.

Before the Wool be *carded*, 'tis oil'd, or greas'd with Oil; whereof, one fourth of the Weight of the Wool is requir'd, for Wool destin'd for the Woof of Stuffs; and one eighth for that of the Warp. See CLOTH, WOOF, WARP, &c.

CARDO, in Anatomy, the second Vertebra of the Neck; so call'd because the Head turns upon it. See EPISTROPHEUS, and VERTEBRA.

CARDS, or *Playing* CARDS, are little Pieces of fine thin Pasthoard, whereon are printed divers Points and Figures; a certain Number, or Assemblage of which, serve for the Performance of divers Games; as *Basset*, *Ombre*, *Picquet*, *Whisk*, &c.

The Method of making playing *Cards*, seems to have given the first Hint to the Invention of Printing; as appears from the first Specimens of Printing at *Haerlem*, and those in the *Bodleian* Library, &c. See PRINTING; see also PASTBOARD.

The cutting of the Moulds, or Blocks, for these *Cards*, is precisely the same as that us'd for the first Books; *viz.* a Sheet of wet or moist Paper is laid on the Form or Block, which is first lightly brush'd over with Ink, made of Lampblack mix'd with Starch and Water; and then rubb'd off with a round List, in the Hand. The Court-*Cards* they colour by help of several Patterns, call'd *Stancfiles*; consisting of Papers cut thro with a Penknife; within the Apertures, or Incisions of which, the several Colours, as red, &c. are severally apply'd; (for at the first Printing, the *Card* has only a mere Out-line.) These Patterns are painted with Oil Colours, to keep them from wearing out by the Brushes: Being laid on the Pastboard, they slide a Brush full of Colour loose over the Pattern; which leaving the Colour within the Apertures, forms the Face or Figure of the *Card*. This, very probably, was the way of their first Printing at *Haerlem*; as might have been discover'd long ago, if it had been consider'd, that the great Letters in our old Manuscripts of 900 Years ago, are apparently done by the Illuminers, after this Method of *Card-making*.

CARDS, in Commerce, and the Manufactures; see CARDING.

CARDUUS, in Natural History and Botany, a Name common to divers Species of Plants, in *English* call'd *Thistles*. See THISTLE.

The Plants of this Class most in use, are the *Carduus Benedictus*, and *Carduus Fullonum*.

CARDUUS *Benedictus*, is a Medicinal Plant, of the Thistle kind, chiefly us'd in Infusion, as a gentle Emetic in Fevers, and certain Nauseas. Antiently it was much in vogue, as a Cardiac, Sudorific, and Alexipharmic; and in those Qualities, was prescrib'd in Stomachic Cases: but it is now succeeded by others, less nauseous, and more effectual; tho still retain'd in some of the officinal Compositions, with those Intentions. Some distil a Water from it, which they use in cordial and sudorific Potions. Its Salt has much the same Virtues.

CARDUUS *Fullonum*, is also call'd the *Fuller's Weed*, or *Teazle*. See TEAZLE.

CAREENING, a Term, in the Sea Language, us'd for the laying a Vessel on one side, to caulk, stop up Leeks, or refit her. The Word is form'd of the Latin *Carina*, the Bulk or Body of a Ship.

A Ship is said to be brought to a *Careen*, when the greatest Part of her Lading, &c. being taken out, and another Vessel lower than her self laid by her side, she is haled down to it as low as occasion requires, *v. g.* a fourth or fifth Strake; and there kept, by the Weight of Ballast, Ordnance, &c. as well as by Ropes, lest it should strain her Masts too much. This is done with design to trim her Sides, or Bottom, to caulk her Seams, or to mend any Fault she has under the Water: Hence, if a Ship lie on one Side in sailing, she is said to *sail on the Careen*. Ships of War are generally *careen'd* every three Years.

The *Half Careen*, is when they can only *careen* half the Ship; not being able to reach so low as the bottom of the Keel.

CARET, in Grammar, a Character of this Form, (^) denoting that there is something inserted, or interlin'd, which should regularly have come in where the Character is plac'd. See CHARACTER.

CARGO, the Lading or Freight of a Ship: See FREIGHT, and LADING.

The *Cargo* of this Vessel is of such or such a Commodity. This is the proper Season for a *Cargo* of Codfish, of Wines, &c.

Cargo is sometimes also us'd for an Invoice of the Goods wherewith a Ship is laden. See INVOICE.

CARIATIDES, or CARIATES, in Architecture; see CARYATIDES.

CARICOUS *Tumor*, is a Swelling resembling the Figure of a Fig; such, frequently, are the *Piles*. See FICUS, and HEMORRHOIDS.

The Word comes from *Carica*, a Fig; or from *Caria*, a Country where they are frequent, or from whence they are sometimes said to be brought.

CARIES, in Chirurgery, &c. a kind of Rottenness, peculiar to a Bone; arising, either from a constant Afflux of vicious Humours, or from their Acrimony; or from a Bruise, Compound Fracture, Luxation, Venereal Disorders, corrosive Medicines, being stripp'd, or laid bare of their Flesh, and long expos'd to the Air, &c. 'Tis a common Observation, that nothing is more difficult to cure than an Ulcer, when the adjacent Bone is become *carious*. See ULCER.

The Word in the original *Latin*, signifies *Rottenness*.

The usual Medicines in a *Caries*, are Tinctures of Euphorbium, Myrrh, and Aloes; or Pouders of the same, with the Addition of Iris, Birthwort of either kind, Gentian, &c. and particularly the Pouder of Diapente. After using the Tinctures, the Pouders are apply'd on Lint, in form of a Pledget. An Actual Cautery, apply'd to the *carious* Part through a Canula, &c. is frequently found successful. See CAUTERY.

Anatomists, in dissecting of Bodies, sometimes find *carious* Bones; particularly those of the Jaws, Legs, &c. where nothing of that Kind was suspected during the Person's Life-time; nor any Disorder felt therefrom: Whence Mr. *Cheselden* conjectures, that the Cure of a *carious* Bone might be directly attempted, without waiting, as our Chirurgeons usually do, for an *Exfoliation*.

CARINA, a *Latin* Term, properly signifying the *Keel* of a Ship; or the long piece of Timber running along the Bottom of the Ship, from Head to Stern; upon which the whole Structure is built, or fram'd. See KEEL.

CARINA, is also frequently us'd for the whole Capacity or Bulk of a Ship; containing the *Hull*, or all the Space below the Deck. See HULL. Hence, the Word is also us'd, by a Figure, for the whole Ship. See SHIP.

CARINA, among Anatomists, is us'd for the first Rudiments, or Embryo of a Chick, when in the Shell; see EMBRYO.

The *Carina* consists of the entire *Vertebræ*, as they appear after ten or twelve Days Incubation. See EGG.

'Tis thus call'd, because crooked, in form of the *Keel* of a Ship. See GENERATION. Botanists, for the same Reason, use the Word *Carina*, to express the lower *Petalum* of a papillinaceous Flower. The Leaves also of the *Asphadelus*, they say, are *carinated*.

CARINA, is also us'd in the antient Architecture. The *Romans* gave the Name *Carina* to all Buildings in form of a *Ship*; as we still call *Nave*, from *Navis* Ship, the middle or principal Vault of our *Gothic* Churches; because it has that Figure.

CARINÆ, were also Weepers; or Women hir'd, among the antient *Romans*, to weep at Funerals: They were thus call'd from *Caria*, the Country whence most of 'em came. See FUNERAL.

CARIPI, a kind of Horse-Guards among the *Turks*. The *Caripi*, to the Number of about 1000, are not Slaves, nor bred up in Seraglios or Seminaries, like the rest; but are generally Moors, or renegado Christians, who having follow'd Adventures, and being poor, and their Fortune to seek, by their Dexterity and Courage have arriv'd at the Rank of Horse Guards to the Grand Signior. They march with the *Ulufagi* on the Left hand, behind him; their pay 12 Aspers *per* Day.

The Word *Caripi* signifies *Poor*, and *Stranger*.

CARISTIA, or rather CHARISTIA, a kind of Feast, among the old *Romans*, held on the 19th of *February*, in honour of the Goddess *Concord*. The *Caristia* were instituted to re-establish Peace and Amity, in Families embroil'd, or at variance in themselves. It consisted in a great Entertainment made in each Family, to which no Strangers were admitted, but only Relations and Kindred. The Joy and Freedom inspir'd by the Repast, was look'd upon as a proper means to reunite divided Minds; to which tho good Offices of so many Friends wou'd greatly contribute. The Word comes from the *Greek* χαρις, Grace, Union, Peace. This Feast was also called *Dies Caræ Cognationis*. *Vigenere* calls it the *Good Cheer*.

CARLINE, or CAROLINE, a Plant, of the Thistle kind, said to have been discover'd by an Angel to *Charlemaign*, to cure his Army of the Plague: whence its Denomination. Its Root is of service as a Diuretic and Sudorific, in all pestilential Disorders.

CARLINGS, in a Ship, two pieces of Timber lying fore and aft, along from one Beam to another, directly over the Keel; serving as a Foundation for the whole Body of a Ship: on these the Ledges rest, whereon the Planks of the Deck, and other Matters of Carpentry are made fast. The *Carlings* have their Ends let into the Beams call'd *Culvertail*. The *great Carlings*, is that whereon the Mainmast stands: we also say, *Carling of the Capstan*, *Botts*, &c.

CARLING *Knees*, are Timbers going athwart the Ship, from the Sides to the Hatch-way, serving to sustain the Deck on both Sides.

CARMELITES, an Order of Religious, making one of the four Orders of *Mendicants*, or begging Friars; and taking both its Name, and Origin from *Carmel*, a Mountain of *Syria*, formerly inhabited by the Prophets *Elias* and *Elisha*, and by the Children of the Prophets; from whom this Order pretends to descend in an uninterrupted Succession. The manner in which they make out their Antiquity, has something in it too ridiculous to be rehears'd. Some among 'em pretend they are Nephews to J. C. Others go further, and make *Pythagoras* a *Carmelite*, and the antient *Druids* regular Branches of their Order.

Phocas, a *Greek* Monk, speaks the most reasonably; he says, that in his Time, *viz.* in 1185, *Elias*'s Cave was still extant on the Mountain; near which were the Remains of

a Building, which intimated there had been antiently a Monastery; that some Years before, an old Monk, a Priest of *Calabria*, by Revelation, as he pretended, from the Prophet *Elias*, fix'd there, and assembled ten Brothers. In 1209, *Albert*, Patriarch of *Jerusalem*, gave the Solitaries a rigid Rule; which *Papebroch* has since printed. In 1217, or, according to others, 1226, Pope *Honorius* III. approv'd and confirm'd it; tho it was after mitigated by *Innocent* IV. S. *Louis* brought some of these *Carmelites* with him from the Holy Land into *France*. Many of the *Popes* give them the Titles of *Brothers of the Blessed Virgin*. This Order is eminent for the Devotion of the *Scapulary*, for its Missions, and for the great Number of Saints it has stock'd the *Romish* Church withal. In the last Century, there were four Canonizations in this Order, *viz.* of S. *Theresa*, S. *Andrew Corsin*, S. *Mag. de Pazzi*, and S. *J. de le Croix*.

The Order of the *Carmelites* is divided into two Branches, *viz. Carmelites of the antient Observance*, call'd the *mitigated*, or *moderate*; and those of the *strict Observance*, call'd *Bare-footed Carmelites*. The antient Observance has only one General, under whom are 40 Provinces; and the Congregation of *Mantua*, which has a Vicar-General. The strict Observance has two Generals; one in *Spain*, having six Provinces under his Command; and another in *Italy*, with 12 in several Parts of *Europe*.

Bare-footed CARMELITES, are a Reform of the antient *Carmelites*, set on foot in 1540, by S. *Theresa*; so call'd from their going *barefooted*. She began with the Convents of Nuns, whom she restor'd to the primitive Austerity of the Order, which had been mitigated by *Innocent* IV. in 1245; and at length carry'd the same Reform among the Friars. *Pius* V. approv'd the Design, and *Gregory* III. confirm'd the Reform in 1580. There are two Congregations of *bare-footed Carmelites*, which have each their General, and their several Constitutions: The one the Congregation of *Spain*, divided into six Provinces; the other call'd the Congregation of *Italy*, comprehending all the rest, not depending on *Spain*.

Knights of Mount CARMEL, are a Military Order of Knights *Hospitallers*, instituted in 1607, by *Henry* IV. of *France*, under the Title, Habit, and Rule of our Lady of *Mount Carmel*; and in consequence of the Bull of Pope *Paul* V. in 1608, united to the Order of St. *Lazarus* of *Jerusalem*, with all its Commandaries, Priories, and other Goods, for its Endowment.

The Founder propos'd it to consist of 100 *French* Gentlemen, who should be oblig'd, in Times of War, to march close to the Kings of *France*, as their Guard. Authors are much divided, whether to call this a new Institution, or a Restauration of that of S. *Lazarus*; tho 'tis generally carry'd from the former. See LAZARUS.

CARMEN, an antient Term among the *Latins*, us'd, in its general Sense, to signify a *Verse*; but in its proper Sense a *Spell*, or *Charm*, form of Expiation, Execration, &c. couch'd in a few Words, plac'd in a mystic Order, on which its efficacy depended. See VERSE, CHARM, &c.

Some fetch the Origin of the poetical *Carmina* hence; and say, they took that Name from their Resemblance to these Spells: Others, on the contrary, say, that the Spells had their Origin from the Poetical Verses, and took their Name from their resemblance thereto.

Vigenere derives *Carmen* from *Carmenta*, because that Prophetess couch'd her Predictions in Verses, or short Periods: but others say, the Prophetess took the Name *Carmenta*, from *Carmen*, on the same account. See CARMENTALIA.

Pezron fetches the Original of *Carmen*, from the Celtic *Carm*, the Shout of Joy, or the Verses which the antient Bards sung, to encourage the Soldiers before the Combat: adding, that the *Greek* χαρμη, signifies *Combat* and *Joy*, which is true; but then it does not come from the Celtic *Carm*, but from χαιρω, *gaudeo*.

CARMENTALIA, a Feast among the old *Romans*, celebrated annually on the 15th of *January*, in honour of *Carmenta*, or *Carmentis*, a Prophetess of *Arcadia*, Mother of *Evander*, with whom she came into *Italy* 60 Years before the *Trojan* War. This Feast was establish'd on occasion of a great Fecundity among the *Roman* Dames, after a general Reconciliation with their Husbands, with whom they had been at variance, in regard of the use of Coaches being prohibited them by an Edict of the Senate. 'Twas the Women who celebrated this Feast: He who offer'd the Sacrifices, was call'd *Sacerdos Carmentalis*.

Authors are divided about the Origin of the Word *Carmenta*; *Vigenere* says, the Prophetess was so call'd *Quasi Carens Mente*, out of her Senses, or out of her self; by reason of the Enthusiasm she frequently fell into. Others say, she took her Name from *Carmen*, Verse; because her Prophesies were couch'd in Verses: but *Vigenere*, on the contrary, maintains *Carmen* to be deriv'd from *Carmenta*. See CARMEN.

CARMINATIVES, in Medicine, are Remedies, whether Simple or Compound, us'd in a Cholic, or other flatulent Distemper; to dispel the Wind.

The four *Carminative Flowers*, are those of Camomile, Melilot, Motherwort, and Dill.

The Word comes from the Latin *Carminare*, to card, cleanse, purge; tho Dr. *Quincy* makes its Origin more mysterious: he says, it comes from the Word *Carmen*, taking it in the Sense of an Invocation, or Charm; and makes it to have been a general Name for all Medicines which operated like Charms, *i. e.* in an extraordinary manner. Hence, as the most violent Pains were frequently those arising from pent-up Wind, which immediately cease upon Dispersion; the Term *Carminative* became in a peculiar Sense apply'd to Medicines which gave Relief in windy Cases, as if they cur'd by Inchantment. But this Derivation appears a little too much strain'd.

CARMINE, a red Colour, very vivid, bordering somewhat on the Purple, us'd by Painters in Miniature; and sometimes Painters in Oil, tho rarely, by reason of its excessive Price. *Carmine* is the most valuable Product of the Cochineal Mestique; which is a Fecula or Sediment, residing at the botom of the Water, wherein is steep'd Cochineal Couan, and Autour: Some add Rocou, but this gives the *Carmine* too much of the Orange cast. To be good, it must be almost in an impalpable Pouder. See RED, MINIATURE, &c.

Some make *Carmine* with Brasile Wood, Fernambouc, and Gold Leaf, beat in a Mortar, and steep'd in Whitewine Vinegar; the Scum arising from this Mixture, upon boiling, when dry'd, makes *Carmine*: But this Kind is vastly inferior to the former.

CARNATION, *Flesh-Colour*, in Painting, is understood of all the Parts of a Picture in general which represent Flesh; or which are naked and without Drapery. *Titian* and *Corregio*, in *Italy*, and *Rubens* and *Van Dyke* in *Flanders*, excell'd in *Carnations*. See COLOURING.

It must be here observ'd, that the Word *Carnation* is not properly us'd for any particular Part of the Person painted; but for the whole Nudity of the Piece.

CARNAVAL, or CARNIVAL, a Season of Mirth and Rejoicing, observ'd with great Solemnity by the *Italians*, and particularly at *Venice*. The *Carnaval* Time commences from Twelfth Day, and holds till Lent.

Feasts, Balls, Operas, Concerts of Music, Intrigues, Marriages, &c. are chiefly held in *Carnaval* Time. The Word is form'd of the Italian *Carnavale*; which M. *Du Cange* derives from *Carn-a-val*, by reason the Flesh then goes to Pot, to make amends for the Season of Abstinence ensuing. Accordingly, in the corrupt *Latin*, he observes, it was call'd *Carnelevamen*, and *Carnisprivium*; as the *Spaniards* still denominate it *Carnes tollendas*.

CARNEL. The building of Ships first with their Timber and Beams, and after bringing on their Planks, is call'd *Carnel*-work, to distinguish it from *Clinch*-work.

Those Vessels also which go with Mizen-sails instead of Main-sails, are by some call'd *Carnels*.

CARNIVOROUS, an Epithet apply'd to those Animals which naturally seek, and feed on Flesh. See ANIMAL, and FOOD.

'Tis a Dispute among Naturalists, whether or no Man be naturally *Carnivorous*; some contending that the Fruits of the Earth were intended as his sole Food, and that 'twas Necessity in some Places, and Luxury in others, that first prompted them to feed upon their Fellow-Animals. *Pythagoras* and his Followers look'd on it as a great Impiety; and strictly abstain'd from all Flesh, from the Notion of a *Metempsychosis*: and their Successors, the *Brachmans*, continue the same to this Day. See PYTHAGORIANS, and BRACHMANS.

The Consideration *Gassendus* chiefly insists on, why Man should not be *Carnivorous*, is the Structure and Conformation of our Teeth; most of 'em being either *Incisores* or *Molitores*; not such as *Carnivorous* Animals are furnish'd withal, proper to tear Flesh; except the four *Canini*: As if Nature had rather prepar'd us for cutting Herbs, Roots, &c. than for tearing Flesh. See TEETH. To which may be added, that when we do feed on Flesh, 'tis not without a preparatory Coction, by boiling, roasting, &c. And even then, as Dr. *Drake* observes, they are the hardest of Digestion of all other Foods, and are prohibited in Fevers, and many other Distempers: And lastly, that Children are rather averse to all Animal Foods, till their Palates become vitiated by Custom; and the breeding of Worms in them, is generally ascrib'd to the too hasty eating of Flesh.

To these Arguments Dr. *Wallis*, in the *Philosophical Transactions*, subjoins another; which is, that all Quadrupeds which feed on Herbs or Plants, have a long *Colon*, with a *Cæcum* at the upper End of it, or somewhat equivalent, which conveys the Food, by a long and large Progress, from the Stomach downwards, in order to a slower Passage and longer

longer Stay in the Inteſtines; but that in *Carnivorous* Animals ſuch *Cæcum* is wanting, and inſtead thereof there is a more ſhort and ſlender Gut, and a quicker Paſſage thro the Inteſtines. Now, in Man, the *Cæcum* is very viſible; a ſtrong Preſumption that Nature, who is ſtill conſiſtent with her ſelf, did not intend him for a *Carnivorous* Animal: 'Tis true, the *Cæcum* is but ſmall in Adults, and ſeems of little or no uſe; but in a *Fœtus* 'tis much larger in Proportion: and 'tis probable, our cuſtomary Change of Diet, as we grow up, may occaſion this ſhrinking. See Cæcum, and Colon.

CARNOSA *Membrana*, CARNOSUS *Panniculus*, } in Anatomy; ſee Panniculus *Carnoſus*.

CARNOSITY, is us'd by ſome Authors for a little *fleſhy* Excreſcence, Tubercle, or Wen, form'd in the Urethra, Neck of the Bladder, or Yard, which ſtops the Paſſage of the Urine. *Carnoſities* are very difficult of cure: They are not eaſily known, but by introducing a Probe into the Paſſage, which there meets with reſiſtance. They uſually ariſe from ſome Venereal Malady ill manag'd.

CARO, *Fleſh*, in Anatomy, &c. is properly underſtood of ſuch Parts of the Body, where the Blood-Veſſels are ſo ſmall, as only to retain Blood enough to preſerve their Colour red. Anatomiſts uſually define *Fleſh*, a ſimilar, fibrous, and thick Part; and diſtinguiſh it into five Kinds, *viz.* 1. *Muſcular*, *Similar*, or *Fibrous*; ſuch as is the Subſtance of the Heart, and other Muſcles. See Muscle. 2. *Parenchymous*, as the Lungs, Liver, and Spleen were anticently ſuppos'd to be; but ſince the uſe of Glaſſes, it's now known, that all the Viſcera and other Parts are Vaſcular, and nothing but a Plexus, or Congeries of ſmall Veſſels and Canals. 3. *Viſcerous*, as that of the Stomach and Guts. 4. *Glandulous*, as that of the Pancreas, Breaſts, Tonſils, &c. 5. *Spurious*, as the Fleſh of the Lips, Gums, Glands of the Penis, &c.

Caro, is alſo us'd, in Botany, for the Pulp, Fleſh, or ſoft Subſtance contain'd within any Plant, or its Fruit; ſuch as the Pulp of Caſſia, Tamarinds, Prunes, &c.

Caro *Muſculoſa quadrata*, in Anatomy, a Muſcle ſo call'd by *Fallopius* and *Spigelius*, but more popularly *Palmaris brevis*. See Palmaris.

CAROLINES, an Epithet given to the four Books compos'd by Order of *Charlemaign*, to refute the IId Council of *Nice*.

The *Carolines* contain 120 Heads of Accuſation againſt that Council, and are couch'd in very harſh, reproachful Terms. Some Authors doubt of the Antiquity and Genuineneſs of theſe Books: They are attributed by ſome to *Angibran*, Biſhop of *Metz*; by others to *Alcuin*: but others, with more Reaſon, aſcribe 'em to the Biſhops of *France*; alledging, that Pope *Adrian* having ſent *Charlemaign* the Acts of the Council in 790, he gave them to be examin'd by the *French* Biſhops; and that the *Carolines* was the Anſwer they return'd. The *Carolines* were ſent to the Pope about the Time of the Council of *Frankfort*; and were firſt printed in 1549, by M. *Du Tillet*, Biſhop of *Meaux*, under the Name of *Eriphele*.

CAROLUS, an antient Gold Coin, ſtruck in the Reign of K. *Charles* I. Its Value, &c. ſee under Coin.

CAROTIDS, in Anatomy, two Arteries of the Neck, one on each Side, ſerving to convey the Blood from the Aorta, to the Brain. See Artery, Blood, and Brain.

The *right Carotid* ariſes from the Subclavian, juſt where that ſprings out of the Porta; but the *left* immediately out of the Aorta. They both lie pretty deep, and being defended by the *Aſpera Arteria*, paſs free from any Compreſſure, and without ſending out almoſt any Branches, ſtraight to the *Cranium*. Juſt before their Arrival there, they ſend forth the *external Carotid*; and paſſing the *Os Petroſum*, proceed on with ſome Circumvolutions; till laying aſide their muſcular Membrane, and giving Branches to the *Dura Mater*, they paſs along the *Cranium*, defended by the Sides of the *Sella Turcica*, and *Dura Mater*: and ſending Branches to the outer Parts of the *Pia Mater*, and the Nerves, they at laſt reach the *Cerebrum*; where dividing into infinite Ramifications, they are loſt in the cortical Part; or perhaps proceed even into the medullary Part thereof. See Cortex, Medulla, &c.

The Antients plac'd the Seat of Drouſineſs in theſe Arteries, whence they had the Name *Carotids*, καρῶ ſignifying Drouſineſs: for the ſame Reaſon they were call'd *Lethargic* and *Apoplectic*.

CARP-*Fiſhing*. See *Carp*-Fishing.

CARPÆA, a kind of Dance, or Military Exerciſe, in uſe among the *Athenians* and *Magneſians*, perform'd by two Perſons; the one acting a Labourer, the other a Robber. The Labourer, laying by his Arms, goes to ſowing and ploughing; ſtill looking warily about him, as if afraid of being ſurpriz'd: The Robber at length appears, and the Labourer, quitting his Plough, betakes himſelf to his Arms, and fights in defence of his Oxen. The Whole perform'd to the Sound of Flutes, and in Cadence.

Sometimes the Robber was overcome, and ſometimes the Labourer; the Victor's Reward being the Oxen and Plough. The Deſign of the Exerciſe, was to teach and accuſtom the Peaſants, to defend themſelves againſt the Attacks of Ruffians.

CARPENTERS-*Work*, in a Building, includes the *Framing*, *Flooring*, *Roofing*; the *Foundation*, *Carcaſs*, *Doors*, *Windows*, &c. See Framing, Flooring, Roofing, Foundation, Carcass, Door, Window, &c.

Carpenter's *Joint-Rule*. See Rule.

CARPENTRY, the Art of cutting, framing, and joining large Pieces of Wood, for the Uſes of Building; ſee Building.

Carpentry is one of the Arts ſubſervient to Architecture, and is divided into two Branches, *Houſe Carpentry*, and *Ship Carpentry*: The firſt employ'd in Raiſing, Roofing, Flooring, &c. of Houſes, &c. See House.

The ſecond in the Conſtruction of Veſſels for Sea; as Ships, Barks, Barges, Boats, &c. See Ship, &c.

The Rules and Practices in *Carpentry*, as to *Planing*, *Sawing*, *Morteſſing*, *Tenanting*, *Scribing*, *Paring*, *Moulding*, &c. are much the ſame as thoſe in Joinery; ſo likewiſe are the *Tools*, or Inſtruments, and the *Stuff*, the ſame in both: All the Difference between the two Arts conſiſting in this, that Joinery is us'd in the ſmaller and more curious Works; ſee Joinery: and *Carpentry* in the larger, ſtronger, and coarſer. See Sawing, Scribing, Moulding, Planing, &c. ſee alſo Saw, Chissel, Plane, &c.

Fr. Pyrard aſſures us, that the Art of *Carpentry* is in its greateſt Perfection in the *Maldives* Iſlands: Their Works, there, he obſerves, are ſo artfully manag'd, that they will hold tight and firm without either Nails or Pins. He adds, they are ſo curiouſly put together, that no body can take 'em aſunder, but thoſe acquainted with the Myſtery.

The Word is deriv'd from the Latin *Carpentum*, a Car, or Cart.

CARPET *Tapis*, a ſort of Covering, work'd either with the Needle, or on a Loom; to be ſpread on a Table, Trunk, an Eſtrade, or even a Paſſage, or Floor. *Perſian* and *Turky Carpets* are thoſe moſt priz'd; eſpecially the former. *Carpets* that had a Hair or Shag on one ſide only, were call'd by the Antients *Tapetes*; ſuch as had a Shag on both ſides, were call'd *Amphitapetes*.

Among Jockeys, to *ſhave the Carpet*, is to Gallop very cloſe, or near the Ground; a Fault Foreigners charge on the *Engliſh* Horſes. See Gallop.

An Affair, Propoſal, &c. are ſaid to be brought on the *Carpet*, when they are under Conſideration, &c.

CARPOBALSAM, or CARPOBALSAMUM, is the Fruit of the Balm, or Balſam Tree; very much reſembling, both in Figure, Size, and Colour, that of Turpentine. See Balm.

'Tis much doubted, whether the *Carpobalſam* ſold in the Shops be the ſame with that of the Antients; as not having the ſame Marks. The Apothecaries uſe to ſubſtitute *Cubebes* in lieu of it, as having the ſame Qualities. The Word comes from the *Greek* καρπῶ, *Fruit*, and βαλσαμῶ, *Balm*.

CARPOCRATIANS, a Branch of the antient *Gnoſtics*, ſo call'd from *Carpocras*, who in the IId Century reviv'd, and improv'd upon the Errors of *Simon Magus*, *Menander*, *Saturnine*, and other *Gnoſtics*. He own'd, with them, one ſole Principle and Father of all Things, whoſe Name, as well as Nature, was unknown. The World, he taught, was created by Angels, vaſtly inferior to the firſt Principle. He oppos'd the Divinity of Jeſus Chriſt; making him a mere Man, tho poſſeſs'd of uncommon Gifts, which ſet him above other Creatures. He inculcated a Community of Women; and taught, that the Soul could not be purify'd, till it had committed all kinds of Abominations; making that a neceſſary Condition of Perfection. See Gnostics, and Cerinthians.

CARPUS, in Anatomy, the *Wriſt*; or that Part between the Palm of the Hand, and the Arm. See Hand.

The Wriſt conſiſts of eight Bones of different Figures and Bulks, plac'd in two Ranks, four in each: The firſt Rank is articulated with the two *Foſſils*; the ſecond with the Bones of the *Metacarpus*. They are ſtrongly ty'd together by the Ligaments which come from the Radius, and by the annular Ligament, through which the Tendons which move the Fingers paſs: Altho this Ligament be thought but one, yet it gives a particular Caſe to every Tendon which paſſes through it. The Word comes from the *Greek* καρπῶ. The *Arabians* call it *Raſetta*; the *Latins Carpiſmus*.

CARRIAGE, a Vehicle for the Conveyance of Perſons, Baggage, Merchandizes, &c. from one Place to another. See Vehicle.

Carriage *of a Cannon*, is the Frame, or Timber-work whereon it is mounted; ſerving to point and direct it for ſhooting, and to convey it from place to place. See Cannon.

The CARRIAGE *of a Ship Gun*, consists of two Wheels, without Spokes.

The CARRIAGE *of a Field-Piece*, consists of two Wheels, which carry long and strong wooden Beams, or Cheeks, between which the Cannon is as it were fram'd, moving on its Trunnions as on a Center: When 'tis requir'd to move them, they add a Vant-Train, compos'd of two smaller Wheels.

The ordinary Proportion, is for the *Carriage* to have $1\frac{1}{2}$ of the Length of the Gun; the Wheels to be half the Length of the Piece in height: four times the Diameter, or Caliber, gives the Depth of the Planks at the fore End; in the Middle $3\frac{1}{2}$.

In Agriculture, *Carriage* is a Furrow cut for the Conveyance of Water, or the Draining of the plow'd Ground, &c.

CARRIERE, or CARRIER, or CAREER, in the Manage, a Place inclos'd with a Barrier, wherein they run the Ring. See BARRIER.

The Word is also us'd for the Horse-course it self, provided it don't exceed 200 Paces.

In the antient *Circus*, the *Carrier* was the Space the *Bigæ*, or *Quadrigæ*, were to run at full speed, to gain the Prize. See CIRCUS.

CARRIER, in Falconry, is a flight or tour of the Bird, about 120 Yards: If it mount more, it's call'd a *double Carrier*; if less, a *semi-Carrier*.

CARROUSAL, or CAROUSAL, a Course, or Contest of Chariots and Horses: or a magnificent Entertainment, on occasion of some publick Rejoicing: consisting in a Cavalcade of several Persons, richly dress'd, and equipp'd after the manner of the antient Cavaliers, divided into Squadrons, meeting in some publick Place, and practising Justs, Tournaments, and other noble Exercises. See JUST, and TOURNAMENT.

The *Moors* introduc'd Cyphers, Liveries, and other Ornaments of their Arms, with Trappings, &c. for their Horses. The *Goths* added Crests, Plumes, &c.

The Word comes from the Italian *Carosello*, a Diminutive of *Carro*, Chariot. *Tertullian* ascribes the Invention of *Carrousals* to *Circe*; and will have 'em instituted in honour of the Sun, her Father: whence some derive the Word from *Currus*, or *Currus Solis*.

CARR-TAKERS, are Officers of the King's Houshold, who, when the Court travels, have charge to provide Waggons, Carts, &c. to transport the King's Furniture and Baggage.

CARTE BLANCHE, a *French* Term, seldom us'd but in this Phrase, To give, or send any one the *Carte blanche*; *i. e.* to send him a *blank Paper*, sign'd, for him to fill up with what Conditions he pleases.

CARTESIAN *Philosophy*, or CARTESIANISM, the System of Philosophy advanc'd by *Des Cartes*, and maintain'd by his Followers, the *Cartesians*. See PHILOSOPHY; see also CARTESIANS.

The *Cartesian Philosophy* is founded on two great Principles, the one *Metaphysical*, the other *Physical*. His Metaphysical Principle is this, *I think, therefore I am*. This Principle has been attack'd and defended, with a world of Spirit; and a world of Zeal and Partiality on either side: For, tho it be true, that we are as sure by an inward Perception or Consciousness that we exist, as that we think; yet 'tis true, too, that the Conclusion of this Reasoning *I am*, is drawn from the Antecedent *I think*: since *to think*, supposes *to be*, or *exist*; and the Mind sees clearly, the necessary Connection between *thinking* and *being*.

But this Principle *Des Cartes* should not have propos'd as a new Discovery: The World knew e'er he taught it, that in order to *think*, 'tis requir'd to *be*; and that he who actually *thinks*, actually *exists*. See EXISTENCE, and THINKING.

The Physical Principle of *Cartesianism* is this, that *there is nothing but Substances*: which appears a dangerous Principle to the Divines; and is accordingly controverted every Day in the Schools of the Catholicks; who undertake to prove, that there are absolute Accidents. See ACCIDENT.

Substance he makes of two Kinds; the one a Substance that thinks; the other, a Substance extended. Actual Thought, therefore, and actual Extension, are the Essences of Substance: So that the thinking Substance cannot be without some actual Thought; nor can any thing be retrench'd from the Extension of a Thing, without taking away so much of its Substance.

The first Article of this is refuted by Mr. *Locke*, who shews, that *thinking* is not essential to the Soul, or that its Essence does not consist in Thought; but that there are various Occasions wherein it does not think at all. See IDEA. The latter is stiffly oppos'd by the Jesuits, &c. as inconsistent with the Doctrine of Transubstantiation; but is much better confuted by the modern Writers, from the Principles of the *Newtonian* Philosophy. See MATTER, EXTENSION, &c.

The Essence of Matter thus fix'd in Extension, *Des Cartes* naturally concludes there is no Vacuum, nor any possibility thereof in Nature; but that the World is absolutely full: For mere Space is precluded, by his Principle; in regard, Extension being imply'd in the Idea of Space, Matter is so too. If there were any such thing as a Vacuum, says he, it might be measur'd: The Vacuum, therefore, is extended, and of consequence is Matter; every thing extended being Matter. See VACUUM, and PLENUM.

These Principles of Physicks once suppos'd, *Des Cartes* explains mechanically, and according to the Laws of Motion, how the World was form'd; and whence the present Appearances of Nature. He supposes, that God created Matter of an indefinite Extension; that he divided this Matter into little square Portions, or Masses full of Angles; that he impress'd two Motions on this Matter; one, whereby each Part revolv'd round its Centre; another, whereby an Assemblage, or System of 'em, turn'd round a common Centre: Whence arose as many different Vortices, or Eddies, as there were different Masses of Matter, thus moving round common Centers.

These things, thus set a-going, the Consequences, according to *Des Cartes*, in each Vortex, will be as follows: The Parts of Matter cou'd not move and revolve among each other, without having their Angles gradually broke; and this continual Friction of Parts and Angles, must produce three Elements: the first, an infinitely fine Dust, form'd of the Angles broke off; the second, the Spheres remaining, after all the angular Irregularities are thus remov'd: these two make the Matter of his *first* and *second Element*. And those Particles not yet render'd smooth and spherical, and which still retain some of their Angles and hamous Parts, make the *third Element*. See ELEMENT.

Now the first, or *subtilest* Element, according to the Laws of Motion, must take up the Center of each System, or Vortex, by reason of the Smallness of its Parts: And this is the Matter which constitutes the *Sun*, and the *Fix'd Stars* above, and the *Fire* below. See SUN, FIRE, &c. The second Element, compos'd of Spheres, makes the Atmosphere, and all the Matter between the Earth and the Fix'd Stars; in such manner, as that the largest Spheres are always next the Circumference of the Vortex, and the smallest next its Center. See AIR, and ÆTHER. The third Element, or the hooked Particles, is the Matter that composes the Earth, all terrestrial Bodies, Comets, Spots in the Sun, &c. See EARTH, COMET, SPOTS, &c.

This System, tho very artfully concerted, yet carries with it more of the Air of a Romance, than of a just Philosophy. Accordingly, both Divines and Philosophers cry out on it: the first, that it leads to Atheism, by furnishing the Maintainers of an Eternal Matter, with means how, from the Laws of Motion, to account for the Production of the World: Tho, 'tis certain, *Des Cartes* suppos'd a Deity; and so must all who admit his Philosophy; else whence will they derive that Motion of Matter, which of it self is destitute of any such Principle?

But the Philosophers have much better Pleas against it; and the Elements, subtile Matter, hooked Atoms, Vortices, and other Machines, are now nearly on the same footing with the *occult Qualities* of the antient *Peripateticks*. See SUBTILE *Matter*, VORTICES, HOOKED *Particles*, &c.

Indeed, *Des Cartes*, by introducing Geometry into Physicks, and accounting for Natural Phænomena from the Laws of Mechanicks, did infinite service to Philosophy; and contributed, both by his Practice and Example, to purge it from that venerable Rust, which in a long Succession of Ages it had contracted: Accordingly, to him, in some measure, is owing the present System of Mechanical, or *Newtonian* Philosophy; see NEWTONIAN *Philosophy*.

Cartesianism was ready to be prohibited by an Arret of the Parliament of *Paris*; and had been so, in effect, but for a Burlesque Address presented to the First President.

CARTESIANS, a Sect of Philosophers, who hold or assert *Cartesian* Principles. See CARTESIAN *Philosophy*.

Monsieur *Rene des Cartes*, the noble Founder of this Sect, was of *Bretagne*, born in the Year 1596. His Monument informs us, "That having master'd all the Learning "of the Schools, which prov'd short of his Expectation, "he betook himself to the Army, in *Germany* and *Hun-* "*gary*; and there spent his vacant Winter Hours, in com- "paring the Mysteries and Phænomena of Nature, with "the Laws of Mathematicks; daring to hope, that these "might unlock the other. Quitting, therefore, all other "Pursuits, he retir'd to a little Village near *Egmond*, in "*Holland*; where spending 25 Years in continual Read- "ing and Meditation, he effected his Design."

He was a Person of the greatest Genius, Penetration, and Judgment, both as to the Invention, and orderly ranging and disposing of Things. He begun a new Method of Philosophy, and finish'd it, on his own Foundation. The History of his Life, is best learnt from his own incomparable

Treatise *de Methodo*. His Reputation in Foreign Nations, appears from his Monument; which consists of four Faces, inscrib'd with so many Encomiums. It was erected in *Sweden*, where he dy'd, in the Year 1650, by Monsieur *Chamont*, the King of *France*'s Resident in that Court. But his Bones were afterwards remov'd to *Paris*, by Order of *Louis* XIV. and a stately Mausoleum built over 'em, in the Church of St. *Genevieve*.

CARTHUSIANS, an Order of Religious instituted by S. *Bruno*, about the Year 1086. The Rule given them by their Founder is exceedingly rigorous; their Houses were usually built in Desarts, their Fare coarse, and their Discipline severe. 'Tis observ'd, that the monastical Piety is better preserv'd in this, than in any of the other Orders. M. *l'Abbe de la Trape* endeavours to shew, that the *Carthusians* don't live up to the Austerity enjoin'd by the antient Statutes of *Guigues* their fifth General. M. *Masson*, at present General of the Order, answers the Abbat; and shews, that what he calls the Statutes, or Constitutions of *Guigues*, are, in reality, only Customs compil'd by Father *Guigues*; and that they did not become Laws till long after. The *French* call the *Carthusians*, *Chartreux*; and their Houses *Chartreuse*. See CHARTREUX.

CARTILAGE, in Anatomy, a smooth, solid, uniform, elastic Part of an Animal; softer than a Bone, but harder than any other Part.

Cartilages seem to be nearly of the same Nature with Bones, and only to differ as more or less hard. See BONE. There are some very hard, and which even become bony with Time; as those, *v.g.* which form the *Sternum*; see STERNUM. Others are softer, and serve to compose entire Parts; as those of the Nose, Ears, *&c.* where an easy gentle Motion is requir'd; their natural Elasticity serving them for Antagonist Muscles. See NOSE, *&c.* There are others softer still, partaking of the Nature of Ligaments, and thence call'd *Ligamentous Cartilages*. See LIGAMENT.

There are *Cartilages* of various Figures, acquiring various Names from the Things they resemble: One is call'd *Annularis*, because it resembles a Ring; another *Xyphoides*, from its resembling the Point of a Dagger; a third *Scutiformis*, because made like a Buckler; and so of the rest. See each under its proper Head, ANNULAR, SCUTIFORM, *&c.*

Cartilages have no Cavities for Marrow; nor any Membranes, or Nerves, for Sensation. Their Uses are to prevent the Bones from being damag'd or wounded by a continual Friction; to join 'em together by a *Synchondrosis*; and to contribute, in great measure, to the well forming of several Parts; as the *Nose*, *Ears*, *Trachea*, *Eyelids*, &c.

CARTON, or, as we pronounce it, CARTOON, in Painting, a Design, made on strong Paper, to be afterwards calqued thro, and transfer'd on the fresh Plaister of a Wall, to be painted *in Fresco*. See DESIGN, CALQUING, and FRESCO.

CARTON is also us'd for a Design colour'd, for working in Mosaic, Tapestry, *&c.* The *Cartoons* preserv'd at *Hampton-Court*, are Designs of *Raphael Urbin*; intended for Tapestry, but uncolour'd. The Word, in the original *French*, signifies *thick Paper*, or *Pastboard*.

CARTOUCH, an Ornament in Architecture, Sculpture, *&c.* representing a Scroll of Paper. It is usually a Table, or flat Member, with Wavings; whereon is some Inscription, or Devise, Ornament of Armory, Cypher, or the like.

Cartouches are sometimes drawn on Paper, as in the Titles of Maps, *&c.* and sometimes made of Stone, Brick, Plaister, Wood, *&c.* for Buildings. The Word comes from the Italian *Cartoccio*, which signifies the same thing.

CARTOUCHE, or CARTRIDGE, in War, the Charge or Load of a Fire-Arm, wrapp'd up in a thick Paper, Pastboard, or Parchment; to be the more readily charg'd, or convey'd into the Piece.

Those of Cannon, or Mortars, are usually in Cases of Pastboard, or Tin, sometimes of Wood, half a Foot long; taking up the Place of the Bullet in the Piece, to whose Calliber the Diameter is proportion'd. These *Cartouches* are fill'd occasionally with Musket-Balls, Nails, Chains, *&c.* which, upon Explosion, spread far and wide. The Cannon hid in the retir'd Flanks, is usually charg'd with these *Cartouches*, to make the greater havock among the Besiegers. Those of Muskets, Pistols, and small Arms, only contain the Charge of Pouder, with a Ball wrapp'd up in thick Paper.

CARVING. See SCULPTURE.

CARUNCULA, a Term in Anatomy, properly signifying a little piece of *Flesh*; being a Diminutive of the Latin *Caro*, Flesh. The Name *Caruncula*, is apply'd to several different Parts of the Body: As,

CARUNCULÆ *Cuticulares*, a Name which some Anatomists give the *Nymphæ*. See NYMPHÆ.

CARUNCULÆ *Lacrymales*, are two little Eminences, one on each great *Canthus*, or corner of the Eyes; separating the two *Puncta Lacrymalia*. See CANTHUS.

Bartholine, and some other Anatomists, mistake the *Carunculæ* for Lacrymal Glands; which they suppose plac'd on the *Punctum Lacrymale*, to prevent the continual shedding of Tears. But *Dionis* shews the Mistake, and maintains 'em to be no Glands, but only the Reunion or Duplicature of the inner Membrane of the Eyelids. Some Anatomists say, they help to keep the two *Puncta* open, when the Eyes are shut. See LACRYMALIA *Puncta*.

CARUNCULÆ *Myrtiformes*, in Anatomy, are four little *Caruncles*, or fleshy Knobs, about the size of Mulberries, whence their Name; found adjoining to, or rather in the Place of the *Hymen*, in the Parts of Generation in Women. Some suppose 'em to be largest in Maids, and to grow less and less by the use of Venery; but others, with more probability, make them the Consequences of Venery in the first Copulation; deriving 'em from the broken Membrane of the *Hymen*, whose Fragments shrunk up they appear to be. See HYMEN.

CARUNCULÆ *Papillares*, or *Mamillares*, are little Protuberances on the inside of the Pelvis of the Kidneys, made by the Extremities of the Tubes which bring the Serum from the Glands in the exterior Parts, to the Pelvis. They were first discover'd by *Carpus*; and thus call'd, from their resembling a little Teat, or Pap. They are in form of Acorns heads, and less red than the Flesh: They are about the bigness of a Pea, but larger at top than at bottom; ending as it were in a Point, in the Place where they are perforated, to let the Urine fall into the Bason. See KIDNEYS, PELVIS, *&c.*

CARUS, in Medicine, a Species of an Apoplexy, consisting in a profound Sleep, with a sudden Deprivation of Sensation, and Motion, and an acute Fever.

The *Carus* differs from a *Coma* in this, that the Patient, in the latter, answers when interrogated; but not in the former; See COMA: From a Lethargy it is distinguish'd by the Fever which attends it, which the Lethargy is free from; and by the return of Sensation, which the lethargic Person finds when agitated or prick'd; See LETHARGY: From a proper Apoplexy, by the freedom of Respiration, which is always hurt in an Apoplexy; see APOPLEXY: From an Epilepsy, in that there is no Motion or Froth at the Mouth in the *Carus*: From a Syncope, by the Pulse, which is high, and the Face ruddy; whereas the Pulse is low, and the Face cadaverous in the Syncope: From an hysteric Suffocation, in that the Patient hears and remembers things in the latter, not in the former. See SYNCOPE, EPILEPSY, *&c.*

The Cause of the *Carus* is usually referr'd to an Interruption of the Motion of the Animal Spirits; occasion'd either by their being exhausted, or obstructed by some cold, heavy, pituitous Humour; or by a Contusion, from some external Force. The Word comes from the *Greek* καρος, Drousiness, heaviness of the Head.

CARYATIDES, or CARIATES, in Architecture, a kind of Order of Columns, or Pilasters, under the Figures of Women, dress'd in long Robes. See ORDER *of Columns*.

The Origin of the *Caryatides* is related by *Vitruvius*: The *Greeks*, he observes, having taken the City of *Caria*, led away their Women Captives; and to perpetuate their Servitude, represented them in their Buildings, as charg'd with Burdens, such as those supported by Columns.

The *Caryatides*, M. *le Clerc* observes, are not now represented as among the Antients, *viz.* as Symbols of Slavery, with Hands ty'd before and behind; those Characters being suppos'd injurious to the Fair Sex. Among us, they are represented as Images of Justice, Prudence, Temperance, *&c.* Their Legs are always to be close to each other, and even across; their Arms laid flat to the Body, or to the Head, or at least as little spread as possible; that as they do the Office of Columns, they may have, as near as possible, the Figure thereof. Sometimes their Arms are cut off, for the greater Delicacy; as in the Hall of the *Swiss* Guards in the *Louvre*: but M. *le Clerc* does not approve of such Mutilations.

When insulated, they should never have any great Weight to support; and their Entablature and Pedestal are ordinarily to be *Ionic*.—— When they join to a Wall, *&c.* 'tis advisable to put a Console over them, which may appear to sustain the Weight of their Entablature; otherwise, as they represent Women, they don't seem so proper to sustain great Loads.—— When they are made in form of Angels, he would have them support the Entablature, which in that Case is to be *Corinthian*, with their Hands.

The Antients made the *Caryatides* frequently to support Baskets, or Corbels of Flowers; and these they call'd *Canuferæ*, or *Cistiferæ*.

CASCADE, a Cataract, or Fall of Water; either natural, as that of *Tivoli*, &c. or artificial, as those of *Versailles*, &c. and that, either falling with a gentle Descent, as those of the *Sceaux*; in form of a Buffet, as at *Trianon*; or by degrees, in form of a Perron, as at *St. Clou*; or from Bason to Bason, *&c.* The Word comes from the Italian

Cascata, of *Cascare*; and that of *Cado*, to fall. See CATARACT.

CASCANS, or CASCANES, in Fortification, are Holes or Cavities in form of Wells, made in the Terreplein, near a Rampart; from whence a Gallery, dug in like manner under Ground, is convey'd, to give Air to the Enemy's Mine.

CASE, in Grammar, is understood of the different Inflections, or Terminations of Nouns; serving to express the different States, or Relations they bear to each other, and to the things they represent. See NOUN.

There is a great Diversity in Grammarians, with regard to the Nature and Number of *Cases*: They generally find six *Cases*, even in most of the modern Languages, which they call the *Nominative*, *Genitive*, *Dative*, *Accusative*, *Vocative*, and *Ablative*: But this seems only in compliance with their own Ideas, which are form'd on the *Greek* or *Latin*, and which they transfer to other Languages.

The Truth is, if by *Case* be only meant an occasional Change in the Termination of a Noun, or Name, which seems to be the just Idea of *Case*, (regard being had either to the Reason of the Thing, or the Sound of the Word *Casus*, from *Cadere*, to *fall*; and πτωσις, *Casus*, Fall) there will in this Sense be just as many *Cases* as there are different Terminations of Nouns in the same Number, *i. e.* in some Languages more, in others less, and in others none at all. Indeed, Authors either han't any precise Notion of *Cases* at all, or they wander strangely from that Notion: for they always reckon five *Cases* of Nouns in the *Greek*, and six in the *Latin*: Tho several of these *Cases* be frequently alike, as the *Genitive* and *Dative singular*, of the first Declension of the *Latin*; the *Dative* and *Ablative plural* of the second, &c. the *Genitive* and *Dative dual* of the *Greek*, &c. So that the Termination is not the sole Measure of the *Case*.

'Tis, however, much more agreeable to the Principles of Grammar, which only considers Words materially, to make as many different *Cases*, as there are Changes in the Terminations of a Name; which wou'd free the *English*, and other modern Tongues, from the Embarass of *Cases*; most of 'em expressing the various Relations, not by Changes in Termination, as the Antients, but by the Apposition of Articles. 'Tis certainly wrong to say, *v. g.* that *of a Father*, is the Genitive *Case of Father*; and *to a Father* the Dative; for *of* and *to* are no part of the Name *Father*: They are no Closes or Terminations, but Articles, or Modificatives, which shew the different Relation of the Word *Father*. And the same may be said of the *Cases* of Nouns, in the *French*, *Italian*, *Spanish*, *Portuguese* Tongues, &c.

But the Case is otherwise in the *Greek* Name πατρὸς, or the *Latin Patris*; which are real *Cases* of the Words πατὴρ, and *Pater*, and different from them: And somewhat like this may be said of the *Hebrew*, *Arabic*, *Armenian*, *Polish*, and *German* Languages; which in the same Number admit of Changes in the Terminations of Words: And yet in these Languages, *Cases* are pretty different from what they are in the *Greek* and *Latin*. The *Hebrew* Names, for Instance, are not properly declin'd by *Cases*: The Relation express'd by the Genitive *Case*, 'tis true, occasions an Alteration in them; but then this Alteration, instead of being in the Noun governed, as in the *Latin*, in the *Hebrew* is in that which governs; as דְּבַר שֶׁקֶר *Verbum falsitatis*; where the Change is not in שֶׁקֶר *falsitas*, but in דְּבַר for דָּבָר *Verbum*.

F. *Galanus* makes ten *Cases* in the *Armenian*; observing, that besides the six ordinary *Cases*, there is one serving to express the *Instrument* wherewith any thing is done; another for *Narration*, to express the Subject; a third to shew that one thing is in another; and a fourth, to shew a Relation between one thing and another. Authors make but three Cases in the *Arabic*, as having only three Terminations, *on*, *in*, and *an*.

It must be observ'd, however, that tho many of the Languages have not properly any Cases of Nouns, yet most, if not all of them, have a kind of *Cases* in their Pronouns, without which, it wou'd be hard to conceive the Connection, or Syntax of a Discourse; and which, therefore, makes a necessary part of Grammar. See the Relations express'd by each *Case* under its proper Head, NOMINATIVE, GENITIVE, DATIVE, &c.

CASE-HARDENING, a Method of preparing Iron, so as to render its outer Surface hard, and capable of resisting the File, or any edg'd Tool. It is us'd by File-cutters for coarse Files; by Gunsmiths, to harden the Barrels of Guns; and by others, on other Occasions. See IRON; see also FILE, &c.

The Process of *Case-hardening* is thus: They take Hoofs, or Horns of Kine, dry them in an Oven, and pouder 'em; then put an equal Quantity of Bay Salt to it, and mingle both together with stale Urine, or Whitewine Vinegar: Some of this Mixture they lay upon Loam, and wrap it about the Iron, putting also more Loam over all. Then they lay it on the Hearth of a Forge to dry and harden; and when it's dry and hard, they put it into the Fire, and blow till they give the Lump a blood red Heat, but no greater: Then it is taken out and quench'd, and the *Case-harden'd* Iron is taken out of the *Case*. See STEEL, and HARDENING.

CASEMATE, or CASEMENT, in Building, is a hollow Moulding, which some Architects make $\frac{1}{4}$ of a Circle; and others $\frac{1}{3}$. See MOULDING.

CASEMATE, or CASEMENT *of a Window*. See WINDOW.

CASEMATE, in Fortification, a kind of Vault of Masonswork, in that part of the Flank of a Bastion next the Curtain; serving as a Battery, to defend the Face of the opposite Bastion, and the Moat, or Ditch. See BASTION.

The *Casemate*, sometimes, consists of three Platforms, one above another; the highest being on the Rampart: But they commonly content themselves to withdraw the highest within the Bastion. The *Casemate* is also call'd the *low Place*, *low Flank*, and sometimes *retir'd Flank*; as being that Part of the Flank nearest the Courtine, and the Centre of the Bastion: It was formerly cover'd with an Epaulement, or a massive Body of round or square Stone, which prevented those without from seeing within the Batteries. 'Tis now rarely us'd, by reason the Enemy's Batteries are apt to bury the Artillery of the *Casemate*, in the Ruins of the Vault.

The Name comes from a Vault, formerly made to separate the Platforms of the upper and lower Batteries; each of which was call'd in Italian *Casa Armata*, and in the Spanish *Casamata*. Tho others derive the Word from *Casa à Matti*, House of Tools: *Covarruvias*, from *Casa*, and *mata*, low House.

CASEMATE, is also us'd for a Well, with several subterraneous Branches, dug in the Passage of the Bastion, till the Miner is heard at work, and the Air given to the Mine.

CASE, in Printing, a Frame, plac'd aslope, divided into several Compartments, or little square Cells, in each of which are lodg'd a number of Types, or Letters of the same Kind; whence the Compositor takes them out, each as he needs it, to compose, and make a Page, or Form. See PRINTING, LETTER, &c.

Thus, they say, *a Case*, or rather *Pair of Cases*, of *Greek*, of *Hebrew*, of *Pica*, &c. *Menage*, after *Salmasius*, derives the Word from *Cassa*, or *Capsa*; and that from the *Greek* κασια, which signifies the same thing.

CASE-SHOT, are Musket-Bullets, Stones, old pieces of Iron, or the like, put up into *Cases*, and so shot out of great Guns. See SHOT.

Case-shot is chiefly us'd at Sea, to clear the Enemies Decks when they are full of Men.

CASERNS, or CAZERNS, in Fortification, little Rooms, Lodgments, or Apartments, erected between the Ramparts, and the Houses of fortify'd Towns, or even on the Ramparts themselves; to serve as Lodgings for the Soldiers of the Garison, to ease the Garison. See GARISON.

There are usually two Beds in each *Casern*, for six Soldiers to ly, who mount the Guard alternately; the third Part being always on Duty.

CASES *Reserv'd*, in the *Romish* Polity, are considerable Sins, the Absolution of which is *reserv'd* by the Superiors to themselves, or their Vicars. There are some *Cases reserv'd* by the Pope, and others by the Bishops: In Convents, some are *reserv'd* by the Chapter, &c. None but these, or their Vicars, can absolve in these *Cases*; except at the Article of Death, when all *reserv'd Cases* are absolvable by the Ordinary. See ABSOLUTION.

CASH, in Commerce, the Stock of Money, which a Merchant, or other Person has in his Disposal, to negotiate; so call'd from the *French* Term *Caisse*, i. e. *Chest*, or *Coffer*, for the keeping of Money. M. *Savery* shews, that the Management of the *Cash* of a Company, is the most considerable Article; and that whereon its good or ill Success chiefly depends. See COMPANY.

CASHIER, the *Cash-keeper*, is he who is charg'd with the receiving and paying of the Debts of a Society: See CASH.

In the generality of Foundations, the *Cashier* is call'd *Treasurer*; see TREASURER.

CASING *of Timber-work*, is the Plaistering a House all over on the Outside with Mortar; and striking it, yet wet, by a Ruler, with the Corner of a Trowel, or the like Instrument, to make it resemble the Joints of Freestone; by which means, the whole House appears as if built thereof.

CASK, or CASQUE, a piece of defensive Armour, to cover the Cavalier's Head and Neck; otherwise call'd *Helmet*. See HELMET.

Le Gendre observes, that antiently, in *France*, the *Gens d'Armes* all wore *Casks*. The King wore a *Cask*, gilt; the Dukes and Counts, silver'd; Gentlemen of Extraction, polish'd Steel; and the rest plain Iron. The Word comes from *Casticum*, or *Casticus*, a Diminutive of *Cassis*, Shield.

The *Cask* is frequently seen on antient Medals; where we may observe great Varieties in the Form and Fashion thereof:

thereof: As the *Greek* Fashion, the *Roman* Fashion, &c. F. *Joubert* makes it the most antient of all Coverings of the Head, as well as the most universal. Kings, Emperors, and even Gods themselves are seen therein. That which covers the Head of *Rome*, has usually two Wings, like those of *Mercury*: And that of some Kings, is furnish'd with Horns, like those of *Jupiter Ammon*; and sometimes barely Bulls, or Rams Horns, to express uncommon Force.

CASK, in Heraldry. See HELMET.

CASK, is also us'd as a common Name for Vessels of divers Kinds, in contra-distinction from the Liquor, or other Matter contain'd therein. Thus, a Hogshead of Spirits, &c. is said to weigh 4 *C.* $\frac{1}{2}$ and 22 *L.* *Cask* and Liquor; a Punchion, 6 *C.* $\frac{1}{4}$ and 2 *L.* *Cask* and Liquor.

A CASK *of Sugar*, is a Barrel of that Commodity, containing from 8 to 11 Hundred; a *Cask* of Almonds, is about 3 Hundred weight.

CASSATION, in the Civil Law, the Abrogation, or annulling of any Act or Proceedure. The Occasions of *Cassation* are, 1st, When a Decree is directly contrary to another Decree; and both against the same Party. 2dly, When Decrees are directly contrary to the express Decision of Statures, or Customs. 3dly, When the Formalities prescrib'd by the Laws have not been follow'd. The Word comes from the Latin *Quassare*.

CASSIA, a medicinal Drug, in frequent use as a gentle Purgative. There are four Kinds of *Cassia*, alike in Properties, and nearly in Figure; being all in long black Pods; but very different, if consider'd with regard to the Trees that produce them. These *Cassias* are, *Cassia of the Levant*, that *of Egypt*, that *of Brasil*, and of the *Antilles* Islands.

Cassia of the Levant, is the Fruit of a very high Tree, whose Bark is Ash-colour'd, its Wood very solid, and its Grain close; towards the Center, the Wood is of an Ebony black, towards the Circumference yellowish: Its Flowers are yellowish, and produce a Fruit in form of a long Pod, round and massive; of a reddish Colour, bordering on black. When ripe, it is full of a black, sweetish Pulp, divided by little woody Cells: In this Pulp are found little hard Grains, in manner of Stones, shap'd like Hearts, which are the Seed of the Tree. This *Cassia* must be chose new, in large Pods, heavy, and of a tan Colour; the Bark, when broke, fine and white within, full of a black soft Pulp of a sweetish Taste.

Cassia of Egypt, is like that of the *Levant*, except that the Tree is higher, and the Leaves narrower; the Fruit smaller, and the Bark softer.

Cassia of Brasil, is the largest of all: Some of the Pods are found four or five Inches in Circumference. This Kind is not very common in the Shops.

Cassia of the Islands, is that now chiefly us'd; tho heretofore the popular *Cassia* was the *Levantine*. It is sent from the *Antilles*; where 'tis produc'd in such abundance, that the Vessels, in their home Voyages, use it as Ballast: whence it is, that we find it so often foul and dirty: The Tree that yields it resembles a Peach-Tree. Its Flowers, which are yellow, grow in Clusters; and, as they decay, leave behind them a Fruit or Pod an Inch thick, and a Foot (sometimes two) long. The Fruit, while in its growth, is green; when ripe, it becomes a dark Violet. 'Tis chosen in the same manner as that of the *Levant*.

When the Pod is entire, and the Pulp not yet taken out, 'tis called *Cassia Fistula*, or *Cassia in the Cane*. For use, the Pulp is taken out, and pulp'd thro a Hair Sieve. The Apothecaries put off little of this better Kind, but what is old, and boil'd up with Sugar to make it keep.

Cassia, when green, as also the Flowers of the *Cassia* Tree, are comfited in the *Levant* and the *Islands*; and have almost the same Effects with the common *Cassia*, the Basis of most purgative Electuaries.

The *Tincture of* CASSIA, is a slight Infusion of the Pulp with the Seed.

The *Extract of* CASSIA, is nothing but the Pulp separated from the Shell and the Seeds; with the Addition of a certain Quantity of Sugar to preserve it from turning sour.

CASSIA *Lignea*, is the Bark of a Tree much like that which bears the Cinnamon; growing promiscuously with it in the Island of *Ceylon*. The two Barks are gather'd and dry'd in the same manner; their Smell and Taste are nearly alike; they are equally sweet, poignant and agreeable; and their Colour, Form, and Thickness scarce differ at all. But the *Cassia* is the fatter, and more mucilaginous; and in chewing dissolves in the Mouth, without leaving any thing woody behind; whereas the woody Part of Cinnamon still sticks, tho ever so well chew'd. Some Authors will have the Tree which bears Cinnamon bear the *Cassia* too; and make the only Difference between them to consist in this, that the first comes from *Ceylon*, and the latter from the Coast of *Coromandel*. See CINNAMON.

CASSIOPEIA, in Astronomy, one of the Constellations of the Northern Hemisphere. See CONSTELLATION.

In 1572, there appear'd a new Star in this Constellation, which at first surpass'd in Magnitude and Brightness *Jupiter* himself; but it diminish'd by degrees, and at last disappear'd, at the End of 18 Months. It alarm'd all the Astronomers of that Age, many of whom wrote Dissertations on it; among the rest, *Tycho Brahe*, *Kepler*, *Maurolycus*, *Licetus*, *Grammeus*, &c. *Beza* the Landgrave of *Hesse*, *Rosa*, &c. wrote to prove it the same Star which appear'd to the *Magi* at the Birth of Jesus Christ, and that it came to declare his second coming: They were answer'd by *Tycho*. See STAR.

The Stars in the Constellation *Cassiopeia*, in *Ptolomy*'s Catalogue, are 13; in *Tycho*'s 28; in the *Britannic Catalogue*, Mr. *Flamstead* makes them 56. The Order, Names, Longitudes, Latitudes, Magnitudes, &c. whereof, are as follow.

Stars in the Constellation CASSIOPEIA.

Names and Situation of the Stars.	Signs.	Longitude. ° ′ ″	Latitude. North. ° ′ ″	Magn.
	♈	21 6 44	56 46 0	6
		21 28 46	56 26 16	6
		27 43 32	57 10 23	5
		23 53 29	54 3 47	5 6
North, in the top of the Chair-back		26 46 31	52 39 52	7
5				
	♉	1 9 41	55 7 46	6
South. in the top of the Chair-back	♈	26 46 25	51 9 16	6
In the preced. Arm of the Chair		25 52 31	49 22 58	6
	♉	3 28 57	53 57 9	6
		6 4 6	55 10 10	6
10				
In the middle of the Chair-back, the		0 48 7	51 13 50	3 2
Lucida Cathedra)		5 59 21	52 1 25	7
		12 9 23	55 1 42	7
A small one against the Hair		0 22 24	45 38 49	6
In the bottom of the Chair-back, o-		8 20 18	52 14 40	4
15 ver the Seat)				
		12 47 48	54 59 49	6 7
In the Head		0 47 7	44 41 44	4
In the Breast		3 30 21	46 35 54	3 2
Preced. of the North. in the Rod	♈	29 9 55	41 25 41	6
South. in the Rod		27 6 12	38 18 52	6
20				
	♉	25 15 51	59 53 44	6
Middle in the Rod	♈	28 10 27	39 17 45	6
	♉	25 14 26	59 41 9	6
In the Girdle		5 52 56	47 4 17	4
In the Rod, the last of the North.		0 41 51	41 16 2	5
25				
Preced. against the Navel		7 52 45	47 29 25	6
Over the Seat of the Chair		9 38 44	48 47 35	3
Last of contig. ones agst. the Navel		8 19 23	47 32 19	5 6
In the hind Arm		6 36 54	43 23 18	5
Preced. in South. Part of the Frame		19 31 31	54 13 8	5 6
30				
		14 57 40	50 36 12	6
		15 46 12	51 13 51	6
That under the hind Arm		7 28 30	43 5 16	4
That preced. the Knee to the South.		11 13 15	45 4 6	6
Prec. of the Midd. in S. Part of Seat		20 39 40	52 49 54	6
35				
That against the Knee		13 37 15	46 23 26	3
Preced. in North. Part of the Frame		23 28 45	54 11 22	6
That following the Knee		14 8 14	44 58 53	6
North. in the Frame		27 23 40	55 58 20	6 5
Midd. in North. Part of the Frame		25 12 29	53 52 38	5 6
40				
Last of the Midd. in S. Part of Frame		22 34 51	51 50 16	6 5
		16 31 53	45 30 18	6 5
That in the Leg		20 26 48	47 31 50	3
Last of 4 in South. Part of the Frame		24 51 16	51 38 41	6 5
	♊	4 49 8	58 6 56	6 5
45				
South: of the following, in North.	♉	27 37 23	53 11 18	4 5
Part of the Frame)	♊	3 28 14	57 11 9	5
North. of the same	♉	29 15 46	54 21 3	4 5
	♊	1 51 14	55 56 47	6
	♉	22 13 42	47 44 14	6
50				
		22 36 18	48 5 2	7
		29 0 45	53 24 16	7
		25 21 29	48 53 9	6
In the Extremity of the Foot		27 53 53	48 57 31	4
	♊	3 23 39	53 12 19	6
55				
		8 4 50	53 28 17	5 6

CASSOCK, or CASULA, a kind of Gown, or Robe, wore over the rest of the Habit; particularly by the Clergy. The Word *Cassock* comes from the French *Casaque*, a Horseman's Coat; some derive that again, by Corruption, from a Garment of the *Cossaques*: *Covarruvia*, from the Hebrew *Casah*, to cover; whence the Latin *Casa*, Cottage; and *Casula*, a Diminutive of *Casa*, another Name of the *Cassock*.

CASTANETS, CASTAGNETTES, or CASTANETTAS, a kind of Musical Instrument, wherewith the *Moors*, *Spaniards*,

Spaniards, and *Bohemians*, accompany their Dances, Sarrabands, and Guittarres. It consists of two little round Pieces of Wood dried, and hollow'd in manner of a Spoun, the Concavities whereof are placed on one another fastned to the Thumb, and beat from to time with the Middle Finger, to direct their Motions and Cadences. The *Castagnettes* may beat eight or nine times in the Space of one Measure, or Second of a Minute.

CASTALDUS, } See CASTALDUS.
CASTALDY. }

CASTELLAN, the Name of a Dignity or Charge in *Poland*: The *Castellans* are Senators of the Kingdom, but Senators of the lower Class, and, in Diets, sit on low Seats, behind the Palatines or great Senators. They are a kind of Lieutenants of Provinces, and command a Part of a Palatinate under the Palatine. See PALATINE.

CASTING, in Foundery, is the running of a melted Metal into a Mould prepar'd for that Purpose. See FOUNDERY, and MOULD.

CASTING *of Gold*, *Silver*, or *Copper in Plates*. See COINING.

CASTING *of Lead on Cloth*, is the using a Frame or Mould cover'd with Woollen-Cloth and Linen over it, to cast the Lead into very fine Sheets. See PLUMBERY.

CASTING *of Metals*, of Letters, *&c.* See FOUNDERY.

CASTING *in Sand* or *Earth*, is the Running of a Metal between two Frames or Moulds fill'd with Sand or Earth, wherein the Figure the Metal is to take, has been impress'd, *in creux*, by means of the Pattern. See FOUNDERY.

The Goldsmiths also use the Bone of the *Cuttle-Fish*, to mould and cast their lesser Works of Gold and Silver; that Bone, when dried, being reducible to a kind of a fine Pumice, very susceptible of all Impressions. See CUTTLE-FISH.

CASTING *in Stone* or *Plaister*, is the filling a Mould with fine liquid Plaister, that had been taken in pieces from off a Statue or other Piece of Sculpture, and run together again. There are two Things to be observ'd with regard to the Mould: The first, that it be well soak'd with Oil before the Plaister be run, to prevent its sticking: The second, that each Piece whereof it consists, have a Pack-thread, to draw it off the more easily when the Work is dry. See STATUE, and FOUNDERY.

CASTING *of Candles*, is the filling the Moulds with Tallow; see CANDLES.

CASTING, in Falconry, is any thing given an Hawk to purge and cleanse his Gorge: Of these there are two Kinds, *viz.* Plumage, *i. e.* Feathers; and Cotton: the latter whereof is generally in Pellets about the bigness of Hazel-Nuts, made of soft fine Cotton, and convey'd into her Gorge after Supper. In the Mo ning she will have *cast* them out; at which time they are to be observ'd, and from the Colour and Condition they are found in, the State of its Body is conjectured. If they be *cast* out round, white, not stinking, nor very moist, 'tis an Indication all is well; if otherwise, particularly if black, green, slimy, or the like, 'tis otherwise. The *Casting* of Plumage is observ'd after the same manner as the former.

CASTING, in Joinery, *&c.* Wood is said to *cast* or *warp*, when, either by its own Drought or Moisture, or the Drought or Moisture of the Air, or other Accident, it shoots or shrinks; in prejudice to its Flatness and Straightness. See WARPING.

CASTLE, a Place fortified by Nature or Art, either in City or Country, to keep the People in their Duty, or resist an Enemy. See FORTRESS, and FORTIFIED *Place*.

A CASTLE, is a little *Cittadel*; see CITTADEL.

CASTLE is also used, in the Sea-Language, for a part in large Vessels.

The *Fore-Castle*, or *Prow-Castle*, is the Rise or Elevation at the Prow, over the uppermost Deck, towards the Mizzen; the Place where the Kitchens are.

The *Hind-Castle*, or *Stern-Castle*, is the whole Elevation which reigns on the Stern over the last Deck; where the Officers Cabbins, and Places of Assembly are. See FORE-*Castle*, *&c.*

CASTLE-*Ward*, or *Castle-Guard*, an Imposition laid on such as dwell within a certain Compass about any *Castle*, towards the Maintenance of such as watch and ward the *Castle*. The Word is also sometimes us'd for the Circuit it self, inhabited by such as are subject to this Service.

CASTOR, in *Astronomy*, a Moiety of the Constellation *Gemini*. See GEMINI.

CASTOR and *Pollux*, in *Meteorology*, a Meteor; which in Storms at Sea appears sometimes sticking to part of the Ship, in form of one, two, or even three or four Fire-Balls: When one is seen alone, 'tis call'd *Helena*; two are call'd *Castor* and *Pollux*, and sometimes *Tyndarides*. See METEOR.

Castor and *Pollux*, are commonly judg'd to portend a Cessation of the Storm, and a future Calm; being rarely seen till the Tempest is nigh spent. *Helena* portends ill, and witnesses the severest part of the Storm yet behind.

CASTOREUM, in *Pharmacy*, a liquid Matter, inclos'd in Bags or Purses near the *Anus* of the *Castor* or *Bever*; falsly taken for that Animal's Stones.

These Purses are about the bigness of a Goose-Egg, and found indifferently in Males and Females; the Liquor inclosed, serves to give the *Castor* an Appetite, being press'd out of its Receptacles, on occasion, by the Foot: When taken off, the Matter dries and condenses, so as it may be reduced to a Pouder; by hanging in the Chimney it becomes of the Consistence of Wax. 'Tis oily, of a sharp, bitter Taste, and a strong disagreeable smell. 'Tis us'd to fortify the Head and nervous Parts, it excites the languishing Spirits, resists Poisons, and provokes the *Menses* in Women. 'Tis used in *Lethargies*, *Apoplexies*, *Vertigo's*, *Tremblings*, *Suffocations of Women*, and other Occasions. *Bartholine*, and other Authors, ascribe to it a wonderful Property of precipitating things to the bottom of the Water.

For the Choice of *Castoreum*; the best is that of *Dantzic*, that of *Canada* is much inferior; the largest Lumps, and those that smell strongest, are the most esteem'd, especially when heavy and well fleshed. Care is to be taken that it han't been adulterated with Honey or other Drugs, to increase its weight, which is known by squeezing it; the sophisticated being softish, and yielding a liquid, stinking Honey; and the natural, hard and heavy, of a brisk Smell, and full of Filaments.

Castoreum is used in the Composition of *Venice* Treacle and Mithridate, besides various other Hysterick and Cephalick Medicines. They draw an Oil from it call'd *Oil of Castor*; and it is also used, while in its liquid State, to make several Kinds of Unguents.

The *Russian* Way of curing *Castoreum*, is describ'd in the *Philosophical Transactions* thus: 'To get the Milk out of 'the Bever's *Stones*, (the *Bags* it shou'd be) put a proper 'Quantity of Water, with half a Shovel full of Wood-'Ashes, tie the Bags in Couples, and put them in the 'boiling Water for half a quarter of an Hour. Lay Birch-'Bark on the Fire, and smoke the Bags well over it for 'an Hour, till they be well dried; hang them up for a 'Week or more, till perfectly dry and hard, they may then 'be pack'd up for Use or Exportation.'

CASTOR *Skin*, the Fur or Skin of an amphibious Animal called *Castor* or Bever, sometimes found in *England*, *France*, *Germany*, and *Poland*, but most abundantly in the Province of *Canada* in *North-America*. See FUR, SKIN, *&c.*

Its chief Use is in the Composition of Hats, and Furs. See HAT, *&c.* Beside this, in 1669, an Attempt was made to employ it in other Merchandizes; accordingly a Manufactury was settled in the *Fauxbourg S. Antoine* near *Paris*, where they made Cloths, Flannels, Stockings, *&c.* of *Castor*, with a mixture of Wool. The Manufacture flourish'd for a while, but soon decay'd, it being found by Experience that the Stuffs lost their Dye when wet, and that when dry again they were harsh, and stiff as Felts.

The Merchants distinguish three Kinds of *Castor*, tho all equally the Spoils of the same Animal; these are *New Castor*, *Dry Castor*, and *Fat Castor*: *New Castor*, called also *Winter Castor*, and *Muscovite Castor*, because ordinarily reserv'd to send into *Muscovy*, is that taken in the Winter-Huntings. This is the best, and most esteem'd for rich Furs, as having lost none of its Hair by Moulting. *Dry Castor* or *lean Castor*, is the Result of the Summer-Huntings; when the Beast is moulted, and has lost part of its Hair: This being much inferior to the former, is little used in Furs; but mostly in Hats. *Fat Castor*, is that which has contracted a certain fat, unctuous Humour, by Sweat exhaled from the Bodies of the Savages, who have wore it for some time: This, tho better than the *dry*, is yet only used for Hats.

After the Hair is cut off the Skin to be used in Hats, the Pelt or Skin it self, is us'd in various Works, *viz.* in the covering of Mails and Trunks, in Slippers, *&c.* See COMPANY *of Canada*.

CASTRAMETATION, the Art of Incamping, *i. e.* of placing and disposing a Camp or Army. See CAMP.

The Word is more us'd for the Incampments of the Antients, than those of the Moderns. It comes from the *Latin Castrum*, Camp; and *Metire*, to measure.

CASTRATION, in Chirurgery, the Operation of Gelding, *i. e.* of cutting off the Testicles, and of putting an Animal out of a Capacity of Generation. See TESTICLES.

Castration is much in Use in *Asia*, especially among the *Turks*, who practise it on their Slaves, to prevent any commerce with their Women. The *Turks castrate* to the Purpose, making a general Amputation both of Testicles and Yard. *Castration* also obtains in *Italy*, where 'tis us'd with a View to preserve the Voice for singing. See EUNUCH.

Castration is sometimes found necessary on medicinal Considerations, as in Diseases of the Testicles, especially the *Sarcocele* and *Varicocele*. See SARCOCELE, *&c.*

Castration is also practis'd on Women: *Athenæus* mentions, that King *Andramaris* was the first who *castrated* Wo-

Women. *Hesychius* and *Suidas* say, *Gyges* did the same Thing. *Galen* observes, that Women may be *castrated* without Danger of Life. *Dalechampius*, on the foremention'd Passage of *Athenæus*, holds, that it is only to be understood of simple Pad-locking.

Castration is also us'd, tho figuratively, for the Retrenching any part of a Thing: Thus we say, a *castrated* Book, *i. e.* an imperfect Book, &c.

CASU *consimili*, a Writ of Entry, where a Tenant by Courtesy, or for Life, aliens in Fee or in Tail, or for another's Life: It takes its Name hence, That Authority being given by Stat. *West.* 2. to the Clerks in *Chancery*, to make new Forms, as often as any new Case should start up, not under any of the old Forms; they fram'd this Writ to the likeness of the other call'd *Casu proviso*; which see.

CASU *Proviso*, a Writ of Entry, given by the Statute of *Gloucester*, in Case where a Tenant in Dower aliens in Fee, or for Term of Life; or in Tail: and lies for him in Reversion against the Alien.

CATABAPTIST, a Person averse from Baptism; particularly from that of Infants. See BAPTISM.

The Word is compounded of the Preposition κατα, which, in Composition, signifies *against*, *contrary*, *thro*, *of*, *in*; also *according to*, *towards*, *for*, *with*, &c. and βαπτω, *I wash*.

CATABIBAZON, in Astronomy, the Moon's descending Node; call'd also *Dragon's Tail*. See DRAGON'S TAIL.

CATACAUSTIC *Curves*, in the higher Geometry, the Species of *Caustic Curves* form'd by Reflection; see CAUSTIC *Curve*.

CATACHRESIS, in Grammar, a kind of Figure, making the first Species of *Metaphora*. See METAPHORA.

The *Catachresis* is, when for want of a Word proper to express a Thought, we use, or rather abuse a Word that comes somewhat near it; as when we call a Person who has kill'd his Mother, Master, or Prince, *Parricide*; which Word, in Propriety, is only applicable to him who has murther'd his Father. See PARRICIDE. Thus, *to ride on Horseback on a Switch*, contains a *Catachresis*; so, *a Silver Inkhorn*, &c. There are *Catachreses* allow'd in all Styles, and all Manners of Writing. The Word comes from the *Greek* καταχεομαι, *Abutor*, I abuse.

CATACLYSMUS, a *Greek* Name for a Deluge, or Inundation of Waters; see DELUGE, and INUNDATION.

CATACOMBS, Grottos, or subterraneous Places for the Burial of the Dead.

The Term is particularly us'd in *Italy*, for a vast Assemblage of subterraneous Sepulchres, three Leagues from *Rome*, in the *Via Appia*; suppos'd to be the Sepulchres of the Martyrs: Accordingly, they are visited out of Devotion, and Reliques thence taken, and dispers'd throughout the Catholick Countries; after having been first baptiz'd by the Pope, under the Name of some Saint. See RELICKS.

These *Catacombs*, are said by many to be Caves, or Cells, wherein the Primitive Christians hid, and assembled themselves together; and where they interr'd such among them as were martyr'd. Each *Catacomb* is three Foot broad, and eight or ten high; running in form of an Alley, or Gallery, and communicating with each other: In many Places, they extend within a League of *Rome*. There is no Masonry or Vaulting therein, but each supports it self: The two Sides, which we may look on as the *Parietes*, or Walls, were the Places where the Dead were deposited; which were laid lengthwise, three or four Rows over one another, in the same *Catacomb*, parallel to the Alley. They were commonly clos'd with large thick Tiles, and sometimes pieces of Marble, cemented in a manner inimitable by the Moderns. Sometimes, tho very rarely, the Name of the Deceased is found on the Tile: Frequently, a Palm is seen, painted, or engraven; or the Cypher Xp, which is commonly read *pro Christo*. See SAINTS.

Some Authors will have the *Catacombs* to be the same with the *Puticuli* mention'd by *Festus Pompeius*; maintaining, that whereas it was the Practice of the antient *Romans* to burn their Dead, the Custom was, to avoid Expence, to throw the Bodies of their Slaves to rot in Holes of the Ground: and that the *Roman* Christians, observing, at length, the great Veneration paid to Reliques, resolv'd to have a Stock of their own: Entering, therefore, the *Catacombs*, they added what Cyphers and Inscriptions they pleas'd, and then shut them up again, to be open'd on a favourable Occasion. Those in the Secret, add they, dying, or removing, the Contrivance was forgot, till Chance open'd them at last. But this Opinion has even less of probability than the former. Mr. *Monro*, in the *Philosophical Transactions*, gives it as his Opinion, that the *Catacombs* were the Burial Places of the first *Romans*, and dug in consequence of these two Opinions; that Shades hate the Light; and that they love to hover about the Places where the Bodies are laid.

Laying up the Bodies in Caves, is certainly the original way of disposing of the Dead; and appears to have been propagated by the *Phœnicians*, throughout the Countries to which they sent Colonies: The interring as we now do, in the open Air, or in Temples, was first introduc'd by the Christians. When an antient Hero dy'd, or was kill'd in a Foreign Expedition, as his Body was liable to Corruption, and for that Reason unfit to be transported intire, they fell on the Expedient of burning, in order to bring home the Ashes, to oblige the Manes to follow; that so his Country might not be destitute of the Benefit of his Tutelage. 'Twas thus Burning seems to have had its original; and by degrees it became common to all who could bear the Expences of it, and took place of the antient Burying: Thus *Catacombs* became disus'd among the *Romans*, after they had borrow'd the manner of Burning from the *Greeks*; and now, none but Slaves were laid in the Ground. See BURIAL.

Places thus prepar'd, might afford convenient Resortments for the primitive Christians; but could never be built by them. When the Empire became Christian, they were again disus'd; till the reading of I know not what Author, who mentions them, occasion'd 'em to be again look'd into. As to the fam'd Cypher Xp, 'tis observ'd to have been in use among the Antients, long before Christianity arose. The Abbot *Bencini* says, it was compos'd of the two *Greek* Letters X P, under which something mystical was comprehended; but no Author gives any account what that Mystery was.

Antiently, the Word *Catacomb* was only understood of the Tomb of St. *Peter* and St. *Paul*; and M. *Chastellan* observes, that among the more knowing of the People of *Rome*, the Word *Catacomb* is never apply'd to the subterraneous Burying-Places abovemention'd, but only to a Chapel in St. *Sebastian*, one of the seven stational Churches; where the antient *Roman* Calendars say, the Body of St. *Peter* was deposited, under the Consulate of *Tuscus* and *Bassus*, in 258.

Some derive the Word *Catacomb* from the Places where Ships are laid up; which the modern *Latins* and *Greeks* call *Combes*. Others say, that *Cata* was us'd for *ad*, and *Catacumbas* for *ad-tumbas*: Accordingly, *Dadin* says, they antiently wrote *Catatumbas*. Others fetch it from the *Greek* κατα, and κυμβος, *Cavus*, *Recessus*.

CATACOUSTICS, call'd also *Cataphonics*, the Science of reflected Sounds; or that Part of Acoustics which considers the Properties of *Echoes*. See ACOUSTICS; see also ECHO, and SOUND.

CATADIOPTRIC. See CATOPTRIC.

CATADUPA, a Cataract, or Water-fall; see CATARACT.

Hence the Antients gave the Term *Catadupæ*, to People inhabiting near Cataracts; and these they suppos'd to be deaf with the constant Din. The Word comes from the *Greek* καταδουπέω, of the Preposition κατα, which in Composition signifies tendency, or inclination downwards; and δουπεω, to make a Noise.

CATAFALCO, an *Italian* Term, literally signifying *Scaffold*. It is chiefly us'd for a Decoration of Architecture, Sculpture, and Painting; rais'd on a Timber Scaffold, to shew a Coffin, or Tomb, in a Funeral Solemnity.

CATAGMATICS, Medicines proper to solder, and unite broken Bones, by promoting the Formation of a *Callus*; see CALLUS, and BONE.

The principal *Catagmatics*, are the *Armenian* Bole, Gum Tragacanth, Osteocolla, *Cyprus* Nuts, Frankincense, Aloes, and Acacia. The Word comes from the *Greek* καταγμα, *Fracture*.

CATALECTIC, a Term in Poetry. The Antients called *Catalectic Verses*, those which wanted either Feet or Syllables; in opposition to *Acatalectics*, which are compleat Verses, wanting nothing. The Word comes from the *Greek* κατα, and λεγω, *desino*, I end.

CATALEPSIS, CATOCHE, or CATOCHIS, in Medicine, a kind of Apoplexy; or a Disease, wherein the Patient is taken speechless, senseless, and fix'd in the same Posture wherein the Disease first seiz'd him; his Eyes open, without seeing, or understanding. See APOPLEXY.

This Disease is very rare, nor is its Cause easy to assign. *Boerhaave* takes the immediate Cause to be an Immobility of the common Sensory, in the Situation of the first Access; whence an absolute Rest of the Blood in the Brain, and a Cessation of all the Functions of the Brain, as well as those depending thereon; the Muscles alone remaining in their first Tension; and Respiration, and the Pulse preserv'd, tho generally weak. It is usually preceded by a long intermitting Fever, a melancholic dry Temperature, a Suppression of the Menses, or Hemorrhoids, great Frights, and intense, continu'd Meditation on one Object. Upon Dissection, the Arteries and Veins of the *Cerebrum* are found very turgid, and the Blood close ramm'd in them: 'Tis frequently cur'd by copious Hemorrhages of the Nose; Sternutatories, Vomitives, and Vesicatories, are likewise apply'd to good purpose. It seldom passes into any other Disease; sometimes indeed into an Epilepsy, Convulsions, Madness, or Atrophy; but it commonly ends in Death. The Word is *Greek*, καταληψις, which signifies the same thing.

CATALOGUE, a List, or Enumeration of the proper Names of several Books, Men, or other Things; dispos'd according to a certain Order. The Jesuits of *Antwerp* have given us a *Catalogue* of the Popes; which makes what they call their *Propylæum*, &c. See PROPYLÆUM.

CATALOGUE *of the Stars*, is a List of the Fix'd Stars, dispos'd in their several Constellations; with the Longitudes, Latitudes, &c. of each. See STAR.

The first who undertook to reduce the Fix'd Stars into a *Catalogue*, was *Hipparchus Rhodius*, about 120 Years before Christ; in which he made use of the Observations of *Timocharis* and *Aristyllus*, for about 180 Years before him. *Ptolemy* retain'd *Hipparchus's Catalogue*; tho he himself made abundance of Observations, with a View to a new *Catalogue*, about the Year of Christ 880. *Albategnius*, a *Syrian*, brought down the same to his Time. *Anno* 1437, *Ulugh Beigh*, King of *Parthia* and *India*, made a new *Catalogue* of the Fix'd Stars; since translated out of *Arabic* into *Latin*, by Dr. *Hyde*. The third who made a *Catalogue* from his own Observations, was *Tycho Brahe*; who determin'd the Places of 777 Stars, for the Year 1600: which *Kepler*, from other Observations of *Tycho*, afterwards increas'd to the Number of 1000, in the *Rudolphine* Tables. At the same time, *William*, Landgrave of *Hesse*, with his Mathematicians, *Christopher Rothmannus*, and *Justus Byrgius*, determin'd the Places of 400 Fix'd Stars, by his own Observations; which *Hevelius* prefers to those of *Tycho's*. *Ricciolus*, in his *Astronomia reformata*, determin'd the Places of 101 Stars, for the Year 1700; from his own Observations: for the rest, he follow'd *Tycho's Catalogue*; altering it where he thought fit. *Anno* 1677, Dr. *Halley*, in the Island of *St. Helena*, observ'd 350 Southern Stars, not visible in our Horizon. The same Work was repeated by F. *Noel*, in 1710, who publish'd a new *Catalogue* of the same Stars constructed for the Year 1687. The next was *J. Hevelius*, who made a *Catalogue* of 1888 Fix'd Stars: whereof 950 had likewise been observ'd by the Antients; 355 by Dr. *Halley*; and only 603 by himself.

The last, and greatest, is the *Britannic Catalogue*, compil'd from the Observations of the accurate Mr. *Flamstead*; who for a long Series of Years devoted himself wholly thereto. As there was nothing wanting either in the Observer, or Apparatus, we may look on this as a perfect Work, so far as it goes 'Tis pity the Impression had not pass'd thro his own Hands: That now extant, was publish'd by Authority, but without the Author's Consent: it contains 2734 Stars. There is another publish'd this present Year, 1725, pursuant to his Testament: And Dr. *Halley*, his Successor in the *Observatory Royal*, is now engag'd in supplying the Omissions of either, by his own Observations. See OBSERVATORY.

CATAMENIA. See MENSES.

CATAMITE, a *Ganymede*, or Boy kept for Sodomy; see SODOMY. The Word is form'd of κατα, and μιθος, *hir'd*.

CATAPAN, or CATIPAN, a Name the later *Greeks*, about the XIIth Century, gave the Governor of their Dominions in *Italy*. *Ughel*, and others, say, *Catipan* was the same with *Capitaneus*; form'd therefrom by *Metathesis*, or Transposition. Others derive it from κατα, *juxta*, and παν, *omne*: In which Sense, *Catapan* was Governor General, or Magistrate, who had the Direction of all: Others will have it deriv'd from κατὰ πανοκρατορος, after the Emperor. In which Sense, *Catapan* was a second Master, *Secundus Dominus*. *Du Cange* derives it from καταπινω; which the *Greeks* apply'd to every Governor, and even every Man of Quality.

CATAPASM, a Mixture of Powders, either Odoriferous, as for the perfuming of Clothes; or Furtifying, and apply'd to the Stomach, Heart, or Head; or Escharrotic, for eating off dead Flesh. The Word comes from the *Greek* καταπασσειν, *to water*.

CATAPELTA, an Instrument of Punishment, in use among the Antients. It consisted in a kind of Press, compos'd of Planks, between which the Criminal was crush'd.

CATAPHORA, in Medicine, a Disease, the same with *Coma*. See COMA.

According to *Blanchard*, there is this Difference between the two, that *Cataphora* is the Genus to all Kinds of Stupors, unattended with Fevers. See LETHARGY, and CARUS.

CATAPHRYGIANS, antient Hereticks; so call'd, as being *Phrygians*. They were Orthodox in every thing, setting aside this, that they took *Montanus* for a Prophet, and *Priscilla* and *Maximilla* for true Prophetesses, to be consulted on every thing relating to Religion; as supposing the Holy Spirit had abandon'd the Church.

CATAPLASM, popularly call'd *Poultice*, an external Medicine, in form of a Pulp; of a soft Consistence, like an Unguent, or Cerat; compos'd of various Liquors, Parts of Plants, Oils, Unguents, &c. according to the Variety of Intentions. Its ordinary Effects are, to assuage Pain, soften, resolve, discuss, or suppurate Matter collected in the external Parts of the Body. The ordinary *Cataplasm* for these Intentions, is compos'd of white Bread, Milk, Yolks of Eggs, Saffron, and Oil of Roses. The Word comes from the *Greek* καταπλασσω, *illino*, I smear, or apply outwardly.

CATAPULTA, a Military Machine, us'd among the Antients for the throwing large Darts and Javelins, 12 or 15 Foot long, on the Enemy. The *Catapulta* is said to be the Invention of the *Syrians*. Some Authors make it the same with the *Balista*; others different. The first derive it απὸ τῆς πάλης, a Shaft, or Dart; the last from καταπάλτης. See BALISTA.

CATAPUTIA, a Medicinal Plant, commonly call'd the *lesser Spurge*. It purges with such a Violence, both upwards and downwards, that few Persons of any Credit venture to prescribe it.

CATARACT *of Water*, a Fall, or Precipice, in the Channel, or Bed of a River; caus'd by Rocks, or other Obstacles, stopping the Course of its Stream; from whence the Water falls with a great Noise and Impetuosity: Such are the *Cataracts* of *Nile*, the *Danube*, *Rhine*, &c. *Strabo* calls that a *Cataract*, which we call a *Cascade*; and what we call a *Cataract*, the Antients usually call'd a *Catadupa*.

Herminius has an express Dissertation, *De admirandis Mundi Cataractis supra & subterraneis*; where he uses the Word in a new Sense; signifying, by *Cataract*, any violent Motion of the Elements. The Word comes from the *Greek* καταρρηγνυω, *cum impetu decido*.

CATARACT, in Medicine, a *Suffusion* of Sight, arising from a little Film, or Speck, which swimming in the aqueous Humour of the Eye, and getting before the Pupil, intercepts the Rays of Light. See SIGHT.

The *Cataract* is supposed to be form'd from a Condensation of the more viscous Parts of the aqueous Humour, between the Uvea and the Crystalline: tho some take it to be a Pellicle, detach'd from the Crystalline itself; which is only an Assemblage of several little Pellicles, laid over one another. See CRYSTALLINE.

There are two Kinds of *Cataracts*, the *Genuine* and *Spurious*; the first owing to a Humour amass'd in the Eye, coagulated and fix'd therein, and destroying its use: the latter arises from Fumes or Vapours, carry'd to the Eye by some Accident; as by a Fever, &c. The Genuine *Cataract* has several Degrees and several Names: At first the Patient sees, as it were, Clouds, Motes, Flies, &c. diffus'd over the Objects in view: Thus far the *Cataract* is call'd *Imaginary*; there being nothing yet appearing to the Eye of another Person. As the *Suffusion* increases, the Pupil begins to appear of a Sea-green Colour; sometimes like the Air, full of Clouds; and then the *Cataract* is call'd *Water*, or *Water-fall*. When the Evil is arriv'd at its height, and the Matter sufficiently coagulated, the Patient loses all Sight; the Pupil ceases to be transparent, but becomes white, or brown, or some other Colour; which last is what we properly denominate a *Cataract*.

Couching of CATARACTS. For the Cure of a *Cataract*, recourse is had to the Operation of *Couching*; which is perform'd by running a Steel Needle into the Eye, thro the *Adnata*, by the Edge of the *Cornea*, on the Side of the little *Canthus*, till it arrive at the Middle of the *Cataract*; then, turning the Needle round, they twist the *Cataract* about its Point, till being thus reduc'd into a little compass, 'tis brought down beneath the Pupil, and *couch'd*, or lodg'd in the Bottom of the Eye, and there left: Thus, the Impediment being remov'd, the Light gets admission. To render the Operation effectual, care must be taken, that the Pellicle or *Cataract* be ripe, or arriv'd at its Consistence, so as it may be easily roll'd up; that its Parts be crush'd, or broke in rolling up, and lodg'd so secure, as not to rise up again by its Elasticity; and perhaps also, that it dissolve and consume at the Bottom of the Eye.

This is the popular Theory of *Cataracts*, which some modern Physicians oppose, and substitute a new one in its place: Their Opinion is, that instead of *Couching*, or laying a little Membrane, or Pellicle, 'tis the Crystalline itself that is thus *couch'd*, and lodg'd in the Bottom of the vitreous Humour. This they suppose to have been condens'd, and to have lost its Transparence; whence, instead of being an Instrument of Vision, it proves an Obstacle to it, by shutting out the Rays from the *Retina*. This Alteration of its Transparence, is accompany'd with a Change of Colour; it becomes greenish; and on this account is call'd by the Greeks *Glaucoma*. The *Glaucoma* and *Cataract* therefore, in their Opinion, are the same Things: tho in the other Hypothesis they are very different; the first being reputed incurable, but not the latter. See GLAUCOMA.

The chief Reason urg'd in behalf of this latter Hypothesis, in the *French* Academy Royal, where it was propos'd, is, that after the Operation of *Couching*, the Person can't see without a convex Lens. Now if no more were done, than the taking away a Pellicle from before the Crystalline, it wou'd be in the same Condition as before, and wou'd make the same Refractions; nor wou'd any Lens be necessary: Whereas, supposing the Crystalline *couch'd*, 'tis evident the

Lens will be requir'd to ſupply its Place. To this it is anſwer'd, that there have been Inſtances of Perſons who have ſeen, after *Couching*, without any Lens; at leaſt, 'tis granted, that immediately after the Operation, ſeveral Perſons have ſeen very diſtinctly: And tho Lens's ſoon become neceſſary, yet the firſt Moment wherein they ſaw without, ſeems to be a Proof that the Cryſtalline was not *couch'd*.

M. *de la Hire*, in Confirmation of the antient Syſtem, aſſigns this Reaſon for the Neceſſity of a Lens, after the Operation, *viz.* that the Vice which produc'd the *Cataract* is ſtill ſubſiſting in the aqueous Humour; which being too thick and muddy, lets too few Rays paſs: a Failing to be repair'd by a Lens, which throws a greater Quantity of Rays on the Retina. He adds ſome Experiments made on the Eyes of Oxen; the Reſult of which was, that the Cryſtalline could never be laid perfectly in the Bottom of the Eye, but there ſtill ſtuck up, ſo as to ſtop up part of the Paſſage of the Rays; partly on account of its Bulk, and partly on that of its being ſuſtain'd by the aqueous and vitreous Humour: He adds, that in the Operation of Couching, the Needle is apt to ſcratch the anterior Surface of the Cryſtalline, and open the Membrane wherewith it is inveloped; the Conſequence of which will be Wrinkles, which will render the Refractions irregular, and change the Direction of the Rays which ſhould all meet in the ſame Point; ſo as to ſpoil the Repreſentation of Objects. Laſtly, 'tis inſiſted, that if the Cryſtalline be couch'd, the Patient wou'd not ſee at all, for want of the neceſſary Refractions. See CRYSTALLINE.

M. *Antoine*, on the other hand, relates, that upon opening a Perſon whom he had *couch'd* on both Eyes, he found the two Cryſtallines actually *couch'd*, and lodg'd at the Bottom, between the vitreous Humour and the Uvea, where they were left by the Needle; and yet the Perſon ſaw without either: which ſhews, both that the Operation of *Couching* the Cryſtalline is practicable, and that Viſion may be perform'd without it. In effect, the vitreous and aqueous Humour, upon removing the Cryſtalline, may be ſuppos'd to run into the Cavity, to aſſume the Figure of its Mould, and perform the Refractions and Offices of the Cryſtalline; it being found, by Experiment, that the Refraction is the ſame in each Humour. See EYE.

To ſhew, however, that there are *Cataracts* diſtinct from *Glaucomas*, M. *Litre* produc'd before the Society an Eye of a Man blind 22 Years; wherein was a diſtinct *Cataract*, or Pellicle, which clos'd the Aperture of the Pupil. See PUPIL, VISION, *&c.*

CATARRH, in Medicine, a Flux, or Defluxion of a ſharp ſerous Humour from the Glands about the Head and Throat, upon the Parts adjacent. See FLUXION.

Catarrhs are, generally, occaſion'd by a Diminution of inſenſible Perſpiration on taking cold; the Effect whereof is, that the Lymph, that ſhould paſs by the Skin, ouzes out upon thoſe Glands; and being thus extravaſated, occaſions Irritations, Coughs, and all the uſual Symptoms. See TUSSIS. *Degory* deduces all Diſeaſes from *Catarrhs*; which he looks upon as the Seminary of moſt Diſorders of the Body. *Etmuller* diſtinguiſhes a *hot* and a *cold Catarrh*; the firſt attended with an unnatural Heat and Pain, and a Phlogoſis of the whole Body; the excreted Lymph being exceeding thin and ſharp: In the *cold*, all the Symptoms are more remiſs.

There is alſo a *ſuffocative Catarrh*, ſeated in the Larynx, and Epiglottis, which it conſtringes; and thus, obſtructing Reſpiration, endangers Strangling.

Catarrhs are cured by ſoftning the Seroſities, and augmenting Tranſpiration, by means of Diaphoreticks, ſoporiferous Medicines, and Diureticks. Smoaking of Tobacco is recommended as excellent in all *catarrhal* Affections: In *obſtinate Catarrhs*, recourſe is ſometimes had to Iſſues and Bliſters.

Catarrhs don't ariſe from the Head only, but ſometimes alſo from other Parts of the Body; the lymphatic Veſſels, wherein the Seroſities are contain'd, as well as the Glands that ſeparate them, being diſtibuted all over the Body.

The Word comes from the *Greek* Καταῤῥεω, *deſluo*, I flow down.

CATASTASIS, in Poetry, the third part of the antient Drama; being that wherein the Intrigue, or Action ſet on foot in the Epitaſis, is ſupported, carried on, and heightned, till it be ripe for the unravelling in the Cataſtrophe. See EPITASIS and CATASTROPHE.

The Word comes from the *Greek* Καταστασις, *Conſtitution*, this being as it were, the Mean, Tenor, State, or Conſtitution of the Piece. See DRAMA and TRAGEDY.

CATASTROPHE, in Poetry, the Change or Revolution of a dramatic Poem, or the Turn which unravels the Intrigue, and terminates the Piece. See DRAMA, TRAGEDY, *&c.*

The *Cataſtrophe* is either Simple or Implex; whence alſo the Fable and Action are denominated. See FABLE.

In the firſt there is no change in the State of the principal Perſons, nor any diſcovery or unravelling; the Plot being only a mere Paſſage out of Agitation, to Quiet and Repoſe. This *Cataſtrophe* is rather accommodated to the Nature of the Epopea, than of Tragedy. Indeed we meet with it in ſome of the Antients, but it is out of doors among the Moderns. In the ſecond, the principal Perſon undergoes a Change of Fortune; ſometimes by means of a Diſcovery, and ſometimes without.

The Qualifications of this Change are, that it be probable, and neceſſary: in order to be probable 'tis requir'd it be the natural Reſult or Effect of the foregoing Actions, *i. e.* it muſt ſpring from the Subject it ſelf, or take its Riſe from the Incidents; and not be introduc'd merely to ſerve a Turn. The Diſcovery in the *Cataſtrophe*, muſt have the ſame Qualifications as the Cataſtrophe it ſelf, whereof it is a principal Part: It muſt be both probable and neceſſary. To be probable, it muſt ſpring out of the Subject it ſelf; not effected by means of Marks or Tokens, Rings, Bracelets, or by a mere Recollection, as is frequently done both by the Antients and Moderns. To be neceſſary, it muſt never leave the Perſons it concerns in the ſame Sentiments they had before, but ſtill produce either Love or Hatred, *&c.* Sometimes the Change conſiſts in the Diſcovery; ſometimes it follows at a diſtance, and ſometimes reſults immediately from it, which is the moſt beautiful Kind: and thus it is in *OEdipus*. See DISCOVERY.

Mr. *Dryden* thinks a *Cataſtrophe* reſulting from a mere Change in the Sentiments and Reſolutions of a Perſon, without any further Machinery, may be ſo manag'd as to become exceedingly beautiful; nay preferable to any other. 'Tis a Diſpute among the Criticks, Whether the *Cataſtrophe* ſhould always fall out happily, and favourably on the ſide of Virtue, or not? *i. e.* Whether Virtue is always to be rewarded, and Vice puniſh'd, in the *Cataſtrophe*: But the Reaſons on the Negative ſide ſeem the ſtrongeſt. *Ariſtotle* prefers a ſhocking *Cataſtrophe*, to a happy one; in regard, the moving of Terror and Pity, which is the Aim of Tragedy, is better effected by the former than the latter.

Boſſu divides the *Cataſtrophe*, at leaſt, with regard to the *Epopea*, into the Unravelling, or *Denouément*, and the *Achevement*, or Finiſhing; the laſt of which he makes the Reſult of the firſt, and to conſiſt in the Hero's Paſſage out of a State of Trouble and Agitation, to Reſt and Quiet. This Period is but a Point, without Extent, or Duration; in which it differs from the firſt, which comprehends every thing after the Knot, or Plot laid. He adds, that there are ſeveral Unravellings in the Piece, in regard there are ſeveral Knots, which beget one another: The *Finiſhing*, is the End of the laſt Unravelling. See KNOT, TRAGEDY, COMEDY, FABLE, *&c.*

The *Cataſtrophe* made the fourth and laſt Part in the antient *Drama*; or that immediately ſucceeding the *Cataſtaſis*. See CATASTASIS.

CATCH-*Land*, is ſuch *Land*, particularly in *Norfolk*, which is not certainly known to what Pariſh it belongs; ſo that the Parſon who firſt gets the Tithes there, enjoys it for that Year.

CATCH-POL, a Term now us'd, by way of Reproach, for a Bailiff's Follower, or Aſſiſtant; ſee BAILIFF. Antiently, it was a Term of Credit, apply'd to thoſe we now call *Serjeants of the Mace*, *Bailiffs*, or any other that uſe to arreſt Men on any Action. See SERGEANT, *&c.*

CATECHU, in Medicine, a ſort of medicinal Earth, call'd alſo *Cachou*, and *Japan Earth*. See CACHOU, and JAPAN *Earth*.

CATECHUMEN, a Candidate of Baptiſm; or a Perſon who prepares himſelf for the receiving thereof: See BAPTISM.

Authors diſtinguiſh three Kinds of *Catechumens*, among the Antients, *viz.* thoſe who were only Hearers, diſtinguiſh'd by the Name *Audientes*; thoſe who bowed, *Genu flectentes*; and thoſe qualify'd for Baptiſm, call'd *Competentes*; who were alſo *Genu flectentes*, becauſe of their bowing at the Rehearſal of certain Prayers over them. Others make but two Orders, *viz.* the *Genu flectentes* as the firſt; and the *Audientes*, or Hearers, call'd *Imperfecti*: The *Imperfecti* were thoſe of the Heathens, who preſented themſelves for Baptiſm. *Perfecti*, were thoſe ſufficiently inſtructed in the Faith. Some add another Kind of *Catechumens*, call'd *Electi*; as being choſen and nominated for that End: Others, laſtly, diſtinguiſh the three Orders into *Audientes*, or thoſe admitted to the hearing the Catechiſm, and other Inſtructions; the *Electi*, thoſe ſufficiently inſtructed, and choſen to receive Baptiſm; and *Competentes*, who were in a State and Diſpoſition for its Reception.

The *Catechumens* were not only diſtinguiſh'd by Name, but alſo by Place: They were diſpos'd, with the Penitents, in the *Portico*, at the Extremity of the Church, oppoſite to the Choir. They were not allow'd to aſſiſt at the Celebration of the Euchariſt; but after Sermon, the Deacon diſmiſs'd them with this Form, *Ite Catechumeni, miſſa eſt.*

The

The Word comes from the *Greek* κατηχέομαι, *I am instructed*: Whence, *Catechumenium*, the Gallery, or upper Part of the Church; which was thus call'd, either because the *Catechumens* sat here, or were here instructed.

CATEGOREMA, in Logic, &c. the same with *Category*, or *Predicament*. See CATEGORY.

CATEGORY, or *Predicament*, in Logic, a System, or Assemblage, of all the Beings contain'd under any Genus, or Kind; rang'd in order: See GENUS. The School Philosophers distribute all Beings, all the Objects of our Thoughts or Ideas into certain *Genera*, or Classes, in order to get a more distinct and precise Notion thereof; which Classes they call *Categories*, or *Predicaments*. See PREDICAMENT.

The Antients, after *Aristotle*, generally make ten *Categories*: Under the first, all Substances are compris'd; and all Accidents under the nine last, *viz.* Quantity, Quality, Relation, Action, Passion, Time, Place, Situation, and Habitude; which are usually express'd, or signify'd, by the following Technical Distich.

Arbor, Sex, Servos, Ardore, refrigerat, ustos
Ruri, cras, stabo, nec tunicatus Ero.

These ten *Categories* of *Aristotle*, which Logicians make such Mysteries of, are now almost out of Doors; and, in effect, are of little use: the less, as being Things purely arbitrary, without any Foundation, but in the Imagination of a Man, who had no Authority to prescribe Laws for ranging the Objects of other Peoples Ideas. Accordingly, Some Philosophers think all Nature may be better consider'd under these seven Things, Spirit, Matter, Quantity, Substance, Figure, Motion, and Rest: And others make but two *Categories*, Substance and Accident.

The Word *Category*, was borrow'd by the Schools from the *Forum*, or Courts of Justice: For as, in a Trial, the Plaintiff, or Prosecutor, in accusing the Criminal, or Prisoner, must charge him expressly, or affirm that he did this or that, in positive Terms; whence the Word *Category*, viz. κατηγορεῖν, *to aver*, or *declare*: So in the Doctrine of *Categories*, every higher may be expressly, and absolutely predicated, or affirm'd of every lower.

CATENA, in Anatomy, a Muscle, otherwise call'd *Tibialis Anticus*; which see.

CATENARIA, in the higher Geometry, a Curve Line which a *Chain*, or Rope forms it self into, when hung freely between two Points of Suspension. See CURVE.

To conceive the general Nature or Character of this Curve, suppose, 1st, a Line heavy and flexible, (see Tab. *Geom.* Fig. 25.) the two Extremes of which, F and D, are firmly fix'd in those Points; by its weight it is bent into a certain Curve F A D, which is call'd the *Catenaria*. 2dly, Let B D and *b d* be parallel to the Horizon, A B perpendicular to B D, and D *δ* parallel to A B; and the Points B *b* infinitely near to each other. From the Laws of Mechanicks, any three Powers, *in Æquilibrio*, are to one another, as the Lines parallel to the Lines of their Direction, (or inclin'd in any given Angle) and terminated by their mutual Concourses: Hence, if D *d* expresses the absolute Gravity of the Particle D *d*, (as it will, if we allow the *Chain* to be every way uniform) then D *δ* will express that Part of the Gravity, that acts perpendicularly upon D *d*; and by the means of which, this Particle endeavours to reduce it self to a vertical Position: So that if this Lineola *d δ* be constant, the perpendicular Action of Gravity upon the Parts of the *Chain* will be constant too; and may therefore be express'd by any given right Line *a*. Farther, the Lineola D *δ*, will express the Force which acts against that Conatus of the Particle D *d* (by which it endeavours to restore it self into a Position perpendicular to the Horizon) and hinders it from doing so. This Force proceeds from the ponderous Line D A, drawing according to the Direction D *d*; and is, *cæteris paribus*, proportional to the Line D A, which is the Cause of it. Supposing the Curve FAD, therefore, as before, whose Vertex (the lowest Point of the *Catena*) is A, Axis A B, Ordinate B D; Fluxion of the Axis D *δ* = B *b*, Fluxion of the Ordinate *d δ*; the Relation of these two Fluxions is thus, *viz.* *d δ* : D *d* :: *a* : D A Curve; which is the fundamental Property of the Curve, and may be thus express'd (putting A B = *x*, and BD = *y*, and A D = *c*) $y = \frac{ax}{c}$. For more on this Subject, see *Philosophical Transactions*, N° 231, where it is enlarg'd upon by Dr. *Gregory*.

CATERER. See PURVEYOR.

CATHARTICS, *Purgative Medicines*, or Remedies that promote Evacuation by Stool; see PURGATIVES.

Some use the Word *Cathartic* in a more general Sense, comprehending under it Emetics, or Vomitives; but this seems an Abuse: See EMETICS.

Cathartics, in the proper Sense of the Word, are of several Kinds, *mild*, *moderate*, and *violent*: The first purge gently, as *Cassia*, *Manna*, *Tamarinds*, *Rhubarb*, *Sena*, &c. the second pretty briskly, as *Jallop*, and *Scamony*, &c. the third severely, as *Colocinth*, *Hellebore*, *Laureola*, &c. See each under its proper Article, CASSIA, MANNA, RHUBARB, &c.

Cathartics are likewise divided into *Chologogues*, *Phlegmagogues*, *Melanogogues*, and *Hydrogogues*; the first suppos'd to purge the Bile, the second Pituita, the third Melancholy, and the fourth Serosities. See CHOLOGOGUES, PHLEGMAGOGUES, &c. The Word comes from the *Greek* καθαίρω, *purgo*, I purge.

For the Theory of *Cathartics*, and the manner wherein they operate, see PURGATIVES.

CATHEDRAL, a Church wherein is a Bishop's See, or Seat; see BISHOP.

The Word seems to take its rise from the manner of sitting in the antient Churches, or Assemblies of primitive Christians: In these, the Council, *i. e.* the Elders and Priests, was call'd *Presbyterium*; at their head was the *Bishop*, who held the Place of Chairman, *Cathedralis*; and the *Presbyters*, who sate on either side, were also call'd by the antient Fathers, *Assessores Episcoporum*. The Episcopal Authority did not reside in the Bishop alone, but in all the Presbyters, whereof the Bishop was President. See PRESBYTER.

A *Cathedral* therefore, originally, was different from what it is now; the Christians, till the Time of *Constantine*, having no liberty to build any Temple: by their Churches they only meant their Assemblies; and by *Cathedrals*, nothing more than *Consistories*. Whence appears the Vanity of some Authors, especially the *Spaniards*, who pretend their *Cathedrals* to have been built in the Times of the Apostles. The Word comes from the *Greek* καθέδρα, *Chair*, of καθίζομαι, *sedeo*.

CATHERETIC *Medicines*, such as consume and carry off Carnosities, proud Flesh, and Excrescences arising in Wounds, &c. such are the *red Precipitate*, *burnt Alom*, *blue Vitriol*, *Stone*, &c.

The Word is form'd from the *Greek* κατὰ, and αἱρέω, *I take away*, *carry off*.

Some call these Medicines *Sarcophages*, Flesh-eaters. See CAUSTIC.

S. CATHERINE *of Mount* Sinai, a Military Order, instituted in 1603, on occasion of finding the Body of *S. Catherine* on *Mount Sinai*; which drawing a great Concourse of Pilgrims from all Quarters, an Order of Knights was establish'd, on the Foot of that of the *Holy Sepulchre*, to render the Journey more safe among the *Arabs*. See SEPULCHRE.

They receiv'd the Rule of St. *Basil*, and own'd *St. Catherine* for their Patroness: Their Vows were, to follow their Rule, guard the Body of their Patroness, secure the Roads in favour of Pilgrims, defend the Catholick Church, and obey their Grand Master. The Order is now extinct, as well as that of the *Holy Sepulchre*.

CATHETER, among Chirurgeons, a hollow Probe, or Instrument, somewhat crooked, to thrust up the Yard into the Bladder; in order to assist in making Urine, when the Passage is stopp'd by the Stone, Gravel, Caruncles, &c.

The Word comes from the *Greek* καθιμι, *immitto*, to send in.

Hence, *Catheterism* is the Operation of drawing the Urine out of the Bladder with a *Catheter*.

CATHETUS, in Geometry, a Perpendicular; or a Line, or Radius, falling perpendicularly on another Line, or Surface: See PERPENDICULAR.

Thus, the *Catheti of a rectangled Triangle*, are the two Sides that include the right Angle. See RECTANGLE.

CATHETUS *of Incidence*, in Catoptrics, is a right Line drawn from a radiant Point, perpendicular to the Plane of the *Speculum*, or Mirror. See INCIDENCE.

CATHETUS *of Reflection*, or *of the Eye*, a right Line drawn from any Point of a reflected Ray, perpendicular to the Plane of Reflection, or of the *Speculum*. See REFLECTION.

CATHETUS *of Obliquation*, a right Line, drawn perpendicular to the *Speculum*, in the Point of Incidence or Reflection.

CATHETUS, in Architecture, is a perpendicular Line, passing along thro the middle of a Column: or that thro the Eye of the Volute, in the *Ionic* Capital; call'd also *Axis*. See AXIS, and VOLUTE.

CATHOLICK, is us'd in the Sense of *Universal*, or *General*; see GENERAL, &c.

Theodosius the Great, first introduc'd the Term *Catholick* into the Church; appointing by an Edict, that the Title should be apply'd, by way of Pre-eminence, to those Churches who adher'd to the Council of *Nice*, in Exclusion of the *Arians*, &c. *Catholicism*, however, soon chang'd Hands; for under the Emperor *Constantius*, *Arianism* became so predominant, that the *Arians* were call'd the *Catholicks*. See ARIAN, &c.

The Title of *Catholick King*, has been hereditary to the King of *Spain*, ever since the Time of *Ferdinand* and *Isabella*. *Colombiere* says, it was given on occasion of the

Expulsion of the *Moors*. The *Bollandists* pretend, the Title was bore by their Predecessors, the *Visigoth* Kings of *Spain*; and that *Alexander* VI. only renew'd it to *Ferdinand* and *Isabella*. Others say, that *Philip de Valois* first bore the Title; which was given him after his Death by the Ecclesiasticks, on account of his favouring their Interests.

In some Epistles of the antient Popes, the Title *Catholick* is given to the Kings of *France*, and of *Jerusalem*, as well as to several Patriarchs and Primates. The Word is form'd from the *Greek* καθ' ὅλα, *universally*; whence καθολικὸς, *universal*.

Catholic *Furnace*, is a little Furnace, so contriv'd, as to be fit for all kinds of Operations, which do not require an intense Fire. See Furnace.

CATHOLICON *of Spain*. See Menippean *Satyr*.

Catholicon, in Pharmacy, a kind of soft Electuary; so call'd, as being supposed *universal*; or a Purger of all Humours. See Electuary.

Different Authors give different Recipes for it: That call'd *Catholicon Nicholai* is most in use; it consists of 16 Ingredients, the chief whereof are Tamarinds, Cassia, Sena, and Rhubarb. It is said to be *double*, when there is a double Portion of Sena and Rhubarb.

The *Catholicon for Clysters*, only differs from this, in that it has no Rhubarb, and that Honey is us'd instead of Sugar. See Clyster.

CATKINS, in Natural History, a Substance growing on Nut-Trees, Birch-Trees, &c. in Winter time. See Plants.

CATLIN, among Surgeons, is a Dismembring Knife, for cutting off any corrupted Part of a Body.

CATOPSIS, in Medicine, a Disorder of the Sight; more usually call'd *Myopia*. See Myopia.

CATOPTRICS, the Science of *Reflex Vision*; or that Branch of Optics, which delivers the Laws of Light, reflected from Mirrors, or *Specula*. See Mirror, and Reflection; see also Vision, Light, and Optics. Under which Heads, the Doctrine and Laws of *Catoptrics* are laid down.

The Word comes from the *Greek* κατοπτρον, *Speculum*; of κατα, and οφθαμαι, *video*, I see.

Catoptrical *Dial*, a Dial which exhibits Objects by reflected Rays. See Reflecting *Dial*.

Catoptric *Telescope*, a Telescope that exhibits Objects by Reflection; see Reflecting *Telescope*.

Catoptric *Cistula*, a Machine, or Apparatus, whereby little Bodies are represented extremely large; and near ones extreamly wide, and diffus'd thro a vast Space; and other agreeable Phænomena, by means of Mirrors, dispos'd by the Laws of *Catoptrics*, in the Concavity of a kind of Chest.

Of these there are various Kinds, accommodated to the various Intentions of the Artificer: Some multiply the Objects; some deform 'em; some magnify, &c. The Structure of one or two of 'em, will suffice to shew how infinite more may be made.

To make a Catoptric *Cistula, to represent several distinct Scenes of Objects, when look'd in at several* Foramina, *or Holes.*

Provide a polygonous *Cistula*, or Chest, of the Figure of the Multilateral Prism A B C D E F, (Plate *Optics*, Fig. 19.) and divide its Cavity by Diagonal Planes E B, F C, D A, intersecting each other in the Centre G, into as many triangular Locules, or Cells, as the Chest has Sides. Line the Diagonal Planes with plane Mirrors: In the lateral Planes make round Holes, thro which the Eye may peep within the Locules of the Chest. The Holes are to be cover'd with plain Glasses, ground within-side, but not polish'd, to prevent the Objects in the Locules from appearing too distinctly. In each Locule are plac'd the different Objects, whose Images are to be exhibited; then covering up the Top of the Chest with a thin transparent Membrane, or Parchment, to admit the Light, the Machine is compleat.

For, from the Laws of Reflection, it follows, that the Images of Objects, plac'd within the Angles of Mirrors, are multiply'd, and appear some more remote than others; whence the Objects in one Locule, will appear to take up more room than is contain'd in the whole Chest. By looking, therefore, thro one Hole only, the Objects in one Locule will be seen; but those multiply'd, and diffus'd thro a Space much larger than the whole Chest: thus every new Hole will afford a new Scene: According to the different Angles the Mirrors make with each other, the Representations will be different; if they be at an Angle greater than a right one, the Images will be monstrous, &c. See Anamorphosis.

The Parchment that covers the Machine, may be made pellucid, by washing it several times in a very clear Lye, then in fair Water, and bracing it tight, and exposing it to the Air to dry. If 'tis desir'd to throw any Colour on the Objects, it may be done by colouring the Parchment. *Zahnius* recommends Verdigrease, ground in Vinegar, for green; Decoction of *Brasil* Wood, for red, &c. He adds, it ought to be varnish'd, to make it shine:

To make a Catoptric *Cistula, to represent the Objects within it prodigiously multiply'd, and diffus'd thro a vast Space.*

Make a polygonous *Cistula*, or Chest, as before, but without dividing the inner Cavity into any Apartments or Locules; (Plate *Optics*, Fig. 20.) line the lateral Planes C B H I, B H L A, A L M F, &c. with plane Mirrors, and at the *Foramina*, or Apertures, pare off the Tin and Quicksilver, that the Eye may see thro: Place any Objects in the Bottom M I, *v. g.* a Bird in a Cage, &c.

Here, the Eye looking thro the Aperture *h i*, will see each Object plac'd at bottom, vastly multiply'd, and the Images remov'd at equal Distances from one another. Hence, were a large multangular Room, in a Prince's Palace, lin'd with large Mirrors, over which were plain pellucid Glasses to admit the Light; 'tis evident the Effects would be very surprising and magnificent. See Mirror, Reflection, &c.

CATOPTROMANCY, a kind of Divination, among the Antients; so called, because consisting in the Application of a *Mirror*; from κατοπτρον, *Speculum*, and μαντεια, *Divinatio*. See Divination.

Pausanias says, it was in use among the *Achaians*, where those who were sick, and in danger of Death, let down a Mirror, fasten'd by a Thread, into a Fountain before the Temple of *Ceres*; then, looking in the Glass, if they saw a gastly disfigur'd Face, they took it as a sure Sign of Death: on the contrary, if the Face appear'd fresh and healthy, 'twas a Sign of Recovery.

CAVA, in Anatomy, the Name of a Vein, the largest in the Body, terminating in the right Ventricle of the Heart; where it opens with a large Mouth, to convey to it the Blood brought from all the Parts of the Body, by the Branches of the other Veins, which all terminate in the *Cava*. See Vein.

At its Entrance into the right Ventricle, it has three membranous Valves, call'd *Tricuspides*, or *Triglochines*, from their triangular Figure; so accommodated, as to allow the Blood's passage from the *Cava* to the Heart, and to prevent its return. See Heart, and Valves.

The *Cava* is divided into the *ascending* and *descending* Parts: The *ascending Cava*, is that which arises from the lower Parts; so call'd, because the Blood hereby convey'd to the Heart, mounts, or *ascends*. The *descending Cava* comes from the upper Parts, and is so called, because the Blood hereby brought from the Brain, and other Parts, *descends*. See Blood, and Circulation.

CAVALCADE, a formal, pompous March, or Procession of Horsemen, Carriages, &c. by way of Parade, or Ceremony. See Carrousal, Tilt, Quadril, &c.

CAVALEER, or CAVALIER, a Horseman, or Person mounted on Horseback. Antiently, the Word was restrain'd to a *Knight*, or *Miles*. See Knight, and Miles. The *French* still use *Chevalier* in the same Sense. See Chevalier.

Cavalier, in Fortification, a Terrace, or Platform, commanding all around the Place. 'Tis rais'd 18, or 29 Foot high, atop of a Rampart, for placing the Cannon on, and securing the Country about. 'Tis sometimes also made in the Country, to play in upon the Town; and as much above the other Works, as a Man *on Horseback* is above a Footman; whence the Denomination.

In form, the *Cavalier* is sometimes round, and sometimes square; having always a Parapet to cover the Cannon: Its Breadth depends on the Number of Pieces to be lodg'd on it; there being always allow'd an Interval of 10 or 12 Foot between each two, for the Conveniency of loading and firing.

The *Cavalier* is also sometimes call'd a *double Bastion*.

Cavaliers, or Cavaleers, consider'd as a Faction; see Tory.

CAVALRY, a Body of Soldiers, who fight, or march on Horseback. See Soldiers; see also Guards.

The English *Cavalry* is divided into *Horse*, and *Dragoons*; the *French* into *Companies of Ordnance*, as the *Gardes du Corps*, *Gens d'Armes*, *Light-Horse*, &c. and into *Regiments*, commanded by *Mestres de Camp*. The Dragoons, among the *English*, and the Regiments among the *French*, form what they call the *light Cavalry*. When an Army is rang'd in order of Battel, the *Cavalry* is posted on the Wings.

Bodies of *Cavalry*, rang'd in form of Battel, are call'd *Squadrons*. See Squadron.

The *Romans*, in their first Wars, were unacquainted with the use of *Cavalry*, and made their whole Force consist in *Infantry*; insomuch, that even in the Engagement they made their Horse dismount, and fight on Foot; never resuming their Horses, but to pursue the Enemy the better when routed. It was the *Cavalry* of *Pyrrhus*, that first occasion'd them to alter their Sentiments; but especially that of *Hannibal*, which struck them with such a Terror, that the invincible *Roman* Legions durst not attack them on even Ground.

The Word comes from the corrupt Latin *Caballus*, a Horse; whence *Caballarius*, and *Cavallarius*, in the later *Latin*, and καβαλλαρίος, in the *Greek*.

CAUDA *Draconis*, the *Dragon's Tail*, in Astronomy, the Name of the Moon's descending Node; see NODE.

CAVEAT, in Law, a Bill enter'd, in the Ecclesiastical Court, to stop the Proceedings of one who would prove a Will to the Prejudice of another.

CAVERNOSA *Corpora*, in Anatomy, call'd also *Corpora nervosa*, and *spongiosa*, are two cavernous Bodies, of an indeterminate Length and Thickness, whereof the *Penis* is principally compos'd. See PENIS.

Their internal Substance is rare, and spongy; and when fill'd with Blood and Spirits, dilates and swells: in which, the Tension, or Erection of the Yard consists. See ERECTION.

They have two distinct Beginnings from the lower Side of the *Ossa Pubis*; whence they increase in bulk, till their meeting with the *Corpus Cavernosum Urethræ*, where they join into one, and are retain'd by means of a *Septum* compos'd of their outer Tunics: Their other Extremities are capp'd with the Glans; see GLANS.

CAVERNOSUM *Corpus Urethræ*, a third spongious Body of the Penis; so called, because the *Urethra*, or urinary Passage of the Penis is inclos'd therewith. See URETHRA.

Its Figure, contrary to that of the two *Corpora Cavernosa*, is largest at its Extremities, and least in the Middle; its upper Part is in the *Perinæum*, and is call'd its *Bulb*, from its Figure. Its external Membrane is thin, and divided lengthwise by a *Septum*. The middle Part of the *Corpus* is nearly cylindrical; but the Passage for the Urine is not along the Centre, but inclines to its upper Part, next the Body of the Penis; its lower Extremity dilating it self, forms the *Glans*. See GLANS.

CAVERNOSA *Corpora of the Clitoris*, are two nervous or spongy Bodies, like those of the Penis; having their Origin from the lower Part of the *Os Pubis*, on each side; and uniting together, constitute the Body of the *Clitoris*, as those do that of the Penis. See CLITORIS.

Indeed, they have no Perforation analogous to that of the Penis; but they have a *Septum*, or membranous Partition, running all along between 'em, and dividing 'em from the *Glans*, to its Devarication at the *Os Pubis*, where they are call'd *Crura Clitoridis*: See CRURA *Clitoridis*.

CAVERNOSUM *Corpus of the Pudendum*. See RETICULARE *Corpus*.

CAVESON, in the Manage, a kind of Bridle, or Musroll, put on the Horse's Nose, which binds or locks him in, and serves in breaking, managing, and tutoring him.

The *Cavesons* for breaking young Horses, are usually of Iron, made semicircularly, of two or three Pieces turning on Joints; others are twisted, others flat, others hollow in the Middle, and indented like Saws, call'd *Mordants*: tho these last are now banish'd the Academies. The Rope and Leathern *Cavesons*, serve for passing the Horse between two Pillars. The Word comes from the Spanish *Caveça*, Head.

CAVETTO, in Architecture, a hollow Member, or Moulding, containing a Quadrant of a Circle, and having an Effect just contrary to that of a Quarter-round: It is us'd as an Ornament in Cornices.

M. *Felibien* observes, that the Workmen confound the *Cavetto* with a *Scotia*, but to ill Purpose; the *Cavetto* being in effect only half a *Scotia*: yet he himself is chargeable with the same Oversight. See SCOTIA.

When in its natural Situation, the Workmen frequently call it *Gula*, or *Gueule*; and when inverted, *Gorge*. See GULA, and GORGE.

The Word is *Italian*, and no more than a Diminutive of *Cavus*, hollow.

CAVIA, or KAVIA, call'd also *Cavial*, *Caviac*, and *Caviar*, a kind of Food, or Ragout, in mighty use and repute throughout *Muscovy*; and lately introduc'd upon the *English* Table.

The *Cavia*, or *Kavia*, is the Roe, or Eggs of the Fish Sturgeon, taken out, salted, and dry'd at the Sun, or by the Fire. The *Italian* Merchants settled at *Moscow*, drive an incredible Trade with *Cavia*; the Fish being caught in prodigious Quantities at the Mouth of the *Volga*, and other Rivers which empty themselves into the *Caspian Sea*. They cure, or prepare the Roes on the Spot, and thence send it up the *Volga* to *Moscow*, to be there distributed throughout that vast Empire; where it is of wonderful service to the People, on account of the three Lents there observ'd with great Severity. See *Sturgeon* FISHERY.

The *English* import considerable Quantities of this Commodity from *Archangel*; tho not so much for home Consumption, as to supply the *French* and *Italians*. To be good, it should be of a reddish brown Colour, and very dry. 'Tis eat with Oil and Lemon; sometimes with Vinegar: Some eat it alone with Bread; and others only as a Sauce, or Pickle, like Anchovies.

CAVIN, in Fortification, is a hollow Place, proper to favour the Approaches to a Fortress; so that one may advance therein, under Covert, towards the Enemy, as it were in a Trench. If it be within Musket-shot, 'tis a Place of Arms, ready made to hand; and a Convenience for opening the Trenches, out of fear of the Enemy's Shot.

CAVITIES, among Anatomists. See VENTER, and REGION.

CAUL, in Anatomy, a Membrane in the Abdomen, covering the greatest part of the Guts; called, from its Structure, *Reticulum*, but most popularly *Omentum*. See OMENTUM.

CAUL is likewise a little Membrane, found on some Children encompassing the Head, when born.

Drelincourt takes the *Caul* to be only a Fragment of the Membranes of the *Fœtus*; which ordinarily break at the Birth of the Child: See FOETUS.

Lampridius tells us, that the Midwives sold this *Caul* at a good price to the Advocates and Pleaders of his Time; it being an Opinion, that while they had this about them, they shou'd carry with 'em a Force of Persuasion which no Judge could withstand: The Canons forbid the Use of it; because some Witches and Sorcerers, it seems, had abus'd it.

CAULICOLES, CAULICULI, in Architecture, are eight lesser Branches, or Stalks, in the *Corinthian* Capital, springing out from the four greater or principal *Caules*, or Stalks. See *Corinthian* CAPITAL.

The eight Volutes of this Order, are sustain'd by four *Caules*, or primary Branches of Leaves; and from which arise these *Caulicoles*, or lesser Foliages. See VOLUTE, and LEAVES.

Some Authors confound these with the *Volutes* themselves; some with the *Helices* in the Middle, and some with the principal *Stalks* whence they arise.

The Word comes from the Latin *Caulis*, the Stalk, or Stem of a Plant, whence the Leaves and Branches arise.

CAULIFEROUS *Herbs*, are such as have a true *Caulis*, Stalk, or Trunk, which a great many have not; as the *Capillaries*, &c. See STEM, STOCK, CAPILLARIES, &c.

CAUSALITY, in Metaphysics, is the Power, or Action of a Cause in producing its Effect. See CAUSE.

'Tis a Dispute, among the School Philosophers, whether, and how the *Causality* is distinguish'd from the *Cause* and *Effect*: Some hold it a Mode, or Modal Entity, superadded to the Cause, &c. others contend for its being the Cause it self, only consider'd *principiativè* and *terminativè*, &c.

CAUSE, that whence any thing is; or by virtue whereof a thing is done: Thus a Wound is the *Cause* of Death, Crudity of a Disease, &c. *Cause* is a Term of a Relation to *Effect*; see EFFECT.

First CAUSE, is that which acts of it self, and from its own proper Force, or Virtue; in which Sense, God is the only *First Cause*. See GOD.

Second CAUSES, are those which derive the Power, and Faculty of acting, from a First *Cause*. Such *Causes* don't properly act at all; but are acted on: and therefore are improperly call'd *Causes*: of which Kind are all those that we call *Natural Causes*. See NATURE.

F. *Malebranch* denies *Second*, or *Natural Causes*, to have any Force, Power, or Efficacy to produce any Effect; and thinks the Notion in it self inconceivable. 'Tis certain the Philosophers are strangely puzzled, and divided about the manner of their Agency: Some maintain 'em to act by their *Matter*, *Figure*, and *Motion*; see CORPUSCULAR: others by a *substantial Form*; see *Substantial* FORM: many by *Accidents*, or *Qualities*; some by *Matter* and *Form*; others by certain *Faculties* different from all these: See FACULTY, FORM, QUALITY, &c.

Some maintain, that the substantial Form produces Forms; and the accidental, Accidents; others, that Forms produce other Forms and Accidents; others, lastly, that Accidents alone are capable of producing Accidents, and even Forms. Again, those, for Instance, who say that Accidents may produce Forms, by the Virtue they have receiv'd from the Form to which they are join'd, don't all mean the same thing: Some will have it, that these Accidents are only the Force or Virtue of the substantial Form; others, that they receive the Influence of the Form, and only act by virtue thereof: others, lastly, that they are only *Instrumental Causes*.

Again, the Philosophers are divided as to the Action whereby *Second Causes* produce their Effects: Some maintain, that the *Causality* cannot be produc'd, since 'tis that produces; others will have 'em to act truly by their Action; but they are still at a loss about that Action.

Such Variety is there in the Sentiments even of modern Philosophers; and those too our Neighbours: nor are the Antients, and those at a Distance from us, better agreed: *Avicenna*, *v. g.* does not allow that corporeal Substances can produce any thing but Accidents. His System, according to *Ruvio*, is this: God produces, immediately, a most perfect spiritual Substance; this produces another less perfect;

fect; that a third: and thus to the laſt; which laſt produces all the corporeal Subſtances; and thoſe corporeal Subſtances Accidents. But *Avicenna*, not being able to conceive how corporeal Subſtances, which cannot penetrate one another, ſhould be capable of altering one another, will have it, that only Spirits are capable of acting on Bodies; becauſe nothing elſe can penetrate 'em. See *Occaſional* Cause.

Causes, in the School Philoſophy, are diſtinguiſh'd into, *Efficient* Causes, which are the Agents that produce any thing. See Efficient *Cauſe*.

Material Causes, the Subjects whereon the Agent works, or whereof the Thing is form'd: thus, Marble is the *Matter* or *Material Cauſe* of the Statue. See Material *Cauſe*.

Formal Causes, the Changes reſulting from the Action, or that which determines a Thing to be this, and diſtinguiſhes it from every thing elſe: Thus, the Soul is the *Form*, or *Formal Cauſe* of Man, &c. See Formal *Cauſe*.

Final Causes, the Motives which induc'd a Man to act; or the End for which the Thing is done: thus, Victory and Peace are the *Final Cauſes* of War. See Final *Cauſe*.

Some add the *Exemplary* Cause, which is the Model the Agent forms, or propoſes, and by which he conducts himſelf in the Action; but this is not properly any *Cauſe* at all. See Exemplary *Cauſe*.

Causes, again, are diſtinguiſh'd into *Phyſical*, or *Natural*, and *Moral*.

A *Phyſical* Cause, is that which produces a ſenſible corporeal Effect: thus, the Sun is the *Phyſical Cauſe* of Heat.

A *Moral Cauſe*, is that which produces a real Effect, but in Things immaterial: thus, Repentance is the *Cauſe* of Forgiveneſs.

Others define a *Phyſical Cauſe* to be that which produces its Effect by a *Phyſical* Virtue; and a *Moral Cauſe*, that which determines the *Phyſical Cauſe*, tho not neceſſarily, to produce the Effect: in which Senſe, 'tis alſo call'd a *Diſpoſitive*, *Excitative*, and *Imputative Cauſe*.

Thus, the Sun is the *Phyſical Cauſe* of Light; a Stone that breaks the Skull, a *Phyſical Cauſe* of Death: and thus the Advice, Intreaty, Commands, or Menaces which determine us, tho not neceſſarily, to do, or not to do any thing, are *Moral Cauſes*.

In this Senſe, a *Moral Cauſe* is only applicable to a free intelligent Agent; and 'tis this Notion of a *Moral* or *Phyſical Cauſe*, that is the moſt juſt, clear, and diſtinct. See Moral *Cauſe*.

Causes, again, are conſider'd, either as *Univerſal*, or *Particular*; *Principal*, or *Inſtrumental*; *Total*, or *Partial*; *Univocal*, *Equivocal*, &c.

An *Univerſal* Cause, is that which by the Extent of its Power may produce all Effects. See Universal.

A *Particular* Cause, is that which can only produce a ſingle Effect, or a certain kind of Effects.

A *Principal* Cause, is that which gives Motion to the Inſtrument, or which does not operate beyond its own natural Efficacy.

An *Inſtrumental* Cause, is that us'd by the Principal to produce its Effect; or which is excited to produce an Effect, beyond the Meaſure of its own Perfection.

A *Total* Cause, is that which produces the whole Effect.

A *Partial* Cause, that which concurs with ſome other in producing the Effect.

An *Univocal* Cause, is that which is of the ſame Kind and Denomination with its Effect; as a Man the *Cauſe* of a Man. See Univocal.

An *Equivocal* Cause, is that which is of a different Kind and Denomination from its Effect; as the Sun is the *Cauſe* of the Animals it produces. See Equivocal.

The *Carteſians* reſolve all *Phyſical Cauſes* into *Occaſional* ones.

Occaſional Causes, are only the *Occaſions*, not the direct *Cauſes* of their Effects. See Occasion.

The Soul, ſay thoſe Philoſophers, is not able to act on the Body; nor the Body reciprocally on the Soul: to keep up an Intercourſe between 'em, God, on *occaſion* of the Motion of the Body, impreſſes a Senſation on the Soul; and, on *occaſion* of a Sentiment of the Soul, impreſſes a Motion on the Body. The Motions, therefore, of the Soul and Body, are only *Occaſional Cauſes* of what paſſes in the one or the other: thus, ſay they, the Stroke or Percuſſion, is only the *Occaſional Cauſe* of the Motion produc'd in the Body ſtruck: 'Tis God is the direct *Efficient Cauſe*. And thus the Action of Objects on our Organs, is not the *Efficient Cauſe* of our Ideas and Perceptions, but merely the *Occaſional Cauſe*, which determines God to act on the Mind, according to the Laws of the Union of Soul and Body. But the Conſequences that follow from this fine Reaſoning are very unlucky, not to ſay ridiculous: Thus, 'tis not the Cannon-Ball that kills the Man, or beats down the Wall, but 'tis God that does it: the Motion of the Cannoneer, whoſe Arm, mov'd by the Power of God, apply'd Fire to the Pouder, determin'd God to inflame that Pouder; the Pouder inflam'd, determin'd God to drive out the Ball; and the Ball driven, with an inco[illegible] exterior Surface of the Body of a [illegible] mines God to break the Bones of [illegible] the Wall, &c. A Coward, who [illegible] away at all; but the Motion of his [illegible] by the Impreſſion of a Squadron of [illegible] him, with Bayonets at the Ends of t[illegible] ter-mines God to move the Coward's [illegible] him from them.

It has been often ſaid, in a moral Senſe, [illegible] the World is a Comedy, and that each Man only acts [illegible] Part; but it may be here ſaid, in a ſtrict Phyſical one, that the Univerſe is a Puppet-Show, and each Man a Punchinello, making a great deal of Noiſe without ſpeaking, and buſtling without moving.

CAUSTICS, in Medicine, &c. are ſuch Things as have the Virtue of *Burning*, or are *Corroſive*; particularly thoſe Medicines which by their violent Activity, and the Heat thence occaſion'd, deſtroy the Texture of the Parts to which they are apply'd.

Cauſtics are us'd to eat off proud fungous Fleſh; they alſo penetrate within hard callous Bodies, and liquefy the Humours; and are particularly apply'd in Abſceſſes and Impoſthumations, to eat thro to the ſuppurated Matter, and give it vent.

The principal Medicines of this Claſs, are *burnt Alum*, *Sponge*, *Cantharides*, and other *Veſicatories*; as alſo *Orpiment*, *Calx viva*, *Vitriol*, *Aſhes of the Fig-Tree*, *the Aſh*, and *Wine Lees*; the *Salt* of the *Lixivium*, whereof Soap is made; *Sublimate*, *Mercury*, *red Precipitate*, &c. See each deſcrib'd under its proper Article, Alum, Vitriol, Cantharides, Orpiment, Mercury, Sublimate, Precipitate, &c.

Cryſtals of the Moon, and *Lapis Infernalis*, made of Silver and Spirit of Nitre, become *Cauſtics* by that Mixture. See Crystals, &c.

Thoſe *Cauſtics* which burn thro the Part, and leave a Scar, are particularly call'd *Canteries*; tho Dr. *Quincy* confounds the two together. See Cautery.

The Word comes from καυστικός, *urens*; of καιω, *uro*, I burn.

Caustic-*Glaſſes*. See Burning-*Glaſſes*.

Caustic *Curve*, in the higher Geometry, a *Curve* form'd by the Concourſe, or Coincidence of the Rays of Light reflected, or refracted from ſome other Curve. See Curve.

Accordingly, *Cauſtics* are divided into *Catacauſtic*, and *Diacauſtic*; the one form'd by Reflection, the other by Refraction. See Catacaustic, and Diacaustic.

Cauſtic Curves, are the Invention of M. *Tſchirnhauſen*, who firſt propos'd 'em to the Academy of Sciences, in 1682. They have this remarkable Property, that when the Curves that produce them are Geometrical, they are equal to known right Lines.

Thus, the *Cauſtic* form'd in a Quadrant of a Circle by reflected Rays, which came at firſt parallel to the Diameter, is equal to $\frac{3}{4}$ of the Diameter: which is a ſort of Rectification of Curves that preceded the Invention of the new Doctrine of Infinites; on which moſt of our other Rectifications are built. See Rectification.

The Academy appointed a Committee to examine the new Curves, *viz.* Meſſ. *Caſſini*, *Mariotte*, and *de la Hire*, which laſt doubted much of the Deſcription, or Generation, M. *de Tſchirnhauſen* gave of the *Cauſtic* by Reflection, from a Quadrant of a Circle. The Author refus'd to diſcover all his Method; and M. *de la Hire* perſiſted in holding the Generation ſuſpicious. M. *Tſchirnhauſen*, however, was ſo confident of it, that he ſent it to the *Leipſic* Journaliſts, tho without any Demonſtration.

CAUTERY, in Chirurgery, a burning Medicine, or a Compoſition of ſeveral Things, which gnaw, burn off, eat thro, and ſear the Parts; us'd, principally, in Abſceſſes, Impoſthumations, Ulcers, and Caries of the Bones, to open a Paſſage for the Diſcharge of ill Humours, &c.

Cauteries are of two Kinds, *Actual*, and *Potential*.

Actual Cauteries, are thoſe which produce an inſtantaneous Effect, as *Fire*, or *a red-hot Iron*, which are apply'd in the *Fiſtula Lachrymalis*, after Extirpations of Cancers, Amputations of Legs, or Arms, &c. in order to ſtop the Hemorrhages, and produce a laudable Suppuration. The Irons us'd on theſe Occaſions, are ſometimes crooked at the Extremity, and that variouſly, according to the various Occaſions: Whence ſome are called *Cultellary*, others *Punctual*, others *Olivary*, &c.

M. *Homberg* aſſures us, that a great Part of the Medicine of the People of *Java*, and other Parts of the *Eaſt Indies*, conſiſts in *Burning*, or the Application of actual *Cauteries*; and that there is ſcarce any Diſeaſe but they will happily cure thereby. See Burning.

Potential Cauteries, are Compoſitions of *Cauſtic* Medicines, uſually of Quick-lime, Soap, and Chimney Soot. See Caustics.

The *Actual Cautery*, or hot Iron, is frequently apply'd for the making of Iſſues, in Parts where cutting is difficult

or

kes a little round Hole, which is an Ivy Berry, to keep it open for ro. See Issue. *Pareus* describes *Velvet Cauteries*; so call'd because

ly apply'd to the Nape of the Neck, betw d second Vertebra, the exterior Part of th

The ies from the *Greek* καίω, *uro*.

CAUS , a massive Construction of Stone, Stakes, Fascines; o an Elevation of sat, viscous Earth, well beaten; serving ither as a *Road*, in wet marshy Places, or as a Mole to tain the Waters of a Pond, or prevent a River from ov flowing the lower Grounds. See Road.

The Word comes from the French *Chaussée*, antiently wrote *Chaulsée*; and that from the Latin *Calcata*; according to *Somner* a *Spelman*, *à calceando, aut a calce quia hujusmodi viæ cal muniuntur. Berger* rather takes the Word to have its rise *à peditum calceis, quibus teruntur.*

CAXA, a little leaden Coin, mix'd with a little Copper Skum, struck in *China*, but current chiefly at *Bantam*, in the rest of the Island of *Java*, and in some of the neighbouring Islands. See C n.

'Tis somewhat smaller than the French *Double*, and has a square Hole through the Middle; by means whereof, several of 'em are hung on the same String: This String, which they call *Santa*, contains 200 *Caxas*, equivalent to nine French *Deniers*, or somewhat less than three Farthings Sterling. Five *Santa* ty'd together, *i. e.* a thousand *Caxas*, make a *Sapacou*. Nothing can exceed the Brittleness of the *Caxa*; a String never falls to the Ground, without breaking at least 10 or 12 Pieces. Leaving 'em a Night steep'd in salt Water, they cling so firm to one another, that they are not to be separated without breaking one half of 'em. The *Malais* call 'em *Cas*, and the *Javese*, *Pitis*.

The *Caxas* are of two Kinds, *great* and *small*: The *small* are those we have been speaking of; 300000 whereof, are equal to 56 Livres 5 Sols, *Dutch* Money. The *large* are old *Caxas*; 6000 whereof are equal to the Piece of Eight, or 4 *s.* 6 *d.* Sterling. These are nearly the same with the *Caches* of *China*, and the *Cassies* of *Japan*.

CEILING, in Architecture, the upper Part, or Roof of a lower Room; or a Lay, or Covering of Plaister over Laths, nail'd on the Bottom of the Joists that bear the Floor of the upper Room; or on Joists for that purpose. See House, and Roof.

The Word *Ceiling*, answers pretty accurately to the Latin *Lacunar*, every thing over Head.

Plaister'd *Ceilings* are much us'd in *England*, more than any other Country: Nor are they without their Advantages, as they make the Room lightsome; are good in Case of Fire; stop the Passage of the Dust; lessen the Noise over Head; and, in Summer, make the Air cooler. See CELANDINE. See Chelidonia.

CELARENT, in Logic, a Syllogism whose second Proposition is an universal Affirmative; and the rest universal Negatives. See Syllogism.

CELATURA, the Art of *Engraving*. See Engraving.

CELERES, in Antiquity, a Body, or Regiment of Guards of the antient *Roman* Kings, establish'd by *Romulus*; consisting of 300 Youths chosen from the best Families of *Rome*, and approv'd by the Suffrages of the *Curiæ* of the People, each of which furnish'd ten. See Curiæ.

The *Celeres* always attended near the King's Person, to guard him, and to be ready to carry his Orders, and execute them. In War, they made the Vant-Guard in the Engagement, which they always begun first: In Retreats, they made the Rear-Guard.

Tho the *Celeres* were a Body of Horse, yet they usually dismounted, and fought on Foot: Their Commander was call'd *Tribune of the Celeres*. They were divided into three Troops, of 100 each, commanded by a Captain call'd *Centurio*. Their Tribune was the second Person in the Kingdom. See Tribune, Centurio, &c.

Plutarch says, *Numa* broke the *Celeres*: If this be true, they were soon re-establish'd; for we find them under most of the succeeding Kings: Witness the great *Brutus*, who expell'd the *Tarquins*, and who was *Tribune of the Celeres*.

The Word comes from *Celer*, *quick*, *ready*; and was given them, because of their promptness to obey the King; or, as some will have it, from the Name of their first Tribune: Others say, from one *Celer*, a Comerade of *Romulus*, who assisted him in the Combat with his Brother *Remus*, and is said to have slain that Prince.

Some say, the *Celeres* were the same with those afterwards call'd *Trossuli*, on account of their taking the City *Trossulum* in *Hetruria*, alone, without the Assistance of any Infantry.

CELERITY, in Mechanicks, is the *Velocity* of a moving Body; or that Affection of a Body in Motion, whereby it is enabled to pass over a certain Space, in a certain Time. See Velocity; see also Motion.

CELESTINS, an Order of Religious, reform'd from the *Bernardines*, in 1224, by Pope *Celestin* V. then only *Peter de Mourchon*, or *Morron*, of *Isernia* in *Naples*; and establish'd in 1264, by Pope *Urban* IV. and confirm'd by *Gregory* X. in 1274.

They were introduc'd into *France*, by *Philip* the Fair, who requested a Dozen of them from the General of their Order, by his Ambassador at *Naples*, in 1300. 'Tis a kind of Proverb with them, *Voila un plaisant Celestin.*

CELIAC *Passion*, or CÆLIACA *Passio*, in Medicine, a kind of Flux of the Belly, wherein the Food does not indeed pass perfectly crude, as in the *Lientery*, but half digested; so that the two only differ from each other, as more or less. See Lientery.

In the *Celiac* the Food is sometimes digested, without the Chyle's being separated from the Excrements.

The Causes of the *Celiac* are either the Weakness of the Ferment of the Stomach, the short stay the Food there makes, the Obstruction of the Lacteals, or the want of Acrity in the Bile. See Flux.

The Word comes from the *Greek* κοιλία, *Venter*; whence κοιλιακός, a Person subject to such Inconveniences. See Colic.

CELIBATE, or CELIBACY, the State of a Person who lives out of Marriage. See Marriage.

The *Celibate* of the Clergy, which is still rigorously kept up among the *Romanists*, is of a pretty antient standing: It was first propos'd by the Council of *Nice*, but without passing; it was, however, in some measure admitted by the Western Councils of *Elvira*, *Arles*, *Tours*, &c. Such among the Priests as piqu'd themselves on the Faculty of Continence, took the Hint; insomuch, as towards the Close of the IVth Century, there were few but made a Profession of a voluntary *Celibate*. In 441, the Council of *Orange* order'd those to be depos'd who did not abstain from their Wives: But it was *Gregory* VII. who first brought Ecclesiasticks to admit the *Celibate* as a Law. In the Council of *Trent*, it was propos'd, to set the Clergy at liberty again from the Yoke of *Celibate*; and this was even made an Article of the Interim of *Charles* V. but the Pope could not be brought into it.

St. *Jerom*, and *Epiphanius* observe, that in their Time none were admitted into the Priesthood, but those who were unmarry'd, or who abstain'd from their Wives. See Priest, and Clergy.

Scaliger derives the Word from the *Greek* κοίτη, *Bed*, and λείπω, *linquo*, I leave: Others say, it is form'd from *Cæli beatitudo*.

CELLITES, an Order of Religious, founded by *Alexius*, a *Roman*: In *Italy* they are call'd *Alexians*; but in *Germany* and the Low-Countries, where they have Monasteries, *Cellites*, *i. e.* People inhabiting in Cells.

CELLS, *Cellæ*, *Cellulæ*, are little Houses, Apartments, or Chambers; particularly those wherein the antient Monks, Solitaries, and Hermits liv'd in Retirement. See Monk, Solitary, Hermit, &c.

The same Name is still retain'd in divers Monasteries. The Dormitory is frequently divided into so many *Cells*, or Lodges. See Dormitory.

The *Carthusians* have each a several House, which serves 'em as *Cells*. See Carthusians.

The Hall wherein the *Roman* Conclave is held, is divided by Partitions into divers *Cells*, for the several Cardinals to lodge in. See Conclave.

Some derive the Word from the *Hebrew* כלא, *i. e.* a Prison, or Place where any thing is shut up.

Cells, in Anatomy, are little Bags, or Bladders, where Fluids or other Matters are lodg'd; call'd also *Loculi*, *Cellulæ*, &c. See Cellulæ.

The Name is also given by Botanists to the Partitions in the Husks, or Pods where the Seed lies.

Cells, are also the little Divisions, or Apartments in Honey-Combs, where the Honey, young Bees, &c. are distributed: these are always regular Hexagons. See Hive, Honey, Comb, &c.

CELLULÆ *Adeposæ*, in Anatomy, the *Loculi*, or little Cells wherein the Fat of Bodies in good habit is contain'd. See Adeps.

These are co-extended with the Skin it self, except on the Forehead, the Eyelids, Penis, and *Scrotum*. In emaciated Bodies, these *Cells* being unfurnish'd of their Fat, appear like a kind of flaccid, transparent Membrane. See Fat.

CEMENT, CÆMENT, or CIMENT, in the general Sense of the Word, is any Composition of a glutinous or tenacious Nature, proper to bind, unite, or keep things in Cohesion.

In this Sense, Mortar, Solder, Glue, &c. are *Cements*. See Mortar, Solder, Glue, &c.

The Bitumen brought from the *Levant*, is said to have been the *Cement* us'd in the Walls of *Babylon*. See Bitumen.

The Word is form'd of the Latin *Cæmentum*, of *cædo*, I beat. Tho M. *Felibien* obſerves, that what the antient Architects call'd *Cæmentum*, was a very different thing from our *Cement*: The Name *Cement*, with them, ſtood for a kind of Maſonry, or manner of laying the Stones; and even for the Quality of the Stones; as when the Walls were fill'd up with little Pebbles, Rubbiſh, &c. See MASONRY.

CEMENT, is particularly us'd in Architecture, for a ſtrong, binding ſort of Mortar, us'd to bind, or unite Bricks or Stones together, for ſome kinds of Mouldings; or to make a block of Bricks, for the Carving of Scrolls, Capitals, &c.

It is of two Sorts: The *hot Cement*, which is the moſt common, is made of Roſin, Bees-Wax, Brickduſt, and Chalk, boil'd together. The Bricks to be *cemented* are heated, and rubb'd one upon another, with *Cement* between.

The *cold Cement* is leſs us'd: 'tis made of Cheſhire Cheeſe, Milk, Quick-lime, and Whites of Eggs.

CEMENT, is alſo us'd among Goldſmiths, Engravers, Jewellers, &c. for a Compoſition of fine Brickduſt, well ſifted, Roſin, and Bees-Wax, in uſe among thoſe Artificers to keep the Metals to be engraven, or wrought on, firm to the Block, &c. as alſo to fill up what is to be chiſſel'd.

CEMENT, in Chymiſtry, is a Compound, us'd for the purifying of Gold; ſee GOLD, and PURIFICATION.

There are two Kinds of this *Cement*, *Common*, and *Royal*. The firſt made of Brickduſt, Nitre, and Verdigreaſe; the ſecond of Sal Gemmæ, and Armoniac, each one Part; two Parts of common Salt, and four of Bole: the whole reduc'd into a Paſte with Urine. Hence,

CEMENTATION, or CÆMENTATION; a manner of purifying Gold, by means of *Cement*.

'Tis perform'd thus: Thin Plates, or *Laminæ*, are ſtratify'd in a Crucible with *Royal Cement*; the Crucible is cover'd up, and encompaſs'd with Fire for 10 or 12 Hours, till being thus calcin'd, the Salts have imbib'd and conſum'd the Impurities of the Gold.

This Method of *Refining*, is much inferior to that by means of Antimony; in regard, the Salts ſometimes leave other Metals remaining with the Gold; and beſides, frequently eat away the Gold it ſelf. See REFINING.

CENOBITE, or COENOBITE, a Religious who lives in a Convent, or in Community, under a certain Rule; in oppoſition to *Anchorite*, or *Hermit*, who lives in Solitude. See HERMIT, &c.

Caſſian makes this Difference between a *Convent* and a *Monaſtery*, that the latter may be apply'd to a ſingle Religious, or Recluſe; whereas the *Convent* implies *Cenobites*, or Numbers of Religious living in common. See CONVENT, and MONASTERY.

Fleury ſpeaks of three Kinds of Monks in *Egypt*; *Anchorites*, who live in Solitude; *Cenobites*, who continue to live in Community; and *Sarabaites*, who are a kind of Monks Errant, that ſtroll from Place to Place.

He refers the Inſtitution of *Cenobites* to the Times of the Apoſtles; and makes it a kind of Imitation of the ordinary Life of the Faithful at *Jeruſalem*. Tho St. *Pacome* is ordinarily own'd the Inſtitutor of the *Cenobitic* Life; as being the firſt who gave a Rule to any Community.

The Word comes from the *Greek* κοινὸς, *communis*, and βίος, *Vita*, Life.

CENSOR, in Antiquity, one of the prime Magiſtrates in antient *Rome*; ſo call'd *à cenſendo*, becauſe he aſſeſs'd and valu'd every Man's Eſtate, regiſtring their Names, and placing 'em in a proper Century; that the *Romans* might know their own ſtrength. See CENSUS.

Others ſay, the *Cenſors* were ſo call'd, as being Controllers, or Correctors of Manners and Policy.

They were firſt created in the Year of *Rome* 311, upon the Senate's obſerving, that the Conſuls were too much taken up with Matters of War, to be at leiſure for looking near enough into private Affairs. The two firſt were *Papirius* and *Sempronius*: Their Authority extended over every Perſon; and they had a Right to reprehend the higheſt. At firſt they were taken out of the Senate; but after the Plebeians had got the Conſulate open to 'em, they ſoon arriv'd at the *Cenſorſhip*: *M. Rutilius* was the firſt; who having been twice Conſul, and Dictator, in the Year 402 demanded the Office of *Cenſor*. The Cuſtom was, to elect two; the one of a Patrician Family, the other a Plebeian: and upon the Death of either, the other was diſcharg'd from his Office, and two new ones elected. In the Year 414, a Law was made, appointing one of the *Cenſors* to be always elected out of the Plebeians; which held in force till the Year 622, when both *Cenſors* were choſen from among the People: after which time, it was ſhar'd between the Senate and People.

This Office was ſo conſiderable, that none aſpir'd to it till they had paſs'd all the reſt: So that it was look'd on as ſurpriſing, that *Craſſus* ſhould be admitted *Cenſor*, without having been either Conſul or Pretor. The Term of this Office was at firſt eſtabliſh'd for five Years; but that Inſtitution only laſted nine: *Mamercinus* the Dictator, made a Law, reſtraining the *Cenſure* to a Year and an half; which was afterwards obſerv'd very ſtrictly.

The Buſineſs of the *Cenſors*, was to regiſter the Effects, &c. of the *Roman* Citizens; to impoſe Taxes, in proportion to what each Perſon poſſeſs'd. *Cicero* reduces their Functions to, the numbering of the People; the correction and reformation of Manners; the eſtimating the Effects of each Citizen; the proportioning of Taxes; the ſuperintendance of Tribute; the excluſion from the Temples; and the Care of the publick Places. They had alſo a Right to exclude from the Senate, ſuch of the Senators as they judg'd unworthy of the Dignity; as well as to break and caſhier the Knights who fail'd in their Duty, by taking from 'em the publick Horſe. See SENATOR, KNIGHT, &c.

The Republic of *Venice*, has at this Day a *Cenſor* of the Manners of their People, whoſe Office laſts ſix Months.

CENSORS *of Books*, are a Body of Doctors, or other Officers, eſtabliſh'd in divers Countries, to examine and give their Judgment of all Books, e'er they go to the Preſs; and to ſee they contain nothing contrary to the Faith, and good Manners. In *England* we had formerly an Officer of this kind, under the Title of *Licenſer of the Preſs*; but ſince the Revolution the Preſs has been open.

M. *Bayle* compares Authors ſolliciting the Approbation of *Cenſors*, or Licenſers, to thoſe Shades wandering on the Banks of *Styx*, and waiting with Impatience for a Paſſage to the other Shore. He applies to 'em theſe two Verſes of *Virgil*:

Tendenteſque Manus, Ripæ ulterioris amore:
Navita ſed triſtis nunc hos nunc accipit illos.

At *Paris*, the *Faculty of Theology* claim the Privilege of *Cenſors*, as granted to them by the Pope; and 'tis certain they had been in poſſeſſion of it for many Ages: but in the Year 1624, a new Commiſſion of four Doctors were created, by Letters Patent, the ſole *Cenſors* and Examiners of all Books; and anſwerable for every thing contain'd therein. The Faculty, however, ſtill maintain their Claim, by taking occaſion, now and then, to give their Approbations to Books.

CENSURE, *Cenſura*, is popularly us'd for a Judgment, whereby any Action, Book, or other thing is condemn'd; or a Correction, or Reprimand made by a Superior, or Perſon in Authority. Hence,

Eccleſiaſtical CENSURES, are the publick Menaces which the Church makes, of the Pains and Penalties incurr'd by diſobeying what ſhe enjoins; or rather, the Pains and Puniſhments themſelves; as *Interdiction*, *Excommunication*, &c. See INTERDICTION, SUSPENSION, DEGRADATION, &c.

Till the Time of the Reformation, the Kings of *England* were ſubject to the *Cenſures* of the Church of *Rome*; but the Kings of *France* have always maintain'd themſelves exempt from them. In effect, there is no Inſtance of Excommunication of any of their firſt Race of Kings, till *Lotharius*'s Excommunication by Pope *Nicholas* I. for putting away his Wife *Tetberge*; which is reckon'd the firſt Breach of the Liberties of the *Gallican* Church: Yet the Pope durſt not hazard his Excommunication on his own Authority, but took care to have it confirm'd by the Aſſembly of the Biſhops of *France*; and the ſame Precaution was afterwards obſerv'd by the other Popes. But in after Times the *French* Kings aſſerted their Rights to better purpoſe; for Pope *Benedict* XIII. having *cenſur'd Charles* VI. laid the Nation under an Interdict: upon which, the Parliament of *Paris*, by an Arret, order'd the Bull to be torn: And *Julius* II. having excommunicated *Louis* XII. the Aſſembly General at *Tours cenſur'd* the Pope's *Cenſure*.

The Canoniſts diſtinguiſh two Kinds of *Cenſures*; the one *de Jure*, the other *de Facto*, or by Sentence.

CENSURE, is alſo a Cuſtom in ſeveral Manors in *Cornwal* and *Devon*, whereby all the Reſiants above the Age of 16, are call'd to ſwear Fealty to the Lord, to pay two Pence *per* Poll, and a Penny *per Annum*, ever after, as *Cert-Money*, or common Fine. See CERT-*Money*.

CENSUS, among the *Romans*, was an authentic Declaration made by the ſeveral Subjects of the Empire, of their reſpective Names, and Places of abode, before proper Magiſtrates, in the City of *Rome*, call'd *Cenſors*; and in the Provinces *Cenſitors*, by whom the ſame were regiſter'd. See CENSOR.

This Declaration was accompany'd with a Catalogue, or Enumeration in writing, of all the Eſtates, Lands, and Heritages they poſſeſs'd; their Quantity, Quality, Place, Tenants, Domeſticks, Slaves, &c.

Hence, alſo, *Cenſus* came to ſignify a Perſon who had made ſuch a Declaration: In which Senſe it was oppos'd to *Incenſus*, a Perſon who had not render'd his Eſtate or Name to be regiſter'd.

The *Cenſus* was inſtituted by King *Servius*; and was held every five Years. It went thro all the Ranks of

People, tho under different Names: that of the common People was call'd *Census*, or *Lustrum*; that of the Knights *Census*, *Recensio*, *Recognitio*; that of the Senators, *Lectio*, *Relectio*.

In the *Voconian* Law, *Census* is us'd for a Man, whose Estate, in the *Censor*'s Books, is valu'd at 100000 *Sesterces*.

CENTAUR, in Astronomy, a Part, or Moiety of a Southern Constellation, in form, half Man, half Horse, usually join'd with the *Wolf*. See CENTAURUS *cum Lupo*.

The Word comes from the *Greek* κενταυρος; form'd of κεντεω, *pungo*, and ταυρος, *taurus*.

CENTAURUS *cum Lupo*, *Centaur with the Wolf*, in Astronomy, a Constellation of the Southern Hemisphere. See CONSTELLATION.

The Stars in the Constellation *Centaurus cum Lupo*, in *Ptolomy*'s Catalogue, are 19; in *Tycho*'s 43; in the *Britannic Catalogue*, they are 13. The Order, Names, Longitudes, Latitudes, Magnitudes, &c. whereof, are as follow.

Stars in the Constellation CENTAURUS cum LUPO.

Names and Situation of the Stars.	Signs.	Longitude. °	′	″	Latitude. °	′	″	Magn.	
Inform. before the Head	♑	25	42	40	21	33	13	5	
Preced. in the Head of the Centaur	♏	2	22	1	20	33	3	4	5
South. in the Head		3	41	36	21	34	24	4	5
Middle		3	35	20	20	2	20	4	5
Subseq. and North. in the Head		3	26	53	18	56	15	4	5
5									
In hind Shoulder of the Centaur		8	0	18	21	59	0	2	3
South. of 2 in anterior Foot of Wolf		20	21	34	12	57	45	5	6
Subseq. and North. of the same		20	39	49	11	28	1	5	
Prec. of cont. before Neck of *Lupus*		23	10	26	17	6	56	4	
Subsequent		23	37	3	17	37	52	6	
10									
Preced. of 2 in the Wolf's Nose		26	21	24	14	25	38	5	6
Contiguous to that		27	2	37	14	34	8	5	6
Subseq. in the Nose	♏	28	30	10	13	7	23	5	

CENTRE, or CENTER, *Centrum*, in Geometry, or CENTRE *of a Circle*, is a Point in the Middle of a Circle, or circular Figure, from which all Lines drawn to the Circumference are equal. See CIRCLE.

Euclid demonstrates, that the Angle at the *Centre* is double to that of the Circumference; *i. e.* the Angle made by two Lines drawn from the Extremes of an Arch to the *Centre*, is double that made by two Lines drawn from these Extremes to a Point in the Circumference. See CIRCUMFERENCE, and ANGLE.

CENTRE *of a Parallelogram*, or *Polygon*, the Point wherein its Diagonals intersect. See PARALLELOGRAM, and POLYGON.

CENTRE *of Magnitude*, is a Point equally remote from the extreme Parts of a Line, Figure, or Body; or the Middle of a Line, or Plane, by which a Figure or Body is divided into two equal Parts. See MAGNITUDE.

CENTRE *of a Sphere*, is a Point from which all the Lines drawn to the Surface, are equal. See SPHERE.

The *Centre of the Semicircle*, by whose Revolution the Sphere is generated, is also that of the Sphere. See SEMICIRCLE.

CENTRE *of a Bastion*, is a Point in the middle of the Gorge of the Bastion, whence the Capital Line commences; and which is ordinarily at the Angle of the inner Polygon of the Figure. See BASTION, &c.

CENTRE *of a Battalion*, the Middle of a Battalion; where is usually left a large square Space, for lodging the Clothes and Baggage. See BATTALION.

CENTRE *of a Dial*, is that Point where its Gnomen or Style, which is plac'd parallel to the Axis of the Earth, intersects the Plane of the Dial; and from thence, in those Dials which have *Centres*, all the Hour-Lines are drawn. If the Plane of the Dial be parallel to the Axis of the Earth, it can have no *Centre* at all, but all the Hour-Lines will be parallel to the Style, and to one another. See DIAL.

CENTRE *of a Conic Section*, is the Point wherein all the Diameters concur. See DIAMETER; see also CONIC *Section*.

This Point, in the *Ellipsis*, is within the Figure; and, in the *Hyperbola*, without. See CENTRE *of an Ellipsis*, &c.

CENTRE *of an Ellipsis*, is that Point where the two Diameters, the Transverse and the Conjugate, intersect each other. See ELLIPSIS.

CENTRE *of an Hyperbola*, is a Point in the Middle of the Transverse Axis. See HYPERBOLA; and TRANSVERSE *Axis*.

CENTRE *of a Curve*, of the higher Kind, is the Point where two Diameters concur. See DIAMETER.

Where all the Diameters concur in the same Point, Sir *Isaac Newton* calls it, the *general Centre*. See CURVE.

CENTRE *of Gravitation*, or *Attraction*, in Physicks, is that Point to which a revolving Planet, or Comet, is impell'd, or attracted by the Force, or Impetus of Gravity. See GRAVITATION, and ATTRACTION.

CENTRE *of Gravity*, in Mechanicks, is a Point within a Body, thro which if a Plane pass, the Segments on each side will equi-ponderate, *i. e.* neither of them can move the other. See GRAVITY.

Hence, if the Descent of the *Centre* of Gravity be prevented, or if the Body be suspended by its *Centre* of Gravity, it will continue at rest. See MOTION, and REST.

The whole Gravity of a Body may be conceiv'd united in its *Centre*; and therefore, in Demonstrations, 'tis usual, for the Body, to substitute the *Centre*.

Thro the *Centre* of Gravity passes a right Line, call'd *the Diameter of Gravity*: the Intersection, therefore, of two such Diameters, determines the *Centre*.

The Plane whereon the *Centre* of Gravity is plac'd, is call'd *the Plane of Gravity*: so that the common Intersection of two such Planes, determines the Diameter of Gravity.

In homogeneal Bodies, which may be divided lengthwise into similar and equal Parts, the *Centre* of Gravity is the same with the *Centre* of Magnitude. If, therefore, a Line, *v. g.* or a Cylinder be bissected, the Point of Section will be the *Centre* of Gravity.

Common CENTRE *of Gravity of two Bodies*, is a Point so situated, in the right Line, joining the *Centres* of the two Bodies, as that, if the Point be suspended, the two Bodies will equi-ponderate, and rest in any Situation: Thus, the Point of Suspension in a common Balance, or in a *Roman* Steelyard, where the two Weights equi-ponderate, is the common *Centre* of Gravity of the two Weights.

Laws of the CENTRE *of Gravity.*

1. *If the* Centres *of Gravity of two Bodies* A *and* B, (Tab. *Mechanicks*, Fig. 13.) *be join'd by the right Line* A B, *the Distances* B C *and* C A, *of the common* Centre *of Gravity* C, *from the particular* Centres *of Gravity* B *and* A, *are reciprocally as the Weights* A *and* B: See this demonstrated under BALANCE.

Hence, if the Gravities of the Bodies A and B be equal, the common *Centre* of Gravity C, will be in the Middle of the right Line A B. Again, since A : B :: B C : A C; A will be to A C :: B : B C; whence, it appears, that the Powers of equi-ponderating Bodies, are to be estimated by the *Factum* of the Mass, multiply'd into its Distance from the *Centre* of Gravity; which *Factum* is usually call'd the *Momentum* of the Weights. See MOMENT.

Further, since A : B :: B C : A C, A + B : A :: B C + A C : B C.

The common *Centre* of Gravity, therefore C, of two Bodies, will be found, if the *Factum* of one Weight A, into the Distance of the separate *Centres* of Gravity A B, be divided by the Sum of the Weights A and B. Suppose, *v.g.* A = 12, B = 4, A B = 24; therefore, B C = 24, 12 : 16 = 18. If the Weight A be given, and the Distance of the particular *Centres* of Gravity A B, together with the common *Centre* of Gravity C; the Weight of B will be found = to A. A C : B C; that is, dividing the *Moment* of the given Weight, by the Distance of the Weight requir'd. Suppose, A = 12, B C = 18, A C = 6; then B = 6. 12 : 18 :: 12 : 3 = 4.

2. *To determine the common* Centre *of Gravity of several given Bodies* a, b, c, d, (Fig. 13.) in the right Line A B. Find the common *Centre* of Gravity of the two Bodies *a* and *b*, which suppose in F; conceive a Weight *a* + *b*, apply'd in F; and in the Line F E, find the common *Centre* of the Weights *a* + *b* and *c*; which suppose in G. Lastly, in B G, suppose a Weight *a* + *b* + *c* apply'd, equal to the two *a* + *b* and *c*; and find the common *Centre* of Gravity between this and the Weight *d*, which suppose in H; this H will be the common *Centre* of Gravity of the Bodies *a*, *b*, *c*, *d*. And in the same manner might the common *Centre* of Gravity of any greater number of Bodies be found.

3. *Two Weights* D *and* E, (Fig. 14.) *being suspended without their common* Centre *of Gravity in* C, *to determine which of them preponderates, and how much.* Multiply each into its Distances, from the *Centre* of Suspension; that Side on which the *Factum* is greatest, will preponderate; and the Difference between the two, will be the Weight wherewith it preponderates.

Hence, the *Momentum* of the Weights D and E, suspended without the *Centre* of Gravity, are in a Ratio compounded of the Weights D and E, and the Distances from the Point of Suspension. Hence also the *Momentum* of a Weight suspended in the very Point C, will have no effect at all in respect of the rest D E.

4. *To determine the Preponderation where several Bodies* a, b, c, d, (Fig. 15.) *are suspended without the common* Centre *of Gravity in* C. Multiply the Weights *c* and *d* into their Distances from the Point of Suspension C E and E B; the Sum will be the *Momentum* of their Weights, or their Ponderation towards the right: Then multiply the Weights *a* and *b* into their Distances, A C and C D, the Sum will be the Ponderation towards the left: Subtracting, therefore, the one from the other, the Remainder will be the Preponderation requir'd.

5. *Any Number of Weights* a, b, c, d, *being suspended without the common* Centre *of Gravity in* C, *and preponderating*

derating towards the right; to determine the Point F, *from whence the Sum of all the Weights being suspended, the Preponderation shall continue the same as in their former Situation.*

Find the *Momentum* wherewith the Weights c and d preponderate towards the right; since the *Momentum* of the Sum of the Weights to be suspended in F, is to be equal to it, the *Momentum* now found, will be the *Factum* of C F into the Sum of the Weights: This, therefore, being divided by the Sum of the Weights, the Quotient will be the Distance C F, at which the Sum of the Weights is to be suspended, that the Preponderation may continue the same as before.

6. *To find the* Centre *of Gravity in a Parallelogram and Parallelepiped.* Draw the Diagonals A D and E G, (Fig. 16.) likewise C B and H E; since each Diagonal, A B and C B, divides the Parallelogram into two equal Parts, each passes thro the *Centre* of Gravity; consequently, the Point of Intersection I, is the *Centre* of Gravity of the Parallelogram. In like manner, since both the Plane C B F H and A D G E, divide the Parallelepiped into two equal Parts, each passes thro its *Centre* of Gravity; so that the common Intersection I K, is the Diameter of Gravity, the Middle whereof is the *Centre*.

After the same manner may the *Centre* of Gravity be found in Prisms and Cylinders; it being the middle Point of the right Line that joins the *Centres* of Gravity of their opposite Bases.

7. In *regular Polygons*, the *Centre* of Gravity is the same with the *Centre* of the circumscrib'd Parallelogram.

8. *To find the* Centre *of Gravity of a Cone and a Pyramid.* The *Centre* of Gravity of a Cone, is in its Axis A C, (Fig. 17.) If then A P $= x$, P $p = dx$, the Weight in the same Cone is $prx^2\,dx : 2a^2$; and therefore its *Momentum* $prx^3\,dx . 2a^2$. Hence the Sum of the *Momenta* $prx^4 : 8a^2$; which divided by the Sum of the Weights $prx^2 : 6a^2$, gives the Distance of the *Centre* of Gravity of the Portion A M N, from the Vertex A $= 6a^2\,prx^4 : 8a^2\,prx^2 = \frac{3}{4}x = \frac{3}{4}$ A p: wherefore, the *Centre* of Gravity of the entire Cone, is distant from the Vertex, $\frac{3}{4}$ of AC. And in the same manner is found the Distance of the *Centre* of Gravity from the Vertex of the Pyramid $\frac{3}{4}$ A C.

9. *To determine the* Centre *of Gravity in a Triangle* BAC, (Fig. 18.) Draw the right Line A D, bisecting the Base B C in D; since $\triangle$ B A D $=$ $\triangle$ D A C, each may be divided into the same Number of Weights, apply'd in the same manner on each side to the common Axis A D: So that the *Centre* of Gravity of the $\triangle$ B A C, will be in A D. To determine the precise Point in that, let A D $= a$, B C $= b$, P $= x$, M N $= y$; then will

$$AP : MN = AD : BC$$
$$x : y = a : b.$$

Hence, $y = bx : a$. Draw A E $= c$ perpendicular to B C; then A D : A E $=$ A P : A Q; and therefore, A Q $= cx : a$, and Q $q = cdx : a$. Whence, the *Momentum* $yx\,dx = cbx^2\,dx : a^2$, and $\int yx\,dx = cbx^3 : 3a^2$; which Sum divided by the Area of the Triangle A M N $= cbx^2 : 2a^2$, gives the Distance of the *Centre* of Gravity from the Vertex $= 2abx^3 : 3abx^2 = \frac{2}{3}x$. If then for x, be substituted a, the Distance of the *Centre* of Gravity of the $\triangle$, from the Vertex, will be found $\frac{2}{3}a$.

10. *For the* Centre *of Gravity in a Parabola*, (Fig. 19.) Its Distance from the Vertex A, is found the Space A F. In a cubical Paraboloid, the Distance of the *Centre* from the Vertex, is $= \frac{4}{7}$ A P. In a Biquadratic Paraboloid, $\frac{5}{9}$ A P. In a Surdesolid Paraboloid, $\frac{6}{11}$ A P. In the Exterior Parabola A S T, the *Centre* of Gravity is at the Distance A L. In the Cubical Paraboloid, $\frac{4}{7}$ A Q. In a Biquadratic Paraboloid, $\frac{5}{9}$ A Q. In a Surdesolidal Paraboloid, $\frac{6}{11}$ A Q.

11. *The* Centre *of Gravity in the Arch of a Circle*, is distant from the *Centre* of the Arch by a Line, which is a third Proportional to the Quadrant and the Radius. In a Sector of a Circle, the Distance of the *Centre* of Gravity from the *Centre* of the Circle, is to the Distance of the *Centre* of Gravity of the Arch, as 2 to 3.

For the Centre *of Gravity of Segments, Lines, Parabolic Conoids, Spheroids, truncated Cones*, &c. as being Cases more operose, and at the same time more out of the way; we refer to *Wolfius's Elem. Mathes.* Tom. I.

12. *To determine the* Centre *of Gravity in any Body mechanically.* Lay the given Body H I, (Fig. 20.) on an extended Rope, or the Edge of a triangular Prism F G, bringing it this and that way, till the Parts on either Side are *in Æquilibrio*; the Plane whose Side is K L, passes thro the *Centre* of Gravity. Balance it again on the same, only changing its Situation: then will the Cord M N, pass thro the *Centre* of Gravity; so that the Intersection of the two Lines M N and K L, determines the Point O in the Surface of the Body requir'd.

The same may be done by laying the Body on a horizontal Table, (as near the Edge as is possible, without its falling) in two Positions, lengthwise and breadthwise: the common Intersection of the two Lines contiguous to the Edge, will be its *Centre* of Gravity. Or, it may be done by laying the Body on the Point of a Style, &c. till it rest *in Æquilibrio*. 'Twas by this Method, *Borelli* found the *Centre* of Gravity in an human Body, to be between the *Nates* and *Pubis*; so that the whole Gravity of the Body is there collected, where Nature has plac'd the Genitals: An Instance of the Wisdom of the Creator, in placing the *Membrum Virile* in that Place, which of all others is the most convenient for the Affair of Copulation.

13. 'Every Figure, whether superficial or solid, generated 'by the Motion of a Line, or Figure, is equal to the *Fac*'*tum* of the generating Magnitude, multiply'd into the 'Way of its *Centre* of Gravity, or the Line its *Centre* of 'Gravity describes.' See the Demonstration hereof, under the Article CENTRO *Baric Method.*

The preceding elegant Theorem, is look'd on as one of the noblest Geometrical Discoveries made in the last Age; and is the Foundation of the *Methodus Centro-barica. Pappus*, indeed, gave the first Hint long ago; but it was the Jesuit *Guldinus* that brought it to Maturity. *Leibnitz* shews it will hold, if the Axis, or *Centre*, be continually chang'd during the generating Motion: The Corollaries are too numerous to be here detail'd.

CENTRE *of Motion*, is a Point round which one or more heavy Bodies, that have one common *Centre* of Gravity, revolve. *v. g.* If the Weights P and Q (Tab. *Mechanicks*, Fig. 21.) revolve about the Point N, so as when P descends, Q ascends, N is said to be the *Centre of Motion.* See MOTION.

'Tis demonstrated in Mechanicks, that the Distance I N, of the *Centre* of Gravity of any particular Weight, from the common *Centre* of Gravity, or the *Centre* of Motion N, is perpendicular to the Line of Direction I p.

CENTRE *of Oscillation*, a Point wherein, if the whole Gravity of a compound Pendulum be collected, the several Oscillations will be perform'd in the same Time as before: See OSCILLATION.

Hence, its Distance from the Point of Suspension, is equal to the Length of a simple Pendulum, whose Oscillations are Isochronal with those of the compound one. See PENDULUM.

Laws of the CENTRE *of Oscillation.*

1. *If several Weights* D F H B, (Tab. *Mechanicks*, Fig. 22.) *whose Gravity is suppos'd collected in the Points* DEHB, *constantly retain the same Distance between themselves and the Point of Suspension* A; *and the Pendulum thus compounded, perform its Oscillations about* A; *the Distance of the* Centre *of Oscillation* O, *from the Point of Suspension* O A, *will be had by multiplying the several Weights into the Squares of the Distances, and dividing the Aggregate by the Sum of the* Momenta *of their Weight.*

2. *To determine the* Centre *of Oscillation in a right Line* A B, (Fig. 23.) Let A B $= a$, A D $= x$, then will the infinitely small Particle D P $= dx$, the *Momentum* of its Weight $x\,dx$; consequently the Distance of the *Centre* of Oscillation in the Part A D, from the Point of Suspension A $= \int x^2\,dx : \int x\,dx = \frac{1}{3}x^3 : \frac{1}{2}x^2 = \frac{2}{3}x$. If then for x be substituted a, the Distance of the *Centre* of Oscillation in the right Line A B $= \frac{2}{3}a$. In this manner is found the *Centre* of Oscillation of a Wire, oscillating about one of its Extremes.

3. *To determine the* Centre *of Oscillation of the Rectangle* R I H S, (Fig. 24.) *suspended in the middle Point* A, *of the Side* R I, *and oscillating about its Axis* R I. Let R I $=$ S H $= a$, A P, then will P $p = dx$, and the Element of the Area; consequently one Weight $= a\,dx$, and its *Momentum* $a\,x\,dx$. Wherefore, $\int a\,x^2\,dx : \int a\,x\,dx = \frac{1}{3}ax^3 : \frac{1}{2}ax^2 = \frac{2}{3}x$, indefinitely expresses the Distance of the *Centre* of Oscillation, from the Axis of Oscillation in the Segment R C D I. If then for x be substituted the Altitude of the whole Rectangle R S $= b$, we shall have the Distance of the *Centre* of Oscillation from the Axis $= \frac{2}{3}b$.

For the Centre *of Oscillation in an Equicrural Triangle*, oscillating about its Axis, parallel to its Base, its Distance from the Vertex, is found $= \frac{3}{4}$ of the Altitude of the Triangle.

Of an Equicrural Triangle oscillating about its Base, its Distance from the Vertex is found $= \frac{2}{3}$ the Altitude of the Triangle.

For the Centre *of Oscillation in an Equicrural Triangle, suspended by an inflexible Thread*, void of Gravity, and oscillating about its Axis parallel to its Base; its Distance from the Vertex, is found $= \frac{5}{6}$ the Altitude of the Triangle.

For the Centres *of Oscillation of Parabolas, and Curves of the like kind*, oscillating about their Axis, parallel to their Bases, they are found as follows.

In the *Apollonian* Parabola, the Distance of the *Centre* from the Axis, $= \frac{5}{7}$ of its Diameter.

In a *Cubical* Paraboloid, the Distance of the *Centre* of Oscillation from the Axis, $= \frac{7}{10}$ of the Diameter.

In a *Biquadratic* Paraboloid, the Distance of the *Centre* from the Axis, $= \frac{9}{11}$ of the Diameter.

In

In solid and plane Figures agitated laterally, *i. e.* about the Axis of Oscillation, perpendicular to the Plane of the Figure, the Investigation of the *Centre* of Oscillation is somewhat difficult; in regard, all the Parts of the Weight, by reason of their unequal Distance from the Point of Suspension, don't move with the same Velocity; as is shewn by *Huygens*, in his *Horol. Oscill.* He found, in this Case, the Distance of the *Centre* of Oscillation, from the Axis in a Circle, to be $\frac{3}{4}$ of the Diameter: In a Rectangle, suspended by one of its Angles, $\frac{2}{3}$ of the Diagonal: In a Parabola, suspended by its Vertex, $\frac{5}{7}$ of its Axis, and $\frac{5}{8}$ of the Parameter; suspended from a Point in the Middle of the Basis, $\frac{4}{7}$ of the Axis, and $\frac{5}{8}$ the Parameter: In the Sector of a Circle, $\frac{3}{4}$ of a right Line; which is to the Radius, as the Arch to the Subtense: In a Cone, $\frac{4}{5}$ of the Axis, and $\frac{4}{5}$ of the third proportional to the Axis, and the Semidiameter of the Base: In a Sphere, suspended from a Point in the Surface, $\frac{7}{10}$ of the Diameter: in the same, suspended from a Point without the Sphere, (as is usually the Case in Pendulums) $\frac{4}{5}$ of a third proportional to that compos'd of the Semidiameter and length of the Thread, and the Semidiameter it self: In a Cylinder, $\frac{2}{3}$ of the Altitude, and $\frac{2}{3}$ the Line, which is to the Semidiameter of the Base, as that is to the Altitude.

Centre *of Percussion*, in a moving Body, is that Point wherein the Percussion is the greatest, wherein the whole percutient Force of the Body is suppos'd to be collected; or about which the Impetus of the Parts is balanc'd on every side. See Percussion.

Laws of the Centre *of Percussion.*

1. The *Centre of Percussion, is the same with the Centre of Oscillation*, where the percutient Body revolves round a fix'd Point; and is determin'd in the same manner, *viz.* by considering the Impetus of the Parts, as so many Weights apply'd to an inflexible right Line, void of Gravity; *i. e.* by dividing the Sum of the *Factums* of the Impetus's of the Parts, multiply'd by their Distances from the Point of Suspension, by the Sum of the Impetus's. What, therefore, has been above shewn of the *Centre of Oscillation*, will hold of the *Centre of Percussion*, where the percutient Body moves round a fix'd Point. See Centre *of Oscillation.*

2. *The* Centre *of Percussion is the same with the* Centre *of Gravity*, if all the Parts of the percutient Body be carry'd with a parallel Motion, or with the same Celerity: for the *Momenta* are the *Facta* of the Weights into the Celerities. Wherefore, to multiply equi-ponderating Bodies by the same Velocity, is the same thing as to take equi-multiples: But the equi-multiples of equi-ponderating Bodies, themselves equi-ponderate; therefore, equivalent *Momenta* are disposed about the *Centre* of Gravity: consequently the *Centre* of Percussion in this Case, coincides with that of Gravity; and what is shewn of the one, will hold of the other. See Centre *of Gravity.*

Centre *of Conversion*, in Mechanicks, a Term first us'd by M. *Parent.* Its Signification is thus conceiv'd: If a Stick be laid on a stagnant Water, and drawn by a Thread fasten'd to it, so that the Thread always makes the same Angle with the Stick; always, *v. g.* a right Angle; the Stick will be found to turn on one of its Points, which will be immoveable; which Point is term'd the *Centre of Conversion.* For the greater ease, the Thread may be conceiv'd fasten'd to one End of the Stick.

This Effect arises from the Resistance of the Fluid, and the manner wherein it divides: for, imagine the first Moment of Traction; 'tis certain, here, the Resistance of the Parts of the Fluid to be displac'd, tends to turn the Stick around the Point to which the Thread is fasten'd, as on a *Centre*: So that in the present Instance, the Staff wou'd describe precisely the Quadrant of a Circle: after which, the Fluid wou'd no longer bear the Stick lengthwise; but in a circular Motion, in such manner, as that the free End of the Stick, and the Parts nearest it, wou'd describe larger Arches of Circles than the rest, and have a greater Velocity. The Resistance, therefore, of the Fluid, which tends to impress a circular Motion on the Stick, around the Point to which the Thread is fasten'd, tends to impress a greater Velocity on the Parts next the other Extremity; or, which is the same thing, those Parts require a greater Velocity to surmount the Resistance of the Fluid: So that the Stick will not have that circular Motion around the Point to which the Thread is fasten'd; or, the Resistance of the Fluid is greater towards the free Extreme of the Stick, and still lessens towards the other Extreme. Now, all the Columns, or Threads of Water which resist the Stick, must be suppos'd of the same Length, or the same Mass. One may therefore find on the Stick such a Point, as that taking a great number of those Threads on that Side which resists the least, and a less number on that Side where they resist the most; there will be an exact Compensation, and the Forces be equal on each Side: 'Tis this Point is the *Centre of Conversion.* And as the same Reasoning has place in all Motions of Traction made in the same manner, this *Centre* is always the same Point.

The grand Question here arising, is to know precisely in what Point the *Centre* of Conversion is found: This M. *Parent* has determin'd by an infinite deal of Calculation. If the Stick drawn by one Extremity he a strait Line divided into 20 Parts, reckoning from the Thread, the *Centre* of Conversion, he finds, will be nearly on the 13th. If it ben't a Line, but a Surface or a Solid, there will be some change in the Situation of the *Centre* of Conversion, according to the Surface or the Solid.

If in lieu of a Body swimming in a Fluid, we suppose it laid on a rough uneven Plane; the Resistance of this Plane to the Motion of the Body, will always be divided in the same manner, and determine the same *Centre* of Conversion. This Resistance is, precisely, what we call Friction, so prejudicial to the Effects of Machines. See Friction.

CENTO, in Poetry, a Work wholly compos'd of Verses, or Passages promiscuously taken from other Authors; only dispos'd in a new Form, or Order. *Proba Falconia* has wrote the Life of Jesus Christ, in *Centos* taken from *Virgil.* *Alex. Rosse* has done the like in his *Christiados*; and *Stephen de Pleurre* the same: An Instance of whose *Centos* on the Adoration of the *Magi*, is as follows.

Adoratio Magorum, *Matt.* 2.

6, &c. Æn. 255.	*Ecce autem primi sub lumina solis, & ortus,*	
2, Æ. 694.	*Stella facem ducens multa cum luce cucurrit:*	
5, Æ. 526.	*Signavitque Viam * cœli in regione serena.*	8, Æ. 528.
8, Æ. 332.	*Tum Reges * (credo quia sit divinitus illis*	1, 9, 415.
1, 91, 416.	*Ingenium, & rerum fato prudentia major)*	
7, Æ. 98.	*Externi veniunt * qua cuique est copia lætæ*	5, Æ. 100.
11, Æ. 333.	*Munera portantes: * molles sua thura Sabæi*	1, 9, 57.
3, Æ. 464.	*Dona dehinc auro gravia, * myrrhaque madentes*	12, Æ. 100.
9, Æ. 659.	*Agnovere Deum Regem, * Regumque Parentem.*	6, Æ. 548.
1, 9. 418.	*Mutavere vias, * perfectis ordine votis:*	10, Æ. 548.
6, Æ. 16.	*Insuetum per iter, * spatia in sua quisq; recessit.*	12, Æ. 126.

Ausonius has laid down the Rules to be observ'd in composing *Centos.* The Pieces, he says, may be taken either from the same Poet, or from several; and the Verses may be either taken entire, or divided into two; one half to be connected, with another half taken elsewhere: but two Verses never to be us'd running, nor much less than half a Verse to be taken. Agreeable to these Rules, he has made a pleasant *Cento* from *Virgil.*

The *Politicks of Lipsius* are only *Centos*; there being nothing of his own but Conjunctions and Particles.

The Word comes from the Latin *Cento*, a Cloak made of Patches; and that from the *Greek* κεντονιον. The *Roman* Soldiers us'd these *Centos*, or old Stuffs patch'd over each other, to guard themselves from the Strokes of their Enemies.

Others say, that *Centos* were properly us'd for the patches of Leather, *&c.* wherewith their Galleries or Skreens, called *Vineæ*, were cover'd; under which the Besiegers made their Approaches towards any Place.

Hence *Centonarii*, the Persons whose Business was to prepare these *Centos.*

CENTRAL, something relating to a *Centre*; see Centre.

Thus, we say, *Central Eclipse*, *Central Fire*, *Central Forces*, *Central Rule*, &c. See Central *Forces*, Central *Rule*, &c. See also Fire, Eclipse, *&c.*

Central *Forces*, the *Vires*, or Powers whereby a moving Body either tends towards the Centre of Motion, or recedes from it. See Centre *of Motion*; see also Force, and Vis.

Central Forces are divided into two Kinds, with regard to their different Relations to the Centre, *viz. Centripetal*, and *Centrifugal.*

Centrifugal *Force*, is that whereby a Body revolving round a Centre, endeavours to recede from it.

'Tis one of the establish'd Laws of Nature, That all Motion is of it self rectilinear; (see Motion) and that the moving Body never recedes from its first right Line, till some new Impulse be superadded in a different Direction: After that new Impulse, the Motion becomes compounded, but continues still rectilinear; tho the Direction of the Line be alter'd. See Compound *Motion.* To move in a Curve, it must receive a new Impulse, and that in a different Direction, every Moment; a Curve not being reducible to right Lines, unless infinitely small ones. If then a Body continually driven towards a Centre, be projected in a Line that does not go thro that Centre, it will describe a Curve; in each Point whereof, A (Tab. *Mechanicks*, Fig. 25.) it will endeavour to recede from the Curve, and proceed in the Tangent A D: and, if nothing hinder'd, wou'd actually proceed; so as in the same Time wherein it describes the Arch A E, it wou'd recede the length of the Line D E, perpendicular to A D, by its *Centrifugal Force.* The *Centrifugal Force*, therefore, is as the right Line D E, perpendicular to A D; supposing the Arch A E infinitely small. See Infinite.

The Effect of the *Centrifugal Force* is ſuch, that a Body, oblig'd to deſcribe a Circle, deſcribes the largeſt it poſſibly can: a greater Circle being as it were leſs circular, and leſs diſtant from a right Line than a ſmall one. A Body therefore ſuffers more violence, and exerts its *Centrifugal Force* more when it deſcribes a little Circle, than when a large one.

'Tis the ſame in other Curves as in Circles; for a Curve, whatever it be, may be eſteem'd as compos'd of an infinity of Arches of infinitely ſmall Circles, all deſcrib'd on different Radii; ſo that 'tis thoſe Places where the Curve has the greateſt Curvity, that the little Arches are moſt circular: Thus, in the ſame Curve, the *Centrifugal* Force of the Body that deſcribes it, varies according to the ſeveral Points wherein it is found.

CENTRIPETAL *Force*, is that Power whereby a moveable Body, impell'd in the right Line A G, (Fig 24.) is drawn out of its rectilinear Motion, to proceed in a Curve: The *Centripetal Force*, therefore, is as the right Line D E to A B; ſuppoſing the Arch A E infinitely ſmall. Hence, the *Centripetal* and *Centrifugal Forces* are equal.

Laws of CENTRAL *Forces.*

1. The following Rule, for which we are oblig'd to the Marquis *de l' Hopital*, opens at once all the Myſteries of *Central Forces:* Suppoſe a Body of any determinate Weight to move uniformly round a *Centre* with any certain Velocity; find from what height it muſt have fallen to acquire that Velocity: then, as the Radius of the Circle it deſcribes, is to double that Height, ſo is its Weight to its *Centrifugal* Force. Hence, 'tis eaſy to infer, that,

2. If two Bodies, equal in weight, deſcribe Peripheries of unequal Circles in equal Times, their *Central* Forces are as their Diameters AB, and HL. And hence, if the *Central* Forces of two Bodies, deſcribing Peripheries of two unequal Circles, be as their Diameters, they paſs over the ſame in equal Times

3. The *Central Force* of a Body moving in the Periphery of a Circle, is as the Square of the infinitely ſmall Arch A E, divided by the Diameter A B. Since then a Body, by an equable Motion in equal Times, deſcribes equal Arches A E; the *Central* Force wherewith the Body is impell'd in the Periphery of the Circle, is conſtantly the ſame.

4. If two Bodies deſcribe different Peripheries by an equable Motion, their *Central* Forces are in a Ratio, compounded of the duplicate Ratio of their Celerities, and the reciprocal one of their Diameters. Hence, if the Celerities be equal, the *Central* Forces will be reciprocally as their Diameters; and if the Diameters A B and H L be equal, *i. e.* if each Moveable proceed in the ſame Periphery, but with unequal Celerities, the *Central* Forces will be in a duplicate Ratio of the Velocities.

If the *Central* Forces of the two Bodies moving in different Peripheries be equal, the Diameters of the Circle A B, and H L, will be in a duplicate Ratio of the Celerities.

5. If two Bodies, moving in unequal Peripheries, be acted on by the ſame *Central* Force, the Time in the larger is to that in the ſmaller, in a ſubduplicate Ratio of the greater Diameter A B, to the leſs H L; wherefore, $T^2 : t^2 = D : d$: That is, the Diameters of the Circles in whoſe Peripheries thoſe Bodies are acted on by the ſame *Central* Force, are in a duplicate Ratio of the Times. Hence alſo the Times wherein like Peripheries or Arches are run over by Bodies impell'd by the ſame *Central* Force, are in proportion to their Velocities.

The *Central* Forces are in a Ratio, compounded of the direct Ratio of the Diameters, and the reciprocal one of the Squares of the Times, by the entire Peripheries.

6. If the Times wherein the Bodies are carry'd thro the ſame entire Peripheries, or ſimilar Arches, be as the Diameters of the Circles, the *Central* Forces are reciprocally as the ſame Diameters.

7. If a Body move uniformly in the Periphery of a Circle, with the Velocity it acquires by falling the Height A L; the *Central* Force will be to the Gravity, as double the Altitude A L, to the Radius C A. If therefore the Gravity of the Body be call'd G, the *Centrifugal Force* will be 2 A L. G : C A.

8. If a heavy Body move equably in the Periphery of a Circle, and with the Velocity which it acquires by falling the height A L, equal to half the Radius; the *Central* Force will be equal to the Gravity. And again, if the *Central* Force be equal to the Gravity, 'tis carry'd in the Periphery of the Circle, with the ſame Gravity which it acquires in falling a height equal to half the Radius.

9. If the *Central* Force be equal to the Gravity, the Time it takes up in the entire Periphery, is to the Time of the Deſcent thro half the Radius, as the Periphery to the Radius.

10. If two Bodies move in unequal Peripheries, and with an unequal Velocity, which is reciprocally in a ſubduplicate Ratio of the Diameters; the *Central* Forces are in a Duplicate Ratio of the Diſtances from the Centre of the Forces, taken reciprocally.

11. If two Bodies move in unequal Peripheries, with Celerities that are reciprocally as the Diameters; their *Central* Forces will be reciprocally as the Cubes of their Diſtances from the *Centre* of the Forces.

12. If the Velocities of two Bodies moving in unequal Peripheries, be reciprocally in a ſubduplicate Ratio of the Diameters; the Times wherein they paſs the whole Periphery, or ſimilar Arches, are reciprocally in a triplicate Ratio of the Diſtances from the Centre of the Forces: Wherefore, if the *Central* Forces be reciprocally in a duplicate Ratio of the Diſtances from the *Centre*, the Times wherein the entire Peripheries, or ſimilar Arches, are paſs'd over, are reciprocally in a triplicate Ratio of the Diſtances.

13. If a Body move in a Curve Line, in ſuch manner as that the Radius C B, *Fig.* drawn from it to the fix'd Point C, plac'd in the ſame Plane, deſcribes Areas B A C, B C E, *&c.* proportional to the Times, or equal in any given Time, it is ſollicited towards the Point C by a *Centripetal* Force.

14. If a Body proceed according to the Direction of the right Line A D, and be ſollicited by a *Centripetal* Force towards a fix'd Point C, plac'd in the ſame Plane; it deſcribes a Curve, whoſe Cavity is towards C, and whoſe ſeveral Areæ, thoſe comprehended between the two Radii A B and C B, are proportional to the Times.

15. However the *Central* Forces differ from one another, they may be compar'd together; for they are always in a Ratio compounded of the Ratio of the Quantities of Matter in the revolving Bodies, and the Ratio of the Diſtances from the Centre; and alſo in an inverſe Ratio of the Squares of the periodical Times. If then you multiply the Quantity of Matter in each Body by its Diſtance from the Centre, and divide the Product by the Square of the periodical Time, the Quotients of the Diviſion will be to one another in the ſaid compound Ratio, that is, as the *Central* Forces.

16. When the Quantities of Matter are equal, the Diſtances themſelves muſt be divided by the Squares of the periodical Times, to determine the Proportion of the *Central* Forces: In that Caſe, if the Squares of the periodical Times are to one another, as the Cubes of the Diſtances, the Quotients of the Diviſions, as well as the *Central* Forces, will be in an inverſe Ratio of the Squares of the Diſtances.

17. When the Force by which a Body is carry'd towards a Point is not every where the ſame, but is either increas'd or diminiſh'd, in proportion to the Diſtance from the Centre; ſeveral Curves will thence ariſe in a certain proportion. If the Force decreaſes, in an inverſe Ratio of the Squares of the Diſtances from that Point, the Body will deſcribe an *Ellipſis*; which is an oval Curve, in which there are two Points call'd the *Foci*, and the Point towards which the Force is directed falls into one of them: So that in every Revolution, the Body once approaches to, and once recedes from it. The Circle alſo belongs to that ſort of Curves, and ſo in that Caſe the Body may alſo deſcribe a Circle. The Body may alſo (by ſuppoſing a greater Celerity in it) deſcribe the two remaining Conic Sections, *viz.* the *Parabola* and *Hyperbola-Curves*, which do not return into themſelves: On the contrary, if the Force increaſes with the Diſtance, and that in a Ratio of the Diſtance it ſelf, the Body will again deſcribe an *Ellipſis*; but the Point to which the Force is directed is the Centre of the Ellipſe; and the Body, in each Revolution, will twice approach to, and again twice recede from that Point. In this Caſe alſo, a Body may move in a Circle, for the Reaſon abovemention'd. See ORBIT, PLANET, and PROJECTILE.

CENTRAL *Rule*, is a Rule, or Method diſcover'd by our Countryman, Mr. *Thomas Baker*, Rector of *Nympton* in *Devon*, whereby to find the *Centre* of a Circle; deſign'd to cut the Parabola in as many Points, as an Equation to be conſtructed hath real Roots.

Its principal Uſe is in the Conſtruction of Equations; and he has apply'd it with good Succeſs as far as Biquadratics. See CONSTRUCTION, and EQUATION.

The Rules are theſe,

$$1.\ \frac{L}{2} + \frac{q}{8L} = b = CD.$$

$$2.\ \frac{p}{4} + \frac{ppp}{6LL} \pm \frac{pq}{4LL} \pm \frac{r}{2LL} = d = DE.$$

Or by Contraction, becauſe L = 1, as is ſuppoſed, to avoid Fractions.

$$1.\ \tfrac{1}{2} + \frac{pp}{8} \pm \frac{q}{2} = b = CD.$$

$$2.\ \tfrac{1}{4}p + \tfrac{1}{6}ppp \pm \tfrac{1}{4}pq \pm \tfrac{1}{2}r = d = ED.$$

CENTRO-*Baryc Method of* Guldinus, in Mechanicks, is a Method of meaſuring, or determining the Quantity

of a Surface, or a Solid, by means of its Centre of Gravity.

The Doctrine is compris'd in the following Theorem, with its *Corollaries*.

Every Figure, whether superficial or solid, generated by the Motion of a Line or a Figure, is equal to the Factum *of the generating Magnitude into the way of its Centre of Gravity, or the Line which its Centre of Gravity describes.* See *Centre of* GRAVITY.

Demonst. For suppose the Weight of the whole generating Magnitude collected in the Centre of Gravity; the whole Weight produc'd by its Motion, will be equal to the *Factum*, of the Weight mov'd, into the Centre of Gravity. But when Lines and Figures are consider'd like homogeneous heavy Bodies, their Weights are as their Bulks: and therefore, the Weight mov'd is the generating Magnitude; and the Weight produced, that generated. The Figure generated, therefore, is equal to the *Factum* of the Magnitude, into the Way of its Centre of Gravity. *Q. E. D.*

Corol. I. Since a Parallelogram ABCD (Tab. *Mechanicks*, Fig. 26.) is describ'd, if the right Line AB, proceed according to the Direction of another AC, with a Motion still parallel to it self; and the Way of the Centre of Gravity E, is equal to the right Line EF, perpendicular to CD; that is, to the Altitude of the Parallelogram: Its Area is equal to the *Factum* of the Base CD, or the describent Line into the Altitude EF. See PARALLELOGRAM.

Corol. II. In the same manner it appears, that the Solidity of all Bodies, which proceed according to the Direction of any right Line AC, is had by multiplying the describing Plane by the Altitude. See PRISM, and CYLINDER.

Corol. III. Since a Circle is describ'd, if the Radius CL (Fig. 27.) revolve round a Centre C, and the Centre of Gravity of the Radius CL, be in the Middle F; the Way of the Centre of Gravity is a Periphery of a Circle x, describ'd by a subduple Radius: Consequently the Area of the Circle, is equal to the *Factum* of the Radius CL, into the Periphery describ'd by the subduple Radius CF. See CIRCLE.

Corol. IV. If a Rectangle ABCD, (Tab. *Mechanicks*, Fig. 28.) revolve about its Axis AD; the Rectangle will describe a Cylinder, and the Side BC the Superficies of a Cylinder. But the Centre of Gravity of the right Line BC, is in the Middle F; and the Centre of Gravity of the generating Plane in the Middle G, of the right Line EGF. The way of this latter, therefore, is the Periphery of a Circle describ'd by the Radius EG; that of the former, the Periphery of a Circle describ'd by the Radius EF. Wherefore, the Superficies of the Cylinder is the *Factum* of the Altitude BC, into the Periphery of a Circle describ'd by the Radius EF, or the Base. But the Solidity of the Cylinder, is the *Factum* of the generatiog Rectangle ABCD, into the Periphery of a Circle describ'd by the Radius EG, which is subduple of EF, or of the Semidiameter of the Cylinder.

Suppose, *v. g.* the Altitude of the describing Plane, and therefore of the Cylinder BC $= a$; the Semidiameter of the Base DC $= r$; then will EG $= \frac{1}{2} r$: And supposing the Ratio of the Semidiameter to the Periphery $= 1 : m$, the Periphery describ'd by the Radius of $\frac{1}{2} r = \frac{1}{2} m a r$. therefore, multiplying $\frac{1}{2} m r$ by the Area of the Rectangle AC $= a r$; the Solidity of the Cylinder will be $= \frac{1}{2} m a r^2$. But $\frac{1}{2} m a r^2 = \frac{1}{2} r . m r$ the Area of the Circle describ'd by the Radius DG. 'Tis evident, therefore, the Cylinder is equal to the *Factum* of the Base into the Altitude. See CYLINDER.

Corol. V. In like manner, since the Centre of Gravity of the right Line AB, (Tab. *Mechanicks*, Fig. 17.) is in the middle M, and the Surface of a Cone is describ'd, if the Triangle ABC revolve about its Axis; if PM $= \frac{1}{2}$ C; the Superficies of the Cone will be equal to the *Factum* of its Side AB, into the Periphery describ'd by the Radius PM; or the Subduple of the Semidiameter of the Base BC.

Suppose *v.g.* BC $= r$, AB $= a$; the Ratio of the Radius to the Periphery $1 : m$; then will PM $= \frac{1}{2} r$, and the Periphery describ'd by this Radius $= \frac{1}{2} m r$. Therefore, multiplying $\frac{1}{2} m r$ into the Side of the Cone AB, the Product is the Superficies of $\frac{1}{2} a m r$. But $\frac{1}{2} a m r$ is also the *Factum* of $\frac{1}{2} a$ and $m r$: therefore, the Surface of the Cone is the Product of the Periphery, into half the Side. See CONE.

Corol. VI. If the Triangle ACB (Tab. *Mechanicks*, Fig. 29.) revolve about an Axis; it describes a Cone; but if CB divided into two MD, and the right Line AD be drawn, and AO $= \frac{2}{3}$ AD; the Centre of Gravity will be mO. The Solidity of the Cone, therefore, is equal to the *Factum* of the Triangle CAB, into the Periphery describ'd by the Radius PO; but AD : AO :: BD : OP. and AO $= \frac{2}{3}$ AD and DB $= \frac{1}{2}$ CB. Therefore, OP $= \frac{2}{3}$ DB $= \frac{1}{3}$ CB.

Suppose *v.g.* CB $= r$, AB $= a$; the Ratio of the Radius to the Periphery $= 1 : m$. Then will OP $= \frac{1}{3} r$ the Periphery describ'd by this Radius $\frac{1}{3} m r$; the Triangle ACB $= \frac{1}{2} r$; and therefore, the Solidity of the Cone $\frac{1}{3} m r \frac{1}{2} A r = \frac{1}{6} a m r^2$. But $\frac{1}{6} a m r^2 = \frac{1}{2} r . m r . \frac{1}{3}$ a. Or, the *Factum* of the Base of the Cone into the third Part of the Altitude. See TRIANGLE.

This elegant Theorem, which may be rank'd among the chief Inventions in Geometry of the last Age, was taken notice of long ago by *Pappus*; but the Jesuit *Guldinus* was the first who set it in its full Light, and exhibited its Use in a variety of Examples. Several other Geometers, after *Guldinus* and *Pappus*, also us'd it in measuring Solids, and Surfaces generated by a Rotation round a fix'd Axis; especially before the late Invention of the *Calculus Summatorius*: and it may still take place in some Cases, where the summatory *Calculus* wou'd be more difficult. M. *Leibnitz* has observ'd, that the Method will hold, tho the Axis or Centre be continually chang'd during the generative Motion.

CENTRUM, in Geometry, Mechanicks, *&c.* See CENTRE.

CENTRUM *Phonicum*, in Acoustics, is the Place where the Speaker stands in the Polysyllabical and articulate Echoes. See ECHO.

CENTRUM *Phonocampticum*, is the Place, or Object that returns the Voice in an Echo. See ECHO.

CENTRUM *Tendinosum*, in Anatomy, a Point, or Centre, wherein the Tails of the Muscles of the Diaphragm meet. This *Centre* is perforated towards the right Side, for the *Vena Cava*; towards the left backward: Its fleshy Part gives way to the Gula. The descending Trunk of the great Artery, Thoracic Duct, and *Vena Azygos*, pass between its two inferior Processes. See DIAPHRAGM.

CENTRY *Box*, a wooden Cell, or Lodge, made to shelter the *Centry*, or *Sentry*, from the Injuries of the Weather.

In a Fortification, they are usually plac'd on the flanked Angles of the Bastions, on those of the Shoulder, and sometimes in the middle of the Curtain.

CENTUMVIRI, among the *Romans*, a Court compos'd of 100 Magistrates, or Judges, appointed to decide Differences between the People. See DECEMVIRI, QUINDECEMVIRI, *&c.*

CENTURION, *Centurio*, among the *Romans*, an Officer in the Infantry, who commanded a *Century*, or an hundred Men. See CENTURY.

The *Centurion* of the first Cohort of each Legion, was call'd *Primipilus*: he was not under the Command of any Tribune, as all the rest were; and had four *Centuries* under his Direction. He guarded the Standard, and the Eagle of the Legion. See PRIMIPILUS.

CENTURY, a thing divided, or rang'd into an hundred Parts.

At the Time when the *Roman* People were assembled for creating of Magistrates, establishing of Laws, or deliberating of publick Affairs, they were divided into *Centuries*; and to the end their Suffrages might be more easily collected, they voted by *Centuries*: This was done in the *Campus Martius*; and these Assemblies were hence call'd *Comitia Centuriata*.

The *Roman* Cohorts were distributed into Decurs, commanded by Decurions; and *Centuries*, by *Centurions*. Each Cohort consisted of six *Centuries*, and a Legion of sixty. See COHORT.

CENTURY, in Chronology, is the Space of 100 Years. Church History is computed chiefly by *Centuries*, commencing from our Saviour's Incarnation: In this Sense, we say, The first *Century*; the Fathers of the second *Century*; the Councils of the third *Century*, &c. See COUNCIL, FATHERS, *&c.*

CENTURIES *of Madgeburg*, a celebrated Ecclesiastical History, divided into thirteen *Centuries*, containing thirteen hundred Years, ending at 1298; compil'd by several learned Protestants of *Magdeburg*. The chief of the *Centuriators*, was *Matthias Flacius Illyricus*. 'Tis said *Baronius* undertook his Annals, purely to oppose the *Madgeburg Centuriators*.

CENTURY, or CENTAURY *the lesser*, in Medicine, an Herb, chiefly noted for a Stomachic, and restoring decay'd Appetites: It is seldom prescrib'd otherwise than by Infusion or Decoction; it is an Ingredient in the Venice Treacle; and, as a Stomachic, it enters as one of the Ingredients in the Officinal Bitter Draught; and is for the same Purpose order'd in extemporaneous Prescriptions, with others of the same Nature, for the making of bitter Wines, *&c.*

A strong Decoction hereof is said to be of service, drank for some time, in Obstructions of the Menses, and also to destroy Worms; a Property attributed to most Bitters. It is often prescrib'd externally in discutient Fomentations. The Tops, or Flowers, are only us'd.

The *greater Century* is never prescrib'd.

CEPHALIC, in Medicine, is apply'd to any thing belonging to the Head, or its Parts. See HEAD. The Word is form'd of the *Greek* κεφαλὴ, *Caput*.

Cephalics, or Cephalic *Medicines*, are such as are proper for Disorders of the Head: These are generally of a volatile, spirituous, or aromatic Nature, or at least join'd with such; and are suppos'd to be of service, by the Volatility of their Particles, insinuating into the Nerves, and mixing with the Animal Spirits directly, as well as by the common Circulation.

Thus, Spirit of Lavender is suppos'd directly to act upon the Nerves of the Palate, *&c.* upon which account, it's frequently taken dropp'd on Sugar, or Bread: and Sal Volatile, by smelling to, is suppos'd to be assistant to the Head, by its volatile Particles entering the Olfactory Nerves. As to Aromatic *Cephalics*, as the Species of Diambra, Pouder of Degutetu, Nutmeg, *&c.* they act chiefly by their aromatic Parts warming the nervous System, and increasing their Vibrations, by which the nervous Fluid circulates more freely.

Cephalic *Vein*, in Anatomy, is a Vein of the Arm between the Skin and the Muscles, divided into two Branches, *External* and *Internal*. The *External* goes down to the Wrist, where it joins the *Basilica*, and turns up to the Back of the Hand: The *Internal* Branch, together with a Sprig of the *Basilica*, makes the *Mediana*. See Vein.

'Tis thus call'd, in regard the Antients us'd to open it in Disorders of the Head.

CEPHALOPHARINGÆI, in Anatomy, two Muscles of the Orifice of the *Oesophagus*, call'd the *Pharynx*. See Pharynx.

They have their Orifice in the Articulation of the Head with the first Vertebra; and are inserted into the upper Part of the Pharynx, serving to draw it upwards and backwards.

CEPHALALGIA, in Medicine, is understood, in the general, of any *Head-ach*; but properly signifies, only a fresh one: When it becomes inveterate, 'tis call'd *Cephalia*; and, when it only possesses half the Head, *Megrim*.

CEPHEUS, in Astronomy, a Constellation of the Northern Hemisphere. See Constellation.

The Stars in the Constellation *Cepheus*, in *Ptolemy*'s Catalogue are 13; in *Tycho*'s 11; in the *Britannic Catalogue* 35. The Order, Names, Longitudes, Latitudes, Magnitudes, *&c.* whereof, are as follow.

Stars in the Constellation Cepheus.

Names and Situation of the Stars.	Sign.	Longitude. ° ′ ″	Latitude. ° ′ ″	Magnit.
In the preced. Foot	♉	28 50 35	75 27 46	4 5
In the preced. Arm	♈	0 39 5	73 56 57	4 5
In the bend of the preced. Arm		0 14 30	71 45 45	4
		14 58 25	74 5 20	6
In the preced. Shoulder		8 31 3	68 56 8	3
5				
		14 18 55	69 59 15	6
		20 30 19	70 2 57	6
In the Girdle, agst. the preced. Side	♉	1 18 35	71 8 15	3
	♈	10 42 11	66 47 28	6
		10 5 8	65 29 2	5
10				
	♉	4 14 37	70 15 33	5
	♈	9 35 24	65 2 27	7
	♉	7 16 41	70 22 40	6
That preced. of the *Tiara*	♈	4 7 6	61 39 14	6
		7 41 48	61 52 51	6
15				
In *Cepheus*'s Neck		10 58 16	62 54 22	7
	♉	10 27 45	69 22 27	5 6
In the Breast	♈	19 55 16	65 45 41	5
		15 33 22	64 18 27	6
		16 29 2	64 36 41	6
20				
Middle of 3 in the *Tiara*		9 40 7	61 9 27	4 5
North. and small. of the same		11 41 33	61 54 25	6
South. in the *Tiara*		8 42 5	59 58 31	4
	♉	8 40 54	68 25 29	5
	♈	18 32 2	63 24 27	7
25				
		24 5 28	63 57 16	6
That following the *Tiara*		13 20 14	59 32 50	4 5
	♉	26 30 10	68 31 58	6
Between the Feet, double		26 37 31	68 23 7	5 6
	♈	22 54 40	62 2 10	6
30				
Preced. in the following Arm	♉	13 24 51	66 59 34	6
In the following Leg	♈	28 58 46	62 36 40	4
Latter in the hind Arm	♉	19 16 3	65 31 44	5
In the hind Foot		5 42 36	61 23 20	5
	♉	25 48 15	64 36 47	3
35				

CEPI *Corpus*, in Law, a Return made by the Sheriff, upon a *Capias*, or other Process to the like purpose; signifying, that he hath taken the Body of the Party.

CERATE, in Medicine, a kind of Unguent, or Liniment, made of Oil and Wax; us'd in several Diseases, especially those of the Skin. It takes its Name from its capital Ingredient, Wax, call'd in Latin *Cera*.

Its Consistence is thicker than that of a Liniment; the last having usually two Ounces of Wax to two of Oil; but the first four of Wax to two of Oil; see Liniment: yet 'tis thinner than a Plaster. See Emplaster.

There are *Cerates* of various kinds, Refrigerative, Stomachic, *&c.* *Cerate of Sulphur*, *of Santal*, restringent *Cerate of Bricks*, *Divine Cerate*, &c.

There is a particular one, call'd the *refrigerative Cerate of* Galen, made of white Wax and Oil of Roses Omphacin.

CERATION, in Chymistry, the Preparation of any Matter, to render it fit and disposed to liquify, or melt, which of it self it was not.

This is frequently done, to enable things to penetrate into Metals, or other solid Bodies. The Word comes from *Cera*, Wax.

CERATOGLOSSUM, in Anatomy, a Pair of Muscles of the Tongue, thus describ'd by Mr. *Cowper*: 'The *Ceratoglossum* has a broad fleshy Origination, at the superior Part of the *Os Hyoides*, laterally; whence it ascends to its Insertion at the Root of the Tongue. This, with its Partner, acting, draw the Tongue into the Mouth directly: If only one of them act, it moves the Tongue on one side.

The Word is deriv'd from the *Greek* κερας *Cornu*, and γλωσσα, *Lingua*; its Form bearing some resemblance to a Horn.

CERCELEE', in Heraldry. A *Cross Cercelee*, is a Cross which, opening at the Ends, turns round both ways, like a Ram's Horns. See Cross.

CERDONIANS, antient Hereticks, who maintain'd most of the Errors of *Simon Magus*, *Saturnil*, and other *Gnostics*. See Gnostics.

They took their Name from their Leader *Cerdon*, a *Syrian*, who came to *Rome* in the Time of Pope *Hyginus*; and there abjur'd his Errors: but in appearance only; for he was afterwards convicted of persisting in them, and accordingly cast out of the Church again.

Cerdon asserted two Principles, the one Good, and the other Evil: This last, according to him, was Creator of the World, and the God that appear'd under the old Law. The first, whom he call'd *unknown*, was the Father of Jesus Christ; who, he taught, was only Incarnate in appearance, and was not born of a Virgin; nor did he suffer Death but in appearance. He deny'd the Resurrection, and rejected all the Books of the Old Testament, as coming from an evil Principle. *Marcion*, his Disciple, succeeded him in his Errors. See Marcionites.

CEREALIA, in Antiquity, Feasts of *Ceres*, instituted by *Triptolemus*, of *Eleusis* in *Attica*, Son of *Celeus* King of that Place, in gratitude for his having been instructed by *Ceres*, who was suppos'd to have been his Nurse, in the Art of cultivating Corn, and making Bread: so that the *Cerealia* took their Rise from *Greece*.

There were two Feasts of this Kind at *Athens*; the one call'd *Eleusinia*, the other *Thesmophoria*. See Eleusinia, and Thesmophoria.

What both agreed in, and was common to all the *Cerealia*, was, that they were celebrated with a world of Religion and Purity; so that it was esteem'd a great Pollution to meddle, on those Days, in conjugal Matters.

'Twas not *Ceres* alone that was honour'd here, but also *Bacchus*. The Victims offer'd were Hogs, by reason of the waste they make in the Products of the Earth: whether there was any Wine offer'd, or not, is Matter of much debate among the Criticks. *Plautus* and *Macrobius* seem to countenance the negative side; *Cato* and *Virgil* the positive. *Macrobius* says, indeed, they did not offer Wine to *Ceres*; but *Mulsum*, sweet Wine: and that the Sacrifices made the 21st of *September* to that Goddess and *Hercules*, was a Sow full of Cakes and sweet Wine; and that this is what *Virgil* means by *Miti Bacchо*. Vid. *Salmasius*, *Lambin*, &c.

The *Cerealia* pass'd from the *Greeks* to the *Romans*, who held 'em for eight Days successively; commencing on the 12th of *April*. It was the Women alone who were concern'd in the Celebration, all dress'd in white: the Men, likewise in white, were only Spectators. They eat nothing till after Sun-set; in memory of *Ceres*, who in her search after her Daughter, took no repast but in the Evening.

There were also exhibited Combats on Horseback; tho these were afterwards chang'd into Combats of Gladiators: which was look'd on as an ill Omen for the Republic. The People became Sharers in this Feast, by the Largesses, Pears, Nuts, *&c.* distributed among them. The *Ædiles* ordinarily presided over the *Cerealia*; yet sometimes the *Dictator*, and sometimes the *Master of the Horse* were by a *Senatus-Consultum* appointed to preside. It was held in the *Circus*, and began on the Day whereon the *Ludi Circenses* ended.

After

After the Battle of *Cannæ*, the Desolation was so great at *Rome*, that there were no Women to celebrate the Feast, by reason they were all in mourning; so that it was omitted that Year.

In the *Cerealia* they exhibited the Grief of *Ceres* for the Loss of her Daughter *Proserpine*; bearing the Statues of the Gods in Procession. 'Tis said, they likewise carry'd an Egg in pomp; apparently, say some, as being the Figure of the World, which, like the Egg, contains a vital Power, which it communicates to Seeds: tho others will have it done as a Representation of the Egg whereof *Castor* and *Pollux* were born.

CEREBRUM, in Anatomy, the *Brain*, properly so call'd; in contra-distinction from the *Cerebellum*. See BRAIN.

CEREBELLUM, or CEREBEL, in Anatomy, the hind Part of the *Brain*. See BRAIN.

The *Cerebellum* is esteem'd a kind of little *Brain* by it self, as the Word it self imports. It is plac'd in the hinder and lower Part of the Skull, underneath the hind Part of the Brain, or *Cerebrum*: It lies open to the *Cerebrum* at bottom; but at top is separated from it by a Duplicature of the *Dura Mater*. Its Figure somewhat resembles a flat Bowl, broader than long.

Its Substance is harder and more solid than that of the Brain, but of the same Nature and Kind; being compos'd like it, of a *Cortical*, or *Glandulous*; and a *Medullary* Part: the Branches of which last, when open'd, resemble those of a Tree, meeting in the Middle, and forming a kind of Stem, which runs quite thro it.

Its Surface is unequal, and furrow'd, but not so much as that of the *Cerebrum*; appearing rather as if laminated, like some Shell; the middle Circles being the largest and deepest: between the *Laminæ* are Duplicatures of the *Pia Mater*. The fore and hind Parts of the *Cerebellum* are terminated by *Apophyses*; call'd *Vermiformes*, from the resemblance they bear to Worms: it is join'd to the *Medulla oblongata* by two Processes, call'd by *Willis Pedunculi*. See PEDUNCULI.

Besides these, are two or three other medullary Processes, which passing across the *Medulla Oblongata*, form an Arch; from the Discoverer call'd *Pons Varolii*. See VAROLII.

The Blood-Vessels of the *Cerebellum* are the same with those of the *Cerebrum*; and its use the same, *viz.* to separate the nervous Juice from the Blood, and convey it thro the several Parts of the Body.

Dr. *Willis*, however, distinguishes between the Functions of the *Cerebrum*, and *Cerebellum*; making the first the Principle of voluntary Motions, and Actions; and the last the Principle of involuntary ones, *viz.* that of Respiration, the Motion of the Heart, *&c.*

'Tis commonly asserted, that a Wound either in the *Cortex*, or *Medulla* of the *Cerebellum*, is mortal; which it is not in the *Brain*, from which there have been entire Parts taken away without harm. The truth is, we have Instances of People living, not only without any *Cerebrum*, but also without any *Cerebellum*. See BRAIN.

CEREMONY, an Assemblage of several Actions, Forms, and Circumstances, serving to render a thing more magnificent and solemn.

The Word comes from the Latin *Ceremonia*, quasi *Cereris munia*, on account of the great Number of Ceremonies us'd in making the Offerings to *Ceres*.

Valerius Maximus derives it *à Cere* and *Munia*: *Cere* was a little Town near *Rome*, where the *Romans* made Offerings unto the Gods, with uncommon Ardor and Officiousness, on occasion of the Fear they were in of the *Gauls*, who then lay before *Rome*.

CERINTHIANS, antient Hereticks, who took their Name from *Cerinthus*, Cotemporary with St. *John*.

Cerinthus was a zealous Defender of the Circumcision, as well as the *Nazareans* and *Ebionites*. St. *Epiphanius* says, he was the Head of a Faction which rose at *Jerusalem* against St. *Peter*, on account of some uncircumcis'd Persons with whom that Apostle had eat. He believ'd that Jesus Christ was a mere Man, born of *Joseph* and *Mary*; but that in his Baptism, a celestial Virtue descended on him in form of a Dove; by means whereof he was consecrated by the Holy Spirit, and made Christ. 'Twas by means of this celestial Virtue, therefore, that he wrought so many Miracles; which, as he receiv'd it from Heaven, quitted him after his Passion, and return'd to the Place whence it came: So that Jesus, whom he call'd *a pure Man*, really dy'd and rose again; but that Christ, who was distinguish'd from Jesus, did not suffer at all.

Some Authors ascribe the Book of the *Apocalypse* to *Cerinthus*; adding, that he put it off under the Name of St. *John*, the better to authorize his Reveries touching Christ's Reign in the Flesh: And 'tis even certain he publish'd some Works of this kind, under the Title of *Apocalypses*. See APOCALYPSE.

St. *Epiphanius* observes, that when a *Cerinthian* dy'd without Baptism, another Person was baptiz'd in his stead. They receiv'd the Gospel of St. *Matthew*, to countenance their Doctrine of Circumcision, from Christ's being circumcis'd; but they omitted the Genealogy. They discarded the Epistles of St. *Paul*, because that Apostle held Circumcision abolish'd.

CEROMA, a Mixture of Oil and Wax; or, a *Searcloth* with which the Wrestlers rubb'd themselves, not only to make their Limbs more sleek, and less capable of being laid hold of, but more pliable and fit for Exercise. See SEARCLOTH.

CERTIFICATE, a Testimony given in Writing, to assure and notify the Truth of any thing to a Court of Justice, *&c.*

CERTITUDE, is properly a Quality of the Judgment of the Mind, importing an Adhesion of the Mind to the Proposition we affirm; or the Strength wherewith we adhere to it.

Certitude is of the same Nature with the Evidence that produces it: the Evidence is in the Things that the Mind sees and considers, *i. e.* in the *Ideas*: *Certitude* is in the Judgment the Mind makes of those Ideas. See EVIDENCE.

The Schoolmen distinguish two Kinds of *Certitude*: the one of *Speculation*, arising from the Evidence of the Thing; the other of *Adhesion*, which arises from the Importance thereof: This last they apply to Matters of Faith.

Further, the Schools distinguish three other Kinds of *Certitude*, with regard to the three different Kinds of Evidence whence they arise.

Metaphysical Certitude, is that arising from a Metaphysical Evidence: such is that a Geometrician has of the Truth of this Proposition, 'That the three Angles of a 'Triangle are equal to two right ones.'

Physical Certitude, is that arising from Physical Evidence: such is that a Man has that there is Fire on his Hand, when he sees it blaze, and feels it burn.

Moral Certitude, is that founded on Moral Evidence; such is that a Person has, that he has got, or lost a Cause, when his Attorney and Friends send him express Notice of it, or a Copy of the Judgment, *&c.* with regard to which, it may be observ'd, that Moral *Certitude* is frequently equivalent to Metaphysical *Certitude*. Thus, a Criminal who hears the Sentence read, frequently makes no doubt either of his Condemnation or Execution; and yet has nothing, here, beyond a Moral *Certitude*; the Physical *Certitude* only relating to the reading of the Sentence, and the Actions of the Executioner when he takes him into his Possession.

In the *Philosophical Transactions*, we have an Algebraic Calculation of the Degrees of *Moral Certainty*, arising from human Testimony in all its Cases; whether Immediate, Mediate, Concurring, Oral, or Written.

The Author thereof shews, that if the Report pass thro several Reporters Hands e'er it arrive, each conveying $\frac{5}{6}$ of *Certitude*; after 12 Transmissions, it will only be as $\frac{1}{2}$, or an equal Lay whether it be true or not: If the Proportion of *Certitude* be fix'd at $\frac{100}{105}$, it will come to half from the 70th Hand; if at $\frac{1000}{1001}$, from the 695th Hand.

For concurring Evidences, if two Reporters have each $\frac{5}{6}$ of *Certainty*, they will both give an Assurance of $\frac{35}{36}$. or 35 to 1; if three, of $\frac{215}{216}$: and the Co-attestation of 10 would give $\frac{1023}{1024}$ of *Certainty*; that of a 20th, $\frac{999999}{1000000}$. He shews, farther, that if there be six Particulars in a Narrative, all equally remarkable; and that he to whom the Report is given has $\frac{5}{6}$ of *Certitude* for the whole; there is 35 to 1 against the Failure in any one certain particular.

He proceeds to compute the *Certainty* of Tradition, both Oral and Written, in Whole and in Part; successively transmitted, and also co-attested by several Successions of Transmittents. See TRADITION.

CERT-MONEY, *Head-Money*, or a common Fine, paid yearly by the Resiants of several Manors to the Lords thereof; and sometimes to the Hundred; *pro Certo Letæ*, for the certain keeping of the Leet. This, in antient Records, is call'd *Certum Letæ*.

CERVICAL *Vessels*, among Anatomists, are the Arteries, Veins, *&c.* which pass thro the *Vertebræ* and Muscles of the Neck, up to the Skull.

They are thus call'd from the Latin *Cervix*, Neck. See CERVIX.

CERVICAL *Nerves*, are seven Pair of Nerves, so call'd, as having their Origin in the *Cervix*, or Neck. See NERVE.

The first Pair arises between the first and second *Vertebræ* of the Neck; and contrary to the rest, come out before and behind: whereas the other six Pair come out laterally from the Jointures of the *Vertebræ*, thro particular Perforations: This first Pair goes to the Muscles of the Head and Ear. The second Pair, according to Dr. *Willis*, contributes the main Branch towards the Formation of the *Diaphragmatic* Nerves; which, according to *Vieussens*, spring only from the fourth and sixth Pair. The three

last Pair, joining with the two first of the *Dorsum*, or Thorax, make the *Brachial* Nerves. All the *Cervical Nerves* send innumerable Branches to the Muscles, and other parts of the Head, Neck, and Shoulders.

CERVICALES *Descendentes*, a Pair of Muscles, Antagonists to the *Sacro-Lumbares*; coming from the third, fourth, fifth, and sixth *Vertebra* of the Neck.

Most Authors reckon these, tho improperly, a Production and Part of the *Sacro-lumbus*.

CERVIX, in Anatomy, the hind Part of the Neck; the fore Part being distinguish'd by the Name of *Collum*. See NECK.

CERVIX *of the Uterus*, the Neck of the *Uterus*, or Womb. See UTERUS.

The *Cervix*, in Maids, is very narrow, except in the Time of the *Menses*; scarce wide enough to admit a Goose's Quill: Its Extremity is call'd the *Osculum Internum*, which is kept seal'd up with a kind of glutinous Matter, issuing from the Glands about it. See MATRIX.

CERUMEN *Aurium*, Ear-Wax; a thick, viscous, bitter Matter, or Humor, separated from the Blood by proper Glands, plac'd in the outer Passages of the Ear. See EAR-*Wax*.

CERUSSE, a Preparation of Lead, popularly call'd *White Lead*; and, by the Chymists, *Calx of Lead*. See LEAD.

Ceruse is made of very thin *Laminæ*, or Plates of Lead, so laid, as to receive and imbibe the Fumes of Vinegar, plac'd in a Vessel over a moderate Fire. The *Laminæ* are, by means hereof, converted into a white Rust; which they gather together, and grinding it up with Water, form into little Cakes. *Cardan* shews how to make it of Urine.

Ceruse makes a beautiful white Colour, and is much us'd by the Painters, both in Oil and Water Colours. It makes the principal Ingredient in the Fucus us'd by the Ladies for the Complexion. Taken inwardly, it is a dangerous Poison; and soon shews its Malignity on the Outside; spoiling the Breath and Teeth, and hastning Wrinkles, and the Symptoms of old Age.

The best *Ceruse*, is that of *Venice*; but this is rare: that chiefly us'd, is either *English* or *Dutch*, both of which have more Marl in 'em than White Lead; the latter, however, is the better of the two. *Fallopius* speaks of a Mineral *Ceruse*, but every body else takes it to be factitious.

The Word comes from the *Greek* κηρὸς, *Wax*; *Ceruse* bearing a resemblance to Wax.

CESAR, or CÆSAR, among the *Romans*, was a long time us'd for the Heir intended, or presumptive of the Empire; as *King of the Romans* is now us'd for that of the *German* Empire.

From the Time of *Marcus Aurelius*, to that of the Emperor *Valens*, none had the Title of *Augusti* given them, till they had been first created *Cesars*. *Spartian* says, *Lucius Verus* was the first that was called *Cesar*, before he was made Emperor. The *Cesars* were a kind of Adjuncts to the Empire, *Principes Imperii*: See AUGUSTUS.

Cesar was the second Dignity, till the Time of *Alexis Comnenius*: that Emperor created a new Dignity, in favour of his Brother *Isaac Comnenius*, which he call'd *Lebostocrator*, and to which he gave the Precedence over the *Cesars*. *Codin* describes the Creation of a *Cesar*, his Crown, Rights, Habit, &c.

The Term took its rise from the Names of the first *Roman* Emperors; and that some derive from *Cæsaries*, Head of Hair; urging, that the first who bore it, *viz. Caius Julius Cesar*, was distinguish'd by his fine Head of Hair, which occasion'd the Title. The more common Opinion is, that the Word *Cesar* comes *à cæso matris Utero*; because his Mother's Womb was cut open to give him passage.

J. Bircherodius says, it comes from this, that the first who bore the Name kill'd an Elephant in Battel; *à Cæso Elephante*: This Opinion he supports on the Credit of a Medal, on which is an Elephant with the Word CÆSAR.

CESAREAN *Section*, or *Cæsareus Partus*, an Operation whereby the Child is drawn from the Mother by violent means, with Incision. See BIRTH.

It appears from Experience, that Wounds in the Muscles of the *Epigastrium*, or *Peritonæum*, and those in the Matrix, are not mortal; so that the Belly of the Mother may be sometimes open'd to give passage for the Child; but then 'tis not without great Danger; on which account, this Operation is very rarely practis'd: Those brought into the World in this manner, are call'd *Cæsars*, and *Cæsones*, *a cæso matris Utero*; as was *C. Julius Cæsar*, *Scipio Africanus*, and *Manlius*. See CESAR.

F. *Roussel* has a Treatise expressly on the Subject of the *Cesarean Section*.

CESSAVIT, a Writ that lies in divers Cases; upon this general Ground, that he against whom it is brought, has for two Years neglected to perform such Service, or pay such Rent, as he is oblig'd to by his Tenure; and has not upon his Lands or Tenements sufficient Goods or Chattels to be distrain'd. It only lies for annual Service, Rent, and such-like, not for Homage or Fealty. The Forms and Species of this Writ are various; as, *Cessavit de Cantaria*, *Cessavit de Feodifirma*, *Cessavit per Biennium*.

CESSION, in a Legal Sense, an Act whereby a Person surrenders up, and transmits to another Person, a Right which belong'd to himself.

Cession is a general Term, the Species whereof are, a *Surrender*, *Relinquishment*, *Transfer*, and *Subrogation*; which see.

CESSION is particularly us'd in the Civil Law, for a voluntary and legal Surrender of a Person's Effects to his Creditors, to avoid Imprisonment.

This Practice still obtains in *France*, and other Countries; and is done by virtue of Letters Patent granted in favour of the Poor and Honest. The *Cession* carry'd with it a Mark of Infamy, and oblig'd the Person to wear a green Cap, or Bonnet; at *Lucca* an orange one: to neglect this, was to forfeit the Privileges of the *Cession*. This was originally intended to signify, that the *Cessionary* was become poor thro his own Folly.

The *Italian* Lawyers describe the Ceremony of *Cession* to consist in striking the bare Breech three times against a Stone, call'd *Lapis Vituperii*, in the Presence of the Judge. Formerly it consisted in giving up the Girdles and Keys in Court; the Antients using to carry at their Girdles the chief Utensils wherewith they got their living; as the Scrivener his Escritoire, the Merchant his Bag, &c.

The Form of *Cession* among the antient *Romans* and *Gauls* was as follows. The *Cessionary* gather'd up Dust in his left Hand, from the four Corners of the House, and standing on the Threshold, holding up the Door-Post in his right Hand, threw the Dust back over his Shoulders: then stripping into his Shirt, and quitting his Girdle and Sacks, he jump'd with a Pole over a Hedge; hereby letting the World know, that he had nothing left, and that when he jump'd, all he was worth was in the Air with him.

This was the *Cession* in Criminal Matters: In Civil Cases, it was sufficient to lay a Switch, Fetch, or broken Straw on the Threshold. This was called *Chrenecruda per Durpillum & Festucam*. See INVESTITURE.

CESSION, in the Ecclesiastical Law, is one manner of vacating or voiding an Ecclesiastical Benefice. See VACATION, and BENEFICE.

By the Canon Law, if a Clerk has one Living, of 8 *l. per Annum* Value, or upwards, and takes a second, of what Value soever, the former is void without a Dispensation: that is, it is void *de Jure*, but not *de Facto*.

By the Statute, if a Clerk have one Benefice of 18 *l. per Annum*, or upwards, and takes another, of what Value soever, with Cure of Souls, and without Dispensation, the former Living is, *ipso facto*, void: And this kind of Voidance of a Living is call'd *Cession*.

What is call'd *Cession* in other Benefices, is call'd *Creation* in relation to a Bishoprick; for if an Incumbent be made a Bishop, his Benefice is said to be *void by Creation*. See BISHOP.

CESSIONARY, a *Bankrupt*. See BANKRUPT, and CESSION.

CESSOR, in Law, one dilatory, negligent, and delinquent in his Duty or Service, and who thereby incurs the Danger of the Law, and is liable to have the Writ *Cessavit* brought against him. See CESSAVIT.

Where 'tis said *the Tenant cesseth*, 'tis meant he ceaseth to do his Duty, or Service to which he is bound.

CESTUI, a *French* Term, literally signifying *He*, or *Him*; frequently us'd in our old Law-Writings. Thus,

CESTUI *qui Trust*, is he who has Lands in Trust, &c. committed to him for the Benefit of another.

CESTUI *qui Vie*, one for whose Life any Lands or Tenements are granted.

CESTUI *qui Use*, he to whose Use another Man is infeoffed in Lands or Tenements.

CESTUS, a Term us'd by Poets and Painters, for the Girdle which they attribute to *Venus* and *Juno*.

Among the Antients, *Cestus* properly signify'd the Maid's Girdle, which the Bridegroom noty'd when he led her into the House.

The Word comes from the *Greek* κεστὸς, *Girdle*: whence also *Incestus*; a Term us'd at first for any Naughtiness by undoing the Girdle, &c. but now restrain'd to that between Persons near akin. See INCEST.

CESTUS was also a large Leathern Gantlet, garnish'd with Lead, us'd in the Combats or Exercises of the antient *Athletæ*. See ATHLETÆ.

Calepin says, it was a kind of a Club with leaden Balls hanging from it, suspended by Leathern Thongs: but he was mistaken, it being only a Leathern Thong studded with Nails of Lead, or Iron; part of it twisted round the Hand and part of the Arm, to prevent their being broke or dislocated.

It was called *Cestus*, *à cedendo*, to strike, or beat.

CESURE, or CÆSURA, in the *Latin* Poetry, a Syllable remaining at the End of a Foot, and seeming as it were detach'd from it, to begin the following Foot; as in this Verse,

Arma Virumque cano Trojæ qui primus ab oris :

where the Syllables *no* and *jæ* are *Cesures*.

In the modern Poetry, *Cesure* is properly a Rest, form'd in the middle of long Verses. In *Alexandrine* Verses, of 12 or 13 Syllables, the *Cesure* must always be the sixth; in Verses of 10 on the fourth; and in those of 12 on the sixth: Verses of eight Syllables must not have any *Cesure*. See VERSE.

The *Cesure*, by affording a Rest in the middle of a long Verse, to aid the Voice and Pronunciation, divides the Verse, as it were, into two Hemisticks. See REST, and PAUSE.

CETACEOUS, in Natural History, a Term apply'd to all large Fishes, and Sea Monsters, which bear a resemblance to the *Whale*. See WHALE.

The Word is form'd of the Latin *Cetus*, Whale. See FISH.

The Horn usually call'd the *Unicorn's Horn*, is found to be the Tooth of a *Cetaceous* Fish in the Icy Sea, call'd *Narval*. See UNICORN.

CETERIS, or CÆTERIS *Paribus*, a *Latin* Term, or Phrase, in frequent use among Mathematical and Physical Writers.

The Words literally signify, *the rest*, or *the other things being alike, or equal*; which expresses pretty nearly their Meaning as a Term.

Thus, we say, *The heavier the Bullet*, ceteris paribus, *the greater the Range*; *i. e.* by how much the Bullet is heavier, if the Length and Diameter of the Piece, and the Quantity and Strength of the Pouder be the same, by so much will the utmost Range or Distance of a Piece of Ordnance be.

Thus also, in a Physical way, we say, *The Velocity and Quantity of Blood circulating in a given Time, thro any Section of an Artery, will*, ceteris paribus, *be according to its Diameter, and nearness to, or distance from the Heart.*

CETUS, in Astronomy, the *Whale*; a Constellation of the Southern Hemisphere. See CONSTELLATION.

The Stars in the Constellation *Cetus*, in *Ptolemy*'s Catalogue are 22; in *Tycho*'s 21; in the *Britannic Catalogue* 78. The Order, Names, Longitudes, Latitudes Magnitudes, *&c.* whereof, are as follow.

Stars in the Constellation CETUS.

		Longitude.			Latitude. South.			Magnit.
Names and Situation of the Stars.	Sign.	°	′	″	°	′	″	
	♓	18	36	40	14	14	15	6
Of those in Triangle preced. the Tail, by *Ptolemy* rank'd among the Informes of *Aquarius*. Mid.		19	25	37	16	14	22	4 5
		22	28	40	10	5	0	6
No		21	57	12	15	16	3	5
So.		21	12	12	18	45	54	5
5								
North. in the Extrem. of the Tail		26	35	0	10	0	41	4 3
		22	56	22	13	27	15	6
	♈	1	45	50	2	42	0	6 7
		0	59	31	6	36	23	6
		2	18	26	6	47	28	6 5
10								
		4	13	26	4	15	16	6
Bright, and South. of the Tail	♓	28	13	2	20	46	52	3
N. of those prec. in the ☐ in Root of the Tail South.	♈	1	33	31	14	7	45	5
		0	54	30	16	18	39	6
N. of the following Side of the ☐		2	57	0	14	44	14	5
15								
		7	25	18	6	17	50	6
		4	40	46	13	24	8	6
South. of the same Side		4	2	32	15	53	50	6
		4	37	39	16	16	11	6
		8	18	33	10	40	10	6
20								
		6	49	9	15	38	59	6
		6	58	49	15	34	29	6
		7	23	22	15	41	10	6
Prec. in the poster. Part of the Body		7	25	42	16	6	23	3
		8	20	10	15	6	47	6
25								
		9	48	3	13	24	58	6
		9	42	4	14	37	59	5
		10	35	59	14	41	38	6
		11	55	6	15	35	44	6
Subs. in the poster. Part of the Body		11	53	52	15	46	30	3
30								
		9	36	36	21	50	7	5
		10	34	17	20	32	40	6
		7	21	44	18	37	56	6 5
		11	17	50	23	41	24	6
		11	45	30	23	33	56	6
35								
Mid. of 3 in the middle of the Body		13	35	48	24	57	32	4 3
Contig. to the North. in the Body		17	0	46	20	30	12	5
North. in the middle of the Body		17	36	47	20	21	19	3
		13	33	32	32	3	28	6
South. in the Middle of the Body	♈	15	8	32	30	47	52	6
40								
	♈	23	3	55	13	32	34	6
Another, and more South		15	4	15	31	2	29	4 5
		24	22	44	11	39	53	6
		24	21	32	12	9	13	7
		24	56	2	14	29	13	7
45								
		25	28	16	14	8	3	6 7
Preced. in the Crest		29	42	33	4	17	15	4
		25	45	20	14	50	5	6
		25	20	13	18	58	51	6
New one in the Neck of *Cetus*		27	11	15	15	56	38	2 3
50								
		28	59	42	13	0	56	6
		28	36	4	14	14	1	6
In the hind Part of the Head	♉	3	2	33	3	34	25	6
	♈	28	37	36	16	15	12	6
Prec. South. in the ☐ of the Breast		25	22	10	25	15	50	4
55								
Subseq. of two in the Crest	♉	3	7	35	5	53	7	4
	♈	21	37	0	34	14	5	6
	♉	0	59	19	15	12	15	5 6
South. prec. in the ☐ of the Breast	♈	25	46	2	28	32	48	4
		29	13	58	21	50	36	6
60								
Against the Eyebrow	♉	4	3	9	9	12	26	4 5
		0	55	37	17	49	1	6
	♈	29	34	34	21	55	44	6
	♉	1	32	55	17	52	43	6
Prec. in the Mouth agst. the Cheek		3	14	26	14	29	57	3
65								
N. of those following in the Square of the Breast)	♈	29	0	15	26	0	25	3
	♉	3	18	39	15	35	39	6
In the middle of the Mouth		5	7	3	12	1	26	3
That against the Forehead		7	34	50	5	35	33	4
South. of those that follow in the Square of the Breast)	♈	29	24	53	28	16	32	4 3
70								
		27	44	30	32	46	20	8
That against the Nostrils	♉	10	45	6	7	49	12	4
Bright Star of the Jaw		9	59	15	12	36	59	2
		10	5	8	12	22	55	6
		11	2	13	18	25	42	6
75								
		12	31	35	18	33	42	6
Inform. following the bright Star of the Jaw)	♉	13	57	58	14	29	21	4
		14	30	25	14	18	25	5

CHACE, CHACING, } See { CHASE. CHASING.

CHACE *of a Gun*, is the whole Bore, or Length of a Piece of Ordnance on the Inside. See GUN, CANNON, ORDNANCE, *&c.*

CHACE, in the Sea Language, signifies *Pursuit*: Thus, *to give Chace to a Ship*, is to follow, and fetch her up.

CHACE-*Guns*, or CHACE-*Pieces*, are those lying in the Head and Stern of the Ship.

CHACOON, or CHACONDE, a kind of Dance, in the Air of a Saraband, deriv'd from the *Moors*. The Bass always consists of four Notes, which proceed in conjunct Degrees; and whereon they make divers Concords and Couplets with the same Burden.

The Word is form'd of the Italian *Ciacona*, of *Cecone*, a blind Man; this Air being said to be the Invention of a blind Man.

CHAFE-*Wax*, or CHAUFFE-*Wax*, an Officer in Chancery, whose Business is to fit the Wax for the sealing of Writs, Patents, and other Instruments issu'd thence. See CHANCERY.

CHAGRIN, CHAGRAIN, or, as it's vulgarly call'd, SHAGREEN; a kind of grain'd Leather, chiefly us'd in the Covers of Cases, Books, *&c.* It is very close and solid, and cover'd over with little roundish Grains, or *Papillæ*. It is brought from *Constantinople*, *Tauris*, *Tripoli*, *Algiers*, and some Parts of *Poland*.

There is a Dispute among Authors what the Animal is whence the *Chagrin* is prepar'd: Some say 'tis a Horse, others a Mule, and some an Ass; and that only the hard Part of the Skin is us'd for this purpose. *Borel* says 'tis a *Sea-Calf*; others a kind of Fish, call'd by the Turks *Chagrain*, whose Skin is cover'd with Grains; and those so hard that they will rasp and polish Wood.

The manner of preparing the CHAGRIN.

The Skin being just flea'd off, is stretch'd out, cover'd over with Mustard-seed, and the Seed bruis'd on it; and thus expos'd to the Weather for some Days; then tann'd.

The best is that brought from *Constantinople*, of a greyish Colour; the white is the worst. 'Tis extremely hard, yet, when steep'd in Water, becomes very soft and pliable; whence it becomes of great Use among Casemakers. It takes any Colour that is given it; red, green, yellow, black. It is frequently counterfeited by Maroquin form'd like *Chagrin*;

Chagrin; but this laſt is diſtinguiſh'd by its peeling off, which the firſt does not.

CHAIN, *Catena*, a Series of ſeveral Rings, or *Links*, fitted into one another. See LINK.

There are *Chains* of divers Matters, Sizes, Forms, and for divers Uſes. Ports, Rivers, Streets, *&c.* are clos'd with Iron *Chains*: Rebellious Cities are puniſh'd by taking away their *Chains* and Barriers.

The Arms of the Kingdom of *Navarre* are *Chains Or, in a Field Gules*. The Occaſion hereof is referr'd to the Kings of *Spain* leagu'd againſt the *Moors*; who having gain'd a celebrated Victory againſt 'em in 1212, in the Diſtribution of the Spoils, the magnificent Tent of *Miralmumin* fell to the King of *Navarre*; as being the firſt that broke and forc'd the *Chains* thereof.

A Gold CHAIN, is one of the Ornaments or Badges of the Dignity of a Lord-Mayor of *London*; and remains to the Perſon, after his being diveſted of that Magiſtrature, as a Mark he has paſs'd the Chair. See MAYOR, and ALDERMAN.

Something like this, *Chorier* obſerves, obtain'd among the antient *Gauls*: The principal Ornament of their Perſons in Power and Authority was a *Gold Chain*, which they wore on all Occaſions; and even in Battel, to diſtinguiſh 'em from the common Soldiers. *Hiſt. de Dauph.* Lib. III. p. 130.

CHAIN is alſo a kind of little Tiſſue, ſerving to hang Watches, Tweezer-Caſes, and other valuable Toys upon. See WATCH.

The Invention of this piece of curious Work is owing to the *Engliſh*; whence, in foreign Countries, it is denominated the *Engliſh Chain*. 'Tis but of very late Years that Foreigners have undertook to imitate 'em, and yet with no extraordinary Succeſs: thoſe of *Paris* have come neareſt. Theſe *Chains* are uſually either of Silver or Gold, ſome of gilt Copper; the Thread or Wire of each Kind to be very fine.

For the Fabrick, or Making of theſe CHAINS; a Part of the Wire is folded into little Links of an oval Form; the longeſt Diameter about three Lines, the ſhorteſt one. Theſe, after they have been exactly ſolder'd, are again folded into two; and then bound together, or interwove, by means of ſeveral other little Threads of the ſame thickneſs; ſome whereof, which paſs from one end to the other, imitate the Warp of a Stuff; and the others, which paſs tranſverſe, the Woof. There are at leaſt four thouſand little Links in a *Chain* of four Pendants; which are, by this means, bound ſo equally, and withal ſo firmly together, that the Eye is deceiv'd, and takes the whole to conſiſt of one entire Piece.

CHAIN-*Shot*, in War, two Bullets, or rather half-Bullets, link'd together by a Chain: their uſe at Sea is to ſhoot down Yards, or Maſts; or to cut the Shrouds, or any other Rigging of a Ship.

CHAIN-*Pump*. See PUMP, and BUR-*Pump*.

CHAIN, in Surveying, is a Meaſure conſiſting of a certain Number of Links of Iron Wire, uſually 100; ſerving to take the Dimenſions of Fields, *&c.* by: See MEASURE, and SURVEYING.

This F. *Merſenne* takes to be the *Arvipendium* of the Antients. See ACRE.

The *Chain* is of various Dimenſions, as the Length or Number of Links varies: That commonly us'd in meaſuring Land, call'd *Gunter's Chain*, is in Length four Poles, or Perches; or 66 Yards, or 100 Links; each Link being ſeven Inches $\frac{92}{100}$. See PERCH, LINK, YARD, *&c.*

That ordinarily us'd for large Diſtances, is in length 100 Feet; each Link one Foot.

For ſmall Parcels, as Gardens, *&c.* is ſometimes us'd a ſmall *Chain* of one Pole, or 16 Foot and a half length; each Link one Inch $\frac{98}{100}$.

Some, in lieu of *Chains*, uſe Ropes; but theſe are liable to ſeveral Irregularities; both from the different Degrees of Moiſture, and of the Force which ſtretches them. *Schwenterus*, in his Practical Geometry, tells us, he has obſerv'd a Rope 16 Foot long, reduc'd to 15 in an Hour's time, by the mere falling of a Hoar Froſt. To obviate theſe Inconveniencies, *Wolfius* directs, that the little Twiſts whereof the Rope conſiſts, be twiſted contrary ways, and the Rope dipp'd in boiling hot Oil, and when dry, drawn thro melted Wax. A Rope thus prepar'd, will not get or loſe any thing in Length, even tho kept under Water all Day.

Uſe of the CHAIN *in Surveying*.

The manner of applying the *Chain* in meaſuring Lengths is too popular to need Deſcription. In entering down the Dimenſions taken by the *Chain*, the *Chains* and *Links* are ſeparated by a Dot: Thus a Line 63 *Chains* 55 Links long, is wrote 63.55. If the Links be ſhort of 10, a Cypher is prefix'd; thus 10 *Chains*, 8 Links, are wrote 10.08.

To find the Area of a Field, &c. *the Dimenſions whereof are given in* Chains *and Links*. 1ſt, Multiply the Lines by one another, according to the Rules given under AREA; and from the Product cut off five Figures towards the Right: ſo thoſe remaining on the Left will be *Acres*. See ACRE. 2dly, Multiply the five Figures cut off by 4; and cutting off five again from the Product on the Right, thoſe remaining on the Left will be *Roods*. See ROOD. Laſtly, Multiply the five thus cut off by 40; and cutting off five, as before, on the Right, thoſe remaining on the Left are ſquare *Perches*. See PERCH.

To take an Angle DAE, (Tab. *Surveying*, Fig. 1.) *by the* Chain: Meaſure a ſmall Diſtance from the Vertex A along each Leg, *v.g.* to *d* and *c*; then meaſure the Diſtance *dc*: To lay this down, draw AE at pleaſure, and from your Scale ſet off the Diſtance meaſur'd on it. See SCALE.

Then, taking in your Compaſſes the Length meaſur'd on the other Side, on the Vertex A, as a Centre, deſcribe an Arch *dc*; and on the Point *c*, as a Centre, with the meaſur'd Diſtance of *cd*, deſcribe another Arch *ab*. Thro the Point where this interſects the former Arch, draw a Line AD. So is the Angle plotted; and its Quantity, if requir'd, may be meaſur'd on a Line of Chords. See CHORD.

To take the Plan or Plot of any Place, as ABCDE, (Fig. 2.) *by the* Chain. Draw a rough Sketch of the Place by Eye; and meaſuring the ſeveral Sides AB, BC, CD, DE, enter down the Length on the reſpective Lines: then if the Plan be to be taken within ſide of the Place, inſtead of meaſuring the Angles, as before, meaſure the Diagonals AB, BD. Thus will the Figure be reduc'd into three Triangles, whoſe Sides are all known, as in the former Caſe; and may be laid down on Paper, according to the Method above.

If the Plan be to be taken without ſide the Place, the Angles muſt be taken thus; *v.g.* for the Angle BCD, produce the Lines BC and CD to any certain equal Diſtance, *v.g.* to *a* and *b*, five *Chains* meaſure the Diſtance of *ab*. Thus have you an Iſoſceles Triangle C*ab*, wherein the Angle *a*C*b* = BCD its oppoſite one is had: thus is the Quantity of BCD found, and the Angle laid down as before.

By the Chain *to find the Diſtance between two Objects inacceſſible* in reſpect of each other. From ſome Place, as C, (Fig. 3.) whence the common Diſtance to each Object A and B, is acceſſible in a right Line; meaſure the Diſtance CA, which ſuppoſe 50 *Chains*; and continue the Line to D, *viz.* 50 more: Meaſure alſo BC, which ſuppoſe 30 *Chains*; and produce the Line to E, *viz.* 30 more. Thus will be form'd the Triangle CDE, equal and ſimilar to the Triangle ABC; conſequently the Diſtance DE, being meaſur'd, will give the inacceſſible Diſtance requir'd.

By the Chain *to find the Diſtance of an inacceſſible Object*, *v.g.* the Breadth of a River. On one ſide place a Pole, four or five Foot high, perpendicularly, having a Slit a-top, with a ſtrait Piece of Wire, or the like, two or three Inches long, put thro the ſame. This is to be ſlipp'd up or down, till, looking along it, you find it point full on the other Side of the River; then turning the Pole with the Wire in the ſame Direction, obſerve the Point on the dry Land, to which it points when look'd along as before: meaſure the Diſtance from the Pole to this laſt Point; 'tis the ſame with that of the firſt requir'd. See SURVEYING, PROTRACTING, PLOTTING, THEODOLITE, *&c.*

CHAIR, *Cathedra*, was antiently us'd for the Pulpit, or *Suggeſtum*, whence the Prieſt ſpoke to the People. See PULPIT, and CATHEDRA.

It is ſtill apply'd to the Place whence Profeſſors and Regents in Univerſities deliver their Lectures, and teach the Sciences to their Pupils: Thus, we ſay, *The Profeſſor's Chair*, *the Doctor's Chair*, &c. See PROFESSOR, *&c.*

Curule CHAIR, was an Ivory Seat plac'd on a Car, wherein were ſeated the firſt Magiſtrates of *Rome*, and thoſe to whom the Honour of a Triumph was granted. See CURULE.

CHAIR is alſo us'd among the *Romaniſts* for ſome Feaſts, held antiently in Commemoration of the Tranſlation of the See or Seat of the Church, by St. *Peter*.

The *perforated* CHAIR, wherein the new-elected Pope is plac'd, F. *Mabillon* obſerves, is ſtill to be ſeen at *Rome*: but the Origin thereof he does not attribute, as is commonly done, to the Adventure of Pope *Joan*; but ſays there is a Myſtery in it; and 'tis intended, forſooth, to explain to the Pope thoſe Words of Scripture, that *God draws the Poor from out of the Duſt and Mire*.

CHAIR-*Man*, the Preſident, or Speaker of an Aſſembly, Company, *&c.* See PRESIDENT, *&c.*

The CHAIR-*Man of a Committee*, &c. See COMMITTEE, *&c.*

CHAISE, a ſort of light open *Chariot*, or *Calaſh*. See COACH, and CHARIOT.

CHALASTIC *Medicines*, are ſuch as have the Faculty of ſoftening, and relaxing the Parts; when, on account of their extraor-

extraordinary Tension, or Swelling, they occasion Pain. Of this Kind are Butter, and many Oils, &c. See EMOLLIENT.

The Word comes from the *Greek* χαλάω, *I soften.*

CHALAZA, among Naturalists, the *Treddle* of an Egg, or that flat, dented Part at each End; so call'd, as being antiently suppos'd to be the Sperm of the Cock. See EGG.

Its Use, according to *Harvey*, is to be as it were the Poles of this Microcosm, and the Connections of all the Membranes twisted and knit together; whereby the Liquors are not only conserv'd, each in its Place, but also in its due Position to the rest.

Mr. *Derham* adds, that they also serve to keep one and the same Part of the Yolk uppermost, let the Egg be turn'd which way it will; which is done by the following Mechanism: The *Chalazæ* are specifically heavier than the Whites wherein they swim; and being brac'd to the Membrane of the Yolk, a little out of the Axis, cause one side of the Yolk to be heavier than the other. The Yolk being thus by the *Chalazæ* made buoyant, and kept swimming in the midst of two Whites, is by its own heavy side kept with the same Side always uppermost: which uppermost side he imagines to be that whereon the *Cicatricula* lies. See CICATRICULA.

CHALCANTHUM. See CALCANTHUM.

CHALCEDONY, or CALCEDONY, a precious Stone of a blueish or yellowish Colour, rank'd among the Kinds of *Agate*. 'Tis suppos'd to be the *white Agate* of the Antients; tho we sometimes find Pieces of it blackish. See AGATE.

It is very fit for the Graver; and much us'd, either to engrave Arms, &c. upon, as being harder and preferable to Crystal, if good; or to paint them on the backside. In some Parts, Vases, Cups, Religious Beads, &c. are made thereof. The clearest and best is that with a pale cast of blue.

Belon says, 'tis so common among the *Turks*, that it serves them for threshing their Corn: but he mistakes. Hence,

CHALCEDONIUS is a Term us'd by the Jewellers, for a Defect found in some precious Stones; when, in turning them, they find white Spots, or Stains, like those of the *Chalcedony*: This Defect is frequent in *Grenates* and *Rubies*. The Lapidaries remedy it by hollowing the Bottom of the Stone. See GRENATE, and RUBY.

CHALCIDIC, CHALDICUS, CHALCIDICUM, or, as *Festus* calls it CHALCEDONIUM, in the antient Architecture, a large magnificent Hall belonging to a Tribunal, or Court of Justice.

In *Vitruvius*, it is us'd for the Auditory of a *Basilica*: In other of the antient Writers, for a Hall, or Apartment, where the Heathens imagin'd their Gods to eat.

Festus says, it took its Name from the City *Chalcis*; but does not give the Reason. *Philander* will have it to be the Court, or Tribunal, where Affairs of Money and Coinage were regulated; from χαλκὸς, *Brass*, and δίκη, *Justice*. Others say, the Money was struck in it; and derive the Word from χαλκὸς, and οἶκος, *House*.

CHALCITIS, sometimes call'd *Colcothar*, is a kind of Mineral; or, as some call it, a Vitriol; reddish, like Copper; friable, not very hard, and having yellow shining Veins within. See COLCOTHAR.

It has the Taste of a Vitriol, melts alone in a Crucible, and dissolves very easily in watry Liquors. There are two other Minerals, call'd *Misi*, and *Sory*, very much like the *Chalcitis*. In effect, the Antients confounded them together; and not only the *Misi* and *Sory*, but also the *Melanteria*; or rather, they imagin'd a successive Transmutation of the four Minerals, which began with *Chalcitis*, became *Misi*, then *Melanteria*, and lastly *Sory*, where it fix'd.

The Moderns make these four distinct Matters; tho the chief Difference between them, is suppos'd to lie in the different Tenuity or Grossness of their Substance.

Some say, the *Misi* is form'd on the *Chalcitis*, as Verdegrease on Copper, being properly its Rust; and that *Chalcitis* is form'd in the same manner on the *Sory*.

This is certain, they are all found in Copper Mines: But the modern Druggists know little of any of them but *Chalcitis*.

This is brought from *Germany*: It is very Caustic and Escharotic. Its chief use is in the Composition of Venice-Treacle: in lieu of it are frequently substituted *Calcanthum* rubefy'd, or *Copperas*, or *Calamites*.

CHALCOGRAPHY, the Art of Engraving on Copper and Brass. See ENGRAVING.

CHALDEE, or CALDEE *Language*, that spoke by the *Chaldæans*, or People of *Chaldea*. See LANGUAGE.

The *Chaldee* is a Dialect of the *Hebrew*. See HEBREW.

CHALDEE *Paraphrase*, in the Rabbinical Style, is call'd *Targum*. See TARGUM.

There are three *Chaldee* Paraphrases in *Walton's* Polyglot; *viz.* that of *Onkelos*, that of *Jonathan* Son of *Uziel*, and that of *Jerusalem*. See PARAPHRASE, and POLYGLOT.

CHALDEE *Paraphrast*. See PENTATEUCH.

CHALDRON, CHALDER, or CHAWDREN *of Coals*, a dry *English* Measure, consisting of 36 Bushels heap'd up, according to the sealed Bushel kept at *Guildhall*, *London*. See MEASURE.

The *Chaldron* should weigh 2000 Pounds. On Shipboard, 21 *Chaldrons of Coals* are allow'd to the Score. See COALS.

CHALICE, or *Cup*. See CALIX.

CHALK, a white Substance usually reckon'd as a Stone; but Dr. *Slare* thinks, without Reason; since, when examin'd by the Hydrostatical Ballance, it is found to want much of the Weight and Consistence of a real Stone: so that he thinks it more justly rank'd among the *Boles* than Stones. See BOLE.

This he observes to be the Case, not only in *Chalk*, but various other Bodies, taken for granted to be Stones; some whereof are nearer Earth than Stones; others nothing but Earth, Sulphur, Metal, &c. See STONE, EARTH, &c.

Chalk is of two sorts; the hard, dry, strong *Chalk*, us'd for making of *Lime*: See LIME. The other a soft, unctuous *Chalk*, us'd to manure Lands; as easily dissolving with Rain and Frost: It is best for cold, sour Lands, and promotes the yielding of Corn; it sweetens Grass so as to cause Cattel to fatten speedily, and Cows to give thick Milk. See MANURE, and SOIL.

Chalk is us'd in Medicine, as an Astringent, an Absorbent, and a Sweetner; and is celebrated for curing the Heartburn, beyond any thing whatsoever.

CHALLENGE, a Cartel, Defiance, or Invitation to Duel, or other Combat. See CARTEL, DUEL, and COMBAT.

CHALLENGE, in Law, is an Exception taken either against *Persons*, or *Things*: Against Persons; as in an Assize, to the Jurors, when any one, or more of them are excepted against, in Case of Felony, by the Prisoner at the Bar.

Against Things, as a Declaration. See DECLARATION.

Challenge to the Jurors, is either made to the *Array*, or to the *Polls*: To the Array, as when the whole Number is excepted against, as partially empanell'd. To the Poll, as when Particulars are excepted against, as not indifferent.

Challenge to the Jurors, is also divided into *Challenge Principal*, and *Challenge per Cause*; *i. e.* upon Cause or Reason alledg'd.

Challenge Principal, otherwise called *Challenge Peremptory*, is what the Law allows without Cause alledg'd, or further Examination; as a Prisoner at the Bar, arraign'd on Felony, may peremptorily challenge twenty, one after another, alledging no Cause but his own Dislike; and they shall be set aside, and new ones chosen in their room. In Case of High-Treason, no *Challenge Peremptory* was formerly allow'd; but by *Stat.* 7. *Gul.* III. liberty is given *peremptorily* to *challenge* 35.

Yet there seems to be a Difference between *Challenge Principal* and *Challenge Peremptory*; the latter being only in Matters Criminal, and without any Cause alledg'd; the former mostly in Civil Cases, and with assigning some such Cause, as being found true, the Law allows; *v.g.* if either Party alledges, that one of the Jurors is the Son, Brother, Cousin, or Tenant of the other, the Exception is good. Also in the Plea of the Death of a Man, or in any Action Real or Personal, where the Debt or Damages amount to 40 Shillings; It is a good *Challenge* to a Juror, that he cannot dispend 40 Shillings *per Annum* of Freehold.

Challenge upon Reason or Cause, is when the Party does alledge some such Exception as is sufficient upon acknowledgment of the Truth of it; *v. g.* If the Son of the Juror have marry'd the Daughter of the other Party.

The Word *Challenge* was antiently latin'd *Calumnia*.

CHALLENGE is also a Hunting Term: for when Hounds at first finding the Scent of their Game, presently open, and cry, the Huntsmen say, *they Challenge*.

CHALYBEAT, in Medicine, something that partakes of the Nature of *Steel*, or *Iron*; or that is impregnated with Particles of those Metals. See IRON; see also MARS, and STEEL.

Chalybeats act chiefly as Absorbents, and Deobstruents. Iron, M. *Lemery* observes, is a Mixture of an oily Substance with a metallic Matter; but the Oil is the Predominant in the Mixture: and between the Parts mix'd are large Pores. Hence, Iron becomes easily dissolvable; and its Oil easily disengages it self: But when once decompounded, *i. e.* when once the Oil is separated from the pure, ferruginous, or metallic Part, no Dissolvent has any Effect on that *Caput Mortuum*. Hence appears the Absurdity of that common Practice, of calcining Iron to such a degree, as to convert it into what the Chymists call a *Crocus*, or Saffron. This Operation must of necessity take away all, or most of the oily Substance, and have left nothing but the indissoluble *Caput Mortuum*. Which Oil here separated, should properly have been separated by the Heat

Heat of the Stomach; whence, according to M. *Lemery*, it won'd have carry'd into the Blood a new spirituous, salutary Juice: He observes also, that Iron acts as an Absorbent, from the Largeness of its Pores; and the Ease wherewith all Kinds of Salts, even gross ones, insinuate themselves therein: even scorbutic Acids are absorb'd thereby.

Further, 'tis not enough that peccant Acids enter Iron; but in entering they also expel and express that salutary Juice, which is also put in Motion, and dispos'd to be evacuated by the natural Heat. Thus is Iron doubly advantageous, both by the Oil it furnishes the Blood withal, and by the Salts it frees it from. The Action of the Particles of a *Chalybeat*, by their Elasticity, together with the *Momentum* they give the Blood by their Ponderosity, makes them not only preferable to most other Deobstruents, but also proper in other Cases; especially where there is a Viscidity of the Juices, the Blood depauperated, and where the Circulation is languid; as in most Hysteric and Hypochondriac Cases, &c.

CHAM, or KAN, the Title given to the sovereign Princes of *Tartary*.

The Word, in the *Sclavonic* Language, signifies *Emperor*.

Sperlingius, in his Dissertation on the *Danish* Term of Majesty, *Koning*, King, thinks the Tartarian *Cham* may be well deriv'd from it; adding, that in the Norrh they say *Kan*, *Konnen*, *Konge*, *Kenning*.

The Term *Cham* is us'd among the *Persians*, for the great Lords of the Court, and the Governors of Provinces.

CHAMADE, in War, a certain Beat of a Drum, or Sound of a Trumpet, which is given the Enemy as a kind of Signal, to inform them of some Proposition to be made to the Commander; either to capitulate, to have leave to bury their Dead, make a Truce, or the like.

Menage derives the Word from the Italian *Chiamate*, of *Clamare*, to cry.

CHAMBER, in Building, a Member of a Lodging, or Piece of an Apartment, ordinarily intended for sleeping in; and call'd by the Latins *Cubiculum*.

A compleat Apartment is to consist of a *Hall*, *Antichamber*, *Chamber*, and *Cabinet*. See APARTMENT, &c.

The Word comes from the Latin *Camera*; and that, according to *Nicod*, from the *Greek* καμάρα, *Vault*, or *Curve*; the Term *Chamber* being originally confin'd to Places arch'd over. The *Spaniards* call it *Camera*; whence *Camerade*.

Bed-CHAMBER. See BED-*Chamber*.

Privy-CHAMBER. The Gentlemen of the *Privy-Chamber* are Servants of the King, who are to wait and attend on him and the Queen at Court, in their Diversions, Progresses, &c.

Six of these are appointed by the Lord Chamberlain, together with a Peer, and the Master of the Ceremonies, to attend all Ambassadors from crown'd Heads in their publick Entries. Their Number is 48.

Their Institution is owing to King *Henry* VII. As a singular Mark of Favour, they are impower'd to execute the King's verbal Command, and without producing any written Order; their Person and Character being deem'd sufficient Authority.

Presence CHAMBER, } See { PRESENCE *Chamber*.
Council CHAMBER, } { COUNCIL *Chamber*.

CHAMBER *in Policy*, is us'd for the Places where certain Assemblies are held, as also for the Assemblies themselves.

Of these there are various Kinds; some establish'd for the Administration of Justice, others for Matters of Commerce, &c. Of the first Kind among us are the

Star-CHAMBER, *Camera Stellata*, or *Chamber de Estoiels*; so called, because the Roof was originally painted with Stars. It is of an antient standing, but its Authority was very much heightned by *Henry* VII. and *Henry* VIII. who appointed, by two several Statutes, that the Chancellor, assisted by others there nam'd, should have Power to hear Complaints against Retainers, Embracers, Misdemeanors of Officers, and other like Offences; which thro the Power and Authority of those who committed them, did lift up the Head above other Faults; and for which inferior Judges were not so meet to give Correction, and the common Law had not sufficiently provided.

By the Statute 17 *Car.* I. the Court call'd *Star Chamber*, and all Jurisdiction, Power, and Authority thereto belonging, are, from *August* the first, 1641, absolutely dissolv'd.

Painted CHAMBER. See PAINTED *Chamber*.

Imperial CHAMBER, is a Jurisdiction held antiently at *Spires*, but since transferr'd to *Veslar*. In this are determin'd the Differences among the Princes and Cities of the Empire. See EMPIRE.

It was at first ambulatory: In 1473 it was fix'd to *Augsburg*, then remov'd to *Frankfort*; and thence to *Worms*, in 1497: afterwards it was remov'd to *Nuremberg* and *Ratisbon*; again to *Worms* and *Nuremberg*; and from this last to *Eslengen*; thence, in 1527, to *Spires*; where *Charles* V. render'd it sedentary, in 1530.

At its first Institution it consisted of 16 Assessors; but the Reformation ensuing, occasion'd the Number to be increas'd: By the Treaty of *Osnaburg*, in 1648, there were appointed 50 Assessors; whereof 24 to be Protestants, and 26 Catholicks; besides five Presidents, two of 'em Protestants, the rest Catholicks.

As the Princes, or Circles of the Empire are not always exact in filling up the Vacancies in this *Chamber*, the Number of Assessors is now reduc'd to 16. See IMPERIAL.

This *Chamber* has a Right of judging by Appeal, and the last Resort, of all Civil Affairs of all the Subjects of the Empire, in the same manner as the *Aulic* Council residing at *Vienna*. See AULIC.

Processes are here almost Immortal, by reason of the infinite number of Ceremonies and Formalities wherewith they are embarass'd.

The *Imperial Chamber* is frequently afraid to pronounce Sentence, for fear of exposing its Awards to some Disgrace; the Princes sometimes not permitting such to be executed as displease them.

Apostolical CHAMBER, at *Rome*, is that wherein Affairs relating to the Revenues and Domains of the Church and the Pope are transacted. See APOSTOLICAL.

CHAMBER *of Audiences*, or *grand* CHAMBER; a Jurisdiction in each Parliament of *France*. See PARLIAMENT.

At the first Institution of their Parliaments, there were two *Chambers*, and two Kinds of Counsellors; the one the *grand Chamber* for Audiences, the Counsellors whereof were call'd *Ingeurs*, who only judg'd: the other the *Chamber of Inquests*; the Counsellors whereof were called *Rapporteurs*; who only reported Processes by writing.

CHAMBER *of the Edict*, or *Mi-pattre*, was a Court establish'd by virtue of the Edicts of Pacification, in favour of those of the Reform'd Religion: wherein the Number of Judges of either Religion were the same; and to which recourse was had in all Affairs wherein any of the Protestants were concern'd. This *Chamber* is now suppress'd.

CHAMBER *of Accompts*, is a sovereign Court, where Accompts are render'd of all the *Demers Royaux*; Inventories, and Avenues given to the King, Oaths of Fidelity taken, and other Things relating to the Finances transacted. The *French* have also,

Ecclesiastical CHAMBERS, which judge, by Appeal, of Differences arising on the raising of Tithes: Of these *Ecclesiastical Chambers* there are nine; *viz.* at *Paris*, *Bourdeaux*, *Rouen*, *Lyons*, *Tours*, *Toulouse*, *Bourges*, *Pau*, and *Aix*: they usually consist of the Archbishop of the Place, as President; other Archbishops and Bishops, a Deputy of each of the Dioceses, and three Counsellors of Parliament. The *Chamber* chuses as many Counsellors out of the Clergy as it thinks proper; as also a Promoter.

CHAMBER *of London*. See CHAMBERLAIN.

CHAMBERS *of Commerce*, are Assemblies of Merchants and Dealers, where they treat about Matters relating to Commerce: Of these there are several, establish'd in most of the chief Cities of *France*, by Virtue of an Arret of the 30th of *August* 1701. Indeed there were some before this general Establishment, particularly one at *Marseilles*; and another at *Dunkirk*.

CHAMBER *in War*, is us'd for the Place where the Pouder of a Mine is lodg'd. See MINE.

The *Chamber of a Mine* is a Cavity of five or six cubick Feet.

CHAMBER *of a Mortar*, or *Cannon* of the new Make, is a Cell, or Cavity at the bottom of the Barrel, or Chase, where the Charge of Pouder is lodg'd. See MORTAR.

The different Form of the *Chamber*, is found by Experiment to have an Influence on the Range of the Piece. A Cubical *Chamber* carries the Ball a less Distance than a Circular one; and that less than a Cylindrical one.

CHAMBERLAIN, an Officer who has the Management, or Direction of a *Chamber*. See CHAMBER.

The Word *Chamberlain*, according to *Ragueau*, originally signify'd, a Gentleman who was to sleep in the King's Bed-Chamber, at his Bed's Feet, in the Absence of the Queen.

There are almost as many Kinds of *Chamberlains* as *Chambers*: The principal are as follow.

Lord Great CHAMBERLAIN *of England*; an Officer of great Antiquity and Honour; being rank'd the sixth great Officer of the Crown: A considerable part of his Function is at the Coronation of a King; when he dresses him, carries the Coif, Sword, and Gloves to be us'd on that Occasion; the Gold Sword and Scabbard to be offer'd by the King; the Robe Royal and Crown: He also undresses him, and waits on him at Dinner; having for his Fee the King's Bed, and all the Furniture of his Chamber, the Night-Apparel, and the Silver Bason wherein the King washes, with the Towels. See CORONATION.

To him likewise belongs the Provision of every thing in the House of Lords, in time of Parliament; to which End he has an Apartment near the Lords House. He has the Government of the Palace of *Westminster*; issues out Warrants

tants for preparing, fitting out, and furnishing *Westminster-Hall*, against Coronations, Trials of Peers, &c.

He disposes of the Sword of State, to be carry'd by whom he pleases; and when he goes to Parliament, is on the right Hand of the Sword, the Lord Marshal being on the left. On all solemn Occasions, the Keys of *Westminster-Hall*, of the *Court of Wards*, and *Court of Requests*, are deliver'd him.

To him belong Livery and Lodging in the King's Court; and he has certain Fees from every Bishop at his doing Homage to the King, and from every Peer at his Creation. Under his Command are, the *Gentleman-Usher of the Black Rod*, the *Yeoman-Usher*, and *Door-keepers*.

This Honour was long held by the Earls of *Oxford*; *viz.* from the Time of *Henry* I. by an Estate Tail, or Inheritance; but in the three last Coronations by the Marquis of *Lindsey*, now Duke of *Ancaster*, by an Estate or Inheritance from a Daughter and Heir General, claim'd, but controverted.

Lord CHAMBERLAIN *of the Houshold*, an Officer who has the Oversight and Direction of all Officers belonging to the King's *Chamber*, except the Precinct of the *Bed-Chamber*; which is absolutely under the *Groom of the Stole*. See BED-*Chamber*.

He has the Oversight of the Officers of the Wardrobe, of the removing of Wardrobes, Beds, Tents, Revels, Musick, Comedians, Hunting, Messengers, Trumpeters, Drummers, Handicrafts, and other Tradesmen retain'd in the King's Service: As also of all Serjeants at Arms, Physicians, Apothecaries, Surgeons, Barbers, the King's Chaplains, &c. and administers the Oath to all Officers above Stairs, &c.

There are also CHAMBERLAINS of the King's Courts, of the *Exchequer*, of *North Wales*, of *Chester*, of the City of *London*, &c. in all which Cases, this Officer is commonly the Receiver of all Rents and Revenues belonging to the Place whereof he is *Chamberlain*.

When there is no Prince of *Wales*, and Earl of *Chester*, the *Chamberlain* of *Chester* hath the Receipt and Return of all Writs coming thither out of any of the King's Courts.

In the *Exchequer*, there are two Officers of this Name, who were wont to keep a Controulment of the Pells of Receipt and Exitus; and kept certain Keys of the Treasury and Records: They kept also the Keys of that Treasury where the Leagues of the King's Predecessors, and divers antient Books, as Dooms-day Book, and the Black-Book of the Exchequer remain. See EXCHEQUER.

The CHAMBERLAIN of *London* keeps the City Money, which is laid up in the *Chamber of London*, an Apartment in *Guild-Hall*: He also presides over the Affairs of Masters and Apprentices; and makes free of the City, &c.

His Office lasts but for a Year, being chosen annually on *Midsummer*-Day: but the Custom usually obtains, to rechuse the same Person; unless he have been chargeable with any Misdemeanor in his Office.

Vice-CHAMBERLAIN. See VICE-*Chamberlain*.

CHAMBRANLE, in Architecture and Joinery, the Border, Frame, or Ornament of Stone or Wood, us'd in the three Sides round Chamber-Doors, large Windows, and Chimneys.

The *Chambranle* is different in the different Orders: when 'tis plain and without Mouldings, 'tis call'd simply and properly, *Band*, *Case*, or *Frame*.

The *Chambranle* consists of three Parts; the two Sides, called *Montants*, or *Ports*; and the Top, called the *Traverse*, or *Supercilium*.

The *Chambranle* of an ordinary Door, is frequently call'd *Door-Case*; of a Window, *Window Frame*; of a Chimney, *Mantle-Tree* See DOOR, WINDOW, MANTLE.

CHAMFER, or CHAMFRET, in Architecture, an Ornament consisting of half a *Scotia*; being a kind of small Furrow, or Gutter on a Column, call'd also *Scapus*, *Stria*, &c. See STRIA.

Chamfering, or *Chamfraining*, is particularly us'd for the cutting of the Edge, or End of any thing a-slope, or bevel. See BEVEL.

CHAMELOT, in Commerce. See CAMELOT.

CHAMPAIN. See CAMPAIGN, and CHAMPION.

A Point CHAMPAIN, in Heraldry, is a Mark of Dishonour in the Coat of Arms of him who kills a Prisoner of War after he has cry'd Quarter. See POINT.

CHAMPARTORS, in the Words of the Statute 33 *Edw.* I. are 'They who move Pleas or Suits, or cause 'them to be moved, either by their own Procurement 'or others; and sue them at their proper Costs, to have 'part of the Land in Variance, or part of the Gains; 'against whom lies a Writ of *Champarty*.

CHAMPARTY, or CHAMPERTY, in Law, a Maintenance of any Man in his Suit, upon Condition of having part of the Thing, be it Lands or Goods; in case it be recover'd. See MAINTENANCE.

The Word comes from the French *Champ*, Field, and *parti*, divided; the Field, or Thing contested for, being suppos'd to be divided between the *Champartor*, or Maintainer, and the Person in whose Right he sues.

This seems to have been an antient Grievance; for notwithstanding several Statutes against it, and a Form of Writ accommodated to 'em, in the Time of *Edward* I. yet in that of *Edward* III. it was enacted, That whereas redress on the former Statute was only to be had in the King's-Bench, which then follow'd the Court; for the future it should likewise be cognizable by the Justices of the *Common Pleas*, and *Judges of Assize*.

CHAMPION, properly signifies, a Person who undertakes a Combat, in the Place or Quarrel of another: tho the Word is also sometimes us'd for him who fights in his own Cause. See COMBAT.

Hottoman defines *Champion*, *Certator pro Alio datus in Duello, à Campo dictus, qui Circus erat decertantibus definitus*: Hence it is also called *Campfight*.

Du Cange observes, that *Champions*, in the just Sense of the Word, were Persons who fought in lieu of those who were oblig'd by Custom to accept the Duel; but had yet a just Excuse for dispensing with it, as being too old, infirm, Ecclesiasticks, &c. He adds, that the *Champions* were usually retain'd or hir'd for so much Money, and were held infamous.

There were also some Vassals, who by the Faith and Homage swore to their Lords, were oblig'd to fight for 'em in case of need.

Some Authors hold, any Person was allow'd the Benefit of a *Champion*, excepting Parricides, and those accus'd of very heinous Offences.

This Custom of deciding Differences by Combat, was deriv'd from the North; whence it pass'd into *Germany*, and, with the *Saxons*, into *England*, and insensibly thro the rest of *Europe*.

When two *Champions* were chose to maintain the Pro and the Con, 'twas always requir'd there should be a Sentence of the Judge to authorize the Combat: When the Judge had pronounc'd Sentence, the Accused threw a Gage, or Pledge, ordinarily a Glove, or Gantlet; which being taken up by the Accuser, they were both taken into safe Custody till the Day of Battel, appointed by the Judge. See GAGE.

If either of them fled after this, he was declar'd infamous, and deem'd to have committed the Crime imputed to him. Nor were the Accuser and Accused now allow'd to make up the Matter; at least, not without the Consent of the Judge; which was never granted, without making the Lord Satisfaction for the Right of Succession to the Effects of the Vanquished.

Before the *Champions* took the Field, their Heads were shav'd, and they made Oath, 'They believ'd the Person 'who retain'd them was in the right; and that they 'wou'd defend his Cause to the utmost of their Power.' The Weapons they us'd when the Combat was on Foot, were a Sword and Buckler; some say, in *England*, only a Club and Buckler: when on Horseback, they were arm'd at all Points. Their Weapons were blessed in the Field by the Priest, with a world of Ceremony; and each took an Oath he had no Charm upon him.

The Action began with railing, and giving each other ill Language; at the Sound of a Trumpet they were to go to Blows: After the Number of Blows or Rencounters express'd in the *Cartel*, the Judges of the Combat threw a Rod into the Air, to advertise the *Champions* that the Combat was ended. If it lasted till Night, or ended with equal Advantage on either side, the Accus'd was reputed Victor.

The Punishment of the Vanquish'd, was that which the Crime merited whereof he was accus'd: If it were a Capital Crime, the Vanquish'd was disarm'd, led out of the Field, and immediately executed, together with the Party whose Cause he maintain'd. If the conquer'd *Champion* fought in the Cause of a Woman, she was burnt. See DUEL.

CHAMPION *of the King*, is an Officer whose Business is, at the Coronation of a King of *England*, to ride into *Westminster-Hall*, arm'd Cap-a-pe, when the King is at Dinner, and throw down his Gantlet by way of Challenge; pronouncing, by a Herald, 'That if any Man shall deny, or 'gainsay the King's Title to the Crown, he is there 'ready to defend it in single Combat, &c.' Which done, the King drinks to him, sending him a gilt Cup with a Cover, full of Wine; which the *Champion* drinks, and has the Cup for his Fee.

This Office, ever since the Coronation of *Richard* II. has been continu'd in the Family of *Dymocke*, who held the Manor of *Scrivelsby* in *Lincolnshire*, Hereditary from the Family of the *Marmions*, who had it before, by grand Serjeanty; *i. e.* that the Lord thereof shall be the King's *Champion*. See SERJEANTY.

CHAMPION- or rather CHAMPAIN-*Lands*, are Lands not inclos'd; or large Fields, Downs, or Places, without Woods or Hedges. See DOWNS.

CHAMOIS *Leather*, popularly call'd SHAMMY, or CHAMMY; a kind of Leather, either dress'd in Oil, or tann'd; much esteem'd for its softness, pliancy, &c. See LEATHER.

It is prepar'd from the Skin of the *Chamois*, a kind of *Rupi-Capra*, or wild Goat, called also *Isard*; inhabiting the Mountains of *Dauphine*, *Savoy*, *Piemont*, and the *Pyreneans*.

Besides the Softness and Warmness of the Leather, it has the Faculty of bearing Soap without damage, which renders it very useful on many Accounts.

In *France*, &c. some wear the Skin crude, without any Preparation: It is also us'd for the purifying of Mercury; which is done by passing it thro the Pores of this Skin, which are very close. See MERCURY.

The true *Chamoise Leather* is counterfeited with common Goat, Kid, and even Sheep Skin; the Practice of which makes a particular Profession, call'd by the French *Chamoisure* The last, tho the least esteem'd, is yet so popular, and such vast Quantities prepar'd, especially about *Orleans*, *Marseilles*, and *Tholouse*, that it may not be amiss to give the Method of Preparation.

The manner of CHAMOISING, or *of preparing Sheep, Goat, or Kid-skins in Oil, in Imitation of* CHAMOIS.

The Skins being wash'd, drain'd, and smear'd over with Quick-lime on the fleshy side, are folded in two, lengthwise, the Wool outwards, and laid on Heaps, and so left to ferment eight Days; or, if they had been left to dry after fleaing, 15 Days.

Then they are wash'd out, drain'd, and half-dry'd; laid on a wooden Leg, or Horse, the Wool stripp'd off with a round Staff for the Purpose, and laid in a weak Pit, the Lime whereof had been us'd before, and had lost the greatest Part of its force.

After 24 Hours they are taken out, and left to drain 24 more; then put in another stronger Pit. This done, they are taken out, drain'd, and put in again, by turns; which begins to dispose them to take Oil: And this Practice they continue for 6 Weeks in Summer, or three Months in Winter; at the end whereof they are wash'd out, laid on the wooden Leg, and the Surface of the Skin on the Wool side peel'd off, to render them the softer; then, made into Parcels, steep'd a Night in the River, in Winter more; stretch'd, six or seven over one another, on the wooden Leg; and the Knife pass'd strongly on the Flesh side, to take off any thing superfluous, and render the Skin smooth.

Then they are stretch'd, as before, in the River; and the same Operation repeated on the Wool side; then thrown into a Tub of Water with Bran in it, which is brew'd among the Skins till the greatest Part stick to them; and then separated into distinct Tubs, till they swell, and rise of themselves above the Water.

By this means, the Remains of the Lime are clear'd out: They are then wrung out, hung up to dry on Ropes, and sent to the Mill, with the Quantity of Oil necessary to full them: The best Oil is that of Stock-fish.

Here, they are first thrown in Bundles into the River for 12 Hours, then laid in the Mill-Trough and full'd without Oil till they be well softned; then oil'd with the hand, one by one, and thus form'd into Parcels of four Skins each, which are mill'd and dry'd on Cords a second time, then a third; then oil'd again and dry'd.

This Process is repeated as often as Necessity requires: when done, if there be any Moisture remaining, they are dry'd in a Stove, and made up into Parcels wrapp'd up in Wool: after some time they are open'd to the Air, but wrapp'd up again as before, till such time as the Oil seems to have lost all its force, which it ordinarily does in 24 Hours.

The Skins are then return'd from the Mill to the *Chamoiser*, to be scour'd; which is done by putting them in a Lixivium of Wood-Ashes, working and beating them in it with Poles, and leaving 'em to steep till the Lye have had its Effect; then wrung out, steep'd in another Lixivium, wrung again, and this repeated till all the Grease and Oil be purg'd out. They are then half dry'd, and pass'd over a sharp-edg'd Iron Instrument, plac'd perpendicular in a Block, which opens, softens, and makes them gentle: lastly, they are thoroughly dry'd, and pass'd over the same Instrument again, which finishes the Preparation, and leaves em in form of *Chamois*.

Kid, and Goat-skins are *chamois'd* in the same manner as those of *Sheep*; excepting that the Hair is taken off, without the use of any Lime; and that when brought from the Mill, they undergo a particular Preparation, call'd *Ramalling*; the most delicate and difficult of all the others.

It consists in this, that as soon as brought from the Mill, they are steep'd in a fit Lixivium; taken out, stretch'd on a round wooden Leg, and the Hair scrap'd off with the Knife; this makes them smooth, and, in working, cast a kind of fine Nap. The Difficulty is in scraping them evenly.

CHANCE, a Term we apply to Events, to denote that they happen without any necessary Cause. See CAUSE.

Our Aim is, to ascribe those Things to *Chance*, which are not necessarily produc'd as the Natural Effects of any proper Cause: but our Ignorance and Precipitancy lead us to attribute Effects to *Chance*, which have a necessary and determinate Cause.

When we say a Thing happens *by Chance*, we really mean no more, than that its Cause is unknown to us: not, as some vainly imagine, that *Chance* it self can be the Cause of any Thing. From this Consideration, Dr. *Bentley* takes occasion to expose the Folly of that old Tenet, *The World was made by Chance*.

The Case of the Painter, who unable to express the Foam at the Mouth of a Horse he had painted, threw his Sponge in Despair at the Piece, and, *by Chance*, did that which he could not before do by Design, is an eminent Instance of the Force of *Chance*: Yet, 'tis obvious, all we here mean by *Chance*, is, that the Painter was not aware of the Effect; or that he did not throw the Sponge with such a View: not but that he actually did every thing necessary to produce the Effect; insomuch, that considering the Direction wherein he threw the Sponge, together with its Form, specifick Gravity, the Colours wherewith it was smear'd, and the Distance of the Hand from the Piece, it was impossible, on the present System of Things, the Effect should not follow.

Chance is frequently personify'd, and erected into a chimerical Being, whom we conceive as acting arbitrarily, and producing all the Effects, whose real Causes do not appear to us; in which Sense, the Word coincides with the τυχη, *Fortuna* of the Antients. See FORTUNE.

CHANCE is also confounded with *Fate*, and *Destiny*. See FATE, and DESTINY; see also NATURE, GOD, &c.

CHANCE is also us'd for the manner of deciding Things, the Conduct or Direction whereof, is left at large, and not reducible to any determinate Rules or Measures; or where there is no ground for preference, as at Cards, Dice, Lotteries, &c.

For the Laws of CHANCE, *or the Proportion of Hazard in Gaming*; see GAME.

The antient *Sors*, or *Chance*, M. *Placette* observes, was instituted by God himself; and in the Old Testament, we find several standing Laws and express Commands which prescrib'd its use on certain Occasions: Hence, the Scripture says, *The Lot*, or Chance, *fell on St.* Matthias; when it was in question who should fill *Judas*'s Place in the Apostolate.

Hence also arose the *sortes Sanctorum*; or Method of determining Things among the antient Christians, by opening some of the Sacred Books, and pitching on the first Verse they cast their Eye on, as a sure Prognostick of what was to befall them. The *sortes Homericæ*, *Virgilianæ*, *Prænestinæ*, &c. us'd by the Heathens, were with the same View, and in the same manner. See SORTES.

St. *Augustin* seems to approve of this Method of determining Things future, and owns that he had practis'd it himself; grounded on this Supposition, that God presides over *Chance*, and on *Proverbs* 16. *v.* 33.

Many among the modern Divines, hold *Chance* to be conducted in a particular manner by Providence, and esteem it an extraordinary Way which God uses to declare his Will, and a kind of immediate Revelation. See PURGATION, JUDICIUM *Dei*, COMBAT, CHAMPION, &c.

CHANCE-MEDLEY, in Law, the accidental killing of a Man, not altogether without the Killer's Fault, tho without any evil Intent.

Staumford calls it, *Homicide by Misadventure*: *West* calls it *Homicide mix'd*; and says, it is when the Killer's Ignorance or Negligence is join'd with the *Chance*: as supposing a Man lopping Trees by the Highway, and a Bough falling chance to kill a Passenger; the Party here offends in not having given warning, whereby the Slain might have been induc'd to take more heed. See HOMICIDE.

CHANCEL, part of the Choir of a Church, between the Altar, or Communion Table, and the Balustrade, or Rails that inclose it; where the Minister is plac'd at the Celebration of the Communion. See CHURCH, COMMUNION, ALTAR, &c.

The Right of a Seat and a Sepulchre in the *Chancel*, is esteem'd very honourable. See SEPULCHRE.

The Word comes from the Latin *Cancellum*, which in the lower *Latin* is us'd in the same Sense, from *Cancelli Latices*, or Cross Bars, wherewith the *Chancels* were anticently incompass'd, as they now are with Rails.

CHANCELLOR, an Officer, suppos'd originally to have been a *Notary*, or *Scribe*, under the Emperors, and named *Cancellarius*, because he sat behind a Lattice, call'd by the Latins *Cancelli*, to avoid being crouded by the People. See NOTARY, &c.

Naude

Nauda says, it was the Emperor himself who sat and render'd Justice within the Lattice; the *Chancellor* attending at the Door thereof, whence he took his Title.

Others say, he had it from this, that all Letters, Addresses, Petitions, &c. to the King, being first examin'd by him, were *cancell'd* where amiss: Others, because all Patents, Commissions, and Warrants coming from the King, were examin'd and *cancell'd* by him. Others, because he *cancell'd* and annull'd the Sentences of other Courts.

Du Cange, from *Joannes de Janua*, fetches the Original of *Chancellor* from *Palestine*, where the Houses being flat, and made in form of a Terrace, with Parapets or Pallisadoes call'd *Cancelli*; those who mounted these Houses to rehearse any Harangue, were call'd *Cancellarii*: whence the Name pass'd to those who pleaded at the Bar, whom he calls *Cancelli forenses*, and at length to the Judge who presided; and lastly to the King's Secretaries.

This Officer is now in great Authority in all Countries: the Person who bears it with us, is the

Lord High CHANCELLOR *of England*, the first Person of the Realm, next after the King and Princes of the Blood, in all Civil Affairs. He is the chief Administrator of Justice next the Sovereign; being the Judge of the Court of Chancery. See CHANCERY.

All other Justices are ty'd to the strict Law, but the *Chancellor* has the King's absolute Power to moderate the Rigour of the Written Law, to govern his Judgment by the Law of Nature and Conscience, and to order all things *secundum æquum & bonum*. Accordingly, *Staumford* says, the *Chancellor* has two Powers, the one Absolute, the other ordinary; meaning, that tho by his ordinary Power he must observe the same Form of Procedure as other Judges, yet in his absolute Power he is not limited by any written Law, but by Conscience and Equity. See EQUITY.

The Offices of *Lord Chancellor* and *Lord Keeper*, are by the Statute 5 *Eliz.* made the same thing; till that time they were different; and frequently subsisted at the same Time in different Persons: Sometimes the Lord *Chancellor* had a *Vice-Chancellor*, who was Keeper of the Seal. See KEEPER.

The Keeper was created *per traditionem magni Sigilli*, but the Lord *Chancellor* by Patent; tho now that he has the Keeper's Office, he is created in like manner by giving him the Seal. The *Chancellor* is likewise Speaker of the House of Lords. See PARLIAMENT.

Tho he be sole Judge of the Court of Chancery, yet in Matters of much difficulty he sometimes consults the other Judges; so that this Office may be discharg'd by one who is no profess'd Lawyer, as antiently it commonly was. He has twelve Assistants, or Coadjutors, antiently call'd *Clerici*, as being in Holy Orders, now *Masters in Chancery*, the first whereof is the *Master of the Rolls*. See MASTER *of the Rolls*, MASTERS *in Chancery*, &c.

CHANCELLOR *of a Cathedral*, is the Judge of the Bishop's Court, held in the Cathedral of each Diocess. See BISHOP'S *Court*, and CATHEDRAL.

He was antiently call'd *Ecclesiasticus*, and *Episcopi Ecdicus*, the Church-Lawyer. See ECCLESIASTICUS, ADVOCATE, &c.

In the *Monasticon* his Office is thus describ'd, *viz.* to hear the Lessons and Lectures read in the Church, either by himself or his Vicar; to correct and set right the Reader when he reads amiss; to inspect Schools, to hear Causes, apply the Seal, write and dispatch the Letters of the Chapter, keep the Books, to take care there be frequent Preachings, both in the Church and out of it, and to assign the Office of Preaching to whom he lists.

CHANCELLOR *of the Dutchy of Lancaster*, is an Officer, the Head of that Court; his Business is to judge and determine all Controversies between the King, and his Tenants of the Dutchy Land; and otherwise to direct all the King's Affairs relating to that Court. See DUTCHY *Court*.

CHANCELLOR *of the Exchequer*, is an Officer, suppos'd by some to have been created for qualifying Extremities in the Exchequer. See EXCHEQUER.

He sits in that Court and the Exchequer Chamber, and, with the rest of the Court, orders Things to the King's best benefit. He is always in Commission with the Lord Treasurer for letting Lands accruing to the Crown by Dissolution of Abbeys, and otherwise: He has Power, with others, to compound for Forfeitures on Penal Statutes, Bonds, and Recognizances enter'd into by the King.

He has a great Authority in managing the Royal Revenue, and in Matters of First-Fruits. See REVENUES.

The Court of Equity, in the Exchequer Chamber, is held before the Lord Treasurer, *Chancellor*, and Barons, as that of Common Law before the Barons only. See BARON, &c.

CHANCELLOR *of an University*, is he who Seals the *Diplomas* or Letters of Degrees, Provision, &c. given in the University. See UNIVERSITY.

The *Chancellor* of *Oxford* is their Chief Magistrate, elected by the Students themselves: His Office is *durante Vita*, to govern the University, preserve and defend its Rights and Privileges, convoke Assemblies, and do Justice among the Members under his Jurisdiction.

Under the *Chancellor* is the *Vice-Chancellor*, who is chosen annually; being nominated by the *Chancellor*, and elected by the University in Convocation. His Business is to supply the *Chancellor's* Absence.

At his Entrance upon his Office, he chuses four *pro Vice-Chancellors*, out of the Heads of Colleges, to one of whom he deputes his Power in his absence.

The *Chancellor* of *Cambridge*, is in most respects the same with that of *Oxford*, only he does not hold his Office *durante Vita*, but may be elected every three Years.

He has under him a Commissary, who holds a Court of Record of Civil Causes, for all Persons of the University under the Degree of Masters of Arts.

The *Vice-Chancellor* of *Cambridge* is chosen annually by the Senate, out of two Persons nominated by the Heads of the several Colleges and Halls.

CHANCELLOR *of the Order of the Garter*, and other Military Orders, is an Officer who seals the Commissions, and Mandates of the Chapter and Assembly of the Knights, keeps the Register of their Deliberations, and delivers Acts thereof under the Seal of the Order. See GARTER, &c.

CHANCERY, the grand Court of Equity and Conscience, instituted to moderate the Rigour of the other Courts, that are ty'd to the strict Letter of the Law. See COURT, LAW, and EQUITY.

The Judge of this Court is the Lord High *Chancellor*, whose Function see under CHANCELLOR.

The Proceedings of this Court are either *Ordinary*, like other Courts, according to the Laws, Statutes, and Customs of the Nation, and in *Latin*, by granting out Writs Remedial and Mandatory, Writs of Grace, &c. see WRIT, &c. Or *Extraordinary*, according to Equity and Conscience, and in *English*, by Bills, Answers, and Decrees, to examine Frauds, Combinations, Trusts, secret Uses, &c. to soften the Severity of Common Law, and rescue Men from Oppression; to relieve 'em against Cheats, unfortunate Accidents, Breaches of Trust, &c.

Out of the Court of *Chancery*, are issu'd Writs or Summons's for Parliaments and Convocations, Edicts, Proclamations, Charters, Protections, Patents, Safe Conducts, Writs of *Moderata*, *Misericordia*, &c. See WRIT, SUMMONS, CONVOCATION, EDICT, PROCLAMAION, CHARTER, &c.

Here are also seal'd and enroll'd Letters Patent, Treaties and Leagues, Deeds, Writs, Commissions, &c. See PATENT, DEED, &c.

The Officers of this Court, beside the Lord *Chancellor*, who is supreme Judge, are, the *Master of the Rolls*, who, in the *Chancellor's* Absence, hears Causes and gives Orders; and twelve *Masters of Chancery*, who are Assistants, and sit by turns on the Bench; see MASTERS, &c.

For the *English* Part of this Court are *Six Clerks*, who have each under him about fifteen more, in the Nature of Attorneys of the Court: Two chief *Examiners*, for examining Witnesses, who have each five or six Clerks apiece: One principal *Register*, who has four or five Deputies: *Clerk of the Crown*, who makes Writs, Commissions, &c. *Warden of the Fleet*: *Serjeant at Arms*, who bears the Mace before the *Chancellor*; and the *Usher* and *Crier* of the Court. See SIX CLERKS, REGISTER, WARDEN, SERJEANT, &c.

To the *Latin* Part belong the twenty four *Cursitors*, and their Clerks, who make out original Writs; *Clerks of the petty Bag*; *Clerks of the Hanaper*; *Controller of the Hanaper*; *Clerk of Appeal*; *Clerk of the Faculties*; *Sealer Chafe Wax*; *Clerk of the Patents*, *of Presentations*, *Dismissions*, *Licences to alienate*, *Enrollments*, *Protections*, *Subpœnas*, *Affidavits*, &c. See each under its proper Article, CURSITOR, CLERK, CHAFE-*Wax*, &c.

CHANDELIERS, in Fortification, are wooden Stakes six Foot high, and six or seven apart, between which are plac'd Fascines, to cover the Workmen on Approaches. See FASCINES.

These are sometimes made to prevent the Enemy from seeing what passes within.

The Difference between *Chandeliers* and *Blinds* consists in this, that the former serve to cover the Pioneers before, and the latter also cover them over Head. See BLINDS.

CHANGE, in Commerce, &c. See EXCHANGE.

CHANGER, an Officer belonging to the Mint, who changes Money for Gold or Silver Bullion. See MINT.

Money-CHANGER, is a Banker, who deals in the Exchange, Receipt, and Payment of Monies. See BANK.

CHANGES, in Arithmetic, &c. the Permutations or Variations of any Number of Quantities; with regard to their Position, Order, &c. See COMBINATION.

To find all the possible Changes of any Number of Quantities, or how oft their Order may be vary'd.

Suppose

Suppose two Quantities *a* and *b*. Since they may be either wrote *a b* or *b a*; 'tis evident their *Changes* are 2 = 2. 1. Suppose the Quantities *a b c*: their *Changes* will be as in the Margin; as is evident by combining *c* first with *a b*, then with *b a*; and hence the Number of *Changes* arises 3. 2. 1 = 6. If the Quantities be 4, each may be combin'd four ways with each Order of three; whence their Number of *Changes* arises 6. 4 = 4. 3 2 1. = 24. Wherefore, the Number of Quantities suppos'd in the Number of *Changes*, will be *n n*—1. 12—2. *n*—3. *n* — 4 &c.

a b c
c b a
b c a
a c

If the same Quantity occur twice, the *Change* of 2 will be found *b b*, of 3 *b a b*, *a b b*, *b b c*; of 4 *c b a b*, *b c a b*, *b a b c*. And thus the Number of *Changes* in the first Case will be 1 =, 2. 1, : 2. 1. in the second, 3 =, 3. 2. 1, : 2. 1; in the third 1 2 =, 4. 3. 2. 1 : 2. 1.

If a fifth Letter be added, in each Series of four Quantities, it will beget five Changes, whence the Number of all the *Changes* will be 60 =, 5. 4, 3. 2. 1, : 2. 1. Hence *Changes* will be *n*. *n*—1. *n* — 2. *n* — 3. *n* — 4 &c.

From these special *Formulæ* may be collected a general one, *viz.* if *n* be the Number of Quantities, and *m* the Number which shews how oft the same Quantity occurs; we shall have (*n*, *n* — 1. *n* — 2. *n* — 3. *n* — 4. *n* — 5. *n* — 6. *n* — 7. *n* — 8. *n* — 9. &c.) : *m* — 1. *m* — 2. *m* — 3. *m* — 4. &c.) The Series being to be continu'd, till the continual Substraction of Unity from *n* and *m* leave 0. After the same manner we may proceed further, till putting *n* for the Number of Quantities, and *l*, *m*, *r*, &c. for the Number that shews how oft any of them is repeated, we arrive at an universal Form, (*n.n* — 1. *n* — 2. *n* — 3. *n* — 4. *n* — 5. *n* — 6. *n* — 7. *n* — 8. &c.) : *l*. *l* — 1. *l* — 2. *l* — 3. *l* — 4. *l* — 5. &c.

Suppose, for Instance, *n* = 6, *l* = 3, *r* = 0. The Number of *Changes* will be (6. 5. 4. 3. 2. 1) : 3. 2. 1. 3 2 1) = (6. 5. 4) : 3. 2 (= 2. 5. 2 = 20.

Hence, suppose thirteen Persons at a Table, if it be requir'd how oft they may *change* Places, we shall find the Number 13.12.11.10.9.8.7.6.5.4.3.2.1. = 6227020800.

In this manner may all the possible Anagrams of any Word be found in all Languages, and that without any Study: suppose, *v. g.* it were requir'd to find the Anagrams of the Word *Amor*, the Number of *Changes* will be

a	*o a m*	*r m o a*	*m a r o*	*a r o m*
——	*a o m*	*m r o a*	*m a o r*	*a o r m*
m a	*a m o*	*m o r a*	——	*a o m r*
a m	——	*m o a r*	*r a o m*	——
——	*r o m a*	——	*o r a m*	*r a m o*
o m a	*o r m a*	*r m a o*	*o a r m*	*a r m o*
m o a	*o m r a*	*m r a o*	*o a m r*	*a m r o*
m a o	*o m a r*		——	*a m o r*
			r a o m	

The Anagrams therefore of the Word *Amor*, in the *Latin* Tongue, are *Roma*, *Mora*, *Maro*, *Ramo*, *Amo*.

Whether this new Method of Anagrammatizing be like to prove of much service to that Art, is left to the Poets.

CHANNEL, in Anatomy, Chirurgery, &c. See CANAL.

CHANNEL, or *Bed of a River*. See RIVER.

CHANNEL is also us'd for divers Arms of the Sea, where the Water runs within the Land; as also for certain narrow Seas, confin'd between two adjacent Continents, or an Island and Continent, &c. See SEA.

In this Sense, we say, *St.* George's *Channel*; *the* British *Channel*; *the Channel of the Black Sea*, *of* Constantinople, &c.

CHANNEL, in Building. See GUTTER, PIPE, PLUMBERY, &c.

CHANNEL is particularly us'd in Architecture, for a Part of the *Ionic* Capital, a little hollow'd, in form of a *Canal*; lying under the Abacus, and running the whole length of the Circumvolution of the Volute; inclos'd by a Listel. See *Ionic* CAPITAL.

CHANNEL *of the Larmier*, is the Soffit of a Cornice; which makes the pendant *Mouchette*. See LARMIER, and SOFFIT.

CHANNEL *of the Volute*, in the *Ionic* Capital, is the Face of its Circumvolution; inclos'd by a Listel. See VOLUTE.

CHANNELINGS. See FLUTINGS.

CHANT, or CHAUNT. See SONG.

CHANT, *Cantus*, is particularly us'd for the Vocal Musick of Churches.

In Church History we meet with divers Kinds of *Chant*, or *Song*: The first is the *Ambrosian*, establish'd by St. *Ambrose*. See AMBROSIAN *Chant*.

The second the *Gregorian Chant*, introduc'd by Pope *Gregory* the Great, who establish'd Schools of *Chantors*, and corrected the Church Song.

This is still retain'd in the Church under the Name of *Plain Song*: At first it was call'd the *Roman Song*.

The *Plain*, or *Gregorian Chant*, is where the Choir and the People sing in Unison, or all together in the same manner. See GREGORIAN *Chant*.

CHANT-*Royal*. See COMEDY.

CHANTLATE, in Building, a piece of Wood fasten'd near the Ends of the Rafters, and projecting beyond the Wall, to support two or three Rows of Tiles, so plac'd to prevent the Rain-Water from trickling down the Sides of the Wall.

CHANTER, or CHAUNTOR, a Person who sings in the Choir of a Cathedral. See CHOIR, &c.

All great Chapters have *Chantors* and Chaplains to ease and assist the Canons, and officiate in their Absence. See CHAPTER, CANON, &c.

St. *Gregory* first instituted the Office of *Chantors*, erecting them into a Body, call'd *Schola Cantorum*: tho *Anastasius* seems to attribute their Rise to Pope *Hilary*, who liv'd an hundred Years before *Gregory*.

But the Word grows obsolete in this Sense, and instead thereof we use the Word *Chorister*, or Singing-Man. See CHORISTER.

CHANTOR is us'd, by way of Excellence, for the *Præcentor*, or Master of the Choir; which is one of the first Dignities of the Chapter.

The *Chantor* bears the Cope and the Staff at solemn Festivals; and gives Tune to the rest at the beginning of Psalms and Anthems. See PRÆCENTOR.

The Antients call'd the *Chantor Primicerius*. See PRIMICERIUS.

To him formerly belong'd the Direction of the Deacons, and other inferior Ministers.

CHANTRY, a Chapel endow'd for the maintaining a Priest, or Priests, to sing Mass for the Souls of the Founders.

CHAOLOGY, the History or Description of the *Chaos*. See CHAOS.

Orpheus, in his *Chaology*, sets forth the different Alterations, Secretions, and divers Forms Matter went thro till it became inhabitable; which amounts to the same with what we otherwise call *Cosmogony*. See COSMOGONY.

Dr. *Burnet* likewise gives us a *Chaology*, in his Theory of the Earth. He represents the *Chaos*, as it was at first, entire, undivided, and universally rude, and deform'd; or the *Tohu Bohu*: then shews how it came divided into its respective Regions; how the homogeneous Matter gather'd it self apart from all of a contrary Principle; and lastly, how it harden'd and became a solid habitable Globe. See ELEMENT.

CHAOS, among the antient Philosophers, was describ'd a dark, turbulent Atmosphere; or a disorderly System, or Mixture of all sorts of Particles together, without any Form or Regularity: out of which the World was form'd See WORLD.

Chaos is every where represented as the first Principle, Ovum, or Seed of Nature and the World. All the antient Sophists, Sages, Naturalists, Philosophers, Theologues, and Poets, hold that *Chaos* was the Eldest and First Principle, τὸ Ἀρχαῖον χάος.

The *Barbarians*, *Phenicians*, *Egyptians*, *Persians*, &c. all refer the Origin of the World to a rude, mix'd, confus'd Mass of Matter. The *Greeks*, *Orpheus*, *Hesiod*, *Menander*, *Aristophanes*, *Euripides*, and the Writers of Cyclic Poems, speak of the first *Chaos*: The *Ionic*, and *Platonic* Philosophers build the World out of it. The *Stoics* hold, that as the World was first made of a *Chaos*, it shall at last be reduc'd to a *Chaos*; and that all its Periods and Revolutions in the mean time, are only Transitions from one *Chaos* to another. Lastly, the *Latins*, as *Ennius*, *Varro*, *Ovid*, *Lucretius*, *Statius*, &c. are all of the same Opinion. Nor is there any Sect or Nation whatever, that does not derive their Διακόσμησιν, the Structure of their World, from a *Chaos*.

The Opinion arose among the *Barbarians*, whence it spread to the *Greeks*, and from the *Greeks* to the *Romans* and other Nations.

Dr. *Burnet* observes, that besides *Aristotle* and a few other *pseudo-Pythagoreans*, no body ever asserted, that our World was always, from Eternity, of the same Nature, Form, and Structure as at present: but that it had been the standing Opinion of the wise Men of all Ages, that what we now call the Terrestrial Globe, was an uninform'd, indigested Mass of heterogeneous Matter, call'd *Chaos*; and no more than the Rudiments and Materials of the present World.

It does not appear who first broach'd the Notion of a *Chaos*. *Moses*, the Eldest of all Writers, derives the Origin of his World, from a Confusion of Matter, dark, void, deep, without form, which he calls *Tohu Bohu*; which is precisely the *Chaos* of the *Greek* and *Barbarian* Philosophers. And hence, possibly, might those Philosophers derive their *Chaos*, with some Alteration and Interpolation.

Moses goes no further than the *Chaos*; nor tells us whence it took its Origin, or whence its confus'd State; and where *Moses* stops, there, precisely, do all the rest. See ABYSS.

Dr. *Burnet* endeavours to shew, that as the antient Philosophers, &c. who wrote of the Cosmogony, acknowledg'd a *Chaos* for the Principle of their World; so do the Divines, or Writers of the Theogony derive the Origin or Generation of their Gods from the same Principle. See COSMOGONY, and THEOGONY; see also GOD.

Mr. *Whiston* supposes the antient *Chaos*, the Origin of our Earth, to have been the Atmosphere of a Comet; which, tho new, yet, all things consider'd, is not an improbable Assertion. He endeavours to make it out by many Arguments, drawn from the Agreement which appears to be between them.

So that, according to him, every Planet is a Comet, form'd into a regular and lasting Constitution; and plac'd at a proper Distance from the Sun, revolving in a nearly circular Orbit: and a Comet is a Planet either beginning to be destroy'd, or re-made; that is, a *Chaos* or Planet unform'd, or in its primæval State, and plac'd, as yet, in an Orbit very eccentrical. See COMET.

CHAPEAU, or CHAPPEAU, *Hat*, in Heraldry, is us'd as a Mark of Ecclesiastical Dignity, especially of that of Cardinals, which is call'd absolutely the *red Chapeau*.

It is flat, and very narrow atop, but broad-brim'd, adorn'd with long silken Strings interlac'd; suspended from within with five Rows of Tassels, call'd by the Italians *Focci*, increasing in Number as they come lower. The Hat was given them by *Innocent* IV. in 1250, but was not us'd in Arms till the Year 1300. See CARDINAL.

Till that time, the Cardinals were represented with Mitres. See MITRE.

Archbishops and Patriarchs bear the green Hat, with four Rows of Tassels; Bishops wear it of the same Colour with three; Abbots and Apostolical Protonotaries with two.

The *Chapeau* is wore over the Shield by way of Crest, as Mitres and Coronets are. See CREST.

CHAPEAU is sometimes also us'd as a Mark of Secular Dignity, particularly for the Cap, or Coronet arm'd with Ermin, born by Dukes, &c. See CORONET.

The Crest is born on the *Chapeau*; and by the *Chapeau* the Crest and Coat are separated; it being a Rule, that no Crest must touch the Shield immediately. See CREST, &c.

CHAPEL, or CHAPPEL, a kind of little Church, serv'd by an Incumbent under the Denomination of a *Chaplain*. See CHURCH, CHAPLAIN, &c.

There are two Kinds of *Chapels*, the one *Consecrated*, and held as *Benefices*; see BENEFICE: the other *Secular*, being of the Nature of *Oratories*. See ORATORY.

The first are built apart and at a distance from the Parish-Church; being neither Parishes, Cathedrals, nor Priories, but subsisting of themselves.

These are call'd by the Canonists *Sub-Dio*, and by us *Chapels of Ease*; as being erected at a distance from the Mother Church, where the Parish is large and wide, for the Ease and Conveniency of some of the Parishioners who reside far off.

They are serv'd by some inferior Curate, provided either by the Rector of the Parish, or by those for whose Ease and Benefit they are intended.

The second Kind are frequently built in, or adjoining to a Church, as a Part thereof; having only a Desk, &c. to read Prayers in; and, in the *Romish* Churches, an Altar, &c. to celebrate Mass on: but without any Baptistery, or Font.

These the Canonists call *Sub Tecto*. They are generally erected by some considerable Person, for the Use of their own Families; *Ut ibidem Familiaria Sepulchra sibi constituant*.

The twenty first Canon of the Council of *Agda*, held in 506, allows private Persons the use of *Chapels*; but with Prohibition to all Clerks to officiate in them without leave from the Bishop.

Free CHAPELS, are those *Chapels of Ease* which have a settled Revenue for perpetual Maintenance of the Curate, &c. by charitable Donatives of Lands, or Rents bestow'd on 'em; so as not to be any Charge either to the Rector, or the Parishioners.

There are several Collegiate Churches in *France*, which they call *Saintes Chapelles*, Holy Chapels; as those of *Paris*, *Dijon*, *Bourges*, *Bourbon*, &c. so call'd, by reason there are Relicks in them. See CHAPLAIN.

The Word *Chapel*, according to some, comes from the *Greek* καπηλεια, little Tents, or Booths, set up by Traders in Fairs to shelter them from the Weather. *Papias* fetches it both from the *Greek* and *Latin*, *quasi capiens* λαον, or, *populum* vel *laudem*: Others derive it from the *Chape*, or Cope which serv'd to cover the Body: Others, *à pellibus Caprarum*; because these Places were antiently cover'd with Goatskins. *Rebuff* derives it *de Cappa*, St. *Martin's Cope*, which the Kings of *France* carry'd to War with them as their Standard, and preserv'd very carefully in particular Tents, thence call'd *Chapels*.

Hence, all those Places where Relicks were preserv'd came to be call'd *Chapels*; and the Persons who had the Care of them, *Chaplains*. See RELICKS.

CHAPEL is also a Name given to a Printing Workhouse; by reason, say some Authors, Printing was first actually perform'd in *Chapels*.

In this Sense, we say, *The Orders*, or Laws *of the Chapel*, *the Secrets of the Chapel*, &c. See PRINTING.

Knights of the CHAPEL, was an Order of Knights instituted by King *Henry* VIII. in his Testament, to the Number of 13; tho these have been since increas'd to the Number of 26, call'd also *Poor Knights*.

They are not really Knights of the Order of the Garter; but are, as it were, their Assistants or Deputies, serving to discharge all their Offices in the Funeral Services of the Kings of *England*. See GARTER.

They are subject to the Office of the *Canons of Windsor*, and live on Pensions which the Order assigns them.

They bear the blue or red Cloke, with the Arms of St. *George* on the left Shoulder; but the Cloke is only Cloth, and they wear no Garter: which distinguishes them from the Knights of the Garter.

CHAPERON, CHAPERONNE, or CHAPEROON, properly signifies a sort of Hood, or Covering of the Head, antiently wore both by Men and Women, the Nobles, and the Populace, and afterwards particularly affected to the Doctors and Licentiates in Colleges, &c.

Hence, the Name pass'd to certain little Shields, and other Funeral Devices, plac'd on the Foreheads of the Horses that drew the Hearses to pompous Funerals, and which are still call'd *Chaperoons*, or *Shafferoons*; by reason such Devices were originally fasten'd on the *Chaperonnes*, or Hoods, wore by those Horses with their other Coverings of State.

CHAPITERS, in Law, were antiently a Summary, or Content of such Matters as are to be inquir'd of, or presented before Justices in Eyre, Justices of Assize, or of Peace, in their Sessions.

Chapiters are now more usually taken for Articles deliver'd by the Mouth of the Justice in his Charge to the Inquest: Tho it appears from *Bracton* and *Briton*, they were formerly Exhortations given by the Justices, for the good Observation of the Laws, and the King's Peace; first read in open Court, then deliver'd in Writing to the Grand Inquest: which the Grand Jury, or Inquest, were likewise to answer upon their Oaths, either affirmatively or negatively.

CHAPLAIN, properly signifies, a Person provided of a *Chapel*; or who discharges the Offices thereof. See CHAPEL.

CHAPLAIN is also us'd for an Ecclesiastical Person, in the House of a Prince, or a Person of Quality, who officiates in their *Chapels*, &c.

There are 48 *Chaplains* to the King, who wait four each Month, preach in the Chapel, read the Service to the Family, and to the King in his private Oratory, and say Grace in the Absence of the Clerk of the Closet.

While in waiting, they have a Table and Attendance, but no Salary.

The first *Chaplains* are said to have been those instituted by the former Kings of *France*, for preserving the *Chape*, or *Cape*, with the other Relicks of St. *Martin*, which the Kings kept in their Palace, and carry'd out with them to War. The first *Chaplain* is said to be *Gul. de Mesmes*, *Chaplain* to S. *Louis*.

Antiently, the King's Almoners were call'd *Chaplains*. See ALMONER.

CHAPLAIN *in the Order of Malta*, is us'd for the second Rank, or Class, in that Order; otherwise call'd *Diaco*.

The *Knights* make the first Class, and the *Chaplains* the second. See MALTA.

CHAPLAINS *of the Pope*, are the Auditors, or Judges of Causes in the sacred Palace; so call'd, because the Pope antiently gave Audience in his *Chapel*, to judge of Cases sent from the several Parts of Christendom.

He hither summon'd, as Assessors, the most known Lawyers of his Time, who hence acquir'd the Appellation of *Capellani*, *Chaplains*.

'Tis from the Decrees formerly given by these, that the Body of *Decretals* is compos'd: Their Number Pope *Sixtus* IV. reduc'd to twelve. See DECRETAL.

If it be true, that the Word *Chaplain* was first apply'd to those who preserv'd St. *Martin's Chape*, as above, the Word must be deriv'd from *Capa*, *Chape*; not *Capella*, of *Capsula*, or *Capsa*, a Case, as others imagine.

Some say, the Shrines of Relicks were cover'd with a kind of *Tent*, *Cape*, or *Capella*, *i. e.* little Cape; and that hence the Priests who had the Care of them, were call'd *Chapelains*. In time, these Relicks were reposited in a little Church, either contiguous to a larger, or separate from it; and the same Name, *Capella*, which was given the Cover, was also given to the Place where it was lodg'd: and hence, the Priest who look'd to it came to be call'd *Chaplain*. See COPE.

CHAPLET, a String of Beads, us'd in the *Romish* Church, to keep account of the Number of *Pater-Nosters*, and *Ave-Marys* to be rehears'd in Honour of God and the Holy Virgin.

Chaplets are otherwise call'd *Pater-Nosters*. There are *Chaplets* of Coral, of Diamonds, of *Callumbou*, of Wood from St. *Lucia*, &c.

A *Rosary* is a *Chaplet* of fifteen Decads of *Ave-Marys*. See ROSARY.

Menage derives the Origin of the Word from the Resemblance the Thing bears to a Hat, *Chapeau*; which is call'd by the *Italians* and modern *Latins*, *Capellina*; the first more frequently call it *Corona*.

Larrey and *P. Viret* ascribe the first Invention of the *Chaplet* to *Peter* the Hermit, well known in the History of the *Croisades*.

There is a *Chaplet* of our Saviour, consisting of 33 Beads, in honour of his 33 Years living on Earth, instituted by F. *Michael*, the *Camaldulan*.

The Orientals have a kind of *Chapelets*, which they call *Chains*, and which they use in their Prayers, rehearsing one of the Perfections of God on each Link, or Bead. The Great *Mogul* is said to have eighteen of these Chains, all precious Stones; some Diamonds, others Rubies, Pearls, &c.

The *Turks* have likewise *Chaplets*, which they bear in the Hand, or hang at the Girdle: But, F. *Dandini* observes, they differ from those us'd by the *Romanists*, in that they are all of the same Bignes, and have not that Distinction into Decads; tho they consist of six Decads, or 60 Beads. He adds, that they have presently run over the *Chapelet*, the Prayers being extremely short; having only these Words, *Praise to God*; or these, *Glory to God*, for each Bead.

Besides the common *Chapelet*, they have likewise a larger one, consisting of 100 Beads, which has some Distinction, being divided by little Threads into three Parts, on one of which they repeat thirty times *Soubhan lallah*, i.e. *God is to be praised*; on another, *Ellamd lallah*, *Glory to God*; and on the third, *Alla echer*, *God is Great*. These thrice 30 times making only 90; to complete the Number 100, they add a Number of other Prayers for the Beginning of the *Chaplet*.

He adds, that the *Mahometan Chapelet* appears to have had its rise from the *Mea beracoth*, or *hundred Benedictions*; which the *Jews* are oblig'd to repeat daily, and which we find in their Prayer-Books: The *Jews* and *Mahometans* having this in common, that they scarce do any thing without pronouncing some Laud, or Benediction.

CHAPLET, in Architecture, is a little Ornament cut or carv'd into round Beads, Pearls, Olives, and Pater-Nosters; as is frequently done in *Baguettes*.

A *Chaplet*, in effect, is little else but a *Baguette* enrich'd with Sculpture. See BAGUETTE.

CHAPPAR, a Courier of the King of *Persia*, who carries Dispatches from Court to the Provinces, and from the Provinces to Court. See COURIER.

The Posts, M. *Tavernier* tells us, are not establish'd and regulated in *Persia* as among us: When the Court sends out a *Chappar*, the Sophi's Master of the Horse furnishes him with a single Horse, how long soever his Journey be, and a Man to run after him: when his Horse is weary, he takes that of the first Horseman he meets with, who dares not make the least Refusal, and sends his own home by the Man who follows him.

For the Master of the new Horse he has taken, he must run, or at least send after the *Chappar* to re-take him, when the *Chappar* dismounts some other Horseman to change him.

The Word, in the original *Persian*, signifies *Courier*.

CHAPPE, in Heraldry, the Partition of an Escutcheon, by Lines drawn from the Centre of the upper Edge to the Angles below, as in the Figure adjoining, which they blazon, *Chappe Or, and Vert*.

The Sections of the Sides are to be of a different Colour from the rest. *Mackenzy* calls it, *A Chief Party per bend dexter*, or *sinister*, or both. See CHAPPEAU, or CHAPEAU.

CHAPPEL, or CHAPEL. See CHAPEL.

CHAPTER, *Capitulum*, a Community of Ecclesiasticks, who serve a Cathedral or Collegiate Church. See CATHEDRAL, and COLLEGIATE.

The Chief, or Head of the *Chapter*, is the *Dean*: The Body consists of *Canons*, or *Prebendaries*, &c. See DEAN; see also CANON, and PREBENDARY.

The *Chapter* has now no longer any Share in the Administration of the Diocess, during the Life of the Bishop; but succeeds to the whole Episcopal Jurisdiction during the Vacancy of the See.

The Origin of *Chapters* is deriv'd from hence, that antiently the Bishops had their Clergy residing with them in their Cathedrals, to assist them in the Performance of Sacred Offices, and in the Government of the Church; and even after Parochial Settlements were made, there were still a Body of Clerks who continu'd with the Bishop, and were indeed his Family, maintain'd out of his Income.

After the Monastick Life grew into request, many Bishops chose Monks rather than Seculars.

These Bodies, either of Monasticks or Seculars, had the same Privilege of chusing the Bishop, and being his Council; which the whole Clergy of the Diocess had before: But, by degrees, their Dependance on the Bishop grew less and less; and then they had distinct Parcels of the Bishop's Estate assign'd them for their Maintenance; till at last, the Bishop had little more left than the Power of visiting them. See BISHOP.

On the other hand, these *Capitular* Bodies by degrees also lost their Privileges; particularly that of chusing the Bishop, for which the Kings of *England* had a long struggle with the Pope: but at last, *Henry* VIII. got this Power vested in the Crown; and now the Deans and *Chapters* have only the Shadow of it.

The same Prince likewise expell'd the Monks from the Cathedrals, and plac'd Secular Canons in their room; those he thus regulated, are call'd *Deans and Chapters of the new Foundation*; such are *Canterbury*, *Winchester*, *Worcester*, *Ely*, *Carlisle*, *Durham*, *Rochester*, and *Norwich*: such also are the *Chapters* of the four new Sees, of *Peterborough*, *Oxford*, *Gloucester*, and *Bristol*. See DEAN.

CHAPTER, is also us'd for the Assemblies held by Religious and Military Orders, for deliberating on their Affairs, and regulating their Discipline.

Papias says, they are so call'd, *quod Capitula ibi legantur*.

The Establishment of General *Chapters* of Religious Orders, is owing to the *Cistercians*, who held the first in 1116, and were soon follow'd by the other Orders.

CHAPTER is also us'd for a Division of a Book; contriv'd for keeping Matters more clear and distinct.

The Antients were unacquainted with the Division of Books into *Chapters* and *Articles*. *Papias* says, the Name was given it, *quod sit alterius sententiæ* Caput, or *quod* Capiat *totam summam*. St. *Augustine* compares *Chapters* to Inns; which refresh the Reader, as those the Traveller.

The three CHAPTERS, is a Phrase famous in Ecclesiastical History, signifying a Volume publish'd by *Theodoret*, an Adherent of *Nestorius*, against St. *Cyril*; consisting of a Letter of *Ibas*, Priest of *Edessa*, to *Marius*, a Bishop in *Persia*; of Extracts from the Works of *Diodorus* of *Tarsus*, and *Theodorus* of *Mopsuestis*, wherein the same Doctrines were taught, that were contended for by *Nestorius*: and of two Pieces of *Theodoret*, the one against the Council of *Ephesus*, the other against the Anathemas of St. *Cyril*.

These make the *three Chapters*; which have been, since, condemn'd by various Councils and many Popes.

CHAPTREL. See IMPOST.

CHARACTER, or CARACTER, in its general Sense, signifies a Mark, or Figure drawn on Paper, Metal, Stone, or other Matter, with a Pen, Graver, Chissel, or other Instrument, to signify, or denote any thing.

The Word is *Greek*, χαρακτὴρ, form'd from the Verb χαράσσειν, *insculpere*, *to ingrave*, *impress*, &c.

The various Kinds of *Characters* may be reduc'd to three Heads, *viz. Literal Characters*, *Numeral Characters*, and *Abbreviations*.

LITERAL CHARACTER, is a Letter of the Alphabet, serving to indicate some articulate Sound, expressive of some Idea, or Conception of the Mind. See ALPHABET.

These may be divided, with regard to their Nature and Use, into *Nominal*, *Real*, and *Emblematical*.

Nominal CHARACTERS are those we properly call *Letters*; which serve to express the Names of Things. See LETTER.

Real CHARACTERS, are those that instead of Names, express Things, and Ideas. See IDEA, &c.

Emblematical, or *Symbolical* CHARACTERS, have this in common with *real* ones, that they express the Things themselves; but have this further, that they in some measure personate them, and exhibit their Form: Such are the Hieroglyphics of the antient *Egyptians*. See HIEROGLYPHIC.

Literal Characters may be again divided, with regard to their Invention and Use, into *Particular* and *General*.

Particular CHARACTERS, are those peculiar to this, or that Nation; or that have been so: Such are *Roman*, *Italic*, *Greek*, *Hebrew*, *Arabic*, *Gothic*, *Chinese*, &c. *Characters*. See ROMAN, ITALIC, GREEK, HEBREW, GOTHIC, CHINESE, &c.

Universal CHARACTERS, are also *real Characters*, and make what some Authors call a Philosophical Language.

That Diversity of *Characters* us'd by the several Nations to express the same Idea, is found the chief Obstacle to the Advancement of Learning; to remove this, several Authors have taken occasion to propose Plans of *Characters* that should be Universal, and which each People should read in its own Language. The *Character* here to be Real, not Nominal: to express Things, and Notions; not, as the common ones, Letters, or Sounds: yet to be mute, like Letters, and Arbitrary; not Emblematical, like Hieroglyphics.

Thus, every one should retain their own Language, yet every one understand that of each other, without learning it; only by seeing a Real or Universal *Character*, which should signify the same to all People; by what Sounds soever each express it in his particular Idiom. For Instance, by seeing the

the *Character* destin'd to signify *to drink*, an *Englishman* should read *to drink*; a Frenchman *boire*; a Latin *bibere*; a *Greek* πινειν, a *Jew* שָׁתָה; a German *trincken*; and so of the rest: In the same manner as seeing a Horse, each People expresses it after their own manner; but all mean the same Animal.

This Real *Character* is no Chimera; the *Chinese* and *Japonese* have already somewhat like it. They have a common *Character*, which each of those Nations understand alike in their several Languages; though they pronounce them with such different Sounds, that they don't understand a Tittle of one another in speaking.

The first, and most considerable Attempts for a Real *Character*, or Philosophical Language in *Europe*, are those of Bishop *Wilkins*, and *Dalgarme*: But these, with how much Art soever they were contriv'd, have yet prov'd ineffectual.

M. *Leibnitz* had some Thoughts the same way; he thinks those great Men did not hit the right Method. 'Twas probable, indeed, that by their means, People, who don't understand one another, might easily have a Commerce together; but they han't hit on true, *Real Characters*.

According to him, the *Characters* should resemble those us'd in Algebra; which, in effect, are very simple, yet very expressive; without any thing superfluous or equivocal; and contain all the Varieties reasonable.

The Real *Character* of Bishop *Wilkins* has its real Applause: Dr. *Hook* recommends it on his own Knowledge and Experience, as a most excellent Scheme; and to engage the World to the Study thereof, publishes some fine Inventions of his own therein.

M. *Leibnitz* tells us, he had under Consideration an *Alphabet of Human Thoughts*; in order to a new Philosophical Language, on his own Scheme: but his Death prevented its being brought to Maturity.

M. *Lodwic*, in the *Philosophical Transactions*, gives us a Plan of *an Universal Alphabet*, or CHARACTER of another Kind: This was to contain an Enumeration of all such single Sounds, or Letters, as are us'd in any Language; by means whereof, People should be enabled to pronounce truly and readily any Language; to describe the Pronunciation of any Language that shall be pronounc'd in their hearing; so, as others accustom'd to this Language, tho they had never heard the Language pronounc'd, shall at first be able truly to pronounce it: And, lastly, this *Character* to serve as a Standard to perpetuate the Sounds of any Language.

In the *Journal Literaire*, *Anno* 1720, we have a very ingenious Project for an Universal *Character*: The Author, after obviating the Objections that might be made against the Feasibleness of such Schemes in the general, proposes his own: His *Characters* are to be the common *Arabic*, or numeral Figures. The Combinations of these nine are sufficient to express distinctly an incredible Quantity of Numbers, much more than we shall need Terms to signify our Actions, Goods, Evils, Duties, Passions, &c. Thus is all the Trouble of framing and learning any new *Character* at once sav'd: the *Arabic* Figures having already all the Universality requir'd.

The Advantages are immense: for 1°, We have here a stable, faithful Interpreter; never to be corrupted or chang'd, as the popular Languages continually are. 2°, Whereas the Difficulty of pronouncing a foreign Language, is such as usually gives the Learner the greatest Trouble, and there are even some Sounds which Foreigners never attain to; in the *Character* here propos'd this Difficulty has no place: Every Nation is to pronounce them according to the particular Pronunciation that already obtains among them. All the Difficulty is, the accustoming the Pen and the Eye to affix certain Notions to *Characters*, that don't, at first sight, exhibit 'em. But this Trouble is no more than we find in the Study of any Language whatever.

The Inflections of Words, to be express'd by the common Letters: for Instance, the same *Character* shall express a *Filly*, or a *Colt*, a *Horse* or a *Mare*, an *old Horse*, or an *old Mare*, as accompany'd with this or that distinctive Letter, which shall shew the Sex, Youth, Maturity, or old Age: a Letter also to express the Bigness or Size of Things; thus, *v.g.* a Man with this or that Letter, to signify a *great Man*, or a *little Man*, &c.

The Effect of these Letters belongs to the Grammar which once well understood, would abridge the Vocabulary exceedingly. An Advantage of this Grammar, is, that it would only have one Declension and one Conjugation: Those numerous Anomalies of Grammarians are exceeding troublesome, and arise hence, That the common Languages are conducted by the People, who never reason on what is best: but in the *Character* here propos'd, Men of Reason having the Introduction of it, would have a new ground, whereon to build regularly.

But the Difficulty is not in inventing the most simple, easy, and commodious *Character*, but in engaging the several Nations to use it; there being nothing they agree less in, than the understanding and pursuing their common Interest.

Literal Characters, again, may be divided with respect to the Nations among whom they have been invented and us'd, into *Greek Characters*, *Roman Characters*, *Hebrew Characters*, &c.

The *Character* now ordinarily us'd throughout *Europe*, is the *Latin Character* of the Antients.

The *Latin Character* was form'd from the *Greek*, and that from the *Phenician*, which *Cadmus* brought into *Greece*.

The *Phenician Character* was the same with that of the antient *Hebrew*, which subsisted to the Time of the *Babylonish* Captivity; after which they us'd that of the *Assyrians*, which is the square *Hebrew*, now in use; the antient being only found on some *Hebrew* Medals, commonly call'd *Samaritan Medals*. See SAMARITAN.

Postellus and others shew, that beside the *Phenician*; the *Chaldee*, *Syriac*, and *Arabic Characters* were likewise form'd from the antient *Hebrew*.

The *French* were the first who, with the *Latin* Office of St. *Gregory*, admitted the Form of the *Latin Characters*. In a Provincial Synod, held in 1091, at *Leon* in *Spain*, the use of the *Gothic Characters* invented by *Ulfilas*, was abolish'd, and the *Latin* ones establish'd.

Medallists observe, that the *Greek Character*, consisting only of majuscule Letters, has preserv'd its Uniformity on all Medals, as low as the Time of *Gallian*; there being no Alteration found in the Turn of the *Character*, notwithstanding the many considerable ones both in the Use and Pronunciation. From the Time of *Gallian*, it appears somewhat weaker and rounder: From the Time of *Constantine* to *Michael*, the space of 500 Years, we find only *Latin Characters*; and after *Michael*, the *Greek Characters* re-commence: but from that Time they begin to alter with the Language, which was then a Mixture of *Greek* and *Latin*. See GREEK.

The *Latin* Medals preserve both their *Character* and Language, as low as the Translation of the Seat of the Empire to *Constantinople*. Towards the Time of *Decius* the *Character* began to alter, and to lose of its Roundness and Beauty: Some time after it retriev'd it self, and subsisted tolerably to the Time of *Justin*; when it fell into the last Barbarity mention'd, under *Michael*; tho it afterwards grew worse, and degenerated into the *Gothic*: So that the rounder and better form'd the *Character*, the greater Pretence it has to Antiquity.

NUMERAL CHARACTERS, are those us'd to express Numbers. See NUMBER.

There are two Kinds of Figures, or *Numeral Characters*, chiefly in use; the common *Characters*, and the *Roman*; to which may be added a third, call'd the *French Characters*.

The *common* CHARACTER is that ordinarily call'd the *Arabic*, as suppos'd to have been invented by the *Arab* Astronomers: tho the *Arabs* themselves call it the *Indian Character*; as if they had borrow'd it from the People of *India*. This indeed is pretty certain, that the Orientals are the Authors of it: which is confirm'd, as by other Circumstances, so from the manner of writing them, from left to right; which has been confessedly the manner of writing in all Ages in the East.

The *Arabic Characters* are ten, *viz.* 1,2,3,4,5,6,7,8,9,0; the last call'd *Cypher*. See CYPHER.

The *Arabic Character* is us'd almost throughout *Europe*, and that on almost all Occasions; in Commerce, in Measuring, in Astronomical Calculations, &c.

Roman CHARACTERS consist of the Uncial or Majuscule Letters of the *Roman* Alphabet; whence probably its Name: or, perhaps, from its being us'd by the antient *Romans* on their Coins, and in the Inscriptions of their publick Monuments, erected in honour of their Gods and great Men; on their Sepulchres, &c.

The Numeral Letters that compose the *Roman Character* are in Number seven, *viz.* I,V,X,L,C,D,M.

The I denotes one, V five, X ten, L fifty, C a hundred, D five hundred, and M a thousand.

The I repeated twice, makes two, II; thrice, three, III; four is express'd thus, IV. I before V or X, taking an Unit from the Number express'd by each of those Letters.

To express six, an I is added to a V, VI; for seven, two, VII; and for eight, three VIII: nine is express'd by an I before X, IX. agreeable to the preceding Remark.

The like Remark may be made of the X before L or C, except that the Diminution is by Tens, not Units: thus, XL signifies forty, and XC ninety; an L follow'd with an X sixty, LX, &c. The C before D or M, diminishes each by a hundred.

Besides the Letter D, which expresses five hundred, the Number may also be express'd by an I before a C inverted, thus IↃ; and thus, in lieu of the M, which signifies a thousand,

thousand, is sometimes us'd an I between two C's, the one erect, the other inverted, thus, CIↃ: Agreeable to this, six hundred may be express'd IOC; and seven hundred, IOCC, &c.

The *Roman Character* is now seldom us'd, but in Inscriptions of publick Monuments, on Medals, Coins, &c. in the Dates, Chapters, &c. of Books, &c.

The *French Character*, so call'd, because invented and chiefly us'd by the *French*, is more usually denoted, *Character of Accompt, or Finance.*

It consists of six Figures; part taken from the Letters of the usual current Hand, and partly imagin'd by the Inventor: The six *Characters* are *j*, *b*, *x*, L, C, *γ* The *j* consonant standing for one, the *b* for five, the *x* for ten, the L for fifty, the C for an hundred, and the last *Character γ* for a thousand.

This *Character* is only an Imitation of the *Roman Character*; and its use is in most respects the same, particularly in what relates to the Combination of certain Letters, which plac'd before or after others, diminish or increase their Value. Indeed it has these Things peculiar in it, that when several Units occur successively, only the last is express'd: 2dly, That ninety, and the following Numbers to one hundred, are express'd thus, *jjjj*^{xxx} ninety; *jjjj*^{xxxj} ninety one; *jjjj*^{xxxjj}, &c.

It is principally us'd in the Chambers of Accompts; in the Accompts given in by Treasurers, Receivers, Farmers, and other Persons concern'd in the Management of the Revenue.

A Specimen of each of these *Characters* follows.

	Arabic Characters.	Roman Characters.	French Characters.
Ninety ——	90	LXXXX, or XC ——	*jjjj*^{xxx}
Ninety one	91	LXXXXI, or XCI ——	*jjjj*^{xxxj}
Ninety two	92	LXXXXII, or XCII	*jjjj*^{xxxjj}
Ninety three	93	LXXXXIII, or XCIII	*jjjj*^{xxxjjj}
Ninety four	94	LXXXXIV, or XCIV	*jjjj*^{xxxjjjj}
Ninety five	95	LXXXXV, or XCV	*jjjj*^{xxxb}
Ninety six	96	LXXXXVI, or XCVI	*jjjj*^{xxxbj}
Ninety seven	97	LXXXXVII, or XCVII	*jjjj*^{xxxbjj}
Ninety eight	98	LXXXXVIII, or XCVIII	*jjjj*^{xxxbjjj}
Ninety nine	99	LXXXXIX, or XCIX	*jjjj*^{xxxjx}
One hundred	100	C —— —— ——	*c*
Two hundred	200	CC —— ——	*jjc*
Three hundred	300	CCC —— ——	*jjjc*
Four hundred	400	CCCC, or CD ——	*jjjjc*
Five hundred	500	D, or IↃ —— ——	*bc*
Six hundred	600	DC, or IOC ——	*bjc*
Seven hundred	700	DCC, or IOCC ——	*bjjc*
Eight hundred	800	DCCC, or IOCCC ——	*bjjjc*
Nine hundred	900	DCCCC or IOCCCC, or CM	*jx*^{c}
One thousand	1000	M, or CIↃ —— ——	*γ*.

CHARACTERS, in Printing, are the Letters or Types, by the various Arrangement whereof, are compos'd Forms; whence Impressions are taken, by means of a Press, on Paper. See LETTER, TYPE; see also FORM, PRINTING, &c.

For *the Method of casting these Characters*, see *Letter*-FOUNDERY.

CHARACTER is also us'd in several of the Arts, for Abbreviatures, and Symbols, contriv'd for the more concise, immediate, and artful conveyance of the Knowledge of Things. See ABBREVIATURE, and SYMBOL.

In this Sense of the Word, *Paulus Diaconus* refers the Invention of *Characters* to *Ennius*; who, he says, contriv'd the first eleven hundred. To these were many more added, by *Tullius Tyro*, *Cicero*'s freed Man; and *Philargyrus*, *Fannius*, and *Aquila*, Freedmen of *Mecænas*.

Lastly, *L. Annæus Seneca* made a Collection of them, reduc'd them into order, and increas'd their Number to five thousand. *Tyro*'s Notes may be seen at the End of *Gruter*'s Inscriptions.

Valerius Probus, a Grammarian, in the Time of *Nero*, labour'd to good purpose in explaining the Notes of the Antients. *Diaconus* wrote an ample Treatise of the Explication of the *Characters* in Law, under the Reign of the Emperor *Conrad* I. and *Goltzius* another for those of Medals.

Characters, or *Symbols*, are now chiefly affected in the several Parts of Mathematicks; particularly Algebra, Geometry, Trigonometry, and Astronomy: as also in Medicine, Chymistry, Musick, &c. The principal of each Kind we shall here subjoin.

CHARACTERS *us'd in Arithmetic and Algebra.*

a, *b*, *c*, and *d*, the first Letters of the Alphabet, are the Signs or *Characters* that denote the *given* Quantities; and *z*, *y*, *x*, &c. the last Letters, are the *Characters* of the Quantities *sought*. See QUANTITY.

Note, Equal Quantities are denoted by the same *Character*.

m, *n*, *r*, *s*, *t*, &c. are *Characters* of *indeterminate* Exponents, both of Ratios and Powers; thus x^m, y^m, z^s, &c. denote indeterminate Powers of different Kinds; *mx*, *ny*, *rz*, different *Multiples*, or *Submultiples* of the Quantities *x*, *y*, *z*, according as *m*, *n*, *r*, are either whole Numbers or Fractions.

+ Is the Sign of real Existence, and is call'd the *affirmative* or *positive* Sign; importing the Quantities to which it is prefix'd, to be of a real and positive Nature. See POSITIVE.

It is also the Sign of Addition, and is read *Plus*, or *more*; thus 9 + 3, is read 9 *plus* 3; or 9 more 3: that is, nine added to 3, or the Sum of 9 and 3, equal to 12. See ADDITION.

— Before a single Quantity, is the Sign of *Negation*, or *negative* Existence; shewing the Quantity to which it is prefix'd to be less than Nothing. See NEGATIVE.

Between Quantities, it is also the Sign of Subtraction, and is read *Minus*, or *less*; thus, 14 — 2, is read, 14 *minus*, or abating 2: that is, the Remainder of 14, 2 after has been subtracted, *viz.* 12. See SUBTRACTION.

= Is the Sign of *Equality*: thus, 9 + 3 = 14 — 2; signifies, 9 *plus* 3, to be *equal* to 14, *minus* 2. See EQUALITY.

This *Character* was first introduc'd by *Harriot*: *Des Cartes* in lieu of it uses ∞. Before *Harriot* there was no Sign of Equality at all.

Wolfius, and some other Authors, use the *Character* = for the Identity of Ratios; or to shew the Terms to be in a Geometrical Proportion; which most Authors express thus :: See *that Character*.

× Is the Sign of *Multiplication*, denoting the Quantities on either side to be multiply'd into one another: thus, 4 × 6, is read 4 multiply'd by 6; or the *Factum*, or Product of 4 and 6 = 24; or the Rectangle between 4 and 6.

Ordinarily, however, in Algebra, the Sign is omitted, and the two Quantities put together: Thus, *b d* expresses the Product of the two Numbers denoted by *b* and *d*, which suppose 2 and 4, the Product whereof is 8, signify'd by *b d*.

Wolfius and others, make the Sign of Multiplication a Dot (.) between the two Factors: Thus 6.2 signifies, the Product of 6 and 2 = 12. See MULTIPLICATION.

Where one or both the Factors are compounded of several Letters, they are distinguish'd by a Line drawn over 'em: thus, the *Factum* of $a + b - c$ into *d*, is wrote $d \times \overline{a + b - c}$.

Guido Grandio, and after him *Leibnitz*, *Wolfius*, and others, to avoid the Perplexity of Lines, in lieu thereof distinguish the Compound Factors, by including 'em in a Parenthesis, thus $(a + b - c)\,d$.

÷ Is the *Character* of *Division*: thus $a \div$ denotes the Quantity *a* to be divided by *b*.

Indeed, ordinarily in Algebra, the Quotient is express'd Fraction-wise; thus $\frac{a}{b}$ denotes the Quotient of *a* divided by *b*.

Wolfius, &c. make the Sign of Division (:) thus, 8 : 4 denotes the Quotient of 8 divided by 4 = 2.

If either the Divisor or Dividend, or both, be compos'd of several Letters; *v. g.* $a+b$, divided by *c*; instead of writing the Quotient Fraction-wise thus $\frac{a+b}{c}$ *Wolfius*, &c. include the compound Quantities in a Parenthesis; thus, $(a + b) : c$. See DIVISION.

ⓟ Is the *Character* of *Involution*, or of producing the Square of any Quantity by multiplying it by it self. See INVOLUTION.

ω The *Character* of *Evolution*; or of extracting the Roots out of the several Powers; the Reverse of ⓟ. See EVOLUTION.

⊃ Is the Sign of *Majority*, or of the Excess of one Quantity beyond another: Some use this ⊏, or this ⊐.

⊂ Is the Sign of *Minority*: these two *Characters* were first introduc'd by *Harriot*, and us'd since by *Wallis* and *Lamy*.

Other Authors use others; some this, ⊐; but the generality none at all. See MINORITY.

∽ The Sign of *Similitude*, commended in the *Miscellanea Berolinensia*, and us'd by *Leibnitz*, *Wolfius*, and others; tho the generality of Authors use none. See SIMILITUDE.

The same *Character* is us'd in other Authors for the *Difference* between two Quantities, while 'tis yet unknown which is the greater. See DIFFERENCE.

√ Is the *Character* of *Radicality*, and shews the Root of the Quantity, to which it is prefix'd, is extracted, or to be extracted: Thus, √ 25, or $\sqrt{^2}$ 25, denotes the Square Root of 25, *viz.* 5. and $\sqrt{^3}$ 25, the Cube Root of 25. See ROOT.

This *Character* sometimes affects several Quantities distinguish'd by a Line drawn over them, thus $\sqrt{b+d}$, denotes the Sum of the Square Roots of b and d.

Wolfius, &c. in lieu hereof, include the Roots compos'd of several Quantities in a Parenthesis, adding its Index: thus $(a+b-c)^2$ denotes the Square of $a+b-c$, ordinarily written $\overline{a+b-c}^2$.

: The *Character* of Arithmetical Proportion disjunct; thus 7.3 : 13.9. intimates 3 to be exceeded by 7, as much as 13 by 9; *viz.* by 4. See PROGRESSION.

:: This is the *Character* of Identity of Ratio, and Geometrical Proportion disjunct; thus, 8 : 4 : : 30 : 15. expresses the Ratio of 30 to 15, to be the same with that of 8 to 4; or that the four Terms are in Geometrical Proportion, *viz.* 8 to 4 as 30 to 15. See PROPORTION.

Wolfius, in lieu hereof, uses the *Character* of Equality =; which he prefers to the former, as more scientifical and expressive.

∺ The *Character* of Geometrical Proportion continu'd implying the Ratio to be carry'd on without Interruption: Thus, 2, 4, 8, 16, 32, ∺ are in the same uninterrupted Proportion.

CHARACTERS *in Geometry and Trigonometry.*

|| Is the *Character* of *Parallelism*; implying two Lines or Planes to be equi-distant from each other. See PARALLEL.

△ *Character* of a *Triangle*. See TRIANGLE, &c.

□ *Character* of a *Square*.

▯ ▭ *Character* of a *Rectangle*.

⊙ *Character* of a *Circle*.

∠ *Character* of *Equality of Angles*.

∠ *Character* of *Equality of Sides*.

∠ *Character* of an *Angle*.

L *Character* of a *right Angle*.

⊥ *Character* of a *Perpendicular*.

° The *Character* of a *Degree*; thus, 75° implies 75 Degrees.

′ The *Character* of a *Minute*, or *Prime*; thus, 50′ implies 50 Minutes.

″ ‴ ⁗, &c. The *Characters* of *Seconds*, *Thirds*, *Fourths*, &c. of a Degree: thus, 5″, 6‴, 18⁗, 20⁗′, denotes 5 Seconds, 6 Thirds, 18 Fourths, and 20 Fifths.

Note, The same *Characters* are sometimes us'd, where the Progression is by Tens; as 'tis here by Sixties. See DECIMAL, SEXAGESIMAL, &c.

CHARACTERS *us'd in the Arithmetic of Infinites.*

˙ The *Character* of an *Infinitesimal*, or *Fluxion*: thus, $\dot{x}$, $\dot{y}$, &c. express the Fluxions, or Differentials of the variable Quantities x and y; two, three, or more Dots, denote second, third, or higher Fluxions.

This Method of denoting the Fluxions, we owe to Sir *Isaac Newton*, the Inventor of Fluxions: 'tis adher'd to by the *English*; but Foreigners generally follow M. *Leibnitz*, and in lieu of a Dot prefix the Letter d to the variable Quantity; on pretence of avoiding the Confusion arising from the multiplication of Dots, in the differencing of Differentials. See FLUXIONS.

d The *Character* of a *Differential* of a variable Quantity; thus, dx is the Differential of x; dy the Differential of y.

The *Character* was first introduc'd by M. *Leibnitz*; and is follow'd by all but the *English*, who, after Sir *Isaac Newton*, express the Differential by a Dot over the Quantity. See CALCULUS *Differentialis*.

CHARACTERS *us'd in Astronomy.*

Characters of the Planets; see PLANET.

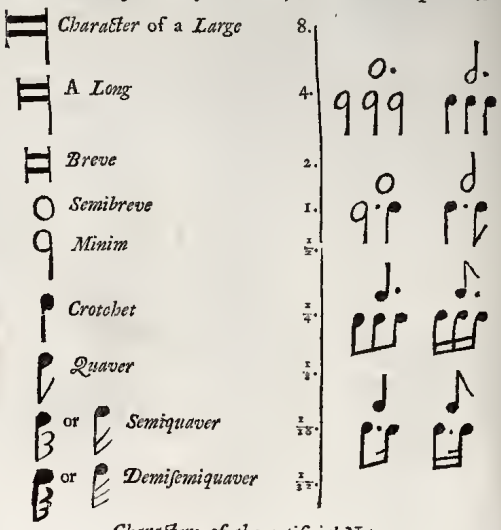
♄ *Character* of *Saturn*.
♃ *Character* of *Jupiter*.
♂ *Character* of *Mars*.
♀ *Venus*.
☿ *Character* of *Mercury*.
☉ *Character* of the *Sun*.
☽ *Character* of the *Moon*.
♁ *Character* of the *Earth*.

Characters of the Signs; see SIGN.

♈ *Character* of *Aries*.
♉ *Character* of *Taurus*.
♊ *Character* of *Gemini*.
♋ *Character* of *Cancer*.
♌ *Character* of *Leo*.
♍ *Character* of *Virgo*.
♎ *Character* of *Libra*.
♏ *Character* of *Scorpio*.
♐ *Character* of *Sagittarius*.
♑ *Character* of *Capricornus*.
♒ *Character* of *Aquarius*.
♓ *Character* of *Pisces*.

CHARACTERS *us'd in Musick.*

Characters of the Musical Notes, with their Proportions.



Characters of the artificial Notes.

♯ *Character* of a *sharp Note*: This *Character* at the beginning of a Line, or Space, denotes all the Notes in that Line, or Space, to be taken a Semitone higher than in the natural Series. And the same affects all their Octaves, above and below, tho not mark'd. See SHARP.

When the *Character* is prefix'd to any particular Note, it shews that Note alone to be a Semitone higher than it would be without such *Character*.

♭ *Character* of a *flat Note*: This *Character*, at the beginning of a Line, or Space, shews, that all the Notes in that Line, or Space, are to be taken a Semitone lower than in the natural Series; affecting, in like manner, all the Octaves, both above and below. See FLAT.

When prefix'd to any Note, it shews that Note alone to be a Semitone lower than it wou'd otherwise be.

♮ *Character* of a *natural Note*. Where, in a Line or Series of artificial Notes, mark'd at the Beginning for either Sharps or Flats, the natural Note happens to be requir'd, it is denoted by this *Character*.

Characters of Sign'd Clefs.

𝄞 *Character* of *Treble Clef*.

𝄡 *Mean Clef*.

𝄢 *Bass Clef*.

Characters of Time. See TIME.

2, or $\frac{2}{4}$, or $\frac{4}{4}$; *Characters* of *Common*, or *Duple Time*; signifying the Measure of two Crotchets to be equal to two Notes, whereof four make a Semibreve.

C ₵ Ↄ *Characters* that distinguish the Movements in *Common Time*: The first implying *slow*; the second *brisk*; the third *very quick*.

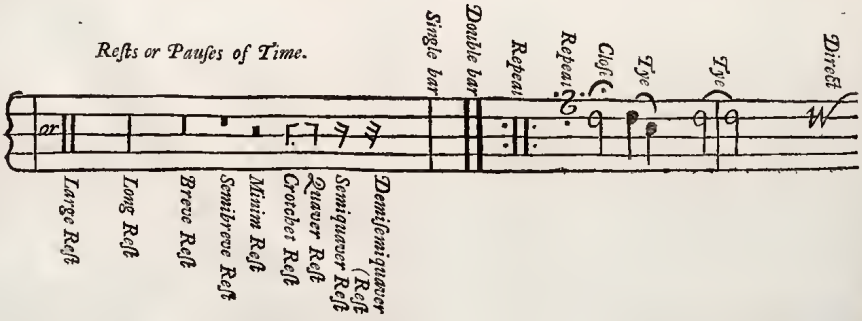
$\frac{2}{1}$, $\frac{3}{2}$, $\frac{3}{4}$, $\frac{3}{8}$, $\frac{3}{16}$; *Characters* of the *simple Triple Time*; whose Measure is equal either to three Semibreves, or to three Minims, &c. See TRIPLE.

$\frac{6}{4}$, or $\frac{6}{8}$, or $\frac{6}{16}$; *Characters* of *mix'd Triple Time*; where the measure is equal to six Crotchets, or six Quavers, &c.

$\frac{9}{4}$, or $\frac{9}{8}$, or $\frac{9}{16}$; or $\frac{9}{4}$, or $\frac{9}{2}$; *Characters* of *compound Triple Time*.

$\frac{12}{4}$, or $\frac{12}{8}$, or $\frac{12}{16}$; or $\frac{12}{4}$, or $\frac{12}{2}$; *Characters* of the fourth Species of *Triple Time*; call'd, *The Measure of twelve Times*.

Rests or Pauses of Time.



CHARACTERS *us'd in Medicine, Pharmacy, and Chymistry.*

Authors are very redundant, and even fanciful in Pharmaceutical *Characters*: the most usual are these that follow.

℞ Recipe.
ana. Of each alike.
♁ Antimony.
Æ Aqua Fortis.
Æ. Aqua Regia.
MB Balneum Mariæ.
♀ Calx Viva.
⊖ Caput Mortuum.
♀ Copper.
⊖ Common Salt.
☿ Distil.
☉ Gold.
CC Harts-Horn.
CCC Harts-Horn calcin'd.
♂ Iron.
aaa. Amalgamate.
ſſſ. Stratum super stratum.
♃ Jupiter, Tin.
♄ Lead.
☿ Mercury.
☿ —Sublimate.
☿ —Precipitate.
🌕 Nitre.
✳ Sal Armoniac.
⊕ Vitriol.
♃ Sulphur.
ȘV Spirit of Wine.
ȘVR or S,V,R, Spirit of Wine rectify'd.
☾ Silver.
♃ Tartar.
℔ A Pound, or a Pint.
℥ An Ounce.
ʒ A Drachm.
℈ A Scruple.
gr. Grains.
ſs. Half of any thing.
Cong. A Gallon.
Cochl. A Spoonful.
M. A Handful.
P. A Pugil.
P.E. Equal Quantities.
S.A. According to Art.
q.ſ. A sufficient Quantity.

N. B.

℥i. contains ʒviii.
℥i. ℈iii.
℈i. gr. xx.
Cong. i. ℔ viii.
Cochl. i. is about ℥ ſs. and A Pugil is the eighth Part of an Handful.

CHARACTERS *among the antient Lawyers, and in antient Inscriptions.*

§ *Paragraph.*
ff. *Digestis.*
E. *extra.*
S.P.Q.R. *Senatus Populusque Romanus.*
Scto. *Senatusconsulto.*
P.P. *Pater Patriæ.*
C. *Code.*
CC. *Consules.*
T. *Titulus,* &c.

Characters on Medals; see MEDAL.

S.V. *Siste Viator,* Stay Traveller.
M.S. *Memoriæ Sacrum,* Sacred to Memory.
D.M. *Diis Manibus.*
IHS. *Jesus.*
XP. A *Character* found on antient Monuments, about the meaning whereof Authors are not agreed. See CATACOMB.

CHARACTERS *in Grammar, Rhetoric, Poetry,* &c.

, *Character* of a *Comma.*
; *Semicolon.*
: *Colon.*
. *Period.*
! *Exclamation.*
? *Interrogation.*
( ) *Parenthesis.*
- *Hyphen.*
' *Apostrophe.*
` *Emphasis,* or Accent.
˘ *Breve.*
¨ *Dialysis.*
^ *Caret,* and *Circumflex.*
" *Quotation.*
† and * *References.*
§ *Section,* or Division. See COMMA, SEMICOLON, COLON, PERIOD.

L.L.D. *Doctor of Laws,* or, *of the Law of Laws,* i.e. the Civil Law.

S.S.T.D. *Sacro Sanctæ Theologiæ Doctor,* i.e. Doctor of Divinity.

M.D. *Doctor of Physic.*
V.D.M. *Verbi Dei Minister,* Minister of the Word.
A.M. *Artium Magister,* Master of Arts.
A.B. *Artium Baccalaureus,* Batchelor of Arts.
F.R.S. *Fellow of the Royal Society.*

CHARACTERS *in Commerce.*

D° *Ditto,* the same.
N° *Numero,* or Number.
F° *Folio,* or Page.
R° *Recto.*
V° *Verto.*
£ *Sterling,* or ℔ Pounds Sterling.
℥ Shillings.
℈ Pence, or *Deniers.*
℔ Pound weight.
C. or ℄ Hundred weight, or 112 Pound.
qr. Quarters.
℘ *Per,* or By.
R^x. *Rixdollar.*
D^d. *Ducat.*
P.S. *Postscript,* &c.

CHARACTER is also us'd for a certain Manner, Air, or Assemblage of Qualities, resulting from several particular Marks, which distinguish a Thing from any other, so as it may be known thereby. See MANNER, *&c.*

Thus, we say, *The* Character *of* Achilles; *Generosity and greatness of Mind was the* Character *of the* Romans; Cicero *had a* Character *of Politeness, which is wanting in* Demosthenes; *Every Passion has its peculiar* Character.

The Writers of *Characters* are *Theophrastus,* whose Fragments are still extant; *Du Moulin,* in his *Exemplar Morum*; *Paschal,* in *Characteres Virtutum & Vitiorum*; M. *de la Chambre,* in his *Characters of the Passions*; and *de la Bruyere,* in his *Characters and Manners of the Age.*

CHARACTER, in Poetry, especially the Epopea and Drama, is the Result of the Manners, or that which each Person has proper, and singular in his Manners, whereby he is distinguish'd from others. See MANNERS.

The Poetical *Character, Bossu* observes, is not properly any Virtue or Quality in particular; but a Composition of several, mix'd, and combin'd in various Degrees, according to the Occasions of the Fable, and the Unity of the Action. All the simple Qualities that enter this Compound, must not have the same Rank, nor be equal to each other: since, in that Case, one prevailing on one Occasion, and another on another, the *Character* will appear changing; and the Poem, as well as the Hero, animated with several Souls.

There must, therefore, be one to reign over all the rest; and this must be found in every Part: just as the same Hero, in several Paintings, should have the same Lines and Features, how different soever his Postures and Passions may be. See HERO.

This first Quality, in *Homer*'s *Achilles,* is Wrath; in *Ulysses,* Dissimulation; and in *Virgil*'s *Æneas,* Mildness: Each of which may, by way of eminence, be call'd the *Character* of those Heroes.

These are never to go alone, but always to be accompany'd with others, to give them the greater Lustre; either by hiding their Defects, as in *Achilles,* whose Anger is palliated by a world of Courage: or by making them centre in some solid Virtue, as in *Ulysses,* whose Dissimulation makes a Part of his Prudence; and *Æneas,* whose Mildness is chiefly employ'd in a Submission to the Will of the Gods.

These secondary Qualities of Courage, Prudence, and Submission, make the goodness of the *Characters* of those Heroes, and even of the Poems.

Bossu adds, that the Quality of Courage must always have a share in the *Character* of a Hero, to serve as a Support to the rest: The *Heroic Character,* therefore, he makes a Compound of three Kinds of Qualities. Those of the first kind are necessary and essential to the Fable; those of the second are the Supplements, or Embellishments of the first; and Courage, which sustains the other two, make the third.

The first, which is the chief, is to be some universal Quality, to have place on all Occasions, and to distinguish the Hero wherever he is found.

For *the Unity of Character,* we have *Horace*'s express Command, *Sit quodvis simplex dumtaxat & unum. Bossu* adds, that the *Character* is not less the Soul of the Hero and the whole Action, than the Fable is of the Poem; and of consequence the Unity must be as exact in the one as the other: which accordingly we find observ'd both by *Homer* and *Virgil.*

The Unity of *Character* is somewhat different from that of the *Manners*: in the latter, the Unity or Equality consists in the not giving contrary Sentiments to the same Person, which is not sufficient to the Unity of *Character*; but to this must be added, that the same Spirit must always appear on all Occasions, whether contrary or otherwise: Thus, *Æneas,* shewing a deal of Goodness in the first Part of the Poem, and a world of Valour in the second, but without discovering any of his former Piety and Gentleness; there had been no Offence against the Evenness of the Manners, but to the Unity of the *Character* there had.

So that besides the Qualities which have their particular Place on different Occasions, there must be one to have place throughout, and to reign over all the others. Without this there is no *Character*: as would be the Case, should a Poet give his Hero the Piety of *Æneas,* and the Courage of *Achilles,* without considering the Severity of the one, and the Mildness of the other.

A Hero, 'tis true, may be made as brave as *Achilles,* as mild or pious as *Æneas,* and, if one will, as prudent as *Ulysses*; but 'twould be a mere Chimera to imagine a Hero with the particular Courage of *Achilles,* the Piety of *Æneas,* and the Prudence of *Ulysses* at the same time. See UNITY.

The Unity of *Character* is not only to be kept in the Hero, and the several other Persons of the Piece; but also in that of the Poem it self: that is, all the *Characters,* how opposite soever, must center and re-unite in that of the Hero; and be so sway'd by it, as that this alone may seem to govern throughout the whole. Thus *Homer* makes Wrath prevail throughout the whole *Iliad*; and Artifice and Dissimulation throughout the *Odyssee*: The Hero's *Character* is perceiv'd every where, has its full swing, and is favour'd by the Similitude of the *Characters* of some of the other Persons. *Virgil* had a great Difficulty to grapple with to preserve this Unity; in regard of the direct Opposition between the Humours of his Hero, and those of some other of his Persons, as *Turnus, Mezentius, Dido,* &c. He therefore takes care not to carry those opposite *Characters* to their full length, but moderates and restrains 'em: And as that Moderation could not flow naturally

turally from the Persons themselves; 'tis produc'd either by some Passion, as in *Dido*, or some Dependance, as in *Turnus* and *Mezentius*. To this Artifice he adds Episodes, accommodated to the general *Character*, by which he interrupts the particular Actions which require an opposite *Character*.

Claudian's Conduct, in this respect, is unpardonable; from the horrible *Characters* of *Pluto* and the Furies, with all the Terrors of Hell, he passes to the Gaiety and Pleasures of the Graces, gilded Palaces, flowery Fields, &c. He has as many different prevailing *Characters* in his three Books, as *Homer* and *Virgil* in their sixty. See EPIC, &c.

CHARACTER is also us'd for certain visible Qualities, which claim Respect, or Reverence to those vested therewith.

The Majesty of Kings gives 'em a *Character*, which procures Respect from the People. A Bishop should sustain his *Character* by Learning and solid Piety, rather than by worldly Lustre, &c. The Law of Nations secures the *Character* of an Embassador from all Insults.

CHARACTER is also us'd, among Divines, especially those of the *Romish* Church, for a certain indelible Mark, or Impression, which certain Sacraments leave behind 'em in those who receive 'em. See SACRAMENT.

The Sacraments that leave this *Character*, are incapable of being repeated. The *Character* is generally suppos'd to be something Physical.

'Tis the Sacraments of Baptism, Confirmation, and Ordination, which leave such indelible *Character*.

CHARACTER *of a Plant*. See GENUS, CHARACTERISTIC, &c.

CHARACTERISTIC, in the general, is that which *characterizes* a Thing, or Person, *i.e.* constitutes its *Character*, whereby it is distinguish'd. See CHARACTER.

CHARACTERISTIC, is peculiarly us'd in Grammar, for the principal Letter of a Word; which is preserv'd in most of its Tenses and Moods, its Derivatives and Compounds.

The *Characteristic* frequently shews its Etymology; and ought constantly to be retain'd in its Orthography: Such is the Letter *r* in *Course*, *Fort*, &c.

The *Characteristics* are of great use in the *Greek* Grammar, especially in the Formation of the Tenses; as being the same, in the same Tenses of all Verbs of the same Conjugation, excepting in the Present Tense, which has several *Characteristics*; and the Future, the *Aoristus primus*, the *Preterit perfect*, and the *Plusquam perfect* Tense of the fourth Conjugation, which have two *Characteristics*. See TENSE, VERB, MOOD, &c.

CHARACTERISTIC *of a Logarithm*, is its *Index*, or *Exponent*. See INDEX, &c.

CHARACTERISTIC *Triangle of a Curve*, in the higher Geometry, is a rectilinear right-angled Triangle, whose Hypothenuse is a part of the Curve, not sensibly different from a right Line. 'Tis so call'd, because Curve Lines are us'd to be distinguish'd hereby. See CURVE.

Suppose, *e. gr.* the Semiordinate $p\,m$, (Tab. *Analysis*, Fig. 7.) infinitely near another P M; then will P p be the Differential of the Abscisse: and letting fall a Perpendicular, M R = P p, R m will be the Differential of the Semiordinate. Draw, therefore, a Tangent T M; and the infinitely small Arch M m, will not differ from a right Line: consequently M m R is a rectilinear right-angled Triangle; and constitutes the *Characteristic Triangle of that Curve*. See TRIANGLE.

CHARAG, the Tribute which Christians and Jews pay to the Grand Signior.

It consists of 10, 12, or 15 Francs *per Ann.* according to the Estate of the Party. Men begin to pay it at 9 or 16 Years old; Women are dispens'd with, as also Priests, Rabbins, and Religious.

CHARCOAL, a sort of artificial *Coal*, or Fuel, consisting of Wood half burnt; chiefly us'd where a clear strong Fire, without Smoke, is requir'd; the Humidity of the Wood being here mostly dissipated, and exhal'd in the Fire wherein it is prepar'd. See FUEL, and COAL.

The Microscope discovers a surprising Number of Pores in *Charcoal*: They are dispos'd in order, and traverse it lengthwise; so that there's no piece of *Charcoal*, how long soever, but may be easily blown thorow. If a Piece be broke pretty short, it may be seen thro' with a Microscope. In a Range, the 18th Part of an Inch long, Dr. *Hook* reckon'd 150 Pores; whence he concludes, that in a *Charcoal* of an Inch Diameter, there are not less than 5 Millions, 7 hundred 24 thousand Pores.

'Tis to this prodigious Number of Pores, that the Blackness of *Charcoal* is owing: for the Rays of Light striking on the *Charcoal*, are receiv'd and absorb'd in its Pores, instead of being reflected; whence the Body must of necessity appear black: blackness in a Body being no more than a want of Reflexion.

Charcoal was antiently us'd to distinguish the Bounds of Estates and Inheritances; as being incorruptible, when let very deep within Ground. In effect, it preserves it self so long, that there are many Pieces found entire in the antient Tombs of the Northern Nations.

M. *Dodart* says, there is *Charcoal* made of Corn, probably as old as the Days of *Cæsar*: he adds, that it has kept so well, that the Wheat may be still distinguish'd from the Rye; which he looks on as a Proof of its Incorruptibility.

The Method of making CHARCOAL.

The best is that made of Oak, cut into Lengths of about three Foot. The Ground whereon the Operation is to be perform'd, is bar'd of all the Turf, and other combustible Matter; and is in form Circular, a Stake being driven in the Centre. This Area is fill'd up with Wood, eight Foot high, plac'd alternately lengthwise, and perpendicularly; then cop'd atop into the Form of a Sugarloaf, and all Inequalities fill'd up with small Wood, till it lie very close: the whole to be cover'd over moderately thick with Turf, and other Rubbish.

A moveable Skreen being then set up against the Wind; the Stake is pull'd up, and Fire set to the Pile, by pouring into the Cavity some *Charcoal* and other Coal fully kindled; the Vent, or Tunnel a-top, is then cover'd with Turf, and Vent-Holes made thro' the Stuff that covers the Pile, two or three Foot apart, quite round, a Foot from the Top. The next Day a new Range of Holes is made, a Foot and a half below the first; and thus on to the Bottom: observing, that as the Pile cools, and sinks to the Centre, it must be continually fed with short Wood, that no Part remain unfir'd; and that if any Part *chars* faster than other, the Vent-Holes there are to be stopp'd up.

A Pit is thus burnt in five or six Days: As it cools, the Smoke grows thinner and bluer. The Heap requires two or three Days to cool; which is promoted by stopping the Vents, and stripping off the Cavering by degrees, about a Yard at a time: at first only taking off the coarsest Part and leaving the rest; that the Pile may neither cool too fast, nor endanger the Reduction of the whole into Ashes. Lastly, the Coals are taken out from around the Bottom, by which means the whole Mass, Coals and Rubbish, sinks down, and extinguishes the Fire at once.

Charcoal for Pouder-Mills, is usually made of Eldar-Wood; the Process the same, but finish'd in two Days.

CHARDS, in Gardening. The *Chards* of Artichokes, are the Leaves of fair Artichoke Plants, ty'd and wrapp'd up, all over but the Top in Straw, during the Autumn and Winter: this makes 'em grow white, and lose some of their Bitterness.

CHARDS *of Beets*, are white Beets, cover'd with dry Dung, during the Winter Season, when they produce large Tops, with a downy Cotton Shoot; which is the true *Chard*, to be us'd in Pottages, Intermesses, &c.

CHARGE, in Gunnery, the Load of a Piece; or the Quantity of Pouder and Ball, or Shot, wherewith it is prepar'd for Execution. See GUNPOUDER, BALL, SHOT, &c.

The Rules for *charging* large Pieces in War, are, That the Piece be first clean'd or scour'd within side; that the proper Quantity of Gunpouder be next driven in and ramm'd down; care, however, being taken, that the Pouder ben't bruis'd in ramming, which weakens its Effect; that a little Quantity of Paper, Hay, or the like, be ramm'd over it, and that then the Ball, or Shot be intruded.

If the Ball be redhot, a Tampion, or Trencher of green Wood, to be driven in before it.

The Weight of Gunpouder necessary for a *Charge*, is commonly in a subduple proportion to that of the Ball. See CANNON, and BULLET.

CHARGE, in Heraldry, is apply'd to any Figure, or Thing, bore, or represented in an Escutcheon, or Coat of Arms; whether it be Animal, Vegetable, or other Matter. See BEARING, ESCUTCHEON, &c.

Too many *Charges* are not deem'd so honourable as fewer. See CHARGED.

Charges peculiar to the Art and Usage of Armory, as the *Cross*, *Chief*, *Pale Fesse*, &c. are call'd *proper Charges*; and frequently *Ordinaries*. See ORDINARY.

Bloom restrains the Term *Charges* to those Additions, or Rewards of Honours frequently plac'd on Escutcheons; as *Cantons*, *Quarters*, *Gyrons*, *Flasques*, &c.

CHARGE, in the Manage, a Cataplasm, Apparatus, or Unguent, made of Oil, Honey, Grease, Turpentine, and sometimes of Lees of Wine, and other Matters, apply'd externally to a Horse, &c. for the cure of Strains, Bruises, Swellings, &c.

CHARGE, or *Overcharge*, in Painting, is an exaggerated Representation of any Person; wherein the Likeness is preserv'd, but, withal, ridicul'd.

Few Painters have the Genius necessary to succeed in these *Charges*: The Method is, to pick out and heighten something already amiss in the Face, whether by way of Defect

Defect, or Redundancy: thus, *v. g.* if Nature have given a Man a Nose a little larger than ordinary, the Painter falls in with her, and makes the Nose extravagantly long; or if the Nose be naturally too short, in the Painting it shall be a mere Stump; and thus of the other Parts.

CHARGED, in Heraldry, a Shield, carrying on it some Figure or Impress, is said to be *charged* therewith.

So, also, when one Bearing, or *Charge*, has some other Figure added upon, it is properly said to be *charged*.

CHARGE *of Lead*, is 36 Pigs; See LEAD, *&c.*

CHARIENTISMUS, in Rhetoric, a Figure wherein a taunting Expression is soften'd by a Jest. See SARCASM.

CHAR. } See { CAR.
CHARIOT. } See { COACH.

CHARISTIA, a Feast celebrated by the *Romans*, on the 11th of the Calends of *March*; *i.e.* on the 19th of *February*.

On this Day each Family made a Feast, to which none were admitted but those of the Family, and Relations: Its Design was, to put an end to all Differences, or Broils, if there were any, among Friends.

The Word comes from the *Greek* χαρις, *Grace*, *Favour*; *q. d.* a Day of Reconciliation, or of restoring into Favour.

It was also call'd *Dies charæ cognationis*. *Vigenere*, on *Livy*, calls it the *Day of good Cheer*.

CHARISTICARY, *Commendatory*, or *Donatory*, a Person to whom is given the Enjoyment of the Revenues of a Monastery, Hospital, or Benefice.

The *Charisticaries* among the *Greeks*, were a kind of Donatories, or Commendatories, who enjoy'd all the Revenues of Hospitals and Monasteries, without giving an Account thereof to any Person. The original of this Abuse is refert'd to the *Iconoclastes*, particularly *Constantine Copronimus*, the avow'd Enemy of the Monks, whose Monasteries he gave away to Strangers.

In after Times, the Emperors and Patriarchs gave many to People of Quality, not by way of Gift, to reap any Temporal Advantage from; but to repair, beautify, and patronize 'em.

At length Avarice crept in, and those in good Condition were given, especially such as were rich; and at last they were all given away, rich and poor, those of Men and of Women; and that to Laymen and marry'd Men.

M. *Coutelier*, in his *Ecclesiæ Græcæ Monumenta*, gives us the form of these Donations: they were given for Life, sometimes for two Lives.

CHARITATIVE, in the Canon Law, a *charitative Aid*, or *Subsidy*, is a moderate Allowance which a Council grants a Bishop upon any urgent Occasion; *e. gr.* when his Revenues will not bear his Expences to a Council, *&c.*

CHARITY, one of the three grand Theological Virtues, consisting in the Love of God, and our Neighbour. See VIRTUE.

Charity is the Habit, or Disposition of loving God with all our Heart, and our Neighbour as our selves. It has two material Objects, therefore, as the Schools express it, *viz.* God, and our Neighbour.

Charity is peculiarly us'd for the Effect of a Moral Virtue, which consists in supplying the Necessities of others, whether with Money, Counsel, Assistance, or the like. See BENEVOLENCE.

CHARITY *Schools*, are Schools erected and maintain'd in various Parishes, by the voluntary Contributions of the Inhabitants, for teaching poor Children to read, write, and other necessary Parts of Education. See SCHOOL.

In most *Charity Schools*, the Children are likewise cloth'd and put out to Trades, Services, *&c.* on the same *charitable* Foundation.

Charity Schools are but of a few Years standing: They were began in *London*; and have since spread throughout most of the considerable Towns of *England* and *Wales*. In the Year 1710, the Account of the *Charity Schools* in and about *London* stood thus.

Number of Schools 88. of Boys taught therein 2181. of Girls 1221.	Boys cloth'd	1863.	In all 2977.
	Girls	1114.	
	Boys not cloth'd	373.	In all 501.
	Girls	128.	

Note, Out of the whole, 967 Boys, and 407 Girls, had been put out Apprentices.

In *London* we have likewise a CHARITABLE *Corporation* for the Relief of the industrious Poor, erected by the late Queen; for enabling indigent Manufacturers and Traders to take up Money at common and legal Interest; there being a Fund of 30000 *l.* rais'd for that End.

Order of CHARITY. There are several Religious Orders which bear this Title: one instituted by S. *John de Dieu*, for the Assistance of the Sick: This Institute was approv'd of in 1520, by *Leo* X. and confirm'd by *Paul* V. in 1617. The Religious of this Order apply themselves wholly to the Service of the Diseas'd.

CHARITY *of the Holy Virgin*, is a Religious Order established in the Diocess of *Chalons*, by *Guy* Lord *Joinville*, &c. towards the Close of the XIIIth Century, approv'd under the Rule of St. *Augustin*, by the Popes *Boniface* VIII. and *Clement* VI.

In each Parish of *Paris*, is a Society of Women, who apply themselves to find out and relieve the Wants of the Poor of the Parish; and on this Account call'd, *Dames de la Charite*, and *Sœurs de la Charite*.

CHARKING, or CHARRING, the burning of Wood to make Charcoal. See CHARCOAL.

CHARKS, Pit-Coal *charked*, or *charr'd*. See COAL.

CHARLES'S-WAIN, in Astronomy, seven Stars in the Constellation *Ursa Major*; call'd also *Pleiades*. See PLEIADES; see also URSA *Major*.

CHARLATAN, or CHARLETAN, an Empiric, or Quack, who retails his Medicines on a publick Stage, and draws the People about him with his Buffooneries, Feats of Activity, *&c.* See EMPIRIC.

The Word, according to *Calepine*, comes from the Italian *Ceretano*; of *Ceretum*, a Town near *Spoletto* in *Italy*, where these Impostors are said to have first risen. *Menage* derives it from *Circulatarius*, of *Circulator*.

CHARM, a Magic Power, or Spell, by which, with the Assistance of the Devil, Sorcerers and Witches are suppos'd to do wondrous Things, far surpassing the Powers of Nature. See MAGIC.

Phylacteries, Ligatures, *&c.* are kinds of *Charms*. See PHYLACTERY, LIGATURE, *&c.*

The Word comes from the Latin *Carmen*, Verse. See CARMEN.

We have the History of a notable *Charm*, wherewith great Things are pretended to have been done in the way of Poisoning, and Tormenting; describ'd by a famous Sorcerer, one *Bras de Forthen*, under Sentence of Death in *France*, as follows.

It consists of a new Earthen Pot, varnish'd, not bought nor bargain'd for; wherein is put Sheep's Blood, Wool, Hair of several Beasts, with poisonous Herbs, mix'd together with a great deal of Grimace, and superstitious Ceremonies, uttering certain Words, and invoking Devils. This Pot is laid in a secret Place in the Neighbourhood where the Mischief is to be done, and sprinkled with Vinegar, according to the Effect it is to produce. The *Charm* holds a certain time, and cannot be taken away, but either by the Party that lodg'd it, or some superior Power which overcomes it.

CHARNEL, a Portico, or Gallery, ordinarily about the Church-Yard; over which were anriently dispos'd the Bones of the Dead, when the Flesh was consum'd.

The *Charnels*, or *Charnel*-Houses, are now usually contiguous to the Church.

CHART, or *Sea*-CHART, a Hydrographical *Map*; or a Projection of some Part of the Sea, *in Plano*; for the Use of Navigation. See MAP, and PROJECTION.

The Invention of *Sea Charts*, *Fournier* refers to *Henry* Son of *John* King of *Lusitania*. They differ very considerably from Geographical, or Land Maps, which are of no use in Navigation. Nor are *Sea Charts* all of the same Kind; some being what we call *Plain Charts*, others *Reduced*, or *Mercator's Chart*, and others *Globular Charts*.

Plain CHARTS, are those wherein the Meridians and Parallels, are exhibited by right Lines parallel to each other.

These *Ptolemy*, in his Geography, rejects for the following Faults; tho their Inventor judg'd 'em of good use, and Experience has confirm'd his Judgment; especially in short Voyages.

Their Defects are, 1. That since in reality all the Meridians meet in the Poles; 'tis absurd to represent 'em, especially in large *Charts*, by parallel right Lines. 2. That *Plain Charts* exhibit the Degrees of the several Parallels, equal to those of the Equator; and of consequence the Distances of Places lying East and West, much larger than they should be. And, 3. In a *Plain Chart*, while the same Rhumb is kept, the Vessel appears to be carry'd in a great Circle; which yet is false.

But notwithstanding these Defects in the *Plain Chart*, yet the Easiness of its Application has so reconcil'd it to the Mariners, that 'tis us'd almost alone; in exclusion of the more accurate ones.

Construction of a Plain CHART.

1. Draw a right Line, as A B, (Tab. *Hydrography*, Fig. 9.) and divide it into as many equal Parts, as there are Degrees of Latitude in the Portion of the Sea to be represented. 2. Add another to it at right Angles B C, divided into as many Parts, and those equal to one another and to the former, as there are Degrees of Longitude in the Portion of the Sea to be represented. 3. Compleat the Parallelogram A B C D, and resolve its Area into little Squares; then right Lines, parallel to A B and C D, will be Meridians; and those parallel to A D and B C Parallels. 4. The Coasts, Islands, Bays, Sands, Rocks, *&c.* insert from a Table

ble of Longitudes and Latitudes, in the same manner as is laid down under MAP.

Hence, 1. the Latitude and Longitude of a Ship being given, her Place is easily exhibited in the *Chart*. 2. The Places F and G, to and from which the Ship sails, being given in a Map, the right Line F G, drawn from the one to the other, makes, with the Meridian A B, an Angle A F G, equal to the Inclination of the Rhumb: And since the Parts F 1, 1 2, 2 G, intercepted between equidistant Parallels, are equal; and the Inclination of the right Line F G, to all the Meridians or right Lines parallel to A B, is the same; the right Line F G truly represents the Rhumb. After the same manner it may be shewn, that they exhibit the *Latus Mecodynamicum*, or Miles of Longitude truly.

Coroll. Plain Charts, therefore, may be us'd to very good purpose in directing a Ship; provided care be taken there escape no Error in the Distance of the Places F and G.

Construction of a Scale to correct the Errors of the Distances in Plain CHARTS.

1. Upon the right Line A B, (Tab. Fig. 10.) from the Map transfer five Degrees, and divide 'em into 300 equal Parts, or Geographical Miles. 2. On this describe a small Circle A C B, to be divided into 90 equal Parts: If then 'tis desir'd to know how many Miles make five Degrees in the Parallel 50; in the Compasses take the Interval 50, and transfer it on to the Diameter A B; the number of Miles requir'd will here be shewn.

Coroll. If then a Ship sail on an Eastern or Western Rhumb, out of the Equator; the Miles answering to the Degrees of Longitude, will be found as in the preceding Article. If it sail on any Collateral Rhumb, still the sailing is suppos'd to be an Eastern or Western Rhumb, in an intermediate Parallel, between the Parallel of the Place whence the Ship proceeds, and the Parallel of the Place at which she arrives.

'Tis true, this Reduction, by an arithmetically mean Parallel, is not accurate; yet is it frequently us'd in Practice, as being accommodated to the Apprehensions of the generality of Mariners. In effect, it does not err any thing considerable, if the whole Course be divided into Parts, whereof each does not exceed one Degree; whence it appears advisable, not to take the Diameter of the Semicircle A B above one Degree, and to divide it almost into Geographical Miles.

For the Application of the Plain CHART *in Sailing*. See *Plain* SAILING.

Reduced CHART, or CHART *of Reduction*, is that wherein the Meridians are represented by right Lines converging towards the Poles; and the Parallels by right Lines parallel to one another, but unequal.

These, therefore, it appears by their Construction, must correct the Errors of the *Plain Charts*.

But since the Parallels should cut the Meridians at right Angles; these *Charts* are defective, inasmuch as they exhibit the Parallels inclin'd to the Meridians.

Hence another kind of *Reduced Charts* has been invented, wherein the Meridians are parallel, but the Degrees thereof unequal; call'd *Mercator's Charts*.

Mercator's CHART, is that wherein the Meridians and Parallels are represented by parallel right Lines; but the Degrees on the Meridians are unequal; still increasing, as they approach the Pole, in the same proportion as those of the Parallels decrease: by means whereof, the same Proportion is preserv'd between 'em as on the Globe.

This *Chart* has its Name from that of the Author who first propos'd it for use, and made the first *Chart* of this Projection, *N. Mercator*: but neither was the Thought originally his own, as having been hinted by *Ptolemy* near 2000 Years ago: Nor is the Perfection of it owing to him; our Countryman Mr. *Wright* being the first who demonstrated it, and shew'd a ready way of constructing it, by enlarging the Meridian Line by the continual Addition of Secants.

Construction of Mercator's CHART.

1. Draw a right Line, and divide it into equal Parts, representing Degrees of Longitude either in the Equator, or in the Parallel wherein the *Chart* is to terminate. From the several Points of Division erect Perpendiculars to represent Meridians; so as right Lines may cut 'em all under the same Angle, and therefore represent Rhumbs: Thus far as in the *Plain Chart*.

That the Degrees of the Meridians may have their just proportion to those of the Parallels, the former are to be increas'd; in regard the latter continue the same, by reason of the Parallelism of the Meridians. See DEGREE.

With the Interval therefore of one Degree in the Equator C D, (Tab. *Hydrog.* Fig. 11.) describe the Quadrant C D E, and in D erect a Perpendicular D G; make the Arch D L equal to the Parallel of Latitude, and thro' L draw C G: this C G will be the enlarg'd Degree of the Meridian, to be transferr'd to the Meridian of the *Chart*: The rest as in *Plain Charts*.

In Practice, suppose it requir'd to draw a *Mercator's Chart* from the 40th Degree of North Latitude to the 50th, and from the 6th Degree of Longitude to the 18th. First draw a right Line representing the 40th Parallel of the Equator; which divide into 12 equal Parts, for the 12 Degrees of Longitude the *Chart* is to contain. Then take a Line of equal Parts, on a Scale whereof 100 Parts are equal to each of these Degrees of Longitude; and at each extreme of the Line raise two Perpendiculars, to represent two parallel Meridians to be divided, by the continual Addition of Secants, which are prov'd to increase in the same Proportion, as the Degrees of Longitude should decrease. See SECANT.

Thus, for the Distance from 40 Deg. of Latitude, take $131\frac{1}{2}$ equal Parts, from the Scale which is the Secant of 40 Deg. 30 Min. For the Distance from 41 Deg. to 42 Deg. take $133\frac{1}{2}$ equal Parts, from the Scale which is the Secant of 41 Deg. 30 Min. and so on to the last Degree of your *Chart*, which will be 154 equal Parts, *viz.* the Secant of 49 Deg. 30 Min. and will give the Distance from 49 Deg. of Latitude to 50 Deg. By this means, the Degrees of Latitude will be augmented, in the same Proportion as the Degrees of Longitude on the Globe decrease.

The Meridians being divided, add the Card, or Compass; chusing some convenient Place near the Middle thereof: From this draw a Line parallel to the divided Meridians, which will be the North Rhumb; and from this the other 31 Points of the Compass are to be set off. See COMPASS.

Lastly, lay down the Towns, Ports, Islands, Coasts, *&c.* from a Table of Longitudes and Latitudes; and the *Chart* is compleat.

In *Mercator's Charts*, the Scale changes as the Latitude is chang'd: If then, *v. g.* a Ship sails between the 40th and 50th Parallels of Latitude, the Degrees of the Meridians between those two Parallels, are to be the Scale for measuring the Ship's Way: Whence it follows, that tho the Degrees of Longitude be equal in extent on the *Chart*, yet they must contain unequal Numbers of Miles, or Leagues; and that they will decrease as they approach nearer the Pole, because measur'd by a Magnitude continually increasing.]

This *Chart* is demonstratively true; tho to appearance false: it is found by Experience very accurate, and withal easy of Application. In effect, it has all the Qualifications requir'd to render it of service in Navigation; yet do the generality of Mariners decline the use of it, and rather chuse to keep the old erroneous *Plain Chart*.

For *the Use of* Mercator's CHART *in Sailing*. See *Mercator's* SAILING.

Globular CHART, is a Projection so call'd, from the Conformity it bears to the *Globe* it self; lately propos'd to the World by Messrs. *Senex*, *Wilson*, and *Harris*; wherein the Meridians are inclin'd; the Parallels equidistant both, and curvilinear; and the Rhumbs real Spirals, as on the Surface of the Globe.

This Projection is yet in its Infancy; and the Secret thereof in a few Hands: We have but little to say therefore as to its Merits or Failings; e'er long its Construction and Use will be made publick. In the mean time, we may be allow'd to expect great Matters from it, as it comes out under the Protection of his Majesty's Patent, and with the Recommendations of several able Navigators, and among others that of Dr. *Halley*; and as it has already stood the Test of a pretty severe Inquisition. The Cavillings of Mr. *Hasleden*, who has thought fit to censure it e'er he knows what it is, will weigh but little; and the less, as 'tis no longer a Secret what are the Motives that have inflam'd his Zeal. We shall only add, that the Projection is perfectly agreeable to Nature, and therefore easily conceivable; and that it has been found to answer very exactly, even in very large Distances; where its failure, if it have any, must needs be most conspicuous. See GLOBULAR *Sailing*.

CHARTS *compos'd by Rhumbs and Distances*, are those wherein there are no Meridians or Parallels; but all is effected by the Rhumbs, and the Scale of Miles.

These are chiefly us'd by the *French*, especially in the *Mediterranean*.

They are patch'd up, without any great Art, from the Observations of the Mariners; any regular Account therefore how to make them would be needless. They are only us'd in short Voyages.

CHARTA primarily signifies a sort of thick Paper, not unlike our Cap-Paper. See PAPER; see also CHARTER.

CHARTA *Emporetica*, in Pharmacy, *&c.* a kind of Paper made very soft and porous, us'd to filtre withal. See EMPORETICA, FILTER, *&c.*

CHARTA is also us'd in our antient Customs for a *Charter*, or Deed in Writing. See CHARTER.

CHARTA *Magna*, the Great *Charter*, is an antient Instrument, containing several Privileges and Liberties granted to the Church and State, by *Edward* the Confessor; together

ther with others relating to the Feudal Laws of *William* the Conqueror, granted by *Henry* I. all confirm'd by the ſucceeding Princes above thirty times. See MAGNA *Charta*.

CHARTA *de Foreſta*. See CHARTER *of the Foreſt*.

CHARTA *Simplex*, is a ſingle Deed, or Deed-Poll. See DEED.

CHARTA *Pardonationis ſe defendendo*, is the form of a Pardon for killing another Man in his own defence. See MANSLAUGHTER.

CHARTA *Pardonationis Utlagariæ*, is the form of Pardon of a Man who is outlaw'd. See OUTLAWRY.

CHARTEL, or CARTEL, a Letter of Defiance; or a Challenge to ſingle Combat; much in uſe when thoſe Combats were practis'd, for the deciding of difficult, and not otherwiſe to be determin'd Controverſies at Law. See COMBAT, DUEL, CHAMPION, &c.

CHARTER, or CHARTA, an Inſtrument, or written Evidence of a thing under the Seal of a Prince, Lord, Church, Chapter, or Community.

Bracton ſays, Donations are ſometimes made in *Charters*, *in perpetuam rei Memoriam*. He adds, that of *Charters* ſome are *Royal*, others of private Perſons.

Of *Royal*, ſome are Private, ſome Common, ſome Univerſal.

Of *private Charters*, ſome are *de puro Feoffamento*, others *de conditionali Feoffamento*, others of *Recognition*, *pure* or *conditional*, others of *Confirmation*, &c.

CHARTERS *of the King*, are thoſe whereby a King makes a Grant to a Perſon, or Community; *v. g.* a *Charter of Exemption*, that a Perſon ſhall not be impanell'd on a Jury, &c.

CHARTER *of Pardon*, is that whereby a Perſon is forgiven a Felony, or other Offence againſt the King's Crown and Dignity. See PARDON.

CHARTER *of the Foreſt*, is that wherein the Laws of the Foreſt are compriz'd and eſtabliſh'd, together with the *Magna Charta*, or *Great Charter*. See FOREST.

Great CHARTER, or *Magna Charta*. See MAGNA *Charta*.

The Word *Charter* comes from the Latin *Charta*, antiently us'd for a publick or authentick Act, a Donation, Contract, &c. from the *Greek* χάρτης, *thick Paper*, or *Paſt-board*, whereon publick Acts were uſed to be wrote.

CHARTER-*Houſe*. See CHARTREUSE.

CHARTER-*Land*, in Law, is ſuch as a Man holds by *Charter*, that is, by Evidence in writing; otherwiſe call'd *Freehold*. See FREEHOLD.

This the *Saxons* call'd *Bockland*: which *Lambard* renders, *Terra ex ſcripto*. See BOCKLAND.

It was held on more eaſy Conditions than the *Folkland*; or *Terra ſine ſcripto*, held without writing: the former being *hæreditaria*, *libera & immunis*; whereas the latter *cenſum penſitabat annuum atque officiorum quadam ſervitute erat obligatus*. See FOLKLAND.

CHARTERPARTY, in Commerce, the Inſtrument of Freightage; or Articles of Agreement for the Hire of a Veſſel; or the Invoice or Cargo of a Veſſel. See FREIGHT, &c.

The *Charterparty* is to be in writing; and to be ſign'd both by the Proprietor, or the Maſter of the Ship; and the Merchant who freights it.

The *Charterparty* is to contain the Name and the Burden of the Veſſel; thoſe of the Maſter and the Freighter; the Price or Rate of Freight; the Time of loading and unloading; and the other Conditions agreed on.

'Tis properly a Deed, or Policy, whereby the Maſter or Proprietor of the Veſſel engages to furniſh immediately a tight ſound Veſſel, well equipp'd, caulk'd and ſtopp'd, provided with Anchors, Sails, Cordage, and all other Furniture to make the Voyage requir'd, as Equipage, Hands, Victuals, and other Munitions; in conſideration of a certain Sum to be paid by the Merchant for the Freight. Laſtly, the Ship, with all its Furniture, and the Cargo, are reſpectively ſubjected to the Conditions of the *Charterparty*.

The *Charterparty* differs from a *Bill of Lading*, in that the firſt is for the entire Freight, or Lading, and that both for going and returning; whereas the latter is only for a Part of the Freight, or at moſt only for the Voyage one way.

The Preſident *Boyer* ſays, the Word comes from hence, that *per medium Charta ineidebatur*, & *ſic fiebat Charta partita*; becauſe in the Time when Notaries were leſs common, there was only an *Act of Convention* for both Parties: this they cut in two, and gave each his Portion, and join'd them together at their Return, to know if each had done his Part. This he obſerves to have ſeen practis'd in his Time; agreeable to the Method of the *Romans*, who, in their Stipulations, us'd to break a Staff, each Party retaining a Moiety thereof as a Mark.

CHARTIS *Reddendis*, a Writ which lies againſt him that has *Charters* of Feoffment intruſted to his keeping, and refuſeth to deliver them to the Owner.

CHARTOPHYLAX, an Officer in the Church of *Conſtantinople*.

Codin calls the *grand Chartophylax* the Judge of all Cauſes, and the right Arm of the Patriarch. He adds, that he was the Depoſitory or Keeper of all the *Charters* relating to the Eccleſiaſtical Rights; that he preſided over Matrimonial Cauſes, and was Judge of all the Clergy. He drew up all Sentences and Deciſions of the Patriarch, who ſign'd and ſeal'd them; preſided in the grand Council of the Patriarch, took cognizance of all Matters and Cauſes Eccleſiaſtical and Civil, whether among the Clergy, the Monks, or the People.

He took place of all the Biſhops; tho himſelf only a Deacon; and, on occaſion, diſcharg'd the Functions of the Prieſts: He had twelve Notaries under him.

The *Chartophylax* was the ſame at *Conſtantinople* with the *Chartulary* at *Rome*. See CHARTULARY.

There were, in reality, two Officers who bore this Title; the one for the Court, the other for the Patriarch; the firſt call'd alſo *Regiſtrator*, and the latter *Scrinarius*: tho the two are uſually confounded together. *Leunclavius*, and others, confound *Chartophylax* with *Chartulary*.

The Word is form'd from χάρτα, and φυλάτ]ω, *Cuſtodio*; and ſignifies *Charter-keeper*.

CHARTREUSE, a Monaſtery of *Carthuſians*; ſo call'd from the Name of a ſteep rocky Place, in a frightful Deſart five Leagues from *Grenoble* in *France*; where S. *Bruno* retir'd from the World, and firſt inſtituted the Order of *Carthuſians*. See CARTHUSIAN.

The Name has ſince paſs'd to all Houſes of *Carthuſians*; and that near *Grenoble*, is now diſtinguiſh'd by the Name of the *great Chartreuſe*.

That of *London*, corruptly call'd *Charterhouſe*, is now converted into a College, call'd from its Founder *Sutton's Hoſpital*; firſt endow'd, with 4000 *l. per Annum*, ſince improv'd to 6000.

It is to conſiſt of decay'd Gentlemen, Soldiers, and Merchants; eighty of whom have a plentiful Maintenance of Diet, Lodging, Clothes, Phyſick, &c. living together in a Collegiate manner; and of Scholars, or Youths, 44 of whom are taught, and ſupply'd with Neceſſaries, and ſuch of them as are fit for the Univerſity ſent thither, with an Exhibition of 20 *l. per Annum*, for eight Years; the reſt put to Trades.

For the Superintendency of this Hoſpital, there are 13 Overſeers, or Regulators, appointed by the King's Letters Patent under the Great Seal; and thoſe of the prime Quality. The ordinary Officers are, a Maſter, Preacher, Regiſter, Treaſurer, School-Maſter, &c.

CHARTREUX, Religious of the Order of S. *Bruno*, call'd alſo *Carthuſians*. See CARTHUSIANS.

CHARTULARY, CHARTULARIUS, a Title given to an antient Officer in the *Latin* Church, who had the Care of *Charters* and Papers relating to publick Affairs.

The *Chartulary* preſided in Eccleſiaſtical Judgments, in lieu of the Pope.

In the *Greek* Church, the *Chartulary* was call'd *Chartophylax*; but his Office was there much more conſiderable; and ſome even diſtinguiſh the *Chartulary* from the *Chartophylax* in the *Greek* Church. See CHARTOPHYLAX.

CHASE, in Law, is us'd for a driving of Cattel to or from any Place; as to a Diſtreſs, a Fortlet, &c.

CHASE, or CHACE, is alſo a Place of Retreat for Deer and wild Beaſts; of a middle kind, between a *Foreſt* and a *Park*; being uſually leſs than a Foreſt, and not poſſeſs'd of ſo many Privileges; but wanting, *v.g.* Courts of *Attachment*, *Swanimote*, and *Juſtice Seat*. See FOREST.

Yet is it of a larger Extent, and ſtock'd both with a greater Diverſity of wild Beaſts, or Game, and more Keepers than a Park. See PARK.

Crompton obſerves, that a Foreſt cannot be in the Hands of a Subject, but it forthwith loſes its Name, and becomes a *Chaſe*; in regard, all thoſe Courts loſe their Nature when they come into the Hands of a Subject; and that none but the King can make a Lord Chief Juſtice in Eyre of the Foreſt. See JUSTICE *in Eyre*.

Yet the ſame Author adds, that a Foreſt may be granted by the King to a Subject, in ſo ample a manner, as that there may be a Court of *Attachment*, *Swanimote*, and a Court equivalent to a *Juſtice Seat*.

CHASE, in the Sea Language, is to purſue a Ship; which is call'd alſo *giving Chaſe*.

A *ſtern* CHASE, is when the *Chaſer* follows the *Chaſed* a-ſtern, directly upon the ſame Point of the Compaſs. To lie with a Ship's Fore-foot *in a Chaſe*, is to ſail, and meet with her by the neareſt Diſtance, and ſo to croſs her in her Way, or to come a-croſs her Fore-foot.

A Ship is ſaid to have *a good Chaſe*, when ſhe is ſo built forward on, or a-ſtern, that ſhe can carry many Guns to ſhoot forwards or backwards; and ſo hath either *a good forward*, or *good ſtern Chaſe*.

CHASE-*Guns*, are ſuch whoſe Ports are either in the Head (and then they are uſed in *chaſing* of others) or in the Stern, which are only uſeful when they are purſu'd or *chas'd* by any other Ship. See GUN.

CHASE *of a Gun*, is the whole Bore, or Length of a Piece taken within side. See GUN.

CHASING, a Method of working, or enriching Gold, Silver, &c. properly call'd *Enchasing*. See ENCHASING.

CHASM. See HIATUS.

CHATELET, antiently signify'd a little Castle, or Fortress, wherein the *Chatelain*, or Governour lodg'd. See CASTLE.

At present, the Term is us'd for certain Courts of Justice establish'd in several Cities in *France*: The *grand Chatelet* in *Paris*, *v. g.* is the Place where the Presidial, or ordinary Court of Justice of the Prevot of *Paris* is kept; consisting of a Presidial, a Civil Chamber, criminal Chamber, and a Chamber of Policy. The Term signifies the same at *Montpelier*, *Orleans*, &c.

The little *Chatelet* at *Paris*, is an antient Fort, now serving as a Prison.

The Word is a Diminutive of *Chateau*, form'd from *Castellum*, a Diminutive of *Castrum*; or from *Castelletum*, a Diminutive of *Castellum*.

CHATTELS, *Catals*, *Catalla*, a *Norman* Term, under which were antiently comprehended all moveable Goods; those immoveable being term'd *Fief*, or, as we now say, *Fee*.

But in the modern Sense of the Word, *Chattels* are all sorts of Goods, moveable or immoveable, except such as are in the Nature of Freehold, or Parcel thereof.

Chattels are either *Personal*, or *Real*.

CHATTELS *Personal*, are such as do either belong immediately to the Person of a Man, as his Horse, Sword, &c. or such Things as being injuriously with-held from him, a Man has no way to recover but by Personal Action.

CHATTELS *Real*, are either such as do not appertain immediately to the Person, but to some other thing, by way of Dependance; as Charters of Land, Apples upon a Tree, &c. or such as necessarily issue out of some immoveable Thing to a Person; as a Lease, or Rent for Years.

Spelman defines *Chattels* to be *Bona quæcunque mobilia & immobilia; propriè tamen ea bonorum pars, quæ in animalibus consistat, à quorum* capitibus *res ipsæ*, *alias* capita, *aliàs* capitalia *dictæ sunt.*

CHAUNTRY, or CHANTRY, was antiently a Church, or Chapel endow'd with Lands, or other yearly Revenue, for the Maintenance, formerly, of one or more Priests, daily saying or singing Mass for the Souls of the Donors, and such others as they appointed.

Hence, CHAUNTRY *Rents*, are Rents paid to the Crown by the Servants, or Purchasers of *Chauntry Lands*.

CHAUF-WAX. } See { CHAFE-WAX.
CHAUSSE-TRAPE. } See { CALTROP.

CHAZINZARIANS, a Sect of Hereticks, who rose in *Armenia* in the VIIth Century.

They are also call'd *Staurolatræ*, which, in *Greek*, signifies the same as *Chazinzarian* in *Armenian*, viz. *Adorer of the Cross*; they being charg'd with adoring the Cross alone.

In other Respects they were *Nestorians*; and admitted two Persons in Jesus Christ. Tho they had further Singularities, recounted by *Nicephorus*, L. xviii. c. 54. particularly their holding an annual Feast, in Memory of the Dog of their false Prophet *Sergius*; which they call'd *Artzibartzes*.

The Word is form'd of the *Armenian Chazus*, Cross. In the *Greek* Text of *Nicephorus*, they are call'd *Chatzintzarians*, χατζιντζαριοι.

CHECK *Roll*, a Book containing the Names of such as are Attendants, and in pay to the King, or other great Persons; as their Houshold Servants.

It is otherwise call'd the *Chequer Roll*. See ROLL.

Clerk of the CHECK, is an Officer in the King's Houshold, who has the *Check* and Controulment of the Yeomen of the Guard, and all the Ushers belonging to the Royal Family. See YEOMAN, &c.

CHECK, in Falconry, is where a Hawk forsakes her natural Flight, to follow Rooks, Pies, or other Birds that come in sight.

CHECKER. See EXCHEQUER.

CHECKY, in Heraldry, is where the Shield, or a part thereof, as a *Bordure*, &c. is *checquer'd*, or divided into *Checquers*, or Squares.

Where there is but one Row of Squares, it is not properly call'd *Checky*, but *Countercomponed*. See COUNTER-COMPONED.

Checky, according to *Colombiere*, is one of the most noble and antient Figures in all Armory; and ought never to be given, but to Persons who have distinguish'd themselves in War: for it represents a Chess-Board, which it self is a Representation of a Field of Battel. The Pawns and Men, plac'd on both Sides, represent the Soldiers of the two Armies; which move, attack, advance, or retire, according to the Will of the two Gamesters, who are the Generals. See CHESS.

Checky is always compos'd of Metal, and Colour. Some Authors would have it rank'd among the Sorts of Furs.

When the whole Escutcheon is *chequer'd*, it should ordinarily contain six Ranges: There is no need of blazoning to express 'em; only it must be observ'd, to begin to blazon by the first Square, which is in Chief on the Dexter side. So that if that be *Or*, and the next *Gules*, the House or Family is said to bear *Checky Or and Gules*. When the whole Shield is not *checquer'd*, but only the Chief, a Bend, Cross, or the like, the Number of Ranges should be express'd.

CHEEKS, a general Name, among Mechanicks, for almost all those Pieces of their Machines and Instruments, that are double, and perfectly alike.

The *Cheeks* of a Printing Press, are its two principal Pieces: they are plac'd perpendicular and parallel to each other; serving to sustain the three Sommers, *viz.* the Head, Till, and Winter, which bear the Nut, Spindle, and other Pieces of the Machine. See PRINTING *Press*.

The *Cheeks of a Lathe*, are two long pieces of Wood, between which are plac'd the *Puppets*, which are either pointed, or otherwise; serving to support the Work, and the Mandrils of the Workman. These two Pieces are plac'd parallel to the Horizon, separated from one another by the Thickness of the Tail of the Puppets, and join'd with Tenons to two other Pieces of Wood, plac'd perpendicularly; call'd the *Legs of the Lathe*. See LATHE.

Cheeks of the Glasier's Vice, are two pieces of Iron, join'd parallel at top and bottom; in which are the Axis, or Spindles, little Wheel, Cushions, &c. whereof the Machine is compos'd. See VICE.

CHEESE, a popular Food; being a Preparation of Milk curdled by means of Rennet, dry'd, and harden'd. See MILK, RENNET, &c.

Cheese is nothing but Milk purg'd of its Serum, or Whey; and sometimes too of the Cream, or butyrous Part of the Milk. See BUTTER.

Cheese, when new, is found to load the Stomach, by reason of its Moisture and Viscidity; and when too old, heats and inflames it by its Salts. The Physicians advise it to be eat in small Quantities; hence that *Latin* Verse,

Caseus ille bonus quem dat avara manus.

Dr. *Quincy* says, it cannot be too old: 'Tis certain, the more it abounds with Salts, the more will it contribute to Digestion, and the clearing of the Stomach of other Food.

Indeed some condemn all use of *Cheese*; sheltering themselves under that antient Maxim, *Caseus est nequam quod omnia concoquit se-quam.*

CHEF. See CHIEF.

CHEF *d'Oeuvre*. See MASTERPIECE.

CHEG, CHERIF, the Prince, or High-Priest of *Mecca*, and the sovereign Pontiff of all the Mussulmans; being own'd as such by all the several Sects into which they are divided.

The Grand Signior, Sophies, Mogols, Kans of *Tartary*, &c. send him yearly Presents; especially Tapestry, to cover *Mahomet*'s Tomb withal, and Tents for himself: for the *Cheg* has a Tent near the Mosque of *Mecca*, wherein he lives during the 17 Days of Devotion in the Pilgrimage to *Mecca*. The Tapestry and Tent are chang'd each Year, and Pieces thereof sent to the Princes who furnish new ones.

His Revenue is very considerable, consisting of Presents made by the *Mahometan* Princes, and Pilgrims, to the Mosque of *Mecca* and *Medina*.

The *Cheg* subsists all the Pilgrims during the 17 Days of Devotion; on which account, he is every Year furnish'd with a very considerable Sum of Money from the Grand Signior: The better to obtain this, he makes him believe, that there are constantly, during this Time, 70 thousand Pilgrims; and that should the Number fall short, the Angels, in form of Men, would make it up.

CHELONITES, in Natural History, a Stone found in the Bellies of young Swallows; much esteem'd by some for the falling Sickness.

There is also a Stone bearing the same Name found in the *Indian* Tortoises, which is said to have the Faculty of resisting Poison. Some confound it with the *Crapaudin*, or *Toadstone*.

The Stone takes its Name from χελιδὼν, a *Swallow*.

CHELSEY-*College*, or *Hospital*. See HOSPITAL.

CHEMISE, in Fortification, is a Wall wherewith a Bastion, or any other Bulwark of Earth, is lin'd; for its greater Support and Strength.

Or it is the Solidity of the Wall, from the *Talus* to the Row. See WALL, &c.

Fire CHEMISE, is a piece of Linen Cloth, steep'd in a Composition of Oil of Petreola, Camphor, and other combustible Matters; us'd at Sea, to set fire to the Enemy's Vessel.

CHERRY *Brandy*, a Drink made of Plain *Brandy*, with the Addition of *Cherries*. See BRANDY.

The *Cherries* commonly us'd therein are of the black Kind; with these, a Bottle being half fill'd, is fill'd up with *Brandy*, or Spirits. The whole to be shaken up now and

and then; and in a Month's time it becomes fit for use.

To sweeten it, and improve the Flavour, some chuse to put in Sugar, with a Quantity of Rasberries.

CHERSONESUS, in Geography, a *Peninsula*; or a Continent almost incompass'd round with the Sea, only joining to the main Land by a narrow Neck, or *Isthmus*. See PENINSULA.

This Term is us'd by the Moderns, in Complaisance to the Antients, who call'd all their Peninsulas by this Name: Accordingly, such Places as were hereby distinguish'd among them, retain the Name among us; as the *Chersonesus of Peloponnesus, of Thrace, Chersonesus Cimbrica, Aurea*, &c.

The Word is *Greek*, χερσονεσος, which signifies the same thing.

CHERUB, or CHERUBIN, a Celestial Spirit, which, in the Hierarchy, is plac'd next in order to the *Seraphim*. See HIERARCHY.

They are painted red, to signify that they are inflam'd with the Love of God.

The Word is form'd of the *Hebrew* כרוב *Cherub*; the Plural whereof is *Cherubim*.

CHERUB is also the Name of an antient Military Order in *Sweden*, otherwise call'd the Order of *Seraphim*. It was instituted by *Magnus* IV. in 1334; and abolish'd by *Charles* IX. It took its Denomination from the golden Figures of *Cherubim*, whereof the Collar of the Order was compos'd.

CHESS, a fashionable Game, perform'd with little round Pieces of Wood, on a Board divided into 64 Squares; where Art and Address are so indispensibly requisite, that Chance seems to have no place; and a Person never loses but by his own Fault.

On each side are eight Men, and as many Pawns, which are to be mov'd and shifted, according to certain Rules and Laws of the Game.

Donatus, on *Terence's Eunuch*, observes, that *Pyrrhus*, the most knowing and expert Prince of his Age, ranging a Battle, made use of the Men at *Chess* to form his Designs; and to shew the Secrets thereof to others. *Vopiscus*, in his Life of *Proculus*, informs us, that one of the *Roman* Emperors had the Title *Augustus* given him, because of his gaining ten Games at *Chess* successively. *Tamerlane* is recorded as a very expert Gamester at *Chess*.

Chess is doubtless a most antient and universal Game: The common Opinion is, that it was invented by *Palamedes* at the Siege of *Troy*. Others attribute the Invention to *Diomedes*, who liv'd in the Time of *Alexander*: The Romance of the Rose ascribes it to one *Attalus*; but the Truth is, the Game is so very antient, there is no traceing its Author.

In *China* it makes a considerable Part of the Education of their Maids, and seems to take the Place of the Dancing among us. In *Spain*, whole Cities challenge each other at *Chess*.

John of *Salisbury* relates, that in a Battel between the *French* and *English*, in 1117, an *English* Knight seizing the Bridle of *Louis le Gros*, and crying to his Comrades *The King is taken*, that Prince struck him to the Ground with his Sword, saying, *Ne scais tu pas qu aux echecs on ne prend pas le Roy?*

Cardinal *Cajetan*, and other Casuists, rank *Chess* in the Number of prohibited Games; as requiring too much Application: And *Montaign* blames it as too serious for a Game.

Sarrasin has a precise Treatise on the different Opinions of the Origin of the Latin *Schacchi*; whence the French *Echecs*, and our *Chess*, is form'd. *Menage* is also very full on the same Head. *Leunclavius* takes it to come from *Uscoques*, a famous *Turkish* Robber: *P. Sirmond* from the German *Schach*, Thief; and that from *Calculus*. He takes *Chess* to be the same with the *Ludus Latrunculorum* of the *Romans*, but mistakenly. This Opinion is countenanc'd by *Vossius* and *Salmasius*, who derive the Word from *Calculus*, as us'd for *Latrunculus*. *G. Tolosanus* derives it from the Hebrew *Schach, vallavit & mat, mortuus*; whence *Chess* and *Chess-mate*.

Fabricius says, a celebrated *Persian* Astronomer, one *Scatrenseca*, invented the Game of *Chess*; and gave it his own Name, which it still bears in that Country. *Nicod* derives it from *Scheque*, or *Xeque*, a *Moorish* Word for Lord, King, and Prince: *Bochart* adds, that *Scach* is originally *Persian*, and that *Scachmat*, in that Language, signifies the King is dead. The Opinion of *Nicod* and *Bochart*, which is likewise that of *Scriverius*, appears the most probable.

CHEST, in Commerce, a kind of Measure, containing an uncertain Quantity of several Commodities. See MEASURE.

A *Chest of Sugar, v. g.* contains from 10 to 15 hundred Weight: A *Chest of Glass*, from 200 to 300 Foot; *of Castle Soap*, from $2\frac{1}{2}$ to 3 hundred Weight; *of Indigo*, from $1\frac{1}{2}$ to 2 hundred Weight; five Score to the hundred.

CHEVAGE, or CHIEFAGE, according to *Bracton*, signifies a Tribute by the Head; or a kind of Poll-Money antiently paid by such as held Lands in Villanage, or otherwise, to their Lords, in acknowledgment. See POLL.

The Word seems also to have been us'd for a Sum of Money yearly given to a Man of Power, for his Patronage and Protection, as to their *Chief*.

In the first Sense, *Coke* observes, there is still a kind of *Chevage* subsisting in *Wales*, call'd *Amabyr*; paid to the Prince of *Wales* for the Marriage of his Daughters; antiently by all, now only by some. *Lambard* writes it *Chivage*. The *Jews*, while allow'd to live in *England*, paid *Chevage*, or Poll-Money; *viz.* three Pence *per* Head, paid at *Easter*.

The Word is form'd of the French *Chef*, Head.

CHEVAL *de Frise*, a large piece of Timber pierc'd, and travers'd with wooden Spikes, arm'd or pointed with Iron, five or six Foot long.

Its Use is to defend a Passage, stop a Breach, or make a Retrenchment to stop the Cavalry.

'Tis sometimes also mounted on Wheels, with Artificial Fires, to roll down in an Assault.

Errard observes, that the Prince of *Orange* us'd to inclose his Camp with *Chevaux de Frise*, laying them over one another.

The Term properly signifies a *Friseland Horse*; as having been first invented in that Country.

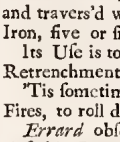
In a Medal of *Licinius*, is found a kind of *Cheval de Frise*, made with Spikes interpos'd; serving to express a fortify'd Camp.

CHEVALIER, a *French* Term, ordinarily signifying a *Knight*. See KNIGHT.

It is us'd, in Heraldry, to signify any *Cavalier*, or Horseman arm'd at all Points; by the *Romans* call'd *Cataphractus Eques*, now out of use, and only to be seen in Coat-Armour. See EQUES, MILES, CATAPHRACTUS, &c.

The Word is form'd of the French *Cheval*, Horse; and that of the Latin *Cavallus*.

CHEVELEE, a Term us'd by the *French* Heralds, to express what we commonly call *Streaming*; *i.e.* the Stream of Light darting from a Comet, by Astronomers call'd its *Beard*.



CHEVERON, or CHEVRON, in Heraldry, one of the honourable Ordinaries of a Shield; representing two Rafters of a House join'd together, without any Division. See ORDINARY, &c.

It descends from the *Chief* towards the Extremities of the Coat, in form of a Pair of Compasses half open: Thus, he bears *Gules, a Cheveron Argent*.

The *Cheveron* is the Symbol of Protection, say some, or of Constancy, according to others: Some say it represents the Knight's Spurs; others the Head-Attire of Priestesses; others a piece of the List, or the Barrier or Fence of a Park.

When it is alone, it should take up the third Part of the Coat: When 'tis accompany'd with any other Bearings, its Breadth must be adjusted thereby.

It is bore divers ways; sometimes in *Chief*, sometimes in *Base*, sometimes *enarch'd*, sometimes *revers'd*, &c.

The *Cheveron* is sometimes charg'd with another *Cheveron*, $\frac{1}{3}$ of its Height.

Two *Cheverons* are allow'd in the same Field, but not more; when they exceed that Number, they are call'd *Cheveronwise*, or *Cheveronels*. There are *Cheverons* of several Pieces.

A *Cheveron* is said to be *abaiss'd*, when its Point does not approach the Head of the Chief, not reach farther than the Middle of the Coat; *mutilated*, when it does not touch the Extremes of the Coat; or *cloven*, when the upper Point is taken off, so that the Pieces only touch at one of the Angles; *broke*, when one Branch is separated into two Pieces; *couched*, when the Point is turn'd towards one side of the Escutcheon; *divided*, when the Branches are of several Metals, or when Metal is oppos'd to Colour; *inverted*, when the Point is towards the Point of the Coat, and its Branches towards the Chief.

A Coat is said to be *Cheveroned*, when it is fill'd with an equal Number of *Cheverons*, of Colour and Metal.

Countercheveron'd, is when it is so divided, as that Colour is oppos'd to Metal, and *vice versa*.

Per CHEVERON, or *Party per* CHEVERON, is when the Field is divided by only two single Lines, rising from the two Base Points, and meeting in a Point above, as the *Cheveron* does.

CHEVERONEL, is a Diminutive of *Cheveron*; and as such only contains half a *Cheveron*.

CHEVRONEE, or CHEVRONNY, signifies the Parting of the Shield several times *Cheveronwise*. *Gibbon* says, *Cheveronne of six*.

CHIAOUS, an Officer in the Grand Signior's Court, doing the Business of an Usher.

He bears Arms offensive and defensive; and has the Care of Prisoners of Distinction. His Badge is a Staff cover'd with Silver, and he is arm'd with a Scimiter, Bow, and Arrow.

The Emperor usually chuses one of this Rank to send as Embassador to other Princes.

The Word, in the original *Turkish*, signifies Envoy.

The *Chiaous* are under the Direction of the *Chiaous-Bascbi*, an Officer who assists at the *Divan*, and introduces those who have Business there.

CHICANE, or *Chicanry*, in Law, an Abuse of Judiciary Proceeding, tending to delay the Cause, and deceive or impose on the Judge or the Parties.

The *French* call Sollicitors, Attornies, *&c.* the *Gens de Chicane*.

CHICANE is also us'd in the Schools, for vain Sophisms, Distinctions, and Subtilties, which immortalize Disputes, and obscure the Truth; as the *Chicane* of Courts does Justice.

Menage derives the Word from *Cicum*, the Skin of a Pomegranate; whence the *Spaniards* have form'd their *Chico*, little, slender; *Chicane* being conversant about Trifles.

CHIEF, a Term denoting Head; or a principal Thing, or Person.

The Word is form'd of the French *Chef*, Head; of the *Greek* κεφαλὴ, *Caput*, Head: tho *Menage* derives it of *Capo*, form'd of the Latin *Caput*.

Thus, we say, the *Chief of a Party*; the *Chief of a Family*, &c. Agamemnon *was the Chief of the* Greeks *who besieg'd* Troy: *The* Romans *sometimes refus'd Triumphs to their victorious Generals; by reason the Conduct of the* Chief *was not answerable to his Success*. See TRIUMPH. *The Abbeys that are* Chiefs *of their Order are all Regular; and 'tis here the general Chapters are held*. See ABBEY.

CHIEF-*Justice*. See JUSTICE.

CHIEF *Lord*, is the Feudal Lord, or Lord of an Honour, on whom others depend. See LORD; see also HONOUR.

Holding in CHIEF. See CAPITE.

CHIEF, *Chef*, in Heraldry, is the upper Part of the Escutcheon, reaching quite across from side to side. See ESCUTCHEON.

Thus, we say, *The Arms of* France *are* three golden Flower de Lys's, in a Field Azure; two in *Chief*, and one in Point.

Chief is more particularly us'd for one of the honourable Ordinaries, bore in the Coat. See ORDINARY.

'Tis plac'd athwart the Top of the Coat, and is to contain one third Part of its Height. When the Escutcheon is cut in Stone, or in Relievo, the *Chief* stands out prominent beyond the rest; and is suppos'd to represent the Diadem of the antient Kings and Prelates; or the Cask of the Knights.

It is frequently without any Ornament: sometimes 'tis charg'd with other Bearings; sometimes 'tis of a Colour or Metal different from that of the Coat.

The Line that bounds it at Bottom is sometimes *strait*, sometimes *indented*, *engrail'd*, *embattel'd*, *lozenged*, &c. Thus, say they, *The Field is Gules, a* Chief *Argent*, &c. again, *He bears Gules, a* Chief *Crencle, or embattel'd Argent*.

Sometimes one *Chief* is born on another; express'd by a Line drawn along the upper Part of the *Chief*: When the Line is along the under Part, 'tis call'd a *Fillet*. The first is an Addition of Honour, the second a Diminution. See DIFFERENCE, *&c.*

The *Chief* is said to be *abaiss'd*, when 'tis detach'd from the upper Edge of the Coat, by the Colour of the Field which is over it; and which retrenches from it one third of its Height. We also say, *a Chief is cheveron'd*, *paled*, or *bended*, when it has a Cheveron, Pale, or Bend contiguous to it, and of the same Colour with it self. A *Chief* is said to be *supported*, when the two thirds at top are of the Colour of the Field, and that at bottom of a different Colour.

In CHIEF. By this is understood any thing born in the *Chief part*, or top of the Escutcheon.

CHIEF-*Pledge*, the same as *Headborough*. See HEADBOROUGH.

CHIEF-*Point*. See POINT.

CHIEFTAIN, the *Chief*, Leader, or General of an Army, *&c.* See CHIEF, and GENERAL.

CHILBLAIN, in Medicine, a Tumor afflicting the Feet and Hands; accompany'd with an Inflammation, Pain, and sometimes an Ulcer, or Solution of Continuity. See TUMOR.

Chilblains, by Physicians call'd *Perniones*, are occasion'd by excessive Cold stopping the Motion of the Blood in the Capillary Arteries. See PERNIO.

The Tumor, from white, generally inclines to blueness. Petroleum laid on the Part, either prevents *Chilblains*, or cures 'em.

CHILD, a Term of Relation to *Parent*. See PARENT; see also MALE, and FEMALE.

We say, *Natural Child*, *Legitimate Child*, *Putative Child*, *Bastard Child*, *Adoptive Child*, *Posthumous Child*. See NATURAL, PUTATIVE, BASTARD, ADOPTIVE, POSTHUMOUS, *&c.*

Mr. *Derham* computes, that Marriages, one with another, produce four *Children*; not only in *England*, but in other Parts also. See MARRIAGE.

In the Genealogical History of *Tuscany*, wrote by *Gamarini*, mention is made of a Nobleman of *Sienna*, named *Piebi*, who of three Wives had 150 *Children*; and that, being sent Embassador to the Pope and the Emperor, he had 48 of his Sons in his Retinue.

In a Monument in the Church-yard of St. *Innocent*, at *Paris*, erected to a Woman who dy'd at 88 Years of Age, it is recorded, that she might have seen 288 *Children* directly issu'd from her. But this is far short of what *Hakewill* relates of Mrs. *Honeywood*, a Gentlewoman of *Kent*, born in the Year 1527, and marry'd at 16 to her only Husband *R. Honeywood* of *Charing*, Esq; and dy'd in her 93d Year.

She had 16 *Children* of her own Body; of which three dy'd young, and a fourth had no Issue: yet her *Grandchildren*, in the second Generation, amounted to 114; in the third to 228, and in the fourth to 900, all in her Lifetime: So that she could say the same as the Distich does of one of the *Dalburg*'s Family at *Basil*.

Mater ait Natæ dic Natæ filia Natam,
Ut moneat, Natæ, plangere filiolam.

Dr. *Harris* has an express Treatise *of the Diseases of Children*, *De Morbis acutis Infantum*. He takes 'em all to arise from the Humours in the *primæ Viæ* growing sour, and degenerating into Acidities: which is confirm'd from their four Belches and Dejections. All that is requir'd to cure them, is to combat this Acidity; which is to be effected two ways; by disposing it to be evacuated, and by actual Evacuation by Rhubarb, and other gentle Purgatives.

To dispose the peccant Acid for Evacuation, no Sudorificks or Cordials to be us'd, those Remedies being too violent; but Crabs Eyes and Claws, Oyster-shells, Cuttlefish-bones, Egg-shells, Chalk, Coral, Pearls, Bezoar, burnt Ivory, Scrapings of the Unicorn's Horn, *Armenian* Bole, *Terra Sigillata*, and *Lapis Hæmatites*; the Goa Stone, and a sort of Confection of Hyacinth. But of all these, he prefers old Shells that have lain long on the Edge of the Sea, expos'd to the Sun; which is better than any Chymical Furnace.

CHILD-*Bed*. } See PARTURITION, and DELIVERY.
CHILD-*Birth*. }

CHILD-*Wit*, a Power to take a Fine of a Bond-Woman unlawfully gotten with *Child*.

Every reputed Father of a base *Child*, got within the Manor of *Writtel* in *Essex*, pays to the Lord for a Fine 3 *s.* 4 *d.* where, it seems, *Child-wit* extends to Free, as well as Bond-Women; *Quicumque fecerit* Child-wit, *Archiepiscopus aut totam, aut dimidiam Emendationis partem habebit, quietum esse de* Child-wit. *Du Cange*.

CHILDERMASS-*Day*, call'd also *Innocents Day*, an anniversary Feast of the Church, held on the 28th of *December*, in memory of the *Children* of *Bethlehem*, massacred by order of *Herod*. See FEAST.

Charity-CHILDREN. See CHARITY-*School*, HOSPITAL, *&c.*

CHILIAD, an Assemblage of several Things rang'd by *thousands*.

The Word is form'd of the *Greek* χίλιος, *Mille*, a thousand.

CHILIARCUS, an Officer in the Armies of the Antients, who had the Command of a thousand Men.

The Word comes from the *Greek* χίλιος, *thousand*, and ἀρχὴ, *command*.

CHILIASTS, a Sect of Religious. See MILLENARIES.

CHILMINAR, CHELMINAR, or *Tchelminar*, the noblest and most beautiful Piece of Architecture remaining of all Antiquity; being the Ruins of the famous Palace of *Persepolis*, to which *Alexander* the Great, being drunk, set fire, at the Persuasion of the Courtesan *Thais*. See RUINS.

Authors and Travellers are exceedingly minute in their Descriptions of the *Chilminar*; particularly *Garcios de Silva Figueroa*, *Pietro de la Valle*, *Chardin*, and *Le Brun*.

A general Idea thereof, may be conceiv'd as follows.

There appear the Remains of near fourscore Columns; the Fragments whereof are at least six Foot high: but there are only nineteen that can be call'd entire; with a twentieth all alone, 150 Paces from the rest.

A Rock of black hard Marble, serves for the Foundation of the Edifice.

The first Plan of the Building is ascended to by fourscore and fifteen Steps cut in the Rock. The Gate of the Palace is twenty Foot wide; on one side is the Figure of an Elephant, and on the other of a Rhinoceros, each thirty

Foot high, and of ſhining Marble. Near theſe Animals are two Columns; and not far off the Figure of a Pegaſus.

After this Gate is paſs'd, are found a great Number of Columns of white Marble; the Remains whereof ſhew the Magnificence of the Work: the ſmalleſt of theſe Columns is fifteen Cubits high, the largeſt eighteen; each has forty Flutings, three large Inches broad; whence the highneſs of the whole may be gueſs'd at, with the other Proportions. Near the Gate is an Inſcription on a ſquare piece of Marble, ſmooth as Glaſs, containing about twelve Lines: The Characters are of a very extraordinary Figure, reſembling Triangles and Pyramids.

Theſe noble Ruins are now the Shelter of Beaſts and Birds of Prey. Beſides the Inſcription abovemention'd, there are others in *Arabic*, *Perſian*, and *Greek*. Dr. *Hide* obſerves, that the Inſcriptions are very rude and unartful; and that ſome, if not all of them, are in praiſe of *Alexander* the Great, and therefore later than that Conqueror.

M. *Le Brun* tells us, that he took his Voyage to the *Eaſt-Indies* merely for the ſake of viewing the *Chilminar*.

The Word comes from the Perſian *Tchehelminar*, forty Towers, or Columns; on account of the forty Columns of an enormous ſize ſeen there.

CHIMERA, a fabulous Monſter, which the Poets feign'd to have the Head of a Lion, the Belly of a Goat, and the Tail of a Serpent; and to have been kill'd by *Bellerophon*, mounted on the Horſe *Pegaſus*.

The Foundation of the Fable is this; that antiently in *Lycia* there was a *Vulcano*, or burning Mountain of this Name; the top whereof, which was deſart, only inhabited by Lions; the middle, having good Paſtures, by Goats; and the foot, being marſhy, by Serpents. Thus *Ovid*,

——Mediis in partibus Hircum
Pectus, & ora Leæ, caudam Serpentis habebit.

Bellerophon being the firſt who caus'd this Mountain to be inhabited, 'twas feign'd he ſlew the *Chimera*. *Pliny* ſays, the Fire thereof would kindle with Water, and extinguiſh with nothing but Earth or Dung.

CHIMES *of a Clock*, a kind of periodical Muſick, produc'd at certain Seaſons of the Day, by a particular Apparatus added to a *Clock*. See CLOCK.

To calculate Numbers for the *Chimes*, and to fit and divide the *Chime*-Barrel, it muſt be obſerv'd, That the Barrel muſt be as long in turning round, as you are in ſinging the Tune it is to play.

As for the *Chime*-Barrel, it may be made up of certain Bars which run athwart it, with a convenient Number of Holes punch'd in them, to put in the Pins that are to draw each Hammer: by this means, the Tune may be chang'd, without changing the Barrel: Such is the *Royal Exchange* Clock in *London*, and others. In this caſe, the Pins, or Nuts, which draw the Hammers, muſt hang down from the Bar, ſome more, ſome leſs; and ſome ſtanding upright in the Bar: The reaſon whereof is to play the Time of the Tune rightly: for the Diſtance of each of theſe Bars may be a Semibreve; but the uſual way, is to have the Pins which draw the Hammers fix'd on the Barrel.

For the placing of theſe Pins, you may proceed by the way of Changes on Bells, *viz.* 1, 2, 3, 4, *&c.* or rather, make uſe of the Muſical Notes: where it muſt be obſerv'd, what is the Compaſs of the Tune, or how many Notes, or Bells, there are from the higheſt to the loweſt; and accordingly, the Barrel muſt be divided from end to end.

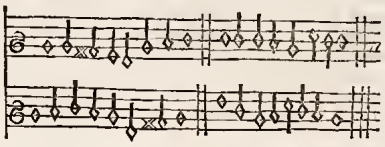
Thus, in the following Examples, each of thoſe Tunes are eight Notes in compaſs; and accordingly, the Barrel is divided into eight Parts. Theſe Diviſions are ſtruck round the Barrel; oppoſite to which are the Hammer-Tails.

We ſpeak here as if there was only one Hammer to each Bell, that it may be more clearly apprehended: but when two Notes of the ſame Sound come together in a Tune, there muſt be two Hammers to the Bell to ſtrike it: So that if in all the Tunes you intend to *chime* of eight Notes compaſs, there ſhould happen to be ſuch double Notes on every Bell; inſtead of eight you muſt have ſixteen Hammers; and accordingly you muſt divide the Barrel, and ſtrike ſixteen Strokes round it, oppoſite to each Hammer-Tail: Then you are to divide it round about, into as many Diviſions as there are Muſical Bars, Semibreves, Minims, *&c.* in the Tune.

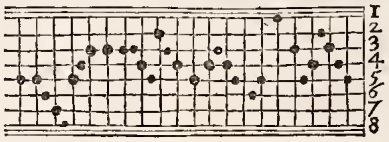
Thus, the hundredth Pſalm-Tune has twenty Semibreves, and each Diviſion of it is a Semibreve: the firſt Note of it alſo is a Semibreve; and therefore on the *Chime*-Barrel muſt be a whole Diviſion, from 5 to 5; as you may underſtand plainly, if you conceive the Surface of a *Chime*-Barrel to be repreſented by the following Tables; as if the cylindrical Superficies of the Barrel were ſtretch'd out at length, or extended on a Plane: and then ſuch a Table, ſo divided, if it were to be wrapp'd round the Barrel, would ſhew the Places where all the Pins are to ſtand in the Barrel: For the Dots running about the Table, are the Places of the Pins that play the Tune.

Indeed, if the *Chimes* are to be compleat, you ought to have a ſet of Bells to the Gamut Notes; ſo as that each Bell having the true Sound of *ſol*, *la*, *mi*, *fa*, you may play any Tune with its Flats and Sharps; nay, you may by this means play both the Baſs and Treble with one Barrel: and by ſetting the Names of your Bells at the head of any Tune, that Tune may eaſily be transferr'd to the *Chime*-Barrel, without any Skill in Muſick: But it muſt be obſerv'd, that each Line in the Muſick is three Notes diſtant; that is, there is a Note between each Line, as well as upon it.

The Notes of the 100 *Pſalm.*



A Table for dividing the Chime-*Barrel of the* 100 *Pſalm.*



CHIMIN, or CHEMIN, in Law, a Road, or Way. See ROAD. Hence,

CHIMINAGE, a Toll for Wayfarage thro' a Foreſt.

The Feudiſts call it *Pedagium*. See PEDAGE.

CHIMNEY, in Architecture, a part of an Apartment, wherein the Fire is made. See FIRE.

The Parts of a *Chimney* are the *Jambs*, or Sides, coming out perpendicularly, ſometimes circularly, *&c.* from the Back; the *Mantle-Tree* reſts on the Jambs: The *Tube*, or *Funnel*, which conveys away the Smoke; the *Chimney-piece*, or Moulding, on the foreſide of the Jambs over the Mantle-Tree; and the *Hearth*, or Fireplace.

Palladio ſettles the Proportions of a Chamber *Chimney* thus; Breadth on the Inſide, $5\frac{1}{2}$, 6, or 7 Foot; Height to the Mantle-Tree, 4 or $4\frac{1}{2}$; Depth, 2 or $2\frac{1}{2}$ Foot.

According to *Wolfius*, the Breadth of the Aperture at bottom to be to the Height, as 3 to 2, to the Depth as 4 to 2. In ſmall Apartments the Breadth is 3 Foot, in larger 5; in Bed-Chambers 4; in ſmall Banquetting Rooms $5\frac{1}{2}$, in large 6. But the Height never to exceed $2\frac{1}{2}$, leſt there being too much room for the Air and Wind, the Smoke be driven down into the Room. Nor muſt the Height be too little, leſt the Smoke miſs its way, and be check'd at firſt ſetting out. The ſame Author adviſes to have an Aperture, thro' which the external Air may, on occaſion, be let into the Flame, to drive up the Smoke; which the internal Air would otherwiſe be unable to do. See STOVE.

The Mouth of the Tube, or that part join'd to the *Chimney*-Back, *Felibien* orders to be a little narrower than the reſt; that the Smoke coming to be repell'd downwards, meeting with this Obſtacle, may be prevented from getting into the Room.

Some make the Funnel twiſted, to prevent the Smoke's deſcending too eaſily: but the better Expedient is to make the Funnel narrower at bottom than at top; the Fire impelling it upward more eaſily when contracted at bottom; and in mounting, it finds more ſpace to diſengage it ſelf, and therefore has leſs occaſion to return into the Chamber.

To prevent ſmoaking CHIMNEYS, M. *Lucar* adviſes two Holes, or two Pipes, one over the other, to be left in each ſide of the *Chimney*; one ſloping upwards, the other downwards: thro' one of theſe, ſays he, the Smoke will paſs in any poſition.

De l'Orme orders a Braſs Ball full of Water, with one ſmall Aperture, to be hung up in the *Chimney*, at a Height a little above the greateſt Flame: here, as the Water grows hot, 'twill rarefy and drive thro' the Aperture in a vapoury Stream, which will drive up the Smoke that wou'd otherwiſe linger in the Funnel.

Others place a kind of moveable Vane, or Weathercock a-top of the *Chimney*: ſo that what way ſoever the Wind comes, the Aperture of the *Chimney* will be ſkreen'd, and the Smoke have free egreſs. Indeed, the beſt prevention of a ſmoking *Chimney*, ſeems to lie in the proper Situation of the Doors of the Room, and the apt falling back of the Back, and convenient gathering of the Wings and Breaſt of the *Chimney*.

'Tis a Rule, in Building, that no Timber be laid within 12 Inches of the Foreſide of the *Chimney* Jambs; that all Joiſts on the Back of the *Chimney* be laid with a Trimmer,

mer, at 6 Inches distance from the Back; and that no Timber be laid within the Funnel.

Chimneys are usually suppos'd a modern Invention; the Antients only making use of Stoves: But *Octavius Ferrareus* endeavours to prove *Chimneys* in use among the Antients. To this End he cites the Authority of *Virgil*: *Et jam summa procul villarum culmina fumant*. And that of *Appian*, who says, 'That of those Persons proscrib'd by 'the Triumvirate, some hid themselves in Wells, and *Cloaca*, *Common-Shores*; some in the Tops of Houses, and 'Chimneys:' for so he understands καπνοδόκαις ὑποστέγοις, *Fumaria sub tecto posita*. Add, that *Aristophanes*, in one of his Comedies, introduces his old Man, *Polycleon*, shut up in a Chamber, whence he endeavours to make his Escape by the *Chimney*. However, the few Instances remaining among the Antients; together with the Obscurity of the Rules of *Vitruvius* on this Head, make us rather conclude the Use of Stoves, whereof they had entire Apartments, made 'em neglect this Point of Building, which the Coldness of our Climates obliges us to have a principal regard to.

In the Year 1713, appear'd a *French* Book, entitled, *La Mechanique du Feu*, or The Art of augmenting the Effects, and diminishing the Expence of Fire, by M. *Gauger*; since publish'd in *English*, by Dr. *Desaguliers*: wherein the Author examines what Disposition of *Chimneys* is most proper to augment the Heat; and proves Geometrically, that the Disposition of parallel Jambs, with the Back inclin'd, as in the common *Chimneys*, is less fitted for reflecting Heat into the Room, than parabolical Jambs, with the bottom of the Tablette horizontal.

He gives seven several Constructions of his new *Chimneys*, and the manner of executing them. See FIRE.

M. *Gauger*, however, does not appear to be the first Inventor of the *Chimney* he describes; the Description of a like Kind being found in a *German* Book, printed at *Leipsick*, in 1699.

The Word *Chimney* comes from the French *Cheminee*; and that from the Latin *Caminata*, a Chamber wherein is a *Chimney*: *Caminata*, again, comes from *Caminus*, and that from the *Greek* καμινος, *a Chimney*; of καιω, *uro*, I burn.

CHIMNEY-*Jambs*, are the Sides of a *Chimney*, usually standing out perpendicularly, sometimes circularly, from the Back; on the Extremities whereof the Mantle-Tree rests. See JAMB.

CHIMNEY-*Piece*, in Building, a Composition of certain Mouldings, of Wood or Stone, standing on the Foreside of the Jambs, and coming over the Mantle-Tree. See MANTLE-*Tree*.

CHIMNEY-*Money*, or *Hearth-Money*, a Tax impos'd by a Stat. 24 *Car.* II. expressing, that every Fire-Hearth and Stove of every Dwelling, and other Houses within *England* and *Wales*, except such as pay not to Church and Poor, shall be chargeable with two Shillings *per Annum*, payable at *Michaelmas* and *Lady-Day*, to the King and his Heirs. See SMOAK, CHIMNEY, and FUAGE.

CHINA, or CHINA-*Ware*, a fine sort of Earthen Ware, properly call'd *Porcelain*. See PORCELAIN.

CHINA-CHINA, a Name sometimes given to the *Quinquina*, or *Peruvian Bark*. See QUINQUINA.

CHINA-*Root*, a Medicinal Root, brought from the *East-Indies*.

It is of a ruddy brown Colour, bordering on black, without side; and white, or reddish, within. It grows chiefly in fenny Places, usually cover'd with the Sea; which, upon its withdrawing, leaves great Quantities thereof on the Shore: the best is that which is firm, ruddy, and fresh.

It is esteem'd a sweetner of the Blood; and us'd as such in Decoction, in Venereal and Scorbutick Cases.

CHINESE, or *Chinese Tongue*, the Language of the People of *China*. See LANGUAGE.

F. *le Comte* observes, that the *Chinese* has no analogy with any other Language in the World: It only contains 330 Words, which are all Monosyllables; at least, they are pronounc'd so close, that there is no distinguishing above one Syllable, or Sound, in them. But the same Word, as pronounc'd with a stronger or weaker Tone, has different Significations: Accordingly, when 'tis accurately spoke, it makes a sort of Musick, which has a real Melody, that constitutes the Essence and distinguishing Character of that Language.

As to *Chinese Characters*, they are as singular as the Language: the *Chinese* have not, like us, any Alphabet, containing the Elements, or as it were the Principles of their Words: In lieu of an Alphabet, they use a kind of Hieroglyphicks; whereof they have above 8000. See LETTER.

CHIN-COUGH, a Disease Children are chiefly subject to. It consists in a violent and immoderate *coughing*, to a Danger of Suffocation. Letting of Blood, and Balsamicks, are the usual Cure.

CHIRAGRA, in Medicine, the Gout in the Hands. See GOUT.

The *Chiragra* has its Seat in the *Carpus*, or extreme Part of the Hand, or the Ligaments and Junctures of the Fingers. The Word comes from the *Greek* χειρ, *manus*, Hand, and ἄγρα.

CHIROGRAPH, was antiently a Deed, which requiring a counterpart, was engross'd twice on the same piece of Parchment, counterwise; leaving a Space between, wherein was wrote *CHIROGRAPH*; thro' the middle whereof the Parchment was cut, sometimes strait, sometimes indentedly; and a Moiety given to each of the Parties.

This was afterwards call'd *Dividenda*, and *Chartæ divisæ*; and was the same with what we now call *Charter-Party*. See CHARTER-*Party*.

The first use of these *Chirographs* with us, was in the Time of K. *Henry* III. See INDENTURE.

According to some, a Deed was properly a *Chirograph*, when it was subscrib'd by the Hand-writing of the Vender, or Debtor, and deliver'd to the Buyer, or Creditor. These Authors make the *Chirograph* differ from a *Syngraph*, in this; that in the latter the Word *Syngraph* was wrote in the middle, and cut thro', in the manner just observ'd of *Chirograph*. These Authors therefore make the *Syngraph* the *Chirograph*; and the *Chirograph* a different thing.

The Word is compounded of the *Greek* χειρ, Hand; and γραφω, *scribo*, I write.

Chirograph was also antiently us'd for a Fine; and the manner of engrossing the Fines, and cutting the Parchment in two pieces, is still retain'd in the Office, call'd the *Chirographer's Office*. See CHIROGRAPHER.

CHIROGRAPHER *of Fines*, an Officer in the Common Pleas, who engrosses Fines in that Court, acknowledg'd into a perpetual Record (after they have been examin'd and pass'd by other Officers;) and who writes and delivers the Indentures thereof to the Party. He makes two Indentures, one for the Buyer, the other for the Seller; and a third indented Piece, containing the Effect of the Fine, and call'd *the Foot of the Fine*; and delivers it to the *Custos Brevium*. The same Officer also, or his Deputy, proclaims all Fines in Court every Term, and endorses the Proclamations on the backside of the Foot; keeping, withal, the Writ of Covenant and the Note of the Fine. See TABLING *of Fines*.

CHIROMANCY, the Art of divining the Fate, Temperament, and Disposition of a Person, by the Lines and Lineaments of the Hand; otherwise call'd *Palmistry*.

We have a Number of Authors on this vain and trifling Art; as *Artemidorus*, *Fludd*, and *John de Indagine*: *Taisnerus*, and M. *de le Chambre* have done the best.

This last insists on it, that the Inclinations may be known from inspecting the Hand; there being a very near Relation between the Parts of the Hand, and the internal Parts of the Body, the Heart, Liver, &c. whereon the Passions and Inclinations much depend. He adds, however, that the Rules and Precepts of *Chiromancy* are not sufficiently warranted, the Experiments whereon they stand not being well verify'd. He concludes, that there must be a new Set of Observations, made with Justness and Exactitude; in order to give *Chiromancy* the Form and Solidity which an Art or Science demands.

The Word comes from the *Greek* χειρ, *Hand*, and μαντεια, *Divination*.

CHIROTONIA, the Imposition of Hands, in conferring any Priestly Orders. See IMPOSITION.

The Word comes from the *Greek* χειροτονια, the Action of stretching out the Hands. And because the Antients gave their Suffrages by stretching out the Hands, they gave the Name *Chirotonia* to the Election of Magistrates. See PLEBISCITA, ORDINANCES, &c.

This Custom was first establish'd in *Greece*; as appears from an Oration of *Demosthenes* against *Neæra*, and that of *Æschines* against *Ctesiphon*: thence it pass'd to the *Romans*. From profane Authors it pass'd to Ecclesiastical ones; and was us'd by them, not only in Elections, but also in Ordinations.

CHIRURGERY, popularly call'd *Surgery*, the third Branch of Medicine; consisting in Operations perform'd by the Hand, for the Cure of Wounds, and other Disorders. See MEDICINE.

Chirurgery is the Art of curing Wounds, and various Diseases, by the opening of Veins, application of Topics, Incisions, and Amputations of several Parts of the Body, &c. See OPERATION.

Chirurgery is divided into *Speculative*, and *Practical*; one whereof does that in effect, which the other teaches to do.

All the Operations of *Chirurgery* are reduc'd under four Kinds: the first whereof re-joins what has been separated; and is call'd *Synthesis*.

The second divides, with Discernment, those Parts whose Union is prejudicial to Health; and is call'd *Diæresis*.

The third extracts with Art foreign Bodies; call'd *Exæresis*.

And the fourth, call'd *Protlesis*, adds and applies what is wanting. See each Branch under its proper Head.

The

The principal Things that come under the Consideration of *Chirurgery*, are *Tumors*, *Ulcers*, *Wounds*, *Dislocations*, and *Fractures*. See WOUND, ULCER, TUMOR, DISLOCATION, and FRACTURE.

Chirurgery has the advantage of Medicine in the Solidity of its Foundation, the Certainty of its Operations, and the Sensibleness of its Effects; insomuch, that those who deny Medicine to be of any significancy, yet allow the Usefulness of *Chirurgery*.

Chirurgery is very antient; and even much more so than Medicine, whereof it now makes a Branch. It was, in effect, the sole Medicine of the first Ages: they betaking themselves to the Cure of external Disorders, e'er they came to examine or discover what related to the Cure of internal ones.

Apis, King of *Egypt*, is said to be the first Inventor of *Chirurgery*; after him, *Æsculapius* compos'd a Treatise of Wounds and Ulcers. He was succeeded by the Philosophers of the following Ages, in whose Hands *Chirurgery* wholly lay; *Pythagoras*, *Empedocles*, *Parmenides*, *Democritus*, *Chiron*, *Peon*, *Cleobrumtus*, who cur'd K. *Antiochus*'s Eye, *&c.*

Chirurgery was cultivated with much more Eatnestness by *Hippocrates*, than by any of the preceding Physicians: It is said to have been perfected in *Egypt*, by *Phyloxenus*, who wrote several Volumes on that subject. Among the *Greeks*, *Gorgias*, *Sostrates*, *Heron*, the two *Apollonius*'s, *Ammonius* of *Alexandria*; and at *Rome*, *Trypho* the Father, *Evelpistus*, and *Meges*, made it flourish, each in their Time.

Arcabuto was the first *Chirurgeon* the *Romans* receiv'd into their Commonalty; but him they soon after ston'd to Death in the *Campus Martius*, on account of his Cruelty in cutting off Limbs.

The more modern Authors, who have contributed most to the Perfection of *Chirurgery*, are *Paræus*, *Fab. ab Aquipendente*, *Harvey*, *Wharton*, *Glisson*, *Du Laurents*, *Diemerbroeck*, *Vieussens*, *Barbett*, *Dionis*, *Charriere*, &c.

Scultetus has publish'd a Description of all the Instruments us'd in *Chirurgery*, under the Title of *Armamentarium Chirurgicum*; and our Countryman, Mr. *Wiseman*, Serjeant-*Chirurgeon* to King *Charles* II. a Folio Volume of *Chirurgical* Treatises, containing practical Observations, both in respect to the Internals and Externals, of a Number of Cases in each Branch of the Art, from his own Experience; under the Title of *Several Chirurgical Treatises*. This Work has been made use of ever since, by the most knowing of our *English Chirurgeons*; and has been the Foundation of most *Chirurgical* Treatises since its Publication, *Anno* 1676.

The *French Chirurgeons* being refus'd to be admitted into the Universities, notwithstanding that their Art makes a Branch of Medicine, one of the four Faculties; on pretence of its bordering a little on Butchery, or Cruelty; associated themselves into a Brotherhood, under the Protection of S. *Cosmus* and S. *Damian*: on which account, according to the Laws of their Institution, they are oblig'd to dress and look to Wounds *gratis*, the first Monday of each Month.

They distinguish between a *Chirurgeon of the long Robe*, and a *Barber Chirurgeon*: The first has study'd Physick, and is allow'd to wear a Gown.

The Skill of the other, beside what relates to the Management of the Beard, is suppos'd to be confin'd to the more simple and easy Operations in *Chirurgery*; as Bleeding, Toothdrawing, *&c.* They were formerly distinguish'd by Badges; those of the Gown bore a Case of Instruments; the Barber a Bason.

The Word *Chirurgery* is form'd from the *Greek* χεὶρ, *manus*, Hand; and ἔργον, *opus*, Operation.

CHISSEL, an Instrument much us'd in Sculpture, Masonry, Joinery, Carpentry, *&c.*

There are *Chissels* of different Kinds; tho their chief difference lies in their different Size and Strength, as being all made of Steel well sharpen'd and temper'd: but they have different Names, according to the different uses to which they are apply'd.

The *Chissels* us'd in Carpentry and Joinery, are, 1. The *Former*, which is us'd first of all before the Paring-*Chissel*, and just after the Work is scrib'd. 2. The *Paring-Chissel*, which has a fine smooth Edge, and is us'd to pare off, or smooth the Irregularities which the former makes. This is not struck with a Mallet, as the former is, but press'd with the Shoulder of the Workman. 3. *Skew-former*, us'd for cleansing acute Angles with the Point, or Corner of its narrow Edge. 4. The *Mortice-Chissel*, which is narrow, but very thick and strong, to endure hard Blows; and 'tis cut to a very broad Basil: its use is to cut deep square Holes in the Wood, for Mortices. 5. The *Gouge*, which is a *Chissel* with a round Edge; one side whereof serves to prepare the way for an Augre, and the other to cut such Wood as is to be rounded, hollow'd, *&c.* 6. *Socket-Chissels*, which are chiefly us'd by Carpenters, *&c.* have their Shank made with a hollow Socket at top, to receive a strong wooden Sprig, fitted into it with a Shoulder. These *Chissels* are distinguish'd, according to the Breadth of the Blade, into half Inch *Chissels*, three quarters of an Inch *Chissels*, &c. 7. *Ripping Chissel*, which is a Socket *Chissel* an Inch broad; having a blunt Edge, with no Basil to it: Its use is to rip, or tear two pieces of Wood asunder, by forcing in the blunt Edge between 'em.

CHITTING, in Gardening. A Seed is said to *chit*, when it first shoots its small Roots into the Earth. See ROOT.

CHIVALRY, or CHEVALRY, in Law, a Tenure of Land by Knight-Service; whereby the Tenant was antiently bound to perform a Service in War; to the King, or the mesn Lord of whom he held by that Tenure. See SERVICE.

By a Statute of 12 *Car.* II. all Tenures by *Chivalry*, *in Capite*, &c. are abolish'd. See TENURE, KNIGHT, and KNIGHTHOOD.

CHIVES, or CHIEVES, a Term in Botany, which Mr. *Ray* renders in Latin *Apices*, *i. e.* the small Knobs growing on the Ends of the fine Threads, or *Stamina* of Flowers. See APICES.

But Dr. *Grew* calls the *Stamina*, or Threads themselves, on which the *Apices* are fix'd, the *Chives*. See STAMINA.

CHLAMYS, or CLAMYS, in Antiquity, a Military Habit, wore by the Antients over the *Tunica*. See TUNICA.

Chlamys was the same, in Time of War, that the *Toga* was in Time of Peace: Each belong'd to the Patricians. See TOGA.

There were four or five kinds of *Chlamys*; that of Children, of Women, and that of Men; which was divided into that of the People, and that of the Emperor.

CHLOROSIS, in Medicine, a Disease vulgarly call'd the *Green-Sickness*, *White-Jaundice*, &c.

Its usual Subjects are Girls, Maids, and Widows; or even Wives, whose Husbands are deficient, *&c.* It gives a pale, sallow, or livid Tincture to the Complexion, with a Circle of Violet under the Eyes. The Patient is melancholy and uneasy; has frequently a low wandring Fever, with an unequal Pulse, Vomiting, Heaviness, Listlessness, Drousiness, Difficulty of Breathing, Longing for absurd Foods, *&c.*

It comes on, commonly, antecedent to, or about the Time of the Eruption of the Menses.

The Stoppage of the Menses is not always the Cause of this Distemper; for they sometimes flow regularly, tho but seldom, in the Progress thereof.

According to *Etmuller*, the Suppression of the Menses is rather the Effect than the Cause.

The Cure is chiefly to be attempted by Chalybeats and Bitters. In the colder Constitutions, Decoctions of *Guaiacum* are found of use.

The Word *Chlorosis* signifies *Greenness*, *Verdure*; from χλόη, *Herba*, Grass.

CHOCOLATE, a Confection, or Paste, prepar'd of certain Drugs; the Basis, or Principal whereof, is the *Cacao* Nut. See CACAO.

The Name *Chocolate* is also given to a drink, prepar'd from this Paste, of a dusky Colour, soft, and oily; usually drank hot: and esteem'd not only an excellent Food, as being very nourishing, but also a good Medicine; at least a Diet, for keeping up the warmth of the Stomach, and assisting Digestion.

The *Spaniards* were the first who brought *Chocolate* into use in *Europe*; and that, perhaps, as much out of Interest, to have the better Market for their *Cacao* Nuts, *Achiott*, *Vanilla*, and other Drugs which their *West-Indies* furnish, and which enter the Composition of *Chocolate*; as out of regard to those extraordinary Virtues, which their Authors so amply enumerate. The Qualities above mention'd, are what the generality of Physicians and others allow of it.

The Manner of making CHOCOLATE.

The Method first us'd by the *Spaniards* was very simple, and the same with that us'd by the *Indians*: They only us'd *Cacao*-Nut, Maise, and raw Sugar, as express'd from the Canes, with a little *Achiott*, or *Rocou*, to give it a Colour. Of these four Drugs, ground between two Stones, and mix'd together in a certain Proportion, those Barbarians made a kind of Bread, which serv'd 'em equally for solid Food and for Drink: eating it dry when hungry, and steeping it in hot Water when a-thirst.

This Drink the *Mexicans* call'd *Chocolate*, from *Chocao*, Sound, and *atle*, or *atte*, Water; *q. d.* Water that makes a noise: from the Noise the Instrument us'd to agitate and prepare the Liquor, made in the Water.

But the *Spaniards*, and other Nations, have since added a great Number of other Ingredients to the Composition of *Chocolate*; all of which, *Vanilla* alone excepted, spoil, rather than mend it.

Method of making CHOCOLATE, *now in use among the* Spaniards *of* Mexico.

The Fruit being gather'd from the *Cacao* Tree, is dry'd in the Sun, and the Kernel taken out, and roasted at the Fire, in Iron Peels pierc'd full of Holes; then pounded in a Mortar; then ground on a Marble Stone, with a Grinder of the same Matter, till it be brought into the Consistence of a Paste; mixing with it more or less Sugar, as it is to be more or less sweet. In proportion as the Paste advances, they add some long Pepper, a little *Achiot*, and lastly *Vanilla:* Some add Cinnamon, Cloves, and Anis; and those who love Perfumes, Musk and Ambergris.

There is also a kind of *Mexican Chocolate* in the Composition whereof there enter Almonds and Filberts; but 'tis rather to spare the *Cacao*, than to render the *Chocolate* better: and accordingly, this is look'd on as sophisticated *Chocolate*.

The CHOCOLATE *made in Spain*, differs somewhat from that made in *Mexico:* For besides the Drugs us'd in this last, they add two or three Kinds of Flowers, Pods of Campeche, and generally Almonds and Hazle Nuts. The usual proportion, at *Madrid*, is to a hundred Kernels of *Cacao*, to add two Grains of *Chilé*, or *Mexican* Pepper, or in lieu thereof *Indian* Pepper; a handful of *Anis*; as many Flowers, call'd by the Natives *Vinacaxtlides*, or little Ears; six white Roses in pouder; a little *Machusia*; a Pod of Campeche; two Drachms of Cinnamon; a dozen Almonds, and as many Hazle Nuts; with *Achiott* enough to give it a reddish Tincture. The Sugar and *Vanilla* are mix'd at Discretion; as also the Musk and Ambergriese. They frequently work their Paste with Orange-Water, which they think gives it a greater consistence and firmness.

The Paste is usually made up into Cakes, sometimes into large Rolls.

Sometimes the Cakes are made up of pure *Chocolate*, without any Admixture; those who use it being to add what Quantity they please of Sugar, Cinnamon, and *Vanilla*, when in the Water.

Among us, in *England*, the *Chocolate* is chiefly made thus simple and unmix'd, (tho perhaps not unadulterated) of the Kernel of the *Cacao*; excepting that sometimes Sugar, and sometimes *Vanilla* is added: any other Ingredients are scarce known among us.

The newest *Chocolate* is esteem'd the best; the Drug never keeping well above two Years; but usually degenerating much before that time.

'Tis kept in brown Paper, dispos'd in a Box; and that in another, in a dry Place.

The Manner of preparing the Mass into a Liquor, with the Proportions, are various: Ordinarily, the *Chocolate* is boil'd in Water, sometimes in Milk; and sometimes, by good Oeconomists, in Water-Gruel: when boil'd, 'tis mill'd, or agitated with a wooden Machine for the purpose, and boil'd again, till it be of the proper Consistence for drinking; then sugar'd, if the Mass were pure; mill'd afresh; and pour'd off.

Note, the best *Chocolate* is that which dissolves entirely in the Water, leaving no Grounds, or Sediment at the bottom of the Pot.

There is a Dispute among the Casuists, whether or no *Chocolate* break the Fast? The Negative is very stiffly asserted by *Car. Brancaccio*, who has wrote expresly on the Subject: tho *Stabe*, an *English* Physician, has endeavour'd to shew, that there is more nutritious Juice in an Ounce of *Cacao*, than in a Pound of Beef or Mutton.

The Quantity of *Chocolate* made in *New Spain* is such, that there are annually us'd twelve Millions of Pounds of Sugar in the Preparation thereof. The *Spaniards* esteem it the last Misfortune that can befall a Man, to be reduc'd to want *Chocolate:* They are never known to quit it, excepting for some other Liquor that will fuddle.

CHOIR, that part of a Church, Cathedral, &c. where the Priests, and *Choristers*, or Singers, are dispos'd. See CHURCH.

The *Choir* is distinguish'd from the *Chancel*, or *Sanctuary*, where the Communion is celebrated; as also from the *Nave*, or Body of the Church, where the People assist.

The Patron is said to be oblig'd to repair the *Choir* of a Church; and the Parishioners the Nave.

The *Choir* was not separated from the Nave, till the Time of *Constantine:* From that Time the *Choir* was rail'd in with a Ballustrade, with Curtains drawn over; not to be open'd till after the Consecration.

In the XIIth Century they began to enclose the *Choir* with Walls: But the antient Ballustrades have been since restor'd; out of a View to the Beauty of the Architecture. The Chantor is Master of the *Choir*. See CHANTOR.

In Nunneries, the *Choir* is a large Hall, adjoining to the Body of the Church; separated by a Grate, where the Religious sing the Office.

The Word, according to *Isidore*, is derived *à Coronis circumstantium*; because, antiently, the *Choristers* were dispos'd round the Altar to sing: which is still the manner of building Altars among the *Greeks*.

CHOLAGOGUE, a Medicine which purges the Bile downward. See BILE, PURGATIVE, &c.

Of these some are *simple*, others *compound*; and both the one and the other distinguish'd into three Kinds, with regard to their Activity; the benign, the moderate, and the violent.

Of the first kind are Manna, Cassia, Roses, Tamarinds, &c.

Of the second, Sena, Rhubarb, Aloes, &c.

Of the third, Jalop, Scammony, &c. See each under its Article, MANNA, CASSIA, SENA, &c.

The Word comes from χολὴ, *Bile*, and αγειν, *to lead*.

CHOLER. See BILE.

CHOLERA-*Morbus*, a sudden overflowing of the Bile, both upwards and downwards. See BILE.

It is suppos'd to have its rise from the great Abundance of bilious Humours, which being very acrimonious, vellicate the Membranes of the Stomach and Intestines; and by that means occasion unusual and violent Contractions.

'Tis very dangerous: Whence the *French* antiently called it *Trousse-Galand*.

It has its Name, either from the great Quantity of *Choler* it evacuates; or because the Matter is incessantly expell'd at the Intestines, which they antiently call'd *Cholades*.

Dr. *Sydenham* observes, it generally attacks about the latter end of Summer; and proceeds, not unfrequently, from Surfeits: That the Cure depends upon large Quantities of Chicken-Broth, drank so as to excite Vomiting plentifully; and that the Broth is also to be injected Clyster-wise: after which, he says, the Cure is to be compleated by *Laudanum*, given at proper Intervals, and in proper Doses.

The Remedy in the *Indies* for the *Cholera Morbus*, or *Mandechin*, is to keep the Patient from drinking; and to burn the Soals of his Feet.

CHOLIDOCHUS, in Anatomy, a Term apply'd to a Canal, or Duct, called also *Ductus Communis*; form'd of the Union of the *Porus Bilarius*, and *Ductus Cysticus*. See DUCT.

The *Cholidocus Ductus*, passing obliquely to the lower End of the *Duodenum*, serves to convey the Bile from the Liver to the Intestines.

Some have imagin'd, that it convey'd the Bile from the Liver to the Gall-Bladder: but it being observ'd, that 'tis the *Duodenum*, not the Gall-Bladder, that swells upon blowing thro' this Duct; 'tis evident the Bile contain'd therein, is convey'd no where else but to the *Duodenum*. See BILE, LIVER, GALL-*Bladder*, &c.

The Word comes from the *Greek* χολὴ, and the Latin *Duco*, I draw, lead, &c.

CHONDROGLOSSUM, in Anatomy, a very small Pair of Muscles of the Tongue, mention'd by *Verheyen*, and several other Authors, exceedingly short and narrow; arising from the cartilaginous Processes of the *Os Hyoides*, and meeting in the Middle of the Basis of the Tongue, where they are inserted, forming an Arch under it.

This Pair of Muscles is not found in all Subjects; whence some have question'd its Existence: but Nature takes so many Liberties, in Matters even of greater moment than a Pair of Muscles; that we need not on that score dispute the Veracity of so many Authors as profess to have seen it.

CHOP-CHURCH, or *Church-Chopper*, a Name, or rather Nickname given to Parsons who make a Practice of exchanging Benefices.

Chop-Church is us'd in an antient Statute as a lawful Trade, or Occupation; and some of the Judges say it was a good Addition. *Brook* holds, that it was no Occupation, but a thing permissible by Law.

CHOPIN, or CHOPINE, a *French* liquid Measure; containing half their *Pint*. See MEASURE.

The *Paris Chopin* is nearly equal to the *English* Pint. A *Chopin* of common Water weighs a *Paris* Pound.

CHORD, or CORD, primarily denotes a slender Rope, or Cordage. See CORDAGE.

The Word is form'd of the Latin *Chorda*, and that from the *Greek* χορδὴ, *a great Gut*, whereof Strings may be made.

CHORDS, or CORDS, in Musick, are the Strings, or Lines, by whose Vibrations the Sensation of Sound is excited; and by whose Divisions the several Degrees of Tune are determin'd. See SOUND, and TUNE.

Some say, they are called *Cords*, or *Chords*, from the *Greek* χορδαὶ, a Name the Physicians give to the Intestines; in regard, the Strings of Musical Instruments are ordinarily made of Guts: Others are made of Brass or Iron Wire; as those of Spinets, Harpsichords, &c.

Chords of Gold Wire, in Harpsichords, yield a Sound almost twice as strong as those of Brass: *Chords*, or Strings of Steel, yield a feebler Sound than those of Brass; as being both less heavy, and less ductile.

M.

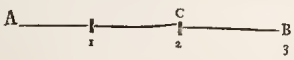
M. *Perrault* obſerves, that of late they have invented a way of changing the *Chords*, to render their Sound more ſtrong, without altering the Tone.

The ſixth *Chord* of Baſs-Viols, and the tenth of large Theorbos, conſiſt of 50 Threads, or Guts: There are ſome of them 100 Foot long, twiſted and poliſh'd with *Equiſetum*, or Horſe-Tail.

For the Diviſion of Chords, *ſo as to conſtitute any given Interval*, the Rules are as follow.

1. *To aſſign ſuch a Part of a* Chord A B, *as ſhall conſtitute any Concord, v. g.* a Fifth, or any other Interval, with the whole.

Divide A B into as many Parts, as the greateſt Number of the Interval has Units; *v.g.* the Fifth being 2 : 3, the Line is divided into 3. Of

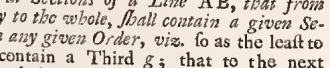


theſe I take as many as the Leſſer Number, *v.g.* 2 = A C; A C is the Part ſought: That is, two Lines, whoſe Lengths are to each other as A B to A C, make a Fifth.

Hence, if it be requir'd to find ſeveral different Sections of the Line A B, *v.g.* ſuch as ſhall be 8ve 5th and 3d g. I reduce the given Ratios 1 : 2, 2. 3, and 4 : 5, to one Fundamental; the Series becomes 30 : 24, 20 = 15. The Fundamental is 30; and the Sections ſought are 24; the Third g; 20, the Fifth; and 15, the Octave.

2. *To find ſeveral Sections of a Line* AB, *that from the leaſt, gradually to the whole, ſhall contain a given Series of Intervals in any given Order, viz.* ſo as the leaſt to the next greater contain a Third *g*; that to the next greater, a Fifth; and that to the whole an Octave.

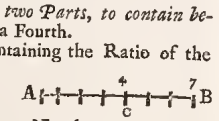
Reduce the three Ratios 4 : 5, 2 : 3, 1 : 2, to one Series; hence we have 8 : 10 : 15



: 30. Divide the Line into the Number of Parts of the greateſt Extreme of the Series, *viz.* 30; we have the Sections ſought at the Points of Diviſion, anſwering the ſeveral Numbers of the Series, *viz.* at the Points, C, D, and E; ſo as A C to AD is a Third, AD to AE a Fifth, to A B Octave.

3. *To divide a Line* A B *into two Parts, to contain betwixt them any Interval, v. g.* a Fourth.

Add together the Numbers containing the Ratio of the Interval, *v.g.* 3 : 4; and the Line into as many Parts as the Sum, *v.g.* 7; the Point of Diviſion anſwering to any of the given Numbers, *v.g.* 4 or C, gives the thing ſought.



4. *For the harmonical Diviſion of* Chords. *To find two Sections of a Line, which with the whole ſhall be in harmonical Proportion, with regard to their Quantity.*

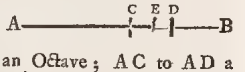
Take any three Numbers in harmonical Proportion, as 3 — 4 — 6; and divide the whole Lines into as many Parts as the greateſt of theſe three Numbers, *v.g.* 6; and at the Points of Diviſion anſwering the other two Numbers, *v.g.* 3 and 4, you have the Sections ſought.

5. *To find two Sections of a Line, which together with the whole ſhall be harmonical, with reſpect to Quantity or Tune.*

Take any three Numbers concord with each other, *v.g.* 2. 3. and 8, and divide the Line by the greateſt; the Points of Diviſion anſwering the other two give the Sections ſought.

6. *To divide a* Chord A B, *in the moſt ſimple manner, ſo as to exhibit all the original Concords.*

Divide the Line into two equal Parts at C, and ſubdivide the Part C B into equal Parts at D; and again, the Part CD into two equal Parts at E. Here A C to AB is an Octave; A C to AD a Fifth; A D to A B a Fourth; A C to A E a Third; A E to A D a Third; D C A E to E B a Sixth 9; A E to A B a Sixth C. See Monochord; ſee alſo Tune, Concord, Harmony, &c.



Chord is alſo us'd in Muſick, for the Note, or Tone to be touch'd, or ſounded; in which Senſe, it is applicable to all the Intervals of Muſick. See Concord.

In this Senſe, the Fifth is ſaid to conſiſt of five *Chords*, or Tones. See Fifth, &c.

Chord, Chorda, in Geometry, a right Line connecting the two Extremes of an Arch. See Arch.

Or, it is a right Line, terminated at each Extreme in the Circumference of a Circle, without paſſing thro' the Centre; and dividing the Circle into two unequal Parts, call'd *Segments*: ſuch is the Line A B, Plate *Geometry*, Fig. 6.

The *Chord of an Arch*, is a right Line drawn from one Extremity of an Arch to the other; call'd alſo the *Subtenſe*.

The *Chord of the Complement of an Arch*, is the *Chord* that ſubtends the reſt of the Arch; or ſo much as makes up the Arch a Semicircle. See Complement.

The *Chord* is perpendicular to a Line drawn from the Centre of the Circle to the Middle of the Arch, as C E; and has the ſame Diſpoſition thereto, as the *Chord*, or String of a Bow, has to the Arrow: which occaſion'd the antient Geometricians to call this Line the *Chord* of the Arch, and the other the *Sagitta*, or Arrow; the former of which Names is ſtill continu'd, tho the latter is diſus'd. What the Antients call'd *Sagitta*, is now term'd the *Sine of the Complement*. See Sagitta.

Half the *Chord* of the double Arch B *o*, is what we now call the *Right Sine*; and the Exceſs of the Radii beyond the *Sagitta o* E, the *Verſed Sine*. See Sine.

The *Chord* of an Angle, and the *Chord* of its Complement to a Semicircle, are the ſame thing. The *Chord* of 50 Degrees is alſo the *Chord* of 130.

'Tis demonſtrated, in Geometry, that the Radius C E, biſſecting the *Chord* B A in D, does alſo biſſect the Arch in E, and is perpendicular to the *Chord* A B; and *vice verſa*. And again, if the right Line N E biſſect the *Chord* A B, and be perpendicular thereto; that it paſſes thro' the Centre, and does biſſect both the Arch A E B, and the Circle A N B.

Hence we derive ſeveral uſeful Corollaries: as, 1. To divide a given Arch A B into two equal Parts. Draw a Perpendicular to the middle Point D E of the *Chord* A B; this biſſects the given Arch A B.

2. To deſcribe a Circle, that ſhall paſs thro' any three Points A, B, C, Fig. 7. From A and C deſcribe Arches interſecting in D and E; and alſo others, G and H, from C and B: draw the right Lines D E and H G. The Point of Interſection I, is the Centre of the Circle to be deſcrib'd thro' A, B, and C.

Demonſt. For the Points A C and C B are in the Periphery of ſome Circle; and therefore, the Lines A C and C B are *Chords*. But E D is perpendicular to A C, and G H to B C; E D biſſects A C, and G H biſſects B C; wherefore each paſſes thro' the Centre. Now as D E and G H only interſect in I; I will be the Centre of a Circle, paſſing thro' the given Points A, C, and B.

Hence, aſſuming three Points in the Periphery or Arch of any Circle, the Centre may be found, and the given Arch compleated.

Hence alſo, if three Points of one Periphery do agree or coincide with three Points of another; the whole Peripheries agree, and therefore the Circles are equal.

Hence, laſtly, every Triangle may be inſcrib'd in a Circle.

The Chord *of an Arch* A B, (Fig. 7.) *and the Radius* C E *being given; to find the* Chord *of the half Arch* A E. From the Square of the Radius C E, ſubtract the Square of half the given *Chord* A D, the Remainder is the Square of *o* C; from which extract the ſquare Root = D C: This ſubtracted from the Radius E C, leaves *o* E. Add the Squares of A E and E *o*; the Sum is the Square of A E: whence, the reſt being extracted, we have the *Chord* of half the Arch A E.

Line of Chords, is one of the Lines of the Sector and Plain Scale. See its Deſcription and Uſe under the Words Sector, and Plain Scale.

Chord, Chorda, in Anatomy, a little Nerve extended over the *Membrana Tympani*, or Drum of the Ear. See Tympanum.

Anatomiſts are not agreed about the Uſe of the *Chorda Tympani*: Some ſay, it ſerves to vary and modify the Sound of the *Tympanum*, in the ſame manner as the Strings, or Braces, ſtretch'd over the War-Drum. Others will have it to be no more than a Branch of the fifth Pair. See Ear.

CHORDAPSUS, in Medicine, a Diſeaſe of the Inteſtines, otherwiſe call'd *Miſerere mei*: Tho ſome ſay 'tis only a Species of the *Miſerere*. See Miserere.

Galen defines it, a Humour or Inflation of the ſmall Inteſtines, which makes them appear ſill'd, and ſtretch'd like a *Chord*. *Archigenes* makes it a kind of *Miſerere*; conſiſting in a Tumor in a certain Place of the ſmall Inteſtines, which ſinks in, and gives way to the Hand when preſs'd: He adds, that it's exceeding dangerous, and ordinarily kills in three or four Hours, unleſs it come to Suppuration; which, however, does not take away all Danger.

'Tis probable, however, that the *Chordapſus* is in reality nothing elſe but the *Miſerere*. *Celſus* informs us, that in his Time they were the ſame thing.

The Word comes from the *Greek* χορδὴ, *Chord*, and ἅπτεσθαι, *to touch*.

CHORDEE, in Medicine, an Inflammation and Contraction of the *Frænum*, and under Part of the *Penis*; ſo as to render Erection painful. See Erection.

It happens in Gonorrhæas, and is generally proportional to the Degree of the *Virus* receiv'd; ſo that in virulent Gonorrhæas, it is uſually a very troubleſome Symptom. See Gonorrhæa.

It proceeds from the Acrimony of the Matter which runs from the Urethra, irritating the under Part of the Yard; by which it is, as it were, ty'd or held forcibly downward in Erection, eſpecially its *Frænum*. When the Acri-

Acrimony is considerable, it sometimes gives rise to unnatural Erections, or the Symptom call'd a Priapism. See PRIAPISM.

If the *Chordæ* be violent, or does not decrease proportionally to the other Symptoms in Gonorrhæas, an Emetic of Turpeth Mineral is usually given with success; it causing a Revulsion from the Part. See VENEREAL *Disease*.

CHOREA *Sancti Viti*, in Medicine, a Distemper which some Authors reckon as an hysterical Case; and others a Species of a *Furor Uterinus*.

It is suppos'd to proceed from a Turgency and Repletion of hot Juices, especially in the Uterine Vessels, which raises violent Motions; and that only Females are affected by it: But Dr. *Sydenham* more properly observes it to be an universal Convulsion, which sometimes continues several Weeks, nay Months, without intermission.

Those affected with this Disease, are continually in strange Motions with their Head, Legs, and Arms; so that they are unfit to feed themselves. It differs from other Convulsions, in that the Motions are not painful, nor any of the Extremities or Parts forcibly contracted, or extended for any time. Boys and Girls are most subject to this Disease, and that from ten Years of Age to Puberty; tho the latter oftner than the former.

It sometimes precedes the first Eruption of the Menses; in which Case, proper Cathartics, with Calomel and Deobstruents, are generally us'd; otherwise, Evacuations and Antiepileptics, as in other nervous Distempers.

It takes the Name of *Chorea Sancti Viti*, or Saint *Vitus*'s Dance, from the Chapel of S. *Vitus*; because it was suppos'd to seize Persons about *May*, which was the Time of the Year they visited that Chapel, and to make them leap and dance about in a strange manner.

CHOREPISCOPUS, an Episcopal Officer in the antient Church, about whose Function the Learned are extremely divided. See BISHOP.

M. *de la Roque* thinks, that the *Chorepiscopi* were the Country Bishops, and had the same Authority in Villages, that the Bishops had in Cities; but that, by degrees, as the Church flourish'd, the Country Bishops grew too proud for the Country Life; and imagin'd the Episcopal Honour debas'd, and render'd contemptible in a Rural Retreat. Accordingly, the *Sardic* Council prohibited the Consecration of Bishops in the Country, or in little Towns; that the Episcopal Character might always be sustain'd by the Splendor of great Cities.

M. *du Bois* adds, that tho the *Chorepiscopi* exercis'd most of the Episcopal Functions in Country Towns, &c. yet they were not ordain'd like Bishops, nor vested with their whole Authority, but were only a step above mere Priests.

M. *le Maitre* is of Opinion, that the Office of a *Chorepiscopus*, which is that now discharg'd by the Rural Deans, was to overlook, under the Bishops, those Parishes that were at a distance from the See in the Country. He adds, they were abolish'd, by reason they usurp'd the Authority of the Bishops. See RURAL *Dean*.

Others, again, say, the *Chorepiscopi* were properly what we now call Bishops *in partibus*; to whom, in quality of Suffragans, were committed the Administration of Dioceses, during the Bishop's absence. See SUFFRAGAN.

Others rather think, the Institution of *Chorepiscopi* gave occasion to that of the *Episcopi in partibus*; which last, however, have Privileges the others had not.

Lastly, others take the *Chorepiscopi* to be no more than Priests, vested by the Bishops with most of their Authority in Country Places.

The Council of *Antioch*, held in 342, appoints, 'That 'those in Burghs and Villages, call'd *Chorepiscopi*, know 'the Bounds prescrib'd them: They may ordain Readers, 'Subdeacons, and Exorcists, but not Priests or Deacons, 'without the Bishop whereon they depend. The *Chorepis*'*copus* shall be ordain'd by the Bishop of the City.

Pope *Leo*, in 936, says, the *Chorepiscopi* mayn't ordain Priests, or consecrate Churches: yet Pope *Nicholas*, in a Letter to *Raoul*, in the IXth Century, declares that the *Chorepiscopi* shall have the Episcopal Functions; and that the Ordinations of Priests and Deacons perform'd by them are valid.

The first time we read of *Chorepiscopi* in the East, is in the Beginning of the IVth Century; and in the West, about the Year 439. They ceas'd, both in the East and West, in the Xth Century.

The Word comes from the *Greek* χωρα, *a Region*, or little Country, and Επισκοπος, *Bishop*.

CHOREPISCOPUS is also the Name of a Dignity still subsisting in some Cathedrals, particularly in *Germany*; signifying the same with *Chori Episcopus*, or Bishop of the Choir.

In the Church of *Cologne*, &c. the first Chantor is call'd *Chorepiscopus*.

The Word, in this Sense, does not come from χωρα, but χορος, *Choir*, &c.

CHOREUS, CHORÆUS, a Foot in the *Latin* Poetry, more commonly call'd *Trochæus*. See TROCHÆUS.

CHORIAMBUS, in the *Latin* Poetry, a Foot compounded of a *Choræus*, or *Trochæus*; and an *Iambus*.

It consists of four Syllables; of which the first and last are long, the middle ones short.

CHORION, the exterior Membrane that invests the *Fœtus* in the Womb. See FOETUS.

'Tis very thick and strong; on the inside, where it joins another Membrane, call'd *Amnios*, very smooth; but rough and uneven without side; interspers'd with a great number of Vessels, and fasten'd to the Matrix, or Womb, by means of the *Placenta*, which adheres very closely to it. See PLACENTA.

This Membrane is found in all Animals.

The Word comes from the *Greek* χωρειν, *capere*, to contain.

The *Chorion*, with the *Amnios* and *Placenta*, make what we call the *Secundine*, or After-Birth. See SECUNDINE.

CHORIST, or CHORISTER, a Chantor, or Singer in the Choir. See CHOIR.

CHOROBATES, a kind of Level us'd among the Antients; compos'd of a double Square, made in form of a T, describ'd by *Vitruvius*, Lib. viii. See LEVEL.

The Word comes from the *Greek* χωροβατειν, to over-run a Country.

CHOROGRAPHY, the Art of making a Map, or Description of some Country, or Province.

Chorography is distinguish'd from Geography, as the Description of a particular Country is from that of the whole Earth. See GEOGRAPHY.

From *Topography* it is distinguish'd, as the Description of the same Country, is from that of a single Place in it.

The Word comes from the *Greek* χωρος, *Region*.

CHOROIDES, or CHOROEIDES, in Anatomy, a Term apply'd to several Parts of the Body; bearing some resemblance to the *Chorion*.

The Word is form'd from the *Greek* χορειον, *Chorion*, and ειδεα, *to resemble*; or ειδος, *Image*, *Likeness*.

Thus, *Choroides* is us'd for the inner Membrane that immediately invests the Brain; so called as being intermingled with a great Number of Blood-Vessels, like the *Chorion*; but more usually call'd the *Pia Mater*, or *Meninx tenuis*. See MENINX, and MATER.

Plexus, or *Lacis* CHOROIDES, is a Knot of Veins and Arteries in the fore Ventricles of the Brain, wove out of the Branches of the Carotid. See PLEXUS, and BRAIN.

Choroides is also apply'd to the inner and posterior Tunic of the Eye, contiguous to the *Sclerotica*. See EYE.

It is soft, thin, and black; and its inner, or concave Surface, very smooth and polite. It has its Name from its being interspers'd with Vessels.

To the *Choroides* is fix'd the *Uvea*. See UVEA.

M. *Mariotte* maintains, that Vision is perform'd rather in the *Choroides* than the *Retina*: in which he agrees with *Bar. Torinus*, and is seconded by M. *Mery*; but most other Authors are of a different Sentiment. See VISION, RETINA, &c.

Next under the *Choroides* is the *Retina*. *Ruysch*, indeed, says, he has found another Tunic between the *Choroides* and *Retina*; and denominates it from himself, the *Tunica Ruyschiana*. He adds, that it grows so firmly to the *Choroides*, that 'tis overlook'd in the common Dissections.

But *Verheyen*, tho he found the *Choroides* of a Bird divisible into two Membranes, could never separate those of the human Eyes; and therefore thinks they needed not any new Name.

The *Choroides* is black in Men; in Lions, Camels, Bears, Sheep, Cattle, Dogs, Cats, and most Fishes, of a shining Colour, like the Brilliant of Silver, or the Lustre of Oriental Pearl; and makes what Naturalists call the *Tapis*, or Colour of the Eye. See TAPIS.

CHORUS, in Dramatic Poetry, one, or more Persons, present on the Stage during the Representation, and suppos'd to be By-standers thereto, without any particular Share or Interest in the Action. See DRAMA.

Tragedy in its Origin, M. *Dacier* observes, was no more than a single *Chorus*, who trod the Stage alone, and without any other Actors; singing Dithrambics, or Hymns in honour of *Bacchus*.

Thespis, to relieve the *Chorus*, added an Actor, who rehears'd the Adventures of some of their Heroes. *Æschylus*, finding a single Person too dry an Entertainment, added a second; and at the same time reduc'd the singing of the *Chorus*, to make more room for the Recitation.

Every thing introduc'd between the four Songs of the *Chorus*, they call'd by the Term *Episode*; and those four Songs made the four Intervals, or Acts of the Piece. See EPISODE, ACT, &c.

But when once Tragedy began to be form'd, those Recitatives, or Episodes, which at first were only intended as accessory Parts, to give the *Chorus* a breathing Time, became now the principal Part of the Tragedy: And where-

as,

as, before, they were taken from various Subjects, they were now all drawn from one and the same.

The *Chorus*, by degrees, became inserted and incorporated into the Action, to which it was only intended as an Addition or Ornament. Sometimes the *Chorus* was to speak, and then their Chief, whom they call'd *Coryphæus*, spoke in behalf of all the rest: The singing was perform'd by the whole Company; so that when the *Coryphæus* struck into a Song, the *Chorus* immediately join'd him. See Coryphæus.

Besides the four Songs, which made the Division of the Piece, and which were manag'd by the *Chorus*, the *Chorus* sometimes, also, join'd the Actors in the Course of the Representation, with their Plaints and Lamentations; on occasion of any unhappy Accidents that befel 'em.

But the proper Function of the *Chorus*, now that Tragedy was form'd, and that for which it seem'd chiefly retain'd, was to shew the Intervals of the Acts: While the Actors were behind the Scenes, the *Chorus* engag'd the Spectators; their Songs usually turn'd on what was just exhibited; and were not to contain any thing but what was suited to the Subject, and had a natural Connection with it: so that the *Chorus* concurr'd with the Actors for advancing the Action.

'Tis a Fault observ'd in *Euripides*'s Tragedies, that his *Chorus*'s are detach'd from the Action, and not taken from the same Subject. There were some other Poets, who to save the Pains of composing *Chorus*'s, and adapting them to the Piece, contented themselves with invented Songs, which had no relation to the Action. These Foreign *Chorus*'s were the less pardonable, as the *Chorus* was esteem'd to act a Part in the Piece; and to represent the Spectators, who were look'd on as interested therein; insomuch that the *Chorus* was not always to be mute, even in the Course of the Acts.

In the modern Tragedies, the *Chorus* is laid aside; and the Fiddles supply its Place. M. *Dacier* looks on this Retrenchment as of ill consequence; and thinks it robs Tragedy of a great part of its Lustre. He adds, that 'tis ridiculous to have a Tragic Action broke, and interrupted by impertinent Flourishes from the Musick Box: and to have the Spectators, who are suppos'd to be mov'd by the Representation, become all of a sudden calm and easy, break off at the height of a Passion, and amuse themselves peaceably with a Foreign Entertainment. The Re-establishment of the *Chorus* he judges necessary, not only for the Embellishment and Regularity of the Piece; but also, in regard it was one of its principal Functions, to redress and correct any Extravagancies that might fall from the Mouths of the Actors, when under any violent Passion, by prudent, and virtuous Reflections.

That which occasion'd the Suppression of the *Chorus*, was its being incompatible with certain Complots, and secret Deliberations of the Actors. For 'tis in no wise probable, that such Machinations should be carry'd on in the Eyes of Persons interested in the Action. As the *Chorus*, therefore, never went off the Stage, there seem'd a Necessity of laying it aside, to give the greater Probability to these kind of Intrigues, which require Secrecy. See Tragedy.

M. *Dacier* observes, there was a *Chorus*, or *Grex*, also in the antient Comedy; but that too is suppress'd in the new: chiefly because made use of to reprove Vices, by attacking Persons. See Comedy.

The *Chorus* in Comedy was at first no more than a single Person, who spoke in the antient Compositions for the Stage: The Poets, by degrees, added to him another; then two, afterwards three, and at last more: so that the most antient Comedies had nothing but the *Chorus*, and were only so many Lectures of Virtue.

To give the Chorus, among the *Greeks*, was to purchase a Dramatic Piece of the Poet, and defray the Expences of its Representation.

The Person who did this was call'd *Choragus*. At *Athens*, the Charge of *Choragus* was laid on the Archon; at *Rome* on the Ædiles. See Choragus.

Chorus is likewise us'd in Musick, where, at certain Periods of a Song, the whole Company are to join the Singer, in repeating certain Couplets, or Verses.

CHOSE, i.e. *thing*, in Law, is us'd in various Circumstances, and with various Epithets; as,

Chose *Local*, something annex'd to a Place, *v.g.* a Mill.

Chose *Transitory*, something movable, and which may be transported from place to place.

Chose *in Action*, is not any thing Corporeal, but only a Right, *v. g.* an Annuity, Obligation, Covenant, *&c.*

Chose in Action may also be called *Chose in Suspence*, as having no real Existence, and not being properly in Possession.

CHRISM, Oil consecrated by the Bishop, and us'd in the *Romish* and *Greek* Churches, in the Administration of Baptism, Confirmation, Ordination, and Extreme Unction. See Oil, Ordination, Extreme Unction, *&c.*

The *Chrism* is prepar'd on *Holy Thursday* with a world of Ceremony. In *Spain*, 'twas antiently the Custom for the Bishop to take one third of a *Sol* for the *Chrism* distributed to each Church; on account of the Balsam that enter'd its Composition.

In *England* we had likewise Chrism *Pence*, *Chrismatis Denarii*, or *Chrismales Denarii*; which was a Tribute paid to the Bishop by the Parish Clergy, for their *Chrism*, consecrated at *Easter* for the ensuing Year: but this was afterwards condemn'd as Simoniacal.

The Word comes from the *Greek* χρισμα, which signifies the same thing.

Du Cange observes, there are two Kinds of *Chrism*; the one prepar'd of Oil and Balsam, us'd in Baptism, Confirmation, and Ordination; the other of Oil alone, consecrated by the Bishop, us'd antiently for the Catechumens, and still in Extreme Unction.

The *Maronites*, before the Time of their Reformation, besides Oil and Balsam, us'd Musk, Saffron, Cinnamon, Roses, white Incense, and several other Drugs mention'd by *Reynoldus*, in 1541, with the Doses of each. The Jesuit *Dandini*, who went to Mount *Libanus* in quality of the Pope's Nuntio, ordained, in a Synod held there in 1596, that *Chrism*, for the future, should be made only of two Ingredients, Oil and Balsam; the one representing the human Nature of Jesus Christ, the other his Divine Nature.

The Action of imposing the *Chrism*, is call'd Chrismation: This the generality of the *Romish* Divines hold to be the next Matter of the Sacrament of Confirmation.

The *Chrismation* in Baptism, is perform'd by the Priest; that in Confirmation by the Bishop: That in Ordination, *&c.* is more usually styl'd *Unction*. See Unction.

CHRISOM, CHRISMALE, was antiently the Face-cloth, or piece of Linen laid over the Child's Head when he was baptiz'd.

Whence, in our Bills of Mortality, such Children which die in the Month are call'd *Chrisoms*; and the Time between the Child's Birth and Baptism, was call'd *Chrisomus*.

CHRIST, an Appellation usually added to *Jesus*; and, together therewith, denominating the *Messiah*, or Saviour of the World. See Jesus, and Messiah.

The Word in the original *Greek* χριστὸς, signifies *Anointed*, of χρίω, *Inungo*, I anoint.

Sometimes the Word *Christ* is us'd singly, by way of *Antonomasis*, to denote *a Person sent from God*, an anointed Prophet, or Priest, *&c.*

Order of Christ, a Military Order, founded in 1318, by *Denis* I. King of *Portugal*, to animate his Nobles against the *Moors*.

Pope *John* confirm'd it in 1320, and appointed the Knights the Rule of S. *Bennet*. *Alexander* VI. permitted them to marry.

The Order became afterwards insensibly reunited to the Crown of *Portugal*; and the King took upon him the Administration thereof.

The Arms of the Order are, Gules, a Patriarchal Cross, charg'd with another Cross Argent. They had their Residence, at first, at *Castromarin*; afterwards they remov'd to the City of *Thomar*, as being nearer the *Moors* of *Andalusia*, and *Estramadura*.

Christ is also the Name of a Military Order in *Livonia*, instituted in 1205, by *Albert* Bishop of *Riga*. The End of their Institution was to defend the new Christians who were converted every Day in *Livonia*, but persecuted by the Heathens.

They wore on their Cloaks a Sword with a Cross over it; whence they were also denominated *Brothers of the Sword*.

CHRISTENING. See Baptism.

CHRISTIAN, something that relates to *Christ*. See Christ.

The King of *France* beats the Title, or Sirname of the *Most Christian King*, *Rex Christianissimus*. The *French* Antiquaries trace the Origin of the Appellation up to *Gregory* the Great; who writing a Letter to *Charles Martel*, occasionally gave him that Title, which his Successors have since retain'd. See Title.

Lambecius, a *German*, in the IIId Tome of the *Emperor's Library*, holds, that the Quality of *Most Christian* was not ascrib'd to the antient *French* Kings, *Louis le Debonair*, &c. as Kings of *France*, but as Emperors of *Germany*; but the *French* Historians have refuted this Plea.

Christian *Religion*, that instituted by *Jesus Christ*. See Religion, and Revelation.

Christian *Name*, that given at Baptism. See Name.

Christian *Church*. See Church.

Christian *Court*, or *Curia Christianitatis*, is the Ecclesiastical Jurisdiction; in contradistinction to Civil Courts, which are call'd King's Courts, *Curiæ Domini Regis*. See Court.

Christian is peculiarly and absolutely us'd for a Person who believes in Christ, and is baptiz'd in his Name.

The Name *Christian* was first given at *Antioch*, to such as believ'd in Christ, as we read in the *Acts*: Till that time they were call'd *Disciples*.

CHRISTIANS *of St.* John, a Sect of *Christians*, very numerous in *Balsara* and the neighbouring Towns.

They formerly inhabited along the River *Jordan*, where St. *John* baptiz'd; and 'twas thence they had their Name. But after the *Mahometans* became Masters of *Palestine*, they retir'd into *Mesopotamia* and *Chaldea*.

They hold an Anniversary Feast of five Days; during which, they all go to their Bishops, who baptize them with the Baptism of St. *John*: Their Baptism is also perform'd in Rivers, and that only on Sundays.

They have no Notion of the third Person in the Trinity; nor have they any Canonical Books, but abundance full of Charms, *&c.* Their Bishopricks descend by Inheritance, as our Estates do; tho they have the Ceremony of an Election.

CHRISTIANS *of S.* Thomas, or *San Thomas*, a Sect of antient *Christians*, found in the *East-Indies*; when the *Europeans* touch'd at the Port of *Calecut*; who pretend to be descended from those S. *Thomas* converted in the *Indies*: whence the Name.

The Natives call 'em, by way of Contempt, *Nazareans*; their more honourable Appellarion is *Mappuley*.

Some learned Men in *Europe* say, 'twas not St. *Thomas* the Apostle that converted that Country, but another St. *Thomas*: others say, 'twas a *Nestorian* Merchant, call'd *Thomas*. 'Tis certain they are *Nestorians*, and have been so a long time; insomuch, that Christians of *St. Thomas*, is now esteem'd by many a Name of a Sect.

They have a Patriarch, who resides at *Mosoul*.

The Pope has made several Attempts to reduce 'em under his Obedience, but to no purpose.

CHRISTMAS, the Feast of the Nativity of Jesus Christ. See FEAST, NATIVITY, *&c.*

It appears from S. *Chrysostom*, that in the primitive Times, *Christmas* and Epiphany were celebrated as one and the same Feast: That Father observes, it was but a little while that *Christmas* had been celebrated at *Antioch* on the 25th of *December*, as a distinct Feast; and that the Use thereof came from the West. He adds, that the *Armenians* made but one Feast of them, as low as the XIIth Century. See EPIPHANY.

CHRISTOLYTES, a Sect of Heretics mention'd by *Damascenus*; so call'd, because they destroy'd *Christ*: maintaining, that he descended into Hell, Body and Soul; and that he left both there; ascending to Heaven with his Divinity alone.

The Word comes from the *Greek* χριστὸς, and λυω, *I resolve*.

CHROMA, in Rhetoric, a *Colour*, or fair Pretence. See COLOUR.

The Word is *Greek* χρῶμα, which literally denotes *Colour*.

CHROMA, in Musick. See CHROMATIC.

CHROMATIC, in the antient Musick, the second of the *Genera*, or Kinds, into which the Consonant Intervals were subdivided into their concinnous Parts. See GENUS.

The other two Kinds were, the *Enharmonic*, and the *Diatonic*. See ENHARMONIC, and DIATONIC.

The *Chromatic* abounds in Semitones: It had its Name, either by reason the *Greeks* mark'd it with the Character of Colour, which they call χρῶμα; or, as *P. Parran* says, because the *Chromatic* Kind is a Medium between the other two, as Colour is between black and white: or because the *Chromatic* Kind varies and embellishes the *Diatonic* Kind, by its Semitones; which have the same Effect in Musick, with the Variety of Colours in Painting.

Aristoxenus divides the *Chromatic* Genus into three Species; the *Molle*, *Hemiolion*, and *Tonicum*. *Ptolemy* into *Molle* or *Antiquum*, and *Intensum*. See SPECIES.

These Species were also call'd *Chroai*, or Colours of the Genera: the *Molle* expresses a Progression by small Intervals, the *Intensum* by greater.

The *Chromatic* and *Enharmonic* Kinds, only contain the smallest of the *Diatonic* Degrees; so as they have the same proportion to the *Diatonic*, as Fractions have to Integers.

Boetius, and after him *Zarlin*, attribute the Invention of the *Chromatic* Genus to *Timotheus a Milesian*, in the Time of *Alexander* the Great. The *Spartans* banish'd it their City, by reason of its softness.

Mr. *Malcolm* observes, that we are at a loss for what use the Antients could make of these Divisions, and Subdivisions into *Genera* and *Species*. All acknowledg'd the *Diatonic* to be the true Melody; the others seem only humorous Irregularities, calculated to please the Fancy by their novelty and oddness; and were besides so very difficult, that few, if any, are said to have ever practis'd them accurately. See MUSICK.

CHROMATIC is us'd, in Painting, for the Colouring; which makes the third Part of the Art of Painting. See COLOURINGS.

CHRONIC, CHRONICAL, in Medicine, is apply'd to a flow, or inveterate Disease, which lasts a long time; as the *Gout*, *Hæmorrhoids*, *Fistula*, *Dropsy*, *Asthma*, &c. See DISEASE.

Chronic Diseases stand in opposition to *acute* Diseases, which are speedy, and hasten to a Crisis; as *Fevers*, *Small-Pox*, &c. See ACUTE.

Chronic Diseases are usually owing either to some natural Defect in the Constitution; or to an irregular manner of living. The Word comes from the *Greek* χρόνος, *Time*.

Most of the *Chronical* Diseases, says Dr. *Cheyne*, the Infirmities of old Age, and the short Periods of the Lives of *Englishmen*, are owing to Repletion: This is evident hence, that Evacuation of one kind or another, is nine Parts in ten of their Remedy. See REPLETION, and EVACUATION.

The Sources of *Chronical* Distempers, says the same Author, are, 1. Viscidity in the Juices, or the overlargeness of their constituent Particles; which not being sufficiently broken by the concoctive Powers, stop, or retard the Circulation. Or, 2. Too great abundance of sharp acrimonious Salts; whereby the Juices themselves are render'd so corrosive, as to burst or wear out the Solids. Or, 3. A Relaxation, or want of a due Force and Springiness of the Solids themselves.

An Excess in the Quantity of our Meat and Drink begets the first; the bad Condition of the same Foods the second; and both together, with want of due Exercise, the third. See FOOD, EXERCISE, *&c.*

CHRONICLE, CHRONICON, a History digested in order of Time; tho the Term is seldom us'd but for old Histories, as *Hollinshed's Chronicle*, *Stow's Chronicle*, &c. See HISTORY, *&c.*

CHRONOGRAM, a kind of Verse, the figurative, or numeral Letters thereof, being join'd together, make up the Year of our Lord, *&c.*

The Word is compos'd of χρόνος, *Time*, and γραμμα, *Letter*.

CHRONOLOGY, the Art of measuring and distinguishing Time; or the Doctrine of Epochas, *&c.* See TIME, EPOCHA, *&c.*

Sturmius divides *Chronology* into five distinct Branches, *viz.* Metaphysical, Physical, Political, Historical, and Ecclesiastical; according to the various Relations, or Habitudes wherein Time is consider'd; *viz.* as in it self, as connected and subjected to the Affections, States, and Alterations of natural Things; as accommodated to Civil Uses; as match'd with Events that pass in the World; and particularly, as it relates to the Celebration of *Easter*. See HOUR, DAY, WEEK, MONTH, YEAR, CALENDAR, CYCLE, PERIOD, EPACT, EASTER, *&c.*

There is more difficulty in *Chronology* than every one is aware of: It requires not only the Knowledge of Astronomy and Geography, and consequently that of Arithmetic, Geometry, and Trigonometry, both plain and spherical; but also a world of Application to the antient Monuments. Its use is very great: 'tis call'd one of the Eyes of History; and serves good Purposes in Theology.

The Word is compounded of the *Greek* χρόνος, *Time*, and λογος, *Discourse*.

The more eminent Writers on *Chronology*, among the Antients, are *Julius Africanus* in the IIId Century; *Dionysius Exiguus*, *Eusebius*, and *Cyril*.

Among the Moderns, *Bede*, *Funccius*, *Mercator*, *Ialius*, *Clavius*, *Scaliger*, *Vieta*, *Petavius*, *Cassini*, *Munster*, *Calvisius*, *Hardouin*, *Capellus*, *Usher*, *Marsham*, *Helvicus*, *Strauchius*, *I. Vossius*, and *Beveridge*.

CHRONOMETER, a general Name for any Instrument us'd in the measuring of Time: In this Sense, Clocks, Watches, Dials, *&c.* are *Chronometers*.

Tho there are some Instruments peculiarly call'd by the Name *Chronometer*; particularly one describ'd by M. *Sauveur*, in his *Principles of Acoustics*.

The Word is compos'd of χρόνος, *Time*, and μετρον, *mensura*, Measure.

CHRYSALIS, a Term us'd by the modern Writers of Natural History of Insects, in the same Sense with *Nympha*. See NYMPHA.

The Word seems to imply a peculiar yellow, or golden Colour, usual in the *Nympha*; from the *Greek* χρυσος, *Gold*: but this is purely accidental, and is not found in all *Nymphæ*.

Some confine the Word to the *Nympha* of Butterflies and Moths.

CHRYSARGYRUM, a Tribute formerly levy'd on Courtesans, and other Persons of evil Life.

Zosimus says, that *Constantine* first set it on foot; tho there appear some Traces of it in the Life of *Caligula* by *Suetonius*; and that of *Alexander* by *Lampridius*. *Evagrius* says, *Constantine* found it establish'd, and had some Thoughts of abolishing it.

It was paid every four Years: Some say, all petty Traders were liable to it. It was abolish'd by *Anastasius*.

M. *Godeau* thinks, the *Chrysargyrum* was a general Tribute, levied every four Years, on Persons of all Conditions, Rich and Poor, Slaves and Freemen: nay, even on all Animals, as low as Dogs; for each whereof they paid six *Oboli*. *Hoffman* says, it was paid in Gold and Silver; whence its Name χρυσος, *Gold*, and αργυρος, *Silver*.

CHRYSOBERIL, a precious Stone; being a kind of pale Beril, with a Tincture of yellow. See BERIL.

CHRYSOCOLLA, a Mineral us'd in the soldering of Gold, *&c.* whence its Name. See GOLD, SOLDERING, *&c.*

It is found in Mines of Gold, Silver, Copper, and Lead: Its Colour is various, according to that of the Matter in which it is found; yellow if among Gold, white in Silver, green in Copper, and black in Lead. The *Arabs*, and Inhabitants of *Guzuratte*, call it *Tincar*, or *Tincal*: In *Europe*, where 'tis found in various Places, 'tis confounded with the common Borax.

The best is that which is green, like an Emerald, found among Copper: that found among the other Metals is too much wash'd.

Some reckon the *Chrysocolla* a Species of Nitre.

The Physicians use it in the Cure of Wounds: Some make an Artificial *Chrysocolla*, by mixing a little of the Natural, steep'd in Water, with Wood.

The Term is form'd of the *Greek* χρυσος, *Gold*, and κολλα, *Glue*. See BORAX.

CHRYSOCOLLA is also the Name of a sort of precious Stone, mention'd by *Pliny*, L. xxxvii. cap. 10. who also calls it *Amphitanus*: He describes it as of a Gold Colour, and the Figure of a Square; adding, that it has the Virtue of attracting Iron, and even Gold.

But this, in all probability, is fabulous; and the Stone he speaks of is apparently no other than the *Chrysolite*.

CHRYSOLITE, a precious Stone of a yellow Colour. See PRECIOUS *Stone*.

The *Chrysolite* is the Topaz of the Moderns. See TOPAZ.

CHRYSOLITE is also a generical Name which the Antients gave to all precious Stones, wherein the yellow, or gold, was the prevailing Colour.

When the Stone was green, they call'd it *Chrysoprasin*: the red and blue too had their particular Denominations, which express'd their Colour; the Gold being signify'd by *Chryso*; which still began the Name.

We know but few of these *Chrysolites* now; or rather, they are referr'd to the Species of Stones which they approach the nearest: the green to the Emerald, the red to the Ruby; and so of the rest.

CHRYSTAL. } See { CRYSTAL.
CHRYSTALLINE. } { CRYSTALLINE.
CHRSTALLIZATION. } { CRYSTALLIZATION.

CHRYSTAL *Mineral*, the same as *Sal Prunella*. See PRUNELLA.

CHUPMESSAHITES, a Sect among the *Mahometans*, who believe that Jesus Christ is God, and the true Messiah, the Redeemer of the World; but without rendring him any publick or declar'd Worship.

Ricaut says, there are abundance of these *Chupmessahites* among the People of fashion in *Turky*, and some even in the Seraglio.

The Word, in the *Turkish* Language, signifies Protector of the Christians.

CHURCH, the Assembly of Persons united by the Profession of the same Christian Faith, and the Participation of the same Sacraments.

Bellarmin, and the *Romish* Divines, to this Definition add, *Under the same Pope, sovereign Pontiff, and Vicar of Jesus Christ on Earth*: in which Circumstance it is that the *Romish* and Reformed Notion of *Church* differ.

Amelotte, and others, make a visible Head, or Chief, essential to a *Church*: Accordingly, among the Catholics, the Pope; in *England* the King, are respectively allow'd Heads of the *Church*. The Bishop of *Salisbury* sets aside the Notion of a visible Head: Christ alone, according to him, is Head of the Church; which Position he has maintain'd with infinite Address, in a celebrated Sermon before the King on those Words of our Saviour, *My Kingdom is not of this World*; and in the several Vindications thereof.

Sometimes, we consider *Church* in a more extensive Sense, and divide it into several Branches.

The *Church Militant* is the Assembly of Faithful on Earth; *Church Triumphant*, that of the Faithful already in Glory: to which the Catholics add the *Church Patient*, that of the Faithful in Purgatory.

The Term *Ecclesia*, εκκλησία, synonymous with our Church, is us'd in the *Greek* and *Latin* profane Authors for any kind of publick Assembly; and even for the Place where the Assembly is held.

The Sacred and Ecclesiastical Writers sometimes also use it in the same Sense; but ordinarily restrain the Term to the *Christians*; as the Term *Synagogue*, which originally signifies nearly the same thing, is in like manner restrain'd to the *Jews*. See SYNAGOGUE.

Thus, in the New Testament, the *Greek* εκκλησία, signifies almost always, either the Place destin'd for Prayer, as 1 *Cor.* xi. 14. or the Assembly of the Faithful diffus'd over the whole Earth, as *Ephes.* v. or the Faithful of a particular City, or Province, as 1 *Cor.* viii. 1,2. or even of a single Family, as *Rom.* xvi. or the Pastors or Ministers of a *Church*, as *Matt.* xviii. 17.

The Christian *Church* is frequently divided into *Greek* and *Latin*.

Greek, or Eastern CHURCH, comprehends the *Churches* of all the Countries antiently subject to the *Greek*, or Eastern Empire; and thro' which their Language was carry'd, *i.e.* all the Space extended from *Greece* to *Mesopotamia* and *Persia*, and thence into *Egypt*; which has been divided ever since the Time of the Emperor *Photius*, from the *Roman Church*. See GREEK *Church*.

Latin, or Western CHURCH, comprehends all the *Churches* of *Italy*, *France*, *Spain*, *Africa*, the North, and all other Countries whither the *Romans* carry'd their Language.

Great Britain, part of the *Netherlands*, of *Germany*, and of the North, have been separated hence ever since the Time of *Henry* VIII. and constitute what we call the *Reform'd Church*, and what the *Romanists* call the *Western Schism*; as the *Greek Church* does the *Eastern* one.

The *Reformed* CHURCH is again divided into the *Lutheran Church*, the *Calvinist Church*, the *Church of England*, &c. See LUTHERANISM, CALVINISM, *&c.*

CHURCH is also us'd for a Temple, built and consecrated to the Honour of God; and, antiently, under the Invocation of some particular Saint, whose Name it assum'd. See TEMPLE; see also CONSECRATION, *&c.*

In this Sense, *Churches* are variously denominated, according to their Rank, Degree, Discipline, *&c.* as *Metropolitan Church*, *Patriarchal Church*, *Cathedral Church*, *Parochial Church*, *Cardinal Church*, &c. See each under its proper Article, METROPOLIS, PATRIARCH, CATHEDRAL, PAROCHIAL, CARDINAL, *&c.*

In Ecclesiastical Writers, we meet with *Grand Church*, for the chief Church of a Place; particularly in the *Greek* Liturgy, for the *Church* S. *Sophia* at *Constantinople*, the See of the Patriarch, founded by *Constantine*, and consecrated under *Justinian*: It was at that time so magnificent, that *Justinian* is said to have cry'd out in the Consecration thereof ἐνίκησάσε Σολομῶν, *I have out-done thee*, Solomon. The Dome, which is said to have been the first that was built, is 330 Foot Diameter. See DOME.

The first *Church* publickly built by the Christians, some Authors maintain to be that of S. *Saviour* at *Rome*; founded by *Constantine*: others contend, that several *Churches* abroad, call'd by the Name of S. *Peter Vivus*, were built in honour of that Apostle during his Lifetime.

Mother CHURCH, *Matrix Ecclesia*. See MATRIX, and MOTHER.

CHURCH, with regard to Architecture, *Daviler* defines a large Vessel extended in length, with Nave, Choir, Isles, Chapel, Belfry, *&c.* See each Part under its proper Head, NAVE, CHOIR, CHAPEL, *&c.*

A *simple Church*, he calls that which has only a Nave and a Choir; a *Church with Isles*, that which has a row of Porticos, in form of vaulted Galleries with Chapels in its Pourtour.

Church in a Greek Cross, that where the Length of the Cross is equal to that of the Nave; so called, because most of the *Greek* Crosses are built in this form. *Church in a Latin Cross*, that whose Nave is longer than the Cross, as most of the *Gothic Churches*. *Church in Rotondo*, that whose Plan is a perfect Circle, in Imitation of the Pantheon. See ROTONDO, *&c.*

For the Form of the antient *Greek Churches*, when they had all their Parts, it was as follows: First was a Porch, or Portico, call'd the *vaunt Nave*, περίβολος, adorn'd with Columns on the outside, and on the inside surrounded with a Wall; in the middle whereof was a Door, thro' which they pass'd into a second Portico. The first of these Porticos was destin'd for the *Energumenes*, and Penitents in the first Stage of their Repentance; the second was much longer, destin'd for Penitents of the second Class, and the *Catechumens*, and hence call'd ναρθηξ, *Ferula*; because those plac'd in it began to be subject to the Discipline of the *Church*. These two Porticos took up about one third of the space of the whole *Church*.

From the second Portico, they pass'd into the *Nave*, ναος, which took up near another third of the *Church*. In the middle, or at one side of the Nave, was the *Ambo*, where the Deacons and Priests read the Gospel and preach'd. See AMBO. The Nave was destin'd for the Reception of the People, who here assisted at Prayers.

Near the Entrance of this was the *Baptistery*, or Font. See BAPTISTERY.

Beyond

Beyond the Nave was the *Choir*, χορος, set with Seats, and round: the first Seat on the right, next the Sanctuary, being for the Chantor, or *Choragus*. See CHANTOR, &c.

From the Choir, they ascended by Steps to the *Sanctuary*, which was enter'd at three Doors. The Sanctuary had three *Apsides* in its length; a great one in the middle; under which was the *Altar*, crown'd with a *Baldaquin*, supported by four Columns: See SANCTUARY, BALDAQUIN, &c. Under each of the small *Apsides*, was a kind of a Table, or Cupboard, in manner of a Buffet. See APSIDES, &c.

Tho, of the *Greek Churches* now remaining, few have all the Parts above describ'd; most of 'em having been reduc'd to Ruins. or converted into Mosques.

M. *Frezier*, Engineer to the *French* King, and F. *Cordemoy*, a Regular Canon, have disputed the Form of the antient and modern *Churches*, and the best manner of building them, with a good deal of Learning, in the *Journals de Trevoux*.

For the Form of the *Latin Churches*, tho it be various, yet may all the Variety be reduc'd to two Heads; *viz.* those in form of a Ship, and those of a Cross.

CHURCH-*Yard*, a sacred Place, destin'd for the Interment of the Deceas'd. See BURIAL, FUNERAL, &c.

In the primitive Times, the Christians held their Meetings in *Church-yards*, as we are inform'd by *Eusebius*, Lib. vii. and *Tertullian*, who calls those *Church-yards* where the People us'd to meet to pray, *Areas*. *Eusebius* adds, that *Valerian* having confiscated the *Church-yards*, and Places destin'd for the Worship of God; *Gallian* restor'd 'em by a publick Rescript, rehears'd by the same Author. From these Passages, it seems as if *Church-yards*, and Places of Worship, were us'd indifferently for the same thing.

The Heathen Writers frequently upbraid the primitive Christians for their meeting in *Church-yards*; as if they serv'd other Purposes besides those of Religion. The Council of *Elvira* prohibits the keeping of Tapers lighted in *Church-yards*, during the Day-time; and by another Canon, the Women from passing the Night watching in *Church-yards*.

The Custom of blessing *Church-yards* is of an old standing: the Method was, for the Bishop to go round it with his Crosier, or pastoral Staff, and to sprinkle it with some consecrated Fluid. *Lobineau* says, the Holy Water-Pot was carry'd before him.

Antiently, all were buty'd in *Church-yards*; none in *Churches*. From the Bodies of Martyrs, &c. being deposited here, the Christians chose particularly to build their *Churches* in them, when *Constantine* gave them the liberty: and hence *Tillemont* derives that Custom which still obtains in the *Romish Church*, never to consecrate any Altar, without depositing in it the Relicks of some Martyr.

Chorier observes, that under *Church-yard*, *Cœmeterium*, κοιμητηριον, was antiently comprehended, not only the strict Dormitory, or Place where the Dead were dispos'd; but all the Lands which encompass'd the Parish-*Churches*, and were contiguous to the real *Churches*. Perhaps it might be added, that all the *Church* Domains were compriz'd under *Church-yard*. This will best account for that Confiscation of the *Church-yards*, charg'd on *Valerian*.

CHURCH-SCOT, or CHURCHESSET, a Payment, or Contribution, by the *Latin* Writers frequently call'd *Primitiæ seminum*; being, at first, a Quantity of Corn, paid to the Priest on St. *Martin*'s Day, as the First-Fruits of Harvest. See PRIMITIÆ, and FIRST-*Fruits*.

This was enjoin'd by the Laws of King *Malcolm* IV. and *Canut.* c. 10. But after this *Church-Scot* came to signify a Reserve of Corn-Rent paid to the Secular Priests, or to the Religious; and sometimes was taken in so general a Sense as to include Poultry, or any other Provision that was paid in kind to the Religious. See TITHES.

CHURCH-*Government*, *Discipline*, &c. See ECCLESIASTICAL *Government*, &c.

CHURCH-*Reves*. See CHURCH-*Wardens*.

CHURCH-*Wardens*, antiently call'd CHURCH-*Reves*, are Officers chosen yearly by the Parson and his Parishioners, according to the Custom of the Place.

Their Business is to look to the *Church*, *Church-yard*, *Church-Revenues*, &c. to observe the Behaviour of the Parishioners with regard to Faults that come under the Jurisdiction of the Ecclesiastical Court; to present scandalous Livers to the Bishop; take care none preach without Licence, &c.

The *Church-Wardens* are a kind of Corporation; and are enabled by Law to sue and be sued for any thing belonging to the *Church*, or the Poor of the Parish. See PARISH.

CHYLE, or CHYME, in the Animal Oeconomy, a whitish Juice, into which the Food is immediately converted by Digestion, or, more properly, by that Branch thereof call'd *Chylification*. See CHYLIFICATION, DIGESTION, &c.

The *Chyle*, Dr. *Drake* observes, is nothing but a Mixture of the oily and aqueous Parts of the Food, incorporated with the saline ones; which, while they yet remain mix'd with the grosser Parts in the Stomach, make a thick, whitish, partly fluid Mass, called *Chyme*: which, as soon as it is reduc'd to a Consistence loose enough to be obedient to the Pressure and peristaltic Motion of the Stomach, is gradually thrust out at the *Pylorus* into the *Duodenum*, and denominated *Chyle*.

Thus is the *Chyle* begun to be form'd in the Stomach; it is perfected in the Intestines by the Mixture of the Bile and the pancreatic Juice; and is thence receiv'd into the Lacteal Veins, which carry it to the *Receptaculum Chyli*, or *Pecquets* Reservatory: thence it passes into the Thoracic Duct, which terminates in the left Subclavian Vein: In this Vein, the *Chyle* first begins to mix with the Blood; into which it is afterwards converted by the Action called *Sanguification*. See BLOOD.

The Antients suppos'd the *Chyle* was chang'd into Blood in the Liver; others of 'em in the Heart: but the Moderns, with more reason, take the Change to be effected by the Blood it self, in all the Parts of the Body. See SANGUIFICATION.

Some take *Chyle* to be the immediate Matter of Nutrition; others the Blood. See NUTRITION.

The Word comes from the *Greek* χυλος, *Juice*.

Dr. *Lister* is of Opinion, that in the Digestion of Meat in the Stomach, there is made a Separation, or Solution of urinous Salts, no otherwise than in the rotting of Plants, or Animals: that the *Chyle* is highly impregnated with this urinous Salt; that it owes its whiteness to the Fermentation it acquires from that Mixture: That the salt *Chyle* is convey'd into the venal Blood, and with it enters the Heart; and is thence thrown out *Chyle*, as it comes in, by a continual Pulsation, into the Arteries: that as oft as it enters the Emulgent Arteries, it leaves behind part of its saline Liquor, or Urine, and consequently abates of its Colour: That when sufficiently freed of its Salts, it becomes a *Lympha*; which seems to be nothing else but the Residue of the *Chyle* not yet converted into Blood; as not yet sufficiently depurated of its saline Particles. See LYMPHA.

CHYLIFICATION, the Formation of the *Chyle*; or the Act whereby the Food is chang'd into *Chyle*. See FOOD, and CHYLE.

Chylification is begun by comminuting, or breaking the Aliment in the Mouth, mixing it with *Saliva*, and chewing it with the Teeth. See MASTICATION.

By such means, the Food is reduc'd into a kind of Pulp, which falling thro' the *Oesophagus* into the warm Stomach, mixes with the Juices thereof; and is thus diluted, begins to ferment, or putrefy, and assumes a very different form from what it had before; growing either acid or rancid.

Here it mixes with a Juice separated from the Blood by the Glands of that Part, whose Excretory Ducts open into the Stomach; as also with the Remains of the former Aliment: and thus it becomes better macerated, diluted, dissolv'd, and acquires still a greater likeness to the Animal Fluids, and is called *Chyme*. See CONCOCTION.

Add to this, that the fleshy Membrane of the Stomach continually contracting and pressing its Contents by its peristaltic Motion, occasions a more intimate Mixture, and by degrees works out the more fluid Parts thro' the *Pylorus* into the *Duodenum*; along the Sides whereof, and the rest of the *Intestina Tenuia*, the Lacteals are planted; into the minute Orifices whereof, the finer Parts of the Mass is receiv'd. See PERISTALTIC *Motion*, INTESTINES, and LACTEALS.

The Fabrick of the Stomach being consider'd, the Heat of the circumambient Parts, the Pulsations of innumerable Arteries, the great Stroaks of the *Aorta* underneath, the constant Compression of the *Diaphragma* and Abdominal Muscles; it must necessarily follow, that the finer Parts of the Aliment will be first expell'd the Stomach; and that the grosser will remain; till, by the repeated Action of the Fluids, and the Contraction and Pulsation of the Solids, they also become fine enough to go off: thus is the Stomach left empty; and by means of its muscular Coat, reduc'd to a State of Contraction, and Appetite renew'd. See HUNGER.

Thus will even the fleshy Membranes, Cartilages, &c. of Animals fed on, be squeez'd, and oblig'd to give out their Juices; and thus is a Fluid obtain'd, that shall have in some measure the same Properties with those of our Bodies.

The Juice being got thro' the *Pylorus* into the Intestines, its Liquefaction is still promoted by its mixture with two other Dissolvents, the pancreatic Juice and the Bile; which divide and subtilize those Parts that were left too gross: and by the peristaltic Motion of the Guts it is protruded forwards. In the Passage thro' the small Intestines, the finer Part of the Mass, which we call the *Chyle*, enters the Orifices of the Lacteal Veins of the first Kind, wherewith the whole Mesentery is intermix'd; which either alone, or together with the Mesaraic Veins, discharge themselves into the Glands at the Basis of the Mesentery.

Then the *Chyle* is taken up by the Lacteals of the second Kind, and convey'd into Glands between the two Tendons of the Diaphragma, known heretofore under the Name of the *Lumbary* Glands, now call'd *Pecquet*'s Reservatory; whence it is carry'd to the Heart by the Thoracic Duct and the Subclavian Vein; wherein it begins to be mix'd with the Blood, and to circulate, and in time become assimilated thereto. See CIRCULATION, ASSIMILATION, &c.

CHYLOSIS, in Medicine, the Action whereby the Aliment is converted into *Chyle*, or *Chyme*, in the Stomach, &c. whether it be by a Ferment in the Stomach, or the contractile Force of the Stomach, or both. See CHYLIFICATION, and DIGESTION.

CHYME, an Animal Juice, the same with that commonly call'd *Chyle*. See CHYLE.

Some, however, distinguish between *Chyme* and *Chyle*; restraining the Word *Chyme* to the Mass of Food, &c. while in the Stomach, e'er it be sufficiently comminuted and liquefy'd to pass the *Pylorus* into the *Duodenum*, and thence into the Lacteals, to be further diluted and impregnated with the pancreatic Juice; where it commences *Chyle*.

CHYMISTRY, or more properly CHEMISTRY, the Art of separating the several Substances whereof mix'd Bodies are compos'd, by means of Fire; and of composing new Bodies in the Fire, by the Mixture of different Substances or Ingredients. See FIRE.

The great Object of *Chymistry*, is to analyse, or decompound natural Bodies; reduce them to their first Principles; discover their hidden Virtues, and demonstrate their inner Contexture, or the Centre, as they call it, wherein natural Substances concur. In a word, *Chymistry* is the Anatomy of natural Bodies, by means of Fire; which is the Definition *Hanneman* gives us of the Art.

The very learned *Boerhaave* defines *Chymistry* very scientifically: 'An Art whereby sensible Bodies contain'd in 'Vessels, or capable of being contain'd therein, are so 'chang'd, by means of certain Instruments, and principally 'Fire, that their several Powers and Virtues are thereby 'discover'd, with a View to Philosophy, Medicine, &c.

This Definition appears very prolix and circumstantial, and more like a Description than a Definition; but with all his Endeavours, he assures us, he could not frame a shorter, that would express the full Scope, Object, and Instruments of *Chymistry*, so as to distinguish it from every other Art: which is a Point all the Writers of *Chymistry* have stumbled at.

For *Chymistry* cannot justly be call'd the Art *of resolving Bodies*, as *Regius*, *Paracelsus*, &c. define it; since Mechanicks will also do that: Nor is the Matter mended, by saying, It is the Art *of analysing Bodies by Fire*; as *Helmont* has done: nor *by Salt*, as others would have it. These Definitions include only a Part, instead of the whole. And with as little Propriety is it term'd, The Art of *separating the Pure from the Impure*; inasmuch as it compounds as well as separates, and frequently mixes the Pure with the Impure.

Chymistry, on this footing, appears a very extensive Art: Its Object, or the *Materia Chymica*, is all sensible Bodies, capable of being contain'd in Vessels; and is accordingly divided into three Kingdoms, *Fossil*, *Vegetable*, and *Animal*. See BODY, FOSSIL, VEGETABLE, &c.

The Operations of *Chymistry*, include all the Changes produc'd in Bodies by natural Agents or Instruments, *viz. Decoction*, *Infusion*, *Exhalation*, *Calcination*, *Extraction*, *Distillation*, *Crystallization*, &c. See OPERATION, and ELEMENT; see also DECOCTION, INFUSION, EXHALATION, DISTILLATION, CALCINATION, EXTRACTION, &c.

The Effects, or Productions of *Chymistry*, may be reduc'd to *Magisteries*, *Extracts*, *Tinctures*, *Elixirs*, and *Clyssus's*. See MAGISTERY, EXTRACT, TINCTURE, ELIXIR, &c.

The *Instruments*, *or Agents of Chymistry*, whereby its Operations are perform'd, are *Fire*, *Water*, *Air*, *Earth*, *Menstruums*, and Instruments properly so call'd, as *Alembics*, *Cucurbits*, *Retorts*, *Pelicans*, *Furnaces*, and *Lutes*. See FIRE, AIR, WATER, EARTH, MENSTRUUM, ALEMBIC, CUCURBIT, RETORT, FURNACE, and LUTE.

Chymistry is an Art of very great Antiquity, and is held by some very learned Persons to have been practis'd in the Antediluvian World. *Cham*, the Son of *Noah*, is commonly held to have been its Inventor, from whom it is suppos'd to have taken its Name. Others refer the Invention to *Tubal Cain*, whom the Scripture records as the Inventor of Instruments of Brass and Iron. This is pretty certain, that some of the highest and most difficult Things in *Chymistry*, must have been known by him; among which are the separating and purifying of Copper and Iron, the making of Brass, &c. See COPPER, IRON, &c.

The first mention we find made of the Art, is In *Zozimus*, the *Panopolitan*, who lived about the Year of Christ 400. 'In the Sacred Writings, says that Author, we find 'certain *Genii* spoke of, who had commerce with Women. '*Hermes* says as much in his Books upon Nature; and 'scarce any Author but has some Footsteps of this Tradi'tion. These *Genii*, intoxicated with the Love of Wo'men, discover'd 'em all the Secrets of Nature; and 'taught 'em abundance of Things unfit for 'em to know: 'for which reason they were banish'd from Heaven. The 'Book wherein their Secrets was contain'd, was call'd *Che*'*ma*; and hence the Name *Chemia*, or *Chymia*.'

The Text of Scripture *Zozimus* here refers to, is that Passage in *Moses*, *The Sons of God saw the Daughters of Men, and took 'em to Wife*.

This Antediluvian Origin of *Chymistry* is confirm'd by *Tertullian*: 'The Angels that fell, says that Father, dis'cover'd Gold and Silver to Men, with the Arts of working 'em, of dying Wool, &c. for which reason they were ba'nish'd, as is related by *Enoch*.'

Borrichius looks on these Passages as authentic; but adds, that *Enoch* was mistaken, for that the Angels he speaks of were not real Angels; but the Descendants of *Seth* and *Tubal Cain*, who degenerating from their Fathers, gave themselves up to criminal Pleasures with the Women descended from *Cain*; and in the Course of their Intrigues, divulg'd the Secrets God had trusted 'em withal.

Be this as it will, *Chymistry*, no doubt, was first practis'd in *Egypt*. According to *Moses*, *Tubal Cain* should be the first Inventor. Profane Authors refer it to *Vulcan*; and some of the latest and best Criticks endeavour to shew, that *Tubal Cain* and *Vulcan* were the same; as, indeed, there is found a great resemblance between their Names.

After *Tubal Cain*, the first *Chymist* we read of is *Moses*; whose Skill in *Chymistry* is incontestable, from his burning and pulverizing the Golden Calf the *Israelites* had set up, and giving it the People to drink. There is scarce a more difficult Operation in all *Chymistry*, than to make Gold potable. See GOLD.

Chymistry had the common Fate of the other Arts, at the Declension of the Eastern Empire; and lay bury'd and forgot till the Time of *Roger Bacon*, who retriev'd it. He was follow'd by *Lully*, *Ripley*, *Basil Valentine*, *Paracelsus*, *Van Helmont*, *Glauber*, *Boyle*, *Lemery*, *Homberg*, &c. by whom the Art has been carry'd to its present degree of Perfection.

The first *Chymists* confin'd themselves to Metals: In these latter Ages, the Bounds of *Chymistry* have been greatly enlarg'd; and Plants, Animals, Minerals, &c. have been taken into it.

'Tis but of late that *Chymistry* has been apply'd to the Preparation of Medicines: *Basil Valentine*, and *Arnoldus de Villa Nova*, seem to have been the first that attempted it. *Paracelsus* and *Van Helmont* carry'd it to such a length, as to render Medicine almost wholly *chymical*. See MEDICINE.

Chymistry is divided into *Metallurgia*, *Alchymia*, *Chymical Pharmacy*, and *Chymical Philosophy*. See METALLURGIA, ALCHYMIA, &c.

Criticks are divided as to the Etymology of the Name *Chymistry*: It is usually deriv'd from the *Greek* χυμὸς, *Juice*; or from χέω, *to melt*.

Boerhaave, and others, more justly derive it from the Egyptian *Chema*, or *Kema*, black; and write it *Chemia*, not *Chymia*.

Others, making *Cham* the Inventor of *Chymistry*, derive the Term from his Name; supporting their Etymology on the Signification of the Word חם *Cham*, which in the *Hebrew* signifies *heat*, *hot*, *black*; all of them bearing some relation to the Operation of *Chymistry*.

Chymistry is also known under various other Names: It is sometimes call'd the *Hermetical Art*, from a Supposition of its being invented by *Hermes Trismegistus*: See HERMETIC. Others call it, the *Egyptian Art*, from the People among whom it was first practis'd: Others the *Sacred*, *or Divine Art*; *Poiesis*; the Art of *making Gold*, &c. Others call it the *Spagyric* Art; *Paracelsus* the *Hyssopic* Art: others *Pyrotechnia*, &c. See SPAGYRIC, HYSSOPIC, PYROTECHNIA, &c.

When the *Chymists* would express the most sublime Parts of their Art, they prefix the *Arabic* Particle *Al* to the Word *Chymia*, or *Chymistry*, and thus form *Alchymy*. See ALCHYMY.

Some Authors observe, that *Diocletian*, after the taking of *Alexandria*, order'd all the Books of *Chymistry*, antiently wrote by the *Egyptians*, for making Gold and Silver, to be sought out and burnt; that they might not have the Power of enriching themselves by this Art, or of putting themselves, by this means, into a Condition of revolting.

Authors on the Subject of *Chymistry* are very numerous: *Borel* has publish'd a Catalogue of most of 'em, under the Title of *Bibliotheca Chymica*; containing the Names of above ten thousand. *Boerhaave* is the latest, fullest, and infinitely the best; he has given both the History, Theory, and Practice, in the finest, most orderly, and scientifical Way in the World. Dr. *Friend* has reduc'd *Chymistry*

nistry to *Newtonianism*, and accounted for the Reasons of the Operations on Mechanical Principles.

CHYMOSIS, in Medicine, the Act of making or preparing *Chyme*. See CHYME.

Chymosis is particularly us'd for the second of the Concoctions made in the Body; being a repeated Preparation of the most impure and gross Parts of the Chyle, which being turn'd back by the Lacteals, is imbib'd by the Meseraics, and thence carry'd to the Liver, to be there elaborated, purify'd, and subtiliz'd afresh. See CONCOCTION.

'Tis of this, according to *Rogers*, that the Animal Spirits are form'd.

The Word comes from χυμὸς, *succus*, of χέω, *fundo*, I melt.

CHYMOSIS, or CHEMOSIS, is also us'd in Medicine, for an Inflammation of the Eyelids, which turns out their inside to sight.

The Word comes from the *Greek* χαίνω, *hisco*.

CICATRICULA, in Natural History, a little whitish Speck, in the Coat of the Yolk of an Egg; wherein the first Changes appear towards the Formation of the Chick. See YOLK.

The *Cicatricula* is what is commonly call'd the *Treddle* of the Egg. See EGG.

CICATRISIVE, in Medicine, is apply'd to such Medicines as are very Desiccative; and on that account aid Nature to repair the Skin, and to form a *Cicatrix*, or *Eschar*. See CICATRIX.

Such are *Armenian* Bole, Pouder of Tutty, the Unguent *Diapompholigus*, *desiccativum Rubrum*, &c.

Cicatrisive Medicines are otherwise call'd *Escharotics*, *Epuloticks*, *Incarnatives*, *Agglutinants*, &c. See EPULOTIC, ESCHAROTIC, INCARNATIVE, &c.

CICATRIX, in Medicine, &c. a little Seam, or Elevation of callous Flesh, rising on the Skin, and remaining there after the healing of a Wound, &c. ordinarily call'd a Scar, or Eschar. See ESCHAR, WOUND, &c.

The *Cicatrix* is the same as to the joining of the fleshy Parts, as a *Callus* is to the Bones. See CALLUS.

In young Infants, these Callosities, or Scars, sometimes much diminish, and oftentimes quite vanish when come to Age, as is particularly observ'd in the Pits of the Small-Pox: and, in growing, they are sometimes observ'd to change their Situation.

Some derive the Word from *quasi circa cutem*: others fetch *Cicatrix* from *quasi Occæcatrix*, the *Cicatrix* being only *obductio vulneris*, the covering up, or hiding of the Wound: but 'tis better deriv'd from *Cæcatrix*, which has the same force; of the Verb *Cæcare*, to blind.

CICUTA, a vegetable Poison, celebrated both among Antients and Moderns. See POISON.

The modern *Cicuta* is the Plant *Hemlock*; whereof there are two Kinds: the *Cicuta*, absolutely so call'd, or *Cicuta major*; and *Cicuta minor*.

The first grows in Places a little moist, in the Shade, among old Ruins, or along Roads.

So many unhappy Effects have been perceiv'd from it, that its Use, internally, is by no means to be recommended: And yet some Persons boast of it as a powerful Sudorific. Externally it may be apply'd, to resolve Wens, and Hardnesses of the Spleen and Liver. It is the Base of the Plaister which bears its Name.

The Physicians have generally rank'd it among the cold Poisons; but the later Writers, with more justness, regard it as a Dissolvent, or hot Poison. The Reasons they give, as related by *Wepfer*, are, that it bites the Tongue; that the Effluvia it yields are hot, and arise from a volatile Salt, and an impure Sulphur; that the Madness it occasions, as well as the other Sympoms, shew a great activity of Parts; and that if the Blood be found coagulated by it after Death, Spirit of Wine does the same.

The *lesser Cicuta* is not less dangerous than the *greater*; it is ever suppos'd more violent, as well as more hasty in its Operation.

Several Persons have been render'd foolish, by eating Porridge wherein *Cicuta* has been us'd instead of Parsly. It has much such an Enmity to the Brain, as *Cantharides* have to the Bladder; and *Lepus Marinus* to the Lungs.

The *Cicuta* of the Antients, is a Secret which is now scarce possible to be discover'd: it was call'd *Cicuta Aquatica*, and was of the Umbelliferous Tribe. *Wepfer*, in an express Treatise on the Subject, will have it the *Sium Erucæ folio C. B.*

CICUTA is also us'd, chiefly, among the Antients, for a Juice, or Liquor, express'd from the Plant *Cicuta*. This *Cicuta* was the common Poison wherewith their State-Criminals were put to death: *Socrates* drank the *Cicuta*.

Plato, in his Dialogue on the Immortality of the Soul, observes, that 'The Executioner advis'd *Socrates* not to 'talk, for fear of causing the *Cicuta* to operate too slowly.' M. *Petit*, in his *Observationes Miscellaneæ*, remarks, that this Advertisement was not given by the Executioner out of Humanity, but to save the *Cicuta*: for he was only allow'd so much *per Ann.* which if he exceeded, he was to furnish at his own Expence. This Construction is confirm'd by a Passage in *Plutarch*: The Executioner who administer'd the *Cicuta* to *Phocion*, not having enough, *Phocion* gave him Money to buy more; observing, by the way, that it was odd enough, that at *Athens* a Man must pay for every thing, even his own Death.

CIDER, a brisk, tart, cool Liquor, prepar'd from Apples.

The Manner of making CIDER *is as follows.*

The Fruit is first ground, or stamp'd, and the Juice squeez'd out in a Press; then 'tis strain'd thro' a Sieve, or other Filtre, and tunn'd up: the Vessel not to be full. For two or three Days it is to be stopp'd loosely, then quite clos'd with Clay. Henceforward, a small Quantity to be drawn out every Day for some Weeks, till such time as it be suppos'd pretty clear; then 'tis pierc'd, to see how fine it is: the Summer Fruit after a Month; the Gennet-Moil, after the first Frosts; the Redstreak not till after *January*; and the other Winter Fruits about the same time.

If it ben't now found fine enough, it stands a Month longer; and if even then it be defective, 'tis rack'd off like Wine, so as to keep out the Air.

Some, instead of racking, fine it with Ising-glass, steep'd in Whitewine, and dissolv'd over the Fire; this they boil in a quantity of the Liquor to be fined, and then mix it with the rest: and others, instead of dissolving the Ising-glass over the Fire, let it steep in the Whitewine for about a Month, in which time it dissolves into a Gelly of it self: a quantity of this is mix'd with some of the Liquor, and the whole beat to a froth; then mingled, together with some Broom, with the rest. The Liquor once fine, 'tis drawn out, or bottled off, as occasion requires. See CLARIFYING.

'Tis observ'd, that a Mixture of Fruits is a great Advantage to *Cider*; the worst Apples, mix'd together, making as good *Cider* as the best alone: always observing, however that they be of equal ripeness.

The best Mixture, according to Mr. *Worlidge*, is that of Redstreaks with Golden-Rennets: Bitter Apples spoil the *Cider*; but the Juice of them and of Crabs, yield as good Spirits as the best Apples, when fermented: neither the sour nor the bitter Taste arising with the Spirit upon Distillation.

If the Apples be pounded in a Stone Mortar, which is the Custom of some, the Kernels and Stalks are bruis'd with them, which gives the Liquor an ill Savour.

CIDERKIN, or *Purre*, is a Liquor made of the Murk, or gross Matter remaining after the *Cider* is press'd out.

For this purpose, the Murk is put up in a large Fat, with a proper Quantity of boil'd Water, which has stood till it be cold again: if half the Quantity of Water be us'd that there was of *Cider*, 'twill be good; if the Quantities be equal, the *Ciderkin* will be small. The whole is left to infuse forty eight Hours, then well press'd: What is squeez'd out by the Press is immediately tunn'd up and stopp'd; 'tis fit to drink in a few Days.

It clarifies of it self, and serves in Families instead of Small Beer. It will keep, if boil'd after pressure, with a convenient quantity of Hops.

CILIA, in Anatomy, the Hairs wherewith the *Palpebræ*, or Eyelids are fring'd; especially the Upper, which is larger and stiffer than that of the Under. See PALPEBRA.

Their Use seems to be, to break the too fierce Impression of the Rays of Light; as also to keep out Flies and Moats, and other Things floating in the Air, which might annoy the Eye.

These *Cilia* spring from a small row of Glands, which cover a thin tender Cartilage, edging each Eyelid, and serving as a kind of Rod, or Ring to stretch 'em upon.

CILIARE, in Anatomy, an Epithet given to a Part of the Eye, call'd *Ligamentum Ciliare*; because of its resembling the *Cilium*, or Hair of the Eyelids. See LIGAMENT.

The *Ligamentum Ciliare*, call'd also *Processus Ciliaris*, consists of a range of black Fibres dispos'd circularly; having their rise in the inner Part of the *Uvea*, and terminating in the prominent Part of the Crystalline, which they incompass round.

Anatomists generally imagine their Use to be to suspend the Crystalline in the Globe of the Eye, to lengthen or shorten its Figure, and bring it nearer to or further from the Uvea; and even to open or contract the Pupil as occasion require, *i. e.* as near or remote Objects, obscure or bright Objects are to be view'd. See CRYSTALLINE, and PUPIL.

The Motion of the Pupil, some say, is effected by the circular and strait Fibres of the Uvea; others attribute it to the *Ciliary* Ligament: yet, I have no great doubt, but they both concur in the same Action; and that the *Ligamentum Ciliare* doth, at the same time the Pupil opens or shuts, dilate or compress the Crystalline, and bring it nearer, or carry it farther off the *Retina*. *Derham Phys. Theol.*

M. *Mariotte* denies the *Ligamentum Ciliare* to have any connection with the Cryſtalline, or to ſerve for any purpoſes thereof. See VISION.

CILIARIS, in Anatomy, a Muſcle, otherwiſe call'd *Orbicularis Palpebrarum*. See ORBICULARIS.

CIMA, or *Sima*, in Architecture, a Member or Moulding, call'd alſo *Gula*, and *Cymatium*. See GULA, and CYMATIUM.

CIMIER, in the *French* Heraldry. See CREST.

CINCTURE, or CEINTURE, in Architecture, a Ring, Liſt, or Orlo, at the top and bottom of the Shaft of a Column; dividing the Shaft, at one end, from the Baſe; and at the other from the Capital. See SHAFT, COLUMN, *&c.*

That at bottom is peculiarly call'd *Apophyges*; as if the Pillar took its height hence: and that at top *Colarin*, or Collar. See APOPHYGES, and COLARIN.

The *Cincture* is ſuppos'd to be an Imitation of the Girts, or Ferrils, antiently us'd to ſtrengthen and preſerve the primitive wooden Columns. See ORDER.

The Word, in its original *French*, ſignifies *Girdle*; of the Latin *cingo*, I gird.

CINERATION, in Chymiſtry, the reduction of Wood, or any other combuſtible Matter into *Aſhes*, by means of Fire. See ASHES, CALCINATION, *&c.*

This, others call *Cineſaction*.

CINERES. See ASHES.

CINERES *Clavellati*, among Chymiſts, are the Aſhes of Tartar, or the Lees of Wine burnt. See TARTAR.

CINERITIOUS, a Term apply'd to Things reſembling Aſhes; particularly in point of Colour and Conſiſtence.

Thus, the Cortical Part of the Brain, is alſo call'd the *Cineritious* Part. See CORTICAL.

CINNABAR, or CINOPER, in Natural Hiſtory, a Mineral Stone, red, heavy, and brillant; found chiefly in the Quickſilver Mines; call'd alſo *Vermilion*. See FOSSIL, and MERCURY.

Many, with good reaſon, eſteem this the *Minium* of the Antients; tho a very different thing from the modern *Minium*. See MINIUM.

The ordinary Vermilion it ſelf, is nothing elſe but *Cinnabar* ground up with Spirit of Wine and Urine. See VERMILION.

Some have imagin'd *Cinnabar* to be Dragons-Blood, gather'd, as *Pliny* and *Solinus* have it, when the Dragon and Elephant fight together: This Fable is refuted by *Dioſcorides* and *Scaliger*. See DRAGONS-BLOOD.

Cinnabar is either *Native*, or *Factitious*.

The *Native*, or Mineral *Cinnabar*, or Vermilion, which is that abovemention'd, is found in moſt Places where there are Quickſilver Mines; yet, 'tis true alſo, that it has Mines its own: thoſe in *Spain* are very famous; the *French* too have theirs, in *Normandy*.

It may be eſteem'd as Marcaſſite of Quickſilver, or rather, as Quickſilver petrify'd and fix'd, by means of Sulphur, and a ſubterraneous Heat: Chymiſtry being found to reduce it without much trouble or loſs, to the Nature of Mercury. Each Pound of good *Cinnabar* yields fourteen Ounces of Mercury. Accordingly, the principal Property and Uſe of this Mineral, is to yield a moſt excellent Mercury; and that which the Alchymiſts maintain to be the beſt diſpos'd for attaining to the Tranſmutation of Gold.

The beſt Mineral *Cinnabar* is of a high Colour, brillant, and free from the Stone.

It is us'd by Phyſicians in Venereal Caſes, and others, occaſion'd by ſharp Seroſities. It's alſo eſteem'd a good Cephalic, and accounted of ſervice in Epilepſies, and other nervous Diſtempers: Add, that it is reckon'd of efficacy in cutaneous Caſes, as the Scurvy.

Factitious, or Artificial *Cinnabar*, or Vermilion, is form'd of a Mixture of Mercury and Sulphur, ſublimed, and thus reduced into a kind of Stone.

The beſt is of a high Colour, full of Fibres, like Needles.

The Method of preparing Factitious CINNABAR is thus.

They take three Ounces of Sulphur, and four of Quickſilver; theſe being well mix'd, are ſet on the Fire, till part of the Sulphur be conſum'd, and the Powder remain black. 'Tis then ſublim'd once or twice in open Pots; at bottom of which remains the *Cinnabar*, very heavy, and ſtreak'd with Lines, or Needles; ſome red, others brillant, like Silver.

This ſerves for the ſame medicinal Purpoſes with the *Native Cinnabar*: beſides which, 'tis likewiſe us'd by the Farriers, to make Pills for their Horſes; and by Painters, as a Colour: it being a very vivid red; but drying with ſome difficulty.

Cinnabar, or Vermilion, is tender'd more beautiful by grinding it with Gum-Water and a little Saffron: thoſe two Drugs preventing its growing black. See VERMILION.

There is likewiſe a *blue Cinnabar*, made by mixing two Parts of Sulphur with three of Quickſilver, and one of Sal Ammoniac: theſe being ſublimed, produce a beautiful blue Subſtance; whereas Quickſilver and Sulphur alone produce a red.

The Word comes from the *Greek* κινάβρα, *the ſmell of Goats*; by reaſon, ſays *Matthiolus*, in digging a kind of Mineral *Cinnabar*, it yields ſo ſtrong a Scent, that the Diggers are oblig'd to ſtop their Noſtrils.

The Chymiſts prepare other Kinds of Artificial *Cinnabar*; as,

CINNABAR *of Antimony*, a Compoſition of Mercury, common Sulphur, and crude Antimony ſublimed. See ANTIMONY.

It is held a Diaphoretic, and Alterative; and is us'd in Scrophulous and other chronic Caſes.

CINNAMON, an agreeable aromatic Spice, furniſh'd by the *Eaſt-Indies*. See SPICE.

Cinnamon is allow'd to be the Bark of a Tree, growing in the Iſlands of *Ceylon*, *Java*, and in *Malabar*.

The *Cinnamon* Tree, call'd by the Natives *Corunda Gauhah*, grows in Woods, like other Trees; and is but little regarded by 'em. It never grows high: Its Leaves reſemble thoſe of the Laurel, both as to Subſtance, and Colour. When they firſt begin to open, they are red as Scarlet; and if rubb'd between the Hands, yield an Odour more like that of Cloves than of *Cinnamon*. The Fruit reſembles an Acorn, or Olive; and has neither the Smell nor Taſte of the Bark. When boil'd in Water, it yields an Oil, which, as it cools and hardens, becomes as firm and white as Tallow. Its Smell is agreeable, and they make Candles of it, which are only allow'd to be burnt in the King's Palace. The Wood is of no Virtue at all.

The chief Virtue of the *Cinnamon* Tree is in its Bark; which, when green, appears to be double: its exterior Surface being grayiſh, and the inner of the common *Cinnamon* Colour.

'Tis then diviſible into two Barks of different Colours; but theſe drying together, become inſeparable, and paſs for the ſame Bark; the grayiſh Colour changing in proportion as it dries.

When the *Cinnamon* is freſh taken from the Tree, 'tis flat, has little Taſte, Smell, or Colour; but it twiſts or convolves, as it dries, in form of a Stick, or Cane: whence the *French* call it *Cannelle*.

By thus exhaling its ſuperfluous Humidity, it acquires a ſweet briſk Smell, and a ſharp pungent Taſte. 'Tis ſaid, that after the Tree has been ſtripp'd of its Bark, in three Years it forms a new one, which is as good as the firſt: but this is not very probable.

Some hold, that the ſmall Branches of the ſame Tree make the *Caſſia*; but that muſt be a Miſtake. See CASSIA.

The Natives draw from the Roots of the Tree a Liquor, very much reſembling *Camphor*.

Cinnamon, to be good, muſt have a briſk agreeable Taſte, and a bright brown Colour. Its Qualities are, to heat and dry; to promote the Menſes, to fortify the Spirits, and to help Digeſtion: but its chief Uſe, in Medicine, is as an Aſtringent; with which Intention it is preſcrib'd in Diarrhæas, and Weakneſſes of the Stomach.

The *Cinnamon* of the Antients was different from that of the Moderns; they diſtinguiſh'd five Kinds of *Cinnamon*: the *Moſylitique*; *Cinnamon of the Mountain*; *black* and *branch'd Cinnamon*; another white and ſpongeous; and a fifth of leſs value, reddiſh, and of a ſtrong ſmell: as alſo a *baſtard Cinnamon*, call'd *Zinziber*: This laſt Species was antiently in very high eſteem, but is now no longer known. See ZINZIBER.

They extract an Oil from *Cinnamon*, call'd its Eſſence, or Quinteſſence, which is an excellent Cardiac: the manner of preparing it, is ſaid to be a Secret known only to the *Dutch*. The common *Cinnamon* is often adulterated with that out of which this Eſſence has been extracted.

Cinnamon, by means of Fire, furniſhes Waters, Extracts, and Salts; out of which are compounded Syrups, and Paſtils, call'd *Oleo Sacchara*; together with an Eſſence, that ſerves to turn all manner of Wines, white and red, into *Hypocras*.

CINNAMON *Water*, is made by diſtilling the Bark, (firſt infus'd in Barley-Water) in Spirit of Wine, or Whitewine. See WATER.

All the *Cinnamon* conſum'd in *Europe*, comes from the *Dutch*; who have got the whole Commerce thereof in their own Hands, by becoming Maſters of the Iſle of *Ceylon*, and deſtroying all the other *Cinnamon* Trees about the Kingdom of *Cochin*.

Clove CINNAMON, is alſo the Bark of a Tree growing in *Braſil* and *Madagaſcar*; where it is known under the Name of *Ravendſara*. The *Portugueze* call it *Cravo de Marenhan*.

This Bark, pulveriz'd, is ſometimes ſubſtituted for real *Cloves*, tho far ſhort of 'em in reſpect of Quality. See CLOVES.

Saſſafras, or Saxafras, is ſometimes alſo call'd *Cinnamon-Wood*. See SASSAFRAS.

White CINNAMON, which ſome call *Coſtus Corticus*, or *Corticoſus*, or *Cortex Winteri*, *Winter's* Bark, from the Perſon's

Person's Name who first brought it into *England*; is the Bark of a Tree resembling the Olive Tree, frequent in the Island of S. *Domingo*, *Guadeloupa*, and *Madagascar*; call'd by the Natives *Fimpi*. See CORTEX.

The Bark, which dries like that of *Cinnamon*, is at first grayish, of a sharp biting Taste, like Pepper; and a Smell like Musk: as it dries it whitens.

Some use it in lieu of Nutmeg: In Medicine, it's us'd as a Stomachic, and sometimes as an Antiscorbutic.

The same Tree yields a Gum, call'd *Alouch*, or *Bdellium*, which is no disagreeable Perfu[illegible]

CINQUE-PORTS, or *Quin[illegible]ortus*, five Havens that lie on the East Part of *Eng[illegible]d*, towards *France*; thus call'd, by way of Eminence, on account of their superior Importance; as having been thought by our Kings to merit a particular regard, for their preservation against Invasion.

Hence they have a particular Policy, and are govern'd by a Keeper, with the Title of *Lord Warden of the Cinque-Ports*.

They have various Privileges granted 'em, as a particular Jurisdiction; their Warden having the Authority of an Admiral among 'em, and sending out Writs in his own Name. See WARDEN.

Camden tells us, that *William* the Conqueror first appointed a Warden of the Cinque-Ports; but King *John* first granted them their Privileges; and that upon Condition they should provide 80 Ships at their own Charge, for 40 Days, as often as the King should have occasion in the Wars: he being then straitned for a Navy to recover *Normandy*.

The five Ports are *Hastings*, *Romney*, *Hythe*, *Dover*, and *Sandwich*.

Thorn tells us, that *Hastings* provided 21 Vessels; and in each Vessel 21 Men. To this Port belong *Seaford*, *Pevensey*, *Hedney*, *Winchelsea*, *Rye*, *Hamine*, *Wakesbourn*, *Creneth*, and *Fortholipe*.

Romney provided 5 Ships, and in each 24 Men. To this belong *Bromhal*, *Lyde* of *Marstone*, *Dangemures*, and *Romential*.

Hythe furnish'd 5 Ships, and in each 21 Seamen: To this belongs *Westmeath*.

Dover the same Number as *Hastings*: To this belong *Folkston*, *Feversham*, and *Margate*.

Lastly, *Sandwich* furnish'd the same with *Hythe*: To this belong *Fordivice*, *Reculver*, *Serve*, and *Deal*.

CION, or CYON, or SCION, in Gardening, a young Shoot, Sprout, or Sprig, put forth by a Tree. See SHOOT.

Grafting is perform'd by the Application of the *Cion* of one Plant upon the Stock of another. See GRAFT, and ENGRAFTING.

To produce a Stock of *Cions* for Grafting, Planting, &c. the Gardeners sometimes cut off the Bodies of Trees, a little above the Ground, and only leave a Stump or Root standing: the redundant Sap will not fail next Spring to put forth a great number of Shoots. See STOCK.

In dressing dwarf Trees, a great many *Cions* are to be cut off. See DWARF; see also PRUNING.

CION, in Anatomy, is sometimes us'd for the *Uvula*. See UVULA.

CIPHER, or CYPHER, one of the Numeral Characters, or Figures; form'd thus o. See CHARACTER, FIGURE, &c.

The *Cipher* of it self implies a Privation of Value; but when dispos'd with other Characters on the left thereof, in the common Arithmetic, it serves to augment each of their Values by ten; and in Decimal Arithmetic, to lessen the Value of each Figure to the right thereof, in the same proportion. See NOTATION, NUMERATION, and DECIMAL.

CIPHER is also a kind of mystick Character, compos'd of several Letters interwove together; which are ordinarily the initial Letters of the Persons Names, for whom the *Cipher* is intended.

These are frequently us'd on Seals, Coaches, and other Moveables.

Antiently, Merchants and Tradesmen were not allow'd to bear Arms: in lieu thereof they bore their *Ciphers*, or the initial Letters of their Names, artfully interwove about a Cross; of which we have divers Instances on Tombs, &c.

CIPHER is also us'd for certain secret Characters, disguis'd and varied; us'd for the writing of Letters that contain Secrets, not to be understood by any but those between whom the *Cipher* is agreed on.

This is now reduc'd into a separate Art, call'd *Polygraphia*, and *Steganographia*; but appears to have been little known to the Antients. See STEGANOGRAPHY, &c.

De la Guilletiere, in his *Lacedemon Antient and Modern*, endeavours to make the antient *Spartans* the Inventors of the Art of writing in *Cipher*.

Their *Scytala*, according to him, was the first Sketch of this mysterious Art: These *Scytalas* were two Rollers of Wood, of equal length and thickness; one of them kept by the *Ephori*; the other by the General of the Army, sent on any Expedition against the Enemy.

Whensoever those Magistrates would send any secret Orders to the General, they took a slip of Parchment, and roll'd it very justly about the *Scytala* which they had reserv'd; and in this state wrote their Intentions, which appear'd perfect and consistent while the Parchment continu'd on the Roller: when taken off, the Writing was maim'd, and without connection; but was easily retriev'd by the General, upon applying it to his *Scytala*.

Polybius says, that *Æneas Tacticus*, 2000 Years ago, collected together twenty different Manners of Writing so as not to be understood by any but those in the Secret; part whereof were invented by himself, and part us'd before his Time.

Trithemius, *Bap. Porta*, *Vigenere*, and *P. Niceron* have wrote on the Subject of *Ciphers*.

As the writing in *Cipher* is become an Art; so is the reading, or unravelling thereof, call'd *Deciphering*. See DECIPHERING.

A CIPHER *with a single Key*, is that wherein the same Character is constantly us'd to express the same Word, or Letter: This is easily decipher'd with a little Application.

A CIPHER *with a double Key*, is that wherein the Alphabet, or Key, is chang'd in each Line, or each Word; and wherein are inserted Characters of no significancy, to amuse and perplex the Meaning.

The Word *Cipher* comes from the Hebrew *Sifre*, Number, Enumeration.

CIPHERING, is popularly us'd for the Art of Accompting; properly call'd *Arithmetic*. See ARITHMETIC.

CIPPUS, among Antiquaries, a little low Column, erected in the great Roads, and other Places, with an Inscription thereon; either to shew the Way to Travellers, or to preserve the Memory of something remarkable.

The *Cippi* plac'd in the Highway, for the Convenience of Travellers, were also call'd *Milliary Columns*. See MILLIARY *Column*.

Hottinger has an express Treatise of the *Cippi* of the *Jews*, *De Cippis Hebræorum*; wherein he takes *Cippus* for the Tomb of a Defunct. See TOMB, and TUMULUS.

CIPPUS was also us'd in Antiquity, for a wooden Instrument, wherewith Criminals and Slaves were punish'd.

CIRCENSES *Ludi*, in Antiquity, *Circensian Games*, or *Games of the Circus*, a general Term, under which were comprehended all Combats exhibited in the *Roman Circus*, of what Kind soever; whether a-foot, or on Horseback, or in a Car; Wrestling, or Boxing; with Swords, Pikes, Darts, or Arrows; against Men, or against Beasts; on the Ground, or aboard Vessels. See GAMES, and CIRCUS.

There were few but Slaves that gave the People this cruel Pleasure: it was an Exercise that would have disgrac'd People of any Account.

Some say, the *Circensian* Games were so call'd from the Latin *Circuitus*; because they were held in a Place incompass'd round with naked Swords, that the Combatants might not have an opportunity of escaping.

At first they are said to have been exhibited on the brink of the River *Tyber*, and the Ground incompass'd, to the Landward, with naked Swords.

Most of the Feasts of the *Romans* were accompany'd with *Circensian* Games; and the Magistrates, or other Officers of the Republick, frequently presented the People with them on other Occasions. See FEAST.

The grand ones were held for five Days, commencing on the 15th of *September*.

CIRCLE, in Geometry, a plane Figure, comprehended under one single Line, which returns into it self; having a Point in the Middle, from which all the Lines drawn to its Circumference are equal. See CENTRE.

Properly speaking, 'tis the Space included within the Circumference, or Periphery, that is the *Circle*: tho in the popular Use of the Word, *Circle* is frequently us'd for the Periphery alone. See PERIPHERY.

Every *Circle* is suppos'd to be divided into 360 Degrees. See DEGREE; see also CHORD, TANGENT, DIAMETER, &c.

The Area of a *Circle*, is found by multiplying the Periphery by the fourth Part of the Diameter; or half the Periphery by half the Diameter.

The Area is also found by finding a Fourth proportional to 1000,785, and the Square of the Diameter: or, to 452, 355, and the Square of the Diameter. See AREA.

Circles, and similar Figures inscrib'd in 'em, are always as the Squares of the Diameters: So that they are in a duplicate Ratio of their Diameters; and therefore of their Radii.

A *Circle* is equal to a Triangle whose Base is equal to the Periphery, and its Altitude to the Radius. *Circles*, therefore, are in a Ratio compounded of the Peripheries and the Radii.

To find the Proportion of the Diameter of a Circle *to its Periphery.*

Find, by continual Bissection, the Sides of the inscrib'd Polygons, till you arrive at a Side subtending any Arch, howsoever small: this found, find likewise the Side of a similar circumscrib'd Polygon; multiply each by the Number of Sides of the Polygon; by which you will have the Perimeter of each Polygon. The Ratio of the Diameter to the Periphery of the Circle, will be greater than of the same Diameter to the Perimeter of the circumscrib'd Polygon; but less than that to the inscrib'd Polygon.

The Difference of the two being known, the Ratio of the Diameter to the Periphery, is easily had in Numbers very nearly true; tho not justly so.

Thus, *Wolfius* finds it as 100000000000000 to 314159265358979 32. *Archimedes* fix'd the Proportion as 7 to 22. *Ludolphus à Ceulen* carries it to a much greater accuracy; finding, that putting the Diameter for 1, the Periphery is greater than 3. 14159265358979323846264338387950; but, less than the same Number, changing the last Cipher into an Unite. *Metius* gives us the following Proportion, which is the best that is express'd by small Numbers: if the Diameter be 113, the Periphery (113. 31415): 10000; that is, 355, nearly.

To circumscribe a Circle *about a given regular Polygon:* bisect two of the Angles of the Polygon E and D, (Tab. *Geom.* Fig. 28.) by the Lines E F and D E; and on the Point of Concourse F, as on a Centre, with the Radius E F, describe a *Circle*. See Circumscribing.

To inscribe any given regular Polygon in a Circle: divide 360 by the Number of Sides, to find the Quantity of the Angle E F D; which being made, in the Centre apply the Chord E D to the Periphery, as often as it will go: Thus is the Figure inscrib'd in the *Circle*. See Inscribed.

Thro' three given Points, not in a right Line, A, B, C, *to describe a* Circle. On A and C strike Arches intersecting in D and E; and others, G and H; from C and B draw the right Lines D E and H G: The Point of Intersection, I, is the Centre of the *Circle*.

Hence, 1st, by assuming three Points in the Periphery, or the Arch of any *Circle*, the Centre may be found, and the given Arch be perfected. See Centre.

2dly, If three Points of any Periphery agree, or coincide with three Points of another; the whole Peripheries agree, and the *Circles* are equal.

3dly, Every Triangle may be inscrib'd in a *Circle*. See Triangle.

In Opticks, 'tis shewn, that a *Circle* never appears truly such, unless either the Eye be directed perpendicularly to its Centre; or the distance of the Eye from the Centre, when directed obliquely, be equal to the Semidiameter of the *Circle*: in every other Case the *Circle* appears oblong; and to make a *Circle* that shall appear such, it must be oblong.

Parallel, or *Concentric* Circles, are such as are equally distant from each other in every Point of their Peripheries; or are describ'd from the same Centre: as, on the contrary, those struck from different Centres, are said to be *eccentric*. See Concentric, and Eccentric.

The Quadrature of the Circle, or the manner of making a Square, whose Surface is perfectly and geometrically equal to that of a *Circle*, is a Problem that has employ'd the Geometricians of all Ages. See Quadrature.

Many maintain it to be impossible; *Des Cartes*, in particular, insists on it, that a right Line and a *Circle* being of different Natures, there can be no strict Proportion between 'em: and, in effect, we are likewise at a Loss for the just Proportion between the Diameter and Circumference of a *Circle*.

Archimedes is the Person who has come the nearest to the Quadrature of the *Circle*: all the rest have made Paralogisms.

Charles V. offer'd a Reward of 100000 Crowns to the Person who should solve this celebrated Problem; and the States of *Holland* have propos'd a Reward for the same.

Circles *of the higher Kinds*, are Curves wherein $A p^m : p M^m : M : p B$, (Tab. *Analysis*, Fig. 8.) or $A p^m : p M^m_c :: p M^n : p B^n$.

Cor. I. Suppose $A p = x$, $p M = y : A B = a$; then will $p B = a - x$. Consequently, $x^n : y^m :: y : a - x$. Hence we have an Equation that defines infinite *Circles*, *viz.* $y m + 1 = a x^m - x m + 1$; and another defining infinite other *Circles*, viz. $y m + n = (a - x) n x^m$.

Cor. II. If $m = 1$, then will $y^2 = a x - x^2$; and therefore a *Circle* of the first Kind is contain'd under this Equation alone. If $m = 2$, $y^2 = a x^2 - x^3$. which Equation defines a *Circle* of the first Kind.

Circles *of the Sphere*, are such as cut the mundane Sphere, and have their Periphery either on its moveable Surface, or in another immoveable, conterminous, and equidistant. See Sphere.

Hence arise two Kinds of *Circles*, *moveable*, and *immoveable*.

The first, those whose Peripheries are in the moveable Surface, and which therefore revolve with its diurnal Motion, as the *Meridians*, &c. See Meridian.

The latter, having their Periphery in the immoveable Surface, don't revolve; as the *Ecliptic*, *Equator*, and its *Parallels*, &c. See Ecliptic, &c.

If a Sphere be cut in any manner, the Plane of the Section will be a *Circle*, whose Centre is in the Diameter of the Sphere. See Spherics.

Hence, the Diameter of a *Circle* passing thro' the Centre, being equal to that of the *Circle* which generated the Sphere; and that of a *Circle* which does not pass thro' the Centre, being only equal to some Chord of the generating *Circle*; the Diameter being the greatest of all Chords, there hence arises another division of the *Circles* of the Sphere, *viz.* into *great* and *less*.

A great Circle *of the Sphere*, is that which divides it into two equal Parts, or Hemispheres; having its Centre in the Centre thereof. See Great.

Hence, all *great Circles* are equal, and cut each other into equal Portions, or Semicircles. See Spherics.

The *great Circles* are the *Horizon*, *Meridian*, *Equator*, *Ecliptic*, the *Colures*, and the *Azimuths*; which see in their Places, Horizon, Meridian, Ecliptic, &c.

A lesser Circle *of a Sphere*, is that which divides the Sphere into equal Parts, and has its Centre in the Axis of the Sphere, but not in the Centre thereof. See Lesser.

They are usually denominated from the great *Circles* they are parallel to, as *Parallels of the Equator*, &c. See Parallel.

Circles *of Altitude*, otherwise call'd *Almacantars*, are *Circles* parallel to the Horizon, having their common Pole in the Zenith, and still diminishing as they approach the Zenith. See Almacantar.

They have their Names from their Use; which is to shew the Altitude of a Star above the Horizon. See Altitude.

Circles *of Latitude*, or *Secondaries of the Ecliptic*, are great *Circles* parallel to the Plane of the Ecliptic, passing thro' the Poles thereof, and thro' every Star and Planet. See Secondary.

They are so call'd, because they serve to measure the Latitude of the Stars, which is nothing but an Arch of one of these *Circles*, intercepted between the Star and the Ecliptic. See Latitude.

Circles *of Longitude*, are several lesser *Circles*, parallel to the Ecliptic; still diminishing, in proportion as they recede from it.

On the Arches of these *Circles*, the Longitude of the Stars is reckon'd. See Longitude.

Circles *of Declination*, are great *Circles* passing thro' the Poles of the World. See Declination.

Vertical Circles, or *Azimuths*. See Vertical, and Azimuth.

Diurnal Circles, are immoveable *Circles*, suppos'd to be describ'd by the several Stars, and other Points of the Heavens, in their diurnal Rotation round the Earth; or rather, in the Rotation of the Earth round its Axis. See Diurnal.

The *Diurnal Circles* are all unequal: the Equator is the biggest.

Polar Circles, are immoveable *Circles*, parallel to the Equator, and at a distance from the Poles, equal to the greatest Declination of the Ecliptic. See Polar.

That next the Northern Pole is call'd the *Arctic*; and that next the Southern one the *Antarctic*. See Arctic, and Antarctic.

Circles *of Excursion*, are *Circles* parallel to the Ecliptic, and at such a distance from it, as that the Excursions of the Planets towards the Poles of the Ecliptic, may be included within it; which are usually fix'd at 10 Degrees. See Sphere, and Spherics.

It may be here added, that all the *Circles* of the Sphere above describ'd, are transfer'd from the Heavens to the Earth; and thence come to have Place in Geography, as well as Astronomy: all the Points of each *Circle* being conceiv'd to be let fall perpendicularly on the Surface of the Terrestrial Globe, and so to trace out *Circles* perfectly similar to them.

Thus, the Terrestrial Equator is a Line, conceiv'd precisely under the Equinoctial Line, which is in the Heavens; and so of the rest. See Equator, &c.

Horary Circles, in Dialling, are the Lines which shew the Hours on Dials; tho these be not drawn circular, but nearly strait. See Dial.

Circle *Equant*, in the *Ptolemaic* Astronomy, is a *Circle* describ'd on the Centre of the Equant. See Equant.

Its chief Use, is to find the Variation of the first Inequality. See Variation.

Circle *of perpetual Apparition*, one of the lesser *Circles*, parallel to the Equator; describ'd by any Point of the Sphere touching the Northern Point of the Horizon; and carry'd about with the diurnal Motion.

All the Stars included within this *Circle* never set, but are ever visible above the Horizon.

The Circle *of perpetual Occultation*, is another *Circle* at a like Distance from the Equator; and contains all those Stars which never appear in our Hemisphere. See Occultation.

The Stars situate between these *Circles*, alternately rise and set at certain Times. See Star, Rising, Setting, &c.

Circles *of Position*, are *Circles* passing thro' the common Intersections of the Horizon and Meridian, and thro' any Degree of the Ecliptic, or the Centre of any Star, or other Point in the Heavens; us'd for finding out the Situation or Position of any Star, &c. See Position.

They are usually made six in number; and cut the Equator into twelve equal Parts, which the Astrologers call the *Celestial Houses*.

Hence some call them *Circles of the Celestial Houses*.

Circle, in Physicks, is understood, among the Schoolmen, of a Vicissitude of Generations, arising one out of another.

Thus, good Concoction causes a good Habit of Body; a good Habit of Body produces Strength and Vigour; these occasion frequent Exercises; and these a good Concoction.

'Tis a celebrated Dogma of the Scotists, 'There is no 'Circle in Causes of the same Order, or Kind.'

Circle, in Logick, the Fault of an Argument that supposes the Principle it should prove, and afterwards proves the Principle by the Thing it seem'd to have prov'd.

Or, a *Circle* in Logick, call'd also *Syllogistic Circle*, is when the same Terms are proved, *in Orbem*, by the same Terms; and the Parts of the Syllogism, alternately by each other, both directly and indirectly.

There are two Kinds of *Circles*; the one *Material*, the other *Formal*.

The *Formal* is that which in two reciprocal Syllogisms begs the *Medium*, which is the next Cause of the greater Extreme. This Kind is by no means to be admitted: otherwise, the same Thing becomes both prior and posterior; the Cause and Effect of it self; which is absurd.

The *Material Circle*, call'd also *Regressus*, consists of two Syllogisms, the former whereof proves the Cause by the Effect; and the latter the Effect by the Cause: This may be admitted.

Circles *of the Empire*, are such Provinces, and Principalities of the Empire, as have a Right to be present at Diets. See Empire, and Diet.

The Division of the Empire into six *Circles*, was establish'd by *Maximilian* I. in 1500, at *Ausburg*: twelve Years afterwards he divided it afresh, into ten *Circles*; which Partition was confirm'd by *Charles* V. at the Diet of *Nuremberg*, in 1522.

Tho the Order of these *Circles* has never been well regulated; yet, in the Imperial *Matricula*, it is as follows: The *Circle* of *Austria*, that of *Burgundy*, of the *Lower Rhine*, of *Bavaria*, *Upper Saxony*, *Franconia*, *Suabia*, *Upper Rhine*, *Westphalia*, and the *Lower Saxony*.

CIRCUIT, or CIRCUITY, in Law; a longer Course of Proceeding to recover the Thing sued for, than is needful.

Thus, if a Man grant a Rent-Charge of 10 *l.* out of his Manor, and after, the Grantee disseizeth the Grantor of the same Manor, who brings an Assise, and recovers the Land, and 20 *l.* Damages: which being paid, the Grantee brings his Action for 10 *l.* of his Rent, due during the Time of the Disseisin, and which he must have had if no Disseisin had been: This is call'd *Circuit of Action*; because, whereas the Grantor was to receive 20 *l.* Damages, and to pay 10 *l.* Rent, he might have receiv'd but 10 *l.* for Damages, and the Grantee have kept the other.

Circuit, is also the Journey, or Progress the Judges take, twice every Year, thro' the several Counties of *England* and *Wales*, to hold Courts, and administer Justice, where recourse cannot so well be had to the King's Courts at *Westminster*. See Judge, and Assize.

CIRCULAR, any thing that is describ'd, or mov'd in a round; as the Circumference of a Circle, or the Surface of a Globe. See Circle.

The *circular* Form is of all others the best dispos'd for Motion; and the most capacious.

The modern Astronomers shew, that the Heavenly Bodies don't move in *Circular*, but in Elliptic Orbits. See Orbit, Planet, &c.

Circular *Lines*, in Mathematicks, are such strait Lines as are divided from the Divisions made in the Arch of a Circle.

Such are Sines, Tangents, Secants, &c. See Sine, Tangent, &c.

Circular *Velocity*, a Term in Astronomy, signifying that Velocity of a Planet, or revolving Body, which is measur'd by the Arch of a Circle: as suppose by A *b*, (Tab. *Astron.* Fig. 10.) describ'd on the Centre of Attraction S.

The *circular* Velocity of a Body moving from B to C, is measur'd by the Ark BC.

Circular *Numbers*, are such whose Powers end in the Roots themselves; as 5, whose Square is 25, and Cube 125. See Number.

Circular *Letter*, a Letter directed to several Persons, who have the same Interest in the same Affair; as in the Convocation of Assemblies, &c.

Circular *Sailing*, is that perform'd in the Arch of a great Circle. See Sailing.

Circular Sailing, of all others, goes the nearest or shortest way: and yet there are such Advantages in sailing by Rhumbs, that this latter is generally preferr'd.

CIRCULATION, the Act of *circulating*, or moving in a *Circle*. See Circle.

Thus, we say, The *Circulation* of the Blood; the *Circulation* of the Sap; of the Spirits, &c. See Blood, Sap, Spirits.

As in the great World we find a perpetual and orderly *Circulation* of Waters, convey'd from the Sea by subterraneous Passages, Springs, &c. and return'd thither again by Rivers, &c. so in the little World, Man, a like Circuit is observ'd; the Blood being continually driven from the Heart, by the Arteries, to all Parts of the Body; and brought back again to the Heart by the Veins. See Heart, Vein, and Artery.

Circulation *of the Blood*, a natural Motion of the Blood in a living Animal; whereby that Humor is alternately convey'd from the Heart to all the Parts of the Body, by the Arteries, and return'd from the same Parts to the Heart by the Veins. See Blood.

The *Heart*, we have elsewhere shewn, is a Muscle, into the *Ventricles* or Cavities whereof, all the Veins discharge themselves, and from which all the Arteries arise; having, withal, a reciprocal Action of Dilatation, or *Diastole*; and Constriction, or *Systole*. See Heart, Systole, and Diastole.

Now, the necessary Effect of such alternate Action, is, that the Heart, by turns, both receives and expels the Blood. The Blood expell'd out of the right Ventricle, must be carry'd thro' the *Pulmonary* Artery (which arises thence) into the Lungs; from which it must be return'd, by the *Pulmonary* Vein, to the left Ventricle, (in which that Vein terminates.) From the left Ventricle, the Blood thus imported, is by the Constriction of that Part, again expell'd into the *Aorta*, and by it distributed all over the rest of the Body; and thence return'd again to the right Ventricle by the *Cava*, which compleats the *Circulation*. See Pulmonary *Artery*, and *Vein*; Cava, and Aorta.

The *Circulation* of the Blood, has been generally allow'd to have been first discover'd in *England*, in the Year 1628, by *Harvey*, a Physician of our own Country; tho there are several Authors who dispute it with him.

Jansen de Almeloveen, in a Treatise of *New Inventions*, printed in 1684, quotes several Passages from *Hippocrates*, to prove that the *Circulation* was known to him.

Walæus, (*Ep. ad Bartbol.*) and *Carleton*, (*Oecon. Anim.*) pretend, 'twas known not only to *Hippocrates*, but also to *Plato* and *Aristotle*.

'Tis added, that the *Chinese* Physicians taught it 400 Years, e're it was spoke of in *Europe*.

Some go back as far as *Solomon*, and imagine they see some Traces of it in *Ecclesiastes*, Chap. xii.

Bern. Genga, in an *Italian* Treatise of Anatomy, quotes several Passages from *Realdus Columbus*, and *And. Cæsalpinus*, whereby he endeavours to prove that they admitted a *Circulation*, long enough before *Harvey*.

He adds, that *Fra. Paolo Sarpio* the famous *Venetian*, from a Consideration of the Structure of the Valves of the Veins, and other Experiments, concluded a *Circulation*. See Valve.

Leonicenus adds, that *F. Paolo* durst not make known his Discovery, for fear of the Inquisition; that he therefore only communicated the Secret to *Fab. ab Aquapendente*; who, after his Death, deposited the Book he had compos'd on it in the Library of S. *Mark*; where it lay hid a long time, till *Aquapendente* discover'd the Secret to *Harvey*, who then study'd under him at *Padua*; and who, upon his return to *England*, a Country of Liberty, publish'd it as his own.

The *Circulation* of the Blood is evinc'd, from the following Considerations.

1. All the Blood of a living Animal, upon wounding any one of the larger Arteries, is, in a little time, evacuated; and that with a considerable force: as appears from the Operations of Butchers, &c.

Hence, it follows, that the Blood has a Passage from every Part of the Animal Body into every Artery: and if the whole Mass of Blood be found to move on this occasion, 'tis evident it must have mov'd before.

2. The great Quantity of Blood driven out of the Heart into the Arteries at every Pulse, makes a *Circulation* necessary; since, without it, an infinitely greater Stock of Blood must be suppos'd in the Body of a Man, than any Observation or Experiment will allow of.

For tho the Antients, who knew not this *Circulation*, imagin'd that only a Drop or two was expell'd at each Systole; which they were necessitated to suppose, to avoid the too great

great Distension of the Arteries, from a more considerable Influx: yet it is certain, and even demonstrable, that there must needs be an Ounce, or more, driven into 'em at each time; and yet some compute five or six thousand Pulsations in an Hour.

3. Any of the Arteries, being ty'd with a Thread, swell, and beat, between the Bandage and the Heart; but grow flaccid between the Bandage and the Extremities of the Body.

If now the Artery be cut between the Bandage and the Heart, the Blood streams out, even to Death: If it be cut between the Bandage and the Extremities of the Body, the Quantity of Blood it yields is very small.

The vital Blood, therefore, flows thro' the Arteries; and its Course is from the Heart towards the Extremes of the Body: and this it does in every Point of the Body, internal and external; still out of a wider Part into a narrower; out of the Trunk into the Branches. 'Tis on this Principle alone, that all the Blood may be deriv'd into any Artery, and evacuated at it. See ARTERY.

4. Any of the larger Veins being bound up with a Thread, swell between the Extremes of the Body and the Bandage; but without beating: between the Bandage and the Heart it becomes flaccid.

If open'd in the former Part, it bleeds even to Death; if in the latter, it scarce bleeds at all. The Blood, therefore, flows briskly from every Part of the Body into this Vein; and its Course is from the Extremes of the Body towards the Heart; from the narrower Parts of the Vein towards the wider Parts; from the Branches to the Trunk. See VEIN.

From the whole, 'tis evident, that all the Arteries of the Body are continually bringing the Blood from the left Part of the Heart, thro' the Trunks of the Arteries, into the Branches; and from those to all Parts of the Body, internal and external: And on the contrary, that all the Veins, excepting the *Porta*, are perpetually bringing back the Blood from the extreme Parts into the smaller Branches; from those it passes into the larger, at length into the Trunks, and thence into the *Cava*; and thro' the *Sinus Venosus*, or Trunk of that Vein (which ends in the Cavity of the right *Auricle*) into the Heart.

The Blood arriv'd here, its Motion, or *Circulation*, is continu'd as follows.

The Auricles of the Heart being large hollow Muscles, furnish'd with a double Series of strong Fibres proceeding with a contrary Direction to two opposite Tendons, the one adhering to the right Ventricle, the other to the *Sinus Venosus*, as also with innumerable Veins and Arteries; by the contractile Force of these Auricles, the Blood will be vigorously express'd, and drove into the right Ventricle; which, upon this Contraction, is render'd flaccid, empty, and dispos'd to admit it. See MUSCLE.

If now the right Ventricle, thus full of Blood, by the Contraction of its Fibres press the Blood towards the Aperture again; the venous Blood at the same time pouring in, will drive it back again into the Cavity, and mix it more intimately; till rising up against the *Parietes*, it raises the *Valvulæ Tricuspides*, which are so connected to the fleshy Columns extended on the opposite side, as that when laid quite down they cannot close the *Parietes* of the right Ventricle: these it thrusts towards the right Auricle, till being there join'd, they stop the Passage very closely, and prevent any return.

By the same means, the same Blood rises up into the three *Semilunar* Valves, plac'd in the Extremity of the other Mouth, and lying open to the Pulmonary Artery: these it shuts close against the Sides of the Artery, and leaves a Passage into the Artery alone.

The venous Blood therefore, that is, the Blood of the whole Body, continually moves out of the *Sinus*, or Trunk of the *Vena Cava*, thro' the right Auricle, and right Ventricle, into the Pulmonary Artery, in a continu'd and forcible Stream.

The Blood carry'd by this Artery into the Lungs, and distributed by its Branches thro' the whole Substance thereof, is first admitted into the Extremities of the Pulmonary Vein, call'd *Arteria Venosa*; whence passing into four large Vessels, which unite together, it is brought to the left *Sinus Venosus*, or Trunk of the Pulmonary Vein; by the force of whose musculous Structure it is driven into the left Ventricle, which, on this occasion, is relax'd, and by that means prepar'd to receive it.

Hence, as before, 'tis driven into the left Ventricle, which is relax'd by the same means; and the *Valvulæ Mitrales* opening, admit it into the left Ventricle, and hinder its reflux into the Pulmonary Vein.

From hence it is forc'd into the *Aorta*; at whose Orifice there are three Semilunar Valves, which also prevent a Reflux by closing the same.

And thus is *Circulation* effected; all the Blood sent into the Lungs, and receiv'd into the *Arteria Venosa*, *Sinus Venosus*, left Auricle and Ventricle, being here continually propell'd into the *Aorta*; whose Ramifications are spread throughout all the rest of the Body, with a violent Motion.

This Motion, in living Animals, is attended with the following Phænomena.

1. Both *Venous Sinus*'s are fill'd, and grow turgid at the same time. 2. Both Auricles grow flaccid at the same time; and both are fill'd at the same time, with Blood impell'd by the contractile Force of its correspondent muscular *Venous Sinus*. 3. Each Ventricle contracts, and empties it self of Blood at the same time; and the two great Arteries are fill'd and dilated at the same time. 4. As soon as the Blood, by this Contraction, is expell'd, both Ventricles being empty, the Heart grows longer and broader; and consequently more flaccid and capacious. 5. Upon which, the muscular Fibres of both *Venous Sinus*'s contract, and express the Blood contain'd in 'em into the Ventricles of the Heart. 6. In the mean time, the *Venous Sinus*'s are again fill'd, as before; and the Auricles, *&c.* return into their former habitude. 7. And this Alternation continues till the Animal begins to languish, under the Approach of Death; at which time, the Auricles and *Venous Sinus*'s make several Palpitations, for one Contraction of the Ventricle.

Thus is all the Blood, in its return from every Point of the Body, internal and external, and from every Point of the Heart and its Auricles, impell'd into the right Ventricle; out of that into the Lungs; thence into the left Ventricle; and thence thro' the whole extent of the Body; and thence again brought back to the Heart.

As to the manner of the Blood's passing out of the Arteries into the Veins, in order to its being return'd to the Heart; there are two Opinions.

In the first, the Veins and Arteries are suppos'd to open into each other, or to be continu'd from each other, by *Anastomases*, or Inosculations of their Extremities. See INOSCULATION, *&c.*

In the latter the extreme Capillary Arteries are suppos'd to let out their Blood into the Pores of the Substance of their Parts; on whose Nutrition part is spent, and the rest receiv'd in at the Mouths of the Capillary Veins.

Each of these manners must be allow'd to have its Place: For without the first, it were difficult to account for so quick a return of the Blood to the Heart, as in effect we find; besides that, in some of the larger Vessels, there is a confess'd *Anastomasis*, *v. g.* in the Splenic Artery with the Splenic Vein, *&c.* whence Authors conclude the same Contrivance to hold in the lesser Vessels; even in the smallest Twigs in the extreme Parts of the Body, tho not discover'd by the Eye; Nature being ordinarily found very uniform, and consistent with her self.

Riolanus, however, who will allow of no *Circulation* but by *Anastomases*; allows of none, neither, but by the larger Vessels.

The Reason of the latter Opinion is deduc'd hence, that if part of the arterial Blood did not ooze out into the Substance of the Parts, they could not be nourish'd thereby: For the Blood, while contain'd in the Vessels, may indeed convey Warmth thereto, but no Nutriment; the very Vessels themselves being not nourish'd by the Fluid running in their Cavity, but by Capillaries passing their Coats. See NUTRITION.

If then the Blood be driven out of the Vessels in a greater Quantity than is requir'd for Nutrition; the redundancy must be imbib'd by the Capillary Veins.

M. *Leewenhoeck* seem'd to have put this Matter out of doubt by his Microscopes, with which he discover'd the Inosculations, or Continuations of the Extremities of the Veins and Arteries in Fishes, Frogs, *&c.* But some still doubt whether there be such Continuations in the Extremes of the Veins and Arteries in human Bodies and Quadrupeds: those Animals it has been hitherto observ'd in, being either Fish, or of the amphibious Kind, which have but one Ventricle in the Heart, and their Blood actually cold; to which it may be added, that the Blood in these Creatures does not *circulate* with that Rapidity as in those whose Hearts have two Ventricles.

This difference in the principal Organs of *Circulation*, occasion'd Mr. *Cowper* to make Experiments on other Animals, whose Parts have the same Structure with those of Man. In the *Omentum* of a Cat, he saw the Blood move briskly thro' the Inosculations; the same he found in the *Omentum*, and much clearer in the Mesentery, of a Dog. He adds, that the Extremities of the Vessels are not equally lessen'd, in the Inosculations, in different Animals.

In the Tail of the Tadpole, he frequently observ'd several Communications between the Veins and Arteries; thro' each of which two Globules of Blood might pass abreast. In young Fish, particularly Grigs, the communicant Branch is so small, that one Globule of Blood can scarce pass in the Space of three Seconds. See VEIN, *&c.*

In a *Fœtus*, the Apparatus for the Circulation is somewhat different, from that above describ'd.

The *Septum*, which separates the two Auricles of the Heart, is pierc'd thro' with an Aperture, call'd the *Foramen Ovale*; and the Trunk of the Pulmonary Artery, a little after it has left the Heart, sends out a Tube into the descending *Aorta*, call'd the *Communicating Canal*.

The *Fœtus* being born, the *Foramen Ovale* closes, by degrees, and the Canal of Communication dries up, and becomes a simple Ligament. See FOETUS.

This Mechanism once known, 'twas easy to perceive its Use.

For while the *Fœtus* is inclos'd in the *Uterus*, it receives no Air, but that little furnish'd it by the Umbilical Vein: Its Lungs, therefore, can't swell and subside as they do after the Birth, and after the free Admission of the Air. They continue almost at rest, and without any Motion; their Vessels are as it were full of themselves, and don't allow the Blood to *circulate*, either in abundance, or with Ease.

Nature, therefore, has excus'd the Lungs from the Passage of the greatest Part of the Blood; and has contriv'd the *Foramen Ovale*, by which Part of the Blood of the *Vena Cava*, receiv'd into the right Auricle, passes into the left Auricle, at the Mouth of the Pulmonary Veins; and by this means is found as far in its Journey as if it had pass'd the Lungs.

But this is not all, for the Blood of the *Cava*, which, missing the *Foramen Ovale*, passes from the right Auricle into the right Ventricle; being still in too great Quantity to pass by the Lungs, whither 'tis driven thro' the Pulmonary Artery; the communicant Canal intercepts part of it in the way, and pours it immediately into the descending *Aorta*. See FORAMEN, *&c.*

This is the Doctrine of *Harvey*, *Lower*, and most other Anatomists; but, M. *Mery*, of the Royal Academy, has made an Innovation in it.

He assigns another use for the *Foramen Ovale*; and maintains, that the whole Mass of Blood brought from the *Cava* to the right Ventricle, passes, as in Adults, into the Pulmonary Artery, whence Part of it is convey'd by the communicant Canal into the *Aorta*; and the rest brought from the Lungs by the Pulmonary Veins into the left Auricle, where 'tis divided into two Parts; the one passing thro' the *Foramen Ovale* into the right Ventricle, without *circulating* thro' the *Aorta* and the rest of the Body; the other Part push'd, as in Adults, by the Contraction of the left Ventricle, into the *Aorta*, and the whole Body of the *Fœtus*.

The whole Question then turns upon this, *viz.* whether the Blood pass thro' the *Foramen Ovale* from the right to the left Ventricle, or from the left to the right.

M. *du Verney* asserts the antient Opinion, against M. *Mery*, and maintains that the *Foramen Ovale* has a Valve so dispos'd as to be open'd by the Blood driving into the right Ventricle, but shut the more firmly by its pushing into the left. M. *Mery* denies the Existence of any such Valve.

Again, in an Adult, the *Aorta* being to receive all the Blood of the Pulmonary Artery, is found of the same bigness. In a *Fœtus*, the two Arteries are to receive unequal Quantities, which of the two Systems soever be follow'd.

According to the common Opinion, the *Aorta* receiving more Blood than the Pulmonary, should be bigger: according to the Opinion of M. *Mery*, the Pulmonary Artery should be the bigger, as being esteem'd to receive a larger Quantity of Blood.

To judge of the two Systems therefore; it should seem there needed nothing but to determine which of the two Vessels were biggest in a *Fœtus*.

M. *Mery* always found the Pulmonary Artery half as big again as the *Aorta*; and, on the other hand, M. *Tauvry*, who seconded M. *du Verney*, produces Cases where the Pulmonary is less than the *Aorta*: the Facts on both Sides being examin'd by the *French* Royal Academy.

M. *Tauvry* adds, that tho the Pulmonary Artery should be greater than the *Aorta*, yet this does not prove that more Blood passes the first than the second; since it may be accounted for from the Blood's pressing more slowly towards the Lungs, which it finds some difficulty to penetrate, and accordingly swells, and is driven back.

M. *Littre*, upon dissecting an Adult, in whom the *Foramen Ovale* was still open, and measuring the Capacities of the Vessels on each side, declares for M. *Mery*.

For the Source of the *Circulation* in the *Fœtus*, Anatomists are again divided.

The popular Opinion is, that during Gestation, the Arteries of the *Uterus* convey their Blood into the *Placenta*, which is nourish'd by it, and the Surplus convey'd into the Roots of the Umbilical Vein, which makes Part of the Navel-string: thence 'tis carry'd to the Liver of the *Fœtus*, where it enters the *Vena Cava*, and is thence convey'd to the right Ventricle of the Heart, and distributed as before.

Again, the Blood brought from the Iliac Arteries of the *Fœtus*, enters the Navel-string by the Umbilical Arteries; thence passes into the *Placenta*, where it is resum'd by the Veins of the *Uterus*, which carry it back again to the Mother; and perhaps also by the Roots of the Umbilical Vein, which mix it afresh with the Blood of the Mother.

According to this System therefore, 'tis the Blood of the Mother that supplies the Child; which is here only regarded as a distinct Member, or Part of her Frame.

The beating of her Heart sends it a Portion of her Blood; and so much of the Impulse is preserv'd, as suffices to maintain that languid *Circulation* which a *Fœtus* enjoys; and, in all probability, gives that feeble Pulsation observ'd in the Heart.

Other Anatomists maintain, that the *Fœtus* is only supply'd with Chyle from the Glands of the *Uterus*; which is further elaborated, and turn'd into Blood in the Vessels of the *Fœtus*; and circulates therein, without any further Communication with the Mother.

They allow of no reciprocal *Circulation*, excepting between the *Placenta* and the *Fœtus*.

But the former Opinion is best supported: For the *Placenta* being separated from the *Uterus*, during the time of Gestation, neither yields any Chyle, nor any thing but Blood. Besides, M. *Mery* has shewn, that the *Uterus* has no Glands to furnish any Chyle.

Two other Observations of the same Author, confirm the popular System: The inner Surface of the *Uterus* is lin'd with Veins; and the outer Surface of the *Placenta* is not lin'd with any Membrane. Now as 'tis by these two Surfaces that the two seem in some measure glu'd together; it looks as if they were only left without Membranes, for an immediate Communication between their Blood-Vessels.

Add to these a Fact whereof M. *Mery* was an Eye-witness: A Woman big with Child was kill'd by a Fall; in the Cavity of her Belly were found seven or eight Pints of Blood; all the Blood-Vessels being empty'd: the Child too was found dead; but without the least Appearance of any Wound or Contusion: all its Blood-Vessels being empty of Blood, like those of the Mother. The Body of the *Placenta* still adher'd to the whole inner Surface of the *Uterus*; nor was there any extravasated Blood.

Now the Blood here had no other way to discharge it self, but by the Veins of the *Uterus*: whence it follows, that those Veins bring back to the Mother the Blood of the *Fœtus*; which alone establishes the whole System. If the *Circulation* were only from the *Fœtus* to the *Placenta*, and not also to the Mother; the dead Child would have had all its Blood.

Upon the whole, the Blood in the Lungs of the *Fœtus* has none of the Advantages of Air or Respiration; which yet being necessary, Nature, 'tis suppos'd, takes care that it receive a Portion of Air, mix'd together with its Mother's Blood, and transmitted to it by the Umbilical Vessels, to be diffus'd thro' the Body.

This is confirm'd hence, that by constringing the Navel-string very tight, the Child dies like a Man strangled: which appears to be owing to nothing but the want of Air. Add to this, that as soon as the Mother ceases to respire, the *Fœtus* expires.

As to the Velocity of the *circulating* Blood, and the Time wherein a *Circulation* is compleated; several Computations have been made.

By Dr. *Keil's* Account, the Blood is driven out of the Heart into the *Aorta*, with a Velocity which would carry it 52 Feet in a Minute. But this Velocity is continually abated in the Progress of the Blood thro' the numerous Sections, or Branches of the Arteries: so that e'er it arrive at the Extremities of the Body, its Motion is infinitely diminish'd.

The same Author, upon a moderate Ratio of the Branches of the Arteries to the Trunks, shews, that the greatest Velocity of the Blood is to the least, in a greater proportion than of 1000,00000,00000,00000,00000,00000,00000,00000, to 1.

The space of Time wherein the whole Mass of Blood may ordinarily *circulate*, is variously determin'd.

Some of the latest Writers state it thus: Supposing the Heart to make 2000 Pulses in an Hour, and that at every Pulse there is expell'd an Ounce of Blood; as the whole Mass is not ordinarily computed to exceed 24 Pounds, it must be *circulated* 7 or 8 times over in the space of an Hour.

CIRCULATION *of the Spirits*, or the *Nervous Juice*. That the Spirits *circulate*, is evinc'd in the same manner as some Authors chuse to prove the *Circulation of the Blood*; *viz.* That as the Heart drives out every Hour three or four thousand Ounces of Blood, whereas, ordinarily, there is not above two thousand in the whole Body; there is a Necessity for the Blood driven out, to return to the Heart, in order to supply a Fund to be expell'd.

In like manner, 'tis shewn, that there is form'd each Hour a large quantity of Spirits, which are nothing but the more subtil Parts of this Blood driven out from the Heart: whence 'tis infer'd, that these too must *circulate*. See SPIRIT.

The Course they are suppos'd to take is this.

The

The most subtil Parts of the Arterial Blood being carry'd from the Heart to the Brain by the Carotid Arteries, are thrown violently into the fine Network, wherewith the Bottom of the Ventricles of the Brain is lin'd; whence the more delicate Parts are driven into the Mouths of the Choroid Arteries, where they continue their rapid Motion, and discharge themselves at the Pores where those Vessels terminate around the Pineal Gland.

Hence they enter that Gland, and there form a constant Spring of Spirits; which being here purify'd, enters the Cavities of the Brain, and insinuating into the Pores of its Substance, flow into the Lymphatics; whence they are carry'd to the Heart by two ways.

Those from the upper Parts by the Subclavian Veins, and the adjacent Vessels: those from the lower, being discharg'd into *Pecquet's* Reservoir, proceed by the Thoracic Duct, and at last by the descending Veins to the Heart. Whence they begin their Course afresh.

Circulation *of the Sap*, is a natural Motion of the nutritious Juice of Plants, from the Root to the extreme Parts, and thence back again to the Root. See Sap, and Plant.

The Experiments of modern Naturalists, and Gardeners seem to prove a *Circulation* in the Body of Plants, by Veins and Arteries, analogous to that in Animals.

M. *Perrault* first started the *Circulation* of the Sap in *France*, and propos'd it, in 1667, to the Royal Academy: Tho M. *Major*, a Physician of *Hambourg*, had publish'd it, unknown to M. *Perrault*, two Years before. A Year and half afterwards, M. *Marriotte* propos'd the same to the Academy, as a new thing; not knowing that M. *Perrault* had been beforehand with him: And the great *Malpighi* appears to have entertain'd the same Thought about the same time.

The Opinion, however, is not universally receiv'd: some of the ablest Botanists, and particularly M. *Dodart*, protesting openly against it.

That Author allows of a Juice mounting from the Root to the Extremities of the Branches; and of another descending from these Extremities to the Root: the first imbib'd from the Soil, and digested in the Root, for the Nourishment of the Plant: the second receiv'd from the moist Parts of the Air, in at the Extremities of the Branches. The rising and descending Juices, therefore, according to him, are not the same; or, that which rises never descends, and reciprocally; *i. e.* there is no *Circulation*.

Dr. *Tong*, in the *Philosophical Transactions*, maintains, that the Sap always rises, and never properly descends; having only a Subsiding, or Recidivation, which he can by no means call a *Circulation*.

M. *Switzer* owns himself at a Loss for the Method wherein a *Circulation* should be effected; as well as for the Parity of Reason commonly urg'd for a *Circulation* of the Sap and of the Blood. In Animals, he observes, the degree of Growth, or Extension, is but very small: so that the Blood, not being employ'd in any other service, may be easily suppos'd to *circulate*: But Trees, growing to an unlimited Tallness, 'tis probable the great Effort of Nature is employ'd in extending 'em that way; and that the nutritious Juice only ascends. He adds, that as to the Swelling or Extension of Trees in bulk, it evidently arises from the Effusion of the Sap from the Heart of the Tree thro' the Pores, which dilates the whole insensibly, by accumulating Circle on Circle; which are annual Gradations easily observ'd upon cutting a Branch, or Trunk across.

But still, the Arguments for a *Circulation*, must be allow'd of more weight than any thing here urg'd against it.

The same Experiments of Ligature, and Incision, which evince a *Circulation* in Animals, have been made in Plants; particularly in such as abound in Sap, as the Milk-Thistle, *&c.* and with the same Success; the Part between the Ligature and the Root swelling very considerably, and the other much less.

The Ligatures are to be made with metalline Rings. Dr. *Lister* gives us an Instance in the *Cataputia minor*, where the Ligature being only a silken Thread, ty'd as hard as possible without breaking the Skin, no greater Swelling arose on one side the Ligature than the other.

Mr. *Lawrence* gives us a Demonstration of the *Circulation* of the Sap, from an Experiment on the yellow strip'd Jessamine.

Upon a Branch of a plain Jessamine, whose Stem spreads it self in two or three Branches, inoculate a Bud of the yellow strip'd Jessamine, in Autumn: As the Tree comes to shoot, the following Summer, some of the Leaves will be found ting'd here and there with yellow, and this even on the Branches not inoculated; till, by degrees, the whole Tree, even the very Wood of the young Branches, will be all variegated, or strip'd with green and yellow. See Variegation.

Mr. *Fairchild* confirms this Experiment by a similar one of his own: Having inoculated a yellow spotted Jessamine Tree, into another Jessamine Tree; he found, that tho the Bough did not take, yet, in a Fortnight's time, yellow Spots began to appear on a Shoot which came out of the Ground from another Part of the Plant. See Mule.

As to the manner of the *Circulation*; it is not difficult to conceive. *Malpighi*, *Grew*, &c. by means of Microscopes, have discover'd, that the Wood of Plants consists of fine Capillary Tubes, which run parallel from the Root, thro' the Trunk, and may be look'd on as Arteries; and on the outside of these, betwixt the Wood and the inner Bark, are other large Tubes, to do the Office of Veins.

Now, the Root having imbib'd a Stock of Juice from the Earth, that Juice will be put in motion by the Heat; that is, it will be rarefy'd, and made to ascend in form of a Steam or Vapour. Meeting, therefore, with the patent Mouths of the Arterial Vessels, it will pass thro' the same to the Top and extreme Parts of the Tree, with a Force answerable to the Heat by which it is put in motion: when it is there arriv'd; meeting with the Cold of the external Air, it is condens'd into a Liquor; and in that form returns, by its own weight, towards the Root of the venal Vessels abovemention'd.

Circulation, in Chymistry, is an Operation whereby the same Vapour, rais'd by Fire, falls back; to be return'd and distill'd several times, and thus reduc'd into its most subtil Parts. See Distillation.

Circulation is perform'd by disposing the Liquor in a single Vessel, stopp'd at top, call'd a *Pelican*; or in a double Vessel, consisting of two Pieces, luted on each other; the lower to contain the Liquor. See Pelican, and Double *Vessel*.

'Tis perform'd either by the Heat of a Lamp, or that of Ashes, or of Sand moderately hot, or in Dung, or by the Sun. It usually demands a continu'd heat of several Days, sometimes of several Weeks, or even several Months. See Fire, and Heat.

By *Circulation*, the finest Part of the Fluid mounts to the Top of the Vessel; and finding no issue there, falls back again, and rejoins the Matter left behind at the Bottom, whence it arose: and thus, by continuing to rise, and fall alternately in the Vessel, there is effected a kind of *Circulation*, or Remixtion of the spirituous Parts with the gross ones; whereby the former are render'd finer and more subtil, and better disposed to exert their Activity when separated from the latter. See Rectification.

CIRCULATORY, CIRCULATORIUM, in Chymistry, the Vessel wherein a Fluid is put, to undergo the Process of *Circulation*. See Circulation.

There are two Kinds of *Circulatories*, the *Diota*, or double Vessel; and the *Pelican*. See Double *Vessel*, and Pelican.

CIRCULUS, in Geometry Logick, *&c.* See Circle.

Circulus, among Chymists, is a round Iron Instrument, us'd in cutting off the Necks of glass Vessels: which they effect thus.

The Instrument being heated, is apply'd to the glass Vessel, and there kept till it grow hot: then, by a few Drops of cold Water, or a cold Blast thereon, it flies asunder.

Thus they cut off the Necks of Retorts or Cucurbits. See Retort, *&c.*

There is another Method of doing the same, *viz.* by tying a Thread, first dipp'd in Oil of Turpentine, round the Place where the Fracture is to be; and then setting fire to the Thread.

This done, some cold Water being sprinkled on the Place, the Glass will be crack'd thro' precisely where the Thread was ty'd.

CIRCUMAGENTES *Musculi*, in Anatomy. See Obliqui.

CIRCUMAMBIENT, an Epithet denoting a thing to invest, or incompass another around. See Ambient.

We say the *Ambient*, or *Circumambient* Air, *&c.* See Air, Atmosphere, *&c.*

CIRCUMCISION, the Act of cutting off the Prepuce: or, a Ceremony in the *Jewish* and *Mahometan* Religions, wherein they cut away the *Præputium*, or Fore-skin of the Males who are to profess the one, or the other Law. See Prepuce, Jew, Mahometan, *&c.*

Circumcision commenc'd in the Time of *Abraham*; and was, as it were, the Seal of a Covenant stipulated between God and him: It was in the Year of the World 2178, that *Abraham*, by divine Appointment, *circumcis'd* himself, and all the Males of his Family; from which time it became an hereditary Practice among his Descendants.

The Ceremony, however, was not confin'd to the *Jews*: *Herodotus* and *Philo Judæus* observe, that it obtain'd also among the *Egyptians* and *Ethiopians*. *Herodotus* says, that the Custom was very antient among each People; so that there was no determining which of them borrow'd it from the other. The same Historian relates, that the Inhabitants of the *Colchide* also us'd *Circumcision*; whence he concludes, that they were originally *Egyptians*. He adds, that the *Phænicians* and *Syrians* were likewise *circumcis'd*; but that they borrow'd the Practice from the *Egyptians*. And lastly,

that a little before the Time when he wrote, *Circumcision* had pass'd from the *Colchide*, to the People inhabiting near *Thermodoon* and *Parthenius*.

Marsham is of Opinion, that the *Hebrews* borrow'd *Circumcision* from the *Egyptians*; and that God was not the first Author thereof: citing *Diodorus Siculus* and *Herodotus* as Evidences on his side. Be this as it will, 'tis certain, the Practice of *Circumcision* among the *Hebrews*, differ'd very considerably from that of the *Egyptians*.

Among the first, 'twas a Ceremony of Religion, and was perform'd on the eighth Day after the Birth of the Child. Among the latter, a Point of mere Decency and Cleanliness; and, as some will have it, of physical Necessity: and was not perform'd till the thirteenth Year; and then on Girls as well as Boys.

Among the *Jews*, *Circumcision* was perform'd with a Knife of Stone. They set aside the Practice of *Circumcision*, during the forty Years of their Passage thro' the Wilderness; in regard, *Circumcision* being intended as a Mark of Distinction between the *Jews* and *Gentiles*, it was unnecessary to make any Mark at all, in a Place wherein there was no body to mix with them.

M. *Fleury* observes, that the *Jews* were not unanimous as do the Necessity of *Circumcision*; some holding it an Essential, others as a Circumstance.

The *Turks*, before the Operation of Circumcision, squeeze the Skin with little Pinchers, to deaden the Sensation: they then cut it off with a Razor, and apply a certain Pouder, which heals the Wound, and abates the Pain. They never *circumcise* till the seventh or eighth Year; as having no Notion of its being necessary to Salvation.

The *Persians* circumcise their Boys at thirteen Years; and their Girls from nine to fifteen. Those of *Madagascar* cut off the Flesh at three several times: The most zealous of the Relations present, catches hold of the *Preputium* and swallows it.

Herrera tells us, there is a kind of *Circumcision* among the *Mexicans*, tho they are very remote both from *Judaism* and *Mahometanism*: they cut off the Foreskin of the virile Member and the Ears, as soon as the Child is born, with a world of Ceremony.

Circumcision is also practis'd on Women, by cutting off the Fore-skin of the *Clitoris*; which bears a near resemblance, and analogy to the *Præputium* of the Male Penis. *Strabo* says, the *Egyptian* Women were *circumcis'd*; *Belon* says the same of the *Cophtæ*; and *P. Jovius* and *Munster* of the Subjects of *Prester John*. See CLITORIS.

Among the *Jews*, the Father is oblig'd to have his Son *circumcis'd* on the eighth Day; it mayn't be sooner: but the Child's Weakness may allow of its being deferr'd longer. There is a Godfather to hold the Child, and a Godmother to carry it from the House to the Synagogue, and to present it there. He who *circumcises* is call'd in *Hebrew*, *Mohel*: Any Person is chosen for the Purpose, indifferently; provided he be but capable of the Function; which among the *Jews* is a Title of great Merit.

The Manner of the Ceremony, as related by *Leo de Modena*, is as follows.

Two Seats are prepar'd, in the Morning, with silken Cushions; the one for the Godfather who holds the Child, the other, as they say, for the Prophet *Elias*, whom they suppose to assist invisibly. The Person who is to *circumcise* brings the necessary Utensils, the Razor, Styptic, Linen, Fillet, and Oil of Roses; to which some add a Shell full of Sand to put the *Præputium* in. A Psalm is sung till the Godmother brings the Child, attended with a Croud of Women, and delivers it to the Godfather; none of 'em entering the Door. The Godfather being seated, sets the Child on his Lap: then the *Circumciser* taking the Razor, and preparing the Child for the Operation, says, *Blessed be thou, O Lord, who hast enjoin'd us Circumcision*; and in so saying cuts off the thick Skin of the *Præputium*, and with his Finger Nails tears off another finer Skin remaining; sucking the Blood two or three times as it breaks out, and spitting it out into a Glass full of Wine: then he lays Dragons-Blood on the Wound, with Pouder of Coral, and other Things to stanch the Blood; and lastly, a Compress of Oil of Roses; and thus binds up the whole. This done, he takes a Glass of Wine, and blessing it, adds another Benediction for the Child, and imposes the Name.

The Manner of *Circumcising* among the *Turks*, differs from that of the *Jews*: for the former, after they have cut off the Skin, meddle no further; but the last tear off the Edge of the remaining Skin in several Places with their Thumb-Nails; which is the Reason why the circumcis'd *Jews* are cur'd much sooner than the *Turks*.

Those among the *Jews* who perform the Operation of *Circumcision*, are distinguish'd by the Length of their Thumb-Nails.

CIRCUMCISION is also the Name of a Feast celebrated on the first of *January*, in Commemoration of the *Circumcision* of our Saviour. See FEAST.

This Day was antiently kept a Fast; in opposition to the Pagan Superstitions, who feasted on it in honour of the God *Janus*.

CIRCUMFERENCE, in Geometry, the Curve Line that incloses a Circle, or circular Space; call'd also *Periphery*. See CIRCLE, and PERIPHERY.

All Lines drawn from the Centre of a Circle to the *Circumference*, call'd *Radii*, are equal. See RADIUS.

Any Part of the *Circumference* is called an *Arch*; and a right Line drawn from one Extreme of the Arch to the other, a *Chord*. See ARCH, and CHORD.

The *Circumference* of every Circle is suppos'd to be divided into 360 equal Parts, call'd *Degrees*. See DEGREE.

The Angle at the *Circumference*, is double that at the Centre. See ANGLE, and CENTRE.

Every Circle is equal to a Triangle, whose Base is equal to the *Circumference*, and its Height to the Radius. See TRIANGLE.

Hence, the *Circumferences* of Circles are to each other as their Radii.

Hence, again, since the *Circumference* of one Circle is to its Radius, as that of any other Circle to its Radius; the Ratio of the *Circumference* to the Radius is the same in all Circles.

The Ratio of the Diameter of a Circle to its *Circumference*, *Archimedes* makes as 7 to 22; others, who bring it nearer the Truth, as 100000000000000000 to 314159265358-97932. For Use, the Proportion of 100 to 314 in smaller Circles; and of 1000 to 3145 in larger Circles, is commended by *Vieta*, *Huygens*, &c. The justest Proportion for small Numbers, is that of *Metius*, who makes it as 113 to 355. See DIAMETER.

The Diameter of a Circle therefore being given, its *Circumference* is had; and that multiply'd by one fourth Part of the Diameter gives the Area of the Circle. See AREA.

The Word is form'd from the Latin *Circum*, about, and *fero*, I carry.

CIRCUMFERENTOR, an Instrument us'd in Surveying, to take Angles by. See ANGLE, and SURVEYING.

The *Circumferentor* is very simple, yet expeditious in the Practice: It consists of a Brass Circle and an Index, all of a piece. See its Figure in Tab. *Surveying*, Fig. 19.

On the Circle is a Card, or Compass, divided into 360 Degrees; the Meridian Line whereof answers to the middle of the Breadth of the Index. On the Limb, or Circumference of the Circle, is solder'd a Brass Ring; which, with another fitted with a Glass, make a kind of Box for the Needle, which is suspended on a Rivet in the Centre of the Circle. To each Extreme of the Index is fitted a Sight. See SIGHTS.

The whole is mounted on a Staff; with a Ball and Socket for the Conveniency of its Motion. See BALL and *Socket*.

Use of the CIRCUMFERENTOR.

To take an Angle by the CIRCUMFERENTOR. Suppose the Angle requir'd E K G, (Tab. *Surveying*, Fig. 20.) place the Instrument, *v. g.* at K, with the Flower-de-luce in the Card towards you. Then direct the Sights, till thro' em you spy E; and observe what Degree is pointed at by the South End of the Needle, which suppose 296: then turn the Instrument about, the Flower-de-luce still towards you, and direct the Sights to G; noting the Degree at which the South End of the Needle points, which suppose 182.

This done, subtracting the lesser Number 182, from the greater 296, the Remainder 114, is the Number of Degrees of the Angle E K G.

If the Remainder chance to be more than 180 Degrees, it must be again subtracted from 360 Degrees; the last Remainder is the Quantity of the Angle sought.

To take the Plot of a Field, Wood, Park, &c. by the CIRCUMFERENTOR.

Suppose A B C D E F G K, (Fig. 21.) an Inclosure to be survey'd with the *Circumferentor*.

1. Placing the Instrument at A, the Flower-de-luce towards you, direct the Sights to B; where, suppose the South End of the Needle to cut 191°; and the Ditch, Wall, or Hedge, measur'd with the Chain, to contain 10 Chains, 75 Links; which enter down. See CHAIN.

2. Placing the Instrument at B, direct the Sights as before to C; the South End of the Needle, *v. g.* will cut 279°; and the Line B C contain 6 Chains 83 Links, to be noted as before. Then move the Instrument to C; turn the Sights to D, and measure C D as before.

In the same manner, proceed to D, E, F, G, H, and lastly to K; still noting down the Degrees of every Bearing, or Angle, and the Distances of every Side.

Having thus gone round the Field, you will have a Table in the following form.

Stations.	Degrees.	Min.	Chains.	Links.
A	191.	00	10.	75
B	297.	00	6.	83
C	216.	30	7.	82
&c.				

From

From this Table, the Field is to be *plotted*, or *protracted*; For the Manner whereof, see PLOTTING, and PROTRACTION.

Note, Where Security is to be consulted rather than Dispatch, it may be convenient to take Back-sights; *i.e.* to place the Instrument so, at each Station, as that looking backwards thro' the Sights to the last Station, the North End of the Needle may point to the same Degree as the South End did, in looking forwards from the last Station to this. See THEODOLITE, and PLAIN-TABLE: Both which Instruments are us'd, on occasion, as *Circumferentors*.

CIRCUMFLEX, in Grammar, an Accent, serving to note, or distinguish a long Syllable. See ACCENT, LONG, &c.

The *Greeks* had three Accents, the *Acute*, the *Grave*, and the *Circumflex*, form'd thus ', ', ~. In *English*, *French*, &c. the *Circumflex* is made thus ^. See CHARACTER.

The Acute raises the Voice, and the Grave falls, or lowers it: the *Circumflex* is a kind of Undulation, or wavering of the Voice, between the two. See ACUTE, GRAVE, &c.

'Tis seldom us'd unless to shew the Omission of a Letter which made the Syllable long and open; a thing vastly more frequent in the *French* than among us: Thus they write *pâte*, for *paste*; *tête*, for *teste*; *fêmes*, for *fusmes*, &c. They also use the *Circumflex* in the Participles; some of their Authors writing *connû*, *pû*, others, *connu*, *pu*, &c. Father *Buffier* is at a Loss for the Reason of the *Circumflex* on this occasion.

The Form of the Greek *Circumflex* was antiently the same with that of ours: but the Copists changing the Form of the Characters, and introducing the running Hand, chang'd also the Form of the *Circumflex* Accent; and instead of making a just Angle, rounded it off, adding a Dash thro' too much haste; and thus form'd an *s*, inverted and laid horizontally, which produc'd this Figure ~, instead of this ^.

CIRCUMLOCUTION, a Circuit, or Tour of Words, us'd either when a proper Term is not at hand, to express a thing naturally and immediately by; or when one chuses not to do it, out of respect; or on some other occasions.

The Word comes from the Latin *Circumloquor*, I speak about.

CIRCUMLOCUTION, in Oratory, is the avoiding of something disagreeable, or inconvenient to be express'd in direct Terms; by intimating the Sense thereof in a kind of Paraphrase, so conceiv'd as to soften, or break the Force thereof.

Thus *Cicero*, unable to deny that *Clodius* was slain by *Milo*, owns it, with this *Circumlocution*, 'Milo's Servants 'being prevented from assisting their Master, who was re-'ported to be kill'd by *Clodius*; they, in his absence, and 'without his Privity, or Consent, did what every body 'would expect from their own Servants on such an occasion.'

CIRCUMINCESSION, in Theology, a Term whereby the Schoolmen use to express the Existence of three divine Persons in one another, in the Mystery of the Trinity. See PERSON.

The School-Divines are not the first Authors of this Term; *Damascenus*, in the VIIIth Century, having us'd the Word περιχώρησις, which signifies the same thing, in his Explanation of that Text, *I am in my Father, and my Father is in me.*

CIRCUM *Polar Stars*, are such Stars as being pretty near our North-Pole, move around it; and in our Latitude, never set, or go below the Horizon. See STAR, POLE, SETTING, &c.

CIRCUMSCRIBING, in Geometry, denotes the describing a polygonous Figure about a Circle, in such manner, as that all its Sides are Tangents to the Circumference. See CIRCLE, POLYGON, &c.

The Term is sometimes also us'd for the describing of a Circle about a Polygon; so, as that each side is a Chord. But in this Case, we more usually say, the Polygon is *inscribed*, than the Circle *circumscribed*. See INSCRIBING.

Any regular Figure A B C D E, (Plate *Geometry*, Fig. 29.) inscrib'd in a Circle, is resolv'd into equal and similar Triangles, by Radii drawn from the Centre of the *circumscribing* Circle F, to the several Angles of the Figure; and its Area is equal to a rectangled Triangle, whose Base is equal to the Circumference of the whole Polygon; and its Height a Perpendicular let fall from the Centre F to one side A B.

The same may be said of the Area of the *circumscribing* Circle *a b c d e*, excepting that the Height is to be the Radius.

The Area of every Polygon that can be inscrib'd in a Circle is less; and that of every Polygon that can be *circumscrib'd*, greater than that of the Circle: In like manner, the Perimeter of the first is less, and that of the second greater than the Circumference of the Circle. See PERIMETER, &c.

On this Principle *Archimedes* attempted the Quadrature of the Circle; which is nothing else, in effect, but the measuring of the Area, or Capacity of a Circle. See QUADRATURE.

The Side of a Hexagon is equal to the Radius of a *circumscrib'd* Circle. See HEXAGON.

To Circumscribe a Circle about any given regular Polygon, A B C; (Fig. 30.) and *vice versa*. Bisect two of the Angles, *v. g.* A and B; and on the Point F, where the two Lines of Bisection intersect, as on a Centre, describe a Circle with the Radius F A.

To Circumscribe a Square about a Circle. Draw two Diameters, A B and D E, (Fig. 31.) intersecting each other in the Centre C, at right Angles. From A E B D, with the Interval of the Radius, make Intersections in F, G, H, I. Draw the right Lines F G, G H, I H, and I F. Then is F G H I a Square *circumscrib'd* about the Circle.

To circumscribe any regular Polygon, v. g. a Pentagon, *about a Circle.* Bisect the Chord A E, (Fig. 32.) by the Perpendicular F G, which continue till it cut the Arch in *g*. Thro' A and E, draw the Radii A F and E F: and thro' *g* draw a Line parallel to A E, meeting the Radii continu'd on each side in *a* and *e*: Then is *a e* one side of the *circumscrib'd* Polygon. Produce the Radius F B to *b*, till F *b* = F *a*; and draw *a b*: this is another Side of the Polygon; and in the same manner may the rest of the Sides be drawn.

To Inscribe any regular Polygon in a Circle. Divide 360 by the number of Sides, in order to find the Quantity of the Angle E F D; which make at the Centre, and apply the Chord to the Periphery as often as it will go. Thus will the desir'd Figure be *inscrib'd* in the Circle.

CIRCUMSTANCES, the Incidents of an Event, or the Particularities that accompany an Action. See INCIDENT.

Divines say, the Conversion of a Sinner depends on a certain Assemblage, and a certain Management of external *Circumstances* in the midst whereof he is plac'd; which Arrangement of *Circumstances*, depends on the Providence of God: whence Conversion also depends on him. See CONVERSION.

The *Circumstances* of the Actions of Men, are express'd in this *Latin* Verse.

Quis, quid, ubi, quibus auxiliis, cur, quomodo, quando.

Quis, who, denotes the Quality, State, Age, &c. of the Person. *Quid*, what, the greatness, smallness, multitude, fewness, &c. of the thing. *Ubi*, where, the Place. *Quibus Auxiliis*, with what Assistances, the Instruments, Means, &c. *Cur*, why, on what Account, with what View. *Quomodo*, how, the Quality of the Action, as to Intension or Remissness, Designedness or Casualty, Secrecy or Openness. *Quando*, when, the Time; as on a Holiday, at the Hour of Prayer, &c.

CIRCUMSTANTIBUS, in Law, is us'd for the supplying, and making up the Number of Jurors, (in case any impanell'd appear not; or appearing, be challeng'd by either Party) by adding to them so many of the Persons present, or standing by, as will serve the turn. See JURY, and JUROR.

CIRCUMVALLATION, in Fortification, a Line, or large Trench, made around a Camp; in the besieging of a Town. See LINE, FORTIFICATION, &c.

This Trench is to be a Cannon-shot distant from the Place, ordinarily, about 12 Foot broad, and seven deep. It is border'd with a Parapet, and flank'd with Redoubts, or little Forts, erected from Space to Space. It serves both to prevent any Succour from being sent into the Place, to keep in Deserters, and prevent Incursions of the Enemy's Garison.

Care must be taken that the Line of *Circumvallation* never pass by the Foot of an Eminence; least the Enemy seizing on the Eminence, lodge his Cannon, and command the Line.

The Word is form'd from the Latin *circum*, about, and *vallum*.

CIRCUMVOLUTIONS, in Architecture, the Turns of the Spiral Line of the *Ionic* Volute. See VOLUTE.

The Word comes from the Latin *Circumvolvere*, to turn around; and is also apply'd to the Turns of a wreath'd or twisted Column. See COLUMN.

CIRCUS, in Antiquity, a large Building, either round, or oval; us'd for the exhibiting of Shews to the People. See SPECTACLES, CIRCENSIAN *Games*, &c.

The *Roman Circus*, was a large Place, or Square, arch'd at one End; incompass'd with Porticos, and furnish'd with Rows of Seats, plac'd ascending over each other.

In the middle was a kind of *Banquette*, or Eminence, with Obelisks, Statues, and Posts at each End. This serv'd 'em for the Courses of their *Bigæ* and *Quadrigæ*. See BIGÆ, &c.

There were no less than ten *Circus*'s at *Rome*: the largest was that built by the Elder *Tarquin*, called *Circus Maximus*; between the *Aventine* and *Palatine* Mounts. *Pliny* says, it was enlarg'd by *J. Cæsar*, so as to take in no less than three *Stadia* in Length, and one in Width.

The most magnificent *Circus*'s were those of *Augustus* and *Nero*. There are still some Remains of the *Circus*'s, both at *Rome*, at *Nismes*, and other Places.

The *Romans* were excessively fond of the Games exhibited in the *Circus*, witness that Verse in *Juvenal*,

——Atque duas tantum res anxius optat,
Panem & Circenses——

Some

Some derive the Word from *Circe*, to whom *Tertullian* attributes the Invention. *Cassiodorus* says, *Circus* comes *à circuitu*.

The *Romans*, *Servius* observes, at first, had no other *Circus* but that made by the *Tiber*, on one side, and a Pallisade of naked Swords on the other.

Hence, according to *Isidore*, came the Term *Ludi Circenses*, *quasi Circum-Enses*. But *Scaliger* laughs at the Etymology.

The Games of the Circus, which some call *Circensian Games*, were Combats celebrated in the *Circus*, in honour of *Consus* the God of Councils; thence also call'd *Consualia*. See Consualia.

They were also called *Roman Games*, *Ludi Romani*, either on account of their Antiquity, as being coeval with the *Roman* People, or because established'd by the *Romans*: and the great Games *Ludi Magni*, because celebrated with more Expence and Magnificence than any others; and because held in honour of the great God *Neptune*, who was their *Consus*.

Those who say they were instituted in honour of the Sun, confound the *Pompa Circensis*, or Procession of the *Circus*, with the Games.

The Games of the *Circus* were instituted by *Evander*, and re-establish'd by *Romulus*: The Procession was only a Part of the Games, making the Prelude thereof; and consisting of a simple Cavalcade of Chariots.

Till the Time of the Elder *Tarquin*, they were held in an Island of the *Tiber*; and were called *Roman Games*: after that Prince had built the *Circus*, they took their Name therefrom; as being constantly held there.

There were six Kinds of Exercises in the *Circus*: the 1st Wrestling, fighting with Swords, with Staves, and with Pikes: the 2d was Racing: the 3d *Saltatio*, Dancing: the 4th *Disci*, Quoits, Arrows, and *Cestus*; all which were all on Foot: the 5th was Horsecoursing: the 6th Courses of Chariots, whether with two Horses, or with four. See Bigæ, and Quadrigæ.

In this last Exercise, the Combatants were at first divided into two *Quadrils*, then into four; each bearing the Names of the Colours they wore; *Factio Alba*, *Russea*, &c. See Faction, Quadril, &c.

At first there was only white and red; then green was added, and blue. *Domitian* added two more Colours, but they did not hold.

It was *Oenomaus* who first invented this Method of distinguishing the *Quadrils* by Colours. The green was for those who represented the Earth; the blue for the Sea, &c. See Colour, &c.

CIRRI, in Botany, a Term us'd for those fine Strings, or Hairs, by which some Plants fasten themselves, for their support; as Ivy, and the like. See Claspers.

CIRSOCELE, in Medicine, a Dilatation of the Spermatic Veins; occasion'd by a too thick, grumous Blood; call'd also *Hernia Varicosa*. See Hernia.

The Word comes from the *Greek* κιρσὸς, *varix*, Vein, and κήλη, *Hernia*. See Varix.

CISALPINE, any thing on this side the *Alps*.

The *Romans* divided *Gaul*, and the Country now call'd *Lombardy*, into *Cisalpine* and *Transalpine*. See Transalpina.

That which was *Cisalpine* with regard to the *Romans*, is *Transalpine* with regard to us.

The Word is form'd from the Preposition *Cis*, on this side, and *Alpes*; which, tho properly confin'd to the Mountains separating *Italy* and *France*, yet is us'd by Authors for any very high Mountains.

Thus *Ausonius* has the *Alps* of the *Pyreneans*, the *Alps* of the *Apennines*, &c.

CISSOID, in Geometry, an Algebraic Curve, first invented by *Diocles*; whence it is peculiarly call'd the *Cissoid of Diocles*. See Curve.

The Genesis of the *Cissoid* may be thus conceiv'd: To the Diameter A B, (Tab. *Analysis*, Fig. 9.) of the Semicircle A O B, draw an indefinite Line, at right Angles, B C: then, draw the right Line A H, and make A M = I H; or in the other Quadrant, L C = A N. Thus will the Points M and L be in a Curve Line A M O L; which is the *Cissoid* of *Diocles*.

Properties of the Cissoid.

From the Genesis it follows, 1st, That drawing the right Lines P M and K I, perpendicular to A B; we shall have A P : K B :: A M : I H. But A M = I H; consequently, A P = A B. And therefore, A K = P B; and P N = I K.

2d, After the same manner, it appears, that the *Cissoid* A M O bisects the Semicircle A O B.

3d, Again, A K : K I :: K I : K B. That is, A K : P N :: P N : A P. And again, A K : P N :: A P : P M; therefore, P N : A P :: A P : P M. Consequently, A K, P N, A P, and P M, are four Lines in continual Proportion. And if P N = v, A P = x, P M = y; $x^2 = vy$. And after the same manner it may be shewn, that A P, P N, A K, and K L, are in continual Proportion.

4th, In the *Cissoid*, the Cube of the Abscissa A P, is equal to a Solid, arising of the Square of the Semiordinate P M, multiply'd into the Complement of the Diameter of the generating Circle P B.

Hence, when the Point P falls on B, then $x = a$, and B C $= y$; consequently, $y^2 = \frac{a^3}{0}$. Wherefore, $0 : 1 :: a^3 : y^2$, that is, the Value of y becomes infinite: and therefore the *Cissoid* A M O L, tho it continually approach B C yet they will never meet.

5th, B C, therefore, is an *Assymptote* of the *Cissoid*. See Assymptote.

The Antients made use both of the *Conchoid* and *Cissoid*; for the finding of two mean continual Proportionals between two given right Lines. See Proportional.

For *the Quadrature*, *Subnormal*, and *Subtangent of the* Cissoid; see Quadrature, Subnormal, and Subtangent.

CISTERCIANS, an Order of Religious, call'd by the French *Cisteaux*; consisting of an hundred Monasteries, and near as many Nunneries. See Order, Monk, Religious, &c.

The Order took its rise in 1075, from twenty one zealous Monks in the Monastery of *Molesme* in *Burgundy*; who, with their Abbot *Robert*, complaining that the Rule of S. *Benedict* was not strictly enough observ'd; obtain'd Permission of *Hugh*, Archbishop of *Lyons* and Legate of the Holy See, to settle in a Place call'd *Cisteaux*, five Miles from *Dijon*.

Here *Eudes* Duke of *Burgundy* erected 'em a Building, into which they were admitted in 1098; endowing it with a considerable Revenue. The Bishop of *Chalons* gave *Robert* the Pastoral Staff, in quality of Abbot; and erected the new Monastery into an Abbey. See Abbot.

Such was the beginning of the *Cistercians*, so famous in After-times, and now so extended throughout all *Europe*.

CISTERN, or CESTERN, is properly us'd for a subterraneous Reservoir of Rain-water. See Well.

Cisterns must be made with good Cement, to retain the Water. See Cement.

The Bottom should be cover'd with Sand, to sweeten and preserve it. See Water.

Authors mention a *Cistern* at *Constantinople*, the Vaults whereof are supported by two rows of Pillars, 212 in each Row; each Pillar being two Foot in Diameter. They are planted circularly, and in Radii tending to that in the Centre.

The Word, according to some, comes from *Cis*, and *terram*, i. e. *inter terram*; others derive it from *Cista*, an Osier Basket, a Duct, &c.

CISTIC. CIST-*Hepatic*. CISTUS. } See { Cystic. Cyst-*Hepatic*. Cystus. }

CITADEL, or CITTADEL, a Fort, or Place fortify'd with four, five, or six Bastions; built sometimes in the most eminent Part of a City, and sometimes only near the City.

In the first Case, the *Citadel* serves to defend the City against Enemies. See Fort, Fortify'd *Place*, &c.

In the latter it serves to command it, and to keep the Inhabitants in their Obedience: for which purpose the City is left unfortify'd on the Part toward the *Citadel*, but the *Citadel* fortify'd toward the City.

The most usual Form for *Citadels*, is that of a Pentagon: a Square being too weak, and a Hexagon too big. See Fortificaton, Pentagon, &c.

There is always a large Esplanade between the *City* and *Citadel*. See Esplanade.

The Word is a Diminutive of the Italian *Citta*, City, *q.d.* little City.

CITATION, an Assignation, or summoning of a Person before an Ecclesiastical Judge, on some Affair relating to the Church.

In the Civil, and Ordinary Courts, it is call'd *Summoning*. See Summons.

The Word Citation is also us'd in speaking of Military and Monastick, as well as Ecclesiastical Courts. Such a Heretick was *cited* to *Rome*; to a General Council, &c.

Knights are *cited* to the General Chapters of their Order.

K. *Edward* I. of *England*, was *cited*, by Order of *Philip* IV. of *France*, to a Court of his Peers. The *Citation* was publish'd by the Seigneur *d'Arrablay*, Seneschal of *Perigord* and *Querci*; and was pasted up, by his Order, on the Gates of the City *Libourne*, which then belong'd to K. *Henry*. For Default in not appearing, all his Domains, and Effects in *France* were confiscated. F. *Daniel*.

Citation is also an Allegation, or Quotation of some Law, Authority, or Passage. See Quotation.

The Word comes from *cito*, of *cieo*, I stir up.

CITRON, an agreeable Fruit, in Colour, Taste, Smell, &c. resembling a Lemon; and serving, like that, to cool, and quench the Thirst: being produc'd by a Tree of the same Name, much resembling the Lemon Tree. See Lemon.

The *Citron* is distinguish'd from the Lemon, in that it is bigger, and its Pulp firmer; its Smell brisker, and Colour higher. It is held excellent against Poisons: and *Athenæus* relates

relates an Instance of two Persons, preserv'd safe from the most dangerous Aspics, by eating a *Citron*.

The Distillers, Perfumers, Confectioners, *&c.* procure divers things from *Citrons*; as Essences, Oils, Confections, Waters, *&c.*

CITRON *Water*. See *Citron*-WATER.

CITRON-*Santal*. See SANTAL.

CITY, a large Town, inclos'd with a Wall. See TOWN.

'Tis hard to give any just Definition of a *City*; in regard, Custom has reserv'd the Appellation of *Towns*, to so many Places which seem to have every thing requisite to constitute a City.

Formerly, *City* was only understood of such Towns as were Bishops Sees: which Distinction seems still to hold in *England*; tho no where else. See SEE.

City is particularly us'd to express the Heart of the Place. At *Paris* they have the *City* and the *University*; at *London* we have the *City* and the *Suburbs*.

The Term *City* had its rise among us, since the Conquest; for in the Time of the *Saxons* there were no *Cities*, but all great Towns were called *Burghs*: Thus, *London* was call'd *Lunden Burgh*. See BURGH.

And for a long time after the Conquest, *City* and *Burgh* were us'd promiscuously: thus, in the Charter of *Leicester*, that Place is called both *Civitas* and *Burgus*; which shews a Mistake in my Lord *Coke*, where he tells us, that every *City* was, or is a Bishop's See. Nor had *Glocester* any Bishop then; tho 'tis call'd a *City* in *Dome's-Day*. The like may be observ'd of *Cambridge*; to which it may be added, that *Crompton*, reckoning up our *Cities*, leaves out *Ely*, tho it had a Bishop and a Cathedral.

Yet *Cassaneus*, *de Consuetud. Burgund.* says, *France* has within its Territories 104 *Cities*; and gives his Reason, because it has so many Archbishops and Bishops.

CITY, *Civitas*, in speaking of Antiquity, signifies a State, or People, with all its Dependencies, constituting a particular Republic; such as are, still, several *Cities* of the Empire, and the *Swiss* Cantons.

Tho the antient *Gauls* were, in effect, only one Nation; they were yet divided into several Peoples, which form'd as many different States: or, to speak with *Cæsar*, as many different *Civitates*, *Cities*. Besides that each *City* had its particular Assemblies, it sent Deputies, too, from time to time, to the general Assemblies, held on Affairs relating to their common Interest.

Augustus, upon numbring the *Roman Citizens*, found they amounted to 4 Millions, 137000. See ENUMERATION.

To make a good *Roman Citizen*, there were three things requir'd: that he were an Inhabitant of *Rome*; that he were inroll'd in one of the 35 Tribes; and that he were capable of Dignities. Those to whom were granted the Rights and Privileges of *Roman Citizens*, were properly only *Honorary Citizens*.

The seventh Law, *de Incolis*, makes a great deal of difference between a *Citizen* and a mere Inhabitant. Birth, alone, made a *Citizen*; and entitled to all the Privileges of Burgesy: Time could not acquire it; but the Emperor cou'd bestow it.

The Word comes from the Latin *Civis*; which Authors derive from *Coeo*, by Reason the *Citizens* live together: or rather from *Cieo*, I call together.

CIVET, a kind of Perfume, bearing the Name of the Animal whence it is taken. See PERFUME.

The *Civet*, or *Civet-Cat*, is a little Animal, resembling our Cat; excepting that his Snout is more pointed, his Claws less dangerous, and his cry different.

The Perfume this Animal produces, is form'd like a kind of Grease, or thick Scum, in an Aperture, or Bag, under his Tail. 'Tis gather'd from time to time; and still abounds, in proportion as the Animal is fed.

There is a very considerable Traffic of *Civet*, from *Bassora*, *Calicut*, and other Places, where the Animal that produces it is found. Tho, part of the *Civet* among us is furnish'd us by the *Dutch*; who bring up a considerable Number of the Animals.

Before any of these Animals were seen in *Europe*, or it had been observ'd how the Perfume had been gather'd; the common Opinion, founded on the Relations of Travellers, was, that it was the Sweat of that Animal, irritated, and kindled into Rage.

To this effect, 'twas said, that the Animal was inclos'd in an Iron Cage; and after having been a long time beaten with Rods, they gather'd with a Spoon, thro' the Bars of the Cage, and between the Thighs of the Animal, the Sweat or Foam, which the Rage and Agitation had produc'd: and that without this Precaution, the Animal would yield no Perfume at all.

But Experience has taught us better; and we now know, that the Perfume *Civet*, is only a thick unctuous Humour, secreted by certain Glands between the two Tunics of the Bag wherein it is amass'd, under its Tail, beneath the *Anus*.

Civet must be chosen new, of a good Consistence, a whitish Colour, and a strong disagreeable Smell.

Besides the *Indian* and *Dutch Civet*, there is also a *Civet* from *Brasil*, or *Guinea*, like that of *India*; and an *Occidental Civet*, which bears no resemblance to it.

Civet is little us'd in Medicine, except in a Thickness of Hearing, from Cold; where a Grain or two being put in a little Cotton, or Wool, and the Ears stopp'd therewith, is sometimes of service. It is much us'd among Perfumers and Confectioners.

The Word *Civet* comes from the Arabic *Zibet*, or *Zebet*, Scum, Froth.

CIVIC, an Epithet apply'd to a Kind of Crown, made of Oaken Leaves; antiently bestow'd by the *Romans*, on those who sav'd the Life of a Fellow-Citizen in a Battle, or an Assault. See CROWN.

The *Civic* Crown was exceedingly esteem'd; and was even given as an Honour, to *Augustus*; who on this Occasion struck Coins with this Device, OB CIVES SERVATOS.

It was also given to *Cicero*, after his Discovery of *Catiline*'s Conspiracy.

CIVIL, in its general Sense, is something that regards the Policy, publick Good, or repose of the Citizens, or Subjects of a State. See CITY.

In this Sense, we say, *Civil* Government; *Civil* Law; *Civil* Rights; *Civil* War, *&c.* See GOVERNMENT, *&c.*

CIVIL *Law*, *Lex Civilis*, is defin'd, in the Institutes, to be the Laws peculiar to each City, or each People: but in the modern Use, it properly implies the *Roman Law*, contain'd in the Institutes, the Digest, and the Code; otherwise call'd, the *Lex Scripta*, or *Written Law*. See LAW.

The *Roman* Law, at its Commencement, was very inconsiderable. Under the Kings, the People were govern'd by certain Laws, prepar'd by the Senate, pass'd by the Kings, and confirm'd in an Assembly of the People.

Papirius was the first who made a Collection of the Regal Laws; which took its Name from its Author, and was call'd *Jus Papirianum*.

The Republic, after abolishing the Regal Government, still retain'd the Royal Laws: To these they added the Law of the *Twelve Tables*; drawn by the *Decemviri*, from the Laws of twelve of the principal Cities of *Greece*; and the more Equitable among the Laws hitherto practis'd at *Rome*. See DECEMVIRI.

The Law of the *Twelve Tables* was at length found so severe, and conceiv'd in such obscure Terms; that it was judg'd proper to moderate, restrain, and ascertain it, by other Laws, propos'd to the Senate by the Consuls, and pass'd at general Assemblies of the People; according to the Practice that had obtain'd under the Kings themselves.

In the Year of *Rome* 731, the Republic expir'd; and the whole Power of the People was transferr'd to *Augustus*, who was contented to publish his new Laws in the Assembly of the People; to keep up some Image of the Republic by this Formality.

Tiberius abolish'd these occasional Assemblies, on pretence of their being too numerous; and in lieu thereof proffer'd his Laws to the Senate, who never fail'd to confirm 'em: insomuch that the Laws of *Tiberius*, and his Successors, who kept the same Measures with the Senate, were esteem'd *Senatus-Consulta*.

Thus arose two Kinds of *Roman* Law, with regard to the Changes in the Legislative Authority: the Law establish'd by the People, *Plebiscita*; and the Laws of the Emperors, or *Imperial Laws*. See PLEBISCITA, and IMPERIAL.

During the Time of the Republic, and even under the Emperors, there were *Juris-Consulti*; who making publick Profession of the Study of the Law, interpreted, were consulted on the different Senses of the Laws, and gave Answers to the Questions propos'd to 'em hereon; which were call'd *Responsa Prudentium*.

Papirius was the first of these *Juris-Consulti*, after the Expulsion of the Kings; and *Modestinus* the last. See JURIS-CONSULTI.

After him, *viz.* in 240, these Oracles of the *Roman* Jurisprudence ceasing, out of their Writings, which made no less than 2000 Volumes, a Body of the *Roman* Law was afterwards compil'd, by Order of *Justinian*.

The Magistrates, on their side, in administring Justice, interpreted the Laws with more freedom than even the *Juris-Consulti*; and were, as it were, the living Voice of the Law.

The Emperors too, to render the Interpretations of the Magistrates less free and frequent, appointed, that they themselves should be consulted; and their Answers expected, as to Questions in Law, as may be observ'd from *Pliny*'s Epistles to *Trajan*. See RESCRIPT.

In proportion as new Laws were made at *Rome*, care was taken to collect and reduce 'em into *Bodies*. See BODY.

Papirius, in the Time of *Tarquinius Superbus*, made a Collection of the Regal Laws. And no sooner was the Republic establish'd, than the Laws of the *Twelve Tables* were drawn.

In the Time of *Julius Cæsar*, *Ofilius*, a Lawyer, began a Collection of the Edicts of the Prætors; which was not finish'd till the Time of *Adrian*, by another Lawyer, *Julianus*.

In the Time of *Constantine*, or his Children, two *Juris-Consulti* compil'd two Codes; from their Authors call'd *Gregorian*, and *Hermogenian Code*. See CODE.

Lastly, *Justinian*, finding the Authority of the *Roman* Law almost abolish'd in the West, by the Declension of the Empire; resolv'd to make a general Collection, of the whole *Roman* Jurisprudence; and committed the Care thereof to his Chancellor *Tribonianus*.

That Minister executed his Commission with a great deal of Diligence, not to say Precipitation: a new Code was finish'd in 529, and a Digest in 533. See DIGEST, and CODE.

The same Year he publish'd an Abridgment, thereof containing the first Principles and Elements of Law, under the Title of *Institutes*. See INSTITUTES.

In the Course of this Reign, *Justinian* made 168 Constitutions, and 13 Edicts; which made a considerable Alteration in the antient Law, and were call'd *Novels*. See NOVEL.

All these together, make the *Corpus Juris Civilis*, or Body of the *Civil Law*, as reduc'd, by order of *Justinian*.

For the Space of 300 Years, this System of Law obtain'd without any Innovation. But the new Constitutions made by the Emperors from time to time, at length occasioning some Alterations; the Emperor *Basil*, and *Leo* his Son, compos'd a new Body of the *Roman* Law, chiefly from the *Justinian*, in the *Greek* Language, dividing it into 7 Volumes, and 60 Books; under the Title of *Basilica*. From which time, *Justinian's* Body had but little Credit in the East; the *Basilica* taking place of it. See BASILICA.

In the West, the *Civil Law* had a different Fortune: 'Tis ordinarily suppos'd not to have been there known till the Year 600; when *Lotharius* II. finding the Book at the taking of *Melphi*, a Town in *Naples*, made a present of it to the City of *Pisa*: Tho we find it quoted in several *Latin* Works long before *Lotharius*. 'Tis true, however, it was never taught publickly till the XIIth Century; when *Irnerius* first made profession of it at *Bologne*, in 1128; whence it was carry'd by his Disciples into other Countries; and in a little time was taught in all the Universities.

'Tis allow'd that the *Civil Law* contains all the Principles of Natural Equity; and that nothing can be better calculated to form good Sense, and sound Judgment. Hence, tho in several Countries it has no other Authority but that of Reason and Justice; 'tis yet every where referr'd to for Authority, and is that alone taught in Universities.

It is not receiv'd at this Day in any Nation without some Alterations: sometimes the *Feudal* Law is mix'd with it, or general and particular Customs; and often, Ordinances and Statutes cut off a great part of it.

In *Turkey*, the *Basilica* are only us'd. In *Italy*, the Canon Law, and Customs have excluded a good part of it. In *Venice*, Custom hath almost an absolute Government. In the *Milanese*, the Feudal Law, and particular Customs, bear sway. In *Naples* and *Sicily*, the Constitutions and Laws of the *Lombards* are said to prevail. In *Germany* and *Holland*, the *Civil Law* is esteem'd to be the municipal Law: but yet many Parts of it are there grown obsolete; and others are alter'd, either by the Canon Law, or a different Usage.

In *Friezeland*, it is observ'd with more strictness: But in the Northern Parts of *Germany*, the *Jus Saxonicum*, *Lubecense*, or *Culmense*, is preferr'd before it. In *Denmark* and *Sweden* it hath scarce any Authority at all. In *France* only a Part of it is receiv'd; and that Part is in some Places as a Customary Law: And in those Provinces nearest to *Italy*, the municipal Written Law. In Criminal Causes, the *Civil Law* is more regarded in *France*; but the manner of Trial is regulated by Ordonnances and Edicts.

The *Civil Law*, in *Spain* and *Portugal*, is connected with the *Jus Regium*, and Custom. In *Scotland*, the Statutes of the *Sederunt*, part of the *Regiæ Majestatis*, and their Customs, control the *Civil Law*.

In *England*, it is us'd in the Ecclesiastical Courts; in the Courts of the Admiralty; and in the two Universities: yet in all these restrain'd and directed by the Common Law. See LAW, COMMON-*Law*, &c.

CIVIL *War*, is a War between People of the same State, or Citizens of the same City. See WAR.

CIVIL *Death*, any thing that retrenches, or cuts off a Man from *Civil* Society: as a Condemnation to the Gallies, perpetual Banishment, Condemnation to Death, and Excommunication: All which make a Man cease to be look'd on as a Citizen.

The Term is likewise apply'd to those who are no longer capable of acting in Temporal Concerns; as those who renounce the World, who retire and make Vows in a Monastery, &c. See MONK, VOWS, MONASTERY, &c.

CIVIL, in a Legal Sense, is also apply'd to the ordinary Procedure in an Action relating to some Pecuniary Matter, or Interest; in which Sense it is oppos'd to *Criminal*. See ACTION, CRIMINAL, &c.

CIVIL *Year*, is the Legal Year, or annual Account of Time, which every Government appoints to be us'd within its own Dominions. See TIME.

It is thus call'd, in contradistinction to the *Natural Year*; which is measur'd exactly by the Revolution of the Heavenly Bodies. See YEAR.

CIVIL *Month*. } See { MONTH.
CIVIL *Day*. } See { DAY.

CIVILISATION, a Law, Act of Justice, or a Judgment which renders a Crimiual Process, Civil.

Civilisation is perform'd by turning the Information into an Inquest, or *vice versa*. See INFORMATION, INQUEST, &c.

CLAIM, in Law, a challenge of Interest in any thing that is in Possession of another; at least, out of his own. See CHALLENGE, POSSESSION, &c.

There are divers Kinds of *Claims*: as,

CLAIM *by Charter*. See CHARTER.

CLAIM *by Descent*. See DESCENT.

Continual CLAIM, a *Claim* made from time to time, within every Year and Day, to Land, or other Thing, which on some accounts cannot be attain'd without danger.

Thus, if I am disseis'd of Land, into which, tho I have a Right, I do not enter for fear of bearing; I am to hold on my Right of Entry at my best opportunity; by approaching as near as I can, once every Year, as long as I live: thus I leave the Right of Entry to my Heir. See ENTRY.

CLAIR-OBSCURE, or CHIARO SCURO, in Painting, the Art of distributing, to advantage, the Lights and Shadows of a Piece; both with regard to the easing of the Eye, and the Effect of the whole Piece. See LIGHT, and SHADOW.

Thus, when a Painter gives his Figures a strong Relievo, loosens 'em from the Ground, and sers 'em free from each other, by the Management of his Lights and Shadows; he is said to understand the *Clair-obscure*.

The *Clair-obscure* makes one of the great Divisions, or Branches of Painting; the whole of a Picture being resolvable into *Light*, and *Shadow*. See PAINTING.

The Doctrine of the *Clair-obscure*, will come under the following Rules.

Light may be either consider'd with regard to it self; to its Effects; the Place wherein 'tis diffus'd; or its Use.

For the 1st, Light is either *Natural*, or *Artifical*.

Natural, either comes immediately from the Sun, which is brisk, and its Colour various according to the Time of the Day; or 'tis that of a clear Air thro' which Light is spread, and whose Colour is a little bluish; or a cloudy Air, which is darker, yet represents Objects in their genuine Colours with more ease to the Eye.

Artificial proceeds from Fire, or Flame, and tinges the Object with its own Colour: but the Light it projects, is very narrow and confin'd.

For the 2d, the *Effects* of Light are either *Principal*, as when the Rays fall perpendicularly on the Top of a Body, without any Interruption; or *Glancing*, as when it slides along Bodies; or *Secondary*, which is for things at a distance.

3. For the *Place*, 'tis either the open Campaign, which makes Objects appear with great Softness; or an inclos'd Place, where the Brightness is more vivid, its Diminution more hasty, and its Extremes more abrupt.

4. For the *Use*, or Application: The Light of the Sun is always to be suppos'd without, and over against the Picture; that it may heighten the foremost Figures: the Luminaries themselves never appearing, in regard the best Colours can't express 'em. The chief Light to meet on the chief Group, and as much as possible on the chief Figure of the Subject. The Light to be pursu'd over the great Parts, without being cross'd, or interrupted with little Shadows. The full Force of the principal Light to be only in one Part of the Piece: taking care never to make two contrary Lights: Not to be scrupulously confin'd to one universal Light; but to suppose other accessory ones, as the opening of Clouds, &c. to loosen some Things, and produce other agreeable Effects. Lastly, the Light to be different, according to the Quality of Things whence it proceeds, and the Nature of the Subjects which receive it.

For *Shadows*; they are distinguish'd, 1st, into those form'd on the Bodies themselves, by their proper Relievos. 2d, Those made by adjacent Bodies; those that make Parts of any whole; and the different Effects, according to the difference of Places.

For the first, since the different Effects of Lights only appear by Shadows, their Degrees must be well manag'd. The Place which admits no Light, and where the Colours are lost, must be darker than any Part that has Relievo, and dispos'd in the Front. The Reflex, or return of the Light, brings with it a Colour borrow'd from the Subject that reflects it; and flies off at a greater or less Angle, according to the Situation of the reflecting Body, with regard to the luminous one:

one: Hence, its Effects must be different in Colour, and in Force; according to the Dispositions of Bodies. Deepenings, which admit not of any Light, or Reflex, must never meet on the Relievo of any Member of any great elevated Part; but in the Cavities or Joints of Bodies, the Folds of Draperies, &c. And to find Occasions for introducing great Shadows, to serve for the Repose of the Sight, and the loosening of Things; instead of many little Shadows, which have a pittiful Effect.

For the 2d, The Shadows made by Bodies, are either in plain and smooth Places, or on the Earth; wherein they are deeper than the Bodies that occasion 'em, as receiving less reflex Light; yet still diminish as they depart further from their Cause; or on the neighbouring Bodies, where they are to follow the Form of the said Bodies, according to its Magnitude and its Position, with regard to the Light.

For the 3d, In Shadows that have Parts, the Painter must observe to take for a Light in a shadow'd Place, the Teint, or Lustre of the light Part; and, on the contrary, for the Shadow in the lighten'd Part, the Teint, or Lustre in the Shadow: To make an agreeable Assemblage of Colour, Shadow, and Reflex in the shadow'd Part; but without interrupting the great Masses of Shadows: To avoid forming little Things in the Shadow; as not being perceiv'd, unless closely look'd at; and to work, as it were, in the general, and at one sight: Never to set the strong Shadows against the Lights, without softening the harsh Contrast by the help of some intermediate Colour: tho the Mass of Light may be plac'd either before or behind that of the Shadow; yet ought it to be so dispos'd, as to illumine the principal Parts of the Subject.

For the 4th, The Effects of Shadows are different, as the Place is either wide and spacious; as in those coming immediately from the Sun, which are very sensible, and their Extremes pretty abrupt; from the serene Air, which are fainter and more sweet; from the dark Air, which appear more diffus'd, and almost imperceptible; and those from an artificial Light, which makes the Shadow deep, and their Edges abrupt: or as it is more narrow and confin'd, where the Lights coming from the same Place; make the Shadow more strong, and the reflex less sensible. See Colouring.

Clair Obscure, Chiaro Scuro, is also us'd for a Design consisting only of two Colours; ordinarily black and white, sometimes black and yellow. See Camieux.

Or, it is a Design only wash'd with one Colour; the Shadows being of a dusky brown Colour, and the Lights heighten'd up with white.

The Word is also apply'd to Prints of two Colours, taken off at twice; whereof there are Volumes in the Cabinets of the Curious in Prints.

The Word *Clair-Obscure* is a compound of two others. *Clair* is us'd among the *French* for those Parts of a Painting which reflect the most Light; and comprehends not only the Lights themselves, but also those Colours that are luminous. By *Obscure*, is meant not only all the Shades, but also all the Colours that are dusky. See Colour.

CLAMEA *admittenda in itinere per Attornatum*, is a Writ whereby the King commands the Justice in Eyre to admit ones *Claim* by an Attorney, who being employ'd in the King's Service, cannot come in Person.

CLAMOR, or CLAMEUR *de Haro*, a popular Term in the *French* Laws, importing a Complaint, or Cry, whereby any one implores the Assistance of Justice against the Oppression of another. See Haro.

Du Moulin calls it *Quiritatio Normannorum*. The *Haro* has the same Force with the Interdict *Retinendæ possessionis*. The Person on whom the *Haro* is cry'd, is oblig'd to cease his Enterprise, and the Crier leads him before the Judge; where each gives Security, the one to pursue the *Haro*, the other to defend it.

In the mean time, the Thing in dispute is sequester'd into the hands of a third Person. Nor can the Judge annul the *Clameur de Haro*, without a Mulct.

This Custom has prevail'd in *Normandy*, since the Conquest of *Raoul*, or *Rou*. *Du Moulin* says, the Word *Haro* is form'd of *Hal Rou*; the Cry whereby they invok'd that Prince.

CLAMP, in a Ship, a piece of Timber apply'd to a Mast, or Yard, to strengthen it, and prevent the Wood from bursting. See Mast.

Clamp is also a little piece of Wood, in form of a Wheel, us'd instead of a Pulley in a Mortice.

Clamp-*Nails*, are such Nails as are us'd to fasten on *Clamps*, in building and repairing of Ships. See Nails.

CLAMPING, in Joinery, &c. when a piece of Board is fitted with the Grain to the End of another piece of Board cross the Grain; the first Board is said to be *clamp'd*.

Thus the Ends of Tables are commonly *clamp'd*, to preserve them from warping.

CLANCULARIES, CLANCULARII, a Sect of Anabaptists, who deny'd the Necessity of making any open Profession of the Faith; and taught that a private one would be sufficient. See Anabaptist.

These were also call'd *Hortularies*, and *Gardners*, from the Places they chose to assemble in, instead of Churches.

CLANDESTINE, any thing done secretly, and without the Knowledge of some of the Parties interested in it; or without the proper Solemnities.

Thus, a Marriage is said to be *Clandestine*, when perform'd without the Publication of Banns, the Consent of Parents, or the Knowledge of the Ordinary. See Marriage.

The Council of *Trent*, and the *French* Ordonnances annul all *clandestine* Marriages.

The Word comes from the Preposition *Clam*, of κλείω, *claudo*, I shut, or κλέμμα, *furtum*, theft.

CLAP, in Medicine, the first Stage, or State of the Venereal Disease; call'd also a *Gonorrhæa*. See Venereal *Disease*, and Gonorrhæa.

Dr. *Cockburn*, and others after him, will have the *Clap* to consist in an Ulceration of the Mouths of the Glands of the *Urethra* in Men, and of the *Glandula Lacunæ* in Women; occasion'd by the Insinuation of an acrimonious, purulent Matter, contracted from an infected Person *in Actu Coitus*.

From these Glands, issues, or gleets a sharp, corrosive Matter, accompany'd with heat of Urine, Cordee, &c. which makes what is usually term'd the first Stage of the Distemper. See Cordee, &c.

A *Clap* appears sometimes sooner, and other times later, tho generally in about three or four Days after the Infection is receiv'd; and discovers it self by the running, &c. of the Penis, with Inflammation of the Glans, or Nut of the Yard.

If the Person be affected with a *Phymosis*, or *Paraphymosis*; if the running be of a thin Consistence, a yellow or green Colour, and in great Quantity, and the Testicles swell'd, 'tis usually term'd a *Gonorrhæa Virulenta*; and the *Clap* suppos'd to be in its second Stage. See Phymosis, &c.

Some Authors think, that in this Degree, or Stage, the Infection has reach'd the Mass of Blood, and the *Vesiculæ Seminales*: others insist, that the Symptoms may be accounted for from the Running, or *Virus*, being more corrosive; and by that means irritating and inflaming the adjacent Parts.

The Cure of a *Clap* consists in proper Evacuations, as Calomel-Purgatives, Refrigerant-Emulsions, Pouders, &c. Turbeth-Emeticks, and lastly, proper Terebinths, &c. to which some add Decoctions of the *Lignum Vitæ*, &c. As to Externals, they are generally comprehended under the form of Fomentations, Cataplasms, Liniments, and Lotions.

Late Authors, and especially Dr. *Cockburn*, have insisted on the Cure of a *Clap* by a particular Injection, without the use of any other Medicine.

This has given a Handle to Quacks, who, by affecting to do the same by their Injections, generally check the Running, and make a confirm'd Pox.

Turbeth-Mineral, Calomel, &c. given in small Doses, and continu'd for some time, so as to take effect by way of Alteratives, have been lately much commended as to Success. Mercurial Unguents, us'd in small Quantities, so as not to raise a Salivation, is said to cure all the Stages of the Venereal Disease: This Practice is usual in *Montpelier*, &c. See Salivation, Mercury, &c.

Mr. *Becket*, in the *Philosophical Transactions*, attempts to shew, that the Disease we now call a *Clap*, is the same with that our Forefathers call'd a *Burning*, or *Brenning*; under which Name it was known several hundred Years before the commonly suppos'd Origin of the Venereal Disease; and that the Appellation *Brenning*, &c. was only discontinu'd as that of *Clap* commence'd.

In a MS. as old as *Henry* IV. *Arden*, Chirurgeon to that Prince, defines Brenning to be a certain inward Heat and Excoriation of the *Urethra*; which, Mr. *Becket* observes, gives us a perfect Idea of what we now call a *Clap*. For frequent Dissections of such as have labour'd under that Disease, have made it evident, that the *Urethra* is excoriated by the Virulency of the Matter they receive from the infected Woman: Which Excoriation, or Ulceration, he adds, is not confin'd to the *Ostiola*, or Mouths of the mucous Glands of the *Urethra*, as has been lately imagin'd; but may equally attack any Part of the *Urethra*.

The heat, or *burning* which such Persons feel in making water, is a Consequence of this Excoriation of the *Urethra*; the Salts contain'd in the Urine pricking and irritating the nervous *Fibrillæ* of the Urine, thus divested of its natural Membrane. See Burning.

CLARENCIEUX, the second King at Arms; thus call'd from the Duke of *Clarence*, to whom he first belong'd. See King *at Arms*.

Lionel, third Son of *Edward* III. having by his Wife the Honour of *Clare* in the County of *Thomond*, was hereupon created Duke of *Clarence*; which Dukedom afterwards escheating to *Edward* IV. he made this Herald, who properly belong'd to the Duke, a King at Arms; naming him *Clarencieux* in *French*, and *Clarencius* in *Latin*. See Herald.

His Office is to marshal, and dispose of the Funerals of all the lower Nobility; as Baronets, Knights, Esquires, and Gentlemen on the South side of *Trent*: whence he is also call'd *Surroy*, or *South-Roy*, in contradistinction to *Norroy*. See NORROY.

CLARET, or CLAIRET, *Pale red*, a Name the *French* give to such of their red Wines as are not of a deep, or high Colour. See WINE.

The Word is a Diminutive of *clair*, clear, bright, transparent.

CLARET, CLARETA, in the antient Pharmacy, was a kind of Wine impregnated with Aromatics; sometimes also called *Hippocras*, or *Vinum Hippocraticum*; because supposed to have been first prescrib'd by *Hippocrates*.

It has its Name *Claret*, from its being *clarify'd* by Percolation thro' a Wine-Sack, or Bag, call'd *Hippocrates*'s Sleeve.

CLARICORD, or *Manichord*, a Musical Instrument, in form of a Spinett. See SPINETT.

It has 49 or 50 Stops, and 70 Strings, which bear on five Bridges; the first whereof is the highest, the rest diminishing in proportion. Some of the Strings are in Unison; their Number being greater than that of the Stops.

There are several little Mortaises for passing the Jacks, arm'd with little Brass Hooks, which stop and raise the Chords in lieu of the Feather us'd in Virginals and Spinetts. But what distinguishes it most, is, that the Chords are cover'd with pieces of Cloth, which render the Sound the sweeter; and deaden it so, as that it can't be heard to any considerable distance.

Hence some call it the *dumb Spinett*; whence it comes to be particularly in use among the Nuns, who learn to play, and are unwilling to disturb the Silence of the Dormitory.

The *Claricord* is more antient than either the Spinett or Harpsicord; as is observ'd by *Scaliger*, who only gives it 35 Chords.

CLARIFICATION, in Chymistry, the Act of clearing, or fining of Liquors from their grosser Parts. See REFINING.

Clarification is perform'd by Ebullition, Despumation, and Colature or Filtration.

The Term is chiefly apply'd to Juices, Decoctions and Syrups, which are *clarify'd* by Filtration, or by passing 'em thro' a Strainer, after having beat them up into a Froth with the Whites of Eggs; the viscous Parts of the Eggs intangling the thick gross Particles of the Liquor, retain them in the Strainer. See FILTRATION.

Sometimes the Mixture is boil'd; by which means, the Eggs intangle the grosser Parts, and carry them up to the Top in a tough Scum; which is either taken off with a Spoon, or separated by a Flannel Bag, as before, call'd *Hippocrates's* Sleeve. See DESPUMATION.

Another Method is, by letting the Liquor stand in a convenient Vessel, till the grosser Particles settle.

In distill'd Waters, &c. which have a milky hue, or are turbid, it is generally effected with fine Sugar, mix'd with a small quantity of Allum; which will bear down the oily Parts, and leave the rest clear. See DEPURATION.

Many Liquors are *clarify'd* by passing them thro' a thick brown Paper; among others, Hippocras, Hydromel, &c. See HYDROMEL, &c.

Fine and delicate Wines are usually *clarify'd* with Fish-Glue: The thicker Wines with Omelette, or whites of Eggs diluted in Water. Sometimes with pouring them thro' a heap of little Chips. See WINE.

'Tis an Error to suppose that Fish-Glue, or Omelette, can be prejudicial to the Health; since both the one and the other fall down with the Lees, without producing any ill Effect. That which makes Wines unwholesom, is not the *clarifying* by these innocent means, but the Mixtures and Sophistications of the Vintners, to make 'em brisk, and bring them to life again after the Fret; which is done with Aqua vitæ, Spices, Pidgeons Dung, &c.

The Antients *clarify'd* their Wines by pouring them from off the Lees, into another Barrel, thro' a Tin Strainer.

Sugar is *clarify'd* with the Whites of Eggs and Sugar heat together. See SUGAR.

CLARIGATIO, or CLARIGATION, in the Law of Nations, a loud, clear Call, or Summons made to an Enemy, to demand Satisfaction for some Injury receiv'd; in defect whereof, recourse will be had to Reprisals.

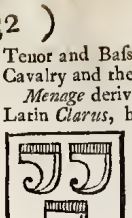
Clarigatio is the same with what the *Greeks* call ἀνδρολημψία. See ANDROLEPSIA.

Nauda uses the Word in a somewhat different manner. 'Reprisals, says he, signify the same as *pignorationes Bu-* 'dæo, aut Clarigationes Hermolao*:* For, as to the *Greek* 'Word *Androlepsia*, it is equivalent to the Latin *pigno-* 'randi potestas.

CLARION, a kind of Trumpet, whose Tube is narrower, and its Tone acuter and shriller than the common Trumpet. See TRUMPET.

Nicod says, the *Clarion*, as now us'd among the *Moors*, and *Portugueze* who borrow'd it from the *Moors*, serv'd antiently for a Treble to several Trumpets, which sounded Tenor and Bass. He adds, that it was only us'd among the Cavalry and the Marines.

Menage derives the Word from the Italian *Clarion*, of the Latin *Clarus*, by reason of the Clearness of its Sound.



CLARION, in Heraldry, is a Bearing of this Figure. He bears Ruby three *Clarions* Topaz; being the Arms of the Earl of *Bath*, by the Name of *Greenvile*.

Guillim takes these *Clarions* to be a kind of old-fashion'd Trumpet; but others rather think, they represent the Rudder of a Ship; others a Rest for a Lance.

CLARO-OBSCURO. See CLAIR-OBSCURE.

CLASPERS, in Botany, are Tendrels, Threads, or Ligaments of a middle Nature between that of a Root and Trunk; whereby Shrubs, and other Plants, take hold of Trees, or other things near 'em, for their Support, &c.

The Wisdom of the Creatnr is very conspicuous, in this Provision for some Species of Plants, which need it; as Ivy, Vines, Briony, &c.

The Contrivance is various in various Subjects. *Malpighi* observes, that the *Claspers* of Ivy are roundish, and cover'd with Hair; and what is very remarkable, they yield a glutinous Teribinthine Humor, by means whereof they adhere closely to Stones, &c. Nature, he adds, uses no less Artifice in the *Vitis Canadensis*.

Claspers serve somesimes for Support only; as those of the Vine, Briony, &c. whose Branches being long, slender, and brittle, would be weigh'd down by their own load, and that of their Fruit; but for these *Claspers*, which by a natural Spire, or Circumvolution, catch hold of any adjacent body.

Claspers sometimes also serve for a Supply of Juice; as in the Trunk-Roots of Ivy, which being a tall Plant, and of a compact Substance, the Sap would not be sufficiently furnish'd to the upper Sprouts without this Expedient.

Claspers also sometimes serve for Stabiliment, as those of Cucumbers; for Propagation, as those of Camomile; and for Shade, Stabiliment, and Propagation all together, as those of Strawberries.

CLASS, or CLASSIS, a distribution of Persons, or Things, arranged them according to their Merit, Value, or Nature.

The Word comes from the Latin *Classis*, of the *Greek* καλέω, *congrego*, *convoco*; a *Class* being nothing but a multitude, assembled apart.

CLASS, CLASSIS, in Antiquity. See CLASSIC.

CLASS is particularly us'd for a Distinction among Scholars; who are distributed into several *Classes*, or Forms, according to their Capacities and Attainments.

Quintilian uses the Word *Classis* in this Sense in the rst Book of his *Institutiones*.

CLASSIC, CLASSICAL, a Term seldom us'd but for Authors read in the *Classes*, at Schools, and who are in great Authority there. See SCHOOL.

Aquinas, and the *Master of the Sentences* are *Classic* Authors in the School Divinity; *Aristotle*, in Philosophy; *Cicero* and *Virgil* in the Humanities. *Aulus Gellius* ranks among *Classic* Authors, *Cicero*, *Cæsar*, *Salust*, *Virgil*, *Horace*, &c.

The Term seems properly applicable only to Authors who liv'd in the Time of the Republic and the *Augustan* Age, when the *Latin* was in its Perfection. It appears to have taken its rise hence, that an Estimate of every Person's Estate being appointed by *Servius Tullius*, he divided the *Roman* People into six Bands, which he called *Classes*.

The Estate of those of the first *Classis* was not to be under 200 Pounds: And these, by way of Eminence, were call'd *Classics*, *Classici*. Hence, Authors of the first Rank came to be call'd *Classics*: all the rest were said to be *infra Classem*.

The first *Classis*, again, was subdivided into *Centuries*; making fourscore Centuries of Footmen, and eighteen of Horsemen. See CENTURY.

Each *Classis* consisted, one half of the younger sort, who were to make War abroad; and the other of old Men, who staid at home for the Defence of the City.

CLAVICULÆ, *Channel Bones*, in Anatomy, two small Bones, situate at the Basis of the Neck, and atop of the Breast. See NECK, THORAX, &c.

They are about half a Foot long, of the thickness of a Finger, and a little bent at each end, and that different ways, somewhat like the Letter S; and are thus call'd, as being the Keys, or *Claves* of the Thorax.

Their inner Substance is spongy; whence they are brittle, easily broke, and easily coalescing again.

They are join'd to the *Acromium* of the Scapula *per Synchondrosin*; and on the Forepart, *per Arthrodiam*, to a Sinus on each side of the Upper-part of the *Sternum*.

Their Use is, to fix the *Scapulæ* with the *Sternum* and the Arms, and to prevent 'em from slipping too forward upon the Thorax.

CLAVIS, a *Latin* Word, sometimes us'd in *English* Writers for a *Key*. See KEY.

CLAUSE, an Article, or particular Stipulation in a Contract; a Charge, or Condition in a Testament, &c.

We say, *Derogatory Clause*, *Penal Clause*, *Codicillary Clause*, *Resolutary Clause*. See each of these in its Place, DEROGATORY, PENAL, &c.

CLAUSUM *Fregit*, an Action of Trespass; thus call'd, by reason the Writ demands the Person summon'd to answer to *quare clausum fregit*, why he committed such a Trespass. See TRESPASS.

CLAVUS, in Antiquity, a Band or Fillet of Purple, more or less broad, according to the Dignity of the Person; us'd among the antient *Romans*: whence the Difference of the *Tunica Augusticlavia*, and *Laticlavia*. See LATICLAVUS, &c.

This Ornament, according to some, was call'd *Clavus*, Nail; as being set with little round Plates of Gold, or Silver, like the Heads of Nails. *Cantelius* maintains, that the *Clavus* consisted of a kind of Purple Flowers, sewed upon the Stuff.

CLAVUS, in Medicine, a Name Physicians give to a shooting Pain in the Head, commonly situate a little above the Eyes, *viz.* on the *Sinus Frontalis*; and suppos'd to resemble a boring of the Head thro' with an Augre; whence the Name. In some 'tis only in one, and in others in both.

'Tis generally allow'd to be a Species of an Ague, or an intermitting Fever; its Periods of coming or going, being usually regular or stated. In some 'tis Quotidian, in others Tertian. See FEVER.

The Cure consists in giving an Emetic a little before the Fit, and after, confirming it with a proper Quantity of the Cortex, &c. as in intermitting Fevers: tho Bleeding and Diaphoretics sometimes effect a Cure without other Assistants.

A Pain like to this, on the top of the Head, sometimes attacks hysterical Persons; which by Dr. *Sydenham* is term'd *Clavus Hystericus*. See HYSTERIC.

CLAVUS is also us'd in Medicine, for a Callus form'd on the Toes; popularly call'd a *Corn*. See CALLUS.

Clavi arise from a too great Compression of the *Cutis*; which by this means hardens, and forms it self into a Knot. The Cure is by first softening 'em, as with *Emplast. de Ranis cum Mercurio*, or *Mynsicht. Galban. Crocat.* with Sal Ammoniac; and then plucking 'em up. A piece of raw Beef, apply'd in manner of a Plaister, and frequently shifted, is found to dissipate 'em in a little time.

CLAY, in Natural History, a soft viscous Earth, found in various Places, and us'd for various Purposes, of several Kinds and Properties. See EARTH, SOIL, &c.

Dr. *Lister*, in the *Philosophical Transactions*, gives us a Table of 22 several *Clays* found in the several Counties of *England*; five whereof he calls *pure*, *i. e.* such as are soft, like Butter, to the Teeth, with little or no Grittiness in 'em, *viz.* 1. *Fullers Earth*, which he distinguishes by its Colour into yellowish, brown, and white. See FULLERS *Earth*. 2. *Boles*. See BOLE.

3. *Pale yellow Clay*. 4. *Cowshot Clay*. 5. *Dark blue Clay*, or Marle.

Seventeen *impure*; whereof eight are harsh and dusty when dry: as, 1, *Creta*, or milk-white *Clay*. 2. *Potters pale yellow Clay*. 3. *Blue Potters Clay*. 4. *Blue Clay*, wherein is found the *Astroites*. 5. *Yellow Clay*. 6. Fine *red Clay*. 7. Soft chalky *blue Clay*. 8. Soft chalky *red Clay*.

Three are stony when dry, *viz.* 1. A red stony *Clay*. 2. A blue stony *Clay*. 3. A white stony *Clay*.

Three are mix'd with Sand, or Pebbles, *viz.* 1. a yellow *Loam*. 2. A red sandy *Clay*. 3. A second Species of the same Kind.

Lastly, three are mix'd with flat or thin Sand, glittering with *Mica*: *viz.* 1. *Crouch white Clay*. 2. Grey or bluish *Tobacco pipe Clay*. 3. A red *Clay*.

CLAYES, in Fortification, are Wattles made with Stakes, interwove with Oziers, &c. to cover Lodgments. See FASCINES.

CLAYING *of Land*. See MANURE.

CLEAR, in Building, is sometimes us'd among the Workmen for the inside Work of a House, &c. See HOUSE, &c.

CLEARING *of Liquors*. See CLARIFICATION.

For Malt Liquors, particularly Beer, there are various Methods of *clearing*; the best is by casting into it fix'd Nitre: some add the Quintessence of Malt and Wine; whites of Eggs made into Balls with a little Flower and Izing-glass: Oil and Quintessence of Barley have the same Effect. It is exceedingly *clear'd* and strengthen'd, by adding to it, during the time of its Fermentation, some ardent Spirit. See MALT, LIQUOR, BEER, &c.

CLECHE', or CLECHE'E, in Heraldry, is usually understood of an Ordinary open to the Light, or pierc'd thro' with another inner one of the same Figure; *e.g.* when a Cross appears as if charg'd with another Cross of the same Colour with the Field; or as if the Field appeared thro' the Apertures thereof.

But *Colombiere*, and some other Writers, will have this piercing to be only a Circumstance of the *Cross Clechée*, and call it by the Name *Vuidé*, voided. The thing that denominates it *Clechée*, is its spreading from the Centre towards the Extremities, which are very wide, and end in an Angle in the middle; as in the Figure adjoining.

The Word is *French*, suppos'd to be form'd of *Clef*, Key; the Ends of the Cross being thought to bear some resemblance to the Bowls of the antient Keys.

CLEDONISM, CLEDONISMUS, a kind of Divination in use among the Antients. See DIVINATION.

The Word is form'd from the *Greek* κλεδὼν, which signifies two things, *Rumor*, a Report, and *Avis*, a Bird: In the first Sense, *Cledonism* is a kind of Divination drawn from Words occasionally utter'd. *Cicero* observes, that the *Pythagoreans* made Observation not only of the Words of the Gods, but of those of Men; and accordingly believ'd the pronouncing of certain Words, *v. g.* the Word *Incendium*, at a Meal, very unhappy.

Thus, instead of Prison, they us'd the Word *Domicilium*; and to avoid *Erinnies*, said *Eumenides*.

In the second Sense, *Cledonism* should seem a Divination drawn from Birds; the same with *Ornithomantia*. See ORNITHOMANCY.

CLEF, CLIFF, or *Key*, in Musick, a Mark at the Beginning of the Lines of a Song, which shews the Tone, or Key in which the Piece is to begin. Or, it is a Letter mark'd on any Line, which explains and gives the Name to all the rest. See KEY.

Antiently, every Line had a Letter mark'd for a *Clef*; now a Letter on one Line suffices: since by this all the rest are known; reckoning up or down in the Order of the Letters.

'Tis call'd the *Clef*, or Key, because hereby we know the Names of all the other Lines and Spaces; and consequently the Quantity of every Degree, or Interval.

But because every Note in the Octave is call'd a *Key*, tho in another Sense, this Letter mark'd, is call'd in a particular manner the *Sign'd Clef*; because being written on any Line, it not only signs and marks that one, but explains all the rest.

By CLEF, therefore, for distinction-sake, we mean that Letter sign'd on a Line, which explains the rest; and by *Key* the principal Note of a Song, in which the Melody closes.

There are three of these *Sign'd Clefs*, *c*, *f*, *g*. The *Clef* of the highest Part in a Song, call'd *Treble*, or *Alt*, is *g* set on the second Line counting upwards. The *Clef* of the Bass, or the lowest Part, is *f* on the fourth Line upwards: For all the other mean Parts, the *Clef* is *c*, sometimes on one, sometimes on another Line. Indeed, some that are really mean Parts, are sometimes set with the *g Clef*. See BASS, &c.

It must, however, be observ'd, that the ordinary Signatures of *Clefs* bear little resemblance to those Letters. Mr. *Malcolm* thinks it would be well if we us'd the Letters themselves. *Kepler* takes a world of Pains, to shew that the common Signatures are only Corruptions of the Letters they represent. See their Figure among the other CHARACTERS *of Musick*.

The *Clefs* are always taken Fifths to one another: That is, the *Clef f* is lowest, *c* a Fifth above it, and *g* a Fifth above *c*.

When the Place of the *Clef* is chang'd, which is not frequent in the *mean Clef*, 'tis with Design to make the System comprehend as many Notes of the Song as possible, and so to have the fewer Notes above or below it. If then there be many Lines above the *Clef*, and few below it, this Purpose is answer'd by placing the *Clef* in the first or second Line: If there be many Notes below the *Clef*, 'tis plac'd higher in the System. In effect, according to the Relation of the other Notes to the *Clef* Note, the particular System is taken differently in the Scale; the *Clef* Line making one in all the Variety. See SCALE.

But still, in whatever Line of the particular System any *Clef* is found, it must be understood to belong to the same of the general System, and to be the same individual Note or Sound in the Scale.

By this constant Relation of *Clefs*, we learn how to compare the several particular Systems of the several Parts; and know how they communicate in the Scale, *i. e.* which Lines are Unison, and which not: for 'tis not to be suppos'd that each Part has certain Bounds, within which another must never come. Some Notes of the Treble, *v. g.* may be lower than some of the mean Parts, or even of the Bass. To put together therefore in one System all the Parts of a Composition written separately, the Notes of each Part must be plac'd at the same Distances above and below the proper *Clef*, as they stand in the separate System; and because all the Notes that are consonant, (or heard together) must stand perpendicularly over each other, that the Notes belonging to each Part may be distinctly known, they may be made with such Differences as shall not confound or alter their Significations with respect to Time, but only shew that they belong to this or that Part. Thus shall we see how the

the Parts change and pass thro' one another; and which, in every Note is highest, lowest, or unison.

The Use of particular *Sign'd Clefs* then, is an Improvement with respect to the Parts of any Composition; for unless some one Key in the particular Systems were distinguish'd from the rest, and refer'd invariably to one Place in the Scale, the Relations could not be distinctly mark'd.

It must here be observ'd, that for the Performance of any single Piece, the *Clef* only serves for explaining the Intervals in the Lines and Spaces: so that we need not regard what Part of any greater System it is; but the first Note may be taken as high or as low as we please. For the proper Use of the Scale is not to limit the absolute Degree of Tone; so the proper Use of the *Sign'd Clef*, is not to limit the Pitch at which the first Note of any Part is to be taken; but to determine the Tune of the rest with relation to the first: And considering all the Parts together, to determine the Relations of their several Notes by the Relations of their *Clefs* in the Scale: Thus, the pitch of Tune being determin'd in a certain Note of one Part; the other Notes of that Part are determin'd by the constant Relations of the Letters of the Scale, and the Notes of the other Parts by the Relations of their *Clefs*.

In effect, for performing any single Part, the *Clef* Note may be taken in any Octave, *i. e.* at any Note of the same Name, provided we do not go too high or too low for finding the rest of the Notes of a Song. But in a Concert of several Parts, all the *Clefs* must be taken, not only in the Relations, but also in the Places of the System abovemention'd; that every Part may be comprehended in it.

The difference of *Clefs* in particular Systems, makes the Practice of Musick much more difficult and perplex'd than it would otherwise be; both with respect to Instruments, and to the Voice. This occasion'd Mr. *Salmon* to propose a Method of reducing all Musick to one *Clef*; whereby the same Writing of any Piece of Musick, should equally serve to direct the Voice, and all Instruments; which he calls an *Universal Character*.

The Natural and Artificial Note express'd by the same Letter, as *c* and *c* ♯; are both set on the same Line or Space. When there is no Character of Flat or Sharp at the beginning with the *Clef*, all the Notes are Natural: and if in any particular Place the Artificial Note be requir'd, 'tis signify'd by the Sign of a Flat or Sharp set on the Line a Space before that Note.

If a Sharp or Flat be set at the beginning in any Line or Space with the *Clef*, all the Notes on that Line or Space are Artificial ones; *i. e.* are to be taken a Semitone higher or lower than they would be without such Sign. The same affects all their Octaves above and below, tho they ben't mark'd so, In the Course of the Song, if the Natural Note be sometimes requir'd, 'tis signify'd by ♮.

The marking of the System thus by Flats and Sharps, Mr. *Malcolm* calls the *Signature of the Clefs*. See NOTE, TUNE, TRANSPOSITION, FLAT, SHARP, &c.

CLEMENTINE, a Term in use among the *Augustins*, who apply it to a Person, who after having been nine Years a Superior, ceases to be so, and becomes a private Monk, under the Command of a Superior.

The Word has its rise hence, that Pope *Clement*, by a Bull, prohibited any Superior among the *Augustins* from continuing above nine Years in his Office.

CLEMENTINES, in the Canon Law, are the Constitutions of Pope *Clement* V. and the Canons of the Council of *Vienna*. See CANON.

CLEPSYDRA, a kind of Water-Clock, or Hour-Glass, serving to measure Time by the Fall of a certain quantity of Water. See CLOCK, &c.

There have likewise been *Clepsydras* made with Mercury.

The *Egyptians* by this Machine measur'd the Course of the Sun. *Tycho Brahe*, in our Days, made use of it to measure the Motion of the Stars, &c. and *Dudley* us'd the same Contrivance in making all his Maritime Observations.

The Use of *Clepsydras* is very antient: They were invented in *Egypt* under the *Ptolomys*; as were also Sun-Dials. Their Use was chiefly in the Winter; Sun-Dials serv'd in the Summer. They had two great Defects; the one, that the Water run out with a greater or less facility, as the Air was more or less dense: The other, that the Water run out more readily at the Beginning, than towards the Conclusion.

M. *Amontons* has invented a *Clepsydra* free from both these Inconveniencies, and which has the three grand Advantages, of serving the ordinary Purpose of Clocks; of serving in Navigation for the Discovery of the Longitude; and of measuring the Motion of the Arteries.

The Word comes from κλέπτω, *condo*, and ὕδωρ, *aqua*.

The Word *Clepsydra* is also us'd for an Hour-Glass of Sand.

For the Construction of a CLEPSYDRA.

Problem. *To divide any cylindric Vessel into Parts, to be empty'd in each Division of Time; the Time wherein the whole, and that wherein any Part is to be evacuated, being given.*

Suppose, *v. g.* a cylindric Vessel, whose Charge of Water flows out in twelve Hours, were required to be divided into Parts to be evacuated each Hour. 1. As the part of Time 1 is to the whole Time 12, so is the same Time 12 to a fourth Proportional, 144. 2. Divide the Altitude of the Vessel into 144 equal Parts: Here, the last will fall to the last Hour; the three next above to the last Part but one; the five next to the tenth Hour, &c. Lastly, the 23 last to the first Hour.

For, since the Times increase in the Series of the Natural Numbers 1 2 3 4 5, &c. and the Altitudes, if the Numeration be in a retrograde Order from the twelfth Hour, increase in the Series of the unequal Numbers 1 3 5 7 9, &c. the Altitudes computed from the twelfth Hour, will be as the Squares of the Times 1 4 9 16 25, &c. Therefore, the Square of the whole Time 144, comprehends all the Parts of the Altitude of the Vessel to be evacuated. But a third Proportional to 1 and 12 is the Square of 12; and consequently it is the Number of equal Parts into which the Altitude is to be divided, to be distributed according to the Series of the unequal Numbers, thro' the equal Intervals of Hours.

Since, in lieu of Parts of the same Vessel, other less Vessels equal thereto may be substituted; the Altitude of a Vessel emptied in a given Space of Time being given, the Altitude of another Vessel to be emptied in a given Time may be found; *viz.* by making the Altitudes as the Squares of the Times.

Hence we see the Method of constructing the *Clepsydras* us'd by the Antients.

CLERGY, *Clerus*, the Assembly or Body of *Clerks*, or Ecclesiasticks. See CLERK.

In the *Romish* Church there are two Kinds of *Clergy*; the one *Regular*, comprehending all the Religious of both Sexes: the other *Secular*, comprehending all the Ecclesiasticks that don't make the Monastic Vows. See REGULAR, &c.

Among the *Reformed*, there are none but Secular *Clergy*. See ECCLESIASTIC.

The *Roman Clergy* forms a Monarchical State, under the Pope, who is the Head thereof. See POPE, HIERARCHY, &c.

The *Clergy* was antiently divided into three Orders, *viz.* *Priests*, *Deacons*, and *inferior Clerks*; and each Order had its Chief: the Arch-Priest was the Head of the first Order, the Archdeacon of the second, and the Dean of the third. See PRIEST, DEACON, ARCHDEACON, DEAN, ARCH-PRIEST, &c.

Under the Name of *Clergy*, were also formerly compris'd all the Officers of Justice; as being suppos'd to be Men of *Letters*. See CLERK.

Tho the *Clergy* formerly claim'd an Exemption from all Secular Jurisdiction, yet *Matt. Paris* tells us, *William* the Conqueror subjected the Bishops and Abbeys who held *per Baroniam*, and who till then had been exempt from all Secular Service; and order'd they should be no longer free from Mortuary Services. To this purpose he prescrib'd arbitrarily what Number of Soldiers every Abbey and Bishoprick should provide, to serve him and his Successors in War, and laid up these Registers of Ecclesiastical Servitude in his Treasury.

But, in effect, the *Clergy* were not exempt from all Secular Service till then; as being bound by the Laws of King *Edgar* to obey the Secular Magistrate in three Things, *viz.* upon an Expedition to the Wars, and in contributing to the Building and Repairing of Bridges, &c.

The *Privileges of the English* CLERGY are still very considerable: Their Goods pay no Toll in Fairs or Markets; they are exempt from all Offices, but their own; from the King's Carriages, Posts, &c. from appearing at Sheriffs *Tourns*, or Frank-Pledges; and are not to be fin'd or amerc'd according to their Spiritual, but their Temporal Means.

A *Clergyman* acknowledging a Statute, his Body shall not be imprison'd: If he be convict of a Crime, for which the Benefit of the *Clergy* is allow'd, he shall not be burnt in the Hand: and he shall have the Benefit of the Clergy *in infinitum*, which no Layman can have but once.

The *Clergy* are not to be burden'd in the general Charges with the Laity; nor to be troubled or incumber'd, unless expressly nam'd and charg'd by the Statute; for general Words don't affect them. Thus, if a Hundred be sued for a Robbery, the Minister shall not contribute; tho the Words are, *Gentes demorantes*: neither are they assess'd to the Highway, to the Watch, &c.

The *Revenues of the* CLERGY were antiently more considerable then at present: *Ethelwolphus*, in 855, gave them the Tithe of all Goods, and the Tenth of all the Lands in *England*; free from all Secular Services, Taxes, &c. See TITHE.

The Charter whereby this was given them, was confirm'd by several of his Successors, *Edmund*, *Edgar*, *Ethelred*, *Alfred*, and *William* the Conqueror; which last, finding the Bishopricks so rich, erected them all into Baronies; each Barony containing 13 Knights Fees, at least. But since the Reformation

tion the Bishopricks are much impair'd. See Bishoprick, Diocess, &c.

The Revenues of the inferior *Clergy*, in the general, are small; a third Part of the best Benefices being antiently, by the Pope's Grant, appropriated to Monasteries; upon the Dissolution whereof they became Lay-Fees. See Abbey, Fee, &c.

Indeed, an Addition was made 2° *Annæ*; the whole Revenue of First-Fruits and Tenths being then granted, to raise a Fund for the Augmentation of the Maintenance of the Poor *Clergy*: pursuant to which, a Corporation was form'd, by the Name of the *Governours of the Bounty of Queen* Anne, *for the Augmentation of the Maintenance of the Poor Clergy*; to whom the said Revenues were convey'd in Trust, &c. See Augmentation.

Clergy is also us'd for an antient Liberty of the Church, confirm'd by several Acts of Parliament; consisting in this, that when a Priest, or one in Orders, was arraign'd of Felony before a secular Judge, he might *pray his Clergy*, *i.e.* he might pray to be deliver'd to his Ordinary, to purge himself of the Crime objected against him.

This was admitted, even in Cases of Murder: But several Statutes made in aftertimes have abridg'd and restrain'd this Privilege.

The antient Course of the Law is now much alter'd on this Head; for by the Stat. 18 *Eliz.* cap. 7. Clerks are no more committed to their Ordinaries to be purg'd; but every Man to whom the Benefit is granted, tho not in Orders, is put to read at the Bar, after he is found guilty, and convicted of such Felony; and so, burnt in the Hand, and set free for the first time, if the Ordinary's Commissioner, or Deputy standing by, do say, *Legit ut Clericus*; otherwise he suffers Death.

CLERICO *Admittendo*, in Law, a Writ directed to the Bishop, for the admitting a *Clerk* to a Benefice upon a *Ne admittas*, try'd, and found for the Party who procures the Writ.

Clerico *capto per Statutum Mercatorum*, is a Writ for the Delivery of a *Clerk* out of Prison, who is imprison'd upon the Breach of Statute Merchant.

Clerico *convicto commisso Gaolæ in defectu Ordinarii deliberando*, is a Writ for the Delivery of a *Clerk* to his Ordinary, that was formerly convicted of Felony; by reason his Ordinary did not challenge him according to the Privilege of *Clerks*.

Clerico *intra sacros Ordines constituto non eligendo in officium*, is a Writ directed to the Bailiffs, &c. that have thrust a Bailiwick or Beadleship upon one in Holy Orders; charging them to release him.

CLERK, *Clericus*, an antient Word, formerly us'd to signify a *learned Man*, or *Man of Letters*.

Thus, *Pasquier* observes, the Officers of the Counts, *Comites*, were antiently created under the Title of *Clerks of Accompts*; and Secretaries of State were call'd *Clerks of the Secret*. So, *Clericus Domini Regis*, in the Time of *Edward* I. was english'd, the King's Secretary, or *Clerk* of his Council.

This Term, *Clerk*, was apply'd indifferently to all who made any Profession of Learning; or who knew how to manage the Pen: tho, originally it was appropriated to Ecclesiasticks.

As the Nobility and Gentry were usually brought up to the Exercise of Arms; there was none but the Clergy left to cultivate the Sciences: Hence, as it was the Clergy alone who made any Profession of Letters, a very learned Man came to be call'd a *great Clerk*; and a stupid ignorant Man, a *bad Clerk*.

Ronsard, in his old Language, uses the Word femininely, *Clergesse* for a learned Woman.

Mais trop plus est à craindre une femme Clergesse.

The Word *Clerk*, and its Derivatives, come from the *Greek* κλῆρος, us'd for *Clergy*, but more properly signifying *Lot*, or *Heritage*; in regard the Lot, and Portion of *Clerks* or Ecclesiasticks is to serve God.

Accordingly, *Clerus* was at first us'd to signify those who had a particular Attachment to the Service of God.

The Origin of the Expression is deriv'd from the Old Testament, where the Tribe of *Levi* is call'd the *Lot*, *Heritage*, κλῆρος; and God is reciprocally call'd their Portion: by reason that Tribe was consecrated to the Service of God, and liv'd on the Offerings made to God, without any other settled Provision as the rest had. See Clergy.

Clerk is also us'd in the general for all those of the Ecclesiastical State, or who are in Orders, of any Degree, or Kind; from the Deacon to the Prelate. See Orders, Deacon, Bishop, &c.

Yet, in its utmost Latitude, the Word also includes *Chantors*, *Acolythi*, *Exorcistæ*, and *Ostiarii*. See Chantor, Acolythi, Exorcist, &c.

In this Sense, the Canons excommunicate all those who lay hands on a *Clerk*. See Orders, Ecclesiastic, Priest, &c.

A Council held in *Africa*, prohibited the appointing any *Clerk* to be a Tutor, Guardian, or Curator, by Testament. The Council of *Elvira* enjoins Continence on all *Clerks*, Bishops, Priests, and Deacons, on Pain of being stripp'd of their *Clericature*. See Celibate.

Acephalus Clerk, in the VIth Century, was a Name given to those *Clerks* who separated from the Bishop, and chose not to live any longer in Community with him; in contradistinction to *Canon*-Clerks, who continu'd to live with the Bishop, according to the Canons. See Canon.

Clerk, is also a Title given to several Officers in the Royal Palace, the Courts of Justice, Revenue, Army, Navy, &c. The principal of these are as follow.

Clerk *of the Acts*, is an Officer of the Navy, who receives and enters the Commissions and Warrants of the Lord Admiral; and registers the Acts and Ordinances of the Commissioners of the Navy. See Navy, Admiral, &c.

Clerk *of Assize*, is he that writeth all things judicially done by the Justices of Assize, in their Circuits. See Assize.

Clerk *of the Check*, is an Officer in Court; so call'd, because he hath the Check and Controlement of the Yeomen of the Guard, and all other ordinary Yeomen, or Ushers, belonging either to the King, Queen, or Prince; giving leave, or allowing their Absence, or Defects in Attendance; or diminishing their Wages for the same. See Check.

Clerk *of the Crown*, an Officer in the King's-Bench Court, whose Business is to read, frame, and record all Indictments against Traytors, Felons, and other Offenders there arraign'd upon any publick Crime. See Crown.

Clerk *of the Closet*, is a Divine; otherwise called *Confessor to his Majesty*; whose Office is to attend at the King's right Hand during Divine Service, to resolve all Doubts concerning Spiritual Matters, to wait on the King in his private Oratory, &c. See Closet.

Clerk *of the Crown*, in Chancery, an Officer, who by himself, or Deputy, is continually to attend the Lord Chancellor, or Lord Keeper, for special Matters of State, by Commission, or the like either immediately from his Majesty, or by Order of his Council; as well ordinary as extraordinary: Also all general Pardons, upon Grants of them at the King's Coronation or in Parliament, the Writs of Parliament, with the Names of the Knights, Citizens, and Burgesses, are return'd into this Office. He hath also the making of special Pardons, and Writs of Execution upon Bonds of Statute Staple forfeited.

Clerk *of the Deliveries*, is an Officer in the Tower, who takes Indentures for all Stores issued thence. See Tower.

Clerk *of the Enrollments of Fines and Recoveries*, is an Officer in the Court of Common Pleas, under the three Elder Judges of that Court, and removable at their Pleasure. See Enrollment.

Clerk *of the Errors*, in the Court of Common Pleas, transcribes and certifies into the King's-Bench the Tenor of the Records of the Cause, or Action, upon which the Writ of Error is brought there to be determin'd. See Errors.

Clerk *of the Errors*, in the King's Bench, does likewise transcribe, and certify the Records of such Causes in that Court into the Exchequer; if the Cause, or Action, is by Bill. See King's-*Bench*.

Clerk *of the Errors*, in the Exchequer, transcribes the Records certify'd thither out of the King's-Bench; and prepares them for Judgment in the Court of Exchequer, to be given by the Justice of the Common Pleas, and Barons there. See Exchequer.

Clerk *of the Essoigns*, is an Officer belonging to the Court of Common Pleas; who keeps the Essoign-Roll, or enters Essoigns. He also provides Parchment, cuts it into Rolls, makes the Number on them; delivers out all the Rolls to every Officer, and receives them again when written. See Essoign.

Clerk *of the Estreats*, belongs to the Exchequer; and every Term receiveth the Estreats out of the Lord Treasurer's Remembrancer's Office, and writeth them out to be levy'd for the King. He also maketh Schedules of such Sums estreated as are to be discharg'd. See Estreat.

Clerk *of the Hamper*, or *Hanaper*; or *Warden of the Hamper*; is an Officer in Chancery, whose Business is to receive all Money due to the King for the Seals of Charters, Patents, Commissions, and Writs: as also Fees due to the Officers for enrolling and examining the same. He is oblig'd to attend on the Lord Chancellor, or Lord Keeper daily in Term time; and at all Times of Sealing. See Hamper.

Clerk *of the Juries*, or *Curata Writs*, is an Officer belonging to the Court of Common Pleas; who maketh out the Writs call'd *Habeas Corpus*, and *Distringas*, for the Appearance of the Jury, either in Court, or at the Assizes; after the Pannel is return'd upon the *Venire Facias*. See Jury.

Clerk *Comptroller of the King's House*, an Officer of the Court, who has Place and Seat in the Compting-House; with Authority to allow or disallow the Charges and Demands of Pursuivants, and Messengers of the green Cloth, Purveyors,

ers, &c. He has also the oversight of all Defaults and Miscarriages of inferior Officers; and sits in the Compting-House with the superior Officers, *viz.* the Lord Steward, Treasurer, Comptroller, and Cofferer, for the correcting and redressing things out of order. See HOUSHOLD, and COMPTING-*House*.

CLERK *of the King's great Wardrobe*, is an Officer of the King's House, that keepeth an Accompt, or Inventory in Writing, of all things belonging to the King's Wardrobe. See WARDROBE.

CLERK *of the King's Silver*, is an Officer belonging to the Common Pleas; to whom every Fine is brought, after it has been with the *Custos Brevium*; and by whom the Effect of the Writ of Covenant is enter'd into a Paper Book: and according to that Note, all the Fines of that Term are also recorded in the Rolls of the Court. See SILVER-*Office*.

CLERK *of the Market*, is an Officer of the King's House; whose Duty is to take charge of the King's Measures, and to keep the Standards of them: that is, Examples of all the Measures that ought to be us'd thro' the Land. See STANDARD.

CLERK-*Marshal* of the King's House, seems to be an Officer that attends the Marshal in his Court, and recordeth all his Proceedings.

CLERK *of a Merchant Ship*, is an Officer appointed to take care that nothing be squander'd, or spent needlessly. See SHIP.

He is oblig'd to keep a Register, or Journal, containing an exact Inventory of every thing in the Loading of the Vessel; as the Rigging, Apparel, Arms, Provision, Munition, Merchandises: as also the Names of the Passengers, if there be any; the Freight agreed on; a List of the Crew; their Age, Quality, Wages; the Bargains, Purchases, Sales, or Exchanges the Ship makes from its Departure; the Consumption of Provision; and in short, every thing relating to the Expence of the Voyage. He also registers the Consultation of the Captains, Pilots, &c.

He also does the Office of a Register in all criminal Proceesses; and of a Notary, to make and keep the Wills of those who die in the Voyage; takes Inventories of their Effects, &c. The *Clerk* is not allow'd to quit the Vessel during the Voyage, on Forfeiture of all his Wages, &c.

In small Vessels, the Master, or Pilot, does the Office of *Clerk*. See MASTER.

CLERK *of the Nichils*, or *Nihils*, is an Officer in the Exchequer, that maketh a Roll of all such Sums as are *nihiled* by the Sheriffs upon their Estreats of green Wax; and delivers the same into the Lord Treasurer's Remembrancer's Office, to have Execution done upon them for the King. See NIHIL.

CLERK *of the Ordnance*, is an Officer in the Tower; who registers all Orders relating to the King's Ordnance. See ORDNANCE.

CLERK *of the Outlawries*, is an Officer belonging to the Court of Common Pleas; being a Deputy to the King's Attorney-General, for making out the Writs of *Capias utlegatum*, after Outlawry; and the King's Attorney's Name is to every one of those Writs. See OUTLAWRY.

CLERK *of the Paper-Office*, is an Officer of the King's Bench. See PAPER-*Office*.

CLERK *of the Parcels*, an Officer of the Exchequer. See EXCHEQUER.

CLERK *of the Parliament*, is he that recordeth all Things done in the Parliament; and engrosseth them fairly into Parchment Rolls, for their better keeping to Posterity. See PARLIAMENT.

Of these there are two, one of the *higher*, or House of Lords; and the other of the *lower*, or House of Commons.

CLERK *of the Patents*, or *Letters Patent* under the Great Seal. See PATENT.

CLERK *of the Peace*, is an Officer belonging to the Session of the Peace; whose Duty is at the Session to read the Indictments, to enroll the Acts, and draw the Process; to enroll Proclamations of Rates for Servants Wages; to enroll the Discharge of Apprentices; to keep the Counterpart of the Indenture of Armour, &c. Also to certify in the King's-Bench Transcripts of Indictments, Outlawries, Attainders, and Convictions, had before the Justices of the Peace within the Time limited by Statute. See PEACE.

CLERK *of the Pell*, belongs to the Exchequer: His Business is, to enter the Teller's Bills into a Parchment Roll, call'd *Pellis receptorum*; and also to make another Roll of Payment, call'd *Pellis exituum*; wherein he sets down by what Warrant the Money was paid. See PELL.

CLERKS *of the Petty Bag*, is an Officer in Chancery, whereof there are three; the Master of the Rolls being their Chief. See CHANCERY.

Their Office is to record the Return of all Inquisitions out of every County; all Liveries granted in the Court of Wards; all *Oster les maines*: to make all Patents of Customers, Gaugers, Comptrollers, and Aulnagers; Summons of the Nobility, Clergy, and Burgesses to the Parliament; Commissions directed to Knights and others, of every Shire, for raising of Subsidies; Writs for nomination of Collectors for the Fifteenths; and all Traverses upon any Office, Bill, or otherwise; and to receive the Money due to the King for the same. See PETTY-*Bag*.

CLERK *of the Pipe*, belongs to the Exchequer; who having all Accompts and Debts due to the King delivered and drawn out of the Remembrancer's Office, chargeth them down into the great Roll: He also writes Summons's to the Sheriff, to levy the said Debts upon the Goods and Chattels of the said Debtors; and if there be no Goods, he draws them down to the Lord Treasurer's Remembrancer, to write Estreats against their Lands. See PIPE.

CLERK *of the Pleas*, is an Officer in the Exchequer, in whose Office the Officers of the Court, upon special Privileges belonging to them, ought to sue, and be sued upon any Action. See PLEA.

CLERKS *of the Privy-Seal*. There are four of these Officers, who attend the Lord Keeper of the Privy-Seal, or, if there be none such, the principal Secretary; and write or make out all Things sent by warrant from the Signet to the Privy-Seal, and to be pass'd to the Great Seal: as also to make out Privy-Seals upon any special Occasion of the King's Affairs; as for Loan of Money, or such-like. See PRIVY-*Seal*.

CLERK *of the Sewers*, is an Officer belonging to the Commissioners of the Sewers, who writes down all Things they do by virtue of their Commission. See SEWER.

CLERK *of the Signet*, is an Officer continually attending on the King's principal Secretary; who has custody of the Privy-Signet, as well for sealing the King's private Letters, as for such Grants as pass his Majesty's Hand by Bills sign'd. Of these there are four, who attend in their Turn, and have their Diet at the Secretary's Table. See SIGNET.

CLERK *of the Supersedeas*, is an Officer of the Court of Common Pleas, who makes out Writs of *Supersedeas* (upon the Defendant's appearing to the Exigent) whereby the Sheriff is forbid to return the Exigent. See SUPERSEDEAS.

CLERKS *of the Treasury*. See TREASURY.

CLERK *of the Treasury*, is also an Officer of the Common Pleas, who has charge of the Records of the *Nisi prius*; the Fees due for all Searches; and hath the certifying of all Records into the King's-Bench, when a Writ of Error is brought: He also makes out all Writs of *Supersedeas de non Molestanda*, which are granted for the Defendants while the Writ of Error hangeth: he also maketh all Exemplifications of Records, being in the Treasury.

CLERK *of the Warrants*, is an Officer likewise belonging to the Court of Common Pleas, who enters all Warrants of Attorney for Plaintiff and Defendant: and enrolls all Deeds of Indentures of Bargain and Sale, which are acknowledg'd in the Court, or before any Judges out of the Court. See WARRANT.

CLEROMANCY, a kind of Divination perform'd by the throwing of Dice, or little Bones; and observing the Points, or Marks turn'd up. See DIVINATION.

At *Bura*, a City of *Achaia*, was a Temple, and a celebrated Oracle of *Hercules*; where such as consulted the Oracle, after praying to the Idol, threw four Dies, the Points whereof being well scann'd by the Priest, he was suppos'd to draw an Answer from them. See ORACLE, and SORTES.

The Word comes from the *Greek* κλῆρος, *Lot*, and μαντεία, *Divination*.

CLIENT, *Clients*, among the *Romans*, was a Citizen who put himself under the Protection of some great Man, who in that Relation was call'd his *Patron*, *Patronus*. See PATRON.

The Patron assisted his *Client* with his Protection, Interest and Estate; and the *Client* gave his Vote for his Patron, when he sought any Office for himself, or his Friends. *Clients* ow'd respect to their Patrons, as these reciprocally ow'd them their Protection.

This Right of Patronage was appointed by *Romulus*, to unite the Rich and Poor together, in such manner, as that one might live without Contempt, and the other without Envy. But the Condition of a *Client*, in course of Time, became little else but a moderate kind of Slavery.

By degrees, the Custom extended it self beyond *Rome*; and not only Families, but Cities, and entire Provinces, even out of *Italy*, follow'd the Example. Thus, *Sicily*, *v.g.* put it self under the *Clientela*, or Protection of *Marcellus*.

Lazius and *Budeus*, refer the Origin of Fiefs and Tenures to the Patrons and *Clients* of antient *Rome*: But the Difference is pretty considerable between the Relation of Vassals and their Lords, and that of *Clients* and their Patrons. See VASSAL, LORD, &c.

For the *Clients*, beside the Respect they bore their Patrons, and the Vote they gave them, were oblig'd to assist them in all Affairs; and even to pay their Ransom, if they should be taken Prisoners in War, in ease they were not able to do it of themselves. See FEE, and TENURE.

The Word *Clients* is form'd of *Colens*, honouring.

CLIENT, is now us'd for a Party in a Law-Suit, who has turn'd over his Cause into the Hands of a Counsellor, or Solicitor.

CLIMACTERIC, *Annus Climactericus*, a critical Year, wherein, according to the Astrologers, there is some very notable Alteration in the Body to arise; and a Person stands in great danger of Death. See CRITICAL.

The first *Climacteric* is the seventh Year of a Man's Life; the rest are Multiples of the first, as 21, 49, 56, 63, and 81; which two last are called the *Grand Climacterics*, and the Dangers here suppos'd more imminent.

The Opinion has a great deal of Antiquity on its side. *Aulus Gellius* says, it was borrow'd from the *Chaldeans*; who might probably receive it from *Pythagoras*, whose Philosophy turn'd much on Numbers; and who imagin'd an extraordinary Virtue in the Number 7.

Marc. Ficinus gives us the Foundation of the Opinion: He tells us, there is a Year assign'd for each Planet to rule over the Body of Man, each in his turn: now, *Saturn* being the most malific Planet of all, every seventh Year, which falls to his Lot, becomes very dangerous; especially those of 63 and 81, when the Person is already advanc'd in Years.

Some hold, according to this Doctrine, every seventh Year an establish'd *Climacteric*; but others only allow the Title to those produc'd by the Multiplication of the *climacterical* Space by an odd Number, 3, 5, 7, 9, &c. Others observe every ninth Year as a *Climacteric*.

Hevelius has a Volume under the Title of *Annus Climactericus*; describing the Loss he sustain'd in the burning of his Observatory, &c. which it seems happen'd in his first *grand Climacteric*.

Suetonius says, *Augustus* congratulated his Nephew upon his having pass'd his first *grand Climacteric*, whereof he was very apprehensive.

Some pretend, that the *Climacteric* Years are also fatal to political Bodies.

Authors on the Subject, are *Plato*, *Cicero*, *Macrobius*, *Aulus Gellius*, among the Antients; *Argol*, *Maginus*, and *Salmasius* among the Moderns. S. *Augustin*, S. *Ambrose*, *Beda*, and *Boetius* countenance the Opinion.

The Word *Climacteric* comes from the *Greek* κλίμαξ, κλίμακος, *Scala*; *q. d.* by a Scale, or Degrees.

CLIMATE, in Geography, a part of the Surface of the Earth, bounded by two Circles parallel to the Equator, and of such a Breadth, as that the longest Day in the Parallel nearer the Pole, exceeds the longest Day in that next the Equator by some certain Space, *viz.* half an Hour. See EARTH, PARALLEL, &c.

The *Beginning of the* CLIMATE, is the parallel Circle wherein the Day is the shortest.

The *End of the* CLIMATE, is that wherein the Day is the longest. See DAY.

The *Climates* therefore are reckon'd from the Equator to the Pole; and are so many Bands, or Zones, terminated by Lines parallel to the Equator: tho, in strictness, there are several *Climates* in the Breadth of one Zone. See ZONE.

Each *Climate* only differs from its contiguous ones, in that the longest Day in Summer is longer or shorter by half an Hour in the one Place than in the other.

As the *Climates* commence from the Equator, the first *Climate*, at its Beginning, has its longest Day precisely 12 Hours long; at its End, 12 Hours and an half: The second, which begins where the first ends, *viz.* at 12 Hours and an half, ends at 13 Hours; and so of the rest, as far as the Polar Circles. See HOUR.

Here, what the Geographers call *Hour-Climates* terminate, and *Month-Climates* commence.

As an *Hour-Climate* is a Space compriz'd between two Parallels of the Equator, in the first of which, the longest Day exceeds that in the latter by half an Hour; so the Month-*Climate* is a Space terminated between two Circles parallel to the Polar Circles whose longest Day is longer or shorter than that of its contiguous one by a Month, or 30 Days. See MONTH.

The Antients, who confin'd the *Climates* to what they imagin'd the habitable Parts of the Earth, only allow'd of seven. The first they made to pass thro' *Meroe*; the second thro' *Sienna*; the third thro' *Alexandria*; the fourth thro' *Rhodes*; the fifth thro' *Rome*; the sixth thro' *Pontus*; and the seventh thro' the Mouth of the *Boristhenes*.

The Moderns, who have sail'd further toward the Poles, make thirty *Climates* on each side: and in regard the Obliquity of the Sphere makes a little difference in the length of the longest Day; instead of half an Hour, some of 'em only make the difference of *Climates* a quarter.

In fixing the *Climates*, there ordinarily is no regard had to the Refraction. See REFRACTION.

Vulgarly, the Term CLIMATE is bestow'd on any Country or Region differing from another, either in respect of the Seasons, the Quality of the Soil, or even the Manners of the Inhabitants; without any regard to the Length of the longest Day.

Albufeda, an *Arabic* Author, distinguishes the first kind of *Climates* by the Term *real Climates*; and the latter by that of *apparent Climates*.

The Word comes from the *Greek* κλιμα, *Inclinamentum*, an Inclination.

Varenius gives us a Table of thirty *Climates*; but without any regard to the Refraction. *Ricciolus* furnishes a more accurate one, wherein the Refractions are allow'd for: An Abstract of which follows.

A Table of CLIMATES.

Middle of *Clim.*	Longest Day.		Latit.		*Climates.*	Longest Day.		Latit.		Middle of *Clim.*	Latit.		Cont. Lax.	North Night	Cont. Lax.	South. Night.
I	12h.	30′	7°	1′	VIII	16h.	0′	48°	15′	XV	66°	53′	31d.	27d.	30d.	28d.
II	13	0	15	36	IX	17	0	53	46	XVI	69	30	62	58	60	59
III	13	30	23	8	X	18	0	57	44	XVII	73	0	93	87	89	88
IV	14	0	29	49	XI	19	0	60	39	XVIII	78	6	124	117	120	118
V	14	30	35	35	XII	20	0	62	44	XIX	84	0	156	148	150	149
VI	15	0	40	32	XIII	22	0	65	10	XX	90	0	188	180	178	177
VII	15	30	44	42	XIV	24	0	6	54							

CLIMAX, or *Gradation*, in Rhetorick, a Figure, whereby we ascend or descend, as it were by degrees.

Such is that of *Cicero* to *Catiline*, *Nihil agis, nihil moliris, nihil cogitas; quod ego non audiam, quod etiam non videam, planeque sentiam*: Thou dost nothing, moveſt nothing, thinkst nothing; but I hear it, nay see it, and perfectly understand it. Thus, the same *Cicero* to *Atticus*; *Si dormis expergiscere; si stas, ingredere; si ingrederis, curre; si curris advola.* Thus, *Tertullian de Spec.* ‘ Who ever found ‘ the Truth without God? Who ever found God without ‘ Christ? who Christ without the Holy Spirit? who the Holy Spirit without Faith?

CLINIC, CLINICUS, a Term apply'd by some Church-Historians to those among the Antients, who receiv'd Baptism on their Death-Bed. See BAPTISM.

It was the Doctrine of many of the Fathers, that Baptism absolutely wash'd away all previous Sins, and that there was no Attonement for Sins committed after Baptism. On this account, many defer'd that Sacrament till they were arriv'd at the last Stage of Life, and were pretty safe from the danger of sinning any more; and such were call'd *Clinici*.

Magnus, in the IIId Century, made a Doubt whether or no *Clinics* were truly baptiz'd, in regard the Ceremony was only perform'd by Aspersion, instead of Immersion. He consulted S. *Chrysostom* on the Point, who made him answer, that the Sacrament does not wash away Sin after the manner of a corporal Bath; and shews from Scripture that Aspersion is sufficient.

The Word comes from the *Greek* κλινη, *a Bed*.

CLINIC is also us'd in Antiquity in two other Senses: 1st, for a Patient, or Person merely sick, even without keeping his *Bed*; as appears from the Life of *Charlemaigne*, in *Canisius*.

2dly, For a *Physician*; in regard, Physicians are much conversant about the *Beds* of the Sick.

It was, however, principally the Physicians of Emperors that were call'd by this Title. (*Raderus* on *Martial*, *Rosweid*, and *Hoffman*.)

Medicina CLINICA, was particularly us'd for the Method of visiting and treating sick Persons a-bed, for the more exact Discovery of all the Symptoms of the Disease. See MEDICINE.

Le Clerc observes, that *Æsculapius* was the first who exercis'd the *Medicina Clinica*.

CLINIC is now seldom us'd but for a *Quack*; or rather for an empyrical Nurse, who pretends to have learnt the Art of curing Diseases by attending on the Sick. See PHYSICIAN.

CLINOIDES, in Anatomy, an Epithet given to three internal Apophyses of the *Os Sphenoides*, one of the Bones of the *Cranium*; so call'd, say some, from their resembling the Feet of a *Bed*. See SPHENOIDES.

Two of these are anterior, or before; the third posterior, behind: The three together form a little Cavity, from its Shape call'd *Sella Turcica*, or *Equina*; wherein is plac'd the Pituitary Gland. See SELLA, and PITUITARY *Gland*.

The Word is form'd of the *Greek* κλινη, *a Bed*, and εἶδος, *form*; either from the three Bones which resemble the Feet of a Bed; or from the Cavity they form, which resembles a Bed it self.

CLITORIDIS *Musculi*, in Anatomy. See ERECTOR *Clitoridis*.

CLITORIS, in Anatomy, a long round Body in the Forepart of the *Vulva*, or Natural Parts of a Woman; being one of the principal Organs of Generation in that Sex. See GENERATION.

Its Figure represents that of a Gland, or Acorn: ordinarily 'tis pretty small, but in some Women thick, and long.

In many respects it represents the Penis of a Man; whence some call it the *Woman's Yard*. See PENIS.

In effect, it is compos'd of the same Parts; has, like it, two cavernous, or spongious Bodies; and a Glans at the Extremity, cover'd with a *Præputium*; but is not pierced thro' like the Penis. See GLANS, PREPUCE, &c.

It has two Muscles which erect it in Coition; on which occasion it swells and grows hard. Some Anatomists say, too, it has two *Musculi Ejaculatores*. See ERECTOR, &c.

Its Sensation is exquisite; and 'tis found the chief Seat of Pleasure: hence some Women are apt to abuse it.

The Extremity of this Part is sometimes cut off; as in Circumcision, and where it advances out too far. 'Tis sometimes so large and propendent, that it bears a full resemblance to the virile Member; whence the Persons in whom 'tis so found, frequently pass for *Hermaphrodites*. See HERMAPHRODITE.

The spongious Bodies of the *Clitoris*, arise distinctly from the lower Parts of the *Os Pubis*; and approaching one another, unite, and form the Body of the *Clitoris*. Before their Union they are called the *Crura Clitoridis*; and are twice as long as the Body of the *Clitoris*. See CRURA.

Its Muscles arise from the Protuberance of the *Ischium*, and are inserted into its spongious Bodies. It has Veins and Arteries from the Hemorrhoidal Vessels, and Pudenda; and Nerves from the Intercostals.

CLOACA, among the Antients, was a subterraneous Aqueduct; or a Common-shore, or Canal, for the Reception and Discharge of the Filth of a City, or a House.

Tarquinius Priscus is said to have been the first who contrived *Cloaca* in antient *Rome*; to which end, a Canal was first dug thro' the Mountains, whereon the City stood, and divided into three Branches, call'd the *great Cloaca*.

The Care and Inspection of the *Cloacæ* belong'd to the Censors, till the Time of *Augustus*, who appointed *Curatores Cloacarum*, on purpose.

They had their *Cloacina*, or Goddess who presided over the *Cloacæ*.

The Word is compounded of the *Greek* κλύζω, *purgo*.

CLOCK, an Automaton, or Machine, serving to measure and strike Time. See TIME.

The usual Movements are *Watches*, and *Clocks*: the former, in strictness, are such as shew the Parts of Time; the latter such as publish it by striking: Tho the Name *Watch* is ordinarily appropriated to Pocket-*Clocks*, and that of *Clocks* to larger Machines; whether they strike or no.

The Parts common to both Kinds of Movements, see under the Article MOVEMENT.

Those peculiar to Watches and *Clocks*, see under WATCH-*Work*, and CLOCK-*Work*.

The Invention of *Clocks* with Wheels, is referr'd to *Pacificus* Archdeacon of *Verona*, who liv'd in the Time of *Lotharius*, Son of *Louis le Debonnaire*; on the Credit of an Epitaph quoted by *Ughelli*, and borrow'd by him from *Panvinius*.

It was at first called the *Nocturnal Clock*; to distinguish it from the Dials, which shew'd the Hour by the Sun's Shadow. Others ascribe it to *Boethius*, about the Year 510.

Mr. *Derham* makes *Clock-work* of a much older standing; and ranks *Archimedes*'s Sphere, mention'd by *Claudian*; and that of *Posidonius*, mention'd by *Cicero*, among the Machines of this Kind; not that either their form or use were the same with those of ours: but that they had their Motion from some hidden Weights, or Springs, with Wheels or Pullies, or some such *Clock-work* Principle. Thus he understands the *Inclusus variis famulatur spiritus Astris; & vivum certis motibus urget opus*.

Be this as they will, 'tis certain the Art of making *Clocks*, such as are now in use, was either first invented, or at least retriev'd in *Germany*, about 200 Years ago.

The *Water-Clocks*, or *Clepsydræ*, and Sun-Dials, have, both, a much better Claim to Antiquity. See CLEPSYDRA, and DIAL.

The *French* Annals mention one of the former Kind, sent by *Aaron* King of *Persia* to *Charlemaign*, about the Year 807, which seem'd to bear some resemblance to the modern *Clocks*: It was of Brass, and shew'd the Hours by twelve little Balls of the same Metal, which fell at the End of each Hour, and in falling struck a Bell and made it sound. There were also Figures of twelve Cavaliers, which at the End of each Hour came forth at certain Apertures, or Windows in the Side of the *Clock*, shut 'em again, &c.

Among the modern *Clocks*, the most eminent for their Furniture, and the Variety of their Motions and Figures, are those of *Strasbourg*, of *Lunden*, and of *Lyons*. In the first, a Cock claps his Wings, and proclaims the Hour; the Angel opens a Gate and salutes the Virgin; the Holy Spirit descends on her, &c. In the second, two Horsemen encounter, and beat the Hour on each other; a Door opens, and there appears on a Theater the Virgin, with Jesus Christ in her Arms; the *Magi*, with their Retinue, marching in order, and presenting their Gifts; two Trumpeters sounding all the while to adorn the Procession. See *Scottus*; see also *Salmasius* on *Solinus*; *Masius de Tintinnabulis*, and *Kircher* in his *Museum Romanum*, and *Ædep. Ægypt.*

The Invention of *Pendulum Clocks* is owing to the happy Industry of the last Age: The Honour of it is disputed between *Huygens* and *Galileo*. The former, who has a just Volume on the Subject, declares it was first put in practise in the Year 1657, and the Description thereof printed in 1658. *Becher, de nova Temporis dimetiendi Theoria, Anno* 1680, sticklers for *Galileo*; and relates, tho at second hand, the whole History of the Invention: adding, that one *Treffler*, Clock-maker to the Father of the then grand Duke of *Tuscany*, made the first Pendulum-*Clock* at *Florence*, by direction of *Galilæus à Galileo*; a Pattern of which was brought into *Holland*.

The Academy *de l'Cimento* say expresly, that the Application of the Pendulum to the Movement of a *Clock* was first propos'd by *Galileo*, and first put in practise by his Son *Vincenzo Galilei*, in 1649.

Be the Inventor who he will, 'tis certain the Invention never flourish'd till it came into *Huygens*'s hands, who insists on it, that if ever *Galileo* thought of such a thing, he never brought it to any degree of Perfection.

The first Pendulum-*Clock* made in *England*, was in the Year 1622, by M. *Fromantil* a *Dutchman*. See PENDULUM.

Pendulum-CLOCK. See PENDULUM-*Clock*.

Pocket-CLOCK. } See WATCH.
Repeating-CLOCK. }

CLOCK-*Work*, is that Part of a Movement which strikes the Hour, &c. on a Bell. See MOVEMENT.

The Wheels it consists of are the *great*, or *first* Wheel; which is that the Weight, or Spring first drives: in sixteen or twenty hour *Clocks*, this has usually Pins, called the *Pin-Wheel*; in eight day Pieces, the second Wheel is commonly the Pin-Wheel, or *Striking-Wheel*. Next the Striking-Wheel, is the *Detent-Wheel*, or *Hoop-Wheel*, having a Hoop almost round it, wherein is a Vacancy at which the *Clock* locks. The next is the *third*, or *fourth Wheel*, according to its distance from the first. The last is the *flying Pinion*; with a Fly, or Fan to gather Air, and so bridle the Rapidity of the *Clock's* Motion. To these must be added the *Pinion of Report*; which drives round the *Locking-Wheel*, called also the *Count-Wheel*; ordinarily with eleven Notches in it, unequally distant, to make the *Clock* strike the Hours. See WHEEL.

Besides the Wheels, to the *Clock*-part belongs the *Rash*, or *Ratch*; a kind of Wheel of twelve large Fangs, running concentrical to the *Dial-Wheel*, and serving to lift up the *Detents* every Hour, and make the *Clock* strike: The *Detents*, or Stops, which being lifted up, and let fall, lock and unlock the *Clock* in striking. The *Hammers* which strike the Bell; the *Hammer-tails*, by which the striking Pins draw back the Hammers; *Latches*, whereby the Work is lifted up and unlocked; and *Lifting-pieces*, which lift up and unlock the Detents.

Theory and Calculation of CLOCK-*Work*.

The Method of calculating the Numbers of a piece of *Clock-Work*, having something in it very pretty, and at the same time very easy and useful, we shall give the Reader the Rules relating thereto; referring, for the general Rules that obtain in the Calculation of all Movements, of *Watch* as well as *Clock-Work*, to the Article MOVEMENT; and for the particular Rules of *Watch-Work*, to the Article WATCH-*Work*.

For the strict Calculation itself, it bears that affinity to the Calculation of Watch-Work, that to avoid Repetitions we shall refer to that Head: what *Clock-Work* has peculiar to it self, will be conceiv'd from what follows.

Rules for calculating the striking Part of a CLOCK.

1st then, Observe that regard, here, needs only to be had to the Count-Wheel, Striking-Wheel, and Detent-Wheel, which move round in this proportion: the Count-Wheel commonly goes round once in 12 or 24 Hours; the Detent-Wheel moves round every stroke the *Clock* strikes, or sometimes but once in two Strokes; wherefore, it follows, that,

2dly, As many Pins as are in the Pin-Wheel, so many Turns hath the Detent-Wheel in one Turn of the Pin-Wheel; (or which is the same) the Pins of the Pin-Wheel are the Quotients of that Wheel, divided by the Pinion of the Detent-Wheel. But if the Detent-Wheel moveth but once round in two Strokes of the *Clock*, then the said Quotient is but half the number of Pins.

3dly, As many Turns of the Pin-Wheel as are requir'd to perform the Strokes of 12 Hours, (which are 78) so many Turns must the Pinion of Report have, to turn round the Count-Wheel once: Or thus, the Quotient of 78, divided

vided by the Number of ſtriking Pins, ſhall be the Quotient for the Pinion of Report and the Count-Wheel; and this is in caſe the Pinion of Report be fix'd to the Arbor of the Pin-Wheel, which is commonly done.

An Example will make all plain: The Locking-Wheel being 48, the Pinion of Report 8, the Pin-Wheel 78, the Striking-Pins are 13, and ſo of the reſt. Note alſo, that 78 divided by 13 gives 6, the Quotient of the Pinion of Report. As for the Warning-Wheel and Flying-Wheel, it matters little what Number they have; their uſe being only to bridle the Rapidity of the Motion of the other Wheels.

8) 48 (6.
6) 78 (13.
6) 60 (10.
6) 48 (8.

The following Rules will be of good ſervice in this Calculation.

1. *To find how many Strokes a Clock ſtrikes in one turn of the Fuſy, or Barrel.* As the Turns of the great Wheel, or Fuſy, are to the Days of the *Clock*'s continuance; ſo is the number of Strokes in 24 Hours, *viz.* 156, to the Strokes of one Turn of the Fuſy.

2. *To find how many Days the Clock will go.* As the Strokes in 24 Hours are to thoſe in one turn of the Fuſy; ſo are the Turns of the Fuſy to the Days of the *Clock*'s going.

3. *To find the Number of Turns of the Fuſy, or Barrel.* As the Strokes in one turn of the Fuſy are to thoſe of 24 Hours; ſo is the *Clock*'s continuance to the Turns of the Fuſy, or great Wheel.

4. *To fix the Pin of Report on the Spindle of the great Wheel.* As the Number of Strokes in the *Clock*'s continuance is to the Turns of the Fuſy; ſo are the Strokes in 12 Hours, *viz.* 78, to the Quotient of the Pinion of Report, fix'd on the Arbor of the great Wheel.

5. *To find the Strokes in the Clock's continuance.* As 12 is to 78, ſo are the Hours of the *Clock*'s continuance to the Number of Strokes in that time.

To add Chimes *to a piece of* Clock *Work*, ſee the Article Chimes.

CLOISTER, a Habitation ſurrounded with Walls, and inhabited by Canons and Religious. See Canon, *&c.*

In a more general Senſe, *Cloiſter* is us'd for a Monaſtery of Religious of either Sex. See Monastery.

In a more reſtrain'd Senſe, *Cloiſter* is us'd for the principal Part of a Regular Monaſtery, conſiſting of a Square built around; ordinarily, between the Church, the Chapter, and the Refectory; and over which is the Dormitory. See Dormitory, *&c.*

The *Cloiſters* ſerv'd for ſeveral Purpoſes in the antient Monaſteries. 1ſt, *Peter de Blois* obſerves, that it was here the Monks held their Lectures: The Lecture of Morality at the North ſide, next the Church; the School on the Weſt, and the Chapter on the Eaſt; Spiritual Meditation, *&c.* being reſerv'd for the Church.

Du Cange concludes, that all theſe different Exerciſes were perform'd in the *Cloiſter* itſelf; but by miſtake. The Church, the Chapter, and the School were not Parts of the *Cloiſter*, but Buildings adjoining to it.

Lancfranc obſerves, that the proper Uſe of the *Cloiſter* was for the Monks to meet in, and converſe together, at certain Hours of the Day.

The Form of the *Cloiſter* was ſquare; and it had its Name, as being inclos'd on its four Sides with Buildings.

Hence, in Architecture, a Building is ſtill ſaid to be in form of a *Cloiſter*; when there are Buildings on each of the four Sides of the Court.

CLOSE, in Heraldry, when any Bird, addicted to flight, is drawn in a Coat of Arms with its Wings *cloſe* down about it, and not either flying or diſplay'd, *i. e.* in a ſtanding Poſture, they blazon it by the Word *Cloſe*. See Vol.

If it be flying, they call it *Volant*.

Cloſe is not apply'd to the Peacock, Dunghill-Cock, *&c.* in regard that is their ordinary poſture.

The Term *Cloſe* is likewiſe us'd for the Barnacles, or Bits of a Bridle, when not extended, as they are uſually bore.

It is alſo us'd for the Bearing of a Helmet, with the Vizor down: A Barnacle *Cloſe*, a Helmet *Cloſe*, *&c.*

Close, in Muſick. See Cadence.

Close-*Fights*, a-board a Ship, are Bulk-heads put up fore and aft in the Ship, for the Men to ſtand behind in a *cloſe* Engagement, and fire on the Enemy; or if the Ship be boarded, to ſcour the Decks.

CLOSET, is a Term in Heraldry, ſignifying the half of a Bar. See Bar.

The Bar ought to contain one fifth Part of the Eſcutcheon, as the Peſſe doth the third.

CLOTH, in Commerce, in its general Senſe, includes all Kinds of Stuff, wove or manufactur'd on the Loom, whether their Threads be of Wool, or Flax. See Stuff, Loom, Weaving, *&c.*

In its more reſtrain'd Senſe, *Cloth* is peculiarly apply'd to a Web, or Tiſſue of woolen Threads, interwoven; whereof ſome, called the *Warp*, are extended lengthwiſe, from one end of the Piece to the other; the reſt, called *Woof*, diſpos'd a-croſs the firſt, or breadthwiſe of the Piece. See Woof, and Warp.

Cloths are wove on the Loom as well as Linens, Druggets, Serges, Camelots, *&c.* They are of various Qualities, fine, coarſe, ſtrong, *&c.* ſome made of Wool of different Colours; *i. e.* the Wools being dy'd and dreſs'd, are either ſpun, or wove: others are wrought white, deſtin'd to be dy'd in ſcarlet, black, blue, green, yellow, *&c.*

Their Widths and Lengths are various, according to the Places where they are manufactur'd. See Spinning, *&c.*

The goodneſs of Cloth conſiſts in the following Circumſtances. 1ſt, In the Wool's being fine and well dreſs'd. See Wool.

2d, In its being ſpun equally; always obſerving, however, that the Thread of the Warp be finer and better twiſted than that of the Woof. 3d, In the *Cloth*'s being well wrought and beaten on the Loom, ſo as to be every where equally cloſe and compact. See Weaving.

4th, In the Wool's not being finer and better at one End of the Piece than in the reſt. 5. In the Liſts being ſufficiently ſtrong, and of the ſame Length with the Stuff; and that they conſiſt of good Matter, as Wool, Oſtrich Feathers, or the Hair of *Daniſh* Dogs; which laſt is the beſt. 6. In the *Cloth*'s being well clear'd of the Knots and other Imperfections. 7. In its being firſt well ſcour'd with good Fullers-Earth, then full'd with the beſt white Soap, and waſh'd out in clear Water. 8. In the Hair, or Nap's being well drawn out with the Teazle, or Thiſtle, on the Pole, without being too much open'd. 9. In its being ſhorn cloſe; yet without laying the Ground or Thread bare. See Sheering.

10. In its being well dy'd. See Dying.

11. In its not being ſtretch'd, or pull'd farther than is neceſſary to ſet it ſquare, and bring it to its juſt Length and Breadth. See Stretching.

12. In its only being preſs'd cold; hot-preſſing being an utter Enemy to *Cloth*. See Preſſing.

Manufacturing of fine Cloths *in white, for dying.*

The beſt Wools for the Purpoſe are thoſe of *England* and *Spain*; eſpecially thoſe of *Lincolnſhire*, and *Segovia*.

To uſe them to the beſt advantage; when taken out of the Bales, they muſt be ſcour'd, by putting 'em in a Bath ſomewhat more than luke-warm, compos'd of three Parts of fair Water, and one of Urine. After the Wool has continu'd long enough in the Bath to diſſolve and looſen the Greaſe, it is taken out, drain'd, and waſh'd in a running Water: 'Tis known to be well ſcour'd, when it feels dry to the touch, and has no ſmell but the natural Smell of the Sheep.

In this ſtate 'tis hung out to dry in the Shade; the heat of the Sun being apt to make it harſh, and untractable. When dry, 'tis beat with rods on Hurdles of Wood, or on Ropes, to clear out the Duſt and groſſer Filth: The more it is thus beat and clean'd, the more ſoft it becomes, and the better it ſpins.

After beating, it is well pick'd, to clear the reſt of the Filth, that had eſcap'd the Rods.

'Tis now in a State to be oil'd, and carded on large Iron Cards, plac'd a-ſlope. The beſt Oil for the Purpoſe is Oil of Olives; one fifth of which, at leaſt, ſhould be us'd for the Wool deſtin'd for the Woof, and a ninth for that of the Warp.

'Tis now given out to the Spinners; who firſt card it on the Knee, with ſmall fine Cards; then ſpin it on the Wheel: obſerving to make the Thread of the Warp ſmaller by one third than that of the Woof, and much cloſer twiſted; in order to this, the latter muſt be ſpun with the Band, or String open, and the former with it croſs'd.

The Thread thus ſpun, reel'd, and made into Skeins, that deſtin'd for the Woof is wound on Spools, *i. e.* on little Tubes, or pieces of Paper, or Ruſhes, ſo diſpos'd as that they may be eaſily put in the Eye of the Shuttle. That for the Warp is wound on a kind of Rochets, or large wooden Bobbins, to diſpoſe it for warping. See Shuttle, and Warping.

When warp'd, 'tis ſtiffen'd with Size; whereof, that made of ſhreds of Parchment is the beſt; and when dry, is given to the Weavers, who mount it on the Loom.

The Warp being on the Loom, the Weavers, who are two to each Loom, one on each ſide, tread at the ſame time, alternately, on the ſame Treddle; *i. e.* now on the right Step, and now on the left, which raiſes and lowers the Threads of the Warp equally; between which they throw, tranſverſly, the Shuttle from the one to the other. And each time that the Shuttle is thrown, and ſo a Thread of the Woof inſerted within the Warp, they ſtrike it conjointly with the ſame Frame wherein is faſten'd the Comb, or Reed, between whoſe Teeth the Threads of the Warp are paſs'd; repeating the Stroke as often as is neceſſary; in ſome *Cloths* no leſs than 12 or 13 times, *viz.* ſix with the Warp open, and ſeven ſhut.

It may be observ'd, that the more the Threads of the Woof are ſtruck againſt each other, the cloſer the *Cloth* is: hence it becomes enabled to ſuſtain the Violence of the Fulling-Mill, as well as of the Teazel, or Fulling-Thiſtle, without fretting or opening.

The Weavers having continu'd their Work till the whole Warp is fill'd with Woof, the *Cloth* is finiſh'd: 'Tis taken off the Loom, by unrolling it from the Beam whereon it had been roll'd, in proportion as it was wove; and now given to be clear'd of the Knots, ends of Thread, Straws, and other Filth; which is done with little Iron Pinchers.

In this Condition 'tis carried to the Fullery, to be ſcour'd with Urine, or a kind of glaz'd Earth well clean'd and ſteep'd in Water, put along with the *Cloth* in the Trough, wherein it is fulled.

The *Cloth* being again clear'd from the Earth, or Urine, by waſhing it in Water, is return'd to the former Hands, to have the leſſer Filth, ſmall Straws, and almoſt imperceptible Knots taken off as before: then 'tis return'd to the Fuller, to be beat, and full'd with hot Water, wherein five or ſix Pounds of Soap have been diſſolv'd. The Soap moſt eſteem'd is the white, eſpecially that of *Genoa*. After fulling an Hour and a half, 'tis taken out to be ſmooth'd, *i. e.* to be pull'd by the Liſts lengthwiſe, to take out the Wrinkles and Creaſes occaſion'd by the Force of the Mallets, or Peſtles falling on the *Cloth* when in the Troughs.

The Smoothing is repeated every two Hours, till the Fulling be finiſh'd, and the *Cloth* brought to its proper Breadth: after which, it is waſh'd in clear Water, to purge it of the Soap, and given, all wet, to the Carders, to raiſe the Hair, or Nap, on the right Side, with the Thiſtle, or Weed; wherewith they give it two courſes, the firſt again the Grain, from Tail to Head; the ſecond with the Grain, from Head to Tail.

The *Cloth* being dry'd after this Preparation, the Sheerman takes it, and gives it its firſt cut, or ſheering.

This done, the Carders reſume it, and after wetting it, give it as many more courſes with the Weed as the quality of the Stuff requires: always obſerving to begin againſt the Hair, and to end with it; and to begin with a ſmoother Weed, proceeding ſtill to a ſharper and ſharper, as far as the ſixth degree.

After this, the *Cloth* being dry'd, is return'd to the Sheerman, who ſheers it a ſecond time, and returns it to the Carder; who wetting it, gives it as many courſes as he thinks fit, dries it, and gives it back again to the Sheerman; who after ſheering it the third and laſt time, returns it to the Carders, who repeat their Operation as before, till the Hair, or Nap, be well rang'd on the Surface of the *Cloth*, from one end of the Piece to the other.

It muſt be obſerv'd, that 'tis indiſpenſibly neceſſary the *Cloth* be wet, while in the Carders hands; in order to which, 'tis ſprinkled from time to time with Water.

The Nap finiſh'd, and the *Cloth* dry'd, the Sheerman gives it as many cuts as he thinks requiſite for the Perfection of the Stuff. It muſt alſo be obſerv'd, that all the Sheerings muſt be on the right Side, except the two laſt, which muſt be on the other; and that the *Cloth* can't be too dry for Sheering.

The *Cloth* thus *wove*, *fulled*, *nap'd*, and *ſhorn*, is ſent to the Dyer. See DYING.

When dy'd, 'tis waſh'd in fair Water, and the Sheerman takes it again, wet as it is, lays the Hair, or Nap, with a Bruſh on a Table, and hangs it on the Tenters; where it is ſtretch'd both in length and breadth, enough to ſmooth it, ſet it ſquare, and bring it to its proper Dimenſions, without ſtraining it too much; obſerving to bruſh it afreſh, the way of the Hair, while yet a little moiſt on the Tenter.

When quite dry, the *Cloth* is taken off from the Tenter, and bruſh'd again on the Table, to finiſh the laying of the Hair: 'Tis then folded, and laid cold under a Preſs, to make it perfectly ſmooth and even, and to give it a little Luſtre.

The Luſtre is given by laying a Leaf of Vellom, or fine Paſtboard in each Plait of the Piece; and over the whole a ſquare Plank of Wood: on which, by means of a Lever, the Screw of the Preſs is brought down, with the degree of Force judg'd neceſſary, with regard to the Quality of the *Cloth*.

There are none but Scarlets, Greens, Blues, *&c.* which receive this laſt Preparation; Blacks needing it not.

Laſtly, the *Cloth* being taken out of the Preſs, and the Paſtboards remov'd; it is in a condition for Sale or Uſe.

For the Manufacture of mix'd CLOTHS, or thoſe wherein the Wools are firſt dy'd, then mix'd, ſpun, and wove of the Colours intended; the Proceſs, except in what relates to the Colour, is moſtly the ſame with that juſt ſpoke of.

The Method of adjuſting the Mixture, is by firſt making a Felt of the Colours of the intended *Cloth*, as a Specimen: The Wool of each Colour is weigh'd, and when the Specimen is to the Manufacturer's Mind, he mixes, for uſe, a Quantity in the ſame proportion; eſtimating each Grain of the Specimen at 20 Pounds weight of the ſame Wool in the *Cloth* to be made.

Thus, if he would mix three Colours, *v. g.* Coffee Colour, Feuillemort, and pale Blue, the firſt to be the prevailing Colour; he weighs a Quantity of each: for inſtance, 70 Grains of the firſt, 25 of the ſecond, and 20 of the third; then multiplies each by 20 Pounds of Wool; and thus gains 1400 Pounds for the Coffee Wool; 500 Pounds for the Feuillemort, and 400 for the pale Blue.

The Wools of the Specimen thus weigh'd, are mix'd, oil'd, carded, moiſten'd with clear Water, rubb'd with black Soap, and in this ſtate wrought a long time in the Hands; till being perfectly full'd, they are reduc'd into a piece of Felt, like that us'd by Hatters.

'Tis then rinſed in Water, to purge out the Oil and Soap; and when dry, the Hair, or Nap is carded out with the Weed; then ſhorn once again, till the Ground appear, and the ſeveral Colours be diſcoverable.

Laſtly, wetting it a little, and preſſing it, he examines it well, and if he be not contented with it, makes another Felt; if he be, he proceeds to mix his Wools: when mix'd, 'tis beat on Hurdles, clean'd, oil'd, carded, ſpun, wove, *&c.* as in white *Cloth*.

Incombuſtible CLOTH. See LINUM *Incombuſtibile*.

CLOUD, in Phyſiology, a Collection of condens'd Vapour. See VAPOUR.

A *Cloud* is a Congeries of watery Particles, or *Veſiculæ* rais'd from the Waters or watery parts of the Earth, by the ſolar, or ſubterraneous Heat, or both; which at their firſt riſe from our Globe, are too minute to be perceiv'd; but as they mount, meeting with a greater degree of cold, are condens'd, and render'd opaque by the reunion of their Parts; ſo as to reflect Light, and become viſible. See CONDENSATION.

The manner wherein Vapours are rais'd into *Clouds* may be conceiv'd thus:

Fire being of a light, agil Nature, eaſily breaks looſe from Bodies wherein 'tis detain'd: *For the manner whereof, ſee* BOILING.

Now, by reaſon of the exceeding ſmallneſs of the Particles of Fire, their attractive Force muſt be exceeding great: hence, in their Aſcent thro' fluid Bodies, part of the Fluid will cling around them, and mount up together with them, in form of Veſicles of Water replete with Particles of Fire; which Veſicles are what we call *Vapour*. See FIRE, and VAPOUR.

Further, this Vapour being ſpecifically lighter than Air, mounts in it, till having reach'd ſuch a Region of the Atmoſphere as is of the ſame ſpecific Gravity with themſelves, they will be ſuſpended; till the watery Veſicles, which were at firſt too thin to be perceiv'd, being now condens'd by the Cold of the ſuperior Regions; and their included igneous Particles extinct, or at leaſt driven into a leſs compaſs, and conſequently the Parts ſet cloſer together; their Denſity is firſt augmented ſo as to render 'em opaque enough to reflect the Sun's Light, and become viſible; and their ſpecific Gravity increas'd, ſo as to make 'em deſcend: in the former State they are called *Clouds*; and in the latter, when they arrive at us, *Rain*. See RAIN; ſee alſo BAROMETER.

Clouds, beſide their uſe when they deſcend in Rain, are likewiſe of uſe while ſuſpended in the Atmoſphere; as they help to mitigate the exceſſive Heat of the Torrid Zone, and ſcreen it from the Beams of the Sun, eſpecially when in his Zenith.

CLOVE, an aromatic Fruit, bore on a Tree of the ſame Name; by the *Latins* alſo called *Caryophillum*. See SPICE.

This Tree was antiently very common in the *Molucco* Iſlands; where all the *European* Nations, who traffick in Spices to the *Indies*, furniſh'd themſelves with what quantity of *Cloves* they requir'd. At preſent there are ſcarce any found but in the Iſland of *Ternate*: the *Dutch*, in order to render themſelves Maſters of that Merchandiſe, having dug up the *Clove*-Trees of the *Moluccos*, and tranſplanted them to *Ternate*; ſo that there are none now to be had but thro' their Hands.

The Tree is very large; it only bears Fruit once in eight Years, but holds, at this rate, an hundred. Its Bark reſembles that of the Olive-Tree, and its Leaves thoſe of the Laurel: Its Fruit falling, takes root, and thus multiplies of it ſelf without any culture. 'Tis ſaid, it will not allow any other Herb or Tree near it; its exceſſive heat drawing to it all the Humidity of the Soil.

When the *Clove* firſt begins to appear, it is of a greeniſh white; as it ripens it grows brown: Nor is there any Preparation neceſſary in order to render it ſuch as it comes to us, but to dry it in the Sun; whatever ſome Authors talk of firſt ſteeping it in Sea-Water, to preſerve it from Worms.

The Fruit is ſomewhat in form of a Nail; whence the Term *Clove*, from the French *Clou*, Nail.

Towards the Head it ſeparates into four; the four Quarters being made angle-wiſe, and their Apices meeting at the top, form a kind of Crown, ſomewhat in the antique manner.

They muſt be choſen dry, brittle, ſharp to the Touch, well grown, of a duſky red Colour; a hot aromatic Taſte, an agreeable Smell, and, if poſſible, with the Fuſt, or Button.

Their Properties are to warm and dry, to correct a fetid Breath, sharpen the Sight, dissipate Films in the Eyes, fortify the Stomach and Liver, and stop Vomiting. They are us'd in Apoplexies, Palsies, Lethargies, and other Diseases of the Brain.

Such of the Fruit as escape the Gatherers, grow and swell on the Tree, and become full of a Gum us'd in Medicine, called *Mother of Cloves*.

There is also an Oil drawn from *Cloves* by Distillation; which, when new, is of a gilded white Colour, but reddens as it grows old: 'tis us'd in Medicine as a sovereign Remedy for the Tooth-ach, and in Compositions with the same View as the Fruit. It is also much us'd among the Perfumers.

The Natives call the Tree *Chamque*, the *Persians* and *Arabs Karumfel*, and the *Turks Kalafour*. They make several Preparations both of the Flowers and Fruit.

CLOUGH, or *Draught*, in Commerce, an Allowance of two Pounds in every hundred Weight for the turn of the Scale; that the Commodity may hold out weight when sold out by retail.

CLUNY, or CLUGNY, a celebrated Abbey of *Benedictin* Monks, in a City of that Name; being the Head, or Chief of a Congregation denominated from them. See ABBEY, and BENEDICTINS.

It is situate in the *Masonnois*, a little Province of *France*, on the River *Grône*; and was founded by *William* Duke of *Berry* and *Aquitain*; or, as others say, by the Abbot *Bernon*, supported by that Duke, in the Year 910.

This Abbey was antiently so very spacious and magnificent, that in 1245. after the holding of the first Council of *Lyons*, Pope *Innocent* IV. went to *Cluny*, accompanied with the two Patriarchs of *Antioch* and *Constantinople*, twelve Cardinals, three Archbishops, fifteen Bishops, and a great number of Abbots; who were all entertain'd, without one of the Monks being put out of their place: tho S. *Louis*, Q. *Blanche* his Mother, the Duke of *Artois* his Brother, and his Sister; the Emperor of *Constantinople*, the Sons of the Kings of *Arragon* and *Castile*, the Duke of *Burgundy*, six Counts, and a great number of Lords, with all their Retinue, were there at the same time.

Cluny, at its first Erection, was put under the immediate Protection of the Apostolick See; with express Prohibition to all Secular and Ecclesiastick Powers, to disturb the Monks in the Possession of their Effects, or the Election of their Abbot. By this they pretended to be exempted from the Jurisdiction of Bishops; which, at length, gave the Hint to other Abbies to insist on the same. See ABBOT.

Cluny is the Head of a very numerous and extensive Congregation: In effect, it was the first Congregation of divers Monasteries united under one Chief, so as only to constitute one Body, or, as they call it, one Order, that ever arose. See CONGREGATION, and ORDER.

CLYPEUS, CLIPEUS, or CLYPÆUM, a Buckler; a piece of defensive Armour, which the Antients us'd to carry upon the Arm, to secure them from the Blows of their Enemies. See SHIELD, and BUCKLER.

The Figure of it was either round, oval, or sexangular: in the middle was a Boss of Iron, or of some other Metal, with a sharp point.

CLYSSUS, in Chymistry, is one of the Effects, or Productions of that Art; consisting of the most efficacious Principles of any Body, extracted, purify'd, and then re-mix'd. See CHYMISTRY.

Or, a *Clyssus* is when the several Species, or Ingredients of a Body, are prepar'd and purify'd separately, and then combin'd again. Thus, Salt, Sulphur, Oil, Spirit, and Mercury, reassembled into one Body, by long Digestion, &c. make a *Clyssus*. Thus,

CLYSSUS *of Antimony*, is an agreeable acid Spirit, drawn by Distillation from Antimony, Nitre, and Sulphur mix'd together. See ANTIMONY.

There is also a *Clyssus of Vitriol*, which is a Spirit drawn by Distillation from Vitriol dissolv'd in Vinegar: this is us'd by Physicians in various Diseases, and to extract the Tinctures of several Vegetables.

CLYSSUS is us'd among some Authors for a kind of *Sapa*, or Extract, made with eight Parts of the Juice of a Plant, and one of Sugar, seeth'd together into the Consistence of Honey.

CLYSTER, in Medicine, a liquid Remedy, or Injection, introduc'd into the Intestines by the Fundament; in order to refresh them, loosen the Belly, moisten and soften the *Fæces*, dissipate Wind, &c.

Clysters are made of Bran-Water, and Milk, but more usually of Decoctions of certain Herbs; to which are added Honey, brown Sugar, sometimes Catholicon, and other Drugs.

Clysters are either *Emollient*, *Carminative*, *Lenitive*, *Astringent*, *Laxative*, *Anodyne*, *Uterine*, *Antifebrific*, *Nourishing*, &c.

Uterine CLYSTERS, are Injections into the *Uterus*, or Womb. See PESSARY.

Nourishing CLYSTERS, are those apply'd with design to nourish Persons who cannot take in any Aliment at the Mouth. *Hildanus* tells us, that *Auberi*, a Physician, fed a Woman of Quality six Weeks by *Clysters* compos'd of Capons Flesh, and other Fowls, boil'd to a Pulp, with Yolks of Eggs, applied twice a Day.

'Tis difficult, however, to conceive how *Clysters* should nourish; and the Case is briskly controverted in the Memoirs of the *French* Royal Academy, between M. *Littre*, who maintains the Negative, and M. *Lemery*.

The Arguments urg'd by the first, are, that the Materials of the *Clyster*, for want of the ordinary Passage, want the necessary Preparations to be converted into Nourishment; and beside that, are out of the Road for getting into the Blood: For in the first of the large Intestines, call'd the *Cæcum*, is a Valve called *Valvula Bauhuni*; to oppose the passage of any Food into the small Intestines: And there are no Lacteal Veins in the large Intestines, but abundance in the small ones. But the Lacteals are the only Canals that can carry the Chyle into its Receptacle, and the Chyle the only Substance that can nourish.

To this M. *Lemery* objects, that very great Anatomists have found Lacteals in the large Intestines, tho in small number: But tho there were none, adds he, the Mesaraic Veins are indisputably distributed to these Intestines; and may easily be suppos'd to pump the most subtil Part of a Broth, and carry it into the Blood. M. *Mery* has pass'd a Liquor immediately from the large Intestines into these Veins; besides that, the animal Machine is so porous thro'out, that Nature seems to have intended an extraordinary way of conveying Fluids into the Blood, to be ready on extraordinary occasions.

This Notion will appear incontestable, if M. *Morin*'s Theory of the Passage of the Urine be admitted. See URINE.

Herodotus says, the *Egyptians* were the first who invented *Clysters*; or rather, who apply'd 'em to use. *Galen* and *Pliny* add, that they learnt the thing from a Bird of their Country, call'd *Ibis*; which they frequently observ'd to make this kind of Injection with its Beak, and afterwards to discharge it self several times. Others say, that the *Ciconea*, or Stork, first taught Men the Application of *Clysters*.

The Word comes from the *Greek* κλύω, *lavo*, *abluo*, I wash.

CNEMODACTYLIUS, in Anatomy, a Muscle, otherwise called *Extensor tertii Internodii digitorum*. See EXTENSOR *tertii Internodii*, &c.

COACH, a Vehicle for commodious travelling, suspended on Leathers, and mov'd on Wheels.

In *England*, and throughout *Europe*, the *Coaches* are drawn by Horses, except in *Spain*, where they use Mules. In a part of the East, especially the Dominions of the great *Mogul*, their *Coaches* are drawn by Oxen. In *Denmark* they sometimes yoke Rein Deer in their *Coaches*; tho rather for Curiosity than Use.

The *Coachman* is ordinarily placed on a Seat rais'd before the Body of the *Coach*. But the *Spanish* Policy has displac'd him in that Country by a Royal Ordonnance; on occasion of the Duke *d' Olivares*, who found that a very important Secret whereon he had conferr'd in his *Coach*, had been overheard, and reveal'd by his *Coachman*: Since that time, the Place of the *Spanish Coachman*, is the same with that of the *French* Stage-*Coachman*, and our Postillion, *viz.* on the first Horse on the left.

The Invention of *Coaches* is owing to the *French*: yet are not *Coaches* of any great antiquity, even in *France*; scarce reaching beyond the Reign of their *Francis* I.

Their use, at their first rise, was only for the Country: and Authors observe, as a thing very singular, that there were at first no more than two *Coaches* in *Paris*; the one that of the Queen, and the other that of *Diana*, natural Daughter of *Henry* II. The first Courtier who had one, was *Jean de Laval de Bois Dauphin*; whose enormous Bulk disabled him from travelling on Horseback.

One may hence judge how much Vanity, Luxury, and Softness have grown upon our Hands in later Days; there being now computed in that same City no less than 15000 *Coaches*.

Coaches have had the Fate of all other Inventions to be brought by steps and degrees to their Perfection; at present they seem to want nothing, either with regard to Ease or Magnificence. *Louis* XIV. of *France*, made several sumptuary Laws for restraining the excessive Richness of *Coaches*, prohibiting the use of Gold, Silver, &c. therein; but they have had the Fate to be neglected.

Coaches may be divided into two Kinds; those that have Iron Bows, and those that have not: Both the one and the other have two principal Parts, the *Body*, and the *Train*, or Carriage.

The *Body* is that part where the Passengers are dispos'd; and the *Carriage* that which sustains the Body, and to which the Wheels are fasten'd, that give Motion to the whole Machine.

Coaches are distinguish'd, with regard to their Structure, into *Coaches*, properly so call'd, *Chariots*, *Calashes*, and *Berlins*. With regard to the Circumstances of their

Use, &c. we distinguish *Stage-Coaches*, *Hackney-Coaches*, &c: *Chariot*, or *Half-Coach*, is a kind of *Coach* that has only a Seat behind; with a Stool, at most, before. When these are very gay, richly garnish'd, and have five Glasses, they are call'd *Calashes*.

Calash is also a kind of light small *Coach*, with very low Wheels, richly adorn'd; us'd on occasion of Pleasure; and open on all sides, to take the Air, and enjoy the Prospect. There are of these *Calashes* with one, two, and three Seats; where the Persons don't sit facing one another, as in the common *Coaches*, but all forwards, each Seat having its back.

Hackney Coaches, those expos'd to hire, in the Streets of *London*, and some other Capital Cities, at Rates fix'd by Authority.

Those in *London* are under the Direction of Commissioners, who take cognizance of all Causes and Disputes arising thereupon. They are distinguish'd by Numbers affix'd to the *Coach*-Doors; and the Fares, or Rates, fix'd by a Statute 14 *Car.* II. and confirm'd by another in the 5th and 6th of K. *William* III.

For a whole Day of twelve Hours the Fare is 10*s.* for a single Hour 1*s.* 6*d.* for every Hour after the first 1*s.* At these Rates, they are oblig'd to carry Passengers any where within 10 Miles of *London*.

Stage-Coaches, are those destin'd for the Conveyance of Travellers from one City or Town to another.

COADJUTOR, *q. d. a Fellow-helper*, is properly used for a Prelate join'd to another, to assist him in the Discharge of the Functions of his Prelature; and even, in virtue thereof, to succeed him.

The *Coadjutor* has the same Privileges with the Bishop himself. See Bishop.

Coadjutors were appointed by the King, for Archbishops and Bishops grown old, or absent, and not able to administer in their Dioceses. But the Right of appointing *Coadjutors* is now reserv'd to the Pope alone.

Coadjutors are called Bishops *in partibus infidelium*; in regard it is necessary the *Coadjutor* of a Bishop should be a Bishop himself; without which, he can't discharge the Offices.

The Use of *Coadjutors* in the Church, is borrow'd from the *Roman* Empire. *Symmachus* speaks of Assistants, or *Coadjutors*, given to Magistrates; and calls them *Adjutores publici officii*.

The Popes, formerly, made a shameful Abuse of the *Coadjutories*: Some they granted to Children, and young People, with this Clause, *Donec ingressus fuerit*; 'Till they were 'capable of entering upon the Administration of the Office.' Others they granted to Persons not in Orders, with this Clause, *Donec accesserit*: and others to Persons at a great distance, with this Clause, *Cum regressus*: But the Council of *Trent* ty'd down the Pope's Hands, by adding abundance of Restrictions upon the Article of *Coadjutors*.

In Nunneries they have *Coadjutrix's*; who are Religious nominated to succeed the Abbess, under pretence of aiding her in the Discharge of her Office. See Abbess.

COAGMENTATION, is used among Chymists, for the Act of melting down a Matter, by casting in certain Pouders, and afterwards reducing the whole into a Concrete, or Solid.

COAGULATION, the condensing or thickning of a fluid Matter, without its losing any of the sensible Parts which occasion'd its fluidity; as we frequently see in Blood, Milk, &c. See Fluid.

We distinguish between that kind of thickening which is effected by the Evaporation of the fluid Parts of a Body, as in Clay, which condenses in the Sun, which we properly call *hardening*; and that effected without any loss of its Substance, which we call *coagulating*. Thus, we say, that Cold *coagulates* Blood, &c.

There is one general Term, *viz. Concretion*, which includes both *Coagulation*, *Condensation* and *Hardening*. See Concretion.

Coagulation is perform'd by the mixing of Salts of different Natures; as when Spirit of Vitriol is pour'd on Oil of Tartar; or when Oils are mix'd in a Mortar with saline, or aqueous Liquors, as in Nutrition.

By injecting an Acid into the Vein of an Animal, the Blood *coagulates*; which stops its Circulation, and brings immediate Death. See Blood.

Several Poisons have their effect by inducing a *Coagulation*. See Poison.

COAL, a black, sulphurous, inflammable Matter, dug out of the Earth; serving in many Countries as the common Fuel. See Fuel.

This we sometimes call *Pit-Coal*, sometimes *Sea-Coal*, *Fossil-Coal*, *Earth-Coal*, and *Natural Coal*; to distinguish it from an Artificial Fuel made in imitation hereof, by half burning the Branches and Roots of Trees; properly call'd *Charcoal*, and *Smallcoal*. See Charcoal.

Pit-Coal is rank'd among the number of Minerals, and the Places it is dug out of are call'd *Coal-Mines*, or *Coal-Pits*. It is common in most Countries of *Europe*: tho the *English Coal* is of most repute, even in foreign Countries; notwithstanding some pretend, that of the *Fosse* in *Auvergne* is not any thing inferior to it.

The Goodness of *Coal* consists in its being as free as possible from Sulphur, in its heating Iron well, and in its burning a long time in the Smith's Forge. The *English Coal* has this particular to it; that it never lights so perfectly as when Water is thrown on it.

The Commerce of *Coal* is very considerable in *England*; great Quantities are exported to *France*, &c. by way of *Rouen*. The Measure whereby they are sold is the *Chaldron*; containing 36 *Bushels*. See Bushel.

In the Memoirs of the *French* Royal Academy, we have an Account of two Experiments on the common *Pit-Coal*, made by M. *Des Landes* while in *England*, and which he thinks have escap'd the *English* Philosophers.

1st, Pounding some *Coal*, and putting half an Ounce of it in a Viol of Water, the Mixture became quite black: but leaving it expos'd to the Air in a Window, during a cold Winter Night; in the Morning 'twas found frozen, and converted into a reddish Colour. The Reason of the Change must be, that the Frost had disengag'd the Sulphurs of the *Coal*: tho one would little expect such an Effect from it.

2dly, From an Infusion of *Cinders* in Brandy, mix'd with Iron Filings, arises a black Tincture, which brightens in proportion as it is heated; when arriv'd at the height of boiling, the Colour becomes perfectly fine and soft; and gives a Dye to Cloth, which no Workman can imitate.

The *Strata*, or Veins of *Coals* in *Coalpits* are numerous, and their Order, Qualities, &c. different in different Places. See Strata, and Vein.

In those at *Dudley* in *Staffordshire*, the *Strata*, below the Turf, two or three Clays, a grey Stone, and a hard grey Rock, are express'd in the *Philosophical Transactions* to be 1st, *Coal*, called *Bench-Coal*; 2d, *Slipper-Coal*, less black and shining than the former; 3d, *Spin-Coal*, more black and shining; 4th, *Stone-Coal*, much like *Canal-Coal*.

These *Strata* have between each of 'em a *Bat*, or Bed, of a peculiar sort of Matter, about the thickness of a Crown-Piece. Below these are divers metalline *Strata*; as a black Substance call'd the *Dun-row bat*; a grey Iron Ore, call'd the *Dun-row Iron-stone*; a bluish Bat, call'd *White-row*; a blackish Iron Ore, call'd *White-row grains*, or Iron-stone; a grey Iron Ore, call'd *Mid-row grains*; a black fossil Substance, call'd the *Gubling bat*; a black Iron Ore, call'd *Gublin Iron-stone*; a dark grey Iron Ore, call'd *Rubble Iron-stone*: the *Table Bats*.

Then, 5°, comes a coarse sort of *Coal*, call'd *Foot-Coal*; a black brittle Bat: 6th, the *Heathen Coal*; 7th, a Substance like coarse *Coal*; tho call'd a *Bat*, because it does not burn well: And 8th, *Bench-Coal*.

Small-Coal is prepar'd from the Spray, and Brush Wood, stripp'd off from the Branches of Coppice Wood; sometimes bound in Bavins for that purpose, and sometimes prepar'd without binding.

The Wood they dispose on a level Floor, and setting a Portion of it on fire, throw on more and more, as fast as it kindles; whence arises a sudden blaze, till all be burnt that was near the Place. As soon as all the Wood is thrown on, they cast Water on the Heap, from a large Dish, or Scoop; and thus keep plying the Heap of glowing *Coals*, which stops the Fury of the Fire, while with a Rake they spread it open, and turn it with Shovels till no more Fire appears. When cold, they are put up into Sacks for use.

Char-coal, see its Preparation under Charcoal.

COALITION, the reunion, or growing together of Parts before separated. In this Sense, the Word is us'd both in a Physical and a Moral Sense.

COAST, a Sea-shore, or the Country adjoining to the Edge of the Sea. See Sea, &c.

COASTING, that Part of Navigation, wherein the Places assign'd are not far distant; so that a Ship may sail in sight of the Land, or within sounding, between the Places.

Such are the Voyages on the Narrow, or *British* Seas, between *England*, *Holland*, and *France*; also those about the *British* Seas, and in the *Mediterranean*, &c.

For the Performance hereof, there is only requir'd good knowledge of the Land, the Use of the Compass, and of the Lead, or Sounding-Line. See Compass, Sounding, &c.

Coasting, in Agriculture, &c. the transplanting of a Tree, and placing it in the same Situation, with respect to East, West, North, &c. as it stood in before. See Planting, and Transplanting.

COAT *of Arms*, in Heraldry, a Cloke, or Habit bore by the antient Knights over their Arms, both in War, and at Tournaments; and still bore by the Heralds at Arms. See Arms, Herald, &c.

It was a kind of Jacket, reaching only as low as the Navel; open at the Sides, with short Sleeves; sometimes furr'd with Ermins and Vair, whereon were apply'd the Armories of the Knight, embroider'd in Gold and Silver, and enamell'd with Colours of beaten Tin, colour'd black, green, red, and blue: whence the Rule, never to apply Colour on Colour, nor Metal on Metal.

The

The *Coats of Arms* were frequently open, and diversify'd with Bands and Fillets of several Colours, alternately plac'd, as we still see Cloths scarleted, water'd, &c. hence they were also call'd *Divizes*, or *Devises*; as being divided, or compos'd of several Pieces, sew'd together; whence the Words, *Fesse*, *Pale*, *Chevron*, *Bend*, *Cross*, *Salteer*, *Lozenge*, &c. which have since made the honourable Pieces, or Ordinaries of the Shield. *See each in its Place*, FESSE, BEND, CROSS, &c.

Coats of Arms, and *Banners*, were never allow'd to be wore by any but Knights, and antient Nobles. See ESCUTCHEON, &c.

COAT *of Mail*, or *Jacques de Mail*, a kind of Armour made in form of a Shirt; consisting of Iron Rings wove together. See MAIL.

COAT, in Anatomy. See TUNIC.

COBALT, in Natural History, a kind of Natural Cadmia, out of which is drawn Bizmuth, Arsenic, and Smalt. See CADMIA, BIZMUTH, ARSENIC, &c.

Cobalt usually contains a little Silver. There are various Mines of *Cobalt*, especially in *Saxony*; some in *France* and *England*.

COCCIFEROUS, in Botany, such Plants, or Trees, as bear Berries. See BERRY.

COCCIGIS, or COCCÆ OS, in Anatomy, a Bone join'd to the Extremity of the *Os Sacrum*; compos'd of three or four Bones, whereof the lower is still less than the upper, till the last ends in a small Cartilage.

It resembles a little Tail turned inwards; or rather, as some imagine, the Beak of a Cuckow; whence the Name. Its Use is to sustain the strait Gut: It yields to the Pressure of the *Fœtus* in Women in travail; and Midwives use to thrust it backwards; but sometimes rudely and violently, which is the occasion of great Pain, and several bad Effects.

COCCULUS *Indicus*, a poisonous Narcotick Berry, known mostly now to Poachers, who have got a trick of intoxicating Fish therewith, so as to take them out of the Water with their Hands; for which Reason they are called *Baccæ Piscatoriæ*, Fishers Berries.

COCHINEAL, or COCHENEAL, a Drug us'd by the Dyers, &c. for giving red Colours, especially Crimsons, and Scarlets. See RED, SCARLET, &c.

It is brought from the *West Indies*: but Authors are divided as to its Nature; some taking it to be a kind of Worm, and others the Grain of a Tree. F. *Plumier*, the Minime, a celebrated Botanist, has maintain'd the former Opinion, and *Pomet* the latter.

It may perhaps be said, that they are both equally distant from the Truth in the Description they have given of *Cochineal*; and yet that there is both a *Cochineal* which is a Worm, and another a Grain. This Opinion is founded on the Account given by *Dampier*; who gives a precise Description of each kind: If it ben't true, 'tis at least more likely than any Opinion yet propos'd. His Description of each is as follows:

'The *Cochineal Worm*, is an Insect ingender'd in a Fruit 'resembling a Pear: The Shrub which bears it is five or six 'Foot high. A-top of the Fruit grows a red Flower, which 'when mature falls on the Fruit; and that opening, discovers a Cleft two or three Inches in Diameter. The Fruit 'then appears full of little red Insects, having Wings of a 'surprizing smallness, and which would die and rot there, if 'not taken out.

'The *Indians*, therefore, spreading Cloth under the Tree, 'shake it with Poles, till the Insects are forc'd to quit their 'Lodging, and fly about the Tree; which they cannot do 'many Moments, but tumble down dead into the Cloth; 'where they are left till they be entirely dry: When the 'Insect flies it is red; when it is fallen, black; and when 'dry, white; tho it afterwards changes Colour.

There are whole Plantations of the *Cochineal* Tree, or *Tonna*, as the Natives call it, about *Guatimala*, *Chepe*, and *Guexaca*, in the Kingdom of *Mexico*.

Cochineal Grain, or, as *Dampier* calls it, *Sylvestris*, is a red Berry, growing in *America*, found in a Fruit resembling that of the *Cochineal* Tree, or *Tonna*. The first Shoots produce a yellow Flower; then comes the Fruit, which is long, and when ripe opens with a Cleft of three or four Inches. The Fruit is full of Pippins, or Grains, which fall on the least Agitation, and which the *Indians* take care to gather. Eight or ten of these Fruits may yield about an Ounce of Grain.

This Berry yields a Dye almost as beautiful as that of the Insect; and a Person may be easily deceiv'd in them: tho the first is much less esteem'd. See DYING.

Cochineal is us'd in Medicine as an Alexipharmic, tending to promote Sweating, and also as a Cordial.

COCHLEA, in Mechanicks, one of the five mechanical Powers; otherwise called the Screw. See SCREW.

It is thus call'd, from the resemblance a Screw bears to the spiral Shell of a *Snail*, which the *Latins* call *Cochlea*.

COCHLEA, in Anatomy, is the last Canal, or Cavity of the Ear; thus call'd from its helical Form. See EAR.

The *Cochlea* is divided into two Parts, the upper, and lower, by a thin, spiral *Lamina*; of which the Part next the Axis is bony, but extremely brittle; and that, next the outer Shell, membranous; appearing to be only made of an Expansion of the Auditory Nerve. See NERVE.

The upper Canal opens into the *Tympanum*, and the lower into the *Vestibulum*: this is narrower than that, especially towards the Basis of the *Cochlea*; where each is about a Line wide; and the Basis it self is about four Lines in Diameter. See HEARING.

COCK *of a Dial*, the Pin, Style, or Gnomon. See DIAL, STYLE, and GNOMON.

COCKET, a Seal belonging to the King's Custom-house. See SEAL, &c.

COCKET is also a Scroll of Parchment, sealed and deliver'd by the Officers of the Custom-house to the Merchants, upon entering their Goods, certifying that the Goods were customed. See CUSTOMS.

The same Word is also used in the Statutes of Bread and Ale, 15 *Hen.* III. where there is mentioned *Cocket Bread*, among several other Kinds: It seems to have been hard Sea-Bisket, which perhaps had then some *Cocket*, Mark, or Seal; or else was so called from its being design'd for the use of the *Cockswains*, or Seamen.

COCKLE-*Stairs*. See STAIRS.

COCKING-CLOTH, a Devise for the catching of Pheasants withal.

It consists of a piece of coarse Canvas, about an Ell square, dipp'd in a Tan Pit to colour it; and kept stretch'd by two Sticks, placed from corner to corner, diagonal-wise: a Hole to be left to peep thro'. The Gamester, then, being provided of a short Gun; carries the Cloth before him at Arms end; under cover of which, he may approach his Game as near as he pleases: when near enough, he puts the Nosel of his Gun thro' the Hole, and shoots.

COCKPIT, a sort of Theatre, whereon Game-Cocks fight their Battels.

The *Cock-Pit* is usually a House, or Hovel cover'd over: They fight on the Clod, or green Sod; which is generally mark'd out round, and incompass'd with Seats, one above another.

The COCK-PIT *Laws*, are principally these: When Cocks are set, none to be on the Sod but the two Setters. When the Cocks are set Beak to Beak in the middle of the Clod, and there left by the Setters, if the set Cock do not strike in counting twenty, and six times ten, and twenty after all, the Battel is lost: but if he do strike, the Battel is to begin again, and they must count again. If any offer a Mark to a Groat, or 40 to 1, and the Wager be taken, the Cock must be set, and they are to fight it out. Done, and done, is a sufficient Bet, or Wager, when the Cocks are cast on the Clod.

COCK-PIT, in a Man of War, is a Place on the lower Floor, or Deck, abaft the main Capstan, lying between the Platform and the Steward's Room; where are Subdivisions or Partitions for the Purser, the Surgeon, and his Mates.

COCK-ROAD, a Contrivance for the taking of Woodcocks.

As that Bird lies close by day, under some Hedge, or near the Root of an old Tree, to peck for Worms under dry Leaves, and will scarce stir out, unless disturb'd, as not seeing his way so well in the Morning; toward the Evening he takes Wing, to seek for Water; flying generally low, and when he finds any thorowfare in a Wood ventures thro' it.

To take 'em, therefore, they plant Nets in such Places; or, for want of such Places ready to their hands, they cut *Roads* thro' Woods, Thickets, Groves, &c.

These Roads they usually make 35 or 40 Foot broad, perfectly strait and clear; and to two opposite Trees they tie the Net, which has a Stone fasten'd to each corner. Then, having a Stand, or Place to lie conceal'd in, at a proper distance, with a Stake near the same, to fasten the Lines of the Net to: when they perceive the Game flying up the *Road*, they unwind the Lines from off the Stake; upon which, the Stones drawing it down, the Birds are intangled in the same.

COCK-SWAIN, or COCKSON, is an Officer on board a Man of War, who hath the care of the Barge, or Sloop, and all things belonging to it; to be always ready with his Boat's-Gang, or Crew, and to Man the Boat on all Occasions.

He sits in the Stern of the Boat, and steers; and hath a Whistle to call and encourage his Men.

COCOA, or more justly CACAO, the Nut whose Kernel yields the Chocolate. See CACAO, and CHOCOLATE.

COCOS, or COCO, is also used for a Nut, whose Shell is much used by Turners, Carvers, &c. for divers Works.

The *Coco* Tree, which the *Malabars* call *Tenga*, is strait, without any Branches, and ordinarily thirty or forty Foot high: Its Wood is too spongious to be used in Carpentry. A-top it bears twelve Leaves, ten Foot long, and half a Foot broad,

broad, us'd in the covering of Houſes, making Matts, &c. Above the Leaves is form'd a large Bud, in form of a Cabbage, excellent to eat; but the taking it off is mortal to the Tree.

Between the Leaves and the Top are ſeveral Suckers, of the thickneſs of the Arm; which, when cut, diſtil a white, ſweet, agreeable Liquor, ſerving as a Wine, and intoxicating: It becomes acid if kept a few Hours; and at the end of 24 Hours is converted into a ſtrong Vinegar: and is further prepar'd into Brandy. While this Liquor diſtils, the Tree yields no Fruit; but when the Suckers are let grow, it puts forth a large Cluſter, or Bunch, wherein the *Coco*-Nuts are faſten'd, to the number of ten or twelve.

While they are yet new, and the Bark tender, they yield half a Pint of a clear refreſhing Water: which in a little time becomes firſt a white, ſoft Fleſh, and at length condenſes, and aſſumes the Taſte of the Nut.

It yields Fruit thrice a year; and thoſe ſometimes as big as a Man's Head. Many Travellers aver, that from a ſingle *Coco* Tree, and its Fruit, a Ship might be built, equipp'd, and loaden with Merchandize and Proviſion.

The *Cocos* of the *Antilles*, are not ſo large as thoſe of the *Eaſt-Indies*, *Africa*, and *Arabia*: the Trees ſeldom exceed 25 Foot in height; and the Fruits in proportion: 'Tis theſe are uſed among us.

In the Kingdom of *Siam*, the *Coco*'s Fruit, dried and emptied of its Pulp, ſerves as a Meaſure, both for things liquid and dry. See MEASURE.

As theſe Fruits are not all of the ſame Capacity, but are ſome larger, others leſs; their content is firſt meaſur'd with *Cauris*, thoſe little *Maldives* Shells, which ſerve as ſmall Money in ſeveral States of the *Indies*. Some *Cocos* contain 1000 *Cauris*, others 500, &c.

COCTION, a general Name for all Alterations made in Bodies, by the approach of Fire, or Heat. See HEAT.

The greateſt Secret in Chymiſtry is to manage the *Coction* aright; to give the Fire to advantage.

There are various Species of *Coctions*; as *Maturation*, *Friction*, *Elixation*, *Aſſation*, *Torrefaction*, and *Uſtion*; which ſee in their Places, MATURATION, FRICTION, &c. ſee alſo CONCOCTION.

COD-*Fishery*. See *Cod*-FISHERY.

CODE, CODEX, a Collection of the Laws and Conſtitutions of the *Roman* Emperors; made by order of *Juſtinian*.

It is compriz'd in twelve Books, which make the ſecond Part of the Civil, or *Roman* Law. See CIVIL-*Law*.

There were ſeveral other *Codes* before the Time of *Juſtinian*; all of them Collections, or Abridgments of the *Roman* Laws. *Gregory* and *Hermogenes*, two Lawyers, made each a Collection of this kind, called from their Names the *Gregorian Code* and *Hermogenean Code*. Theſe included the Conſtitutions of the Emperors from *Adrian*, to *Dioclesian* and *Maximin*, *A. D.* 306. We have nothing remaining of 'em but a few Fragments: the Work falling to the ground, for want of Authority to put it in Execution.

Theodoſius the Younger was the firſt Emperor who made a *Code*, which was compriz'd in ſixteen Books, form'd out of the Conſtitutions of the Emperors from *Conſtantine* the Great to his own Time; abrogating all other Laws not included in it: And this is what we call the *Theodoſian Code*; which was publiſh'd in the Year 438, and receiv'd and obſerv'd, till annulled by the *Code* of *Juſtinian*.

Theodoſian's *Code* has been a long time loſt in the *Weſt*: *Cujas* took a great deal of Pains to retrieve it, and to publiſh it in a better Condition than ever. *Gothefrid* has given us a Comment on the *Theodoſian Code*; a Work which coſt him 30 Years.

In 506, *Alarick* King of the *Goths*, made a new Collection of the *Roman* Laws, taken from the three former *Codes*, the *Gregorian*, *Hermogenian*, and *Theodoſian*, which he likewiſe publiſh'd under the Title of the *Theodoſian Code*. This *Code* of *Alarick* continu'd a long time in force; and was all the *Roman* Law receiv'd into *France*.

Laſtly, the Emperor *Juſtinian*, finding the Authority of the *Roman* Law exceedingly weaken'd in the *Weſt*, upon the Decline of the Empire, reſolved to make a general Collection of the whole *Roman* Juriſprudence. The Management hereof he committed to *Tribonianus*; who choſe out the moſt excellent Conſtitutions of the Emperors, from *Adrian* to his own Time; and publiſh'd his Work in 528, under the Title of the *New Code*.

But becauſe *Juſtinian* had made ſeveral new Deciſions, which made ſome Alteration in the antient Juriſprudence; he retrench'd ſome of the Conſtitutions inſerted by *Tribonianus*, and added his own in their Place: on which account, he publiſh'd a new Edition of the *Code* in 534, and abrogated the former.

This *Code* of *Juſtinian*, as well as the reſt of the *Roman* Law, was a long time loſt in the *Weſt*, till the Time of *Lotharius* II. who found it at the taking of *Melphis*, and gave it to the City of *Piſa*. This was firſt re-publiſh'd by *Irnier*, in 1128.

The Emperor *Frederic*, at the Requeſt of the Univerſities, appointed it to be taught in the Schools; and commanded all his People to obſerve it. Accordingly, it obtain'd in *Italy* and *Germany*; and ſtill obtains in a Part of *France*, particularly the Southern Provinces.

The Word comes from the Latin *Codex*, a paper Book; ſo called *a Codicibus* or *Caudicibus arborum*, the Trunks of Trees; the Bark whereof being ſtripp'd off, ſerv'd the Antients to write their Books on.

There have been various other later *Codes*, particularly of the antient *Gothic*, and ſince of the *French* Kings; as the *Code* of *Euridia*, the *Code Michault*, *Code Louis*, *Code Naron*, *Code Henry*, *Code Marchand*, *Code des Faux*.

CODE *of Canons*, CODEX *Canonum*. See CANON.

CODIA, in Botany, is uſed for the Top, or Head of any Plant; but, by way of eminence, for that of a ſort of Poppy: whence the Syrup made therewith is called *Diacodium*, from *δια*, *cum*, with, and *κωδια*, *the Poppy head*. See DIACODIUM.

CODICIL, a Schedule, or Supplement to a Will, or other Writing. See SCHEDULE, WILL, &c.

It is us'd as an Addition to a Teſtament, when any thing is omitted which the Teſtator would add, explain, alter or retract; and is of the ſame Nature as a Teſtament, but that it is without an Heir or Executor.

So that a *Codicil* is a leſs ſolemn Will of one that dies either Teſtate or Inteſtate, without the Appointment of an Heir: Teſtate, when he that hath made his *Codicil*, hath either before or afterwards made his Teſtament, on which that *Codicil* depends, or to which it refers. Inteſtate, when one leaves behind him only a *Codicil* without a Teſtament; wherein he gives Legacies only to be paid by the Heir at Law, and not by any Heir inſtituted by Will, or Teſtament.

A *Codicil*, as well as a Will, may be either *Written* or *Nuncupatory*. Some Authors call Teſtament, a *great Will*; and *Codicil*, a *little* one: and compare Teſtament to a Ship, and *Codicil* to the Boat tied to it.

But there is this further difference between a *Codicil* and a Teſtament; that a *Codicil* cannot contain the Inſtitution of an Heir; and that in a *Codicil*, a Man is not oblig'd to obſerve ſtrictly all the Formalities preſcrib'd by Law for ſolemn Teſtaments.

In Cuſtomary Countries, Teſtaments, properly ſpeaking, are no more than *Codicils*; in regard, Cuſtom it ſelf names the Heir, and does not allow of Teſtamentory Inheritors.

Codicils were firſt brought into uſe in the Time of *Auguſtus*, by *L. Lentulus*: They were originally intended to follow the Teſtament; which was, as it were, their Baſis. In proceſs of time, *Codicils* came to have their effect, even tho made before the Teſtament; provided there was nothing in the Teſtament contrary to the *Codicil*.

People were alſo allow'd to make *Codicils* without Teſtaments.

Raym. Lully has a Book which he calls *The Codicil*; wherein he pretends to have left his Readers the Secret of the Philoſopher's Stone; provided they do but underſtand it.

COECUM, or CÆCUM, in Anatomy, the *blind Gut*, the firſt of the thick Inteſtines; ſo called, becauſe made like a Sack, having but one Aperture, which ſerves it both for entrance and exit. See INTESTINES.

It is ſituate on the right Side, below the Kidney. In Children new born, and in Quadrupeds, it is found full of Excrements; but in Adults, &c. it frequently diſappears, and only hangs like a Worm.

Its uſe in Adults is very obſcure: In a *Fœtus*, or Infant newly born, it appears to ſerve as a Receptacle for the *Fæces* during ſuch time as the Animal does not diſcharge by Stool.

Dr. *Gliſſon* imagines it may likewiſe ſerve in ſuch Animals as have it large, as Dogs, Conies, Rats, &c. for a kind of ſecond Ventricle, or Bag, wherein the prepar'd Aliment may be retain'd, while a richer and more nutritious Juice is drawn from the ſame.

Others will have it contain a Ferment; and others the Flatuoſity of the Inteſtines: Laſtly, others fancy it may ſeparate a Humor, by ſome Glands placed therein, wherewith to harden the Excrements as they paſs thro' the Colon. See EXCREMENT, COLON, &c.

CO-EFFICIENTS, in Algebra, are Numbers prefix'd to Letters, or Species, into which they are ſuppos'd to be multiply'd; and therefore, with ſuch Letters, or with the Quantities repreſented by them, they make a Rectangle, or Product, *co-efficium Productum*; whence the Name.

Thus, *c b* implies, that the Quantities repreſented by *a b*, are multiply'd into the *co-efficient c*; and that out of theſe two, the Rectangle, or Product *c b* is form'd. If a Letter have no Number prefix'd, it is always ſuppos'd to have a *Co-efficient*; becauſe every thing is once it ſelf.

The *Co-efficient*, in a Quadratic Equation, is according to its Sign, either the Sum, or Difference of the two Roots: And in any Equation of an higher Nature, the *Co-efficient* of the ſecond Term, is always the Aggregate of all the Roots retaining their proper Signs: So that if all the Negatives be equal to all the Affirmatives, the ſecond Term will vaniſh; and

and where the second Term is thus wanting, it is a Sign that the Quantities under contrary Signs were thus equal.

The *Co-efficient* of the third Term is the Aggregate of all the Rectangles arising by the Multiplication of every two of the Roots, how many ways soever those Combinations of Two's can be had; as three times in a Cubic, six in a Biquadratic Equation, &c.

The *Co-efficient* of the fourth Term, is the Aggregate of all the Solids, made by the continual Multiplication of every three of the Roots, how often soever such a Ternary can be had; as there may be four in a Biquadratic, five in an Equation of five Dimensions, &c. And thus it will go on infinitely.

COELESTIAL *Observations*, are Observations of the Phænomena of the Heavenly Bodies, made with a proper Apparatus of Astronomical Instruments, in order to the determining their Places, Motions, Phases, &c. See OBSERVATION.

The Instruments chiefly used in *Cælestial Observations*, are the Astronomical Gnomon, Quadrant, Micrometer, and Telescope; each of which see under its proper Head, QUADRANT, MICROMETER, TELESCOPE, GNOMON, &c.

Observations in the Day-time are easy; in regard the cross Hairs in the Focus of the Object-Glass of the Telescope are then distinctly perceivable: in the Night, those cross Hairs are to be illumined to make them visible.

This Illumination is either perform'd by a Candle, placed obliquely near 'em, so as the Smoke don't intercept the Rays; or where this is inconvenient, by making an Aperture in the Tube of the Telescope, near the Focus of the Object-Glass, thro' which a Candle is apply'd to illumine the cross Hairs.

M. *de la Hire* has made an Improvement on the first Method, which renders it of very good use; and it is by covering that end of the Tube next the Object-Glass with a piece of Gauze, or fine white silken Crape. For in such case, a Link, placed at a good distance from the Tube, so enlightens the Gauze, as to render the cross Hairs very perceivable.

Observations of the Sun, are not to be made without placing a Glass, smoked in the Flame of a Lamp or Candle, between the Telescope and the Eye; to take off from its Lustre, which would otherwise confound and damage the Eye, were not a good part of its Beams intercepted.

Note, When any of the Heavenly Bodies are observ'd thro' a Telescope of only two Glasses, they appear inverted.

Cælestial Observations are chiefly of two Kinds; the one when the Objects are in the Meridian. See MERIDIAN *Observations*.

The other, when in Vertical Circles. See *Vertical* CIRCLES.

COELIAC *Artery*, the first Artery, detach'd from the descending Trunk of the *Aorta* into the Abdomen. See AORTA, ARTERY, &c.

It divides into two Branches, the one on the right side, the other on the left; of which the first gives the *Gastrica dextra*, which goes to the Stomach; the *Cistica*, which goes to the Gall-Bladder; the *Epiplois dextra* to the *Omentum*; the *Intestinalis* to the *Duodenum*, and to a part of the *Jejunum*; and the *Gastro Epiplois* to the Stomach, to the *Omentum*, and some Branches to the Liver, which enter the *Capsula Communis*, to accompany the Branches of the *Vena Porta*.

The left Branch of the *Cæliaca* gives the *Gastrica dextra*, which is also spread upon the Stomach; the *Epiplois sinistra* to the *Omentum*; and the *Splenica* to the Substance of the Spleen. See each Branch describ'd in its Place.

COELIAC *Vein*, is that which runs thro' the *Intestinum Rectum*. See RECTUM.

COELIACA, or COELIAC *Passion*, or *Affection*, is a sort of *Diarrhæa*, or Flux of the Belly; wherein the Chyle, or nutritious part of the Food is evacuated by Stool, instead of Excrements. See FLUX, and DIARRHÆA.

Authors frequently confound the *Cæliaca* with the Lientery, but they are different. See LIENTERY.

There is also a COELIAC *Diabetes*, call'd *Cæliaca Urinalis*, wherein the Chyle passes off along with, or instead of Urine. See DIABETES.

COELUM. See HEAVEN.

COELUM is us'd by some Anatomists for the Cavity of the Eye toward the Angles, or *Canthi*. See EYE, CANTHUS, &c.

COENOBITE. See CENOBITE.

COENOTAPHIUM, or rather CENOTAPHIUM, in Antiquity, an empty Tomb, or Monument erected in honour of some illustrious Defunct; who perishing by Shipwreck, in Battel, or the like, his Body could not be found, to be interr'd or deposited in the same. See TOMB, and SEPULCHER.

Cardinal *Noris* has several express Dissertations on the *Cænotaphia* of the Cæsars *Caius* and *Lucius*, which still remain at *Pisa*. See FUNERAL.

The Word is *Greek*, compounded of κενὸς, *empty*, and τάφος, *Sepulcher*.

COEQUALITY, a Term expressing the Relation of Equality between two things. See EQUALITY.

The Retainers to S. *Athanasius*'s Doctrine of the Trinity, hold the Son and Holy Spirit *coequal* with the Father. The *Arians*, &c. deny the *Coequality*. See ARIAN, &c.

COETERNITY, is us'd among Divines, to denote the Eternity of one Being equal to that of another. See ETERNITY.

The Orthodox hold the second and third Persons in the Trinity *coeternal* with the first. See TRINITY.

COEUR, in Heraldry. *Party en* COEUR, signifies a short Line of Partition in Pale, in the Centre of the Escutcheon, which extends but a little way, much short of Top and Bottom; being met by other Lines, which form an irregular Partition of the Escutcheon.

CO-EXISTENCE, a Term of Relation, denoting two, or more Things, to exist together at the same time, &c. See EXISTENCE.

COFFEE, in Natural History, a Seed, or Berry, brought from *Arabia felix*; used for the making a Drink of the same Name.

That from the *Levant* is most esteem'd, being greener, heavier, and appearing riper and plumper than that from *Mocha*; which is larger, lighter, and whiter.

For *Coffee*-Berries, some substitute Peas, Beans, Rye, and Barley; which roasted, yield an oily Matter, resembling in Flavour, but less agreeable, as well as in much less quantity than *Coffee*.

COFFEE is also a Kind of Drink, prepared from these Berries; very familiar in *Europe* for these 60 Years, and among the *Turks* for above an hundred.

Its Original is not well known; some ascribe it to the Prior of a Monastery, who being inform'd by a Goatherd, that his Cattel sometimes browzing on the Tree, would wake and caper all Night; became curious to prove its Virtue: accordingly, he first try'd it on his Monks, to prevent their sleeping at Matins.

Others, from *Sebehabeddin*, refer the Invention of *Coffee* to the *Persians*; from whom it was learnt in the XVth Century by *Gemalledin*, Mufti of *Aden*, a City near the Mouth of the Red Sea; and who having tried its Virtues himself, and found that it dissipated the Fumes which oppress'd the Head, inspir'd Joy, open'd the Bowels, and prevented Sleep, without being incommoded by it; recommended it first to his Dervises; with whom he us'd to spend the Night in prayer.

Their Example brought *Coffee* into vogue at *Aden*: The Professors of the Law, for Study, Artisans to work, Travellers to walk in the Night; in fine, every body at *Aden* drank *Coffee*.

Hence it pass'd to *Mecca*, where first the Devotees, then the rest of the People took it. From *Arabia felix* it pass'd to *Cairo*.

In 1511, *Khaie Beg* prohibited it, from a Persuasion that it inebriated, and that it inclin'd to Things forbidden. But Sultan *Causou* immediately after took off the Prohibition, and *Coffee* advanced from *Egypt* to *Syria* and *Constantinople*.

The Dervises declaim'd against it from the *Alcoran*, which declares that Coal is not of the number of Things created by God for Food. Accordingly, the Mufti order'd the *Coffee*-Houses to be shut; but his Successor, declaring *Coffee* not to be Coal, they were open'd again.

During the War in *Candia*, the Assemblies of Newsmongers making too free with State-Affairs, the Grand Vizier *Caproli* suppress'd the *Coffee*-Houses at *Constantinople*; which Suppression, tho still on foot, does not yet prevent the publick Use of the Liquor there.

Thevenot, the Traveller, was the first who brought it into *France*; and a *Greek* Servant, called *Pasqua*, brought into *England* by Mr. *Dan. Edwards*, a *Turky* Merchant, in 1652, to make his *Coffee*, first set up the Profession of *Coffee*-Man, and introduc'd the Drink among us. Tho some say Dr. *Harvey* had us'd it before.

The Word *Coffee* is originally *Arabic*: the *Turks* pronounce it *Cahueh*, and the *Arabs Cahouah*; which some Authors maintain to be a general Name for any thing that takes away the Appetite: others for any thing that promotes Appetite; and others, again, for any thing that gives Strength and Vigour.

The *Mahometans*, 'tis observ'd, distinguish three Kinds of *Cahouah*; the first is Wine, or any Liquor that inebriates; the second is made of the Pods that contain the *Coffee*-Berry; this they call the *Sultana's Coffee*, from their having first introduc'd it, on account of its heating less than the Berry, as well as its keeping the Bowels open: the third is that made with the Berry itself; which alone is us'd in *Europe*, the Pods being found improper for Transportation. Some *Europeans* who imported the Pods, call'd them the *Flower of the Coffee* Tree.

The deep brown Colour of the Liquor, occasion'd its being first call'd *Syrup of the Indian Mulberry*; under which specious Name it first gain'd ground in *Europe*.

The Preparation of *Coffee* consists in *roasting*, or giving it a just Degree of Torrefaction, on an earthen, or metalline Plate, till it have acquir'd a brownish hue, equally deep on all Sides: 'Tis then ground in a Mill, as much as serves the present occasion. A proper quantity of Water is next boil'd, and the ground *Coffee* put in it. After it has boil'd sufficiently, 'tis taken from the Fire; and the Decoction having stood a while to settle and fine, they pour, or decant it into Dishes.

The Custom is to drink *Coffee* as hot as possible, with Sugar; tho the *Turks* don't trouble themselves to take off its bitterness with any Sugar: their Grandees add to each Dish a drop of Essence of Amber; others boil with it a couple of Cloves; others a little *Indian* Anise; others *Cacouleh*, or the Grain of the *Cardamum minus*.

Coffee is one of the Necessaries the *Turks* are oblig'd to furnish their Wives withal.

The ordinary Method of roasting *Coffee* among us, is in a Tin cylindrical Box, full of Holes; thro' the middle whereof runs a Spit: under this is a semicircular Heartb, wherein is a large Charcoal Fire: By help of a Jack, the Spit turns swift, and so roasts; being now and then taken up to be shaken. When the Oil rises, and it's grown of a dark brown Colour, it is emptied into two Receivers, made with large Hoops, whose bottoms are Iron Plates, these shut into: There the *Coffee* is shaken, and left till almost cold; and if it look bright and oily, 'tis a Sign 'tis well dune.

Coffee is taken with very different, nay frequently with directly opposite Intentions; some use it to prevent Sleep, others to promote Digestion, &c.

Its more real Virtues, own'd by the Physicians, consist in this; that being an excellent Dryer, it carries off Fumes and Disorders of the Head arising from too much moisture, dissipates Megrims, and absorbs Acrimonies of the Stomach, whence its use after a Debauch of strong Liquors; and hence also its use in promoting watching, by bracing the Fibres, and rendering'em too tense for the Relaxation requir'd in Sleep.

It likewise promotes Circulation, but such best with People of a pretty corpulent Habit; being found hurtful to those who are thin, lean, dry, and of a bilious Temperament; as it dries up the Nerves, and inclines them to Tremors: 'tis said to be prejudicial likewise to those who digest too fast, where the Circulation is too quick, or where there is a spitting of Blood arising from the Mouths of any of the Veins and Arteries being too open, or the Blood too thin and sharp.

The oily Matter that separates from the *Coffee*, and appears on its surface when roasted, and its particular Smell, which distinguishes it from Peas, Beans, Rye, &c. which some substitute in lieu of *Coffee*, are to be the real Indications of its Effects. If consider'd with regard to the Oils drawn by the Retort, this, as well as that, contains volatile Principles, both saline and sulphureous.

'Tis to the Dissolution of its Salts, and the Mixture of its Sulphurs in the Blood, that its chief Faculty of promoting Watchfulness is to be attributed: Hence also its Property of promoting Digestion, of precipitating Foods, of preventing Eructations, and correcting Acrimonies of the Stomach, when taken after Meals.

Hence also that Fermentation in the Blood, serviceable to corpulent People: hence also its diuretick Virtue. By Experience 'tis found of service to drink a Glass of Water before *Coffee*, to render it laxative; to mix it with Milk, or Cream, to extinguish its Sulphurs, embarrass its saline Principles, and render it nourishing.

S. Paulli, a *Danish* Physician, maintains that it enervates Men, and renders them incapable of Generation: And 'tis certain the *Turks* attribute the same Effects to it; and from the immoderate use hereof, account for that thinness of Inhabitants found in Provinces formerly the best peopled. But this Opinion is refuted by *Du Four*.

F. *Mallebranch* gave the Royal Academy of Sciences an Account of a Person cur'd of an Apoplexy, by giving him several Clysters of *Coffee*.

The Tree that produces the *Coffee*, is a Kind of *Arabic* Jasmin: The Berry, when ripe, is found as hard as Horn; which gave occasion to an Opinion, that the People of the Kingdom of *Iemen* in *Arabia felix*, where it is cultivated, steep'd in boiling Water, or bak'd in a Furnace all the *Coffee* they sold abroad, to prevent its growing any where else.

'Tis said, it yields a Revenue upwards of five Millions *per Annum*. Nor will that appear any wonder, when we consider that in *London* alone, besides the Consumption in private Houses, some have computed three thousand *Coffee*-Houses. In the three Kingdoms are yearly expended one hundred Tonn of *Coffee*-Berries; in *England* alone seventy: which at 300 *l. per* Tonn, a moderate Price, amounts to 21000 *l.* Sterling.

COFFER, *Capsa*, in Architecture, a square depressure, or sinking, in each Interval between the Modillions of the *Corinthian* Cornice; ordinarily fill'd up with a Rose, sometimes a Pomegranate, or other Enrichment. See MODILLION.

These Sinkings, call'd also Pannels, are of different Figures in the Compartiments of Vaults and Soffits. See SOFFIT.

COFFER, in Fortification, is an hollow Lodgment, athwart a dry Moat, from six to seven Foot deep, and from sixteen to eighteen Foot broad: the upper Part being made of pieces of Timber rais'd two Foot above the Level of the Moat; which little Elevation has Hurdles laden with Earth for its covering; and serves as a Parapet, with Embrasures. See DITCH.

The Besieged generally make use of these *Coffers* to repulse the Besiegers, when they endeavour to pass the Ditch.

'Tis nearly the same thing with a *Caponiere*, abating that this last is sometimes made beyond the Counterscarp on the Glacis, and the *Coffer* always in the Moat, taking up half its breadth. See CAPONIERE.

It differs from the *Traverse*, and *Gallery*, in that these latter are made by the Besiegers, and the *Coffer* by the Besieged. See GALLERY, &c.

To save themselves from the Fire of these *Coffers*, the Besiegers throw up the Earth on that side towards the *Coffer*.

COFFERER *of the King's Houshold*, a principal Officer in the Court, next under the Comptroler; who, in the Counting-House, and elsewhere at other times, has a special Charge and Oversight of other Officers of the House, for their good Demeanor and Carriage in their Offices: to all whom he pays the Wages. See HOUSHOLD, COMPTING-*House*, &c.

COGGESHAL'S *Sliding Rule*, an Instrument us'd in Gaging, so called from its Inventor: See its Description and Use under SLIDING *Rule*.

COGITATION, the Act or Operation of *Thinking*. See THINKING.

COGNATION, in the Civil Law, the Bond of Relation between all the Descendents from the same Stock, both Males and Females: by which it is distinguish'd from *Agnation*, which only comprehends the Descendents in the Male Sex. See AGNATION.

In *France*, for the Succession to the Crown they follow *Agnation*; in *England*, *Spain*, &c. *Cognation*, Women coming to the Succession, according to the degree of Proximity, in default of Males, or their Descendents from Branch to Branch.

In the *Roman* Law, the Words *Cognatio* and *Cognati* are taken in a more limited Sense; *Cognatio* signifying only the Bond of Relation between the Descendents from the same Stock on the Woman's side; and *Cognati* those between whom there was such a Bond of Relation subsisting.

COGNIZANCE, or COGNISANCE, in Heraldry. See CREST.

COGNIZANCE, in Law, is the Acknowledgment of a Fine, or Confession of a thing done. In this Sense, we say, *Cognoscens latro*.

The Word is also used for a Power or Jurisdiction: Thus, *Cognizance of Pleas*, is an Ability to call a Plea out of another Court; which no one but the King can do, unless he can shew a particular Charter for it.

Sometimes it is used for an Audience, or hearing of a Matter judicially; as, *to take Cognizance*.

COGNIZANCE, again, is used for a Badge on a Waterman, or Servingman's Sleeve, which is commonly the Giver's Crest, whereby he is discern'd to belong to this or that Nobleman, or Gentleman.

COGNISOR, or CONNUSOR, is he that passeth, or acknowledgeth a Fine of Lands and Tenements to another. See COGNIZANCE.

COHABITATION, implies a Concubinage, Copulation, or Carnal Knowledge between two Persons: but 'tis rarely used except in a criminal Sense. See CONCUBINE.

CO-HEIR, a Person who shares an Inheritance or Estate with another. See HEIR.

COHERENCE, a School-Term, applied to Propositions, Discourses, &c. which have a Connection or Dependence on one another.

COHESION, or COHÆSION, in Physicks, the Action whereby the Particles, or primary Corpuscles whereof natural Bodies consist, are connected, or bound together, so as to form Particles; and those, again, kept together, so as to form sensible *Masses*, or Bodies. See PARTICLE, BODY, &c.

The Cause of this *Cohesion*, or the *Nexus Materiæ*, has extremely perplex'd the Philosophers of all Ages. In all the Systems of Physicks, Matter is suppos'd originally to be in minute, indivisible Atoms. See MATTER.

How, and by what Principle these several distinct Corpuscles should come first join'd and combin'd into little Systems; and how they should come to persevere in that State of Union; is a Point of the most difficulty, and even of the most importance of any in Physicks.

The most popular Opinion, is that so strenuously defended by *J. Bernoulli*, *de gravitate Ætheris*; who accounts for the *Cohesion* of the Parts of Matter, from the uniform Pressure of the Atmosphere: confirming this Doctrine from the known Experiment of two polish'd marble Planes; which *cohere* very strongly in the open Air, but easily drop asunder in an exhausted Receiver.

But tho this Theory might serve tolerably well to explain the *Cohesion* of Compositions, or greater Collections of Matter;

ter; yet it falls short of accounting for that first *Cohesion* of the Atoms, or primitive Corpuscles, whereof the Corpuscles of hard Bodies are compos'd.

Sir *Isaac Newton* delivers his Doctrine of *Cohesion* thus: 'The Particles of all hard, homogeneous Bodies which touch 'one another, *cohere* with a great Force; to account for 'which, some Philosophers have recourse to a kind of hook-'ed Atoms, which in effect, is nothing else but to beg the 'Thing in question. Others imagine, that the Particles of 'Bodies are connected by *Rest*; *i. e.* in effect, by nothing 'at all; and others by *conspiring Motions*, *i. e.* by a rela-'tive rest among themselves. For my self, it rather appears 'to me, that the Particles of Bodies cohere by an *attractive* '*Force*, whereby they tend mutually toward each other: 'which Force, in the very point of Contact, is very great; 'at little Distances is less; a little farther distance is quite 'insensible.' See ATTRACTION.

'Now if compound Bodies be so hard, as by Experience 'we find some of 'em to be, and yet have a great many 'hidden Pores within 'em, and consist of Parts only laid to-'gether; no doubt those simple Particles which have no 'Pores within 'em, and which were never divided into Parts, 'must be vastly harder. See MATTER.

'For such hard Particles gather'd into a Mass, can't possi-'bly touch in more than a few Points: and therefore much 'less Force is requir'd to sever them than to break a solid 'Particle, whose Parts touch throughout all their Surfaces, 'without any intermediate Pores or Interstices. But how 'such hard Particles, only laid together, and touching only 'in a few Points, should come to *cohere* so firmly as in fact 'we find they do, is inconceivable; unless there be some 'Cause, whereby they are attracted and press'd together.

'Now, the smallest Particles of Matter may *cohere* by the 'strongest Attractions, and constitute larger; whose attract-'ing Force is feebler: And, again, many of these larger 'Particles *cohering*, may constitute others still larger; whose 'attractive Force is still weaker; and so on for several Suc-'cessions, till the Progression end in the biggest Particles, 'on which the Operations in Chymistry, and the Colours of 'Natural Bodies do depend; and which by *cohering* com-'pose Bodies of a sensible Magnitude.' See HARDNESS, FLUIDITY, and FIRMNESS.

The different Degrees of *Cohesion*, constitute Bodies of different Forms and Properties.

Thus, the same great Author observes, that the Particles of Fluids which don't *cohere* too strongly, and are small enough to render 'em susceptible of those Agitations which keep Liquors in a Fluor, are most easily separated and rarefied into Vapour, and make what the Chymists call *Volatile Bodies*; rarefying with an easy heat, and again condensing with a moderate cold. See VOLATILITY.

Those whose Particles are grosser, and so less susceptible of Agitation, or *cohere* by a stronger Attraction, are not separable without a greater degree of Heat; and some of 'em not without Fermentation: and these make what the Chymists call *Fix'd Bodies*. See FIXATION.

COHOBATION, in Chymistry, a repeated Distillation of the same Matter, with the Liquor drawn from it; that Liquor being again and again return'd upon the Matter left at the bottom. See DISTILLATION.

The Design of this Operation is to open the Pores, and separate and volatilize the spirituous Part.

Cohobation is a kind of *Circulation*; only differing from it in this, that the Liquor is drawn off in *Cohobation* as in common Distillation, and thrown back again; whereas in Circulation it rises and falls in the same Vessel, without ever being carried out. See CIRCULATION.

COHORT, *Cohors*, among the *Romans*, a Body of Infantry, consisting of five or six hundred Men; answering in most respects to our Battalion.

The *Cohort* was divided into three *Maniples*, or Companies; the Maniple into two *Centuries*; and the Century into an hundred Men. See MANIPULUS, CENTURY, *&c.*

The first Centurion in a *Cohort* was called *Primipilus*; and bore the Eagle, or Standard of the Legion. See PRIMIPILUS.

A Legion consisted of six *Cohorts*. See LEGION.

When the Army was rang'd in order of Battel, the *Cohorts* were disposed in the following manner: The first *Cohort* took up the right of the first Line, as the Companies of Grenadiers do in our Regiments; the rest follow'd in their natural Order: so that the third was in the Centre of the first Line of the Legion, and the fifth on the left: the second between the first and third; and the fourth between the third and fifth. The five remaining *Cohorts* form'd a second Line in their natural Order: Thus the sixth was behind the first, and so of the rest.

The first, third, and fifth *Cohorts* were esteem'd the best; at least it appears so from the Posts they took up, which were look'd on by the *Romans* as the most important.

Marius was the first who divided the *Roman* Forces into *Cohorts*.

The Word properly signifies the Area, Yard, or Space before the Door of a House.

COIF, the Badge of a Serjeant at Law; who is hence also called *Serjeant of the* COIF. See SERJEANT.

The *Coif* is of Lawn, and wore on the Head, under the Cap when they are created, and ever after.

The Use of the *Coif* was to cover the *Tonsuram Clericalem*, otherwise called, *Corona Clericalis*; because the Crown of the Head was close shav'd, and only a Border of Hair left around the lower Part, which gave it the Appearance of a Crown. See CROWN, TÆNIA, *&c.*

COIN, or *Matrice*, in the Manufactury of Money, Medals, Counters, *&c.* is a piece of Steel well temper'd, four or five Inches high, square at bottom, and round a-top; whereon are engraved, Dent-wise, or *En creux*, with Punchions and other Instruments, the several Figures, Marks, *&c.* to be struck on the Monies, *&c.* See MATRICE.

For the manner of engraving of the COINS; see ENGRAVING *on Steel.*

COIN is more generally us'd for a Piece of Metal, converted into Money, by the impressing of certain Marks or Figures thereon. See MONEY.

Or, *Coin* may be defin'd, a Species of Money, struck with a Hammer, or Mill. See COINAGE.

Hence, *Coin* differs from *Money*, as the *Species* does from the *Genus*. Money is any Matter, whether Metal, Wood, Leather, Glass, Horn, Paper, Fruits, Shells, Kernels, *&c.* which have course as a Medium in Commerce.

Coins are a particular Branch of Monies, *viz.* such as are made of Metal, Gold, Silver, or Copper, and struck according to a certain Process, call'd *Coinage*.

It is observ'd, under the Article MONEY, that the precise *Epocha* of the Invention of Money is not known; 'tis too antient for our Annals: And if we might argue from the Necessity and Obviousness of the Thing, must be nearly coeval with the World.

Whether *Coins* be of equal Antiquity, may admit of some doubt; especially as most of the antient Writers are so frequent and express in their mention of Leather Monies, Paper Monies, wooden Monies, *&c.* Some, however, maugre all this, are of opinion that the first Monies were of Metal: the Reasons they give, are the Firmness, Neatness, Cleanliness, Durableness, and Universality of Metals; which, however, do rather conclude, they ought to have been so, than that they actually were so.

In effect, the very Commodities themselves were the first Monies, *i. e.* had course for one another by way of exchange; and it was the difficulty of cutting, or dividing certain Commodities, and the impossibility of doing it without great Loss, that first put 'em on the Expedient of a general Medium. See TRUCKING.

Indeed, thus much may be said in behalf of *Coins*, that, on this view, 'twas natural for 'em to have their first recourse to Metals; as being almost the only things whose Goodness, and as it were Integrity, is not diminish'd by Partition; besides the Advantages above express'd, and the Conveniencies of melting, and returning 'em again into a Mass of any size or weight. See EXCHANGE.

'Twas probably, then, this Property of Metals which first accustom'd People, who traffick'd together, to account 'em in lieu of Quantities of other Merchandises in their Exchanges; and at length to substitute 'em wholly in their stead: and thus arose Money: As it was their other Property to preserve any Mark or Impression a long time, which confirm'd 'em in the Right; and thus was the first rise of *Coins*.

In the first Ages, each Person cut his Metal into pieces of different Sizes and Forms, according to the Quantity to be given for any Merchandize, or according to the Demand of the Seller, or the Quantity stipulated between them: To this end they went to Market, loaden with Metal, in proportion to the Purchase to be made, and furnish'd with Instruments for portioning it, with Scales for dealing it out, according as occasion requir'd.

By degrees it was found more commodious to have Pieces ready weigh'd; and as there were different Weights requir'd, according to the Value of the different Wares, all those of the same Weight began to be distinguish'd with the same Mark, or Figure: Thus were *Coins* carried one step further.

At length, the growing Commerce of Money beginning to be disturb'd with Frauds, both in the Weights and the Matter, the publick Authority interpos'd; and hence the first Stamps or Impressions of Money; to which succeeded the Names of the Moniers; and at length the Effigies of the Prince, the Date, Legend, and other Precautions to prevent the Alteration of the Species: And thus were *Coins* compleated. See COMMERCE.

On the Foot whereon Money now stands, 'tis divided into *real*, or effective Money; and *imaginary* Money, or Money of Accompt.

Imagi-

Imaginary Money, or *Money of Accompt*, is that which has no Existence in real Species; but is rather a Sum of several Species, invented or retain'd to facilitate Accompts, by keeping them on a fix'd footing, not to be chang'd like the current *Coins*, which the Sovereign Power either raises or lowers at pleasure, according to the Occasions of the State.

Of this Kind, among us, are Pounds, Nobles, Marks, *&c.* among the *French*, Livres, *&c.* See POUND, LIVRE, *&c.*

For the several Imaginary Monies used in the several Parts of *Europe*, &c. with their Proportions and Reductions, see MONEY.

Real, or *Effective Money*, is that which has an actual Existence, in real Species of Gold, Silver, *&c.* See SPECIES.

Such are, among us, *Shillings*, *Guineas*, &c. the List of which, used in the several Parts of the World, with their Reductions, are as follows.

Modern COINS, *or current Species of* Europe, Asia, Africa, *and* America.

All the current Species in the four Quarters of the Earth, at this Day, are either made of Metals, or are Shells and Fruits.

The Metals are Gold, Silver, Copper, Tin, and Lead; to which may be added Billon, a mixture of Silver and Copper in a certain proportion.

In *Europe*, none are used beside Gold, Silver, Copper, and Billon. In some part of the *East Indies*, they likewise use Tin and Lead: As to Shells and Fruits, they are the small Money of several Nations in *Asia*, *Africa*, and *America*.

British COINS.

In *England*, the current Species of *Gold*, are the Guinea, Half Guinea, Jacobus, Laureat, Angel, and Rose-Noble: the four last of which are now seldom met with, having been most of them converted into Guineas, chiefly during the Reigns of *Charles* II. and *James* II. See GOLD.

The *Silver Coins* are the Crown, Half Crown, Shillings and Sixpences. See SILVER.

Copper Coins are Halfpennies and Farthings. See COPPER.

Value and Proportions of the English COINS.

	Farthing.	Halfpenny.	Shilling.	Half Crown.	Crown.	Pound Acc.	
	2						
	48	24					
	120	60	$2\frac{1}{2}$				
	240	120	5	2			
	960	480	20	8	4		
	1058	504	21	$8\frac{2}{3}$ & $\frac{1}{3}$	$4\frac{1}{3}$	$1\frac{1}{20}$	Guinea, or Piece.
The Jacobus			25	10	5	$1\frac{1}{4}$	
The Carolus, or Laureat			23	$9\frac{2}{5}$	$4\frac{7}{12}$ & $\frac{1}{20}$		

In *Scotland*, by the Articles of the Union, 'tis appointed, that all the *Coins* be reduced to the *English*, and the same Accompts observ'd throughout. Till then, the *Scots* had their Pounds, Shillings, and Pence, as in *England*; but their Pound was but twenty Pence *English*, and the others in Proportion: Accordingly, their Mark was $13\frac{1}{3}$ *s. Scotch*, current in *England* at $13\frac{1}{3}$ *d.* their Noble in proportion.

Beside these, they had their *Turnoner* Pence and Halfpence; their Penny $\frac{1}{12}$ of that of *England*: besides base Money of Achisons, Babees, and Placks. The Bodle, $\frac{1}{3}$ of the Pence, $\frac{1}{4}$ of the Achison, $\frac{1}{2}$ of the Babee, and $\frac{1}{2}$ of the Plack.

In *Ireland*, the *Coins* are as in *England*, *viz.* Shillings, Pence, *&c.* with this difference, that their Shilling, or Harper, is but equal to nine Pence Sterling; whence their Pound is only $\frac{3}{4}$ of ours, or 15 *s.*

French COINS.

The only *Gold Coin* now current in *France*, is the Lewidore, or Louis d'Or, with its Divisions, which are $\frac{1}{2}$ and $\frac{1}{4}$; and its Multiples, which are the double and quadruple Louis. See LOUIS.

Till the Year 1700, they had Gold Lys, and Ecus, or Crowns; but they are now no more.

The *Silver Coins* are the Ecus, Crowns, or white Louis's, with their Diminutions, *viz.* $\frac{1}{2}$ and $\frac{1}{4}$; and Pieces of ten Sols, and of six. See SOL, and CROWN.

The *Billon Coins* are of two Kinds, each called *Sols*; some of 15 Deniers, others 21. To these may be added the Deniers current in the *Lionnois*, *Provence*, *Dauphine*, and other Parts.

Lastly, the *Copper Coin* is the Liard, equal to three Deniers; and is ordinarily called the Double.

Their general Value is as in the following Table: For Particulars, see the particular Heads.

Denier, equal to $\frac{3}{4}$ of a Farthing Sterl.

							l.	*s.*	*d.*	*qrs.*
2	Double.									
3	$1\frac{1}{2}$	Liart.								
12	6	4	Sol *Paris*, is equal to				0	0	0	$3\frac{3}{4}$
240	120	8	20	Livre, *Acc.*			0	1	6	
720	360	240	60	3	Ecus, Crown		0	4	6	

The Louis d'Or, *or* French Pistole, *was first struck at* 10 Livres, *but has since risen as high as* 30. *With us 'tis valued at* 16 *s. Sterling.*

Spanish COINS.

In *Spain*, and the States depending thereon, the *Gold Coin* is the Pistole; above which is the Double Pistole, and Piece of four Pistoles; and under it the Half Pistole: to which must be added the Castillans of Gold. See PISTOLE.

The *Silver* Money are the Piastre, or Piece of eight Reals, and its Diminutions; as also the simple Real, with its Diminution. See REAL.

The *Copper Coins* are the Ochavos, or Octavos, which are of two Kinds, the one equal to four Maravedis, and ordinarily call'd Quarta; the other double this, and called double Quarta: lastly, the Maravedis. See MARAVEDIS.

It must be observ'd, that in *Spain* they have new Money and old. The old, current in *Sevil*, *Cadix*, *Andalusia*, and some other Places, is worth 25 *per Cent.* more than the New, current at *Madrid*, *Bilboa*, *St. Sebastian*, &c. *i. e.* 100 Pounds old, is equal to 125 Pounds new. This difference is owing to their King *Charles* II. who in 1688, to prevent the Export of Money abroad, rais'd it 25 *per Cent.* which, however, he was only able to effect in part; several Provinces still retaining the antient Rate.

Value of the Spanish COINS.

Maravedis old, somewhat above $\frac{3}{5}$ of a Farthing Sterling.

						l.	*s.*	*d.*
4	Quarta.							
8	2	Octavo, or double Quarta.						
64	$3\frac{3}{4}$	$4\frac{1}{2}$	Real, *old Plata*, equal to			0	0	$6\frac{3}{4}$
512	68	34	8	Pieces of Eight, or *Piastre*,		0	4	6
2048	272	136	32	4	Pistole,	0	17	6

Portuguese COINS.

Those of *Gold* are the Milleray, or St. Stephen, and the Moeda d'Oro, or, as we call it, the Moidore; which is properly their Pistole: above this are Doppio Moedas, or double Pistules; and quadruple Species equal to five Pistoles. See MOIDORE.

Their *Silver Coins* are the Cruzada; Pataca, or Piece of Eight; and the Vintain, whereof they have two sorts, the one Silver, and the other Billon.

The Res is of *Copper*, which serves 'em in Accompts, as the Maravedis does the *Spaniards*.

Res, or Rez, equal to $\frac{3}{5}$ of a Farthing Sterling.

							l.	*s.*	*d.*
20	Vintaio.								
400	20	Cruzada.							
1000	50	$2\frac{1}{2}$	Mi-moeda, or Half Pistole, equals				0	13	6
2000	100	5	2	Moeda d'Oro, or Pistole,			1	7	0
4000	200	10	4	2	Doppio Moeda, or double Pist.		2	14	0
10000	5001	25	10	6	$2\frac{1}{2}$	Ducat of fine Gold,	6	15	0

Dutch COINS.

Those of *Silver* are Crowns, or Dollars, Ducatoons, Florins, and Eschalins, each whereof has its Diminution. The Stiver, or common Shilling, is of *Billon*; the Duyt, and Penny of *Copper*.

								l.	*s.*	*d.*
Penny.										
$1\frac{1}{2}$	Duyt.									
6	4	Gros.								
12	8	2	Stuyver, or Shilling common					0	0	$1\frac{1}{2}$
72	48	12	6	Scalin, or Shilling gros				0	0	7
236	160	40	20	$3\frac{1}{3}$	Florin, or Guilder,			0	2	0
708	480	120	60	10	3	Doller, or Ducatoon,		0	6	0

Flemish COINS.

Those of *Gold* are Imperials, Rides, or Philips, Alberts, and Crowns.

Those of *Silver* are Philips, Rixdollars, Patagons, Scalines, and Gulden: And those of *Copper*, Patards.

Patard,

Patard, or Penny.									l.	s.	d.
8	Groat.										
16	2	Single Stiver, equal to							0	0	$1\frac{3}{4}$
96	6	6	Shilling.						0	0	$7\frac{3}{2}$
288	18	20	3	Gulden.					0	2	0
720	90	50	$2\frac{1}{2}$	$2\frac{2}{2}$	Rixdollar, Dollar, Patag.				0	4	6
2104			$7\frac{1}{2}$		$2\frac{3}{2}$	Imperial.			0	11	3

Note, *The Rixdollar, Dollar, and Patagon, are nearly on the same Foot with the Crown, or Piece of Eight.*

German Coins.

Those of *Gold* are Ducats, which are of various Kinds; Oboli of the *Rhine*, and Florins: of this last Kind there are some likewise of *Silver*; beside Rixdollars and Izelottes, which are all of that Metal.

Those of *Copper*, are the Creux, or Kreuxer, and Fenin.

Fenin, equal to $\frac{1}{3}$ of a Farthing Sterling.

									l.	s.	d.
8	Creux, or Kreuxer.										
192	24	Dollar.									
348	$43\frac{1}{2}$	$1\frac{8}{10}$	Obolus.								
432	54	$2\frac{1}{10}$	$1\frac{1}{10}$	Izelotte.					0	2	9
480	60	$2\frac{3}{10}$	$1\frac{3}{10}$	$1\frac{1}{10}$	Gulden, or Florin.				0	3	0
650	100	$3\frac{8}{10}$	$2\frac{8}{10}$	$1\frac{9}{10}$	$1\frac{6}{10}$	Rixdol. or Dollar.			0	4	6
1068	133	$5\frac{8}{10}$	$2\frac{8}{10}$	$1\frac{2}{10}$	$2\frac{1}{10}$	$1\frac{3}{10}$	Ducat.		0	7	6

Italian Coins.

In *Italy*, the Several States have several current Monies: tho there are some common to them all; such as the Pistole of *Gold*, and the Ducatoon and Florin of *Silver*; which being of various Weights, Firmness, and Value, see under the Articles Pistole, Ducatoon, &c.

Those peculiar to *Rome*, are the Julios, of *Silver*, the Pignatelle of *Billon*; and the Bayoco, Demi-Bayocos, and Quadrine of *Copper*.——*Venice* has its Sequins of *Gold*; its Justins, or Ducatoons, and Derlingues of *Silver*.—— *Naples* its Carlins.—— *Mourgues* its Monacos, or Crowns, and its Louis's of six Sols.——*Genoa* its Croisats.—— *Savoy* and *Piemont*, its Lys; all *Silver*. This last State has likewise Papiroles, and Cavales of *Billon*.

	s.	d. Sterl.
Julio, equal to ——	0 :	$6\frac{7}{100}$ } $8\frac{5}{8}$ make a *French* Crown.
Bayoco, $\frac{8}{10}$ of the Julio =	0 :	$0\frac{3}{2}$ Penny and $\frac{8}{2}$.
Pignatelle, $\frac{1}{10}$ of the Julio =	0 :	$0\frac{8}{2}$ of $\frac{3}{4}$ of a Penny, or near $\frac{1}{8}$ a Far. Sterl.
Justine = ——	4 :	9
Derlingue, $\frac{3}{4}$ of the Justine =	1 :	$2\frac{3}{4}$
Carlin = —— ——	0 :	6
Monaco = —— ——	4 :	4
Sequin = ——	9 :	2
Croisat = —— ——	4 :	4

Swiss Coins, are Ratzes, and Blazes; of *Billon*.

Ratze, equal to $\frac{3}{4}$ and $\frac{1}{8}$ of a Penny Sterling.

Blaze of *Bern*, nearly on the same Footing with the Ratze.

Polish Coins.

Beside the Rixdollars struck here, which are common to other Countries; the *Poles* strike *Silver* Roups, Abras, and Groats.

	s.	d. Sterl.
Roup —— ——	0 :	$4\frac{3}{4}$
Abra —— ——	1 :	$0\frac{3}{2}$
Groch —— ——	0 :	$0\frac{3}{2}$ and $\frac{1}{1}$

Danish Coins, are the Horse, the Marcs Lubs, and the Schesdals of *Silver*.

	s.	d.
Horse —— ——	1 :	$1\frac{1}{8}$ Sterl.
Marc Lubs —— ——	1 :	6
Schesdal, two Marcs, or Lubs	3 :	0

Swedish Coins.

Those of *Silver* are the Christines, Carolines, and Cavaliers. Those of *Copper* the Roustique, Alleuvre, Mark, and Money.

	s.	d. Sterl.
Christine —— ——	1 :	$1\frac{1}{2}$
Caroline —— ——	1 :	$5\frac{3}{4}$
Mark —— ——	0 :	2
Roustique, $\frac{1}{2}$ of the Mark ——	0 :	$0\frac{3}{2}$ and $\frac{3}{8}$ of $\frac{1}{2}$
Alleuvre, $\frac{1}{2}$ of the Roustique	0 :	$0\frac{3}{4}$ and $\frac{1}{10}$ of $\frac{3}{2}$

The Swedish *Money*, properly so called, is a kind of *Copper*, very soft and malleable, found in little square Pieces, or Plates, about the thickness of three *English* Crowns, and weighing five Pounds and a half; stamp'd at the four Corners with the *Swedish* Arms; and current in *Sweden* for a Rixdollar, or Piece of Eight.

Muscovite Coins.

There are two Kinds of Copecs in *Muscovy*, the one of *Gold*, the other of *Silver*; the last call'd also Denaing, or Pence. Their

	s.	d.	
Copec, or Kapeke of *Gold*, worth current in the Czar's Territories for	1 :	$6\frac{5}{12}$	Sterl. but
	1 :	9.	
Copec of *Silver*, or Denaing of an oval form, worth —— somewhat more.	0 :	1	Sterl. but current for
Polnsk, $\frac{1}{2}$ of the Copec ——	0 :	$0\frac{1}{2}$	
Muskofike, $\frac{1}{4}$ of the Copec ——	0 :	$0\frac{1}{4}$.	

Turkish Coins.

The only *Gold* Species struck in the Grand Seignior's Territories, is the Sultanin, called also Scherif, or Sequin.

Their small Monies are the Para, Parasi, called also Parat, and Meidein, and the Aspre both of *Silver*.

	s.	d. Sterl.
Sultanin Scherif, or Sequin, equal to the Ducat of *Gold*, or —— ——	9 :	0
Para Parat, or Parasi ——	0 :	$1\frac{3}{2}$
Shakee of *Aleppo* and *Scandaroon* —	0 :	$3\frac{1}{2}$
Aspre —— ——	0 :	$0\frac{3}{4}$ but ordinarily, by reason of the base Alloy, no more than $\frac{3}{2}$.

Coins *of the Coasts of Barbary.*

The current *Coins* struck here are Rubies, Medians, Ziams, and Metecals; all of *Gold*: the last of which are struck at *Morocco*, the rest at *Fez*, *Algiers*, and *Tunis*; which beside have Doublas of *Silver*, and Burbas of *Copper*. ——*Tunis* its Nasaras of *Silver*, its Blanquilles likewise of *Silver*, and Felours of *Copper*.

Other *Coins* of *Africa*, are the Merigal of *Gold*, current in *Sofala*, and the Kingdom of *Monopotapa*; and the Pardo of *Silver*, current in *Mosambica*.

	s.	d. Sterl.
Rubie, equal to 35 Aspres, or —	1 :	9
Median, 50 Aspres, or ——	2 :	7
Ziam, Zian, or Dian, 2 Medians, or	5 :	2

Metecal, a Kind of Ducat of different Fineness, consequently of different Value; whence very considerable Difficulties in Commerce. The Difference arises hence, that there is no Mint fix'd, or regular *Coiners* at *Morocco*, but every *Jew* and Goldsmith strikes Ducats after his own manner in open Shop.

	s.	d. Sterl.
Double, equal to 80 Aspres, or —	4 :	6
Burba, $\frac{1}{19}$ of an Aspre, or ——	0 :	$0\frac{3}{12}$
Blanquille, —— ——	0 :	$2\frac{3}{4}$
Felours, $\frac{3}{4}$ of the Blanquille, or —	0 :	$0\frac{3}{4}$ and $\frac{3}{32}$
Merigal, worth about ——	18 :	0
Pardo, —— ——	1 :	3

Persian Coins.

Those are either *Silver*, or *Copper*; *Gold* they have none: Of the first Kind are the Abassi, Mamoudi, Chaye, and Bisti: of the second the Kabesqui, and Half Kabesqui; the Tela, or Cherrasis, indeed is *Gold*; but 'tis less a Money than a Medal, tho it has some course in Commerce.

	s.	d.
Abassi, equal to —— ——	1 :	$4\frac{3}{2}$ Sterl.
Mamoudi, Chaye, $\frac{3}{2}$ the Abassi, ——	0 :	$8\frac{3}{4}$
Chaye, $\frac{3}{2}$ the Mamoudi, ——	0 :	4 and $\frac{3}{1}$.

Bisti, some Relations make a *Coin* worth about 1 Penny Halfpenny; but others only a Term of Accompts, signifying 10 Dimars, or $\frac{1}{1000}$ part of a Toman. See Toman.

Cabequi, or Cabesque, equals $\frac{3}{12}$ of a Penny Sterl.

Tela, or *Cherasis*, usually struck at the Accession of a new King, and at the Beginning of each new Year; its Weight and Worth various.

Chinese Coins.

Throughout the Kingdom of *China* and *Tunquin*, there are not properly any *Coins* struck; instead of these, they cut their Gold and Silver into little Pieces of different weights: Those of Gold, the *Dutch*, from their Figure, which resembles a Boat, call Golchuts: those of *Silver*, the Natives call Leam; the *Portugueze*, Taels.

Their small Money is of *Copper*; 10 of these make their Shilling, and 10 of those their Crown, or Leam.

Beside these, they have a small Money of *Lead*, mix'd with the Scum of Copper, having Holes in the middle to string 'em on for the ease of numbering: this Species is called Caxa, Cas, and Piris; and the String, which usually holds 200, is called *Santa*. They are so very brittle, that they never fall without breaking into a great number of Pieces; and if left all Night in Salt Water, stick so close together that they can't be separated.

There are two Kinds, *great* and *small*.

Golchut, an Ingot, which at 3 *l.* 3 *s. per* Ounce, usually amounts to 101 *l.* 5 *s.* Sterling.

Other Golchuts only weigh half as much; their Value in proportion.

Tael, or Leam, equal to 6 *s.* 8 *d.* Sterling.

Copper Money $\frac{1}{1000}$ part of the Tael, or somewhat more than $\frac{1}{4}$ of a Farthing.

Caxa, Cache, or Pitis, $\frac{10}{12}$ or $\frac{5}{6}$ of a Penny Sterl. 300000 of these are nearly equal to 56 *Dutch* Pounds.

Caxa larger, $\frac{1}{6000}$ of a Piastre, or Piece of Eight.

Coins *of Japan.*

The *Japonese* strike Coupants, both of *Gold* and *Silver*, and Copper Pieces with Holes in the middle, like those of *China*; 600 of these make the Tael. Their other Monies, or *quasi* Monies, are Ingots, which they cut like the *Chinese* of different Weights, chiefly three; the largest, of the weight of six Reals, *viz.* 48 Taels, the Tael equivalent to 75 *Dutch* Styvers. The second equal to six Taels and an half; and the third to $\frac{1}{8}$ of a Real, or 1 Tael $\frac{1}{16}$.

Beside these, they have a small Silver Money, in form of round Beans, of no determinate weight, usually weigh'd by Maises; the common Payment being by 10 Maises, which make one Tael.

	l.	*s.*	*d.* Sterl.
Coupant of *Gold*, weighing 1 Ounce 6 Drachms; its Figure a long Oval, the longest Diameter about 4 Inches, and the shortest half an Inch.	6	12	6
Other Coupants of *Gold*, near $\frac{1}{3}$ of the former, amounting to about ——	2	4	2
Coupant of *Silver*, current at —	0	4	6
Copper Money, —— $\frac{7}{25}$ of a Farthing.			

Coins *of Siam.*

In the Dominions of *Siam* are struck *Gold* Pieces five or six Grains heavier than the Half Pistole of *Spain*; but these are rather Pieces of Curiosity, than of Use in Commerce.

Their *Silver Coin* is the Tical, or Baat; the Diminutions whereof are the Mayon, or Seling, Foang, and Sompayc. These Pieces are all strangely struck: in form they resemble Nuts, a little flatted at the Extremities; and are some of them cloven like Horse-shoes: On two of the Sides are some *Stamese* Letters.

Their *Copper* Money, called Bia, is round and thick: beneath this is the Cauris.

	s.	*d.* Sterl.
Gold Species of *Siam*, ——	7	0
Tical, or Baat, —— —	2	$5\frac{1}{2}$
Mayon, or Seling, $\frac{1}{4}$ of the Tical, —	0	$7\frac{1}{4}$ and $\frac{1}{8}$
Foang, $\frac{1}{2}$ the Mayon, —— —	0	$3\frac{1}{24}$
Sompayc, $\frac{1}{2}$ the Foang, —— —	0	$1\frac{1}{2}$ and $\frac{1}{48}$
Copper Coin, or Farthing of *Siam*,	0	$0\frac{1}{10}$

Coins *of the Coasts and Islands of the* Indies.

The Principal, and those most generally current, are Pagods, Roupies, Larins, Fanos, or Fanons, and Coupans, each whereof are struck both of *Gold* and *Silver*.

Beside these general *Coins*, are particular ones, *viz.* at *Goa*, S. Thomas's of *Gold*.— Along the *Persian* Gulf, about *Mecca*, and throughout *Arabia*, the Larin.— Along the Coasts of *Malabar*, and at *Goa*, the Paradao Xeraphin of *Silver*.—At *Bantam*, the Fardos; at *Malabar*, the Tare; at *Siam* the Tical, with its Diminutions the Mayon, Foang, Sompayc, and Demi-Foang: all of *Silver*.—At *Surate*, *Agra*, and the rest of *Indostan*, the Pecha, or Pessa, and Doudous, all of *Copper*.—The Basarucos and Chedas, of *Tin*.

	l.	*s.*	*d.* Sterl.
Pagod, *Gold*, denominated from its Impression, an *Indian* Idol, —	0	5	0
Pagod, *Silver*, its Value very different; the smallest 8 Tangas, and the Tanga 90 Basarucos; equal to	1	2	6
Roupia, *Gold*, —— ——	1	11	6

Roupia, *Silver*, its Fineness and Value various: There are three Kinds current, *viz.* the Roupias *Siceas*, the Roupias of *Surat*, and Roupias of *Maderas*.

	s.	*d.* Sterl.
Roupias *Siceas*, worth at *Bengal* ——	2	11
—— of *Surat* —— —	2	$6\frac{1}{2}$
—— of *Madras* —— ——	2	$5\frac{1}{2}$

Note, This is to be understood of the *new* Roupias; for as to the *old* ones, of each Kind, their Value is less: those of *Maderas*, *v. g.* are but equal to 1 *s.* 11 *d.* Sterl. those of *Surat*, 2 *s.* and the *Siceas* 2 *s.* 4 *d.*

	s.	*d.* Sterl.
Larin, in form of a round Wire, or Cylinder, equal to the Bartel of a Pen; bent in two and a little flatted at each end, to receive the Impression of some *Arabic*, or *Persian* Characters. —— —	0	11
Fanos, or Fanon, *Gold*, is of different Fineness, Weight, and Value; the *largest* worth	0	9
The *smallest* —— ——	0	$2\frac{1}{2}$
Fanos, *Silver*, —— —	0	$1\frac{1}{4}$

Coupant, see Coins *of Japan.*

S. Thomas, equal to ——	9	0	
Pardao Xeraphin —— —	2	1	
Fardos —— — ——	2	$8\frac{1}{2}$	
Tare —— —— ——	0	$0\frac{1}{2}$	
Tical, see Coins *of Siam.*			
Pecha, or Pessa, —— ——	0	0	$\frac{1}{2}$
Doudou, $\frac{1}{14}$ of Fanos, or somewhat less than	0	0	$\frac{1}{4}$
Basaruco —— $\frac{1}{5}$ of a Farthing.			
Cheda is of two Kinds, the one Octogonal, current at —— ——	0	1	$\frac{1}{4}$
The other round —— ——	0	0	$\frac{1}{3}$

Mogul Coins.

In the Dominions of the great *Mogul*, are Roupies, Mamoudes, and Pechas; the first both of *Gold* and *Silver*; the second of *Silver* alone, and the third of *Copper*.

There are others struck by the Princes tributary to him, and the Powers bordering on him, scarce current beyond their respective Territories: particularly a small *Silver Coin* struck by the K. of *Matoucha*, whose Territories lie to the North of *Agra*, of the Value of the Pecha of *Mogul*, but half as heavy again.—The *Raja* of *Parta-jajamoula*, to the North of *Patua*, likewise strikes some little Pieces, both of *Silver* and *Copper*, of small Value.—The *Raja* of *Ogden*, who commands between *Brampour*, *Scronge*, and *Amadabath*, a small *Silver Coin*, equal to 6 Pence Sterling; and another of *Copper*, equal to an Halfpenny Sterling.— The King of *Cheda* and *Pera*, a *Tin* Money called *Cheda*.—The King of *Achem*, little slight *Gold* Pieces, worth about 15 Pence Sterl. —and *Tin* Pieces, 80 of which are equal to the *English* Penny, current in the Isles of *Sumatra*.—The *Gold Coin* of the King of *Macassar* and *Celebes*, is taken by the *Dutch* for a Florin.—The King of *Camboya* strikes only Pieces of *Silver* and *Copper*: his Gold, wherein he abounds, is negotiated by weight.— The Kings of *Java* and *Bantam*, in the same Island, and those of the *Molucca* Islands, strike only *Copper Coins*: they allow foreign *Silver* Species to be current in their Territories, but coin none.

	s.	*d.* Sterl.
Roupia, see Coins *of the Coasts*, &c. *of* India.		
Mamouds, or Mammed, its value is not fix'd: In the Kingdom of *Mazarate*, the great Mamoud is equal to ——	0	11
The small half the great one ——	0	$5\frac{1}{2}$
Pecha, see Coins *of the Isles*, &c. *of* India.		
Silver Piece of *Matoucha*, ——	0	$0\frac{1}{2}$
Silver Piece of the K. of *Ogden*, ——	0	6
Copper Piece of the same ——	0	$0\frac{1}{2}$
Cheda, see Coins *of the Isles*, &c. *of* India.		
Gold Piece of the King of *Achem*, ——	1	3
Tin Piece of the same ——	0	$0\frac{1}{80}$
Gold Piece of the King of *Macassar*, taken by the *Dutch* for a Guilder, ——	1	$10\frac{1}{2}$

To the Number of current *Coins* which have distinct Names to specify 'em, may be added many more, both in *Europe* and *Asia*; only denominated and known from their Value: Such are those called simply *Pieces*; with the Addition of their Price: as in *Spain*, the Piece of eight Reals, in *England* the Piece of 21 Shillings, or Guinea; in *France* the Piece of 4 Francs, Piece of 10 Sols, or Shillings; Piece of 4 Sols; Piece of 2 Sols; of 6 Blanks; of 30, 15, 6, 4, &c. Deniers, or Pence. See Piece.

Shells current in Asia.

These serve in many Places for Money; and are brought from the *Maldives*, and called in the *Indies* Cauris: On the Coasts of *Africa* they change their Name, and are called Bouges.

In *America* they take a third Name, *viz.* Porcelains. Indeed these last don't come from the *Maldives*; there being Shells found in the *West-Indies* much like those of the *East*.

In the Kingdom of *Congo* is another Kind of Shells, called Zimbi; tho some will have them the same with the Cauris.

Cauris, Coris, or Bouges, are white Shells, current particularly in the State of the Great *Mogul*; dug out of the Ground by the *Maldivians*: 65 are usually reckon'd equivalent to the Pecha, a small *Copper Coin*, worth about an Halfpenny Sterling; which brings each Cauris to $\frac{1}{130}$ of a Penny Sterling.

Purcelaines are nearly on the same Footing with the Cauris. See Cauris.

Zimbi, current particularly in the Kingdoms of *Angola* and *Congo*. Two thousand Zimbis make what the *Negroes* call a Macoute; which is no real Money, whereof there is none in this Part of *Africa*, but a manner of reckoning: Thus, two *Flemish* Knives they esteem a Macoute; a Copper Bason, two Pound weight, and 12 Inches Diameter, three Macoutes; a Fusil ten, &c.

Fruits current for Coins.

There are three Kinds of Fruits used for *Coins*; two in *America*, particularly among the *Mexicans*; which are the Cacao and Maise: The other in the *East-Indies*, *viz.* Almonds; brought thither from *Lar*, and growing in the Desarts of *Arabia*.

Cacao, 15 of these are esteem'd equivalent to a *Spanish* Real, or 7 Pence Sterling.

Maise has ceas'd to be a common Money since the Discovery of *America* by the *Europeans*.

Almonds are chiefly used where the Cauris are not current. As the Year proves more or less favourable to this Fruit, the Value of the Money is higher or lower: In a common Year, 40 Almonds are set against a Pescha, or Halfpenny Sterling; which brings each Almond to $\frac{1}{20}$ of a Farthing.

Thus much for the Modern Coins, *or* Monies: *Those of the Antients are as follow.*

Antient Coins.

Value and Proportion of the Jewish Coins.

						l. s. d. Sterl.
Gerah						00 : 00 : 1 $\frac{59}{100}$
10	Bekah					00 : 01 : 1 $\frac{33}{10}$
20	2	Shekel				00 : 02 : 3 $\frac{3}{8}$
1200	120	60	Maneh Minah Hebraica			06 : 16 : 10 $\frac{1}{2}$
60000	6000	3000	50	Talent		342 : 03 : 09

Solidus Aureus, or Sextula, worth	00 : 12 : 0 $\frac{1}{2}$
Siclus Aureus, worth	1 : 16 : 6
A Talent of Gold, worth	5475 : 00 : 0

Value and Proportion of the antient Grecian Coins.

																		s. d. qrs. Sterl.
Lepton																		0 : 0 : 0 $\frac{31}{576}$
7	Chalcus																	0 : 0 : 0 $\frac{13}{48}$
14	2	Dichalcus																0 : 0 : 1 $\frac{7}{24}$
28	4	2	Hemiobolium															0 : 0 : 2 $\frac{7}{12}$
56	8	4	2	Obolus														0 : 1 : 1 $\frac{1}{6}$
112	16	8	4	2	Diabolum													0 : 2 : 2 $\frac{1}{3}$
224	32	16	8	4	2	Tetrobolum												0 : 5 : 0 $\frac{2}{3}$
336	48	24	12	6	3	1 $\frac{1}{2}$	Drachma											0 : 7 : 3
662	96	48	24	12	6	3	2	Didrachmum										1 : 3 : 2
1324	112	96	48	24	12	6	4	2	Tetradrachm. Stater									2 : 7 : 0
1660	384	120	60	30	15	7 $\frac{1}{2}$	5	2 $\frac{1}{2}$	1 $\frac{1}{4}$	Pentadrachmum								3 : 2 : 3

Note, Of these the Drachma, Didrachm, *&c.* were of *Silver*, the rest for the most part of *Brass*. The other Parts, as Tridrachm, Triobolus, *&c.* were sometimes *coin'd*.

Note also, the Drachma is here, with the generality of Authors, suppos'd equal to the Denarius: tho there's Reason to believe, the Drachma was somewhat the weightier. See Drachma.

	l. s. d.
The *Grecian Gold Coin* was the Stater Aureus, weighing two *Attick* Drachms, or half of the Stater Argenteus; and exchanging usually for 25 *Attic* Drachms of *Silver*; in our Money	0 : 16 : 1 $\frac{1}{4}$
According to our Proportion of *Gold* to *Silver*	1 : 00 : 9
There were likewise the Stater Cyzicenus, exchanging for 28 *Attick* Drachms, or Stater Philippicus, and Stater Alexandrinus, of the same Value.	0 : 18 : 1
Stater Daricus, according to *Josephus*, worth 50 *Attick* Drachms, or Stater Cræsius, of the same Value.	1 : 12 : 3 $\frac{1}{2}$

Value and Proportion of the Roman Coins.

							s. d. qrs. Sterl.
Teruncius							0 : 0 : 0 $\frac{775}{1000}$
2	Semilibella						0 : 0 : 1 $\frac{55}{100}$
4	2	Libella As					0 : 0 : 3 $\frac{1}{10}$
10	5	2 $\frac{1}{2}$	Sestertius				0 : 1 : 3 $\frac{3}{4}$
20	10	5	2	Quinarius Victoriatus			0 : 3 : 3 $\frac{1}{2}$
40	20	10	4	2	Denarius		0 : 7 : 3

Note, Of these the Denarius, Victoriatus, Sestertius, and sometimes the As, were of *Silver*, the rest of *Brass*. There were sometimes also *coin'd* of *Brass* the Triens, Sextans, Uncia, Sextula, and Dupondius.

	l. s. d.
The *Roman Gold Coin* was the Aureus, which weigh'd generally double the Denarius; the Value of which, according to the first Proportion of *Coinage* mention'd by *Pliny*, was	1 : 4 : 3 $\frac{3}{4}$
According to the Proportion that obtains now amongst us, worth	1 : 0 : 9
According to the Decuple Proportion, mention'd by *Livy* and *Julius Pollux*, worth	0 : 12 : 11
According to the Proportion mention'd by *Tacitus*, and which afterwards obtain'd, whereby the Aureus exchang'd for 25 Denarii, its Value	0 : 16 : 1 $\frac{3}{4}$

Coin, in Architecture, a kind of Die, cut diagonal-wise, after the manner of the Flight of a Staircase; serving at bottom to support Columns in a Level; and at top to correct the Inclination of an Entablature, supporting a Vault.

These *Coins* have also the same effect with round Balusters, which are not inclined according to any Flight.

Coin is also us'd for a *Coiner*, or solid Angle, compos'd of two Surfaces inclined towards each other; whether that Angle be exterior, as the *Coin* of a Wall, a Tree, *&c.* or interior, as the *Coin* of a Chamber, or Chimney: from the Word *Cuneus*, Wedge. See Quoin.

COINAGE, or *Coining*, the Art or Act of manufacturing, or making Money. See Money.

COINING, is either performed by the Hammer or the Mill.

The first Method is now little used in *Europe*, especially in *England*, *France*, *&c.* tho the only one known till the Year 1553, when a new Machine, or *coining* Mill, having been invented by an Engraver, one *Antoine Brucher*, was first try'd in the *French* King's Palace at *Paris*, for the *coining* of Counters. Tho some attribute the Invention of the Mill to *Varin*, a famous Engraver, who, in reality, was no more than an Improver of it; and others to *Aubry Olivier*, who had only the Inspection of it.

The Mill has met with various Fate since its first Invention; being now us'd, and again laid by, and the Hammer resum'd: but it has at length got that footing, by the Neatness and Perfection of the Species struck with it, that there appears no probability of its being again disus'd. See Mill.

In either kind of *coining*, the pieces of Metal are stamp'd, or struck with a kind of Molds, or *Coins*, wherein are engraven the Prince's Effigies, with the Arms, Legend, *&c.* The manner of preparing and cutting of which, see under Graving.

The first Operations in *coining* are the mixing, and melting of the Metal.

For the 1st, it is to be observ'd, that there are no Species *coin'd* of pure *Gold* or *Silver*, but always a quantity of Alloy of *Copper* is mix'd with them: The Reasons are partly the Scarcity of those two Metals, partly the Necessity of making them harder by some foreign Admixture; and partly to defray the Expences of *coining*. See Alloy.

Now there are two Kinds of alloying, or mixing: the first where the Gold or Silver has not been used for Money before; the other where several Kinds of Species, or Ingots of different Titles and Values, are to be melted down into a new Money.

The proportioning of the Alloy with the fine Metal is easy in the first Case, in the other more difficult: The Arithmeticians make a long Doctrine of it, which see under Alligation.

Yet is it readily effected by the following Method, taken from the anonymous Author of the Treatise at the End of that of Mr. *Boisard*, *viz.*

Write down the several Matters to be melted, their Quality, Weight, and Fineness, in two distinct Articles; the one containing those above the Standard, the other those under it: By calculating the first, you shall have the Excess, by the latter the Defect. Then comparing the two Products, you will find, by Subtraction, how much Alloy must be added to bring the several Matters to the Fineness requir'd.

For the melting, if the Metal be *Gold*, 'tis done in Earthen Crucibles; if *Silver* or *Copper*, in Iron ones. See Crucible.

There are two Kinds of Furnaces proper for the melting of Metals; those with Wind, and those with Bellows: See each explain'd under the Article Furnace.

When the Gold or Silver are *in Balneo*, *i. e.* are entirely melted, they are stirr'd and brew'd together; the Silver and Copper with an Iron Stirrer, the Gold with one of bak'd Earth. In this State they are pour'd into Molds, or Frames, for the casting 'em into Plates, or Sheets: the Method of doing which, is exactly the same with that us'd by the Founders, in Sand; both with regard to the Frames, the manner of working the Earth, and of ranging the Models or Patterns. See Foundry; see also Frame, and Mould.

The Models are flat Plates of Copper, about 15 Inches long, and nearly of the thickness of the Species to be struck. In each Mold are placed eight of these to make Plates for Guineas, ten for Half Guineas, five for Crowns, *&c.* and in proportion for Copper. All the difference between casting the Plates of Gold, and those of other Metals consisting in this; that the latter are taken out of the Crucibles with Ladles, and pour'd into the Aperture of the Mold; and that for Gold, the Crucible is taken off the Fire with a kind of Tongs, and thence pour'd into the Mold.

Thus far the Process is the same, in *coining* either with the Mill or the Hammer: When the Plates are taken out of the Molds the difference commences: so that here the Article of *Coining* divides into two Branches.

Coining *by the Mill, or Mill'd Money.*

The Plates being taken out of the Molds, scraped, and brush'd, are pass'd several times thro' the Mill, to flatten 'em,

'em, and bring them to the just thickness of the Species to be coin'd; with this difference, however, that the Plates of Gold are heated again in a Furnace, and quench'd in Water, before they undergo the Mill; which softens, and renders 'em the more ductile: whereas those of Silver pass the Mill just as they are, without any heating; and when afterwards they are heated, they are left to cool again of themselves, without Water. See MILL.

The Plates, whether Gold, Silver, or Copper, thus reduc'd as near as possible to their thickness, are cut into round Pieces, or Planchets, near the Size of the intended Species, with a cutting Instrument fasten'd to the lower Extremity of an Arbor, whose upper end is form'd into a Screw; which being turn'd by an Iron Handle, turns the Arbor, and lets the Steel, well sharpen'd, in form of a Punch-cutter, fall on the Plates; and thus is a piece punch'd out. See this Instrument represented in Tab. *Miscellany*, Fig. 3.

These Pieces are now given to be adjusted, and brought by filing, or rasping, to the Weight of the Standard whereby they are to be regulated; and what remains of the Plate between the Circles is melted again.

The Pieces are adjusted in a fine Balance; and those which prove too light are separated from those too heavy; the first to be melted again, and the second to be filed down. For it may be observ'd, that the Mill thro' which the Plates are pass'd can never be so just, but there will be some inequality, whence will arise a difference in the Planchets. This inequality, indeed, may be owing to the Quality of the Matter, as well as of the Machine; some Parts being more porous than others.

When the Planchets are adjusted, they are carried to the blanching, or whitening House, *i. e.* the Place where the Gold Planchets have their Colour given them, and the Silver ones are whiten'd; which is done by heating 'em in the Furnace, and when taken out and cool'd, boiling 'em successively in two Copper Vessels, with Water, common Salt, and Tartar; and after scowring 'em well with Sand, and washing 'em with common Water, drying 'em over a Wood Fire, in a Copper Sieve; wherein they are put when taken out of the Boilers.

The whitening, or blanching was formerly perform'd very differently from what it now is: And as the antient Method is still in use among Goldsmiths, and other Workmen who use Gold and Silver, we have made a distinct Article of it. See BLANCHING.

Formerly, the Planchets, as soon as blanch'd, were carry'd to the Press, to be struck and receive their Impressions; but now they are first mark'd with a Legend, or Engine, on the Edges, to prevent the clipping and paring of the Species; which is one of the ways wherein the antient Money us'd to be damag'd.

The Machine used to mark the Edges is very simple, yet ingenious; it consists of two Plates of Steel, in form of Rulers, about the thickness of a Line, on which the Legend or Edging are engraven, half on the one, and half on the other. One of these Plates is immoveable, and strongly bound with Screws to a Copper Plate; and that again to a strong Board, or Table: The other is movable, and slides on the Copper Plate, by means of a Handle, and a Wheel, or Pinion of Iron; the Teeth whereof catch in a kind of other Teeth, on the Surface of the sliding Plate. Now, the Planchet being plac'd horizontally between these two Plates, is carried along by the Motion of the movable one; so, as by that time it has made half a turn, it is found mark'd all round.

This Machine is so easy, that a single Man is able to mark twenty thousand Planchets in a Day: It was invented by the Sieur *Castaing*, Engineer to the *French* King, and first us'd in 1685.

Lastly, the Planchets being thus edg'd, are stamp'd, *i. e.* their Impression given them in a Balancier, or Press; which is a Machine invented at the latter end of the XVIth Century: See its Figure in Tab. *Miscellany*, Fig. 4.

Its chief Parts are a Beam, Screw, Arbor, *&c.* all contain'd in the Body of the Machine, except the first, which is a long Iron Bar, with a heavy Ball of Lead at each end, and Rings, to which are fasten'd Cords which give it Motion: it is placed horizontally over the Body of the Machine. In the middle of the Beam is fasten'd a Screw, which by turning the Beam, serves to press the Arbor underneath it; to the lower Extremity of which Arbor, placed perpendicularly, is fasten'd the Matrice, or *Coin* of the Reverse, or Arms side, in a kind of Box, or Case, wherein it is retain'd by Screws: and under this is a Box, or Case containing the Matrice of the Image side, firmly fasten'd to the lower Part of the Balancier. See MATRICE, *&c.*

Now when a Planchet is to be stamp'd, 'tis laid on the Image Matrice, upon which two Men draw, each on his side, one of the Ropes of the Beam, and turn the Screw fasten'd in it; which by this Motion lowers the Arbor, to which the Matrice of the Arms is fasten'd: by which means, the Metal being in the middle, at once receives an Impression on each side, from either Matrice. As to the Press, formerly us'd, it has all the essential Parts of a *Balancier*, except the Beam; which is here, as it were, divided, and only drawn one way. See ENGRAVING.

The Planchets having now all their Marks and Impressions, both on the Edges and Faces, become Money; but have not currency till they have been weigh'd and examin'd.

For the COINING *of Medals*, the Process is the same, in effect, with that of Money: The principal difference consists in this, that Money having but a small Relievo, receives its Impression at a single Stroke; whereas, for Medals, the height of their Relievo makes it necessary that the Stroke be repeated several times: To this End, the Piece is taken out from between the *Coins*, heated, and return'd again; which process, in Medallions, and large Medals, is sometimes repeated 15 or 20 times, ere the full Impression be given; care being taken every time the Planchet is remov'd, to take off the superfluous Metal stretch'd beyond the Circumference, with a File. See MEDAL.

Add to this, that Medallions, and Medals of high Relievo, by reason of the Difficulty of stamping 'em in the Balancier, or Press, are usually first cast or molded in Sand, like other works of that kind, and are only put in the Balancier to perfect them; by reason the Sand does not leave 'em clean, smooth, and accurate enough. Medals, therefore, receive their Form and Impression by degrees; Money all at once.

The Rule whereby they judge the Medal to be sufficiently stamp'd; is, when feeling it with the Hand, 'tis found firm, and not to be shaken, as filling the *Coin* equally every where. See MEDALLION, *&c.*

COINING *with the Hammer, or hammer'd Money.*

In this Method of making Money, the Plates of Gold, Silver, or Copper being taken out of the Molds, or Frames, as above, are heated and stretch'd by beating 'em on the Anvil: when sufficiently beaten, they are cut into Pieces; which being again heated, flatted, and further stretch'd with the Hammer, are adjusted by cutting off the Angles with Sheers: thus by cutting and rounding them, they are reduc'd to the Weight of the Standard; and their roundness finish'd with another Hammer, which beats down all the Points and Angles still remaining on the Edges. In this manner they are brought to the Size of the Species to be *coin'd*.

In this state the Pieces become Planchets, and are carried to the Blanching-House; where they undergo the same Preparation as the *mill'd* Money already describ'd, and are given to the Minter to heat 'em with the Hammer.

For this last Operation, which finishes the Money, they use two Puncheons, or Matrices; the one called the *Pile*, and the other the Truss, or *Quiver*; each engraven dent-wise. The Pile bearing the Arms, and the Truss the Image, or Cross; both their Legend, Date, *&c.*

The Pile, which is about eight Inches high, has a kind of Talon, or Heel in the middle, and ends in a Point: Which Figure it had, for the sake of being more easily sunk, and more firmly fasten'd to the Block whereon the Money is struck. See PILE, *&c.*

The Minter, then, laying the Planchet horizontally on the Pile, and covering it with the Truss, which he holds steadily in his left Hand, gives several smart Blows on the Truss with an Iron Mallet held in the right; more or less, as the Graving of the *Coins* is more or less deep. If after these first Strokes, the Planchet ben't sufficiently stamp'd, 'tis return'd again between the Matrices, exactly in its former Position, and the Strokes repeated till the Impression be perfect.

Thus is the *Coinage* finish'd, and the Planchets converted into Money; which, after they have been examin'd as to their weight, become current.

English COINAGE.

Since the Invention of *milling* Money in *France*, it has been imitated by several other Nations; but by none with Success equal to that of the *English*, who have carried it to the utmost Perfection; both by the Beauty of their Graving, and by their inventing the Impressions on the Edges, that admirable Expedient for preventing the Alteration of the Species, abovemention'd.

Till that time the *English* Money was struck with the Hammer, as that of other Nations; and, in effect, 'tis but very late, *viz.* in the Reign of K. *William* III. that the *hammer'd* Species ceas'd to be current. Ere they were put down, the *English* Money was in a woful Condition; having been filed and clipp'd by Foreigners, especially the *Dutch*, so as to be scarce left of half its Value: The retrieving of this distress'd State of the *English* Money, is look'd on as one of the Glories of King *William*'s Reign; for which we are owing, in good measure, to the happy Conduct of the late Earl of *Hallifax*.

The *Coinage* of *England* is now perform'd wholly in the *Tower* of *London*; where there is a Corporation under the Title of the *Mint*. See MINT.

Formerly there were here, as there are still in other Countries, what we call the *Rights of Seignorage and Brassage*; but since the XVIIIth Year of K. *Charles* II. there is

is nothing taken, either for the King, or for the Expences of *Coining*; it having been settled by Act of Parliament, that all Money should be struck at the publick Expence: so that Weight is return'd for Weight, to all Persons who carry their Gold or Silver to the *Tower*. See SEIGNORAGE.

The Species *coin'd* in *England*, are esteem'd contraband Goods, and not to be exported: All foreign Species are allow'd by Act of Parliament, made in 1673, to be sent out of the Realm; as well as Gold and Silver in Bars, Ingots, Dust, &c. Indeed, in the Session of Parliament in 1718, Endeavours were made to put a stop to this License, which drains *England* of its richest Metals; but in vain; the Parliament having set aside the Bill, without coming to any Resolution.

The Spanish COINAGE is esteem'd one of the least perfect in *Europe*: It is settled at *Sevil* and *Segovia*, the only Cities where Gold and Silver are struck. 'Tis true, there are brought from *Mexico*, *Peru*, and other Provinces of the *Spanish America*, such vast Quantities of Pieces of Eight, and other Species, both of Gold and Silver, that, in this respect, it must be own'd, there is no State in the World where so much Money is *coin'd*, as in that of the King of *Spain*.

Muscovite COINAGE. The Czar strikes no Money but *Silver*, and that only in the Cities of *Mosco*, *Novogrod*, *Twere*, and *Plescou*; to which may be now added *Petersburg*, the favourite City of his Czarian Majesty. The *Coinage* of each of these Cities is let out to farm, and makes part of the Royal Revenue.

Persian COINAGE. All the Money made in *Persia*, is struck with the Hammer: and the same may be understood of the rest of *Asia* and *America*, and the Coasts of *Africa*, and even *Muscovy*; the Invention of the Mill being not yet got out of *Europe*, nor even establish'd in every Part of it. The King's Duty, in *Persia*, is seven and a half *per Cent.* for all the Monies *coin'd*; which are now reduced to *Silver* and *Copper*: there being no *Gold* coin'd there, except a kind of Medals at the Accession of a new Sophi.

The COINAGE *of Fez and Tunis* is not under any Discipline; each Goldsmith, Jew, and even private Person, undertaking it at pleasure: which renders their Money exceeding bad, and their Commerce very unsafe.

COITION, the Intercourse between Male and Female in the Act of Generation. See GENERATION.

It is observ'd, that Frogs are 40 Days in the Act of *Coition*. *Bartholine*, &c. relate, that Butterflies make 130 Vibrations of the Wings in *Coition*.

COITION is also sometimes used for that mutual Attraction, or Tendency toward each other, which is found between Iron and the Magnet. See MAGNET.

COLARBASIANS, a Sect of Hereticks in the IId Century; so called from their Leader *Colarbasus*, a Disciple of *Valentine*: who, with *Marcus*, another Disciple of the same Master, maintain'd the whole Plenitude, and Perfection of Truth and Religion, to be contain'd in the *Greek* Alphabet; and that 'twas upon this account Jesus Christ was called the *Alpha* and *Omega*.

COLARIN, in Architecture, the little Frise of the Capital of the *Tuscan* and *Doric* Column; plac'd between the Astragal, and the Annulets: called by *Vitruvius*, *Hypotrachelium*. See FRIZE, &c.

COLARIN is also used for the Orlo, or Ring, a-top of the Shaft of the Column, next the Capital; called also *Cincture*. See CINCTURE.

COLATURE, in Pharmacy, the Separation of a Liquor from some Mixture, or Impurity, by *percolating*, or straining it thro' the narrow Pores of a Cloth, or other Matter; which will give passage to the fine, and pure Part, but intercept the grosser. See PERCOLATION, and FILTRATION.

COLCOTHAR, in Natural History, &c. There are two Kinds of *Colcothar*, *Natural* and *Factitious*.

The *Natural* is otherwise called *Chalcitis*; being a red Vitriol, brought from *Germany*; form'd from the common green Vitriol, calcin'd naturally by some subterraneous Fire. See CHALCITIS.

The *Artificial* is also a green Vitriol, calcin'd a long time by an intense Fire; and by that means reduc'd to the redness of Blood.

COLCOTHAR *Vitrioli*, is particularly us'd for the Dregs, or Remains, left at the Bottom of the Vessel, after the Distillation of Vitriol. See VITRIOL.

COLD, something devoid of Heat, or which contains in it no Particles of Fire. See FIRE.

This Definition is agreeable to the Sentiments of most of the modern Philosophers, who make *Cold* a mere negative Term; and suppose the Thing to consist in a mere Privation, or Diminution of Heat.

Others define *Cold*, much on the same Principle, to be that State of the minute Parts of a Body, wherein they are more slowly and faintly agitated than those of the Organs of Feeling: In which Sense, *Cold* is a mere Term of Relation; and hence the same Body becomes liable to be perceiv'd *hot* or *cold*; as its Particles are in a greater or less degree of Motion than those of the sensible Organs. See SENSE, FEELING, &c.

Heat is supposed to consist in a particular Motion of the Parts of the *hot* Body; and hence the Nature of *Cold*, which is its opposite, is easily deducible: For *Cold*, we find, extinguishes, or rather abates Heat; whence it seems to follow, that those Bodies are *cold*, which check and restrain the Motion of the Particles wherein Heat consists. See HEAT.

Now, there are three Kinds of Bodies which may do this, *viz.* either those whose Particles are perfectly at rest; or those whose Particles are indeed agitated, but less violently than those of the hot Body to which they are applied: or, lastly, those whose Particles have a Motion proper for exciting the Sensation of *Heat*, but move with a different Determination; so as to retain and change the Motion of the Particles of the Organ.

Hence, there arise three different Kinds of *Cold*, or *cold Bodies*: The 1st is, that *Cold* common to all hard Bodies, which consists in the Rest of their Parts. The 2d is that which arises on plunging any Part of the Body in Water; which consists in this, that the Parts of our *Præcordia* being more briskly agitated than those of the Fluid, communicate part of their Motion to it. The 3d, the *Cold* felt on collecting even warm Air with a Fan, or in blowing hot Breath out of our Mouth, with the Lips close shut; which consists in this, that the direct Motion of the Particles of Air, do in some measure change and rebate the Motion and Determination of the Parts of the Body: And hence it is, that a *cold* Body cannot cool another without heating it self. Hence also it is, that the more Parts of a frigid Body are at rest, the more must the Particles of a warm Body applied to heat 'em, lose of their Motion, and by consequence of their Heat. Thus a Marble having more quiescent Parts than Wood, which is full of Pores and Interstices, is felt *colder* than Wood. Hence also we see why Air, near Marble and other dense Bodies, feels somewhat *colder* than in other Places.

On this Principle, the two latter Kinds of *Cold* appear somewhat more than Privations: The Particles inducing the *Cold*, may be esteem'd real frigorific Corpuscles; and *Coldness* be deem'd a real Quality as well as Hotness. See QUALITY, FRIGORIFIC, &c.

These Particles do not only check the Agitation of those continually diffus'd from the inner Parts of the Animal to the outer; but, having an elastick Power, bend and hang about the Filaments of the Body, pinch and squeeze them; and hence that acute pungent Sensation called *Cold*.

That *Cold* is more than a mere Relation, or Comparison, is evident from its having real and positive Effects; such as Freezing, Congelation, Condensation, Rarefaction, Bursting, &c. See FREEZING, &c.

Dr. *Clark* takes *Cold* to be owing to certain nitrous, and other saline Particles, endued with particular Figures proper to produce such Effects. Hence, Sal Ammoniac, Salt Petre, or Salt of Urine, and many other volatile and alkalizate Salts, mix'd with Water, increase its degree of *cold* very sensibly. Hence also that popular Observation, that *Cold* prevents Corruption; which, however, must not be admitted without an Exception: since, if a hard, porous Body have its Interstices fill'd with Water, and this be too much dilated by freezing, the including Body will be burst. And thus it is, that *Cold* proves destructive to the Parts of some Plants. See ICE, FROST, CONDENSATION, RAREFACTION, &c.

COLIC, in Medicine, a cruel, severe, gnawing Pain, felt in the lower Venter; so called, because the ordinary Seat of the Disorder, was antiently supposed to be in the Intestine *Colon*.

Physicians usually distinguish three Kinds of *Colic*, the *Bilious*, *Windy*, and *Nephritic*.

The *bilious Colic* has its rise from certain sharp, bilious, stimulating Humours, which being diffus'd thro' the Intestines, vellicate their Fibres, and occasion a Sensation of Pain. Tho *Willis* takes the Part principally affected to be the Mesentery.

Dr. *Sydenham* observes, that the *bilious Colic* usually attacks about the beginning of Summer; that it's generally attended with a Vomiting of bilious green Liquor; that the Patient complains of excessive Heat, great Gripings, Faintness, &c. and that if it be not soon remedy'd, it is apt to turn into the Iliac Passion. See ILIAC *Passion*.

Baglivi notes, that if the Patient sweat much, and be much enfeebled; the Disease is apt to degenerate into a Palsy. The Cure, he says, depends on Bleeding, gentle Cathartics, and Enemas; and if it arise from a *Crapula*, an Emetic is to precede: after which, the Cure is to be compleated with proper Anodynes.

The *Wind Colic* is vagabond, never staying in any fixed Place; being produc'd by windy Vapours, which swell and distend the Intestines they are inclos'd in.

The *Nephritic Colic* is felt particularly in the Reins, whence it has its Name; the *Greek* νεφρὸς signifying *Rein*. See NEPHRITIC.

It usually has its rise from some Stone, or Gravel detach'd from the Kidnies, and fallen into the Pelvis. The *Pareira Brava* is said to be a Specific for *Nephritic Colics*. See PAREIRA BRAVA.

S. Manouchi, a *Venetian* Physician at the Court of the Great *Mogul*, gives the following Remedy as infallible in Nephritic Cases: An Iron Ring, about an Inch and half in Diameter, and thick in proportion, is to be heated red-hot; then, laying the Patient on his Back, the red-hot Ring is to be apply'd to his Navel, so, as that the Navel be in the Centre of the Ring: The Patient will presently feel the Pain, which will occasion him to shrink back very suddenly; the sudden Revulsion thus occasion'd in the lower Venter, will in a little time dissipate all his Pains. The same Author adds, that he can warrant the Success of the Remedy.

In *Colics* arising from Flatulencies, Carminative Waters, Oils, Aromaticks, *&c.* are always to be added to the Compositions: And in *Nephritic Colics*, besides Emollient Clysters, Solutions of Manna, Cremor Tartari, *&c.* in Whey, *&c.* and proper oleaginous Mixtures, are to be exhibited to relax the Fibres; after which, proper Anodynes take place.

Some, particularly *Sydenham*, mention a *Nervous Colic*, mostly incident to hysteric and hypochondriac Persons; but this appears only a Species of the *Windy Colic*.

Baglivi recommends Camomile as an Antidote against the *Colic*, from what Cause soever it arise. Where the Disease is obstinate, much riding is of especial Service.

COLIR, an Officer in *China*, who has an Eye over what passes in every Court, or Tribunal in the Empire; and who himself not of the Number, yet is assisting at all Assemblies, the Proceedings whereof are communicated to him.

He is properly what we may call an *Inspector*: He gives secret Intelligences to the Court; and even, on occasion, accuses the Mandarins of their Faults openly; and that not only of Faults in their publick Offices, but even in their private Life. To keep him impartial, he is kept independent; by having the Post for Life. These *Colirs* make even the Princes of the Blood tremble.

COLLAR, a particular Ornament, wore by the Knights of several Military Orders, hanging over their Shoulder, on the Mantle; and its Figure drawn around their Armories. See KNIGHT.

The *Collar* ordinarily consists of a Chain of Gold, enamell'd; frequently set with Cyphers, or other Devises, and having the Badge of the Order suspended at Bottom.

The *Collar* of the Order of the Garter, consists of SS, with Roses enamell'd red, within a Garter enamell'd blue, the *George* at the Bottom. See GARTER.

Maximilian is said to have been the first of the Emperors who put the *Collar* of an Order around his Arms, upon his being made Chief of that of the Golden Fleece.

Knights of the COLLAR, a Military Order in the Republick of *Venice*; called also the *Order of St.* Mark, or *the Medal*.

'Tis the Doge and the Senate that confer this Order: The Knights bear no particular Habit, only the *Collar*, or Chain, which the Doge puts around the Neck; with a Medal, whereon is represented the winged Lion of the Republick.

COLLATERAL, in Geography, any Thing, Place, Country, *&c.* situate by the Side of another.

The Word is a Compound of *con*, with, and *latus*, side; and chiefly applied to the Winds, which blow a-side of those in the Cardinal Points of the Horizon; as the North-East, South-East, North-West, South-West, and their Subdivisions.

COLLATERAL *Points*, in Cosmography, the intermediate Points; or those between the Cardinal Points. See CARDINAL *Points*.

The *Collateral Points* are either *Primary*, which are those removed by an equal Angle on each side, from two Cardinal Points: or *Secondary*; which, again, are either those of the first, or second Order. The first, those equally distant from a Cardinal and first Primary; the latter equally distant from some Cardinal or Primary, and first Secondary. See POINT.

COLLATERAL *Winds*, those blowing from *Collateral* Points. See WIND.

COLLATERAL, in Matters of Genealogy, is understood of those Relations which proceed from the same Stock, but not in the same Line of Ascendants, or Descendants; but being, as it were, aside of each other.

Thus, Uncles, Aunts, Nephews, Nieces, and Cousins, are *Collaterals*, or in the *Collateral* Line. Those in a higher Degree, and nearer the common Root, represent a kind of Paternity with regard to those more remote; but there is a kind of Equality between *Collaterals* in the same Degree.

Thus, *collateral* Descent stands in opposition to *direct* Descent to Posterity; the former passing to Brothers Children, but the latter only from Father to Son.

COLLATERAL *Assurance*, is a Bond, made over, and beyond the Deed it self, for the Performance of Covenants between Man and Man; thus called, as being external, and without the Nature and Essence of the Covenant.

Crompton says, that to be subject to the feeding of the King's Deer, is *collateral* to the Soil within the Forest. It may be added, that liberty to pitch Booths in a Fair, or another Man's Ground, is *collateral* to the Ground.

COLLATERALIS *Penis*, in Anatomy, a Muscle, otherwise called *Errigens*, or *Erector Penis*. See ERECTOR.

COLLATION, in the Canon Law, the conferring, or bestowing of a Benefice by a Bishop, who has it in his own Gift, or Patronage. See BENEFICE, and PATRONAGE.

Collation differs from *Institution*, in that the latter is perform'd by the Bishop, at the Motion or Presentation of another: (see INSTITUTION.) And the former on his own Motion.

Collation also differs from *Presentation*, in that the latter is properly the Act of a Patron, offering his Clerk to the Bishop, to be instituted into a Benefice; whereas the former is the Act of the Bishop himself. See PRESENTATION.

The *Collator* can never confer a Benefice on himself.

In the *Romish* Church, the Pope is the *Collator* of all Benefices, even elective ones, by Prevention; setting aside Consistorial Benefices, and those in the Nomination of Lay-Patrons. Prelates and Bishops are call'd *Ordinaries*, or ordinary *Collators*. See ORDINARY, *&c.*

If the Ordinary *Collator* neglect to exercise his Right for six Months, the superior *Collator* may *collate* by Devolution. Thus, if the Bishop neglect, the Metropolitan may confer; then the Primate; and so on from degree to degree.

In *France*, the King is the *Collator* of all Benefices, whereof he is Patron, excepting Consistorial ones; to which he has only the Nomination; and the Pope, by Virtue of the *Concordat*, is oblig'd to confer on whomsoever the King nominates. For the rest, he is direct and absolute *Collator*; and may confer 'em, by Virtue of a kind of Priesthood annex'd to the Royalty.

Other Lay-Patrons have seldom more than a mere Presentation; the *Collation* properly belonging to the Bishop: yet there are Abbots who have the full Right of *Collation*.

The Canonists reckon two Kinds of *Collation*; the one *Free*, and Voluntary, the other *Necessary*. The first depending on the mere Will of the *Collator*, who may chuse whom he pleases to fill the Vacancy. In the latter, the *Collator* is not at his liberty: which is the Case where a Benefice has been resign'd, or chang'd, and that Resignation or Permutation allow'd of by the Superior; for here the *Collator* is oblig'd to grant the Provision to the Resignatory, or Compermutant.

'Tis a Maxim in the New Canon Law, *Collationes sunt in fructibus*; 'Those who have the Fruits of a Benefice have 'the *Collation*.' But in that Case, the Word *Collation* is us'd for Presentation. See PRESENTATION, *&c.*

A *collated* Act is equivalent to an Original; provided all the Parties concern'd were present at the *Collation*.

COLLATION, in Common Law, is the Comparison, or Presentation of a Copy to its Original, to see whether or no it be conformable: or the Report, or Act of the Officer who made the Comparison.

COLLATION is also used among the *Romanists* for the Meal or Repast made on a Fast-Day, in lieu of a Supper. See FAST.

Fruits are not allow'd in a *Collation*: F. *Lobineau* observes, that antiently there was not allow'd, even, bread in the *Collations* in Lent; nor any thing beside a few Confitures and dried Herbs, and Fruits: which Custom, he adds, obtain'd till the Year 1513.

Cardinal *Humbart* observes further, that in the middle of the XIth Century, there were no *Collations* at all allow'd in the *Latin* Church in the time of Lent; and that the Custom of *Collations* was borrow'd from the *Greeks*; who themselves did not take it up till about the XIth Century. See LENT.

COLLATION is also popularly us'd for a Repast between Dinner and Supper.

The Word *Collation*, in this Sense, *Du Cange* derives from *Collocutio*, Conference; and maintains, that originally, *Collation* was only a Conference, or Conversation on Subjects of Piety, held on Fast-Days in Monasteries; but that, by degrees, the Custom was introduced of bringing in a few Refreshments: and that by the Excesses to which those sober Repasts were at length carried, the Name of the Abuse was retain'd, but that of the Thing lost.

COLLEAGUE, a Companion, Partner, or Associate in the same Office, or Magistrature.

The Word is particularly us'd in speaking of the *Roman* Consuls, and Emperors.

COLLECT, or COLLECTION, a voluntary gathering of Money, for some pious, or charitable Purpose.

Some say, the Name *Collect*, or *Collection*, was used, by reason those Gatherings were antiently made on the Days of *Collects*, and in *Collects*, *i. e.* in Assemblies of Christians; but, more probably, *quia colligebatur pecunia*.

The Word is sometimes also used for a Tax, or Imposition, rais'd by a Prince for any pious Design. Thus, Histories say, that in 1166, the King of *England*, coming into *Normandy*, ap-

appointed a *Collect* for the Relief of the Holy Land, at the Desire, and after the Example of the King of *France*.

Collect, in the Liturgy of the Church of *England*, and the Mass of the *Romanists*, a Prayer accommodated to any particular Day, Occasion, or the like. See Liturgy, and Mass.

In the general, all the Prayers in each Office are call'd *Collects*; either because the Priest speaks in the Name of the whole Assembly, whose Sentiments and Desires he sums up by the Word *Oremus*, Let us pray; as is observ'd by Pope *Innocent* III. or, because those Prayers are offer'd when the People are assembled together; which is the Opinion of *Pamelius* on *Tertullian*.

The Assembly it self is in some antient Authors called *Collect*. The Popes *Gelasius* and *Gregory* are said to have been the first who establish'd *Collects*. *Despense*, a Doctor of the Faculty of *Paris*, has an express Treatise on *Collects*, their Origin, Antiquity, Authors, &c.

COLLECTIVE, in Grammar, a Term applied to a Word that expresses a multitude; tho it self be singular.

Thus, Troop, Company, Army, are Nouns *Collective*.

COLLECTOR, a Person nominated by the Commissioners of any Duty, the Inhabitants of a Parish, or the like, to raise or gather any Tax, &c.

COLLEGATARY, in the Civil Law, a Person to whom is left a Legacy in common with one or more other Persons. See Legacy.

If the Thing be bequeath'd *in solido*, the Portion of the deceased *Collegatory* accrues to the rest.

COLLEGE, an Assemblage of several Bodies, or Societies; or, even of several Persons into one Society. See Society.

The Term *College*, among the *Romans*, was used for an Assemblage of several Persons employ'd in the same Functions, and as it were bound together to act, or serve in concert. It serv'd indifferently for those employ'd in the Offices of Religion, of Government, the Liberal Arts, and even Mechanical Arts, or Trades: So that the Word properly signified what we call a *Corporation*, or *Company*. See Corporation.

In the *Roman* Empire, there were not only the *College of Augurs*, and the *College of Capitolini*, *i.e.* of those who had the Superintendence of the *Capitoline* Games; but also the *College* of Artificers, *Collegium Artificum*; the *College* of Carpenters, *Fabricorum*, or *Fabrorum Tignariorum*; of Potters, *Figulorum*; of Founders, *Ærariorum*; the *College* of Locksmiths, *Fabrorum Serrariorum*; of Engineers, for the Army, *Tignariorum*; of Butchers, *Laniorum*; of Dendrophori, *Dendrophorum*; of Centonaries, *Centonariorum*; of Makers of Military Casaques, *Sagariorum*; of Tent-makers, *Tabernaculariorum*; of Bakers, *Pistorum*; of Musicians, *Tibicinum*, &c.

Plutarch observes, that it was *Numa* who first divided the People into *Colleges*; which he did, to the End that each consulting the Interests of their *College*, whereby they were divided from the Citizens of the other *Colleges*, they might not enter into any general Conspiracy against the publick Repose.

Colleges were distinguish'd from other Societies, not form'd into *Colleges* by publick Authority, in this, that those who compos'd a *College* were qualify'd to treat of the common Interests of their *College*, which was, as it were, a Member of the State, and had a common Purse, an Agent to negotiate their Affairs, sent Deputies to the Magistrates when they wanted to treat with them; might make Statutes and By-Laws for the Administration of their *College*, &c. (See *Plutarch*, *Pliny*, *Cicero*, *Aul. Gellius*, the *Pandects*, *Code*, &c.)

There are various *Colleges* on foot among the Moderns, built on the Model of those of the Antients; as the *Three Colleges of the Empire*, viz. the *College of Electors*, *College of Princes*, and *College of Cities*, &c.

College *of Electors*, is the Body of Electors, or their Deputies, assembled in the Diet at *Ratisbon*. See Elector.

Antiently, the King of *Bohemia* had no Deputy in their *College*; at present he has. See Diet.

College of Princes, is the Body of Princes, or their Deputies, at the Diet of *Ratisbon*.

College of Cities, is, in like manner, the Body of Deputies which the several Imperial Cities send to the Diet.

College *of Cardinals*, or the *Sacred* College, is a Body compos'd of the three Orders of Cardinals, *viz.* Cardinal-Bishops, Cardinal-Priests, and Cardinal-Deacons. See Cardinal.

Each Order has its Dean, or Chief. The Dean of the Cardinal-Bishops is always the Bishop of *Ostia*.

College is also us'd for a publick Place, endow'd with certain Revenues; where the several Parts of Learning, both Divine and Human, are taught, in Schools, Halls, or Classes, appointed for that Purpose.

An Assemblage of several of these *Colleges* constitute an University. See University.

The University of *Oxford* consists of 18 *Colleges*; that of *Cambridge* of 16; that of *Paris* of 50 *Colleges*.

The Erection of *Colleges* is part of the Royal Prerogative, and not to be done without the King's Consent.

Among the *Greeks*, the *Lyceum* and *Academy* were the celebrated *Colleges*; the latter of which has given its Name to our Universities, which in *Latin* are called *Academiæ*. With them, the House, or Apartment of each Philosopher, or Rhetor, might be esteem'd a kind of *College* of it self. See Lyceum, and Academy.

The *Romans* came late into the Institution of such *Colleges*: They had, however, several, founded by their Emperors; especially in *Gaul*; the chief whereof were those of *Marseilles*, *Lions*, *Besancon*, and *Bourdeaux*.

The *Jews*, and *Egyptians* too, have had their *Colleges*; the Chief of the first were those of *Jerusalem*, *Tiberias*, *Nardea*, *Pompodita*, *Sura*, and *Babylon*: this last is said to have been instituted by *Ezekiel*, and to have subsisted in the Time of *Mahomet*.

Colleges of this kind have been generally in the Hands of those consecrated to the Offices of Religion: The *Magi* in *Persia*, the *Gymnosophists* in the *Indies*, the *Druids* in *Gaul* and *Britain*, had the Care of educating Youth in the Sciences. After Christianity became establish'd, there were almost as many *Colleges* as Monasteries; *Charlemaign*, in his *Capitularies*, enjoining the Monks to instruct Youths in Musick, Grammar, and Arithmetick: But, this, calling the Monks from their Solitude, and taking up too much of their time, the Care of the *Colleges* was at length put into the Hands of those who had nothing else to do. See School.

In the Canon Law, 'tis said, Three Persons make a *College*, *Tres Collegium faciunt*.

The *Colleges* in *London* are,

Sion-College, or the *College* of the *London* Clergy; which has been a Religious House time out of Mind: sometimes under the Denomination of a Priory, or *College*; sometimes under that of a Spittal, or Hospital; as, at its Dissolution under 31 *Hen.* VIII. it was called *Elsyn's Spittle*, from the Name of its Founder, a Mercer, in 1329.

At present it is a Composition of both, *viz.* a *College* for the Clergy of *London*, who were incorporated in 1631, at the Request of Dr. *White*, under the Name of the *President and Fellows of* Sion College; and an Hospital for ten poor Men, and as many Women. See Hospital.

The Officers of the Corporation are the President, two Deans, and four Assistants; who are annually chosen from among the Rectors and Vicars of *London*; subject to the Visitation of the Bishop. They have a good Library, built and stock'd by Mr. *Simson*, chiefly for the Clergy of the City, without excluding other Students on certain Terms; and a Hall, with Chambers for Students, generally filled with the Ministers of the neighbouring Parishes.

College *of Civilians*, commonly call'd *Doctors-Commons*; a *College* founded by Dr. *Harvey*, Dean of the Arches, for the Professors of the Civil Law residing in this City; where usually, likewise reside the Judge of the Arches Court of *Canterbury*, Judge of the Admiralty, of the Prerogative Court, &c. with other Civilians; who all live, as to Diet and Lodging, in a *Collegiate* manner, commoning together: whence the Appellation of *Doctors-Commons*.

Their House being consum'd in the great Fire, they all resided at *Exeter-House* in the *Strand*, till 1672; when their former House was rebuilt, at their own Expence, in a very splendid manner. To this *College* belong 34 Proctors; who make themselves Parties for their Clients, manage their Causes, &c. See Proctor.

College *of Physicians*, a Corporation of Physicians, in *London*; who, by several Charters and Acts of Parliament of *Henry* VIII. and his Successors, have certain Privileges, whereby no Man, tho a Graduate in Physick of any University, may, without License under the said *College*-Seal, practise Physick, in, or within seven Miles of *London*; nor even in any other part of *England*, unless he have taken the Degree in one of our own Universities: with Power to administer Oaths, fine and imprison Offenders, in that and several other Particulars: to search the Apothecaries Shops, &c. in and about *London*, to see if their Drugs, &c. be wholesom, and their Compositions according to the Form prescrib'd by the said *College* in their Dispensatory.

By the said Charter they are also freed from all troublesom Offices; as to serve on Juries, be Constable, keep Watch, provide Arms, &c.

This Society had antiently a *College* in *Knightrider-street*, the Gift of Dr. *Linacre*, Physician to King *Henry* VIII. Since that, they have had a House built 'em by the famous Dr. *Harvey*, in 1652, at the end of *Amen-street*, which he endow'd with his whole Inheritance in his Lifetime; but this being burnt in the great Fire in 1666, a new one was erected at the Expence of the Fellows, in *Warwick Lane*; with a noble Library; given partly by the Marquis of *Dorchester*, and partly by Sir *Theodore Mayerne*.

Of this *College* there is a President, four Censors, and 12 Electors: The Censors have, by Charter, Power to survey, govern, and arrest all Physicians, or others practising Physick, in,

in, or within seven Miles of *London*; to fine, amerce, and imprison them at discretion.

The Number of Fellows was antiently 30, till King *Charles* II. increas'd their number to 40; and King *James* II. giving 'em a new Charter, allow'd the Number of Fellows to be enlarg'd, so as not to exceed fourscore; reserving to himself and Successors, the Power of placing and displacing any of 'em for the future.

The *College* are not very rigorous in asserting their Privileges; there being a great Number of Physicians, some of very good Abilities, who practise in *London*, &c. without their License; and are conniv'd at by the *College*: yet, by Law, if any Person, not expresly allow'd to practise, take on him the Cure of any Disease, and the Patient die under his hand, 'tis deem'd Felony in the Practicer.

In 1696, the *College* made a Subscription, to the Number of 42 of their Members, to set on foot a Dispensatory, for the Relief of the sick Poor: since that, they have erected two other Dispensatories. See DISPENSATORY.

Gresham COLLEGE, or COLLEGE *of Philosophy*; a *College* founded by Sir *Tho. Gresham*, and endow'd with the Revenue of the *Royal-Exchange*: One Moiety of this Endowment the Founder bequeath'd to the Mayor, and Aldermen of *London*, and their Successors, in trust, that they should find four able Persons to read within the *College*, Divinity, Geometry, Astronomy, and Musick; and to allow each, besides Lodging, 50 Pounds *per Ann.*

The other Moiety he left to the Company of Mercers, to find three more able Persons, to read Civil Law, Physick, and Rhetorick, on the same Terms; with this Limitation, that the several Lecturers should read in Term-time, every Day in the Week, except Sundays; in the Morning in *Latin*, in the Afternoon the same in *English*: that in Musick to be only read in *English*.

In this *College* formerly met the *Royal Society*, that noble Academy, instituted by K. *Charles* II. and celebrated thro'out the World, for their Improvements in Natural Knowledge. *See their History and Policy, under* SOCIETY.

COLLEGE *of Heralds*, or COLLEGE of *Arms*, a Corporation founded by Charter of King *Richard* III. who granted 'em several Privileges; as, to be free from Subsidies, Tolls, Offices, &c. See HERALD.

They had a second Charter from King *Edward* VI. and a House built near *Doctors-Commons*, by the Earl of *Derby*, in the Reign of King *Henry* VII. was given 'em by the Duke of *Norfolk*, in the Reign of Queen *Mary*; which House is now rebuilt.

Of this *Collegiate* Society, are three Officers stiled *Kings of Arms*, *Reges Armorum Anglicorum*. See KING *at Arms*. Six Heralds. See HERALD. And four Pursuivants. See PURSUIVANT.

COLLEGES *of Common Law*. See INNS *of Court*, and *Chancery*.

COLLEGES *for disabled Soldiers*, *Seamen*, &c. See HOSPITALS.

COLLEGIANS, a Religious Sect, form'd among the *Arminians* and *Anabaptists* in *Holland*; so called, because of their *Colleges*, or Meetings the first Sunday in each Month; where every one has the same Liberty of expounding the Scripture, Praying, &c.

They are said to be all either *Arians*, or *Socinians*: They never Communicate in the *College*, but meet twice a Year from all Parts of *Holland* at *Rinsbourgh*, a Village two Miles from *Leyden*, where they Communicate together; admitting every one that presents himself, without regard to his Sect or Opinion. They have no particular Ministers, but each officiates as he is dispos'd. They never baptize without plunging.

COLLEGIATE, or COLLEGIAL *Churches*, are those which have no Bishop's See; yet have the antient Retinue of the Bishop, the Canons and Prebends. See CHURCH, CANON, &c.

Such are, among us, *Westminster*, *Rippon*, *Windsor*, &c.

Of these *Collegiate* Churches there are two Kinds; some of Royal Foundation, others of Ecclesiastical Foundation: each of them, in Matters of Divine Service, are regulated in the same manner as the Cathedrals. See CATHEDRAL.

There are even some *Collegiate* Churches which have the Episcopal Rights. Some of these Churches were antiently Abbies; which, in time, were seculariz'd. See ABBY.

The Church of *St. Peter's Westminster* was antiently a Cathedral; but the Revenues of the Monastery being by Act of Parliament 1° *Eliz.* vested in the Dean and Chapter, it commenc'd a *Collegiate* Church.

In several Causes, the stiling it *Cathedral*, instead of *Collegiate Church of Westminster*, has occasion'd Error in the Pleadings.

COLLETICS, in Medicine, such Remedies as join, and glue together the separated Parts, or Lips of a Wound, or Ulcer; in order to re-establish 'em in their natural Union. See AGGLUTINANT, WOUND, &c.

Colleticks are more deficcative than Sarcotics; but less so than Epulotics. See SARCOTICS, and EPULOTICS.

Among *Colletics* are rank'd Litharge, Aloes, Myrrh, &c.

The Word comes from the *Greek* κολλητικὸς, something that has the Virtue of gluing together.

COLLIQUATION, in Pharmacy, the Action of melting together two, or more solid Substances; or rendring 'em liquid by Fusion, or Dissolution; as Wax, Mucilages, &c. by Heat; Gums, &c. by Moisture. See FUSION, DISSOLUTION, &c.

COLLIQUATION is also us'd to express such a Temperament, and Disposition of the Animal Fluids, as proceeds from a too lax Compages; whereby they flow off thro' the several Glands, and particularly thro' those of the Skin, faster than they ought; which occasions Fluxes of many Kinds, but mostly, profuse greasy, clammy Sweats.

If this *Colliquation* continue, it generally terminates in an Hectic Fever, and is usually a Concomitant of one. See HECTIC.

The curative Intention in this Case, is the giving a better Consistence to the Juices by Balsamicks and Agglutinants; and the hardening of the Solids by Subastringents. Hence,

COLLIQUATIVE *Fever*, is a Fever attended with a Diarrhæa, or profuse Sweats, from too loose a Contexture of the Fluids. See COLLIQUATION; see also FEVER.

COLLISEUM, or COLISEUM, in the antient Architecture, an oval Amphitheater, built at *Rome* by *Vespasian*, in the Place where stood the Pond of *Nero's* gilded House.

In this were seen Statues, representing all the Provinces of the Empire; in the middle whereof stood that of *Rome*, holding a golden Apple in her Hand. The same Term, *Colliseum*, is also given to another Amphitheatre of the Emperor *Severus*.

In these *Collisea* were represented Games, and Combats of Men and wild Beasts: There is now little remaining of either of them; Time and War having reduc'd 'em to Ruins. See AMPHITHEATRE.

The Word is form'd from *Colosseum*, on account of the *Colossus* of *Nero*, that stood near it: or, according to *Nardini*, from the Italian *Coliseo*.

COLLISION, the Friction, or Percussion of two Bodies moving violently with different Directions, and dashing against each other.

For *the Laws of the Collision of Bodies*, see PERCUSSION.

COLLUSION, a secret Understanding between two Parties, who plead, or proceed fraudulently against each other, to the prejudice of a third.

In the Canon Law, *Collusion*, in Matters of Benefices, vacates the Benefice; and incapacitates the Person from holding any Benefice at all.

COLLUTHIANS, a Religious Sect, who arose about the Beginning of the IVth Century; on occasion of the Mildness and Indulgence shewn to *Arius*, by *Alexander* Patriarch of *Alexandria*.

Several People being scandaliz'd at so much Condescension; and among the rest *Colluthus*, a Priest of the same City; he hence took a Pretence for holding separate Assemblies, and by degrees proceeded to the Ordination of Priests; as if he had been a Bishop: pretending a Necessity for this Authority, in order to oppose *Arius*.

To his Schism he added Heresy; teaching, that God did not create the Wicked; that he was not Author of the Evils that befal Men, &c.

He was condemn'd in a Council held at *Alexandria* by *Osius*, in the Year 335.

COLLYRIDIANS, antient Hereticks, denominated from a little Cake, call'd by the Greeks *Collyra*, which they offer'd to the Virgin *Mary*.

This Sect, it seems, consisted chiefly of *Arabian* Women, who, out of an Extravagance of Devotion to the Virgin, met on a certain Day in the Year, to celebrate a solemn Feast, and to render Divine Honours to *Mary* as to a Goddess; eating the Cake which they offer'd in her Name. St. *Epiphanius*, who relates the History of this superstitious Ceremony, laughs at it.

COLLYRIUM, in Medicine, an external Remedy, particularly appropriated to Diseases of the Eyes. See EYE.

There are two Kinds of *Collyriums*; the one *liquid*, the other *dry*.

Liquid Collyriums are compos'd of Ophthalmic Pouders, or Waters; as Rose-Water, Plantain-Water, that of Fennel, Eyebright, &c. wherein they dissolve Tutty, White Vitriol, or some other proper Pouder.

The *Dry*, are Troches of Rhasis, Sugar-candy, Iris, Tutty prepar'd, &c. blown into the Eye with a little Pipe.

The same Name is also given to Unguents used for the same Purpose; as Unguent of Tutty, and several others.

Lastly, the Name is given, tho improperly, to some liquid Medicines used against Venereal Ulcers.

The Word *Collyrium* comes from the *Greek* κολλύριον; and that, according to *Martinius*, from κολλᾶν τὸν ῥῦν; because it glues up, and prevents Defluxions.

COLON,

COLON, in Grammar, a Point, or Character form'd thus [:] serving to mark a Pause, and to divide the Members of a Period. See POINTING; see also PERIOD, and COMMA.

Grammarians generally assign the Use of a *Colon* to be to mark the Middle of a Period; or to conclude a Sense less perfect than the Dot, or Period: But, *a Sense less perfect than the Period*, is an Expression infinitely vague and indeterminate. See PERIOD.

Others say, a *Colon* is to be used when the Sense is perfect, but the Sentence not concluded: but neither is this over clear and express. Add to this, that in Practice our best Writers confound the *Colon* with the Semicolon.

F. *Buffier*, with his usual accuracy, attempts to fix the Use of the *Colon*; but does not much distinguish it from the Semicolon: he prescribes the use of either, indifferently; and calls 'em by a common Name, *Intermediate Pointings*; as being Mediums between the Comma and Full-point, or Period. Their Use, according to this Author, is to distinguish the supernumerary Members of a Period.

By *supernumerary Members*, are meant, such as the precedent ones don't raise any Expectation of; *i. e.* such Parts, as have indeed a Dependence on what goes before, even tho what goes before has a compleat Sense, independent hereon: v. g. *The Augustan Age was so eminent for good Poets, that they have serv'd as Models to all others: yet did it not yield any good Tragic Poets.* Where the supernumerary Member, and the Use of the *Colon* are obvious.

The most obvious and sensible Use of the *Colon*, he adds, is when the supernumerary Member is distinguish'd by some Conjunctions; as notwithstanding, however, but, except that, unless, inasmuch as, yet, since, the rather as, provided that, &c.

Some, indeed, use the *Colon* in the Middle of long Periods, without any regard to supernumerary Members: which Custom was probably introduc'd, to mark that the Breath is here to be taken almost as much as in a common Period, in the Place where the supernumerary Period commences. But this, at best, is arbitrary; and the intermediate Pointings may always be omitted in a Period, if there be no supernumerary Member; *i. e.* if there be no subsequent Member, but what is expected from the precedent.

As to the Occasions where the *Colon* is to be used, rather than the Semicolon, there is nothing precise to be said of it; except that the *Colon* shews the supernumerary Member more detach'd, and sets it at a greater distance from the rest; and therefore marks a longer pause than the Semicolon.

Accordingly, it seems preferable to the Semicolon before Conjunctions Adversative, Restrictive, Conditional, &c. as, nevertheless, but, excepting that, however, otherwise, provided that. Again, where the supernumerary Phrases not only suppose the precedent, but depend on 'em for their Regimen; and are, as it were, new Parts thereof: there the Semicolon seems preferable to the *Colon*. v. g. *You are regardless of the Goodness of God, who first chose you; a God who is only jealous of your Heart for your own Happiness; a God who could be equally glorious in destroying you by his Justice, as in saving you by his Mercy.* Or thus: *The Discourse consisted of two Parts; in the first was shewn the Necessity of fighting; in the second, the Advantages that won'd redound from it.*

But this Difference, it must be own'd, has a Dependence on something that influences all the Points, and sways the whole Doctrine of Punctuation; *viz.* the length, or shortness of the Members and Periods: For when the Phrases are long, we point higher than when short.

A late Author, in a very ingenious little Discourse, *de Ratione Interpungendi*, marks the Office of the *Colon*, and where in it differs from the Semicolon, &c. much more precisely: A *Colon*, on his Principles, serves to distinguish those conjunct Members of a Sentence, which are capable of being divided into other Members; whereof one, at least, is conjunct. See SENTENCE.

Thus, in the Sentence, *As we cannot discern the Shadow moving along the Dial-plate, So the Advances we make in Knowledge are only perceiv'd by the Distance gone over*; the two Members being both simple, are only separated by a Comma: In this, *As we perceive the Shadow to have moved, but did not perceive it moving*; *So our Advances in Understanding, in that they consist of such minute Steps, are only perceivable by the Distance*; the Sentence being divided into two equal Parts, and those conjunct ones, since they include others; we separate the former by a Semicolon, and the latter by Commas: But in this, *As we perceive the Shadow to have moved along the Dial, but did not perceive it moving; and it appears the Grass has grown, tho no body ever saw it grow: So the Advances we make in Knowledge, as they consist of such minute Steps, are only perceivable by the Distance.* The Advancement in Knowledge is compar'd to the Motion of a Shadow, and the Growth of Grass; which Comparison divides the Sentence into two principal Parts: But since what is said of the Movement of the Shadow, and likewise of the Growth of Grass, contains two simple Members, they are to be separated by a Semicolon; consequently, a higher Pointing is requir'd to separate 'em from the other Part of the Sentence, which they are opposed to: And this is a *Colon*. See PUNCTUATION.

COLON, in Anatomy, is the second of the thick Intestines. See INTESTINE.

The *Colon* is placed between the *Cæcum* and *Rectum*; and is wider than either of them: In length it is eight or nine Hands. It begins where the *Ilion* ends, *viz.* in the Cavity of the *Os Ilium*, on the right Side; whence, ascending by the Kidney on the same side, it passes under the concave Side of the Liver, to which it is sometimes ty'd, as likewise to the Gall-Bladder, which tinges it yellow in that place: Then it runs under the bottom of the Stomach to the Spleen in the left Side, to which it is also knit; from thence it turns down to the left Kidney; and thence passing in form of an S, it ends at the upper Part of the *Os Sacrum* in the *Rectum*.

At the Beginning of this Gut, there is a Valve form'd by the Production of the inmost Coat of the Intestines in this place; which hinders the Excrements, when once fallen into the *Colon*, from returning again to the *Ilium*.

It has a strong Ligament, which running along its upper Side, from the *Ilium* to the *Rectum*, strengthens it against the Weight of the Excrements, and draws it together into Cells; which, with the *Valvulæ Conniventes*, retard the Passages of the Excrements, that we may not be continually oblig'd to be going to Stool. See EXCREMENTS.

The fleshy Fibres of its second Coat are greater and stronger than those of the other Intestines; because a greater Strength is requisite to cause the Excrements to ascend.

The chief Design of the *Colon*'s surrounding the Abdomen, and, with the *Rectum*, touching all the Parts contain'd in it, seems to be, that by immediate Fomentation with Clysters, they might be eas'd of their Maladies. See CLYSTER.

Some derive the Word from κωλύειν, *to retard*; in regard 'tis in the Folds of this Intestine that the Excrements are stopp'd and form'd. Others fetch it from κοῖλον, *hollow*; on account of its Capacity: Others again from κολάζεσθαι, *to be tormented*; in regard of the grievous Pain it frequently undergoes.

'Tis from this Part that the Colic takes its Name. See COLIC.

COLONEL, an Officer in the Army, who has the Command of a Regiment, either of Horse, Foot, or Dragoons. See REGIMENT.

In the *French* Army, *Colonel* is confin'd to the Infantry and Dragoons: the commanding Officer of a Regiment of Horse, they usually call *Mester de Camp*.

Skinner derives the Word from *Colony*; being of Opinion, the Chiefs of Colonies might give their Name to the Chief of Forces.

COLONEL *Lieutenant*, is he who commands a Regiment of Guards, whereof the King, Prince, or other Person of the first Eminence is *Colonel*. See GUARDS.

These *Colonels Lieutenants* have always a *Colonel*'s Commission, and are usually General Officers.

Lieutenant COLONEL, is the second Officer in the Regiment; who is at the Head of the Captains, and commands in the absence of the *Colonel*. See LIEUTENANT.

Lieutenant Colonel of Horse, or Dragoons, is the first Captain of the Regiment. See CAPTAIN.

COLONNADE, a Peristyle, of a circular Figure; or a Series of Columns, dispos'd in a Circle, and insulated within-side. See PERISTYLE.

Such is that of the little Park at *Versailles*, which consists of 32 *Ionic* Columns; all of solid Marble, and without Incrustation.

A *Polystyle* COLONNADE, is that whose number of Columns is too great to be taken in by the Eye at a single View. Such is the *Colonnade* of the Palace of St. *Peter* at *Rome*; which consists of 284 Columns of the *Doric* Order, each above four Foot and an half Diameter; all in *Tiburtine* Marble.

COLONY, a *Plantation*, or Company of People, of all Sexes and Conditions, transported into a remote Province, in order to cultivate and inhabit it. See PLANTATION.

We may distinguish three Kinds of *Colonies*: The first serves to ease, or discharge the Inhabitants of a Country; where the People are become too numerous, so that they cannot any longer conveniently subsist.

The second are those establish'd by victorious Princes and People, in the middle of vanquish'd Nations, to keep 'em in awe and obedience.

The third may be call'd *Colonies of Commerce*; because, in effect, 'tis Trade is the sole Occasion and Object thereof.

'Twas by means of the first kind of *Colonies*, that some Ages after the Deluge, the East, first, and successively all the other Parts of the Earth became inhabited: And without mentioning any thing of the *Phenician* and *Grecian Colonies*, so famous in antient History, 'tis notorious that it was for the Establishment of such *Colonies*, that during the Declension of the Empire, those Torrents of barbarous Nations, issuing, for the generality, out of the North, overrun the

Gauls,

Gauls, *Italy*, and the other Southern Parts of *Europe*; and after several bloody Battels, divided it with the antient Inhabitants.

For the second kind of *Colonies*, the *Romans* us'd 'em more than any other People; and that to secure the Conquests they had made from the West to the East. Every one knows how many Cities in *Gaul*, *Germany*, *Spain*, and even *England*, value themselves on their having been of the Number of *Roman Colonies*.

Lastly, the *Colonies of Commerce*, are those establish'd by the *English*, *French*, *Spaniards*, *Portuguese*, and other Nations within these two last Centuries, and which they continue still to establish, in several Parts of *Asia*, *Africa*, and *America*; either to keep up a regular Commerce with the Natives, or to cultivate the Grounds, by planting Sugar-Canes, Indigo, Tobacco, and other Commodities. See COMMERCE.

The principal of this Kind of *Colonies*, are in the one and the other *America*, Northern and Southern; particularly *Peru*, *Mexico*, *Canada*, *Virginia*, *New-England*, *Carolina*, *la Louisiane*, *l'Acadia*, *Hudson's Bay*, the *Antilles Islands*, *Jamaica*, *Domingo*, and the other Islands.

In *Africa*, *Madagascar*, *Cape of Good Hope*, *Cape Verd*, and its Islands, and all those vast Coasts, extended thence as far as to the Red Sea.

Lastly, in *Asia*, the famous *Batavia* of the *Dutch*; *Goa*, *Diu* of the *Portuguese*; and some other less considerable Places of the *English*, *French*, and *Danes*.

M. *Vaillant* has fill'd a Volume in Folio with Medals struck by the several *Colonies*, in honour of the Emperors who founded 'em. The ordinary Symbol they engrav'd on their Medals, was, either an Eagle; as when the Veteran Legions were distributed in the *Colonies*: or a Labourer, holding a Plough drawn by a pair of Oxen; as when the *Colony* consisted of ordinary Inhabitants. On all the Medals are seen the Names of the Decemvirs; who held the same Rank, and had the same Authority there, as the Consuls had at *Rome*. See DECEMVIR.

There were two Kinds of *Colonies* among the *Romans*; those sent by the Senate; and the Military ones, consisting of old Soldiers, broken and disabled with the Fatigues of War, who were thus provided with Lands, as the Reward of their Services. See BENEFICE.

The *Colonies* sent by the Senate, were either *Roman*, or *Latin*; *i. e.* compos'd either of *Roman* Citizens, or *Latins*.

The *Colonies* of *Roman* Citizens had the Right of Suffrages; but had no part in the Offices or Honours of the Republick. The Inhabitants of *Latin Colonies*, had no Right of Suffrages without an express Permission. See CITIZEN, *&c.*

According to *Ulpian*, *(lib. de Cens.)* there were other *Colonies*, which had little more than the Name; only enjoying what they call'd *Jus Italicum*; *i. e.* they were free from the Tributes and Taxes paid by the Provinces: Such were the *Colonies* of *Tyre*, *Berytus*, *Heliopolis*, *Palmyra*, &c.

Originally, the Word *Colony* signify'd no more than a Farm; *i. e.* the Habitation of a Peasant, with the Quantity of Land sufficient for the Support of his Family; *Quantum Colonus unus arare poterat.*

COLOPHONY, a kind of Gum; being only a finer Turpentine, boil'd in Water till it be reduc'd into a solid Consistence. See TURPENTINE.

The chief Use of this Drug is in the Cure of Venereal Ailings, Seminal Weaknesses, the Whites in Women, *&c.* The Apothecaries make it into Pills, which they roll in Liquorice-Powder, or cover over with Gold-Leaf, and call them *Turpentine Pills*.

It is also used by Musicians, to rub the Hairs of their Bow withal; the Effect whereof is, that the Gum cleaning the Hairs, and communicating to 'em a tenacious Quality, prevents their sliding too easily over the Strings; and promotes that trembling which forms the Sound.

COLOPHONY is also an oleaginous Substance, of a yellowish Colour, dry, and friable, compos'd of the Remains of Resins of Fir, and Fir-Apples, condens'd by Coction, and harden'd by Cold.

To be good, it must be shining and odoriferous; and when thrown on the Fire, render a Smoke like that of Incense.

Pliny says, *Colophony* took its Name from *Colophon*, a City of *Ionia*, whence it was first brought.

'Tis now frequently called *Spanish Wax*, or *Grecian Resin*; as it is brought from the one or the other of those Countries. It is found to warm, dry, soften, and agglutinate, and usually enters the Composition of Plaisters and Unguents.

COLOPHONY is also used for the Remains of Turpentine distilled; or the gross Part resting at the bottom of the Vessel. See DISTILLATION.

COLOQUINTIDA, or COLOCYNTHIS, usually call'd *Bitter Apple*; the Fruit of a Plant of the same Name, brought from the *Levant*; about the bigness of a large Orange.

Its Colour is that of a golden brown: Its inside is full of Kernels, which are to be taken out before the *Colocinthis* be us'd. Both the Seed and Pulp are intolerably Bitter.

Coloquintida is of considerable use in Medicine, but mostly in officinal Compositions; the Violence of its Operation rending it unsafe to be given inwardly in extemporaneous Prescriptions, except with great Cautioo.

It enters, as an Ingredient, in the *Confectio Hamec.* and most purging Pills; and in such Cases as require purging, is attended with great success. It is one of the most violent purgative Drugs known; insomuch that it excoriates the Passages to that degree, as sometimes to bring away Blood, and induce a Superpurgation. Sometimes it is taken boil'd in Water, or Small Beer, in Obstruction of the Menses; which, in strong Constitutions, is often attended with Success. Some Women have got a trick of taking it, in the same manner, in the beginning of Pregnancy, to procure Abortion; which it often effects by the Violence of its Operation.

The Pouder of *Coloquintida* is sometimes used externally, with Aloes, *&c.* in Unguents, Emplaisters, *&c.* with remarkable Success against Worms; and some, for the same purpose, recommend the Pulp, given Clyster-wise. In the Iliac Passion, Clysters of *Coloquintida* have been found of service, after most other Medicines have fail'd.

Troches made of *Colocynth*, are called *Troches of Alhandal*: They are prepared by cutting the *Coloquintida* very small, and reducing it to a fine Pouder in a Mortar, rubb'd with Oil of sweet Almonds; adding Gum Tragacanth, and Mastic afterwards. See TROCHES.

The Word comes from the *Greek* κολοκύνθη, which was given it, in regard it κοιλίαν κινεῖ, *agitates the Belly.*

COLORBASIANS, a Branch of *Gnosticks*; so called from *Colorbasus*, who improv'd on the Visions of the *Gnosticks* that had preceeded 'em. St. *Epiphanius* enumerates and confutes their Errors. See GNOSTICS.

COLORISATION, or COLORATION, in Pharmacy, a Term applied to the several Changes of Colour which Bodies undergo in the various Operations of Nature, or Art; as by Fermentations, Lotions, Coctions, or Calcinations, *&c.* See COLOUR, and COLOURING.

COLOSSAL *Column*. See COLUMN.

COLOSSUS, a Statue of a prodigious Size, representing a Giant. See STATUE.

The most eminent of this kind was the *Colossus of Rhodes*, a Statue of *Apollo*, so high, that Ships pass'd with full Sails betwixt its Legs. It was the Workmanship of *Chares*, a Disciple of *Lysippus*; who spent twelve Years in making it: 'Twas at length overthrown by an Earthquake, after having stood 1360 Years. Its Height was sixscore and six Foot: There were few People could fathom its Thumb, *&c.*

Some Criticks observe, that the *Colossus* of *Rhodes* gave its own Name to the People among whom it stood; and that many, at least among the antient Poets, call the *Rhodians*, *Colossians*: Hence they advance an Opinion, that the *Colossians* in Scripture, to whom St. *Paul* directs his Epistle, are, in reality, the Inhabitants of *Rhodes*. Of this Sentiment are *Suidas*, *Calepin*, *Munster*, &c.

When the *Saracens* became possess'd of the Island, the Statue was found laid along the ground: They sold it to a *Jew*, who loaded 900 Camels with the Brass.

The Basis that supported it was of a triangular Figure, its Extremities were sustain'd with 60 Pillars of Marble. There was a winding Stair-case to go up to the top of it; from whence one might discover *Syria*, and the Ships that went into *Egypt*, in a great Looking-Glass, that was hung about the Neck of the Statue.

Among the Antiquities of *Rome*, there are seven famous *Colossus*'s: two of *Jupiter*, as many of *Apollo*; one of *Nero*, one of *Domitian*, and one of the Sun.

The Term *Colossus* takes its rise παρὰ τὸ κολοῦειν τὸ ὄσσε, *quod minuat & retundat oculos.*

COLOSTRUM, or COLOSTRA, in Medicine, Milk coagulated in Womens Breasts. See MILK.

The Name is also given to a Disease which this coagulated Milk occasions.

COLOUR, in Philosophy, a Property inherent in Light, whereby, according to the different Sizes, or Magnitudes of its Parts, it excites different Vibrations in the Fibres of the Optick Nerve; which propagated to the *Sensorium*, affects the Mind with different Sensations.

Or, *Colour* may be defin'd a Sensation of the Soul, excited by the Application of Light to the *Retina* of the Eye; and different, as that Light differs in the degree of its Refrangibility, and the Magnitude of its component Parts. See SENSATION.

In the former View, therefore, Light is the Subject of *Colour*; in the latter it is the Agent. *See its Properties under the Article* LIGHT.

Various are the Opinions of antient and modern Authors, and of the several Sects of Philosophers, with regard to the Nature and Origin of the Phænomenon *Colour*: The most popular

popular Opinion, is that of the *Aristotelians*; who maintain *Colour* to be a Quality residing in the *colour'd* Body; and to exist, independently of Light. See QUALITY.

The *Cartesians* come nearer the Matter: They own, that as the *colour'd* Body is not immediately applied to the Organ, to occasion the Sensation, and that as no Body can affect the Sense but by immediate contact; the *colour'd* Body does not excite the Sensation of it self, or contribute any thing to it, otherwise than by moving some interpos'd Medium, and by that the Organ of Sight.

They add, that, as we find that Bodies don't affect the Sense in the dark, Light only occasions the Sense of *Colour*, by moving the Organ; and that *colour'd* Bodies are no further concern'd than as they reflect the Light with a certain Modification: the differences in their *Colours* arising from a difference in the Texture of their Parts, whereby they are dispos'd to reflect the Light with this or that Modification.

But 'tis to Sir *Isaac Newton* we are owing for a solid and consistent Theory of *Colours*; built on sure Experiments, and solving all the Phænomena thereof: His Doctrine is as follows.

'Tis found by Experience, that Rays, or Beams of Light, are compos'd of Particles very heterogeneous, or dissimilar to each other: *i. e.* some of them, as 'tis highly probable, are larger, and others less. For a Ray of Light, as F E, (Tab. *Optics*, Fig. 5.) being receiv'd on a refracting Surface, as A D, in a dark Place, is not wholly refracted to L; but split, as it were, and diffused into several little Rays, some whereof are refracted to L, and others to the other intermediate Points between L and G; *i. e.* those Particles of the Light which are the most minute, are of all others the most easily and most considerably diverted, by the Action of the refracting Surface, out of their rectilinear Course towards L: and the rest, as each exceeds another in Magnitude, so is it with more difficulty, and less considerably turn'd out of its right Line to the Points between L and G. See REFRANGIBILITY.

Now, each Ray of Light, as it differs from another in its degree of Refrangibility, so does it differ from it in *Colour*: this is warranted by numerous Experiments. Those Particles, *v. g.* which are most refracted, are found to constitute a Ray of a violet *Colour*; *i. e.* in all probability, the most minute Particles of Light, thus, separately impell'd, excite the shortest Vibration in the *Retina*; which are thence propagated by the solid Fibres of the Optic Nerves into the Brain, there to excite the Sensation of violet *Colour*; as being the most dusky and languid of all *Colours*. See VIOLET.

Again, those Particles which are the least refracted, constitute a *Radiolus*, or Ray of a red Colour; *i. e.* the largest Particles of Light excite the longest Vibrations in the *Retina*; so as to excite the Sensation of red *Colour*, the brightest and most vivid of all others. See RED.

The other Particles being in like manner separated, according to their respective Magnitudes, into little Rays; excite the intermediate Vibrations, and thus occasion the Sensations of the intermediate *Colours*; much in the same manner as the several Vibrations of the Air, according to their respective Magnitudes, excite the Sensations of different Sounds. See VIBRATION.

To this it may be added, that not only the more distinct and notable *Colours* of red, yellow, blue, &c. have thus their rise from the different Magnitude and Refrangibility of the Rays; but also the intermediate Degrees or Teints of the same *Colour*; as of yellow up to green, of red down to yellow, &c.

Further, the *Colours* of these little Rays, not being any adventitious Modifications thereof, but connate, primitive, and necessary Properties; as consisting, in all probability, in the Magnitudes of their Parts, must be perpetual and immutable; *i. e.* cannot be chang'd by any future Refraction or Reflection, or any Modification whatsoever.

This is confirm'd by abundance of Experiments; all endeavours having been us'd, after separating a *colour'd* Ray from those of other Kinds, to change it into some other *Colour* by repeated Refractions, but to no effect. Apparent Transmutations of *Colours*, indeed, may be effected; *viz.* where there is an Assemblage, or Mixture of Rays of different Kinds; the component *Colours* never appearing in their natural Hue in such Mixtures, but always allay'd and temper'd with each other: whence results a middling Kind of *Colour*, which, by Refraction, may be separated into the component ones: and those, after Separation, being remix'd, return to their former *Colour*.

Hence, the Transmutations of *Colours*, by mixing those of different Kinds, are not real; but mere Appearances or Deceptions of the Sight: For the Rays being again severed, exhibit the same *Colours* as at first. Thus, blue and yellow Powders, well mix'd, appear to the naked Eye green; yet, without having pass'd any Alteration, when view'd thro' a Microscope, the blue and yellow Particles still appear distinct.

Hence there arise two Kinds of *Colours*; the one *original*, and *simple*, produced by homogeneal Light; or by Rays that have the same degree of Refrangibility, and the same Magnitude of their Parts: Such are red, yellow, green, blue, a violet purple, orange, and indigo; with all their intermediate Teints and Gradations.

The other Kind of *Colour* is *secundary*, or *heterogeneous*; compounded of the primary ones, or of a Mixture of Rays differently refrangible, &c.

There may also be secondary *Colours* produced by Composition, like the primary ones, or those consisting of homogeneal Light, as to the Species or Appearance of the *Colour*; but not as to the Permanency, or Immutability thereof. Thus, yellow and blue make green; red and yellow, orange; orange and yellowish green, yellow: And in the general, if any two *Colours* be mix'd, which in the Series of those generated by the Prism, are not too far apart, from their Mixture results that *Colour*, which in the said Series is found in the mid-way between 'em: but those situated at too great a distance do not so.

Indeed, the more any *Colour* is compounded, the less perfect and vivid it is: by too much Composition they may be diluted and weaken'd till they cease. By Composition there may likewise be produced *Colours*, not like any of those of homogeneal Light.

The most extraordinary Composition is that of *Whiteness*; for to this, all the primary *Colours* abovemention'd are requir'd; and those to be mix'd in a certain degree. Hence it is that White is the ordinary *Colour* of Light; Light being nothing else but a confused Assemblage of Rays of all *Colours*. See WHITENESS.

If the Rays of different *Colours* do thus begin to be separated by one Refraction of one single Surface; that Separation is much promoted, so as even to become sensible to the Eye by a double Refraction. This is observ'd in the two Surfaces of any Glass; provided those Surfaces be not parallel: but, of all others, it is most sensible in the two Faces of a triangular Prism; the Phænomena whereof, as they are the Touchstone of all Theories of *Colours*; and as they contain the Foundation of that here deliver'd, we shall lay down as follows.

1. The Rays of the Sun, transmitted thro' a triangular Prism, exhibit an Image of various *Colours*, (the chief whereof are red, yellow, green, blue, and violet) on the opposite Wall.

The Reason is, that the differently *colour'd* Rays are separated by Refraction: For the blue Rays, *v. g.* mark'd with the dotted Line, (Plate *Optics*, Fig. 6.) which begin to be separated from the rest by the first Refraction in *d d*, of the Side *c a* of the Prism *a b c*, (as also in the first Surface of the Globe of Water *a b c*, Fig. 7.) are still further separated in the other Side of the Prism *b c*, (as also in their egress out of the Globe *a b c*) by a second Refraction in *c e*, in the same Direction as the former: whereas, on the contrary, in the plane Glass *a b c f*, Fig. 9. (as also in the Prism *g l o*, Fig. 8. now placed in another Situation) those blue Rays which begin to be separated from the rest in the first Surface, in *d d*, by a second Refraction, the contrary way, pass out parallel, *i. e.* remix'd with all the *Colours* of the other Rays.

2. That Image is not round, but oblong; its length, when the Prism is an Angle of 60 or 65 Degrees, being five times its breadth.

The Reason is, that some of the Rays are refracted more than others; and by that means, exhibit several Images of the Sun, extended lengthwise, instead of one.

3. Those Rays which exhibit yellow, are turn'd further from the rectilinear Course, than those which exhibit red; those which exhibit green, than those which exhibit yellow: but, of all others, those which exhibit violet the most: Accordingly, if the Prism thro' which the Light is transmitted be turn'd about its Axis, so as the red, yellow, green, &c. Rays be projected, in order, thro' a narrow Aperture into another Prism, placed at the Distance of about 12 Feet; the yellow, green, &c. Rays, thro falling thro' the same Aperture, in the same manner, and on the same Point of the second Prism, will not be refracted to the same Place as the red, but to a Point at some distance from it; on that side to which the Rotation is made.

This is what Sir *I. Newton* calls the *Experimentum Crucis*: being that which led him out of the Difficulties into which the first Phænomenon, &c. had thrown him; and plainly shew'd a different Degree of Refrangibility, and a different *Colour* corresponding thereto in the Rays of Light: and that yellow Rays, *v. g.* are more refracted than red ones, green ones more than yellow ones; and blue and violet ones most of all.

4. The *Colours* of *colour'd* Rays, well separated by the Prism, are not at all chang'd or destroy'd by passing an illuminated Medium, nor by their mutual Decussation; their bordering on a deep Shadow; nor their being reflected from any

any natural Body, or refracted thro' any one, in a Place howsoever obscure.

The reason is, that *Colours* are not Modifications arising from Refraction, or Reflection, but immutable Properties; and such as belong to the Nature of the Rays.

5. An Assemblage of all the Kinds of *colour'd* Rays, collected either by several Prisms, by a convex Lens, or a concave Mirror, or in any other manner, form what we call *Whiteness*; yet each of these, after Decussation, becoming separated, again exhibits its proper *Colour*: For, as the Ray was white before its Parts were separated by Refraction; so, the Parts being remix'd, it becomes white again: And *colour'd* Rays, when they meet together, don't destroy one another, but are only interspers'd.

Hence, a red, green, yellow, blue, and violet *Colour*, being mix'd in a certain Proportion, appear whitish; *i. e.* are of such a *Colour* as arises from white and black mix'd together: and if there were not some Rays absorb'd and lost, wou'd be plainly white. In like manner, if a Paper cut into a Circle, be stain'd with each of those *Colours*, separately, and in a certain Proportion; then swiftly turn'd round its Centre, so as the Species of *Colours* be mix'd together in the Eye, by the briskness of the Motion; the several *Colours* will disappear, and the whole Paper appear of one continued *Colour*; which will be a Mean between white and black.

6. If the Rays of the Sun fall very obliquely on the inner Surface of a Prism, those that are reflected will be violet; those transmitted, red.

For, the Rays were *colour'd* before any Separation; and by how much they are the more refrangible, by so much they are the more easily reflected; and by that means are separated.

7. If two hollow Prisms, the one fill'd with a blue Fluid, the other with a red one, be join'd together, they will be opake; tho each, apart, be transparent.

For, the one transmitting none but blue Rays, and the other none but red ones; the two together will transmit none at all.

8. All natural Bodies, especially white ones, view'd thro' a Prism held to the Eye, appear fimbriated, or border'd, on one side with red and yellow, and on the other with blue and violet.

For, those *Fimbriæ* are the Extremes of entire Images, which the Rays of any kind, as they are more or less refracted, would exhibit, nearer, or at a greater distance from the real Place of the Object.

9. If two Prisms be so placed, as that the red of the one, and the purple of the other meet together, in a Paper fit for the purpose, incompass'd with darkness; the Image will appear pale: and if view'd thro' a third Prism, held to the Eye at a proper distance, it will appear double; the one red, the other purple.

In like manner, if two Pouders, the one perfectly red, the other blue, be mix'd; any little Body cover'd pretty deeply with this Mixture, and view'd thro' a Prism held to the Eye, will exhibit a double Image, the one red, and the other blue: in regard, the red and purple, or blue Rays, are separated by their unequal Refraction.

10. If the Rays transmitted thro' a convex Lens, be received on a Paper ere they meet in a *Focus*; the Confines or Boundary of Light and Shadow will appear ting'd with a red *Colour*: but if they be receiv'd beyond the *Focus*, with a blue one.

Because, in the first Case, the red Rays, being somewhat more refracted, are the higher; but, in the second, after Decussation in the *Focus*, the blue ones.

Lastly, if the Rays about to pass thro' either side of the *Pupilla*, be intercepted by the Interposition of any opake Body near the Eye; the Extremes of Bodies, placed as if view'd thro' a Prism, will appear ting'd with *Colours*; tho those not very vivid.

For then, the Rays transmitted thro' the rest of the Pupil, will be separated by Refraction into *Colours*; without being diluted with the admixture of the intercepted Rays, which would be refracted in a different manner.

And hence it is, that a Body view'd thro' a Paper pierc'd with two Holes, appears double, and also tinged with *Colours*.

Of the Colours *of thin Plates.* As Rays of different *Colours* are separated by the Refraction of Prisms, and other thick Bodies; so are they separated, tho in a different manner, in the thin *Lamellæ*, or Plates of any pellucid Matter, *v. g.* the Bubbles rais'd in Water, thicken'd by Soap, *&c.* For all *Lamellæ*, under a determinate thickness, transmit Rays of all *Colours*, without reflecting any at all: but, as they increase in thickness, in arithmetical Proportion, they begin to reflect, first blue Rays; then, in order, green, yellow and red, all pure: then, again, blue, green, yellow, red, more and more mix'd and diluted; till, at length, arriving at a certain thickness, they reflect Rays of all *Colours* perfectly intermix'd, *viz.* white.

But, in whatsoever Part a slender *Lamella* reflects any one *Colour*, *v. g.* blue; in that Part it always transmits the opposite *Colour*, *v. g.* red, or yellow.

'Tis found, by Experiment, that the difference of *Colour* of a Plate does not depend on the Medium that incompasses it; but the degree of Vividness does: *cæteris paribus*, the *Colour* will be more vivid, if the denser Medium be incompass'd with the rarer. A Plate, *cæteris paribus*, reflects more Light as it is thinner; as far as a certain Degree of thinness, beyond which it reflects no Light at all.

In Plates whose thicknesses increase in an arithmetical Proportion of the natural Numbers 1, 2, 3, 4, 5, *&c.* If the first, or thinnest, reflect any homogeneal Ray, the second will transmit it; the third, again, will reflect it: And thus is the same Ray alternately reflected and transmitted; *i. e.* the Plates corresponding to the odd Numbers, 1, 3, 5, 7, *&c.* will reflect the same Rays that those corresponding to the even ones, 2, 4, 6, 8, *&c.* transmit.

Hence, an homogeneous *Colour* in a Plate, is said to be of the *first Order*; if the Plate reflect all the Rays of that *Colour*. In a Plate whose thinness is triple the first, it is said to be of the *second Order*: in another, whose thinness is five times that of the first, it is said to be of the *third Order*, &c.

A *Colour* of the first Order is the most vivid of any; and, successively, the Vividness of the *Colour* increases, as the Quantity of the Order increases: The more the Thickness of the Plate is increas'd, the more *Colours* it reflects; and those of more different Orders. In some Plates, the *Colour* will vary as the Position of the Eye varies; in others it is permanent.

Colours *of Natural Bodies.* Bodies only appear of different *Colours*, as their Surfaces are dispos'd to reflect Rays of this or that *Colour* alone; or of this or that *Colour* more abundantly than any other: hence Bodies appear of that *Colour* which arises from the Mixture of the reflected Rays. See Body.

All Natural Bodies consist of very thin, transparent *Lamellæ*; which, if they be so dispos'd, with regard to each other, as that there happen no Reflections or Refractions in their Interstices, those Bodies become pellucid, or transparent: but if their Intervals be so large, and those filled with such Matter; or, so empty, (with regard to the Density of the Parts themselves) as that there happen a Number of Reflections and Refractions within the Body; the Body, in that Case, becomes opake. See Transparency, and Opacity.

The Rays which are not reflected from an opake Body, penetrate into it; and there, suffering innumerable Reflections and Refractions, at length, unite themselves to the Particles of the Body it self.

Hence, an opake Body grows hot the sooner, as it reflects Light less copiously: Whence, we see why a white Body, which reflects almost all the Rays that strike upon it, heats much more slowly than a black one, which reflects scarce any. See Heat, Blackness, *&c.*

To determine that Constitution of the Surface of Bodies wherein their *Colour* depends; it must be observ'd, that the smallest Corpuscles, or first Particles wherenf Surfaces are made up, are most thin and transparent; and separated by a Medium of a different Density from the Particles themselves. In the Surface, then, of every *colour'd* Body, are innumerable smaller thin Plates, corresponding to those of Bubbles: wherefore, what has been observ'd of those, may be understood of these.

Hence we gather, that the *Colour* of a Body depends on the Density and Thickness of the Parts of the Body, between the Pores of the Surface: that the *Colour* is more vivid and homogeneous, as the Parts are thinner; that *cæteris paribus*, the said Parts are the thickest when the Body is red; and the thinnest when violet: That the Parts of Bodies are usually much denser, than the Medium contain'd in their Interstices; but that in the Tails of Peacocks, in some Silks, and generally, in all Bodies whose *Colour* varies according to the Situation of the Eye, it is less: and that the *Colour* of a Body is the less vivid to the Eye, as it has a denser Medium within its Pores.

Now, of the several opake Bodies, those consisting of the thinnest *Lamellæ* are *black*; those consisting either of the thickest *Lamellæ*, or of *Lamellæ* very different from each other in thickness, and on that account fitted to reflect all *Colours*, as the Froth of Water, *&c.* are *white*: Those, again, consisting of *Lamellæ*, most of which are of some intermediate thickness, are *blue*, *green*, *yellow*, or *red*; insmuch as they reflect the Rays of that particular *Colour*, much more copiously than that of any other *Colour*; most of which last they either absorb and extinguish, by intercepting them, or else transmit.

Hence it is, that some Liquors, *v. g.* an Infusion of Lignum Nephriticum, appear red, or yellow, if view'd by reflected Light; and blue by transmitted Light: and gold Leaves yellow in the former Circumstances, but green or blue in the latter.

To this may be added, that some of the Pouders used by Painters, have their *Colour* changed by being very finely ground; which must be occasion'd by the Comminution or Breaking of their small Parts into others still smaller; just as a *Lamella* has its *Colour* alter'd, by altering its Thickness.

In fine, those odd Phænomena arising from the Mixture of Liquors of different *Colours*, can no way be better accounted for, than from the various Actions of the saline, &c. Corpuscles of one Liquor, with the *colour'd* Corpuscles of another: if they unite, the Mass will either swell or shrink, and thereby its Density will be alter'd; if they ferment, the Size of the Particles may be diminish'd, and thereby *coloured* Liquors may become transparent: If they coagulate, an opake Liquor may be produc'd of two transparent ones.

Hence, 'tis easy to see why a *colour'd* Liquid, in a Glass of a conical Figure, placed between the Eye and the Light, appears of a different *Colour* in different Parts of the Vessel; there being more and more Rays intercepted, as they pass thro' a longer or a shorter Section of the Vessel: till, at the Base, they are all intercepted; and none seen but those reflected.

From the various *Colours* of Natural Bodies, Sir *I. Newton* observes, the Bigness of their component Parts may be estimated: For that the Parts of Bodies do properly exhibit the same *Colour* with a *Lamella* of equal thickness, provided the Density in both be the same: See Body, Particle, &c.

For the distinct Properties, &c. *of the several* Colours. See Black, White, Blue, &c. see also Rainbow, &c.

Colour, in Painting, is applied both to the Drugs, and to the Teints produced by those Drugs, variously mix'd and applied.

The principal *Colours* used by Painters, are *red*, and *white Lead* or *Ceruse*; *yellow* and *red Ocres*; several Kinds of Earth, as *Umber*; *Orpiment*, *black Lead*, *Cinnabar* or *Vermillion*, *Gambouche*, *Lacca*, *blue* and *green Ashes*, *Indigo*, *Verdegrease*, *burnt Ivory*, *Bistre*, *Lampblack*, *Smalt*, *Ultramarine*, and *Carmine*; *each of which, with the manner of preparing them*, *their Uses*, &c. see under their respective Heads, Lead, Cerusse, Ocre, &c.

Of these *Colours*, some are used ground in *Oil*, others only in *Fresco*, others in *Water*, and others for *Mignature*. See Fresco, and Mignature; see also Painting, Colouring, &c.

Dark, and Light Colours. Under these two Classes, the Painters reduce all the *Colours* they use: Under *Light Colours* are comprehended *white*, and all those which approach nearest it; and under *Dark Colours*, *black*, and all those which are obscure and earthy, as *Umber*, *Bistre*, &c.

Simple, and Mineral Colours, is another Division among the Painters: Under *simple Colours*, they range all those us'd by Limners, Illuminers, &c. extracted from Vegetables; and which will not bear the Fire: as the yellow made of Saffron, of *French* Berries, &c. Lacca, and other Tinctures extracted from Flowers. The rest are *Mineral*, drawn from Metals, &c. and able to bear the Fire: these alone are us'd in Enamelling. See Enamelling.

Changing and Permanent Colours; another Division of *Colours*: By *changeable*, are meant those which depend on the Situation of Objects with regard to the Eye; as that of Taffetas, of a Pidgeon's Neck, &c. The last, however, being attentively view'd with a Microscope, each Fibre of the Feathers appears compos'd of several little Squares, alternately red and green; so that they are fix'd *Colours*.

Kircher says, that the *changing Colours* observ'd in the Wings of Pidgeons, Peacocks, &c. arise from the Feathers being transparent, and of a Figure resembling a Prism; and consequently the Light's being differently refracted from 'em. On the contrary, the fix'd and *permanent Colours*, are not exhibited by Refraction but Reflection.

M. *Mariotte* observes, that there are two different Gradations, or Series of *Colours*, from white, to black; the one white, yellow, red, and black; the other white, blue, violet, and black. See Painting.

Colour, in Dying. There are five simple, primary, or Mother-*Colours*, used by the Dyers; from the Mixture whereof all the other *Colours* are form'd: These are *blue*, *red*, *yellow*, *brown*, and *black*; each of which see under their proper Head, Blue, Red, &c.

Of these *Colours*, variously mix'd and combin'd, they form the following *Colours*; *pansy*, *blue*, and *red*: from the Mixture of blue and scarlet, are form'd *amaranth*, *violet*, and *pansy*: From the same Mixture of blue and crimson-red, are form'd the *colombine* or *dove-colour*, *purple*, *crimson*, *amaranth*, *pansy*, and *crimson-violet*.

It may be observ'd, that they give the Name *Crimson*, to all *Colours* made with Cochineal. See Crimson, Cochineal, &c.

Of blue and red Madder, they likewise make *purple*, *pepper-colour*, *tan-colour*, and *dry rose*: The same blue, with red half in grain, makes *amaranth*, *tan-colour*, and *dry rose*. Blue, and half red crimson, compose *amaranth*, *tan-colour*, *dry rose*, a *brown pansy*, and *sur-brun*.

Blue and Yellow. These two *Colours*, mix'd together, compose a yellow-green, spring-green, grass-green, laurel-green, brown-green, dark-green; as well as sea-green, parrot-green, and cabbage-green, &c. These three last *Colours* are to be less boil'd than the first.

Note, with regard to *green*, there's no Ingredient or Drug in Nature that will dye it; but the Stuffs are dy'd twice, first in blue, then yellow.

Blue and Brown. These two *Colours* are never mix'd alone; but with the addition of red, either of Madder or Cochineal, they form several *Colours*.

Red and Yellow. All the Shades compos'd of these two *Colours*, as gold-yellow, aurora, marigold, orange, nacarat, granat-flower, flame-*colour*, &c. are made with yellow, and red of Madder; scarlet being less proper, as well as too dear.

Red and Brown. Of these two *Colours* are form'd cinnamon-*colour*, chesnut, musk, bears-hair, and even purple; if the red be that of Madder.

Yellow and Brown. The *Colours* form'd from these two are all the Shades of *Feuille-morts*, and Hair-*Colours*.

It may be observ'd, that tho we say, there are no *Colours*, or Shades, made from such and such Mixtures: 'tis not that none can be made; but only that they are more easily form'd from the Mixture of other *Colours*. See Dying.

For the Method of proving the Goodness, or Falseness of Colours, *or Dyes*; see Dye.

Colour, in Heraldry. The *Colours* generally used in Heraldry, are red, blue, black, green, and purple; which, by the Learned in that Science are called *Gules*, *Azure*, *Sable*, *Vert* or *Sinople*, and *Purpure*. *Tenne*, or tawny, and *Sanguin*, are not so common. See each *Colour* under its proper Article Gules, Azure, Vert, &c.

As to yellow and white, call'd *Or* and *Argent*; they are Metals, not *Colours*. See Or, and Argent.

These *Colours* and Metals are sometimes also express'd in blazon by the Names of precious Stones; and sometimes by those of Planets, or Stars. Thus, Or is call'd *Sol*, and *Topaz*; Argent, *Luna*, and *Pearl*; Gules, *Mars*, and *Ruby*; Azure, *Jupiter*, and *Saphir*; Sable, *Saturn*, and *Diamond*; Vert, *Venus*, and *Emerald*; Purpure, *Mercury*, and *Amethist*; Tenne, the *Dragon's-Head*, and *Hyacinth*; and *Sanguin*, the *Dragon's-Tail*, and *Sardonix*. See Sable, Sol, Argent, &c.

It is a general and fundamental Rule in Blazon, not to place *Colour* upon *Colour*, nor Metal upon Metal. That is, if the Field be of a *Colour*, the Bearing must be of a Metal: tho this Rule, on some Occasions, and in some Circumstances, is dispens'd withal; as in the Diminutions and Differences which distinguish the younger from the elder Families; and in the Extremities of Animals Tongues, Claws, Horns, &c. In which Cases, *Colour* may be on *Colour*, and Metal on Metal, without false Heraldry.

Onomaus is said to have first invented the Distinction of *Colours*, to distinguish the *Quadrillæ* of Combatants at the *Circensian* Games: the green for those who represented the Earth; and the blue for those who represented the Sea. See Faction.

Hence, the antient Cavaliers took occasion to distinguish themselves in their Tournaments, by Habits, Plumes, and Ribbands of different *Colours*; which were ordinarily those of their Mistresses, and were the Symbol of some Passion, or Quality.

Hence also the Origin of *Colours* in Liveries. See Livery.

Colours, in the Military Art, include the Banners, Flags, Ensigns, &c. of all Kinds, bore in an Army, a Fleet, or the like. See Banner, Flag, Standard, &c.

Colours, are also used both in the *Latin* and *Greek* Churches, to distinguish several Mysteries and Feasts celebrated therein.

In the *Latin* Church are only regularly admitted five *Colours*, viz. *white*, *red*, *green*, *violet*, and *black*; the *white* for the Mysteries of our Saviour, the Feasts of the Virgin, those of the Angels, Saints, and Confessors; the *red* for the Mysteries and Solemnities of the Holy Sacrament, the Feasts of the Apostles and Martyrs; *green* for the Time between Pentecost and Advent, and from Epiphany to Septuagesima; *violet* in Advent, Christmas, in Vigils, Rogations, and in votive Masses in time of War: Lastly, *black* for the Dead, and the Ceremonies thereto belonging. Clothes of Gold and Silver, and Embroideries, serv'd indifferently for all Solemnities.

In the *Greek* Church, the use of *Colours* is almost obliterated, as well as among us: *Red*, among them, was the *Colour* for Christmas and the Dead; as *black* is still in the last among us. See Mourning.

Colour, in Law, is a probable, or plausible Plea; tho in reality false at bottom; and only calculated to draw the Trial of the Cause from the Jury to the Judge.

Thus, *v. g.* in an Action of Trespass for taking away the Plaintiff's Beasts, the Defendant urges, That before the Plaintiff had any thing in them, he himself was possess'd of 'em, as his proper Goods; and deliver'd them to *A. B.* to deliver to him again, when &c. and *A. B.* gave them to the

Plaintiff: and the Plaintiff, supposing the Property to be in *A. B.* at the Time of the Gift, took them; and the Defendant took 'em again from the Plaintiff; whereupon the Plaintiff brings his Action. This is a good *Colour*, and even a good Plea. See *Doct. and Stud.*

Colour *of Office*, is when some unjust Action is done, under countenance of Office, or Authority.

To Colour Strangers Goods, is when a Freeman allows a Foreigner to enter Goods at the Custom-house in his Name.

COLOURING, in Painting, the manner of applying, and conducting the *Colours* of a Picture: Or, it is the Mixture of Lights and Shadows, form'd by the various *Colours*, employ'd in a Painting. See Clair-obscure.

The *Colouring* is one of the principal Branches of Painting. M. *Felibien* divides the Painter's Art into three Parts; the Design, the Composition, and the *Colouring*. The *Colouring* strikes the most; but among Masters it always gives place to the Exactness of the Design. See Painting.

De Piles observes, that the Word *Colouring*, in its confined Sense, is chiefly applicable to a History-piece; scarce at all to a Landskip. He adds, that the Term *Colouring* relates more immediately to the Carnations than any thing else.

The *Colouring*, in its general Sense, takes in what relates to the Nature and Union of *Colours*; their Agreement, or Antipathy; how to use them to advantage in Light and Shadow, so as to shew a Relievo in the Figures, and a sinking of the Ground: What relates to the aerial Perspective, *i. e.* the Diminution of *Colours*, by means of the Interposition of Air; the various Accidents and Circumstances of the Luminary and the Medium; the different Lights, both of the Bodies illuminating and illuminated; their Reflections, Shadows, different Views, with regard either to the Position of the Eye, or the Object: What produces the Strength, Fierceness, Sweetness, *&c.* in Paintings well *colour'd*: The various Manners of *colouring*, both in Figures, Landskips. *&c.*

The Doctrine of Colouring *is comprised under the following Rules.*

Colours are consider'd, either in respect of their Use, or their Oeconomy and Disposition.

1st, With regard to their *Use*. They are either in Oil, or Water: Those in Oil, again, are either consider'd with a View to their Preparation, or Application.

In the Preparation of Oil Colours, care must be taken that they be ground fine; that in putting them on the Pallet, those which won't dry of themselves, be mix'd with Oil, or other Dryers; and that the ting'd *Colours* be mix'd in as small Quantities as possible.

For their *Application*, it is consider'd either with regard to the Kinds of Painting in Works of various *Colours*, or in those of one single *Colour*.

For the *first*: in the larger Pieces, the *Colours* are either laid on full, so as they may be *impasted*, or incorporated together, which makes them hold the more firmly.

Or else we mix those more agreeable ones, which dry too hard, and too hastily, with a little *Colour*, and the clearest of the Oil: But, in both Cases, the *Colours* are to be laid on strong at first; it being easy to weaken those that are to be thrust back, and to heighten the others: The Touches to be bold, by the Conduct of a free and steady Pencil; that the Work may appear the most finish'd at a proper distance, and the Figures animated with Life and Spirit.

For glazed Colours, care must be taken that the Under-*Colour* be painted strong, and that it be a Body-*Colour*, and laid smooth.

In finish'd Works, which are to be view'd near at hand, they proceed, either by applying each *Colour* in its place; preserving their Purity, without fretting or tormenting them, but sweetly softening off their Extremities: Or by filling up all the great Parts with one single *Colour*; and laying the other *Colours*, which are to form the little Things, upon it: which is the more expeditious way, but more apt to decay.

For the *second*: the Kinds of Pictures in one *Colour* are two, *viz. Camieux*, where the Degradations of *Colours* of Objects afar off, are usually manag'd by Lights, as with Crayons; and *Basso-Relievo*, which is an Imitation of Sculpture, of whatsoever Matter and Colour: in both these, the *Colours* are wrought dry. See Camieux, *&c.*

For Water-Colours, they are wrought various ways; *viz.* in *Distemper*, where the *Colours* are prepar'd in Size; which Method is used on all kinds of Matter: in *Fresco*, or Painting on fresh Mortar; where the *Colouring* must be quick, that the Matter dry not; and with much Care and Neatness, laying each Colour in its place, and intermingling them by Parcels: In *Agouache*, where the *Colours* are mix'd with Gum, and the Pencil dragg'd; as in Paint and Washings: In *Miniature*, for small and delicate Works; where the *Colours* are to be very fine and clean, mix'd with Gums and wrought in Dots or Points. See Distemper, Miniature, *&c.*

But in all the Kinds of Painting, both in Oil and Distemper, especially the latter, care must be taken that the Design be fix'd, and all the Parts mark'd out, ere any *Colours* be applied.

For the 2d Part of *Colouring*, or the *Oeconomy* and dispensing thereof in Paintings; regard is either had, first, to the Qualities of the *Colours*, to appropriate them according to their Value and Agreement: or, secondly, to their Effect, in the Union and Oeconomy of the Work.

For the first, it must be observ'd, that *white* represents Light, and gives the briskness and heightening; *black*, on the contrary, like Darkness, obscures and effaces the Objects: again, black sets off the light Parts; and by that they serve each other to loosen the Objects. A proper Choice to be made of *Colours*, and the too much charg'd manner to be avoided; both in *Carnations*, where red *Colours* are not to be affected, as rather resembling the Flesh when flead than the Skin; and all bright glowing *Colours*: the Skin, how delicate soever, being always of a Down-*Colour*. In the *Drapery*, where the Painter has his whole stock of *Colours* to chuse out of, to procure a good effect; and in the *Landskip*, to dispose those *Colours* near one another, which mutually assist and raise each other's Force and Briskness; as red and green, yellow and blue.

To manage 'em so, as that they be accommodated to the Effects of the great Parts of Light and Colour: that the strong *Colours* lead to the soft ones, and make 'em more look'd at; bringing 'em forwards, or keeping 'em back, according to the Situation, and the degree of Force requir'd.

For the *Effects* of *Colours*, they either regard the Union, or the Oeconomy: With respect to the first, care must be taken that they be laid so as to be sweetly united, under the briskness of some principal one; that they participate of the prevailing Light of the Piece; and that they partake of each other by the communication of Light, and the help of Reflection.

For the Oeconomy in managing their degrees, regard is to be had to the *Contrast*, or Opposition intervening in the Union of the *Colours*; that by a sweet Interruption, the briskness, which otherwise fades and palls, may be rais'd to the Harmony which makes the Variety of *Colours* agree; supplying and sustaining the Weakness of some by the Strength of others; neglecting some Places, on purpose to serve as a Basis or Repose to the Sight, and to enhance those which are to prevail thro' the Piece: To the *Degradation*; where, the better to proportion the *Colours* that fall behind, some of the same Kind are to be preserv'd in their purity, as a Standard, for those carried afar off to be compar'd by, in order to justify the Diminution: regard being always had to the quality of the Air, which, when loaded with Vapours, weakens the *Colours* more than when clear: To the *Situation* of the *Colours*; where care must be taken, that the purest and the strongest be placed before, or in the Front of the Piece; and that by their force, the compound ones, which are to appear at a distance, be kept back; particularly, the glazed *Colours* to be used in the first Rank: Lastly, to the *Expression* of the Subject, and the Nature of the Matters, or Stuffs; whether shining or dull, opake or transparent, polish'd or rough. See Carnation, Contrast, Degradation, *&c.*

Colouring *and Non*-colouring *Drugs*: Thus the Dyers distinguish their Drugs: the *first* are applicative, and communicate their *Colours* to the Matters boil'd in them, or pass'd thro' them; as Woods, scarlet Grain, Cochineal, Indigo, Madder, Turmeric, *&c.* The *second* serve to prepare and dispose the Stuffs, and other Matters; and to extract the Colour out of the *colouring* Ingredients; as Allum, Salt or Crystal of Tartar, Arsenic, Realgal, Salt-Petre, common Salt, Sal Armoniac, Sal Gemmæ, Agaric, Spirit of Wine, Bran, Pease-flour, Wheat, Starch, Lime, and Ashes.

COLUMBINE, a kind of Violet-colour, call'd also *Dove-colour*. See Colour.

S. COLUMBUS, a Congregation of Regular Canons, formerly of great Extent in *Ireland*; having under it an hundred Abbies, or Monasteries, in the *British* Islands. See Congregation, and Canon.

The principal Monastery, or Chief of the Order, according to some, was at *Armagh*; according to others, at *Londonderry*: others will have it in the Island of *Ha*, or *Hi*, or *Iona*, now called *Tcolmkil*, to the North of *Ireland*, not far from *Scotland*.

There is a Rule in *Irish* Verse, supposed to have been dictated by S. *Columbus* to his Canons.

COLUMN, in Architecture, a round Pillar, made to support or adorn a Building. See Pillar, Building, *&c.*

The *Column* is the principal, or reigning Part of an Order. See Order.

The principal Laws and Properties of this eminent Member of Architecture are thus deduc'd:

Every *Fulcrum*, or Support, is so much the more perfect as it is the firmer, or carries the greater appearance of firmness: and hence all *Columns*, or Pillars, ought to have their Base, or Foot, broader than themselves. See Base.

Again,

Again, as a Cylinder and a quadrangular Prism are more easily remov'd out of their place than a truncated Cone, or Pyramid, on the same Base, and of the same Altitude: The Figure of *Columns* ought not to be cylindrical; nor, that of a Pilaster, pyramidical; but both the one and the other to be contracted or diminish'd, *i. e.* to grow less and less, like a truncated Cone and a truncated Pyramid. See DIMINUTION.

For the same Reasons, the lowest Parts of the *Columns* to be cylindrical, that of Pilasters pyramidical: Hence, again, as *Columns* are more firm, if their Diameter bears a greater proportion to their Height, than if it bore a less: The greater Ratio is to be chosen, where a large weight is to be sustain'd; and less where a less.

Further, as the Design of a *Column* is to support a weight, it must never be supposed without an Entablature: tho a *Column* rais'd on an eminent Place, so as to leave no room to fear its being thrust out of its place, needs no Pedestal. See ENTABLATURE, and PEDESTAL.

The entire *Column*, in each Order, is compos'd of three principal Parts, the *Base*, the *Shaft*, and the *Capital*. See the Proportions of each under its respective Head, BASE, SHAFT, *&c.*

Each of these Parts, again, is subdivided into a great Number of lesser, called *Members*, or *Mouldings*: some whereof are essential, and found in all *Columns*; others are only accidental, and found in particular Orders. See MOULDING, ORNAMENT, *&c.*

Columns are made different, according to the several *Orders* they are used in; and likewise, not only with regard to their *Order*, but also to the *Matter*, *Construction*, *Form Disposition* and *Use*.

COLUMNS, *With regard to* Order.

Tuscan COLUMN, is the shortest, and most simple of all the *Columns*. See TUSCAN.

Its height, according to *Vitruvius*, *Palladio*, and *Vignola*, is 7 Diameters, or 14 Modules; according to *Scamozzi*, 15 Modules; to *De Lorme*, 12; to *Trajan's Column*, 16. Its Diminution, according to *Vitruvius*, is one fourth of the Diameter; according to *Vignola*, a fifth; and according to *Trajan's Column*, a ninth.

Its several Parts, Mouldings, *&c.* see under their proper Heads, SHAFT, CAPITAL, *&c.* See it represented in Plate *Architecture*, Fig. 6.

Doric COLUMN, is somewhat more delicate. See DORIC.

Its Shaft is adorn'd with Flutings: its Height, according to *Vitruvius*, is from 14 to 15 Modules; to *Scamozzi*, 17; to *Vignola*, 16; in the *Coliseum*, 19; in the *Theatre of Marcellus*, $15\frac{2}{3}$. Its Diminution, according to the Theatre of *Marcellus*, 12 Minutes; to the *Coliseum*, 4 Min. and a half. See Plate *Architecture*, Fig. 7.

Ionic COLUMN, is more delicate still. See IONIC.

It is distinguish'd from the rest by the Volutes in its Capital; and by its Base. See VOLUTE.

Its Height, according to *Palladio*, is 17 Modules $\frac{1}{2}$; according to *Vignola*, 18. Its Diminution, in the Temple of *Concord*, $10\frac{1}{2}$; of *Fortuna Virilis*, $7\frac{1}{2}$; *Coliseum*, 10 Min. See Plate *Architecture*, Fig. 8.

Corinthian COLUMN, is the richest and most delicate of all the *Columns*. See CORINTHIAN.

Its Capital is adern'd with two rows of Leaves, and with Caulicoles; whence spring out little Volutes. Its Height, according to *Vitruvius*, and many Remains of antique Porticos, Temples, *&c.* is 19 Modules; according to *Serlio*, 18; to the *Coliseum*, 17.17; to the three *Columns* in the *Campo Vaccino*, 20; the Basilisk of *Antoninus*, 20. Its Diminution, according to the Temple of *Peace*, $6\frac{1}{2}$ Minutes; the Pantheon, $6\frac{1}{2}$; Temples of *Sibyl* and *Faustina*, 8; *Constantine's* Arch, 7; Portico of *Septimius*, $7\frac{1}{2}$. See Plate *Architecture*, Fig. 9.

Composite COLUMN, has two rows of Leaves in its Capital, like the *Corinthian*; and angular Volutes, like the *Ionic*. See COMPOSITE.

Its Height, according to *Vignola*, and the Arch of *Titus*, is 20 Modules; to *Scamozzi*, and the Temple of *Bacchus*, $19\frac{1}{2}$; the Arch of *Septimius*, 19.09. Its Diminution, according to *Titus's* and *Septimius* Arch, 7 Minutes; Baths of *Diocletian*, 11 Min. $\frac{1}{3}$; Temple of *Bacchus*, $6\frac{1}{2}$. See Plate *Architecture*, Fig. 10.

It may be here observ'd, that there seems more of Caprice than Reason in that Diversity found in the Heights of *Columns* of the same Order, in different Authors; each of whom frequently takes the liberty of dispensing with his own Rules.

Vitruvius, for Instance, makes the *Doric Columns* of Temples, shorter than those of Porches behind Theaters; *Palladio* gives a greater height to *Columns* standing on Pedestals, than to those which have none; and *Serlio* makes his *Column* a third shorter, when insulate, or detach'd, than when contiguous to the Wall.

But notwithstanding the diversity of Height in *Columns* of the same Order in different Authors; they still bear a true Proportion in the several Orders compar'd with each other; by which they go increasing, as the Orders are less massive.

But this Augmentation is greater in some Ordonnances than in others; for in the Antique it is but of 5 Modules, or Semidiameters, for the five Orders: the shortest *Column*, *viz.* the *Tuscan*, being 15 Modules; and the longest, the *Composite*, 20. In *Vitruvius*, this Increase is also of 5 Modules; but commences from 14 Modules, and ends at 19. The Moderns usually make it greater: *Scamozzi* makes it 5 Modules and a half; *Palladio* and *Serlio*, 6.

From the several Proportions of *Columns* assign'd by several Authors, M. *Perrault* has drawn a new one; which is a Mean, between the Extremes of the rest. Thus, he makes the *Tuscan Column* 14 Modules $\frac{2}{3}$; which is a Mean between the *Tuscan* of *Vitruvius*, 14, and that of *Trajan's Columns*, 18: The height of the *Doric Column* he makes 16 Modules; which is a Mean between the 14 of *Vitruvius*, and the 19 of the *Coliseum*: The *Ionic* he makes 17 Modules $\frac{2}{3}$; which is a Mean between the 16 of *Serlio*, and the 19 of the *Coliseum*: The *Corinthian Column* he makes 18 Modules $\frac{2}{3}$; as being a Medium between the 16 Modules 6 Minutes of the Temple of the *Sibyl*, and the 20 Modules 6 Minutes of the three *Columns* of the *Roman Forum*: Lastly, the *Composite Column*, by the same Rule, he makes 20 Modules; that height being a Mean between the Arch of *Titus*, and the Temple of *Bacchus*.

Indeed, the Rule he proceeds by seems very reasonable; *viz.* that the progressional Advance of each *Column* in the different Orders be equal: so that having settled the whole Progression, from the *Tuscan* to the *Composite*, at 5 Modules 10 Minutes; this being a Mean between the 5 Modules of the Antique, and the $5\frac{1}{2}$ of the Moderns; he divides this Sum, which is 160 Minutes, into four equal Parts, giving 40 Minutes to the Progression of each Order: This makes the *Tuscan Column* 14 Modules 20 Minutes; the *Doric* becomes 16, the *Ionic* 17, 10 Min. the *Corinthian* 18, 20 Min. and the *Composite* 20 Modules. See PROPORTION.

For the distinguishing Characters of each Order of Columns; see ORDER.

For the Matter; see STONE, MARBLE, *&c.*

For the Use and Application; see BUILDING.

For the ranging of COLUMNS, *and the Spaces to be observ'd between each*; See INTERCOLUMNATION.

COLUMNS, *with regard to their different* Matter.

Water-COLUMN, is a *Column* whose Shaft is form'd of a large *Jet d'Eau*; which spouting out Water violently from the Base, drives it within the Tambour of the Capital, which is made hollow; whence falling down again, it has the Effect of a liquid crystal *Column*. See FOUNTAIN.

An Instance of this we have at *Quinta d'Aveiro* near *Lisbon*.

Fusible COLUMN. Under this Term are comprehended, not only *Columns* of various Metals, and other fusible Matters, as Glass, *&c.* but also those of Stone, said to have been cast; the Secret of which, some will have us believe to have been known to the Antients.

Transparent COLUMN, any *Column* made of transparent Matter; as were those of Crystal in the Theater of *Scaurus*, mention'd by *Pliny*; and those of transparent Alabaster, in the Church of St. *Mark*, at *Venice*.

Hydraulic COLUMN, is that whose Shaft appears to be of Crystal, being form'd by a number of little Threads of Water, falling from Holes made in Girts of Metal, at equal distances, by means of a Pipe mounting thro' the middle thereof; as in the Gardens at *Versailles*.

Hydraulic COLUMN, is also a *Column* from whose top proceeds a *Jet d'Eau*, to which the Capital serves as a Bason; whence the Water descends by a little Pipe, which turns spirally around the Shaft.

Such are the *Ionic Columns* of the Cascade of the *Belvidera* at *Frescati*; and those of the Vineyard *Mathei* at *Rome*.

Molded COLUMN, is that made by Impastation, of Gravel and Flints of divers Colours, bound together with a Cement, which grows perfectly hard, and receives a polish like Marble.

The Secret of making these, it appears the Antients were Masters of, by the *Columns* lately discover'd near *Algiers*; which are doubtless the Ruins of the antient *Julia Cæsarea*: on these are found the very same Inscription in antique Characters, the Contours, Accents, and even Faults, being repeated in every Shaft: an incontestable Proof of their being molded.

COLUMNS *with regard to their* Construction.

COLUMN *of Joinery*, is made of strong timber boards, join'd, glu'd, and pinn'd together; is hollow, turn'd in the Lath, and usually fluted. Such are the *Columns* in most Altar-pieces.

Incrustated COLUMN, is made of several Ribs, or thin Shells of fine Marble, or other rare Stone, cemented upon a Mold of Stone, Brick, or the like. This is done with design both to save the precious Matter, as Oriental Jasper, Lapis, Agat, *&c.* or to represent pieces of such Matters of an extraordinary size, by the neatness and closeness of the Incrustation, which renders the Joints imperceptible.

Gemi-

Geminated Column, that whose Shaft is form'd of three similar and equal Sides, or Ribs of Stone, fitted within one another; and fasten'd at bottom with Iron Pins, and a-top with Cramp-Irons. This is to be fluted, that the Joints may be the less discernible.

Column *of Masonry*, is made of rough Stone, well laid and cover'd with Plaister; or of Bricks molded triangularwise, and cover'd with Stuc.

Column *with Bands, or Tambours*; that whose Shaft is form'd of several Courses of Stone, or Blocks of Marble; less high than the Diameter of the *Column*: This is what *Ulpian* means by *Columna structilis*, or *adpacta*; which is opposite to the *Columna solida*, or *integra*, *i.e.* of one piece.

Column *in Truncheons*, or *Pieces* consists of three, four, or five pieces of Stone, or Metal; differing from the Tambours, as being higher than the Diameter of the *Column*.

Columns, *with regard to their* Form.

Fluted Column, called also *channel'd*, and *striated Column*; that whose Shaft is adorn'd with Flutes, or Channelings; either from top to bottom, or only two thirds of its height. See Fluting.

Cabled, or *Rudented* Column, is a *Column* having Projectures in form of Cables, or Canes, in the Naked of the Shaft; each Cable having an Effect opposite to that of a Fluting; and accompany'd with a little List on each side. See Caeling.

Fluted and Cabled Column, is that whose Flutes are fill'd up with Cables, Reeds, or Staves; beginning from the bottom of the Shaft, and reaching one third of its height.

Fluted Column *enrich'd*, is that whose Flutings are fill'd up with Ornaments of Foliages, Rinds, Ribbons, *&c.* instead of Cables.

Twisted Column, is that whose Shaft is twisted round, in manner of a Screw, with six Circumvolutions; being, ordinarily of the *Corinthian* Order: *Vignola* first found a Method of drawing it by Rule.

A twisted fluted Column, is that whose Flutes follow the Contour of the Shaft, in a spiral Line throughout the whole length; whereof there are some antique ones of Porphyry, and hard Marble.

Column *twisted and enrich'd*, is that, one third of whose Shaft is fluted, and the rest adorn'd with Branches and other Enrichments: and which being all of Marble, is enrich'd with Sculpture from bottom to top.

Sometimes, again, the *twisted Column* is form'd of two or three slender Shafts, twisted round, so as to leave a Cavity in the middle. Sometimes the Flutings are Spiral, yet the Shaft strait; which succeeds very well in the more delicate Orders.

Colossal Column, a *Column* of enormous size, too large to enter any Ordonnance of Architecture; to be placed solitary, in the middle of a Square, *&c.* See Colossus.

Such is the *Trajan Column*, whose Proportions are *Doric*, and its Profile *Tuscan*; 12 Feet and $\frac{2}{3}$ in Diameter, and 100 in Height, including the Base and the Capital: The Pedestal has 18 Feet, and the Crowning 16 and an half. It supports a brazen Statue of St. *Peter*, 13 Foot high: The whole making 147 antient *Roman* Feet.

It was built by *Apollodorus*; and consists of 34 Tambours, or Blocks, or Pieces of white Marble, taking in the Crowning.

The *Antonine Column*, which is also of white Marble, is inferior to the *Trajan* in beauty of Sculpture, but exceeds it in height; being 168 Feet to the Capital, besides the Feet of the Pedestal under ground.

Lastly, the *London Column*, or Monument, is of Stone, 15 Foot in Diameter, and 202 high; taking in the Pedestal and Crowning. See Monument.

Carolitic Column, that adorn'd with Foliages, or Leaves and Branches turn'd spirally around the Shaft; or in Crowns and Festoons.

These were used by the Antients for raising Statues on; which hence took the Denomination of *Carolitic*.

They are very suitable in triumphal Arches, and Decorations of Theaters.

Swell'd Columns, are those which have a bulging, or swelling, in proportion to the height of the Shaft.

Authors are much divided on the Subject of this *Swelling*; Sir *H. Wotton* treats it as a most ridiculous Abuse: yet the Practice obtains among the modern Architects; who generally make their *Columns* a little bigger at one third of their height, than at the Base; *i. e.* they diminish the *Column* near the Base; which makes the Part appear big, and occasions a Swelling at about one third of the height.

This Swelling appears to have been unknown to the Antients. M. *le Clerc* observes, it ought not to exceed one Minute and a half at most. He thinks it ought never to be us'd, excepting where there is a particular occasion for it; as where *Columns* are to be placed over one another.

Diminish'd Column, is that which has no swelling, but begins to taper, or diminish, from the Base; in imitation of Trees. See Diminution.

Such are most of the Antique *Columns* of *Granate*; particularly the *Corinthian* ones in the Porch of the Pantheon.

Gothic Column, a round Pillar, either too short for its bulk, or too slender for its height; as having, sometimes, 20 Diameters; and this without either Diminution, or Swelling: yet, its Ornaments, and the Characters of its work, being as far from those of the Antique as its Proportions. See Gothic.

Hermetic Column, a kind of Pilaster, in manner of a Terminus; having the Head of a Man, in lieu of a Capital. It had its Name from a Custom among the Antients, of placing *Mercury*'s Head, whom the *Greeks* call *Hermes*, a-top of *Columns*. See Hermes.

Massive Columns, are those too short for the Order whose Capital they bear; as the Pillars in *Gothic* Churches usually are. See Massive.

Under the Term *Massive*, are, likewise, frequently comprehended *Rustic* and *Tuscan Columns*. See Rustic.

Cylindrical Column, is that which has neither Swelling nor Diminution.

Oval Column, that whose Shaft has a Flatness; its Plan being made oval, to reduce the Projecture.

Polygonous Column, has several Sides, or Faces: The most Regular of these have eight Faces.

These three last, *Daviler* regards as Abuses in Architecture.

Pastoral Column, that whose Shaft is form'd in imitation of the Trunk of a Tree, with Bark and Knots.

This Kind of *Column*, in the *Tuscan* Proportion, may be used in the Gates of Parks and Gardens; in the Decoration of Pastoral Scenes, *&c.*

Serpentine Column, a *Column* form'd of three Serpents, twisted together; the Heads whereof serve as a Capital.

An Instance of this is at *Constantinople*, in the Square called *Atmeidan*, antiently the *Hippodrome*. *P. Gilles* calls this the *Delphic Column*; as imagining it antiently serv'd for the Tripod of *Apollo*, in the Temple at *Delphos*. It is now ordinarily called the *Talisman*, or *Enchanted Column*.

Columns, *with regard to their* Disposition.

Insulated Column, is that standing free, and detach'd, on all Sides, from any other Body.

Column *inserted*, or *back'd*, is that attach'd to a Wall, by a third or fourth Part of its Diameter.

Column *Nich'd*, is that whose Shaft enters, with half its Diameter, into a Wall, which is hollowed for its Recepion; with its Plan parallel to the Projecture of the Tore.

Such is that in the Portal of St. *Peter* at *Rome*.

Angular Column, is an insulated *Column*, placed in the Coin, or Corner of a Portico; or inserted into the Corner of a Building: Or, even a *Column* that flanks an Angle, either acute or obtuse, of a Figure of many Sides.

Attic Column, according to *Pliny*, is a Pilaster insulated; having four equal Faces, or Sides; and of the highest Proportion, *v. g. Corinthian*.

Flank'd Column, according to M. *Blondel*, is a *Column* engag'd with one half, or at least, one third of its Diameter, between two Demi-Pilasters.

Doubled Column, is an Assemblage of two *Columns*; join'd in such a manner, as that the two Shafts penetrate each other with a third of their Diameter. Such are those of the four Angles in the Court of the *Louvre*.

Coupled Columns, are those disposed by two and two; so as almost to touch each other at their Bases, and Capitals.

Canton'd Columns, those engag'd in the four Corners of a square Pillar, to support four Springs of an Arch.

Grouped Columns, those placed on the same Pedestal, or Socle; either by three and three, or by four and four.

Median Columns. *Vitruvius* gives the Name *Columnæ Medianæ*, to the two *Columns* in the middle of a Porch, which have their Intercolumniation larger than the rest: So that if these last, for instance, be *Pycnostyles*; the *Medianes* are *Eustyle*.

The Term may also be applied to the middle Row of *Columns*, in a Frontispiece adorn'd with three Orders.

Columns, *with regard to their* Use.

Astronomical Column, is a kind of Observatory, in form of a very high Tower; built hollow, and with a spiral Ascent to an Armillary Sphere; placed a-top, for observing the Courses of the heavenly Bodies.

Such is that, of the *Doric* Order, erected at the *Hotel de Soissons* at *Paris*, by *Catherine de Medicis*, for the Observations of *Orontius Finæus*, a celebrated Astronomer of that Time.

Chronological Column, that which bears some historical Inscription, digested according to the Order of Time: as by Lustra, Olympiads, Fasti, Epochas, Annals, *&c.*

At *Athens* there were *Columns* of this kind, whereon were inscrib'd the whole History of *Greece*, digested into Olympiads.

Hollow Column, that which has a spiral Stair-case within-side, for the Convenience of ascending to the top: As the *Trajan Column*, the Stair-case whereof consists of 185 Steps, and is illumin'd by 43 little Windows: The *Antonine Column*,

lumn has 198 Steps, with 56 Windows; each of these is cut in Tambours of white Marble. The *Monument*, or *Fire-Column* at *London*, has also a Stair-case; but it does not reach to the top.

These kind of *Columns* are called also *Columnæ Cochlides*, or *Cochlidea*, *q. d.* a Stair-case in form of a Snail.

Funeral Column, that which bears an Urn, wherein are supposed to be inclos'd the Ashes of some deceas'd Hero; and whose Shaft is sometimes overspread with Tears, or Flames; which are Symbols of Sorrow, and of Immortality.

Gnomonic Column, a Cylinder, whereon the Hour of the Day is represented by the Shadow of a Style.

Of these there are two Kinds: in the one, the Style is fix'd, and the Hour-Lines are no more than the Projection of a vertical Dial, on a cylindrical Surface.

In the other, the Style is movable; and the Hour-Lines are drawn to the different Heights of the Sun, in the different Seasons of the Year.

Historical Column, is that whose Shaft is adorn'd with a Basso-Relievo, running in a spiral Line its whole length; and containing the History of some great Personage.

Such are the *Trajan* and *Antonine Columns*, at *Rome*.

Historical Columns may likewise be divided by Bands, or Tambours, into separate Basso-Relievos, containing distinct Subjects; by which means, the same *Columns* may likewise be made to answer the End of Chronological ones.

This Manner *Vignola* prefers to the former; which, he thinks, appears too much confused.

Indicative Column, that which serves to shew the Tides, *&c.* along the Sea-Coasts. Of this kind, there is one at *Grand Cairo*, of Marble, whereon the Overflowings of the *Nile* are express'd: By this they form a Judgment of the succeeding Season: when the Water, for instance, ascends to 23 Foot, 'tis a Sign of great Fertility in *Egypt*. See Nilometer.

Instructive Column, that rais'd, according to *Josephus*, Lib. I. cap. 3. by the Sons of *Adam*, whereon were engraven the Principles of Arts and Sciences.

Baudelot tells us, that the Son of *Pisistratus* rais'd another of this kind, of Stone; containing the Rules and Precepts of Agriculture.

Itinerary Column, a *Column* with several Faces, placed in the Cross-ways in large Roads; serving to shew the different Routs, by the Inscriptions thereupon.

Lactary Column, at *Rome*, according to *Festus*, was a *Column* erected in the Herb-Market, now the *Platea Montanara*; which had a Cavity in its Pedestal, wherein young Children, abandon'd by their Parents, out of Poverty or Inhumanity, were exposed, to be brought up at the publick Expence.

Legal Column. Among the *Lacedemonians*, there were *Columns* rais'd in publick Places, whereon were engraven the fundamental Laws of the State.

Limitrophous, or *Boundary* Column, that which shews the Limits of a Kingdom, or Country conquer'd. Such was that, which, *Pliny* says, *Alexander* the Great erected at the Extremities of the *Indies*.

As to those of *Hercules*, ordinarily call'd his *Columns*, or *Pillars*; they are only two very steep Mountains in the Straights of *Gades*, now *Gibraltar*.

Luminous Column, a sort of *Column* form'd on a cylindrical Frame, mounted and cover'd over with oil'd Paper, or Gawze; so that Lights being disposed in ranks over each other, the whole appears as on fire.

This sort of *Column* is likewise made with rows of Lamps, or Torches, running round its Shaft; either in horizontal Belts, or Bands; or in a spiral Line, continued over a Festoon of Flowers.

Manubiary Column, from the Latin *Manubiæ*, Spoils of the Enemy; a *Column* adorn'd with Trophies, built in imitation of Trees, whereon the Spoils of Enemies were antiently hung. See Trophy.

Memorial Column, that rais'd on occasion of any remarkable Event; as the *Monument* in *London*, built to perpetuate the Memory of the Burning of that City, in 1666.

It is of the *Doric* Order, fluted, hollow, with a winding Stair-case; and terminated a-top with waving Flames.

There is, also, another of the like Kind, in form of an Obelisk, on the Banks of the *Rhine* in the *Palatinate*, in memory of the famous Passage of that River, by the great *Gustavus Adolphus* and his Army.

Menian Column, any *Column* which supports a Balcony, or Meniane. See Meniane.

The Origin of this kind of *Column*, *Suetonius* and *Ascanius* refer to one *Menias*; who having sold his House to *Cato* and *Flaccus*, Consuls, to be converted into a publick Edifice; reserv'd to himself the Right of rasing a *Column* without side, to bear a Balcony; whence he might see the Shews.

Military Column, among the *Romans*, a *Column* whereon was engraven a List of the Forces in the *Roman* Army, ranged by Legions, in their proper order; with design to preserve the Memory of the Number of Soldiers, and of the Order observ'd in any Military Expedition.

The *Romans* had another kind of *Military Column*, which they called *Columna Bellica*, standing before the Temple of *Janus*; at the Foot whereof the Consul declar'd War, by throwing a Javelin towards the Enemies Countries.

Miliary Column, was a *Column* of Marble, rais'd by order of *Augustus*, in the middle of the *Roman Forum*; from whence, as a Centre, the Distances of the several Cities, *&c.* of the Empire were reckon'd, by other *Miliary Columns*; dispos'd at equal distances, on all the grand Roads. See Miliary.

This *Column* was of white Marble; the same with that which is now seen on the Balustrade of the Perron of the Capital at *Rome*.

Its proportion is massive; being a short Cylinder, with a *Tuscan* Base and Capital, and a Brass Ball for a Crowning, the Symbol of the Globe of the Earth.

It was called *Miliarium Aureum*; as having been gilt, at least the Ball, by order of *Augustus*. It was restor'd by the Emperors *Vespasian* and *Adrian*; as appears by the Inscriptions.

Phosphorical Column, a *Lighthouse*; or a hollow *Column*, built on a Rock, or the Tip of a Mole, or other Eminence, to serve as a Lanthorn to a Port.

Rostral Column, that adorn'd with the Beaks, or Prows of Ships and Galleys, with Anchors and Grapplers; erected, either in memory of a Naval Victory; as the *Tuscan Column*, in the Capitol: or, in honour of some Admiral; as the *Doric* ones, at the Entrance of the Castle *de Richlieu*.

Sepulchral Column, antiently, was a *Column* erected on a Tomb or Sepulchre; with an Inscription on its Base. See Tomb, *&c.*

Those over the Tombs of Persons of Distinction were very large; those for the common People small: these last are called *Stelæ* and *Cippi*. See Cippus, *&c.*

Statuary Column, that which supports a Statue. Such was that erected by Pope *Paul* V. on a Pedestal before the Church of St. *Maria major* at *Rome*; to support a Statue of the Virgin, which is of gilt Brass. See Statue.

This *Column* was dug up in the Temple of *Peace*; its Shaft is a single Block of white Marble 49 Foot and an half high, and 5 Foot 8 Inches Diameter; of the *Corinthian* Order, fluted.

The Term *Statuary Column*, may likewise be apply'd to Caryatides, Persians, Termini, and other human Figures, which do the Office of *Columns*; and which *Vitruvius* calls *Telamones*, and *Atlantes*. See Caryatides, *&c.*

Symbolical Column, is a *Column* representing some particular Country, by the Attributes proper thereto: As that of the *French* Order, set with Flower de Lis's, in the Frontispiece of the Jesuits Church at *Rouen*: or some memorable Action; as the *Corvinian Column*, on which was a Crow; erected to *Valerius Maximus*, Sirnam'd *Corvinus*, in memory of his Defeat of a Giant in the Army of the *Gauls*, by the Assistance of a Crow.

Under the Title of *Symbolic Columns*, may also be comprehended those which serve for Symbols. Such is that in a Medal of *Nero*, which expresses the Stability of the *Roman* Empire. See Symbol.

Triumphal Column, a *Column* erected among the Antients in honour of an Hero; the Joints of the Stones, or Courses whereof, were cover'd with as many Crowns, as he had made different Military Expeditions. See Triumph.

Each Crown had its particular Name; as *Palissaris*, which was set with Spikes, in memory of having forced a Palisade. *Muralis*, adorned with little Turrets, or Battlements; for having mounted to an Assault. *Navalis*, of Prows and Beaks of Vessels; for having overcome at Sea. *Obsidionalis*, or *Graminalis*, of Grass; for having rais'd a Siege. *Ovans*, of Myrtle; which express'd an Ovation, or little Triumph: And *Triumphalis*, of Laurel; for a grand Triumph. See Crown.

Procopius tells us of a *Column* of this Kind, erected in the place called *Augusteum*, before the Imperial Palace of *Constantinople*, supporting an *Equestrian* Statue of the Emperor *Justinian*.

Zophoric Column, a kind of Statuary *Column*, whereon is placed a Figure of some Animal. Such is one of the two *Columns* of the Gate of *Venice*; whereon is the Lion of St. *Mark*, and the Arms of the Republick: or that at *Sienna*, which bears the Wolf that suckled *Romulus* and *Remus*.

Column, in War, a deep File, or Row of Troops; or a Division of an Army, which marches at the same Time, and towards the same Place, at Intervals large enough to avoid Confusion.

An Army marches in one, two, three, or more *Columns*; according as the Ground will allow, and the General sees expedient.

The Word is also used in speaking of Vessels at Sea, following each other in the same Line.

'Tis difficult to form *Columns* at Sea, unless the Wind be in Stern.

Column, among Printers, is half a Page, when the Page is divided into two Parts, from top to bottom See Page.

COLUMNA *Nasi*, is used by some Writers of Anatomy, for the fleshy Part of the Nose jutting out over the upper Lip. See NOSE.

COLUMNA *Oris*, is sometimes used for the *Uvula*. See UVULA.

COLUMNÆ *Carneæ*, in Anatomy, called also *Lacertuli*, and *Columnæ Cordis*; are several small Muscles in the Ventricles of the Heart; derived, and, as it were, detach'd from the Parietes of the Ventricles, and connected by tendinous Extremities to the Valves of the Heart. See HEART.

These little *Columns*, or Pillars, being fasten'd to the Parietes of the Heart on one side, and the Tricuspid and Mitral Valves on the other; do, by their Contraction in the Systole of the Heart, draw out the Valves; and by that means, not only shut the Orifices of the Veins, but more exactly close the Ventricles in their Systole. See SYSTOLE, and DIASTOLE.

COLURES, in Geography and Astronomy, two great Circles, imagined to intersect each other at right Angles, in the Poles of the World. See CIRCLE.

The *Colures* pass, one of 'em thro' the *Solstitial*, and the other thro' the *Equinoctial* Points of the Ecliptic: whence the first is denominated the *Solstitial* and the second the *Equinoctial Colure*. See SOLSTITIAL, and EQUINOCTIAL.

The Equinoctial *Colure* determines the Equinoxes; and the Solstitial, the Solstices. See EQUINOX, and SOLSTICE.

By thus dividing the Ecliptic into four equal Parts, they mark the four Seasons of the Year. See SEASON.

The Word is deriv'd from the *Greek* κόλος, *mutilus*, or *truncatus*, and ἐρὰ *tail*; as appearing with the *Tail cut off*; because never seen entire above the Horizon.

COLYBA, a Term in the *Greek* Liturgy, signifying an Offering of Grains, and boil'd Pulse; made in honour of the Saints, and for the sake of the Dead.

Balsamon, *P. Goar*, *Leo Allatius*, and others, have wrote on the Subject of *Colybas*: the Substance of what they have said, is as follows.

The *Greeks* boil a quantity of Wheat, and lay it in little Heaps on a Plate; adding beaten Peas, Nuts cut small, and Grape-stones, which they divide into several Compartments, separated from each other by Leaves of Parsley. A little Heap of Wheat thus season'd, they call κολύβα.

They have a particular *Formula* for the Benediction of the *Colybas*; wherein, praying that the Children of *Babylon* may be fed with Pulse, and that they may be in better Plight than other People, they desire God to bless those Fruits, and those who eat them, because offer'd to his Glory, to the honour of such a Saint, and in memory of the faithful Deceased.

Balsamon refers the Institution of that Ceremony to S. *Athanasius*; but the *Greek Synaxary* to the Time of *Julian* the Apostate.

Many of the *Latin* Divines having spoke injuriously of this Ceremony, *Gabriel* Archbishop of *Philadelphia*, has wrote a Discourse in its Vindication; wherein he endeavours to shew, that the Design of the *Colyba* is only to represent the Resurrection of the Dead, and to confirm the Faithful in the Belief thereof.

The *Colybæ*, he says, are Symbols of a general Resurrection; and the several Ingredients added to the Wheat, signify so many different Virtues.

COMA, in Medicine, a sort of a sleepy Disease, otherwise called *Cataphora*; consisting in a violent propensity to sleep, whether Sleep ensue, or not. See SLEEP.

If Sleep do ensue, the Disease is called *Coma Somnolentum*, wherein the Patient continues in a profound Sleep; and when awak'd, immediately relapses, without being able to keep open his Eyes.

If he do not sleep, but is continually awak'd with frightful Dreams, 'tis called *Coma Vigil*: and here too his Eyes are shut, and he appears asleep.

The Cause of the *Coma Somnolentum*, may be any thing that prevents the Course of the Spirits; as a cold, humid temperature of the Brain; hot putrid Vapours ascending into the Head, and stopping the Canals of the Animal Spirits; narcotick Vapours, &c.

The *Coma Vigil* is supposed to arise from the Conflict, or jarring Mixture of Bile with *Pituita*; the one urging to sleep, the other to waking. Hence, the Patient sleeps either not at all; or, at most, but for a moment; is uneasy, starts, rises up, and sometimes throws himself on the Persons near him; his Eyes, all the time fast closed.

The Remedies for a *Coma*, are those which occasion great Evacuations; as violent Clysters, or Vomitives; Medicines that purge, and dry the Brain; and those which occasion Revulsion of Humours; as Vesicatories, Cauteries, &c. to which may be added volatile Spirits, Salts, and most Cephalicks.

COMA, in Grammar. See COMMA.

COMA BERENICES, *Berenice's Hair*, in Astronomy, a Constellation of the Northern Hemisphere. See CONSTELLATION.

The Stars in the Constellation *Coma Berenices*, in *Ptolomy*'s Catalogue are 3; in *Tycho*'s 13; in the *Britannic Catalogue* 40. The Order, Names, Longitudes, Latitudes, Magnitudes, &c. whereof, are as follow.

Stars in the Constellation COMA BERENICES.

Names and Situations of the Stars.	Signs.	Longitude. °	′	″	Latitude. °	′	″	Magn.
	♍	16	53	24	20	21	46	7
		17	44	9	20	2	11	6
		21	14	30	16	27	0	6
		17	21	15	24	45	23	6
		19	56	6	19	59	7	6
5								
First of all in the Circle of the Hair, to the South		23	16	44	15	13	55	5
		19	18	19	23	28	33	4 5
		20	24	1	22	56	57	7
		17	56	28	27	34	35	6
		17	50	59	27	51	56	6
10								
		23	5	51	18	19	53	4 5
3d of the prec. from the Cusp, or Point		19	45	29	25	57	32	5
2d of the preced.		20	2	23	26	11	47	5
That preced. in the Cusp		19	55	40	27	26	54	5
To the Cusp towards the North		19	32	24	28	24	2	4 5
15								
That under this		20	16	55	27	6	50	5
That following this		21	10	29	26	29	11	6
First of 3 contiguous ones behind this		22	10	36	24	55	18	6
		23	43	26	22	2	38	6
Middle of the contiguous ones		22	18	15	25	29	10	4 5
20								
Subseq. and less		23	1	59	25	29	11	7
Anoth. following all these, and more S.		24	7	1	24	7	9	4
That preced. several under the Hair		26	7	23	20	17	57	5
		27	6	49	19	19	12	6
		25	48	38	23	8	10	5
25								
		29	34	59	19	48	42	5
	♎	1	16	5	17	12	57	6
		1	10	30	17	48	0	5
	♍	24	57	52	29	58	24	6
Preced. in the Hair		25	30	24	30	12	24	5
30								
	♎	0	39	2	20	48	10	7
More South in the Hair	♍	28	59	44	24	42	42	4 5
	♎	2	3	55	21	46	56	5
	♍	25	43	4	33	56	36	5 6
	♎	2	42	23	21	45	14	6
35								
		2	5	7	25	55	56	5
		1	22	51	27	14	39	6
Former of 2 in Extrem. of the Hair	♎	29	1	29	31	49	22	5
	♍	4	38	35	22	59	12	4 5
Posterior in the Extremity of the Hair		0	6	31	32	28	33	4
40								

All these Stars *Ptolomy* ranks among the *Informes* of *Leo*; and the Cluster of little Stars, in form of a Nebulous one, between the Lion and Bear, he calls simply πλόκαμον; as resembling an Ivy-leaf: the pointed Part whereof is turn'd towards the North, and the Sides, bounded by the 7th and 22d Stars. *Bayer*, instead of Hair, gives a Sheaf of Corn.

COMBAT, an *Engagement*; or a Difference decided by way of Arms.

Authors distinguish in an Army, between a *Combat* and a Battel; the latter expressing the general Action of the whole Army: the former a particular Skirmish, or Engagement of a single part: so that the *Combat* is properly a Part of a Battel. See BATTEL.

COMBAT, in Law; or, *Single*-COMBAT; a formal Trial, between two Champions, of some doubtful Cause or Quarrel, by the Sword, or Batoons. See TRIAL.

This form of Proceeding was antiently very popular; and obtain'd not only in Criminal, but also in Civil Causes: being built on a Presumption, that God would never grant the Victory, but to him who had the best right. See DUEL.

We find the *Combat* as early as the Time of *Otho*: The last admitted in *England*, was *6 Car.* I. between *Donald* Lord *Rhee*, or *Rey*, and *David Ramsey* Esq; in the *Painted Chamber*.

The Form and Ceremony of the *Combat*, is describ'd in the *Grand Coutumier of Normandy*: The Accuser, first, swore to the Truth of his Accusation; the Accused gave him the Lye: upon which, each threw down a Gage, or Pledge of Battel; and the Parties were committed Prisoners till the Day of *combat*. See CHAMPION.

Historians tell us, that *Alphonso* King of *Castile*, desiring to abolish the *Mosarabic* Rite, and to introduce the *Roman* Office: the People opposing it, 'twas agreed to terminate the Difference by *Combat*, and to leave the Cause to the Decision of Heaven.

COMBAT is also used for the solemn Games of the antient *Greeks* and *Romans*, in honour of their Gods; as the *Olympic* Games, *Pythian*, *Isthmæan*, and *Nemæan* Games; the *Ludi Actiaci*, *Circenses*, &c. which see in their Places, OLYMPIC, ISTHMÆAN, &c.

The

The *Combats* here celebrated, were *Running*, *Wrestling*, *Boxing*, *Cestus*, &c.

The Combatants, who were called *Athletæ*, prepar'd themselves for it from their youth, by constant Exercise, and a very rigid Regimen: they only eat certain Things, and at certain Hours; drank no Wine, had no commerce with Women: both their Labour and their Rest were regulated. See ATHLETÆ, GLADIATOR, &c.

COMBATANT, is the Heralds Word for two Lions, &c. born in a Coat of Arms in a fighting posture, rampant; and their Faces towards each other.

COMBINATION, is properly understood of an Assemblage of several Things by two, and two.

COMBINATION is also used for the Variation, or Alternation of any Number of Quantities, Letters, Sounds, or the like, in all the different Manners possible. See CHANGES.

P. Mersenne gives us the *Combinations* of all the Notes and Sounds in Musick, as far as 24; the Sum whereof amounts to 90 Figures, or Places.

The Number of *Combinations* of the 24 Letters of the Alphabet, taken first two by two, then three by three, &c. M. *Prestet* has calculated to be 139172428888725299942 5128493402200. See LETTER, and ALPHABET.

The Words in the following Verse may be *combin'd* a thousand twenty two several ways.

Tot tibi sunt Dotes, Virgo, quot sidera Cælo.

Doctrine of COMBINATIONS.

Any Number of Quantities being given, together with the Number in each Combination; *to find the Number of* Combinations.

One Quantity, we observe, admits of no *Combination*; two, *a* and *b*, of one; of three *a b c*, there are three *Combinations*, viz. *a b*, *a c*, *b c*; of four, six, *a b*, *a c*, *b c*, *a d*, *b d*, *c d*; of five, ten, *a b*, *a c*, *b c*, *a d*, *b d*, *c d*, *a e*, *b e*, *c e*, *d e*.

Whence it appears, that the Numbers of *Combinations* proceed as 1, 3, 6, 10, &c. *i. e.* are triangular Numbers, whose Side differs by Unity from the Number of given Quantities: if that, *v. g.* be *q*, the Side of the Number of *Combinations* will be $q-1$; and therefore the Number of *Combinations* $\frac{q-1}{1} \cdot \frac{q+0}{2}$. See TRIANGULAR *Number*.

If three Quantities are to be *combin'd*, and the Number in each *Combination* be three, there will only be one *Combination*, *a b c*; if a fourth be added, the *Combinations* will be found *a b c*, *a b d*, *b c d*, *a c d*; if a fifth, ten, *a b c*, *a b d*, *b c d*, *a c d*, *a b e*, *b d e*, *b c e*, *a c e*, *a d e*; if a sixth, twenty, &c. The Numbers of *Combinations*, therefore, proceed as 1, 4, 10, 20, *i. e.* are the first pyramidal triangular Numbers, whose Sides differ by two Unites from the Number of given Quantities. See PYRAMIDAL *Number*.

Hence, if the Number of given Quantities be *q*, the Side will be $q-2$; and therefore, the Number of *Combinations* $\frac{q-2}{1} \cdot \frac{q-1}{2} \cdot \frac{q+0}{3}$.

Hence is easily deduced a general Rule of determining the Number of *Combinations* in any Case: For, suppose the Number of Quantities to be combined, *q*, the Exponent of the *Combination* will be the Number of *Combinations* $\frac{q-n+1}{1} \cdot \frac{q-n+2}{2} \cdot \frac{q-n+3}{3} \cdot \frac{q-n+4}{4} \cdot \frac{q-n+5}{5}$, &c. till the Number to be added be equal to *n*.

Suppose, *v. g.* the Number of Quantities to be *combined* $=6$; the Exponent of the *Combination* 4; the Number of *Combinations* will be $\frac{6-4+1}{1} \cdot \frac{6-4+2}{2} \cdot \frac{6-4+3}{3} \cdot \frac{6-4+4}{4} = \frac{6-3}{1} \cdot \frac{6-2}{2} \cdot \frac{6-1}{3} \cdot \frac{6+0}{4} = \frac{3.4.5.6}{1.2.3.4} = 15$.

Coroll. If it be desir'd to have all the possible *Combinations* of the given Quantities beginning with the *Combinations* of the several Twos, proceeding to threes, &c. there must be added $\frac{q-1}{1} \cdot \frac{q+0}{2} \cdot \frac{q-2}{1} \cdot \frac{q-1}{2} \cdot \frac{q+0}{3} \cdot \frac{q-3}{1} \cdot \frac{q-2}{2} \cdot \frac{q-1}{3} \cdot \frac{q+0}{4}$, &c. Whence the Number of *Combinations* possible will be $\frac{q.q-1.}{1.2} + \frac{q.q-1.q-2}{1.2.3.} + \frac{q.q-1}{1.2.} + \frac{q.q-1q-2.q-3.q-4}{1.2.3.4.5}$, &c. which is the Sum of the *Unciæ* of the Binomial, rais'd to the Power *q*, and abridg'd of the Exponent of the Power increas'd by Unity, $q+1$. Wherefore, since those *Unciæ* come out $1+1$, by being rais'd to the Power *q*; and since $1+1=2$; $2^q=q-1$ is the Number of all the possible *Combinations*, *v. g.* If the Number of Quantities be 5, the Number of possible *Combinations* will be $2-6=32-6=26$.

Any Number of Quantities being given, to find the Number of Changes and Alternations, which those Quantities, combin'd *in all the Manners possible, can undergo.*

Suppose two Quantities, *a* and *b*; their Variations will be 2; consequently, as each of those may be *combined*, even with it self, to these there must be added two Variations. The whole Number, therefore, will be $2+2=4$. If there were three Quantities, and the Exponent of the Variation 2; the *Combinations* will be 3, and the Changes 9: to which, if the three *Combinations* of each Quantity with it self *a a*, *b b*, *c c*, be added, we shall have the Number of Changes, $3+3+3=9$.

In like manner, 'tis evident, if the given Quantities were 4, and the Exponent 2, the Number of Changes would be 16; if 5, 25, &c. and, in general, if n, n^2.

Suppose the Quantities 3, and the Exponent of Variation 3; the Number of Changes is found $27=3^3$; *viz. a a a*, *a a b*, *a b a*, *b a a*, *a b b*, *a a c*, *a c a*, *c a a*, *a b c*, *b a c*, *b c a*, *a c b*, *c a b*, *c b a*, *a c c*, *c a c*, *c c a*, *b b a*, *b a b*, *b b b*, *b b c*, *c b b*, *b c b*, *b c c*, *c b c*, *c c c*.

After the same manner, it will appear, if the Quantities were 4, and the Exponent 3, the Number of Changes would be $64=4^3$: and, in general, if the Number of Quantities be $=n$, and the Exponent 3, the Number of Changes will be n^3. By this proceeding, it will be found, that if the Number of Quantities be n, and the Exponent n, the Number of Changes will be n^n: wherefore, if all the Antecedents be added, where the Exponent is less, the Number of possible Changes will be found $n^n+n^{n-1}+n^{n-2}+n^{n-3}+n^{n-4}+n^{n-5}+n^{n-6}$, &c. Till at length, the Number subtracted from n, leaves 1; because the beginning is from single Quantities taken once.

Since then the Number of possible Changes is a geometrical Progression, whose first or smallest Term is n^1, the greatest n^n, and the Denominator n; it will be $=(n^{n+1}-n):(n-1)$.

Suppose, *v. g.* $n=4$. the Number of possible Changes $(4^5-4):4-1=1020:3=340$. Suppose, again, $n=24$, the Number of possible Changes will be $(24^{25}-24):(24-1)=320096586444068189867779553482720 00:23=139172428888725299942512849340 2200$. In so many various manners, therefore, may the 24 Letters of the Alphabet be varied and *combined* among themselves.

F. *Trucher*, in the *Memoirs of the French Academy*, shews, that two square Pieces, each divided diagonally by two Colours, may be arranged and *combin'd* 64 different ways, so as to form so many different Kinds of Chequerwork; which appears surprizing enough, when one considers that two Letters, or Figures, can only be *combined* twice.

This Note mayy be of use to Masons, Paviours, &c. See PAVEMENT.

COMBING *of Wool*, in Commerce, the drawing, or passing it across the Teeth of a kind of Card, called a *Comb*, to dispose it for spinning. See WOOL, CLOTH, SPINNING, &c.

COMBS. See HONEY-COMBS.

COMBUST, in Astronomy. When a Planet is not above 8 Degrees and 30 Minutes distant from the Sun, either before or after him, it is said to be *Combust*, or in *Combustion*.

COME. The small Fibres or Tails of Malt, upon it first shooting forth is thus called. See MALT.

COMEDY, in its proper Sense, a Dramatic Piece, representing some agreeable and diverting Transaction: or, it is an allegorical Representation of something in private Life; for the Amusement and Instruction of the Spectators. See DRAMA.

In this Sense, *Comedy* is oppos'd to Tragedy; the Subjects whereof are grave, and violent; and the Persons of the first Rank. See TRAGEDY.

Scaliger defines *Comedy* a Dramatic Poem, very busy, pleasant in the Conclusion, and writ in a popular Style.

Aristotle calls it an *Imitation of the worst*, or, rather, *of the lowest Class of Persons, by way of ridicule*: This Definition *Corneille* finds fault with, and maintains, that the Actions of Kings themselves may enter *Comedy*; provided they be such as are not very momentous, nor attended with any considerable danger. He adds, that a Poem wherein the greatest Peril is the Loss of a Mistress, has no right to any higher Appellation than that of *Comedy*: But then he makes a Distinction in *Comedies*, and dignifies those where great Personages are introduc'd, with the Epithet of *Heroic Comedies*, to distinguish them from ordinary ones.

Mr. *Congreve* seems pretty much of the same Sentiment: he understands *Aristotle's* Definition of the *worst* Men; on which bottom, 'tis sufficient to constitute a *Comedy*, that the Action represented be that of some ill Man brought on the Stage to be expos'd.

M. *Dacier* is of a contrary Opinion: He maintains, that *Comedy* allows of nothing grave, or serious, unless it be turn'd to ridicule; and that Raillery and Ridicule are its only proper and genuine Characteristics: In which Opinion he is warmly seconded by Mr. *Dennis*.

Thus different are Critics and Comic Authors on the Nature of *Comedy*: some distinguishing it from Tragedy by the low-

lowness of the Subject; others by the ridiculous Light it is set in.

The accurate F. *Bossu* fixes the Notion of *Comedy* much better: according to that excellent Critic, *Comedy* differs from Tragedy in this, that the Comic Writer invents both the Names of his Persons, and the Actions he presents; whereas the Tragic Writers only invent the latter; the former they are to take from History.

Upon the whole, *Comedy* may be defined an Image, or Representation of the ordinary Life of Men: it exhibits their common Actions and Passions; exposes, and ridicules their Failings, to preserve the Spectators from 'em, or to correct 'em. *Cicero* defines it the Imitation of Life, the Mirror of Custom, and the Image of Truth.

There is a Dispute among the Critics, whether *Comedy* be a Poem, or a mere Conversation. They who maintain the latter, do it on the foot of this general Opinion, that a Poem is a Discourse in Verse: F. *Bossu* insists on the former, and shews, that as *Comedy* has the Fable, or Allegory, it has every thing essential to Poetry. See POEM, and FABLE.

Comedy and Tragedy were originally one and the same Thing: *Their common Origin see under* TRAGEDY.

M. *Boileau* says, *Comedy* took its rise at *Athens*, from the happy Issues or Conclusions of Tragedies. On this Principle, the Catastrophe should have been the proper Criterion, or distinguishing Mark between Tragedy and *Comedy*; and all other differences only accedental.

Des succès fortunez du spectacle tragique
Dans Athènes naquit la Comédie *antique.*

After the Grave and Serious became separated from the Ridiculous, and Tragedy and *Comedy* became two distinct Arts; People applied themselves to cultivate the former, and neglected the latter: So that *Comedy* continued in its Infancy, with little Improvements, while Tragedy grew up to a perfect Art: this, once arrived at its height, they began to think of cultivating *Comedy*.

With regard to the various Changes and Revolutions *Comedy* has undergone, it is commonly distinguish'd into three Kinds, *viz.* the *Antient*, wherein there was nothing feign'd; the *Mean*, where the Subject was real, but the Names fictitious; the *New*, where both Names and Things are fictitious.

The *Antient* was that first in use, when the supreme Power was in the Hands of the People; and when, on that account, the Poets were at their full liberty to say what they pleas'd, and of whom they pleas'd; by Name to rail at People in Authority, and openly charge Magistrates with Crimes; sparing no Age, Sex, or Quality.

This is very observable in the *Frogs*, and the *Clouds* of of *Aristophanes*; where it is to be noted, that tho the railing Part was occasionally distributed among all the Actors, yet the chief was laid on the Chorus.

When the *Athenian* Liberties became sunk up in the Tyranny of a few, it was no longer safe for the Poets to use their old License; Men of Office being now to be skreen'd from reproach. The Chorus, therefore, became useless, and was therefore dropp'd; and thus commenc'd what we call *Comœdia media*, μέση, or the *Mean Comedy*. See CHORUS.

Under this, the Poets were not allow'd to name the Persons; and therefore Names were to be invented: but then the Persons were so well pointed out, that 'twas no difficult matter to know 'em.

At length, however, they were oblig'd to repress even this License: and this Reform gave occasion to the *New Comedy*; which only brought upon the Stage feign'd Adventures, and imaginary Names.

This last Kind alone was receiv'd among the *Romans*; who yet made a new Subdivision thereof, into *Antient*, *Mean*, and *New*; according to the various Periods of the Commonwealth. Among the antient *Comedies* were rank'd those of *Livius Andronicus*; among the *Mean*, those of *Pacuvius*; and among the *New* ones those of *Terence*.

Comedy, as well as Tragedy, has its *Essential*, and its *Integrant* Parts.

Its Essential Parts, in the Language of the Antients, are the *Protasis*, *Epitasis*, *Catastasis*, and *Catastrophe*.

The *Protasis* is the beginning, or opening; where the Subject is just enter'd upon, the Character of the Persons shewn, and the Interest, or part, each has in the Action. See PROTASIS.

In the *Epitasis*, the Intrigues begin: they are carry'd on, and heighten'd in the *Catastasis*; and unravell'd in the *Catastrope*. See EPITASIS, CATASTROPHE, &c.

The Integrant Parts are the five *Acts* into which the *Comedy* is divided, agreeable to that Precept of *Horace*;

Neve minor quinto neu sit productior Actu.

The Acts are divided into *Scenes*; the Number whereof is not fix'd, either by Reason or Experience, but depends on the Things to be done in each Act, and the Number of Persons to be employ'd. See ACT, SCENE, &c. see also MANNERS, HUMOUR, &c.

Among the antient *Romans*, *Comedies* were distinguish'd according to the Quality of the Persons represented, and the Dress they wore, into *Togatæ*, *Prætextæ*, *Trabeatæ*, and *Tabernariæ*; which last were those where the Scene lay in Colleges, or among People of the lowest Rank, agreeing pretty nearly with our Farces.

In the Representation, *Comedy* was distinguish'd from the Tragedy, by the *Sock* wore in the former, and the *Buskin* in the latter. See SOCK, and BUSKIN.

Among us, *Comedy* is distinguish'd from Farce, in that the former represents Nature as she is; the other distorts or overcharges her. They both paint from the Life, but with different Views: the one to make Nature known, the other to make her ridiculous. See FARCE.

Scaliger derives the Word *Comedy* from κώμαι, *Villages*, or *Conventicles of Peasants*; by reason, says *Varro*, the *Attic* Youth us'd to travel thro' the Country, and pick up Money by their *Comic* Representations; or from ἀπὸ τὸν κωμωδεῖν, *i. e. viculus*; because the Scene was laid in ordinary Houses: whereas, in Tragedy, it lay in Palaces, and the Houses of the Great.

COMET, popularly call'd a *blazing Star*, a heavenly Body, rising suddenly, and again disappearing, and during the Time of its Appearance, moving in its proper Orbit, like a Planet. See STAR, and PLANET.

Comets have this to distinguish them from the other *Stars*, that they are usually attended with a long Train, or Tail of Light, always opposite to the Sun, and which is of the fainter Lustre, the further it is from the Body. Hence arises a popular division of *Comets* into three Kinds, *viz. bearded*, *tail'd*, and *hairy Comets*; tho, in effect, this division rather relates to the several Circumstances of the same *Comet*, than to the Phænomena of several.

Thus, when the *Comet* is Eastward of the Sun, and moves from it, the *Comet* is said to be *bearded*, *barbatus*; because the Light marches before it, in manner of a Beard.

When the Light is Westward of the Sun, and sets after it, the *Comet* is said to be *tailed*, *caudatus*; because the Train follows it, in manner of a Tail.

Lastly, when the *Comet* and the Sun are diametrically opposite, (the Earth between them) the Train is hid behind the Body of the *Comet*, excepting a little that appears around it, in form of a Border of Hair, hence called *Crinitus*.

Nature of COMETS.

As to the Nature of *Comets*, the unfrequency of their appearing, together with the seeming Irregularities of their Phænomena, have left Philosophers much in the dark: Those who liv'd before *Aristotle*, accounted for 'em by supposing the heavenly Spaces full of an infinite Number of Stars; and many of these too remote, or too small to have ever come under the Notice of Astronomers: These invisible Stars, they further suppos'd to move by their own proper Motion every way; finishing their Courses in very unequal Times. Now, a *Comet*, according to them, was a vast heap or assemblage of these little Stars meeting together, by reason of the Inequality of their Motions, and uniting into a visible Mass; which must again disappear, as those Stars separate, and each proceed in its Course.

But how these Stars should thus meet, coalesce, and form a Body, which in all Positions of the Sun should resemble a Tail, and again separate, is a Mystery.

This Opinion, therefore, *Aristotle* easily overturn'd; substituting another in its stead: According to him, *Comets* were only a kind of transient Fires, or Meteors, consisting of Exhalations rais'd to the upper Region of the Air, and there set on fire; far below the Moon's Course.

But neither is this Hypothesis more just than the other: For on this Principle, the Light of the *Comet* being independent of the Sun, would be dispers'd every way alike, without any appearance of a Train, or Tail, which is contrary to the Phænomena. Besides, that the modern Astronomers, who have measur'd the distance between the *Comets* and the Earth, find that the *Comets* have no sensible Parallax; which could not be, were they not much more remote than the Moon, whose Parallax is sensible. See PARALLAX.

Hevelius from a great Number of Observations, proposes it as his Opinion, that the *Comets*, like the Solar *Maculæ* or Spots, which they pretty much resemble, are form'd and condens'd out of grosser Exhalations of his Body. In which Notion he agrees nearly with *Kepler*, who maintains, that *Comets* are generated in the Æther in vast Numbers, like Fishes in the Ocean; tho they don't all become visible, either because of their smallness, or because they lay a long time under the Horizon.

But Sir *I. Newton* has shewn the Fallacy of this Hypothesis, by proving that the *Comet* of 1680, in its passage thro' the Neighbourhood of the Sun, would have been dissipated, had it consisted of Exhalations of the Sun and Planets:

ficets: For the Heat of the Sun, 'tis allow'd, is as the Density of his Rays, *i. e.* reciprocally as the Squares of the Distances of Places from the Sun: Wherefore, since the Distance of that *Comet* in its Perihelion, *December* the 8th, was observ'd to be to the Distance of the Earth from the Sun, nearly as 6 to 1000; the Sun's heat in the *Comet*, at that time, was to his heat with us at *Midsummer*, as 1000000 to 36, or 28000 to 1.

And again, finding by Experiment, that the Heat of boiling Water, is little more than three times the heat of our dry Earth, when expos'd to the *Midsummer's* Sun; and assuming the heat of red-hot Iron to be about three or four times as great as that of boiling Water: he concludes, that the heat of the dry'd Earth, or body of the *Comet* in its Perihelion, must be near 2000 times as great as that of red-hot Iron.

Such an immense heat ence acquir'd in its Perihelion, the *Comet* must be a long time in cooling again. The same Author computes, that a Globe of red-hot Iron, of the Dimensions of our Earth, would scarce be cool in 50000 Years. If then the *Comet* be suppos'd to cool 100 times as fast as red-hot Iron; yet, since its Heat was 2000 times greater, supposing it of the bigness of the Earth, it would not be cool in a Million of Years.

James Bernoulli, in his *Systema Cometarum*, supposes some primary Planet, revolving round the Sun in the Space of four Years and 157 Days; and at the distance, from his Body, of 2583 Semidiameters of the *magnus Orbis*: This Planet, he concludes, either from its vast distance, or smallness, to be invisible to us; but, however, to have, at various Distances from him, several Satellites moving round him, and sometimes descending as low as the Orbit of *Saturn*; and that these becoming visible to us, when in their *Perigæum*, are what we call *Comets*.

Des Cartes advances another Opinion: He conjectures that *Comets* are only Stars, formerly fix'd, like the rest, in the Heavens; but which, becoming by degrees cover'd with *Maculæ*, or Spots, and at length wholly robb'd of their Light, cannot keep their place, but are carried off by the Vortices of the circumjacent Stars; and, in proportion to their Magnitude and Solidity, mov'd in such manner, as to be brought nearer the Orb of *Saturn*; and thus coming within reach of the Sun's Light, render'd visible. See CARTESIANISM.

But the Vanity of all these Hypotheses abundantly appears from the Phænomena of *Comets*; the chief of which we shall enumerate: as being the Test by which all Theories are to be tried.

First, then, those *Comets* which move according to the Order of the Signs, do all, a little before they disappear, either advances lowlier than usual, or else go retrograde, if the Earth be between them and the Sun; and more swiftly, if the Earth be situate in a contrary Part: On the contrary, those which proceed contrary to the Order of the Signs, proceed more swiftly than usual, if the Earth be between them and the Sun; and more slowly, or go retrograde, when the Earth is in a contrary Part.

2dly, So long as their Velocity is encreas'd, they move, nearly, in great Circles; but towards the end of their Course, deviate from those Circles; and as often as the Earth proceeds one way, they go the contrary way.

3dly, They move in Ellipsis's, having one of their *Foci* in the Centre of the Sun; and by Radii drawn to the Sun, describe Areas proportionable to the Times.

4thly, The Light of their Bodies, or *Nuclei*, increases in their Recess from the Earth towards the Sun; and, on the contrary, decreases in their Recess from the Sun towards the Earth.

5thly, The Tails appear the largest and brightest, immediately after their Transit thro' the Region of the Sun.

6thly, The Tails always decline from a just opposition to the Sun towards those Parts which the Bodies, or *Nuclei* pass over, in their progress thro' their Orbits.

7thly, This Declination, *cæteris paribus*, is the smallest, when the Heads, or *Nuclei* approach nearest the Sun: and less, still, near the *Nucleus* of the *Comet* than towards the Extremity of the Tail.

8thly, The Tails are somewhat brighter, and more distinctly defined in their convex than in their concave Part.

9thly, The Tails always appear broader at their upper Extreme than near the Centre of the *Comet*.

10thly, The Tails are transparent, and the smallest Stars appear thro' 'em.

These are the chief Phænomena of *Comets*; which, how ill they consist with the wild Notions of the Antients, and the weak Conjectures of most of the Moderns, is pretty evident. Indeed, there were some, *Pliny* tells us, among the Antients, who 'had juster Notions, who took these Stars 'to be perpetual, and believ'd they moved in their proper 'Orbs; but were never seen unless when left by the Sun:' And more fully *Seneca*, *Quæst. Nat.* Lib. VII. 'I am not 'of the common Opinion, nor do I take a *Comet* to be a 'sudden Fire, but esteem it among the Eternal Works of 'Nature.——*Quid autem miramur Cometas, tam rarum mundi spectaculum nondum teneri legibus certis, nec initia illorum finesque notescere, quorum ex ingentibus intervallis recursus est?——Veniet Tempus quo ista quæ nunc latent; in lucem dies extrahat & longioris Ævi diligentia. Veniet Tempus quo posteri nostri tam aperta nos nescisse mirentur.——Erit qui demonstret aliquando, in quibus Cometæ partibus errent; cur tam seducti a cæteris eant, quanti qualesque sint*——'

This Prediction we have seen accomplish'd in our Days, by the great Sir *I. Newton*; whose Doctrine is as follows.

The *Comets* are compact, solid, fix'd, and durable Bodies; in one word, a kind of Planets; which move in very oblique Orbits, every way with the greatest freedom; persevering in their Motions, even against the Course and Direction of the Planets: And their Tail is a very thin, slender Vapour, emitted by the Head, or *Nucleus* of the *Comet*, ignited or heated by the Sun.

This at once solves all the Phænomena: For 1st, 'Tis evi-'dent, that those which proceed according to the Order of the 'Signs, a little before they disappear, must move more slowly, 'or appear retrograde, if the Earth be betwixt them and the 'Sun; and swifter, if the Earth be in a contrary Part: on the 'contrary, those proceeding against the Order of the Signs, '*&c.*' For since their Course is not among the fix'd Stars, but among the Planets; as the Motion of the Earth either conspires with 'em, or goes against 'em; their Appearance, with regard to the Earth, must be changed; and, like the Planets, they must sometimes appear swifter, sometimes slower; and sometimes retrograde. See DIRECTION, RETROGRADATION, *&c.*

2dly, 'When the *Comets* move the swiftest, they must 'proceed in strait Lines, but in the end of their Course de-'cline, *&c.*' Because in the end of their Course, when they recede almost directly from the Sun, that part of the apparent Motion which arises from the Parallax, must bear a greater proportion to the whole apparent Motion.

3dly, 'The *Comets* must move in Ellipsis's, having one of 'their *Foci* in the Centre of the Sun.' Because they don't wander precariously from one fictitious Vortex to another; but, making a part of the solar System, return perpetually, and run a constant round. See ORBIT.

Hence, their elliptic Orbits being very long and eccentric, they become invisible, when in that Part most remote from the Sun.

From considering the Curvity of the Paths of *Comets*, Sir *I.* concludes, that when they disappear, they are much beyond the Orb of *Jupiter*; and that in their Perihelion they frequently descend below the Orbits of *Mars* and the inferior Planets.

4thly, 'The Light of their *Nuclei* must increase in their 'Recess from the Sun, and *vice versa*:' Because, as they are in the Regions of the Planets, their Access toward the Sun, bears a considerable proportion to their whole distance.

From Observations of the *Comet* of 1680, Sir *I. Newton* found that the Vapour in the Extremity of the Tail, *Jan.* 25. began to ascend from the Head before *December* the 11th; and had therefore spent more than 45 Days in its Ascent: but that all the Tail which appear'd *December* 10. ascended in the Space of those two Days, then just past, since its Perihelion. The Vapour, therefore, at the beginning, when the *Comet* was near the Sun, ascended prodigiously swift; and afterwards continu'd to ascend with a Motion retarded by the Gravity of the Particles; and by that Ascent increas'd the length of the Tails: But the Tail, notwithstanding its length, consisted almost wholly of Vapours, which had ascended from the Time of the Perihelion; and the Vapour which ascended first, and compos'd the Extreme of the Tail, did not vanish, till it was too far from the Sun to be illumin'd by him, and off us to be visible. Hence, also, the Tails of *Comets* that are shorter, do not ascend with a quick and continual Motion from the Head, and then presently disappear; but are permanent Columns of Vapours and Exhalations, gather'd from the Head by a very gentle Motion, and in a great space of time; which yet, by participating of that Motion of their Heads they had at the beginning, continue easily to move along with their Heads thro' the celestial Regions: whence also the Vacuity of those Regions is argued. See VACUUM.

5thly, 'Their Tails must appear the largest and brightest 'immediately after their Transit thro' the Region of the 'Sun:' Because, then, their Heads being the most heated, will emit the most Vapours.

From the Light of the *Nucleus*, or apparent Star, we infer their Vicinity to the Earth, and that they are by no means in the Region of the Fix'd Stars, as some have imagin'd; since in that case, their Heads would be no more illumin'd by the Sun, than the Planets are by the Fix'd Stars.

6thly, 'The Tails must still decline from a strict opposi-'tion to the Sun, towards those Parts which the Heads pass 'over, in their progress thro' their Orbits:' Because, all Smoke, or Vapour emitted from a Body in Motion, tends up-

wards obliquely, ſtill receding from that Part towards which the ſmoaking Body proceeds.

7thly, 'That Declination will be ſtill the leaſt near the 'Nucleus of the Comet; and when the Comet is neareſt the 'Sun:' Becauſe the Vapour aſcends more ſwiftly near the Head of the Comet, than in the higher Extremity of its Tail; and when the Comet is at a leſs diſtance from the Sun, than when at a greater.

8thly, 'The Tail is brighter, and better defin'd in its 'convex Part, than in its concave:' Becauſe the Vapour in the convex Part, which goes firſt, being ſomewhat nearer and denſer, reflects the Light more copiouſly.

9thly, 'The Tail muſt appear broader towards the high-'er Extremity of the Comet, than towards the Head:' Becauſe, the Vapour in a free Space perpetually rareſies and dilates.

10thly, 'The Tails muſt be tranſparent:' Becauſe conſiſting of infinitely thin Vapour, &c.

Thus accurately does the Hypotheſis tally to the Phænomena.

Phaſes of Comets.

The *Nuclei*, which we alſo occaſionally call the *Heads* and *Bodies* of *Comets*, view'd thro' a Teleſcope, ſhew a very different Face from thoſe of the Fix'd Stars, or Planets. *Sturmius* tells us, that obſerving the *Comet* of 1680 with a Teleſcope, it appear'd like a Coal dimly glowing, or a rude Maſs of Matter illumin'd with a duſky fumid Light, leſs ſenſible at the Extremes than in the middle; rather than as a Star which appears with a round Diſk, and a vivid Light.

Hevelius obſerv'd of the *Comet* of 1661, that its *Nucleus* was of a yellowiſh Colour, bright and conſpicuous, but without any glittering Light: in the middle was a denſe ruddy *Nucleus*, almoſt equal to *Jupiter*, incompaſs'd with a much fainter thinner Matter. 5 *Feb.* its Head was ſomewhat bigger and brighter, of a gold-colour; but its Light more duſky than the reſt of the Stars: Here, the *Nucleus* appear'd divided into ſeveral Parts. 6 *Feb.* the Diſk was leſſen'd; the *Nuclei* ſtill exiſted, tho leſs than before: one of 'em, on the lower Part of the Diſk, on the left, much denſer and brighter than the reſt; its Body round, and repreſenting a very lucid little Star: The *Nuclei* ſtill incompaſs'd with another kind of Matter. 10 *Feb.* the Head ſomewhat more obſcure, and the *Nuclei* more confuſed, but brighter at top than bottom. 13 *Feb.* the Head diminiſh'd much, both in Magnitude and brightneſs. 2 *March* its roundneſs a little impair'd, its Edges lacerated, &c. 28 *March* very pale and exceeding thin; its Matter much diſpers'd; and no diſtinct *Nucleus* at all appearing.

Weigelius, who ſaw the *Comet* of 1664, the Moon, and a little Cloud illumin'd by the Sun at the ſame time; obſerv'd, that the Moon, thro' the Teleſcope, appear'd of a continued luminous Surface; but the *Comet* very different; being perfectly like the little Cloud in the Horizon, illumin'd by the Sun. From theſe Obſervations it was, that *Hevelius* concluded *Comets* to be like *Maculæ*, or Spots form'd out of the ſolar Exhalations.

The Length of the Tails of *Comets* is various: That of 1680, according to *Sturmius*, about the 20th of *November*, was but ſmall, at moſt not exceeding 20 Degrees in length: in a little time it grew to a length of 60 Degrees; after which it dwindled very ſenſibly.

Formation of the Tails of Comets.

Sir *Iſaac Newton* ſhews, that the Atmoſpheres of *Comets* will furniſh Vapour ſufficient to form their Tails:, This he argues from that wonderful Rarefaction obſerv'd in our Air, at a diſtance from the Earth: a Cubic Inch of common Air, at the diſtance of half the Earth's Diameter, or 4000 Miles, would expand it ſelf ſo as to fill a ſpace larger than the whole Region of the Stars. Since then the *Coma*, or Atmoſphere of a *Comet* is ten times higher than the Surface of the *Nucleus*, counting from the Centre thereof; the Tail, aſcending much higher, muſt needs be immenſely rare: ſo that 'tis no wonder the Stars ſhould be viſible thro' it.

Now, the Aſcent of Vapours into the Tail of the *Comet*, he ſuppoſes occaſion'd by the Rarefaction of the Matter of the Atmoſphere at the Time of the Perihelion. Smoke, 'tis obſerv'd, aſcends the Chimney by the Impulſe of the Air wherein it floats; and Air, rareſy'd by heat, aſcends by the Diminution of its ſpecific Gravity, taking up the Smoke along with it: Why then ſhould not the Tail of a *Comet* be ſuppos'd to be rais'd after the ſame manner by the Sun? For the Sun-Beams don't act on the Mediums they paſs thro', any otherwiſe than by Reflection and Refraction.

The reflecting Particles, then, being warm'd by the Action, will again warm the Æther wherewith they are compounded; and this, rareſy'd by the Heat, will have its ſpecific Gravity, whereby it before tended to deſcend, diminiſh'd by the Rarefaction; ſo as to aſcend, and to carry along with it thoſe reflecting Particles, whereof the Tail of the *Comet* is compos'd.

This Aſcent of the Vapours will be promoted by their circular Motion round the Sun; by means whereof, they will endeavour to recede from the Sun, while the Sun's Atmoſphere, and the other Matters in the celeſtial Spaces, are either at reſt, or nearly ſo; as having no Motion but what they receive from the Sun's Circumrotation.

Thus are the Vapours rais'd into the Tails of *Comets* in the neighbourhood of the Sun, where the Orbits are moſt curve; and where the *Comets* being within the denſer Atmoſphere of the Sun, have their Tails of the greateſt length.

The Tails thus produced, by preſerving that Motion, and at the ſame time gravitating towards the Sun, will move round his Body in Ellipſes, in like manner as their Heads; and by this means, will ever accompany, and freely adhere to their Head. In effect, the Gravitation of the Vapours towards the Sun, will no more occaſion the Tails of the *Comets* to forſake their Heads, and fall down towards the Sun, than the Gravitation of their Heads will occaſion them to fall off from their Tails: but by their common Gravitation, they will either fall down together to the Sun, or be together ſuſpended, or retarded. This Gravitation, therefore, does not at all hinder, but that the Heads and Tails of *Comets* may receive and retain any poſition towards each other, which either the abovemention'd Cauſes, or any other, may occaſion.

The Tails, therefore, thus produced in the Perihelion of *Comets*, will go off along with their Head into remote Regions; and either return thence, together with the *Comets*, after a long Series of Years; or, rather, be there loſt, and vaniſh by little and little, and the *Comet* be left bare; till at its return, deſcending towards the Sun, ſome little ſhort Tails be gradually and ſlowly produc'd from the Heads; which afterwards, in the Perihelion, deſcending down into the Sun's Atmoſphere, will be immenſely increas'd.

The Vapours thus dilated, rareſy'd, and diffus'd thro' all the celeſtial Regions, the ſame Author obſerves, may probably, by little and little, by means of their own Gravity, be attracted down to the Planets, and become intermingled with their Atmoſpheres.

He adds, that for the Conſervation of the Water, and Moiſture of the Planets, *Comets* ſeem abſolutely requiſite; from whoſe condens'd Vapours and Exhalations, all that Moiſture which is ſpent in Vegetations and Putrefactions, and turn'd into dry Earth, &c. may be reſupply'd and recruited. For all Vegetables grow, and increaſe wholly from Fluids; and, again, as to their greateſt part, turn, by Putrefaction, into Earth again; an earthy Slime being perpetually precipitated to the bottom of putrefying Liquors. Hence, the quantity of dry Earth muſt continually increaſe, and the Moiſture of the Globe decreaſe, and at laſt be quite evaporated; if they have not a continual Supply from ſome part or other of the Univerſe. And I ſuſpect, adds our great Author, that the Spirit, which makes the fineſt, ſubtileſt, and beſt part of our Air, and which is abſolutely requiſite for the Life and Being of all Things, comes principally from the *Comets*.

On this Principle, there ſeems to be ſome Foundation for the popular Opinion of Preſages from *Comets*: ſince the Tail of a *Comet* thus intermingled with our Atmoſphere may produce Changes very ſenſible in Animal and Vegetable Beings.

M. *Facio* has ſuggeſted, that ſome of the *Comets* having their Nodes ſo very near the annual Orbit of the Earth; ſhould the Earth happen to be found in that Part next the Node, at the Time of a *Comet*'s paſſing by; as the apparent Motion of the *Comet*, will be incredibly ſwift, ſo its Parallax will become very ſenſible; and the Proportion thereof to that of the Sun will be given: whence, ſuch Tranſits of *Comets* will afford the beſt Means of determining the diſtance of the Earth and Sun.

The *Comet* of 1472, *v.g.* had a Parallax above twenty times greater than the Sun's: and if that of 1618 had come down in the beginning of *March* to its deſcending Node, it would have been much nearer the Earth, and its Parallax much more notable. But, hitherto, none has threaten'd the Earth with a nearer Appulſe than that of 1680: For, by Calculation, Dr. *Halley* finds, that *November* 11, 1 H. 6 Min. P. M. that *Comet* was not above one Semidiameter of the Earth, to the Northwards of the Way of the Earth; at which time, had the Earth been in that part of its Orbit, the *Comet* would have had a Parallax equal to that of the Moon: What might have been the conſequence of ſo near an Appulſe, a Contact, or laſtly, a Shock of the celeſtial Bodies?

Motion of Comets.

If their Paths be ſuppoſed directly parabolic, as ſome have imagin'd, it would follow, that being impell'd towards the Sun by a centripetal Force, they deſcend as from Spaces infinitely diſtant; and by their Falls acquire ſuch a Velocity, as that they may again run off into the remoteſt Regions; ſtill moving upwards, with ſuch a perpetual Tendency as never to return. But the frequency of their Appearance, and their degree of Velocity, which does not exceed what they might acquire by their Gravity towards the Sun; ſeem to put it paſt doubt that they move, Planet-like, in elliptic Orbits, tho thoſe exceedingly eccentric; and ſo return again, tho after very long Periods. See Ellipsis.

Apollonius

Apollonius Myndianus was the first who took *Comets* for regular Stars; and ventur'd to foretel, that one day the Periods and Laws of their Motion would be discover'd.

Astronomers, however, are still divided on that Head: *Newton*, *Flamstead*, *Halley*, and the *English* Astronomers, &c. seem satisfy'd of the Return of *Comets*: *Cassini*, and others of the *French*, think it highly probable; *de la Hire*, and others, oppose it.

Those on the affirmative Side, suppose the *Comets* to describe Circles prodigiously eccentric, insomuch as we can only see 'em in a very small part of their Revolution: Out of this, they are lost in the immense Spaces; hid not only from our Eyes, but our Telescopes. That little part of their Circle next us, M. *Cassini*, &c. have found to pass between the Orbits of *Venus* and *Mars*.

For the Reasons of the Return of COMETS, M. *Cassini* gives these that follow.

1. In considering the Course of the *Comets*, with regard to the Fix'd Stars, they are found to keep a considerable time in the Arch of a great Circle, *i. e.* a Circle whose Plane passes thro' the Centre of the Earth: Indeed, they deviate a little from it, chiefly towards the end of their Appearance; but this Deviation is common to them with the Planets.

2. *Comets*, as well as Planets, appear to move so much the faster as they are nearer the Earth; and when they are at equal Distances from their Perigee, their Velocities are nearly the same.

By subtracting from their Motion the apparent Inequality of Velocity occasion'd by their different distance from the Earth, their equal Motion might be found; but we should not be certain this Motion were their true one; in regard they might have considerable Inequalities, not distinguishable in that small Part of their Orbit visible to us. 'Tis, indeed, probable, their real Motion, as well as that of the Planets, is unequal in it self: and hence we have a Reason why the Observations made during the Appearance of a *Comet* cannot give the just Period of their Revolution. See PERIOD.

3. There are no two different Planets whose Orbit cuts the Eclyptic in the same Angle, whose Nodes are in the same Points of the Eclyptic, and whose apparent Velocity in their Perigee is the same: Of consequence, two *Comets* seen at different Times, yet agreeing in all those three Circumstances, can only be one and the same *Comet*.

And this were the *Comets* of 1577 and 1680 observ'd to do; and those of 1652, and 1698: Not that this exact agreement in these Circumstances is absolutely necessary to determine 'em the same *Comet*. M. *Cassini* finds the Moon her self irregular in 'em all: Accordingly, he is of Opinion, there are several which disagree herein, yet may be accounted the same.

The great Objections against the Return of COMETS, are, the rarity of their Appearance, with regard to the number of Revolutions assign'd to 'em.

In 1702 was a *Comet*, or rather the Tail of one, seen at *Rome*, which M. *Cassini* takes to be the same with that observ'd by *Aristotle*, and that since seen in 1668; which would imply its Period to be 34 Years. Now, it may seem strange, that a Star which has so short a Revolution, and of consequence such frequent Returns, should be so seldom seen. Again, in *April* of the same Year, 1702, a *Comet* was observ'd by Mess. *Bianchini* and *Maraldi*, supposed by the latter to be the same with that of 1664, both by reason of its Motion, Velocity, and Direction. M. *de la Hire* took it to have some relation to another he had observ'd in 1698; which M. *Cassini* refers to that of 1652: On this Supposition its Period appears to be 43 Months, and the Number of Revolutions between 1652 and 1698, fourteen: But 'tis hard to suppose, that in this Age, wherein the Heavens are so narrowly watch'd, a Star should make 14 Revolutions unperceiv'd: especially such a Star as this, which might appear above a Month together; and of consequence be frequently disengag'd from the Crepuscula.

For this, reason M. *Cassini* is very reserv'd in maintaining the Hypothesis of the Return of *Comets*, and only proposes those for Planets, where the Motions are easy and simple, and are solv'd without straining, or allowing many Irregularities.

M. *de la Hire* proposes one general Difficulty against the whole System of the Return of *Comets*, which would seem to hinder any *Comet* from being a Planet; and 'tis this: that, by the Disposition necessarily given to their Courses, they should appear as small at first as at last; and always increase, till they arrive at their greatest Proximity to the Earth: or, if they should chance not to be observ'd as soon as they become visible, for want of Attention thereto; at least, 'tis impossible but they must frequently shew themselves ere they have arriv'd at their full Magnitude and Brightness: But he adds, that none were ever yet observ'd till they had arrived at it.

But the Appearance of a *Comet* in this present Month of *October* 1723, while yet at a great distance, so as to be too small and dim to be view'd without a Telescope, may serve to remove this Obstacle, and set the *Comets*, still, on the same footing with the Planets.

Sir *Isaac Newton* supposes, that as those Planets which are nearest the Sun, and revolve in the least Orbits, are the smallest; so among the *Comets*, such as in their Perihelion come nearest the Sun, are the smallest, and revolve in lesser Orbits.

Dr. *Halley* has given us a Table of the Astronomical Elements of all the *Comets* that have been yet observ'd with due care; whereby, whenever a new *Comet* shall appear, it may be determin'd, by comparing it therewith, whether it be any of those which have yet appear'd; and consequently its Period, and the Axis of its Orbit determin'd, and its Return foretold.

For there are many things in the *Comet* of 1531, observ'd by *Appian*, which intimate its being the same with that of 1687, observ'd by *Kepler* and *Longomontanus*; and which Dr. *Halley* himself again observ'd in 1682. All the Elements agree, and there is nothing contradicts the Opinion, but that inequality in the periodic Revolution; which, however, he thinks, is no more than may be accounted for from physical Causes: no more, in effect, than is observ'd in *Saturn*; the Motion of which Planet is so disturb'd by the rest, especially *Jupiter*, that its Period is uncertain for several Days together: To what Errors then may not a *Comet* be liable, which rises almost four times the height of *Saturn*; and whose Velocity, if but a little increas'd, would change its Elliptic Orb into a parabolic one?

What further confirms the Identity is the Appearance of another *Comet* in the Summer of 1456; which, tho observ'd by none with accuracy, yet by its Period, and the manner of its Transit, he concludes it to be the same: and thence ventures to foretel its return in the Year 1758. See SOLAR *System, and the Plate it refers to; where the Orbits of the several* Comets *are delineated, and their Periods, so many of them as are known, express'd.*

To determine the Place and Course of a COMET.

Observe the distance of the *Comet* from two Fix'd Stars, whose Longitudes and Latitudes are known: from the Distances thus found, calculate the Place of the *Comet* by Trigonometry, after the manner deliver'd under PLANET.

By repeating the Observations and Operations for several Days successively, the Course of the *Comet* will be had.

To determine the Course of a Comet *mechanically, and without any Apparatus of Instruments.* The following ingenious Method, by a Thread, we owe to *Longomontanus*: Observe four Stars round the *Comet*, such, as that the *Comet* may be in the Intersection of the right Lines that join the two opposite Stars; which is easily found, by means of a Thread plac'd before the Eye, and extended over against the Stars and *Comet*.

Suppose, *v. g.* the *Comet*'s place in the Heavens A, (Tab. *Astronomy*, Fig. 23.) between the four Stars, B, C, D, E; where the Line joining the Stars B and D, passes thro' the Body of the *Comet*; and so of the Lines passing thro' C and E.

On a Globe, wherein these four Stars are found, extend a Thread thro' B and D, and another thro' C and E; the Point of Intersection will give the place of the *Comet*. This Practice being repeated for several Days, the *Comets* Course will be had on the Globe; which Course will be found to be a great Circle: from any two Points whereof, it will be easy to find its Inclination to the Eclyptic, and the Place of the Nodes; only by observing where a Thread stretch'd thro' the two Points cuts the Eclyptic.

To determine the Parallax of a Comet. See PARALLAX.

COMITIA, an Assembly of the *Roman* People, either in the *Comitium*, or *Campus Martius*; for the Election of Magistrates, or for consulting on the important Affairs of the Republic. See CAMPUS *Martius*, &c.

There were certain Days fix'd for these Assemblies, call'd *Dies Comitiales*; mark'd with a c in the Calendar of *Julius Cæsar*.

Comitial Assemblies held for the Election of Consuls, were called *Consular Comitia*: in like manner, the other *Comitia* took their Name from the Officer to be created; whether a Tribune, a Pontiff, Ædile, &c.

There were three Kinds of *Comitia*, viz. *Curiata*, *Centuriata*, and *Tributa*; so distinguish'd, from the manner wherein the People voted, and gave their Suffrages, *viz.* by *Curiæ* or Parishes, Tribes or Centuries. See CURIÆ, TRIBE, &c.

Authors make the difference between *Comitia* and *Concilia* to consist in this; that in the former the *whole* People were call'd together, in the latter only a *part*.

The *Comitium*, or Place where the *Comitia* were ordinarily held, was a large Hall in the *Roman Forum*: It was a long time open at top; on which account, the Assemblies were often interrupted by the ill Weather: 'Twas first cover'd over in the time of the second *Punic* War. See FORUM.

Rosinus observes, that the Consuls and Tribunes were not created in the *Comitium*, but the *Campus Martius*.

The Word comes from the Verb *Coeo*, or *Comeo*, to go together.

COMITIALIS *Morbus*, an antient Term for the Epilepsy, or Falling-Sickness; so call'd, because if any Person was seiz'd with it in the *Roman Comitia*, the Assembly was immediately dissolv'd: this being esteem'd an evil Omen. See EPILEPSY.

COMMA, in Grammar, a Virgula, Point, or Character form'd thus [,]; serving to mark a short Stop, or Pause; and to divide the Members of a Period. See POINT, &c.

'Tis very difficult to fix the precise Use of the *Comma*; different Authors define and use it differently: The ordinary Doctrine is, that the *Comma* serves to distinguish Nouns, Verbs, Adverbs, and the several Parts of a Period, that are not necessarily join'd together. But this conveys no clear, precise Idea; for what is it *to distinguish the Parts of a Period not necessarily join'd together?*

F. *Buffier* has carried the Doctrine of the *Comma* much further: The *Comma* serves to distinguish those Members of a Period, in each whereof is a Verb, and the Nominative Case of the Verb. Thus, *That so many People are pleas'd with Trifles, is owing to a Weakness of Mind, that makes 'em love things easy to be comprehended.*

Besides this, the *Comma* is used to distinguish, in the same Member of a Period, several Nouns Substantives, or Nouns Adjectives, or Verbs not united by a Conjunction. Thus, *Virtue, Wit, Knowledge, are the chief Advantages of a Man*: Or, *a Man never becomes learned without studying constantly, methodically, with a Gust, Application*, &c.

If those Words be united in the same Phrase by a Conjunction, the *Comma* is omitted: Thus, *The Imagination and the Judgment don't always agree.* The *Comma* may also be omitted between two Phrases that are very short, especially if they depend on the same Regimen, and are united by a Conjunction: Thus, Alexander *conquer'd* Asia *and establish'd the Monarchy of the* Greeks.

The Author of the Treatise *de Ratione Interpungendi*, printed with *Vossius's Element. Rhetor.* Lond. 1724. lays down the Use of a *Comma* to be, to *distinguish the simple Members of a Period, or Speech*; *i. e.* such as only consist of one Subject, and one definite Verb. See SENTENCE.

Thus *Cicero, Venio nunc ad voluptates agricolarum, quibus ego incredibiliter delector, quæ nec ulla impediuntur senectute, & mihi ad sapientis vitam proxime accedere videntur.*

But this Rule does not go throughout; the same Author instancing many particular Cases, not included herein, where yet the *Comma* is advisable. See POINTING.

Sometimes, *e. gr.* a Proposition includes another, which may be called *Partitive*, as being only a Part of the entire Phrase; in which case, the two are to be divided from each other by *Commas*. Thus, *He always says, as he tells us, the finest Things in the World.*

The Points, or Pauses in Discourse, 'tis observ'd, are in a kind of musical Proportion: The *Comma* stops the Reader's Voice while he may privately tell one; the Semicolon, two; the Colon, three; and the Period or Full-stop, four.

The Antients only made two Kinds of Points, or Pauses in a Period; the larger they called *Members*, the Greeks *Cola*, thus [:] the smaller *Incisa*, the Greeks *Commata*, thus [,].

The Moderns, refining on the Antients, have subdivided the first into a Colon and Semicolon; some say, without any good Foundation in Nature; tho others stand up for the usefulness of the Division. See COLON.

As the Member, or Colon divides the Period into two Parts, each containing a Sense, tho that imperfect; thus, *Antequam de Republica, patres conscripti, dicam ea quæ dicenda hoc tempore arbitror*; where the Sense does not rest, nor is the Period or Sentence perfect, without the Addition of, *exponam vobis breviter & profectionis & reversionis meæ*: The *Comma* subdivides each Member into intermediate Divisions, which, of themselves, have no precise meaning at all; *v. g. Nihil est, mihi crede, virtute formosius, nihil pulchrius, nihil amabilius.*

Frequent *Commas*, as on other occasions they promote perspicuity and distinctness, and ease the Reader, both in the Rehearsal and Comprehension of his Author; so, in Oratory, are they of especial use and effect; particularly where an Adversary is to be closely and pointedly attack'd, upbraided, reprehended, wounded, &c. witness that of *Cicero* against *Verres*; *Non enim nos color iste servilis, non piloso genæ, non dentes putridi decepérunt: oculi, supercilia, frons, vultus denique totus, qui sermo quidam tacitus mentis est, hic in fraudem, homines impulit: hic, eos, quibus eras ignotus, decepit, fefellit, in fraudem induxit: pauci tua ista lutulenta vitia novimus; pauci tarditatem ingenii, stuporem, debilitatemque linguæ*, &c. See PERIOD.

COMMA, in Musick, is the smallest of all the sensible Intervals of Tune. See INTERVAL.

The *Comma* is about the tenth Part of a Tone: or, it is the Interval whereby a perfect Semitone surpasses an imperfect one; or a perfect Tone, an imperfect one. See TONE.

M. *Sauveur* says, a *Comma* is the Difference between a Tone-major and minor. It is seldom in use, except in the Theory of Musick, to shew the Justness of the Consonances; for in the Practice, the Division is drown'd and lost. Each lesser Tone ordinarily contains ten *Commas*.

Lancelot only divides his Tone into nine Parts, or *Commas*; so that according to him, a *Comma* is the ninth Part of a Tone.

The proportion of the greater *Comma* in Numbers, is as 80 to 81; that of the smaller, as 2025 to 2048. See TUNE.

The Word *Comma* is *Greek* form'd of κόπτω, *seco*, I cut.

COMMANDING *Ground*, in Fortification, is such as overlooks any Post, or strong Place.

Of this they reckon three sorts; first, *A Front Commanding Ground*; which is an Height opposite to the Face of the Post, which plays upon its Front. See FRONT.

2d, *A Reverse Commanding Ground*, which is an Eminence that can play upon the Back of any Place or Post.

3d, *An Enfilade Commanding Ground*, or *Curtin Commanding Ground*; which is an high Place, that can with its Shot scour all the length of a strait Line. See ENFILADE.

COMMANDMENT, in a Legal Sense, has various Uses; as, *Commandment of the King*, when, on his own mere Motion, and from his own Mouth he casts a Man into Prison.

Commandment of the Justices, is either *absolute*, or *ordinary*: *Absolute*, as when on their own Authority, and their own Discretion, they commit a Man to Prison for Punishment.

Ordinary, as when they commit him rather for safe Custody than Punishment. A Man committed on an ordinary *Commandment* is replevisable.

Commandment is also used for the Offence of him who directs or wills another to transgress the Law; as by Murder, Theft, and the like.

COMMANDRY, a kind of Benefice, or certain Revenue belonging to a Military Order, and conferr'd on antient Knights who had done Services to the Order. See KNIGHT.

There are *strict*, or *regular Commandries*, obtain'd in Order, and by Merit: there are others of *grace* or *favour*; conferr'd at the pleasure of the Grand Master.

There are also *Commandries* for the Religious in the Orders of S. *Bernard* and S. *Anthony*. The Kings of *France* have converted several of the Hospitals for Lepers into *Commandries* of the Order of S. *Lazarus*. See LEPERS.

Commandries may be compar'd to Conventual Priories; which, at first, were no more than Administrations of the Revenue of certain Places at a distance from the principal Monastery: As there was a necessity for having Monks dispos'd in these Houses to take care of the Effects: so there was the like necessity for sending Knights into those Places where the Order had Lands.

The Commandries of Malta are of different Kinds; for as the Order consists of Knights, Chaplains, and Brothers Servitors, there are peculiar *Commandries* or Revenues attach'd to each. See MALTA.

The Knight to whom one of these Benefices or *Commandries* is given, is call'd *Commander*: which agrees pretty nearly with the *Præpositus* set over the Monks in Places at a distance from the Monastery, whose Administration was call'd *Obedientia*; because depending entirely on the Abbot who gave him his Commission. Thus it is with the simple *Commanders* of *Malta*, who are rather Farmers of the Order than Beneficiaries; paying a certain Tribute or Rent, called *Responsio*, to the common Treasure of the Order.

COMMEMORATION, the Remembrance of any one; or something done in honour of his Memory.

Among the *Romanists*, 'tis a Practice for dying Persons to leave a Legacy to the Church for the rehearsing so many Masses in *Commemoration* of them. See OBIT, &c.

The Eucharist is a *Commemoration* of the Sufferings of Jesus Christ; and is not, therefore, Jesus Christ himself. See EUCHARIST.

COMMEMORATION is also the Name of a Religious Feast in the *Romish* Church, held on the second of *November*, in memory of all the Faithful deceased; instituted in the XIth Century, by *Odillon* Abbot of *Cluny*. See FEAST.

The occasion of its Institution is variously related; the most plausible account is this: A Religious Knight returning from a Pilgrimage to the Holy Land, and losing his Road, met a Hermit; who hearing that he was a *Franc*, ask'd him if he knew the Monastery of *Cluny*, and the Abbot *Odillon*; the Pilgrim professing his Knowledge of both, the Hermit told him, that God had discover'd to him, that he was to have the Credit of delivering the Souls from the Pains they suffer in the other Life; charging him, at his return, to exhort *Odillon*, and those of his Community, to continue their Prayers and Alms for the Dead. See CLUNY.

COMMENDAM, in the Canon Law, the Charge, Trust, and Administration of the Revenues of a Benefice, given to a Layman to enjoy, by way of *Depositum*, for the Space of six Months; in order to its being repair'd, &c. or to another Bishop, or Ecclesiastic to perform the Pastoral Offices thereof; till such time as the Benefice is provided of a regular Incumbent. See BENEFICE.

Antiently, the Adminiſtration of vacant Biſhopricks belong'd to the neareſt neighbouring Biſhop; which is ſtill practis'd between the Archbiſhoprick of *Lyons*, and the Biſhoprick of *Autun*: on this account they were call'd *Commendatory Biſhops*.

This Cuſtom appears to be very antient: S. *Athanaſius* ſays of himſelf, according to *Nicephorus*, that there had been given him *in Commendam*, *i. e.* in Adminiſtration, another Church beſides that of *Alexandria*, whereof he was ſtated Biſhop.

The Care of Churches, it ſeems, which had no Paſtor, was committed to a Biſhop, till they were provided of an Ordinary: The Regiſter of Pope *Gregory* I. is full of theſe Commiſſions, or *Commendams*, granted during the Abſence or Sickneſs of a Biſhop, or the Vacancy of the See.

Some ſay, that Pope *Leo* IV. firſt ſet the modern *Commendams* on foot, in favour of Eccleſiaſtics who had been expell'd their Benefices by the *Saracens*; to whom the Adminiſtration of the vacant Churches was committed for a time, in expectation of their being reſtor'd: tho S. *Gregory* is ſaid to have uſed the ſame, while the *Lombards* deſolated *Italy*.

In a little time, the practice of *Commendams* was exceedingly abus'd; and the Revenues of Monaſteries given to Laymen for their Subſiſtence. The Biſhops alſo procur'd ſeveral Benefices, or even Biſhopricks *in Commendam*; which ſerv'd as a Pretext for holding 'em all; without directly violating the Canons. Part of the Abuſe has been retrench'd; but the Uſe of *Commendams* is ſtill retain'd, as an Expedient to take off the Incompatibility of the Perſon, by the Nature of the Benefice.

When a Parſon is made Biſhop, his Parſonage becomes vacant; but if the King give him Power, he may ſtill hold it *in Commendam*.

COMMENDAM, in many *Romiſh* Countries, is a real Title of a Regular Benefice; as an Abby or Priory given by the Pope to a Secular Clerk, or even to a Layman, with Power to diſpoſe of the Fruits thereof during his Life. See ABBOT.

No Benefice that has a Cure of Souls, *i. e.* no Curacy, or Biſhoprick can be given *in Commendam*. This Practice being entirely contrary to the Canons, none but the Pope, who has a Power of diſpenſing with the Canons, can confer it.

When the *Commendam* becomes vacant by the Death of the *Commendatary*, it is not eſteem'd vacant by his Death; but as it was vacant before the *Commendam* was granted, that making no Alteration in the Thing: Yet the Pope gives the ſame Benefice *in Commendam* again, by a Privilege which he ſtill continues.

By the Pope's Bulls, a *Commendatary* Abbot has the full Authority of the Regular Abbot to whom he is ſubſtituted: This is expreſs'd in plain Terms, *Curam Monaſterii ac regimen & adminiſtrationem tibi in ſpiritualibus & temporalibus plene committendo*. For this reaſon, the Bulls expreſly require, that he be a Prieſt; or, that if he han't yet attain'd the Age of Prieſthood, he ſhall take Orders as ſoon as he has. But this is a mere Formality, or matter of Style; the Thing is never executed.

Indeed, the ſpiritual Direction of the Abby, while in *Commendam*, is lodg'd wholly in the Clauſtral Prior. The *Commendatary* Abbots have not any Authority over the Religious *in ſpiritualibus*: they even cannot either appoint or ſet aſide the Clauſtral Priors, who are nominated in the Bulls the Adminiſtrators of the Spiritualty; in which, however, this Reſtriction is added, *viz.* till the Abbot arrive at the Age of 25 Years, to aſſume the Prieſthood. The Bull given the Prince of *Neubourg* for the Abby of *Feſcamp* runs thus: *Et ne ob defectum Ætatis primo-dictum Monaſterium, aliquod in ſpiritualibus patiatur detrimentum; priorem-Clauſtralem pro tempore exiſtentem, primo-dicti Monaſterii in ſpiritualibus, donec tu 25 tuæ Ætatis annum perveneris, duntaxat conſtituimus ac deputamus.* The Words *Adminiſtration in Spirituals*, are underſtood principally of the Monaſtic Rule, or Diſcipline; from which the Abbots are excluded, even when they are promoted to the Prieſthood, unleſs they become Regulars.

The Popes grant Benefices *in Commendam*, not only to Clerks, by diſpenſing with their Age, and other Qualifications requir'd; but alſo diſpenſe with the Clericate in Children yet in the Cradle, till they become of age to take the Tonſure: It being ſufficient to obtain a Bull, that it be repreſented at *Rome*, that the Child is deſtin'd for the Eccleſiaſtical State.

In this Caſe there is an *Oeconomus*, or Steward, appointed to take care of the temporal Concerns.

COMMENSURABLE *Quantities*, in Geometry, are ſuch as have ſome common aliquot Part, or which may be meaſur'd by ſome common Meaſure, ſo as to leave no Remainder in either. See MEASURE.

Thus, a Foot and a Yard are *Commenſurable*; there being a third Quantity which will meaſure each, *viz.* an *Inch*; which taken 12 times makes a *Foot*, and 36 times a *Yard*. See QUANTITY.

Commenſurables are to each other, either as Unites to a Rational Whole Number; or as one Rational Whole Number to another. See NUMBER.

In *Incommenſurables* 'tis otherwiſe. The Ratio of *Commenſurables* therefore is Rational; that of *Incommenſurables* Irrational: Hence, alſo, the Exponent of the Ratio of *Commenſurables* is a Rational Number. See RATIO.

COMMENSURABLE *Numbers*, whether Integers or Fractions, are ſuch as have ſome other Number which will meaſure or divide them without any Remainder. See NUMBER.

Thus, 6 and 8, $\frac{2}{12}$ and $\frac{1}{4}$ are reſpectively *Commenſurable* Numbers.

COMMENSURABLE *in Power*. Right Lines are ſaid to be *Commenſurable in Power*, when their Squares are meaſur'd by one and the ſame Space, or Superficies. See LINE.

COMMENSURABLE *Surds*, are ſuch Surds as being reduc'd to their leaſt Terms, become true figurative Quantities of their Kind; and are therefore as a Rational Quantity to a Rational. See SURD.

COMMENTARY, or COMMENT, an Interpretation, Gloſs, or Addition, made to an antient, obſcure, or difficult Author, to render him more intelligible, or to ſupply what he has left undone.

Sir *Henr. Savil* has wrote a *Commentary* of 300 Pages in Quarto, to explain the firſt eight Propoſitions in *Euclid*.

S. Evremond obſerves, that *Commentators* commonly ſpend a great part of their time in finding out Beauties the Author never dreamt of, and in enriching him with their own Thoughts.

COMMENTARY is alſo uſed for a ſort of Hiſtory, written by the Perſon who had the chief hand in the Tranſactions related. See HISTORY.

Such are the *Commentaries* of *Cæſar*, of *Montluc*, &c.

The Word is alſo uſed for certain Books wrote on ſome particular Subject: Thus, *Kepler* has wrote an excellent Book of *Commentaries on Mars*; containing Obſervations on the Motion of that Planet.

COMMERCE, *Trade*, the Exchange of Commodities; or, the buying, ſelling, or trafficking of Merchandiſe, Money, or even Paper; in order to profit by the ſame. See MERCHANDISE.

There is no doubt but *Commerce* is nearly as antient as the World itſelf: Neceſſity ſet it on foot, the Deſire of Conveniency improv'd it, and Vanity, Luxury, and Avarice, have brought it to its preſent Pitch. At firſt it only conſiſted in the Exchange of Things neceſſary for Life: The Plowman gave his Grain and his Pulſe to the Shepherd, and receiv'd Milk and Wool in exchange: Which Method of *Commerce* by Exchange ſubſiſts ſtill in many Places; as about the Coaſts of *Siberia*, and the *Daniſh* and *Muſcovite Lapland*; among ſeveral Nations on the Coaſts of *Africa*; among moſt of thoſe of *America*, and many of *Aſia*. See EXCHANGE.

'Tis not preciſely known when the Commerce by buying and ſelling firſt began, nor when Coins, and the ſeveral Species of Gold, Silver, and Copper had their riſe. The firſt Monies were Wood, Leather, and Iron; and even at this day, 'tis the Cuſtom in ſome Places of both *Indies*, to give a certain Value in Sea-Shells and Coco-Nuts, for Merchandiſes, Drugs, &c. See MONEY, and COIN.

The firſt Inſtance of this kind of *Commerce* in the *ſacred Writing*, is in the Time of the Patriarch *Abraham*. For profane Authors, they uſually fix its Epocha to the Reign of *Saturn* and *Janus* in *Italy*; and the antient Authors, according to *Cæſar*, attribute its Invention to the God *Mercury*.

The *Egyptians*, *Phœnicians*, and *Carthaginians*, who were a *Tyrian* Colony, were the firſt, the moſt daring and expert Traders of all Antiquity: at leaſt, 'tis evident they were the firſt who run the Hazard of long Voyages; and who ſet on foot a Traffick by Sea between Coaſts very remote. See NAVIGATION.

Among the Antients, *Commerce* did not appear unworthy the Application of Perſons of the firſt Rank: *Solomon*, we are told, frequently join'd his Merchant-Fleets with thoſe of the King of *Tyre*, for their Voyage to *Ophir*; and by this means render'd himſelf, tho in a little Kingdom, the richeſt King in the Univerſe. Under the *Aſiatic* and *Grecian* Empires, antient Hiſtory gives us from time to time the Traces of a Commerce cultivated by ſeveral Nations: but it flouriſh'd more conſiderably under the Dominion of the *Romans*; as appears from that vaſt Number of Colleges and Companies of Merchants in the ſeveral Cities, mention'd in Hiſtorians and antient Inſcriptions. See COLLEGE.

The Deſtruction of the *Roman* Empire by the Irruptions of the Barbarians, brought that of *Commerce* along with it; or at leaſt ſuſpended its ordinary Operation for ſome time: By degrees it began to recover itſelf, and made a new progreſs; eſpecially in *Italy*.

Hence, the *Piſans*, *Florentines*, *Genoeſe*, and *Venetians*, who abounded in Shipping, took occaſion to ſpread themſelves thro' all the Parts of the *Levant* and *Egypt*; bringing thence Silk, Spices, and other Merchandizes; and furniſhing the greateſt part of *Europe* therewith. And thus was the

modern *Commerce* founded on the Ruins of that of the antient *Greeks* and *Romans* to the same Places: And thus did those famous Republics acquire their Lustre.

The *Germans*, however, had a long time carried on a separate *Commerce*; which was not borrowed from the *Romans*, nor did it fall with theirs. Towards the End of the XIIth Century, the *German* Cities situate on the Coasts of the *Baltic*, and the Rivers that run into it, had a considerable Traffick with the neighbouring States.

As their *Commerce* was much interrupted by Pirates, 72 of them united together for their mutual Defence; and were thence called *Hanseatic*, or *Hans Towns*. See HANS *Town*.

Thus they flourish'd till the Beginning of the XVIth or End of the XVth Century; when a Division arising among them, and about the same time a new Passage to the *Indies*, by the Cape of *Good Hope*, being discover'd by the *Portugueze*; and Settlements made on the Coasts of *Africa*, *Arabia*, and the *Indies*; the antient *Italian* and *Hanseatic Commerce* sunk; and the chief Trade came into the Hands of the *Portugueze*.

The *Portugueze* had not possess'd those different Trades above 100 Years, when, about the Beginning of the XVIIth Century, the *Dutch* began to share it with 'em; and in a little time dispossess'd 'em of almost the whole. The *English*, *French*, *Danes*, and *Hamburghers*, excited by their Success, have likewise made Settlements in the *Indies*, and on the Coasts of *Africa*; tho much less considerable ones, excepting those of the *English*.

Lastly, *America*, discover'd by the *Spaniards* soon after the *Portugueze* had discover'd the new Way to the *Indies*, likewise became the Object of a new, vast, and important *Commerce*, for all the Nations of *Europe*; whereof *Cadiz* and *Sevil* were made the Centre.

'Tis true, the first Conquerors of this new World still possess the greatest and richest Part of it; and preserve the *Commerce* thereof to themselves with a world of Jealousy: yet, besides that, the *English*, *French*, *Portugueze*, and *Dutch*, have several rich and flourishing Colonies, both in the Islands and the Continent; 'tis certain, that 'tis as much for other Nations as themselves, that the *Spaniards* every Year send their Flota's for the Treasures of *Peru* and *Mexico*. See COLONY, FLOTA, and GALLION.

The Trade of *Europe* was no Sufferer by this new one of *America*; the North and South have still the same mutual occasion for each other as before.

The Navigation from the *Baltic* to the *Mediterranean* was tedious and difficult: The Situation of *Flanders*, and the Manufactures which there flourish'd from the Xth Century, together with the free Fairs of that Country, engag'd the Merchants, both of the North and South, to establish their Magazines first in *Bruges*, and then in *Antwerp*. See FAIR, *&c.*

The Establishment of the Republic of *Holland*, the favourable Reception it gave to Strangers, and the Refuge it afforded to Religionaries, drew store of Manufacturers to it, as well as Manufactures; and soon sunk the *Commerce* of *Antwerp*.

And the same Reasons, the Convenience and Multitude of the Ports of *England*, the Goodness of the Wools, and the Industry of the Workmen, have brought thither a considerable Part of the *Commerce* of *Europe*. See WOOLLEN *Manufacture*.

In *France*, the Nobility are allow'd to exercise *Commerce*, without derogating from their Nobility: By an Ordonnance of *Louis* XIII. Merchants are allow'd to take on 'em the Quality of Nobles; and by another of *Louis* XIV. are declared capable of being Secretaries of State, without laying aside their *Commerce*. It may be added, for the honour of *Commerce*, that some of the *Italian* Princes, looking on themselves as the chief Merchants of their States, don't disdain to make their own Palaces serve as Magazines: And there are several Kings in *Asia*, as well as most of those on the Coasts of *Africa* and *Guinea*, who negotiate with the *Europeans* by their Factors, and frequently by themselves. See MERCANTILE *Profession*.

Commerce, on the foot it now stands, is divided into *Commerce by Land*, and *by Sea*; that by *long Voyages*, and by *short*; *Inland* or *Domestick*, and *Foreign*; by *Wholesale* and *Retail*.

A great part of the Foreign *Commerce* of *England* is now carried on by *Companies*: some incorporated by the King's Charters, with an exclusive Privilege, as the *East-India* and *South-Sea* Companies; others only private Associations, as the *Turky* and *Hamburgh* Companies. See COMPANY.

COMMINATORY, a Clause inserted in a Law, Edict, Patent, *&c.* importing a Punishment wherewith Delinquents are menac'd; which, however, is not executed in its rigour. See CLAUSE.

Thus, in some Countries, when an Exile is enjoin'd not to return on Pain of Death, it is deem'd a *Comminatory* Penalty; since, if he do return, it is not strictly executed; but a second Injunction is laid on him, which is more than *Comminatory*, and from the Day of the Date thereof, imports Death without remedy.

COMMINUTION, the Act of grinding, or breaking any Matter into smaller Particles. Thus, we say, the Effect of chewing, or masticating our Food, is the *Comminution* thereof. See MASTICATION, *&c.*

COMMISSARY, an Officer of the Bishop, who exercises Ecclesiastical Jurisdiction in those Parts of the Diocess which are so far remote from the See, that the Chancellor cannot call the Subjects thereof to the Bishop's principal Consistory, without their too great Molestation. See BISHOP'S *Court*, CHANCELLOR, *&c.*

This Officer, call'd by the Canonists *Commissarius*, or *Officialis foraneus*, is appointed to supply the Bishop's Office in the Out-parts of the Diocess, and in such Parishes as are peculiar to the Bishop, and exempted from the Jurisdiction of the Archdeacon: for where the Archdeacons have Jurisdiction, as in most Places they have, either by Prescription or Composition, the *Commissary* is superfluous, and frequently vexatious. See ARCHDEACON.

COMMISSARY, in an Army. There are two sorts of *Commissaries*: The *Commissary-General* of the Musters, or Muster-Master General; who takes an account of the Strength of every Regiment, reviews them, sees that the Horse are well mounted, and all the Men well arm'd and accouter'd. See MUSTER.

And the *Commissary-General of Provisions*, who hath the Charge of furnishing the Army with all Things of that kind.

COMMISSION, in our common Law, is the same with *Delegation* among the Civilians; and is taken for the Warrant, or Patent which any Man exercising Jurisdiction, either ordinary or extraordinary, hath to authorize him to hear or determine any Cause or Action.

The Term, however, is sometimes extended further than to Matters of Judgment; as in the *Commission of Purveyors and Takers*, which seems to be null by the Statute, for taking away Purveyance, 12 *Car.* II. and the *Commission-Court*, which was founded on the Statute 1° *Eliz.* and is also abolish'd by Act of Parliament 17 *Car.* I.

The Persons charged with a *Commission* are hence call'd *Commissioners*; sometimes, *Committees*. See COMMISSIONER, and COMMITTEE.

COMMISSION *of Anticipation*, was antiently a *Commission* under the Great Seal, to collect a Subsidy before the Day. See ANTICIPATION.

COMMISSION *of Association*, is a *Commission* under the Great Seal, to associate two, or more learned Persons, with the several Justices in the several Circuits and Counties in *Wales*. See ASSOCIATION.

COMMISSION *of Bankruptcy*, a *Commission* under the Great Seal, directed to five or more *Commissioners*, to inquire into the Particulars of a Man's Circumstances, who hath failed, or broke; and to act according to certain Statutes made in that behalf. See BANKRUPT.

COMMISSION *of Peace*. See JUSTICE *of Peace*.

COMMISSION *of Rebellion*, or *Writ of Rebellion*, is issu'd out when a Man, after Proclamation issu'd out of the Chancery, or the Exchequer, and made by the Sheriff, to present himself, under Pain of his Allegiance, to the Court by a certain Day; does not appear. See REBELLION.

This *Commission* is directed, by way of Command, to certain Persons; three, two, or one of 'em, to apprehend, or cause to be apprehended, the Party as a Rebel, and to bring him to the Court on a Day assign'd. See OUTLAWRY.

COMMISSION, in Commerce. See FACTORAGE.

COMMISSIONER, he who has a *Commission*, *e. gr.* a Patent, or other legal Warrant, to execute any publick Office.

Such are, *Commissioners of the Office of Licences*, *Commissioners of Alienation*, &c. See ALIENATION, *&c.*

COMMISSIONERS *of the Customs.* } See { CUSTOMS.
COMMISSIONERS *of Excise.* } See { EXCISE.

Lords COMMISSIONERS *of the Treasury*. See TREASURY, and EXCHEQUER.

COMMISSURE, *Commissura*, a Term used by Mr. *Boyle*, and some other Authors, for the small *Meatus*'s, or Interstices of Bodies; or the little Clefts between the Particles; especially when those Particles are broadish and flat, and lie contiguous to one another, like thin Plates, or *Lamellæ*. See PORE.

The Word literally signifies *a joining*.

COMMISSURE, in Architecture, *&c.* the Joint of two Stones; or, the Application of the Surface of the one to that of the other. See MASONRY.

Among Anatomists, *Commissure* is sometimes used for a *Suture* of the Cranium, or Skull. See SUTURE.

COMMITTEE, in Law, one or more Persons, to whom the Consideration of any Matter is referr'd, either by a Court, or by Consent of the Parties concern'd.

COMMITTEE *of Parliament*, is a Board consisting of a certain Number of Members, appointed by the whole House for

for the examining of a Bill, the making Report of an Inquiry, or a Process of the House. See PARLIAMENT, BILL, &c.

Sometimes, the whole House is resolv'd into a *Committee*; on which Occasion each Person has a right to speak, and reply as much, and as often as he pleases: an Expedient they usually have recourse to in extraordinary Cases, and where any thing is to be thoroughly canvass'd.

When the House is not in a *Committee*, each gives his Opinion regularly, and is only allow'd to speak once.

COMMITTEE *of the King*, is used for a Widow of one of the King's Tenants; thus call'd, as being by the antient Law of the Realm *committed* to the King's Care and Protection.

COMMODATE, *Commodatum*, in the Civil Jurisprudence, the Loan, or free Concession of any thing moveable or immoveable, for a certain time, on condition of restoring again the same Individual after a certain time.

The *Commodate* is a kind of *Loan*, or Contract: there is this difference, however, between a Loan and a *Commodate*, that the latter is *gratis*, and does not transfer the Property: the thing must be return'd in Essence, and without Deterioration: So that Things which consume by Use, or Time, can't be Objects of a *Commodate*, but of a Loan; in regard they may be return'd in Kind, tho not in Identity. See LOAN.

COMMODORE, in the Navy, an Under-Admiral, or Person commission'd by an Admiral to command a Squadron of Ships in Chief. See ADMIRAL, and SQUADRON.

COMMON, something that belongs to all alike; own'd, or allow'd by all; and not affected to this more than that. In which Sense *Common* stands opposed to *proper*, *peculiar*, &c.

Thus, the Earth is said to be our *common* Mother; in the first, or golden Age, all things were in *common*, as well as the Sun and Elements: The Name *Animal* is *common* to Man and Beast; that of *Substance* to Body and Spirit.

Philosophers dispute whether there be any such thing as *common* Notions, innate, or impress'd on the Mind by Nature her self; or whether our Ideas are all adventitious. See *Innate* IDEA.

COMMON, in Grammar, that Gender of Nouns which is equally applicable to both Sexes, Male and Female. See GENDER.

Such is that of *parens*, Parent; which is either Masculine, or Feminine, as it is used to signify either Father or Mother.

The *Latin* Grammarians, beside this, which they call the *Common of two*, do also make a *Common of three*; which extends to Masculine, Feminine, and Neuter.

COMMON, in Geometry, is applied to an Angle, Line, or the like, which belongs equally to two Figures, or makes a necessary Part of both.

COMMON *or Double Time*, in Musick. See TIME.

COMMON *Divisor*, is a Quantity, or Number, which exactly divides two, or more other Quantities, or Numbers, without leaving any Remainder. See DIVISOR.

COMMON, in Law, is that Soil, or Water, the use whereof lies open to the several Inhabitants, or Holders of a particular Town, or Lordship: In this Sense, we say, *Common* of Pasture, *Common* of Fishing, *Common* of Turfery, *Common* of Estovers, &c.

Common is divided into *Common in gross*, *Common appendant*, *Common appurtenant*, and *Common by way of neighbourhood*.

COMMON *in gross*, is a Liberty to have *Common* alone; that is, without any Land or Tenement in another Man's Land; to himself for Life, or to him and his Heirs. This is commonly passed by Deed, or Grant, or Specialty.

COMMON *Appendant*, and COMMON *Appurtenant*, are in a manner confounded; both being defined to be a Liberty of *Common* appertaining to, or depending on such or such a Freehold; which *Common* must be taken with Beasts *commonable*; as Horses, Oxen, &c. being accounted fittest for the Plowman; and not of Goats, Geese, and Hogs.

Others distinguish between the two, thus; *Common Appurtenant* may be severed from the Land whereto it appertains; but not *Common Appendant*; which, according to my Lord *Coke*, had its original in the following manner.

'When a Lord enfeoffed another in Arable Lands to hold 'of him in Soccage; the Feoffee, to maintain the Service 'of his Plow, had at first, by Courtesy of his Landlord, '*Common* in his Wastes, for necessary Beasts, to ear, and 'compost his Lands: and that for two Causes; 1st, because 'it was tacitly implied in the Feoffment; by reason the Feoffee could not till, or compost his Land, without Cattel; 'and Cattel could not be sustain'd without Pasture: By 'consequence, therefore, the Feoffee had, as a thing necessary, or incident, *Common* in the Wastes, or Lands of the 'Lord. 2d, For the Maintenance and Advancement of 'Tillage.

COMMON *per Cause de Vicinage*, *i. e.* by reason of Neighbourhood; is a Liberty that the Tenants of one Lord in one Town, have to a *Common*, with the Tenants of another Lord in another Town.

But it is to be observ'd, that those who claim this kind of *Common* (which is usually call'd *Intercommoning*) may not put their Cattel into the *Common* of the other Town, for then they are distrainable; but, turning them into their own Fields, if they stray into their neighbour *Common*, they must be suffered. See INTERCOMMONING.

COMMON *Duct*, in Anatomy. See DUCTUS *Communis*.

COMMON *Fine*, in Law, a certain Sum of Money which the Resiants within the View of some Leets pay to the Lord thereof; call'd, in some Places, *Head-silver*; in others *Cert-Money*, or *Certum Letæ*, and *Head-pence*. See CERT-*Money*.

It was first granted to the Lord towards the Charge of his Purchase of the Court-Leet; whereby the Resiants have now the Conveniency of doing their Suit-Royal near home, without being compell'd to go to the *Sheriff's Turn*.

COMMON *Intendment*, in Law, the *common* Understanding, Meaning, or Construction of any thing; without straining it to any foreign, remote, or particular Sense.

Bar to Common Intendment, is an ordinary or general Bar, which commonly disables the Declaration of the Plaintiff. See BAR, and INTENDMENT.

COMMON LAW, *Lex non scripta*, that Body of Rules generally receiv'd, and held as *Law* in this Nation, before any Statute, or *Lex scripta* was made to alter the same. See LAW.

Origin of the COMMON *Law*. After the Decay of the *Roman* Empire, *Britain* became invaded by three Kinds of *German* People, *viz.* the *Saxons*, *Angles*, and *Jutes*. From the *Jutes* descended the Men of *Kent*, and those of the *Isle of Wight*; from the *Saxons* came the People call'd the *East*, *South*, and *West-Saxons*; and from the *Angles* came the *East-Angles*, *Mercians*, and *Northumbrians*. See HEPTARCHY.

Now, as each People had its peculiar Customs, so each inclin'd to different Laws; whereof, those of the *West-Saxons*, and *Mercians*, who inhabited the midland Countries, were, upon the Dissolution of the Heptarchy, and Establishment of a Monarchy, preferr'd to the rest, and acquir'd the common Appellation of *Jus Anglorum*. Their particular Names were *West-Saxonlage*, and *Merchenlage*. See MERCHENLAGE, &c.

By these Laws the Nation was govern'd for several Ages, till being at length subdued by the *Danes*, the Customs of those People were introduced, and incorporated with the rest; and thus a new form of *Common* Law arose, call'd *Danelage*. See DANELAGE.

The *Danes* being, in their turn, overcame by the *Normans*; the Conqueror, on a Review of the several Laws and Customs that then obtain'd, abrogated some, and abolish'd others; adding some of his own Country Laws: and the System, or Assemblage of these, is what we call the *Common Law*.

The *Common Law* of *England*, is properly, the common Customs of this Kingdom; which, by length of time, have obtain'd the force of Laws. See CUSTOM.

It is call'd the *Unwritten Law*: not but that we have most of it written in the old *Norman* Dialect, but because it cannot be made by Charter, or Parliament: for those are always Matters of Record; whereas Customs are only Matter of Fact, and subsist no where but in the Memory of the People.

From the common Reason of Things, therefore, *Common Law* should appear the best, most beneficial, and easy to the People; in regard it consists of such Rules and Practices as they themselves spontaneously, and as it were by the Impulse and Direction of their own Interests, were led to: Whereas, the Written Laws, made in *England* by the King and Parliament, are imposed on the Subject at once, and without any Trial, or Foreknowledge how they shall answer; and whether or no they are like to prove beneficial to the Nation, and agreeable to the Nature of the People: Excepting such as are first made temporary; and for their approved Utility, afterwards perpetuated.

The first *Saxon* Laws published in *England*, were those of King *Ethelbert* in the VIth Century. 300 Years after, King *Alfred*, whom our Historians call *Magnus Juris Anglicani Conditor*, having united the Heptarchy, and render'd himself Master of the whole Nation; made a Collection from among the several Laws of the several Provinces of his Domains; and commanded 'em to be observ'd throughout his Kingdom. This Collection was denominated the *Folk-Right*, and soon after, the *Common Law*; as being *common* to the whole Nation.

Beside the *Common Law* of *England* in general; there are in divers Parts of the Nation particular Customs, and common Usages, which have the force of *Common Law* among those People who have retain'd 'em: Such as the *Borough-English*, *Gavel-kind*, &c. See BOROUGH-*English*, and GAVEL-KIND.

Where the *Common Law* is silent, there the Statute Law speaks. See STATUTE *Law*.

All

All Trials of *Common Law* are by a Jury of twelve Men. See JURY.

COMMON-PLACES, *Adversaria*, among the Learned, are a Register, or orderly Collection of what things occur worthy to be noted, and retain'd in the Course of a Man's reading, or Study; so dispos'd, as that among a Multiplicity of Heads, and Things of all Kinds, any one may be found, and turn'd to at pleasure. See PLACE.

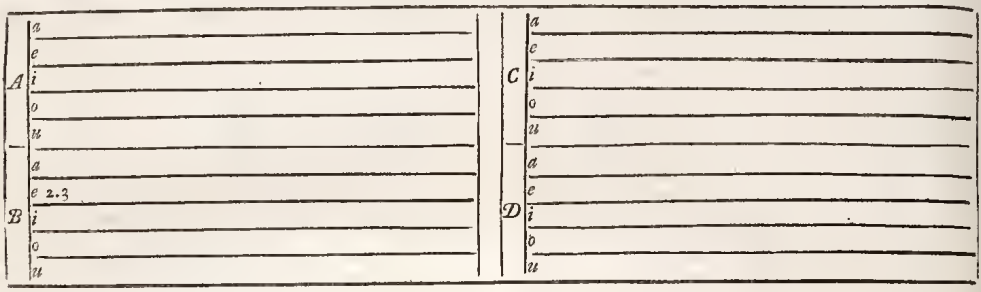
Common-places are things of infinite service: they are a Kind of Promptuaries or Storehouses, wherein to reposit the choicest and most valuable Parts of Authors, to be ready at hand when wanted. Several Persons have their several Methods of ordering them: but that which comes best recommended, and which many learned Men have now given into, is the Method of that great Master of Order Mr. *Locke*. He has thought fit to publish it in a Letter to M. *Toinard*; determin'd thereto, by the great Conveniency and Advantage he had found from it in 20 Years experience; as well as by the Recommendations and Intreaties of many of his Friends, who had likewise prov'd it.

The Substance of this Method we shall here give the Reader; whereby he will be easily inabled to execute it himself.

The first Page of the Book you intend to keep the *Common-places* in, is to serve as a kind of Index to the whole; and to contain References to every *Place* or Matter therein: In the commodious Contrivance of which Index, so as it may admit of a sufficient *Copia*, or Variety of Materials, without any Confusion; all the Secret of the Method consists.

In order to this, the first Page, as already mention'd, or, for more room, the two first Pages that front each other, are to be divided, by parallel Lines, into 25 equal Parts; whereof, every fifth Line to be distinguish'd, by its Colour or other Circumstance. These Lines are to be cut perpendicularly by others, drawn from top to bottom; and in the several Spaces thereof, the several Letters of the Alphabet, both Capital and Minuscule, are to be duly wrote.

The form of the Lines and Divisions, both horizontal and perpendicular, with the manner of writing the Letters therein, will be conceiv'd from the following Specimen; wherein, what is to be done in the Book for all the Letters of the Alphabet, is here shewn in the first four *A*, *B*, *C*, and *D*.



The Index of the *Common-place Book* thus form'd, Matters are ready for the taking down any thing therein.

In order to this, consider to what Head, the thing you would enter is most naturally referr'd; and under which, one would be led to look for such a thing: in this Head, or Word, regard is had to the initial Letter, and the first Vowel that follows it; which are the characteristic Letters whereon all the Use of the Index depends.

Suppose, *e. g.* I would enter down a Passage that refers to the Head *Beauty*; *B*, I consider, is the initial Letter, and *e* the first Vowel: Then, looking upon the Index for the Partition *B*, and therein the Line *e*, (which is the Place for all Words whose first Letter is *B*, and first Vowel *e*; as *Beauty*, *Beneficence*, *Bread*, *Bleeding*, *Blemishes*, &c.) and finding no Numbers already down to direct me to any Page of the Book where Words of this Characteristic have been enter'd, I turn forward to the first blank Page I find, which in a fresh Book, as this is suppos'd to be, will be Page 2, and here write what I have occasion for on the Head *Beauty*; beginning the Head in the Margin, and indenting all the other subservient Lines that the Head may stand out and shew it self: This done, I enter the Page where 'tis wrote, *viz.* 2, in the Index, in the Space *B e*; from which time, the Class *B e* becomes wholly in Possession of the 2d and 3d Pages, which are consign'd to Letters of this Characteristic.

Had I found any Page or Number already enter'd in the Space *B e*, I must have turn'd to the Page, and have wrote my Matter in what room was left therein: so, if after entering the Passage on *Beauty*, I should have occasion for *Benevolence*, or the like, finding the Number 2 already possess'd of the Space of this Characteristic, I begin the Passage on *Benevolence* in the Remainder of the Page, which not containing the whole, I carry it on to Page 3, which is also for *B e*; and add the Number 3 in the Index.

An *Example* will make the Method of writing down Heads obvious.

BEAUTY. 'The Power of perceiving the Ideas of *Beauty* 'is justly call'd a *Sense*, because of its affinity to 'the other Senses in this, That the Pleasure does 'not arise from any Knowledge of Principles, Proportions, Causes, or of the Usefulness of the Object; but strikes us at first with the Idea of *Beauty*: nor does the most accurate Knowledge increase 'this Pleasure of *Beauty*; however, it may superadd a distinct rational Pleasure from Prospects 'of Advantage, or from the Increase of Knowledge. 'And further, the Ideas of Beauty, like other sensible Ideas, are necessarily pleasant to us, as well as 'immediately so; neither can any Resolution of 'our own, nor any Prospect of Advantage or Disadvantage, vary the Beauty or Deformity of an Object: For as in the external Sensations, no View 'of Interest will make an Object grateful; nor Detriment, distinct from immediate Pain in the Perception, make it disagreeable to the Sense; so, 'propose the World as a Reward, or threaten the 'greatest Evil, to make us approve a deformed Object, or disapprove a beautiful one; Dissimulation 'may be procur'd by Rewards, or Threatnings; or 'we may in external Conduct abstain from any Pursuit of the Beautiful, and pursue the deformed; 'but our Sentiments of the Forms, and our Perceptions would continue invariably the same. Hence, 'it plainly appears, that some Objects are immediately the Occasions of this Pleasure of *Beauty*; 'and that we have Senses fitted for perceiving it; 'and that it is distinct from that Joy which arises 'from Self-love, upon prospect of Advantage. Nay, 'do not we often see Conveniency and Use neglected to obtain *Beauty*, without any other Prospect 'of Advantage in the beautiful Form, than the 'suggesting the pleasant Ideas of *Beauty*? Now this 'shews us, that however we may pursue beautiful 'Objects from Self-love, with a View to obtain the 'Pleasures of *Beauty*; as in Architecture, Gardening, &c. yet there must be a Sense of *Beauty* antecedent to Prospects of even this Advantage: 'without which Sense, these Objects would not be 'thus advantageous; nor excite in us this Pleasure 'which constitutes 'em advantageous. Our Sense 'of *Beauty*, from Objects by which they are constituted good to us, is very distinct from our Desire 'of 'em, when they are thus constituted: Our Desire of *Beauty* may be counterbalanc'd by Rewards and Punishments, but never our Sense of it. 'Had we no such Sense of *Beauty*, Houses, Gardens, 'Dress, Equipage, might be recommended to us as 'convenient, fruitful, warm, easy; but never as beautiful: And in Faces, I see nothing that cou'd please 'us, but Livelinesses of Colour, and Smoothness of 'Surface.—*Inquiry into the Original of our Ideas of* 'Beauty, &c. 8vo. Lond. 1725. p. 10, 11, 12.

BENEVOLENCE. 'The true Spring of all Actions called '*Virtuous*, is some Determination of our Nature to 'study the Good of others; or some Instinct, antecedent to all Reason from Interest; which influences us to the Love of others.—The same Cause 'which determines us to pursue Happiness for our 'selves, determines us to Esteem and *Benevolence* 'for others: even the very Frame of our Nature, or 'a generous Instinct.—This universal *Benevolence* 'towards all Men, we may compare to that Principle of Gravitation; which extends to all Bodies in 'the Universe, but like the Love of *Benevolence*, 'increases as the Distance is diminish'd; and is 'strongest when Bodies come to *touch* each other. '*Id. Ib.* p. 131, 143, 199.—As all Men have Self-love, 'as well as *Benevolence*; those two Principles may 'jointly excite a Man to the same Action: and then 'they are to be consider'd as two Forces impelling 'the same Body to Motion: Sometimes they con-

'spire; sometimes are indifferent to each other; 'and sometimes are opposite. Thus, if a Man have 'such strong *Benevolence* as would have produced 'an Action without any Views to Self-Interest; that 'such a Man has also in view private Advantage, 'does no way diminish the *Benevolence* of the Ac'tion. When he would not have produc'd so much 'publick Good, had it not been for prospect of 'Self-Interest; then the Effect of Self-Love is to be 'deducted; and his *Benevolence* is proportion'd to 'the Remainder of Good, which pure *Benevolence* 'would have produced. When a Man's *Benevo'lence* is hurtful to himself, then Self-Love is op'posite to *Benevolence*; and the *Benevolence* is 'proportion'd to the Sum of the Good produc'd, 'and the Resistance of the Self-Love surmounted 'thereby.——The Morality of any Person, or the 'Quantity of publick Good produc'd by him, is 'in a compound Ratio of his *Benevolence* and Abi'lities: Or, (by substituting the initial Letters for 'the Words, as M = Moment of Good, and μ = 'Moment of Evil) M = B × A. *Idem ib.* p. 130, '131, 143, 199.'

When the two Pages destin'd for one Class are full, look forwards for the next Backside that is blank; if it be that which immediately follows, write at the bottom of the Margin of the Page fill'd, the Letter *V.* for *Verte*, turn over; and the same at the top of the next Page; and continue from this new Page as before. If the Pages immediately following be already fill'd with other Classes; write at the bottom of the Page last fill'd the Letter *V.* with the Number of the next blank Page; and at the top of that Page, the Number of the Page last fill'd: Then entering that Head in this new Page, proceed as before. By these two Numbers of reference, the one at the top, and the other at the bottom of the Page, the discontinued Matters are again connected. It may not be amiss, too, every time you put a Number at the bottom of a Page, to put it likewise in the Index. Note, if the Head be a Monosyllable beginning with a Vowel, the Vowel is at the same time both the initial Letter and the characteristic Vowel: Thus, the Word *Art* is to be wrote in *A a.*

Mr. *Locke* omits three Letters of the Alphabet in his Index, *viz. K*, *Y*, and *W*; which are supplied by *C*, *J*, *U*, equivalent to them: And as for *Q*, since it is always follow'd by an *u*, he puts it in the fifth Place of Z; and so has no Z *u*, which is a Characteristic very rarely occurs. By thus making *Q* the last in the Index, its Regularity is preserv'd, without diminishing its Extent.

Others chuse to retain the Class Z *u*, and assign a Place for *Q u* below the Index.

If any imagine that those hundred Classes are not sufficient to comprehend all kinds of Subjects without Confusion, he may follow the same Method, and yet augment the Number to 500, by taking in one more Characteristic to 'em.

But the Inventor assures us, that in all his Collections, for a long Series of Years, he never found any deficiency in the Index as above laid down.

Common Pleas, *Communia Placita*, or *Bancus Communis*, one of the King's Courts, now constantly held in *Westminster-Hall*; but antiently moveable. See Court.

Gwin observes, that till the granting of *Magna Charta* there were but two Courts called the King's Courts, *viz.* the *Exchequer*, and the *King's-Bench*; and that upon the Grant of that Charter the Court of *Common-Pleas* was erected, and fix'd to a Place certain, *viz. Westminster-Hall*: whence the Writs which before ran *Coram me vel Justiciariis meis*, simply; were now chang'd, and run *Coram Justiciariis meis apud Westmon.* See Bench.

All Civil Causes, both Real and Criminal, are, or were in former Times, tried in this Court, according to the strict Law of the Realm: *Fortescue* represents it as the only Court for Real Causes.

The Chief-Justice hereof is call'd the *Lord Chief-Justice of the Common Pleas*; who is accompanied with three or four his Associates, created by Letters Patent, and as it were in-Judges stall'd or placed on the *common Bench* by the Lord Chancellor, and the Lord Chief-Justice of the Court. See Justice.

The rest of the Officers belonging to this Court, are the *Custos Brevium*; three *Prothonotaries*, or Prænotaries; *Chirographer*; 14 *Filazers*; 4 *Exigenters*; *Clerk of the Warrants*; *Clerk of the Juries*, or *Jurata Writs*; *Clerk of the Treasury*; *Clerk of the King's Silver*; *Clerk of the Essoigns*; *Clerk of the Outlawries*; *Clerk of the Errors*; whose several Functions see in their Places Custos *Brevium*, Prothonotary, Exigenter, Clerk, *&c.*

Common *Bench.* } See { Common *Pleas.*
Common *Council.* } See { *Common* Council.

Common-*Hunt*, the Chief-Huntsman belonging to the Lord Mayor and the City of *London.* See Mayor.

Common *Receptacle.* } See { Receptacle.
Common *Sensory.* } See { Sensory.

COMMONER, is used for a Student in an University; enter'd on the Foundation, and not as a *Servitor.* See University.

The Word is also apply'd to a Member of the House of *Commons*; in contradistinction to a *Peer.* See Commons.

COMMONS, in Parliament, are the lower House, consisting of Knights elected by the Counties, and of Citizens, and Burgesses by the Cities and Borough-Towns. See Knight, and Burgess; see also County, Borough, *&c.*

In these Elections, antiently, all the People had Votes; but King *Henry* VI. to avoid Tumults, first appointed, that none should vote for Knights but such as were Freeholders, did reside in the County, and had 40*s.* yearly Revenue: The Persons elected for Counties to be *Milites notabiles*, at least Esquires, or Gentlemen fit for Knighthood; native *Englishmen*, at least naturaliz'd; and 21 Years of Age: No Judge, Sheriff, or Ecclesiastical Person, to sit in the House for County, City, or Borough.

All Members of either House, with their menial Servants, and necessary Goods brought with 'em, are privileg'd from all Attachments and Imprisonments; except for Treason, Felony, or breach of Peace, all the time of the Session, and till they arrive at home, *eundo, morando, ad propria redeundo.*

The *Commons* sit in their House promiscuously; only the *Speaker* has a Chair, or Seat, fix'd towards the upper End; and the Clerk, with his Assistant, sits near him.

The Members have no Robes, as the Lords ever had; excepting the Speaker and Clerks; and sometimes the Professors of Law in Term-time, and the Members of the City of *London.*

On the first Day of the new Parliament, ere any Affair is meddled with, all the Members take the Oaths; usually, before the Lord Steward, and in the Court of Wards. See Oaths.

They then proceed to the Choice of a *Speaker.* See Spearer.

After the Election of a Speaker, they take the Oaths a second time.

Power and Privileges of the House of Commons. All Bills for levying Money on the Subject, begin in the House of *Commons*; in regard, 'tis from them the greatest Part of the Monies arise: nor will they allow the Lords to make any alteration in a Money-Bill.

They have the Privilege to propose Laws; and are, in effect, the grand Inquest of the Realm; present publick Grievances; impeach publick Delinquents, even the highest Officers of the Kingdom; and prosecute 'em before the House of Lords, who are a Court of Judicature, tho the *Commons* are not.

The *Commons* are allow'd their Expences during Parliament-time, *rationabiles expensas*, as the Words of the Writ are; *i. e.* such Allowance as the King, considering the Prices of Things, shall think proper to impose on the People they represent. In 17 *Edw.* II. the Allowance was ten Groats for Knights, and five for Burgesses, *per* Day; afterwards it was rais'd to four Shillings a Day for dubbed Knights, and two Shillings for all the rest: But all Allowance is now grown into disuse; and the Course of the Money turn'd the other way. See Parliament.

Commons is also used in opposition to *Nobles*, or *Peers*; *viz.* for all sorts of Persons under the degree of a Baron; including the Orders of Knights, Esquires, Gentlemen, the Sons of the Nobility, and Yeomen. *See each under its proper Article* Esquire, Gentleman, Yeoman, *&c.*

Commons is also used for the stated and ordinary Diet, or Eating of a College, Inns of Court, or other Society. See Inn, *&c.*

COMMONWEALTH. See Republick.

COMMOTE, an antient Term in *Wales*, as appears from *Stat. Walliæ*: a *Commote* was half a *Cantred*, or Hundred; containing 50 Villages. See Hundred.

Wales was antiently divided into three Provinces; each of these subdivided into *Cantreds*; and every *Cantred* into Hundreds.

Sylvester Girald, however, tells us in his *Itinerary*, that a *Commote* is but a quarter of a Hundred.

COMMOTION, an intestine Motion, or Luctation in the Parts of any thing.

In Medicine, the Term is chiefly used for a blow, or shake of the Brain. Thus, we say, a Convulsion is a *Commotion* of the fine medullary Fibres of the Brain. A fall occasions a *Commotion*, whence frequently arises a counter-stroke on the opposite Part; which occasions sometimes a Contrafissure, and at other times a Rupture of the Vessels, and an Apostheme, by shaking the whole Mass of the Brain.

COMMUNIBUS *Locis*, a *Latin* Term, in frequent use among Philosophical, *&c.* Writers; implying some Medium, or mean Relation between several Places.

Thus, Dr. *Keil* supposes the Ocean to be one quarter of a Mile deep, *communibus locis*, *q. d.* at a Medium, or taking one place with another.

COMMUNIBUS *Annis*, has the same Import with regard to Years, that *Communibus locis* has with regard to Places.

Thus, Mr. *Derham* observes, that the Depth of Rain, *communibus annis*, *i. e.* one Year with another, were it to stagnate on the Earth, would amount to, at *Townly* in *Lancashire*, $42\frac{1}{2}$ Inches; at *Upminster* in *Essex* $19\frac{1}{4}$; at *Lurick* $32\frac{1}{2}$; at *Pisa* $43\frac{1}{4}$; and at *Paris* to 19 Inches.

COMMUNICATING, in Theology, the Act of receiving the Sacrament of the Eucharist. See EUCHARIST.

Those of the *Reform'd* and of the *Greek* Churches *communicate* under both Kinds; those of the *Romish* only under one.

From the second Book of *Tertullian* to his Wife, it appears, that antiently they communicated fasting. S. *Augustin* says expresly, that in some Churches, in his Time, they *communicated* every Day.

Among the *Greeks*, M. *Fleury* observes, the Laity still *communicate* every Sunday; those who omit it three Sundays together are excommunicated.

The Oriental Communicants receive the Species of Wine by a Spoon; antiently, they suck'd it thro' a Pipe, as has been observ'd by *Beat. Rhenanus* on *Tertullian*.

COMMUNICATION, the Act of imparting a thing to another, or making him a Sharer with us therein.

Thus, God is said to *communicate* his Grace to us by means of his Sacraments. The Use of Speech is for the communicating of our Ideas and Sentiments to each other.

Philosophers are at a Loss as to the manner of the *Communication*, or Intercourse between Soul and Body. See SOUL, CAUSE, *&c.*

COMMUNICATION is also used for the Connection of one thing with another; or the Passage from one Place to another.

Antiently, it was frequent to have subterraneous *Communications* between one Place and another. Such a Gallery makes a *Communication* between such two Apartments.

Lines of COMMUNICATION, in War, call'd also simply *Lines*; are Ditches six or seven Foot deep, and 12 broad, made between one Fort, or Work, and another; in order for a Passage between one Quarter and another; especially in Sieges. See LINE, *&c.*

COMMUNICATION *of Idioms*, in Theology, the *Communication* of the Attributes of one Nature in Jesus Christ to that of the other.

The *Communication of Idioms*, is founded on the Unity of two Persons in Jesus Christ: By this *Communication of Idioms* it is, that we say, God suffer'd, died, *&c.* which is strictly understood of the Human Nature; and signifies, that God suffer'd in his Humanity, that he died as to his Human Nature. For the Denominations which signify Natures, or Properties of Nature, the Schoolmen tell us, are Denominations of *Suppositums*, or Persons, and are to be attributed to 'em: Thus, the two Natures only subsisting in Jesus Christ by the sole Person of the Word, to this Person must be attributed the Denominations of both Natures, and of their Properties. But we may not by *Communication of Idioms* attribute to Jesus Christ what would suppose him not to be God; since that would destroy the Hypostatical Union, which is the Foundation of the *Communication of Idioms*. Thus, we may not say that Jesus Christ is mere Man; that he is fallible, *&c.*

The *Lutherans* carry the *Communication of Idioms* so far, as to say, that Jesus Christ is not only in his Divine Nature, and by reason of his Divine Person, but also really and properly in his Humanity, Immortal, Immense, *&c.*

COMMUNICATION *of Motion*, the Action of a moving Body, whereby a Body at rest is put in Motion, or a Body already in Motion accelerated. See MOTION.

F. *Mallebranch* looks on the *Communication of Motion* as something Metaphysical; *i. e.* as not necessarily arising from any physical Principles, or any Properties of Bodies, but flowing from the immediate Agency of God: there being, according to him, no more Connection, or Dependence between the Motion or Rest of one Body, and that of another, than between the Form, Colour, Magnitude, *&c.* of one Body and those of another. The Motion of one Body, therefore, on his Principle, is not any physical Cause of that of another. See CAUSE.

Laws of the COMMUNICATION *of Motion.*

Action, and Reaction, Sir *Isaac Newton* demonstrates, are equal and opposite; so that one Body striking against another, and thereby occasioning a Change in its Motion, does it self undergo the very same Change in its own Motion, the contrary way.

Hence, a moving Body striking directly against another at rest, the one loses just as much of its Motion as it *communicates* to the other; and they will proceed with the same Velocity as if grown into one Mass.

If, therefore, the Body in Motion be triple that at rest against which it strikes, it will lose a fourth Part of its Motion; and whereas, before, it would have run over *(v. g.)* a Line of 20 Foot, in a given time, it will now only run over 18; *i. e.* it will lose a fourth part of its Velocity.

If the moving Body strike on another already in Motion, the first will augment the Velocity of the latter; but will lose less of its own Motion, than had the latter been absolutely at rest.

Thus, *v. g.* if a Body in Motion be triple of another at Rest, and strike against it with 32 degrees of Motion; it will *communicate* eight degrees of its Motion to the other, and retain 24 to it self. If the other Body had already four degrees of Motion, the first would only *communicate* five, and retain 27: since those five were sufficient, in regard of the Inequality of the Bodies, to make 'em proceed with equal Velocity.

After the same manner may the other Laws of *Communication* of Motion in Bodies perfectly hard, and void of all Elasticity, be determin'd. But all hard Bodies that we know of have an elastick Power; and in elastick Bodies, the Laws are different, and much more intricate. See ELASTICITY; and *the Laws of Percussion in elastick Bodies*, see under PERCUSSION.

If a Body, when moved by another, happen to decline out of the way, so as to leave a free Passage to the Body whereby it was moved; yet, that will only proceed with the Velocity which it had after its *Communication* to the other, not with that it had before: It being a Rule, that every thing endeavours to persevere; not in the State wherein it was formerly, but in that wherein it is at that Juncture: therefore, a Body which has already lost part of its Motion, by its meeting with another; may lose still more by a second and a third; so as at length to become perfectly quiescent.

Hence, 1st, if two unequal homogeneous Bodies move in a right Line with the same Velocity, the greater must persevere in Motion longer than the smaller: for the Motions of Bodies are as their Masses; but each *communicates* of its Motion to the circumjacent Bodies which touch its Surface, in proportion to the Magnitude of its Surface; the larger Body, therefore, tho it has more Surface than the smaller, yet having less, in proportion to its Mass or Quantity of Matter, than the smaller, will lose a less Portion of its Motion every Moment than the smaller.

Suppose, *e. g.* a Cube, A, to be 2 Foot every way, and another, B, one Foot: the Surfaces here will be as 4 to 1, but their Masses as 8 to 1. If therefore those Bodies move with the same Velocity, the Cube A will have 8 times as much Motion as the Cube B (the Quantity of Motion being ever as the Quantity of Matter). That each of 'em, therefore, may become quiescent at the same time, the Cube A must lose 8 times as much Motion every Moment as the Cube B: But that is impossible, because as their Surfaces are to each other as 4 to 1; the Bodies against which they strike, will only be as 4 to 1: Therefore, when the Cube B is become perfectly quiescent, A will have half its Motion.

Hence, 2dly, we see the Reason why any long Body, as a Dart, thrown lengthwise, continues its Motion longer than when thrown transversly: it meeting fewer Bodies in the way to *communicate* its Motion to in the one Case than in the other.

Hence also, 3dly, if a Body be moved almost wholly within it self, so as to *communicate* little of its Motion to the ambient Bodies, it must continue its Motion a long time. Thus, a smooth brass Ball of half a foot Diameter, supported on a slender smooth Axis, with a very weak impulse, is found to revolve, for the Space of three or four Hours. See RESISTANCE, *&c.*

COMMUNION, in Theology, an uniform Belief in several Persons; whereby they are united under one Head, in one Church.

In this Sense, the *Lutherans*, *Calvinists*, &c. are said to have been cut off from the *Romish Communion*.

This is the primitive use of the Word *Communion*, as appears from the Canons of the Council of *Elvira*.

COMMUNION is also used for the Act of *communicating* in, or participating of the Sacrament of the Eucharist. See COMMUNICATING.

The fourth Council of the *Lateran*, decrees, that each Believer shall receive the *Communion*, at least, at *Easter*; which seems to import a tacit Desire that they should do it oftner; as, in effect, they did do it much oftner in the primitive Days. *Gratian*, and the *Master of the Sentences*, prescribe it as a Rule for the Laity, to *Communicate* three times a Year, at *Easter*, *Whitsuntide*, and *Christmas*. But, in the XIIIth Century, the Practice was got on foot, never to approach the Eucharist except at *Easter*; and the Council thought fit to enjoin it then by a Law, lest their Coldness and Remissness should go farther still.

COM-

Communion *under both Kinds*; in the XIth Century, the *Communion* was still receiv'd by the Laity in both Kinds; or, rather, the Species of Bread was dipp'd in the Wine, as is own'd by the *Romanists* themselves, *Acta SS. Benedict. Sec.* III.

M. *de Marca* observes, that they receiv'd it at first in their Hands; *Hist. de Bearn.* and believes the *Communion* under one Kind alone, to have had its Rise in the West under Pope *Urban* II. in 1096, at the Conquest of the Holy Land.

The XXVIIIth Canon of the Council of *Clermont*, enjoins the *Communion* to be receiv'd under both Kinds, distinctly: adding, however, two Exceptions; the one of Necessity, the other of Caution, *nisi per necessitatem, & cautelam*; the first in favour of the Sick, the second of the Abstemious, or those who had an Aversion for Wine.

It formerly was a kind of Canonical Punishment, for Clerks guilty of any Crime, to be reduc'd to *Lay-Communion*, *i. e.* only to receive it as the Laity did, *viz.* under one Kind.

They had another Punishment of the same Nature, tho under a different Name, called *Foreign Communion*; to which the Canons frequently condemn'd their Bishops and other Clerks. This Punishment was not any Excommunication, or Deposition; but a kind of Suspension of the Function of the Order, and a Degradation from the Rank they held in the Church.

It had its Name, because the *Communion* was only granted to the Criminal on the Foot of a Foreign Clerk, *i. e.* being reduc'd to the lowest of his Order, he took place after all those of his Rank, as all Clerks, *&c.* did in the Churches to which they did not belong. The second Council of *Agda*, orders every Clerk that absents himself from the Church, to be reduc'd to foreign *Communion*.

COMMUNITY, a Society, or Body of Men united together under certain common Laws, agreed on among themselves, or impos'd by a Superior. See Society, and Corporation.

The *Romans*, who seem to have given the first hint of *Communities* to the several Nations into which their Empire was divided, doubtless borrow'd it from some Rules of their Neighbours: They call'd 'em *Colleges*; which Term, among them, had nearly the same Signification with *Community* among us. See College.

Communities are of two Kinds, *Ecclesiastick* and *Laick*: The first are either *Secular*, as Chapters of Cathedral and Collegiate Churches; or *Regular*, as Convents, Monasteries, *&c.* See Chapter, Convent, *&c.*

Lay Communities are of various Kinds; some contracted by a fix'd Abode of a Year and a Day in the same Place; others form'd by the Discharge of the same Office, the Profession of the same Art, or attending the same Place of Worship; as those of *Parishes*, *Fraternities*, &c. See Fraternity, Parish, *&c.*

Accordingly, the Word is commonly understood of pious Foundations for the Support of several Persons, either in a Secular or Regular Life; as *Colleges*, *Abbies*, *Convents*, *Priories*, *Conventual Seminaries*, *Hospitals*, *Inns*, &c.

Community, also, is particularly used for the joint Property in Effects between Husband and Wife: The Result of which *Community* is, that during Marriage they are equally intitled to all Effects, and liable to all Debts, contracted either before or under Marriage.

Community is a Species of Succession, and the Acceptation of *Community* resembles an hereditary Addition.

Community was set on foot in favour of the Wives, to enter 'em in as Sharers in the Husband's Effects.

In Countries where the Civil Law obtains, this *Community* has no place; nor even in several Customary Countries; as being reputed a Burden on the Man.

Antiently, the Woman's Share in the *Community* was only one third: and this appears still the Sense of the Law among us; the Widow, at the Decease of her Husband, being only intitled to one third Part of the Moveables.

Community *continu'd*, is that which subsists between the Survivor of two Persons join'd in Marriage, and the minor Children of that Marriage: when the Survivor has not made any Inventory of the Effects in Possession during Marriage, the Widow may either renounce *Community* with her Children, or continue it.

Community *tacit*, is a *Community* contracted between a Man and Woman, by the mere mingling of their Effects; provided they have liv'd together the Space of a Year and a Day: This *Community* being odious, is now abolish'd.

COMMUTATION, in Law, a Change of Penalty, or Punishment, *viz.* of a greater for a less, *&c.* as when Death is *commuted* for, by perpetual Imprisonment, *&c.* See Punishment.

Some doubt whether the Word be properly applied to any Change but that of Punishment: others will have it indifferently serve for the exchanging, or trucking of any thing. See Permutation.

Commutation, in Astronomy. The *Angle of Commutation*, is the Distance between the Sun's true Place seen from the Earth, and the Place of a Planet reduc'd to the Eclyptic. See Place.

Thus is the Angle E S R, (Tab. *Astronomy*, Fig. 24.) subtended between the Sun's true Place E, view'd from the Earth; and that of a Planet reduc'd to the Eclyptic, R, is the *Angle of the Commutation*.

The *Angle of Commutation*, therefore, is found by subtracting the Sun's true Place E, from the heliocentrical Place of the Planet R; or contrarily.

COMPACT, in Physicks, denotes a Body to be close, dense, and heavy; having few Pores, and those small ones. See Body, Pore, *&c.*

The heaviest Metals, as Gold and Silver, are the most *compact*. See Weight.

Compact, in a Legal Sense, signifies an Agreement, or Contract stipulated between several Parties. See Pact, Contract, *&c.*

Compact is also the Name of a celebrated Bull, confirm'd by Pope *Paul* IV. relating to the Cardinals.

In virtue of the Bill of *Compact*, Cardinals can only confer Benefices in their natural State; *i. e.* Regular Benefices on Regulars. See Benefice, Cardinal, Regular, *&c.*

COMPANY, a collective Term, understood of several Persons assembled together in the same Place, or with the same Design. See Society.

The Word is form'd of the French *Compagnie*, and that of *Companio*; and *Companies*, which, *Chifflet* observes, are found in the *Salic Law*, Tit. 66. and are properly Military Words, understood of Soldiers who, according to the modern Phrase, are *Comrades*, or Mess-mates, *i. e.* lodge together, eat together, *&c.* of the Latin *cum*, with, and *panis*, Bread.

It may be added, that in some *Greek* Authors under the Western Empire, the Word κομπανια occurs in the Sense of *Society*: but 'tis more probable, that the *Greeks* borrow'd it from the *French* or *Italians*.

Company, in Commerce, is an Association of several Merchants, or others, who unite in one common Interest, and contribute by their Stock, their Counsel, and their Cares, to the setting on foot, or supporting of some profitable Establishment. See Commerce.

Tho *Company* and *Society* be, in effect, the same thing, yet Custom has made a difference between 'em: Society being understood of two, or three Dealers, or not many more; (see Society:) and *Company* of a greater Number.

A second difference between *Companies* and Societies, is, that the first, especially when they have exclusive Privileges, cannot be establish'd without the Concession of the Prince; and need Letters Patent, Charters, *&c.* See Charter, Corporation, Privilege, *&c.*

Whereas, for the latter, 'tis sufficient to have the Consent of the Members, fix'd, and certify'd by Acts and Contracts, and authoriz'd by By-Laws.

Lastly, the Word *Company* seems more peculiarly appropriated to those grand Associations, set on foot for the Commerce of the remote Parts of the World; as the *English* and *Dutch East-India Company*, *South-Sea Company*, *Mississippi Company*, &c. The Rise and Establishment whereof, we shall here set before the Reader.

English Companies.

East-India Company, was form'd towards the latter end of the Reign of Queen *Elizabeth*; their Charter being dated in 1599.

Their first Fleet, sent out in 1600, brought back so rich a Cargo, that in a few Years they number'd 20 Ships. K. *James* I. to shew how much he had its Interest at heart, sent several Embassies to the Great *Mogul*, Kings of *Persia*, *Japan*, and other Princes, to make Treaties of Commerce in his Name, and that of the *Company*; some of which subsist still: The King of *Persia*, in particular, granted the *Company* several extraordinary Favours, in recompence for that Service the *English* had done him, in assisting him to expel the *Portugueze* from *Ormus*; who by means of their Lodgment there, usurp'd the whole Commerce of the *Persian* Gulf.

But its chief Favours the *Company* receiv'd at the hands of King *Charles* II. who, by a Charter in 1669, granted 'em the Port and Island of *Bombay*, with all the Rights thereof, as surrender'd to him by the *Portugueze*: only reserving to himself the Sovereignty and Homage thereof, with a yearly Acknowledgment of 10 *l. per Annum* in Gold.—By another Charter in 1674, he granted 'em, in like manner, the Island of St. *Helena*, belonging to him by Right of Conquest, from the *Dutch*, who had before taken it from the *English*.—By a third Charter, he granted them a Power to erect a Court of Judicature, compos'd of a Legist, and two Merchants, in all their Places, Settlements, Factories, *&c.* to judge of Seizures, and all marine Disputes; as also about Bargains, Exchange, *&c.* and even of all Crimes committed on the high Seas, or in the Countries and Territories of the *Company*, in

in *Asia*, *Africa*, and *America*; the whole, however, agreeable to the Usages and Customs of Merchants, and the Laws of *England*. In 1662, the same Prince granted the *Company* a Charter, which contain'd a Confirmation of the antient ones of King *James* I. and Queen *Elizabeth*; or rather, a new Charter, granting 'em abundance of Privileges which they had not before enjoy'd: This Charter is properly the Basis of the Company, and the Foundation, wherein are founded all the Rights, and the Policy of the *New Company*, establish'd in 1698.

This Charter consists of 28 Articles: In the first, the King erects the *Company* into a Corporation, or Body Politick, under the Name of the *Governor and Company of Merchants trading to the* East-Indies. The 3d grants 'em a common Seal: the 4th a Governor, and 24 Directors, or Assistants, chose out of the Proprietors, or Actionaries; the 6th, 7th, 8th, and 9th, regulate the Order and Policy of the *Company*, settle the Officers, manner of Election, Authority, General Meetings, &c. The 10th fixes the Extent of the Grant; permits all those of the Company, their Children if 21 Years of Age, their Apprentices, Factors, and Domesticks, to trade to the *Indies*, and any Part of *Asia*, *Africa*, and *America*, beyond the *Cape of Good Hope*, and the *Straits of Magellan*. The 11th grants 'em Power to make By-Laws, to be observ'd by the Officers, Factors, &c. and to enjoin Penalties; provided those Laws be not contrary to the standing Laws of *England*. By the 12th, the Payment of the Duties, Customs, &c. of Goods imported or exported is delay'd; one half of it for half a Year, the other half a whole one: Providing, withal, that if the Goods thus imported, be exported again in the Space of 13 Months, no Duties shall be paid for such Export, provided it be done aboard *English* Vessels. The 13th Article grants 'em a Power of exporting foreign Gold for their Service abroad, and even *English* Gold coin'd in the Tower; provided the Sum do not exceed 50000 Pounds Sterling at a Voyage. By the 14th and 15th, they are allow'd six large Ships, and six Pinks, to pass freely thro' all the Limits of their Grant, without the King's being able to lay any Imbargo on 'em on any occasion. The 16th grants 'em an exclusive Privilege; to have the sole Right of dealing to the *Indies*: ordering the Seizure and Confiscation of all Vessels, &c. which shall interfere. The 19th obliges 'em to bring, at least, as much Gold and Silver into the Kingdom, as they carry out each Voyage. The 21st fixes the Sum in the Capital Stock necessary to have a Vote in the Meetings, at 500 *l.* Sterling: allowing, however, several of those who have less, to join several together to form a Voice. Lastly, the 26th allows 'em to send Vessels of War, and even to make Peace and War with all the Nations not Christian, in the Extent of their Grant.

All these four Charters of King *Charles* II. were confirm'd by King *James* II. especially the last, which was enforc'd with new Sanctions; particularly the Article of Exclusion; which, in the Time of King *Charles*, had been but little regarded, but was now enforc'd with such rigorous Prohibitions, that all Interlopers seem'd for ever excluded.

The Actions, or Subscriptions of the *Company* were originally only of 50 Pounds Sterling: but the Directors having a considerable Dividend to make in 1676, it was agreed to join the Profit to the Original, instead of withdrawing it; and thus the Actions were doubled, and became of 100 Pounds Sterling.

The first Capital was only 369891 *l.* Sterling, and 5 *s.* which being thus doubled, amounted to 739782 *l.* Sterling, and 10 *s.* to which, if the Profits of the *Company* to the Year 1685, *viz.* 963639 *l.* Sterl. be added, the whole Stock will be 1703422 *l.* Sterling.

The *Company* had from time to time undergone great Losses; first, in 1680, by the Loss of *Bantam*, out of which they were driven, and their Magazines plunder'd by the *Dutch*; under Pretence of assisting Sultan *Agui* against Sultan *Agom*, his Father. 2dly, In 1682, when the great Numbers of Interlopers, to whom King *Charles* II. too easily granted Permissions, lower'd their Actions *Cent. per Cent.* 3dly, By the War which the *Company* maintain'd in the *Indies* against the Great *Mogul*; wherein it was oblig'd to abandon the Factory of *Surat*, and to retire to *Bombay*. But still, she had repair'd her Stock, and supported the Reputation of her Commerce till the Revolution, which happen'd soon after: when the War, and the incredible Losses the *Company* sustain'd by the *French* Privateers, &c. put it into so desperate a Condition, that appearing scarce possible to be supported, a new one was erected: to which, however, the old one was in a little time united.

The Charter of the *New East-India Company* is of the Year 1698: its Stock was so considerable, and the Subscriptions so very ready, that in two Years time, the *Company* had 40 Vessels equipp'd in its Service; which was double of what the old one ever had: and sent to the *Indies (communibus annis)* a Million Sterling in Silver: Whereas the former had never sent above 500000 *l.* This *New Company* stands on the same Footing with the old one; its Charter is the same, in effect: and having enter'd with it, the Propriety of all the Factories and Effects in the *Indies*, has adopted most of its Regulations: So that this is rather to be esteem'd a Continuation of the same *Company*, than a new Corporation.

For the Policy of the COMPANY: To be a Member thereof, the Candidate must be an *Englishman*, at least naturaliz'd, and pay 5 Pounds Sterling at his admittance. To be a Director, the Candidate must have 2000 *l.* Sterl. Capital Stock: The Deputy and Sub-Governor not to be continued above two Years successively. Seven of the Directors to be chosen new every Year.

The Court of Directors, which meet twice a Week, is ordinarily divided into several Committees, or Offices; first, for the buying of Goods to be sent to the *Indies*; a second for the freighting of Vessels; a third for the examining of what passes in the *Indies*; a fourth to take Care of the Magazines; and a fifth for the soliciting of Affairs. The *Company* has a Secretary and a Book-keeper; under the first is 12 Clerks, and under the second 6. They have also a Cashieer, and Warehouse-keepers; under the first are six Clerks, and under the second several Porters, &c.

The *Company* has, properly, only a few little Vessels of its own, used in the *Indies*: the rest, which make the Commerce, belong to other Persons; ordinarily, to three or four of the richest Directors, or other great Merchants, who build 'em on purpose, to let 'em out, on freight, to the Company for each Voyage, according to a Charter-Party agreed on between 'em.

The Cargo the *Company* sends to the *Indies*, is chiefly Ingots of Gold, Gold-Dust, *French* Louis d'Ors, *Spanish* Pistoles, Pieces of Eight, and even *English* Money, but under certain Restrictions: This Gold and Silver ordinarily makes $\frac{5}{6}$ or $\frac{6}{7}$ of the whole Cargo. The rest is Lead, *Swedish* and *Spanish* Iron, Guns, Pouder, *English* Cloths, Serges, and other Manufactures of the Country; Cochineal, Quicksilver, Vermilion, Coral, Amber, &c.

The Returns from the *Indies* are, Pepper, Drugs, Coffee, Cotton, Saltpeter, Cloths of Gold and Silver, Raw Silks from *Persia* and *China*, *China* and *Japan* Ware, and other Curiosities. These Returns usually amount to 900000 *l.* Sterling *per Annum*.

Tho the whole Commerce of the *Indies* belongs to the *Company*, exclusive of all other Subjects of *England*; yet private Persons are admitted to trade thither in two manners.

1st, By obtaining a Permission of the *Company*, on the Terms of a Charter-Party: *e. gr.* whereof the Principal are, that they shall carry a certain proportion of Silver, Merchandize, and even Recruits of Soldiers, for the *Company*, &c. and that they pay a Consideration to the *Company*, for the Manufactures, Gold, Silver, &c. These Vessels of Allowance are not at liberty to bring home any Kinds of Merchandize at pleasure, but only such as are permitted by the Regulation of 1686: the chief of which is Pepper, and other Commodities, from *China*, *Japan*, and *Tonquin*. At their Return, the Cargo must be consign'd to the *Company*, who sell it by Inch of Candle, at their next general Sale.

The 2d way is by means of Allowances of Luggage, which the *Company* grants to the Proprietors of the Ships it freights to the *Indies*, and the Officers and Crew of the same.

The *Company* has four principal Establishments, or Factories in the *Indies*; *viz.* at *Surat* in the Gulf of *Bengal*, the Coast of *Coromandel*, and in *Persia*: that at *Priaman* in the Island of *Sumatra*, is inconsiderable. See FACTORY.

Royal African COMPANY, established for the Commerce of the Coasts of *Guinea*, is govern'd like that of the *East-Indies*.

Its Privilege is exclusive: It sends out, yearly, ten or a Dozen Ships, of about 150 Ton, loaden with Iron-Works, Scissars, Knives, Muskets, Cottons, and other less considerable Merchandizes.

The Returns are in Gold-Dust, Elephants Teeth, Wax, and Leathers: But the best Article of its Commerce is the Negroes, which it sends to *Jamaica*, *Barbadoes*, and other *English* Isles in *America*; frequently, even to the Parts of *New Spain*. See NEGRO, ASSIENTO, &c.

Its publick Sales are five or six times in a Year, in the manner of those of the *East-India Company*.

The first Establishment of this Company, was by a Charter granted in 1661, in favour of the Duke of *York*; securing to him the Commerce of all the Country, Coasts, Islands, &c. belonging to the Crown of *England*, or not possess'd by any other Christian Prince; from *Cape Blanc* in 20° Nor. Lat. to the *Cape of Good Hope* in 34° 30′ Sou. Lat. The Charter was soon after return'd into the King's Hands by the Duke, and revok'd, by consent of the Parties associated with him in the Enterprize; and a new Charter granted in 1663, with ampler Privileges than the former.

The principal Adventurers here, were Queen *Katherine* of *Portugal*, Queen *Mary* of *France*, the Duke of *York*, *Henrietta Maria* Duchess of *Orleans*, Prince *Rupert*; in brief, the whole Court came into it. The other Adventurers, *i. e.* those who were to be charg'd with the Management of Affairs, were chosen from among the wealthiest and ablest Merchants; especially those who had already dealt to those Countries. By this Charter the Grant was enlarg'd, and the *Company* put in possession of all the Countries, *&c.* between the Port of *Salley* in S. *Barbary* to the *Cape of Good Hope*, for a thousand Years; only reserving to the Crown the Homage thereof, with the Acknowledgment of two Elephants to be presented the King, or his Successors, every time any of 'em should set foot within the Countries and Colonies in their Grant.

The Privileges granted by the Charter, are, 1st, That the *Company* shall be a Corporation, or Body Politick; shall have a common Seal, bearing on one side an Elephant, supported by two Negro's; on the other, the King's Portrait. That the Governor, with his Deputy, with 7 of the 24, or 13 of the 36 Directors, be authoriz'd to take on 'em the Direction of Affairs: That they may hold Courts, make Laws, inflict Punishments, *&c.* provided, still, they be equitable, and consistent with the Laws of *England*. That the Adventurers may transfer their Stock at pleasure; provided the Transfer be made in open Court, and be register'd. That it may equip and send out what Vessels it pleases, for Commerce or War; but that it pay the Duties and Customs. That no Vessels but those of the *Company*, and those authoriz'd by it, shall traffick within the Limits of its Grant; on Pain of Confiscation. That the *Company* may make War, in defence of its Colonies, against Invaders, *&c.* That it have the Benefit of all the Mines in its Territories; the King only reserving to himself two thirds of the Gold Mines, upon bearing two thirds of the Expence. Lastly, that the King reserves for himself and his Successors, the Right of intervening, and being admitted at any time a Sharer in the Stock, upon contributing a proportionable Sum to the rest.

This Charter was confirm'd by new Letters Patent in 1673; follow'd by a Proclamation, inforcing the Observance of the Article of Exclusion: But neither Charter nor Proclamation being able to secure 'em from Interlopers, they had recourse to the Protection of King *James* II. who had been twice among the number of Merchants Adventurers; of whom they obtain'd a most severe Declaration on their behalf, in the Year 1685.

On this foot the Company has stood ever since, till the Year 1720; when a *New African Company* being form'd by the Duke of *Chandois*, and others; and a Charter purchas'd at the Expence of 250000 *l.* Sterling; the two *Companies* soon became united.

Hamburgh COMPANY, is the oldest trading Establishment in the Kingdom; tho not always known by that Name, nor restrain'd to those narrow Bounds under which it is now confined.

It was, first, call'd the *Company of Merchants trading to Calais, Holland, Zealand, Brabant, and Flanders*: Then it acquir'd the general Title of *Merchant-Adventurers of England*; as being compos'd of all the *English* Merchants who traded to the *Low-Countries*, the *Baltic*, and the *German* Ocean. Lastly, it was call'd *the Company of Merchant-Adventurers of England trading to Hamburgh*.

This *Company*, as well as some others in *England* built on its Model, is very different from those abovemention'd; and differs widely from the ordinary Plan and System of such Societies. In effect, this is not a Society of Dealers, each furnishing a part of the Sum to constitute the Capital Stock of the *Company*; but a mere Association, or Body of Merchants, who have nothing in common but the Grant and Privilege of trading to *Hamburgh*, and some other Cities of *Germany*; each managing his own Commerce, and on his own Bottom: only observing a certain Discipline, and some Regulations, which none but the *Company* can establish or change.

The first Charter whereby the *Hamburgh Company* was establish'd, was in 1406, under the Reign of K. *Henry* IV. It was afterwards confirm'd, and augmented with divers Privileges by many of his Successors; among the rest, by *Henry* V. in 1413, *Henry* VI. in 1422, *Henry* VII. in 1493, 1505, and 1506; *Henry* VIII. in 1509, 1517, and 1531; *Edward* VI. in 1547; Queen *Mary* in 1553, *Elizabeth* in 1564 and 1586; *James* I. in 1605, and *Charles* II. in 1661.

But of all these Charters, there are, properly, none but those of *Henry* IV. *Henry* VII. *Elizabeth*, *James*, and *Charles*, that are of any importance, or that give the *Company* any thing new; the rest being only simple Confirmations.

Before the Charter of *Henry* IV. all the *English* Merchants who traffick'd out of the Realm, were left to their own Conduct; and manag'd Affairs with Foreigners, as might be most for their respective Interests; without any regard to the general Commerce of the Nation.

Henry, observing this Disorder, endeavour'd to remedy it, by uniting all the Merchants in his Dominions into one Body; wherein, without losing the liberty of trading each for himself, they might be governed by a *Company* still subsisting; and be subject to Regulations, which should secure the general Interest of the National Commerce, without prejudice to the Interest of Particulars.

With this View, he granted all the Merchants of his States, particularly those of *Calais*, then in his Hands, a Power of associating themselves into a Body Politick, with Directors and Governors, both in *England* and abroad; to hold Assemblies, both for the Direction of Business, and the deciding of Controversies among Merchants; make Laws; punish Delinquents; and impose moderate Duties and Taxes on Merchandizes, and Merchants, to be employ'd in the Service of the Corporation.

These few Articles of the Charter of *Henry* IV. were much augmented by *Henry* VII. who first gave 'em the Title of *Merchant-Adventurers to Calais, Holland*, &c. gave 'em a Power of proclaiming and continuing free Fairs at *Calais*; and order'd, that to be reputed a Member of the Society, each Person pay 20 Marks Sterling; and that the several Members should attend the General Meetings appointed by the Directors, whether at *London*, *Calais*, or elsewhere.

The Inexecution of this last Article, and contempt of some of the rest, occasioning great Inconveniencies to the *Company*'s Affairs, another Charter was procur'd; whereby, the Pain of Imprisonment was menaced, for those who should absent themselves from the Assemblies without lawful Cause, or should disobey the Laws.

A Request being made to Queen *Elizabeth*, in 1564, for an Explanation of certain Articles in the Charter of *Henry* VII. and a Confirmation of the rest granted by other Kings; that Princess, by a Charter of the same Year, declares, That to end all Disputes, they shall be incorporated a-new, under the Title of *the Company of Merchant-Adventurers of England*; that all who were Members of the former *Company*, should, if they desir'd it, be admitted Members of this: that they should have a common Seal; that they should admit into their Society what other Persons, and on what Terms they pleas'd; and expel 'em again on misbehaviour: that the City of *Hamburgh*, and neighbouring Cities, should be reputed within their Grant, together with those of the *Low-Countries*, &c. in that of the former *Company*. That no Member should marry out of the Kingdom; nor purchase Lands, *&c.* in any City beyond Sea: and that those who do, shall be, *ipso facto*, excluded for ever.

Twenty two Years after this first Charter, Queen *Elizabeth* granted 'em a second; confirming the former, and further, granting 'em a Privilege of Exclusion; with a Power of erecting in each City within their Grant a standing Council.

After these Privileges, the woollen Manufactures became the principal Object of their Application; wherein they were disturb'd in the following Reign: King *James* I. having erected a Corporation in 1616, in favour of some private Persons, who offer'd to set up a Manufacture for dying and pressing Cloths, *&c.* under pretence whereof, the *Company* of Merchant-Adventurers were prohibited dealing therein. But that Project not succeeding, and the Charter being revok'd two Years afterwards, the Merchant-Adventurers were restor'd to their antient Privileges, and a new Charter was given 'em, confirming their exclusive Right; and allowing 'em to have Officers in the several Custom-houses, to have an Eye that they were not prejudic'd in their Woollens, under pretence of the like Merchandizes, which others were allow'd to send to other Parts. This Charter of King *James*, is the last of those confirm'd by *Charles* II. in the Grand Charter of 1661.

The Revolutions which had happen'd in the *Low-Countries* towards the end of the XVIth Century, and which laid the Foundation of the Republick of *Holland*, having hinder'd the *Company* from continuing their Commerce with their antient freedom; it was oblig'd to turn it almost wholly to the Side of *Hamburgh*, and the Cities on the *German* Ocean: From which Change, some People took occasion to change its Name to that of the *Hamburgh Company*; tho the antient Title of *Merchant-Adventurers* is still retain'd in all their Writings.

Muscovy COMPANY, was first projected towards the End of the Reign of King *Edward* VI. executed in the first and second Years of *Philip* and *Mary*; but had not its Perfection, till its Charter was confirm'd by Act of Parliament under Queen *Elizabeth*, in 1566.

It had its rise from certain Adventurers, who were sent in three Vessels on the Discovery of new Countries; and to find out a North-East Passage to *China*: These falling into the White Sea, and making up to the Port of *Archangel*, being exceedingly well receiv'd by the *Muscovites*, at their

return, solicited Letters Patent to secure to themselves the Commerce of *Russia*, for which they had form'd an Association.

The Charter was promis'd 'em by *Edward* VI. but he dying, was first dispatch'd by Queen *Mary*, in 1555. By this Charter, the Association was declar'd a Body Politick, under the Name of the *Company of Merchants Adventurers of England, for the Discovery of Lands, Territories, Islands, &c. unknown, or unfrequented*. Their Privileges were, to to have a Governor, 4 Consuls, and 24 Assistants, for their Commerce; for their Policy, to make Laws, inflict Penalties, send out Ships to make Discoveries, take Possession of 'em in the King's Name, set up the Banner-Royal of *England*, plant them; and, lastly, the exclusive Privilege of trading to *Archangel*, and other Parts of *Muscovy*, not yet frequented by the *English*.

This Charter, not being sufficiently guarded, was confirm'd by Parliament in the eighth Year of Queen *Elizabeth*; wherein 'twas enacted, that in regard the former Name was too long, they should now be call'd the *Company of English Merchants for discovering new Trades*; under which Name, they should be capable of acquiring and holding all kinds of Lands, Manors, Rents, *&c.* not exceeding 100 Marks *per Annum*, and not held of her Majesty. That no part of the Continent, Island, Harbour, *&c.* not known or frequented before the first Enterprise of the Merchants of their *Company*, situate to the North, or North-West, or North-East of *London*; nor any part of the Continent, Island, *&c.* under the Obedience of the Emperor of *Russia*, or in the Countries of *Armenia*, *Media*, *Hircania*, *Persia*, or the *Caspian* Sea; shall be visited by any Subjects of *England*, to exercise any Commerce, without the Consent of the said *Company*, on Pain of Confiscation. The said *Company* shall use no Ships in her new Commerce, but those of the Nation; nor transport any Cloths, Serges, or other Woollen Stuffs, till they have been dyed and press'd. That in case the *Company* discontinue of it self to unload Commodities in the Road of the Abbey of *S. Nicholas* in *Russia*, or some other Port on the North Coasts of *Russia*, for the Space of three Years; that the other Subjects of *England* shall be allow'd to traffick to *Narva*, while the said *Company* discontinues its Commerce into *Russia*; only using *English* Vessels.

This *Company* subsisted with Reputation almost a whole Century; till the Time of the Civil Wars. 'Tis said, the Czar hearing of the Murder of King *Charles*, order'd all the *English* in his States to be expell'd; which the *Dutch* taking the advantage of, settled in their room. After the Restoration, the Remains of the *Company* re-establish'd part of their Commerce at *Archangel*, but never with the same Success as before; the *Russians* being now well accustom'd to the *Dutch* Merchants and Merchandizes.

This *Company* subsists still, nearly on the Foot of that of *Hamburgh*, and the Northern and *Turky Companies*, *i. e.* each Member thereof trafficks for himself, and on his own bottom; only paying a Duty of 12 or 13 Pounds Sterling, beside some other Dues impos'd from time to time for the Occasions of the *Company* and the Commerce in general.

North Sea Company, or, as some, more agreeably to its Charter, call it, *East-land Country*, is establish'd on the Foot of that of *Hamburgh*; from whence it appears to have been dismember'd.

Its Charter is dated in the Year 1579. By the first Article the *Company* is erected into a Body Politick, under the Title of the *Company of Merchants of the East*; to consist of *Englishmen*, all real Merchants, who have exercis'd the Business thereof, and traffick'd thro' the Sound, before the Year 1568, into *Norway*, *Sweden*, *Poland*, *Livonia*, *Prussia*, *Pomerania*, *&c.* as also *Revel*, *Coningsberg*, *Dantzic*, *Copenhagen*, *&c.* excepting *Narva*, *Muscovy*, and its Dependencies. Most of the following Articles grant 'em the usual Prerogatives of such *Companies*; as a Seal, Governor, Courts, Laws, *&c.*

The Privileges peculiar to this *Company*, are, That none shall be admitted a Member, who is already a Member of any other *Company*; nor any Retail-dealer at all. That no Merchant qualify'd, be admitted without paying 6 Pounds 13 Shillings 6 Pence. That a Member of another *Company*, desiring to renounce the Privileges thereof, and to be receiv'd into that of the *East*, shall be admitted *gratis*: provided he procures the same Favour for a Merchant of the *East*, willing to fill his Place. That the Merchant-Adventurers who never dealt in the East, in the Places express'd in the Charter, may be receiv'd as Members of the *Company* on paying 40 Marks: That notwithstanding this Union of the *Adventurers of England*, with the *Company of the East*, each shall retain its Rights and Privileges. That they shall export no Cloths but what are dy'd and press'd; except 100 Pieces *per Ann.* which are allow'd 'em *gratis*.

This Charter was confirm'd by *Charles* II. in 1661, with this Addition; That no Person of what Quality soever, living in *London*, should be admitted a Member unless he were free of the City.

Turky Company, or *Levant* Company. This *Company* is establish'd on the Foot of the *Hamburgh Company*, *i. e.* there is no common Fund, wherein the Adventurers deposit their Stock, to make one single Commerce; but the Commerce thither is free, each Member trafficking for himself; but observing, withal, the Rules and Orders of the *Company*; and contributing, occasionally, towards the common Expences.

This flourishing Body had its rise under Queen *Elizabeth*: *James* I. confirm'd its Charter in 1606; adding new Privileges. During the Civil Wars, there happening some Innovations in the Government of the *Company*, many Persons having been admitted Members, not qualified by the Charters of Queen *Elizabeth* and King *James*, or that did not conform to the Regulations prescrib'd; *Charles* II. upon his Restoration, endeavour'd to set it upon its antient Basis: to which End, he gave 'em a Charter, containing not only a Confirmation of their old one, but also several new Articles of Reformation.

By this, the *Company* is erected into a Body Politick, capable of making Laws, *&c.* under the Title of the *Company of Merchants of England trading to the Seas of the Levant*. The Number of Members is not limited but is ordinarily about three hundred. The principal Qualification requir'd, is, that the Candidate be a wholesale Merchant, either by Family, or by serving an Apprenticeship of seven Years. Those under 25 Years of Age, pay 25 *l.* Sterl. at their Admission; those above, twice as much. Each makes Oath, at his entrance, not to send any Merchandizes to the *Levant*, but on his own account; and not to consign 'em to any but the *Companies* Agents, or Factors. The *Company* governs it self by a plurality of Voices.

It has a Court, or Board at *London*, compos'd of a Governor, Sub-Governor, and twelve Directors, or Assistants; who are all actually to live in *London*, or the Suburbs. They have also a Deputy-Governor, in every City, and Port, where there are any Members of the *Company*. This Assembly at *London* sends out the Vessels, regulates the Tarif for the Price at which the *European* Merchandizes sent to the *Levant* are to be sold; and for the Quality of those returo'd. It raises Taxes on Merchandizes, to defray Impositions, and the common Expences of the *Company*; presents the Embassador which the King is to keep at the Port, elects two Consuls for *Smyrna* and *Constantinople*, *&c.* One of the best Regulations of the *Company*, is, not to leave the Consuls, or even Embassador, to fix the Impositions on Vessels for defraying the common Expences; (a thing fatal to the *Companies* of most other Nations) but to allow a Pension to the Embassador and Consuls, and even to the chief Officers; as Chancellor, Secretary, Chaplain, Interpreters, and Janisaries; that there mayn't be any Pretence for their raising any Sum at all on the Merchants or Merchandizes: 'Tis true, the Embassador and Consul may act alone on these occasions; but the Pension being allow'd 'em on condition of declining 'em, they chuse rather to sit still.

In extraordinary Cases, the Consuls, and even Embassador himself, have recourse to two Deputies of the *Company*, residing in the *Levant*: or, if the Affair be very important, assemble the whole Nation. Here are regulated the Presents to be given, the Voyages to be made, and every thing to be deliberated: and on the Resolutions here taken, the Deputies appoint the Treasurer to furnish the Monies, *&c.* requir'd. The ordinary Commerce of this *Company*, employs from 20 to 25 Vessels, of between 25 and 30 Pieces of Cannon.

The Merchandizes exported thither, are Cloths of all Kinds and Colours, Pewter, Lead, Pepper, Cochineal, and a great deal of Silver, which they take up at *Cadix*: The Returns are in raw Silk, Galls, Camelots, Wools, Cottons, Maroquins, Ashes for making Glass and Soap, and several Gums and medicinal Drugs.

The Commerce of this *Company* to *Smirna*, *Constantinople*, and *Scandaroon*, is not esteem'd much less considerable than that of the *East-India Company*; but is, doubtless, much more advantageous to *England*; in regard, it takes off much more of the *English* Manufactures than the other, which is chiefly carried on in Money.

The Places reserv'd for the Commerce of this *Company*, are all the States of *Venice*, in the Gulf of *Venice*; the State of *Ragusa*; all the States of the Grand Seignior, and the Ports of the *Levant* and *Mediterranean*; excepting *Carthagena*, *Alicant*, *Barcelona*, *Valencia*, *Marseilles*, *Toulon*, *Genoa*, *Leghorn*, *Civita Vecchia*, *Palermo*, *Messina*, *Malta*, *Majorca*, *Minorca*, and *Corsica*; and other Places on the Coasts of *France*, *Spain*, and *Italy*.

South-Sea Company. Many take this *Company*, establish'd towards the Close of the XVIIth Century, to have been originally intended, rather as a Political Contrivance for raising a Fund of Money, to serve in the pressing Affairs of the State, than as a real Establishment for the sake of Commerce. For the Nation being exhausted of Money by the

the long Wars with *France*, 'tis no wonder the Phantom of a new *Company* should be rais'd, to bring in the Subscriptions of the money'd Men; as the only Expedient to be supply'd with Money, without dissatisfying the People, already wore out with Subsidies, &c.

Be this as it will, 'tis certain the Ministry never thought seriously, during the whole Course of the War, about making any Settlement on the Coasts of *South America*; which was the Thing wherewith the People were first flatter'd: Besides that, the Fund having been apparently perverted to defray the Expences of the War, its Value was so lower'd, that it must in all probability have sunk outright, but for the unexpected Help it met with in 1713.

By the Treaty of *Utrecht*, the Business of the *French Assienta Company*, which was to furnish the *Spanish West-Indies* with Negroes, was resign'd to the *English*, in favour of the *South-Sea Company*; which by this Turn reliev'd it self from its languishing Condition, and put it in a Condition to vie with the most flourishing *Companies* of Commerce in *England*.

The Treaty of this *Company* with the *Spaniards*, commences from *May* 1713; and is to hold 30 Years; during which time, the *Company* is to furnish the *Spanish America* with 144000 Negroes, of both Sexes, between fifteen and twenty five Years of Age, sound, &c. and at the Rate of 4800 *per Annum*; and for all they furnish besides, only to pay half the Dues to the King of *Spain*, for the first 25 Years of the Farm, or *Assienta*. It may be added, that in consideration of 200000 Piasters, paid in Advance to the King of *Spain*, to be reimburs'd as the Dues rise during the first ten Years, the *Company* is only to pay Dues for the 4000: The King's Due is 33 Piasters $\frac{1}{3}$ *per* Head. See Assienta.

The chief Establishment of the *French Assienta Company* was at *Buenos Ayres*, a Town of considerable Trade on the Coast of *South America*. The *South-Sea Company*, who without changing their Name, took on 'em the *Assienta*, or Farm of Negroes, preserves the same Establishment; and 'tis here their Vessels disembark their Negroes, which they had negotiated thro' all the Coasts of *Africa* within their Grant.

The *Company*, 'tis certain, set out with good Success; and there was room to hope still better: since, besides that the Value of their Stock the first five Years, rose faster, in proportion, than that of any other *Company*; his Majesty, after purchasing 10000 *l.* Sterling therein, was pleas'd to condescend to be their Governor, or first Director. For what remains of the History of this *Company*, with that fatal Train of romantic *Companies* it drew after it, we chuse to refer to the Article Bubble.

Harborough Company. This *Company* is yet, *Anno* 1722, only in Embryo: Its Design is to set on foot an immediate Commerce between the Subjects of *England*, and those of his Majesty's *German* Territories. The first Scheme was laid in 1717; a Charter obtain'd some time after: The rest is *in futuro*.

The West-India Companies, or those of the *English Colonies* in *North America*, are of a lower Class than those abovementioned; and too numerous to be here describ'd.

Their Names are, the *Hudson's Bay Company*, *Virginia Company*, *New England*, *New York*, *Pensylvania*, *New Scotland*, *Massachuset*, *Connecticut*, *Bermudas*, *Tobago*, and *Carolina Companies*. See Colony, and Plantation.

Scotch Darien Company, was establish'd with a good Prospect at *Edinburgh*, in 1699, for the Commerce of *S. America*. They sent an Armament and a Colony, which they endeavour'd to establish in the Isthmus of *Darien*, which parts *N.* and *S. America*: But the *English* Ministry not thinking proper to avow and support the first Successes of the *Company*, which had alarm'd *Spain*, ever jealous of this part of her Territories, the *Scotch* Colony was dispers'd by the *Spaniards* in 1700: And thus vanish'd the best Project that ever was form'd, for disputing with that Nation the Possession of those Countries, from which she pretends to exclude all other Nations.

Dutch Companies.

Dutch East-India Company, had its rise in the midst of the Struggle that People had for their Liberty: For the *Spaniards* having forbid all Commerce with 'em, and shut up all their Ports; necessity inspir'd some *Zealanders* to seek a new North-East Passage to *China*.

This Enterprize proving unsuccessful to three several Armaments in 1594, 1595; a second *Company* was form'd, under the Name of the *Company of remote Parts*; which, in 1595, took the ordinary Rout of the *Portugueze* to the *Indies*, and return'd in two Year and a half's time with little Gain, but good Hopes.

This *Company*, and a new one now just establish'd at *Amsterdam*, being united, equipp'd other Fleets; and these occasion'd other *Companies* at *Amsterdam*, *Rotterdam*, in *Zealand*, &c. insomuch, that the States began to apprehend they might be prejudicial to each other: Under this Concern, they call'd all the Directors of the several *Companies* together, who all consented to an Union, the Treaty whereof was confirmed by the States in 1602: A very remarkable Epocha, as being that of the most solid and celebrated Establishment of Commerce that ever was in the World.

Its first Capital was six Millions six hundred thousand Florins. It has 60 Directors divided into several Chambers; 20 in that of *Amsterdam*, 12 in that of *Zealand*, 14 in that of *Delpht* and *Rotterdam*, and a like Number in those at *Sluys* and *Hor*. As each Grant expires, the *Company* is oblig'd to procure a new one, which it has already done four times since the first; *viz.* one in 1622, for 21 Years, like the first; another for 21 Years, commencing in 1647; and a third in 1665, for 25 Years; a fourth in Advance, commencing in 1698, to end in 1740. Each Grant costs the *Company* a considerable Sum; that of 1647 cost 1600000 Livres, and the two following ones more. The last of 1698 was confirm'd by a Placard of the States General, granting 'em a Privilege exclusive.

Their Factories, Residences, &c. in the *East-Indies*, are almost infinite; reaching from the *Persian* Gulf to the Coasts of *China*: the principal is that of *Batavia*, the Centre of their Commerce: Here resides their General, with the State and Splendor of a sovereign Prince; making War and Peace with the Eastern Kings and Emperors at pleasure.

The other more considerable Factories, are *Taiounam* on the Coast of *China*, *Nangisac* in *Japan*, *Malaca*, *Surat*, *Amboyna*, *Banda*, *Siam*, *Moluccos*, &c. Several on the Coast of *Coromandel*, and at *Ispahan*, *Cape of Good Hope*, &c. In all, they number 40 Factories and 25 Fortresses. They have the whole Trade of the Spicery in their own Hands. See Spicery.

Dutch West-India Company, establish'd in 1621, with an exclusive Privilege to trade 24 Years along the Coasts of *Africa*, between the Tropic of *Cancer*, and the *Cape of Good Hope*; and in *America*, from the South Point of *Newfoundland*, thro' the Streights of *Magellan*, that of *Maire*, or others, to the Streights of *Anian*, both in the North and South Sea.

The Directors are divided into five Chambers, (as in the *East-India Company*) out of which, 19 are chosen for the general Direction of Affairs. In 1647 the *Company* renew'd its Grant for 25 Years, but was scarce able to hold out the Term; by reason of its great Losses, and Expences in taking the Bay of *Todos los Santos*, *Fernambouc*, and the greatest Part of *Brasil* from the *Portugueze*. The Weakness of this *Company*, which had several times in vain attempted to be join'd to that of the *East-Indies*, occasion'd its Dissolution at the Expiration of its Grant.

In 1674, a new *Company*, compos'd of the antient Proprietors and their Creditors, was settled in the same Rights and Establishment with the former; and still subsists with Honour: Their first Capital was about six Millions of Florins. Its principal Establishments, are, one at *Cape Verd*, another in the Gold Coast of *Africa*, at *Tabago*, *Curassao*, &c. in *America*.

Dutch North Company has no exclusive Privilege; the Advantages of its Patent being of another kind, and very inconsiderable.

There are also in *Holland*, *Companies* for the *Baltic* Sea, the Fishery of *Nova Zembla*, *David's Streights*, and *Greenland*: yet, none of their Fisheries are interdicted to private Traders; all the difference between these and the *Companies* consisting in this; that the former may not go ashore to cut their Fish in pieces, and melt their Lard; but must bring their Luggage to *Holland*. See Fishery.

Dutch Levant Company. In strictness, there is no *Levant Company* in *Holland*: but the Commerce of the private Traders is so considerable, that the State has taken the Regulation thereof on it self.

To this End, they have establish'd a Chamber of Direction at *Amsterdam*, composed of six Deputies and a Register; who, under the Bourgomasters, take care of every thing relating to the Commerce of the *Mediterranean*: especially that of *Smirna* and *Constantinople*.

This *Company* names the Consuls, appoints the Number and Strength of Convoys, terminates Differences among the Traders; and has a Right, on occasion, to add new Regulations to the old ones; tho those be of no force, till confirm'd by the States-General.

French Companies.

French East-India Company, was establish'd in 1664, with an exclusive Privilege, to trade for 30 Years in all the Seas of the *East-Indies* and *South-Sea*: No Adventurer to be admitted without 1000 Livres in Stock; and Foreigners who had 20000 Livres in Stock, to be reputed *Regnicoles*.

The Patent grants 'em the Island of *S. Madagascar*; and the King to be at one fifth of the Expence of the three first Armaments, without Interest; the Principal to be refunded in ten Years: or, if the *Company* find it loses on the whole, the Loss to fall on the King's side.

The Capital Fund of the *Company*, which was mostly furnish'd by the King, was seven or eight Millions of Livres, but was to have been 15 Millions.

In effect, tho no means were wanting to support the *Company*, yet it still droop'd, and still struggled; till having subsisted ten Years without any change in its Form, and being no longer able to discharge its Engagements, there were new Regulations concerted; but to little purpose. At length, Things not being disposed for a new *East India Company*, nor much good to be expected from the old one; in 1708, the Ministry allow'd the Directors to treat with the rich Traders of *S. Malo*, and resign 'em their Privilege under certain Conditions. Under the Hands of these last, the *Company* began to flourish.

Its chief Factory is at *Ponichery*, or *Pondichery*, on the Coast of *Coromandel*: This is the Residence of the Director-General; the other Factories are inconsiderable. The Merchandizes the *Company* brings into *France*, are Silks, Cottons, Spices, Coffee, Rice, Salt-petre; several Kinds of Gums and Drugs, Woods, Wax, printed Callicos, Muslins, &c.

French West India Company, establish'd in 1664: their Charter gave 'em the Property and Seigniory of *Canada*, *Acadia*, *Antilles Islands*, *Isle of Cayonne*, and the *Terra firma* of *America*, from the River of the *Amazons* to that of *Oroonoko*; with an exclusive Privilege for the Commerce of those Places, as also of *Senegal* and the Coasts of *Guinea*, for forty Years, only paying half the Duties.

The Stock of the *Company* was so considerable, that in less than 6 Months, 45 Vessels were equipp'd; wherewith they took possession of all the Places in their Grant, and settled a Commerce: yet it only subsisted nine Years. In 1674 the Grant was revok'd, and the Countries above reunited to the King's Dominions, as before; the King reimbursing the Actions of the Adventurers. This Revocation was owing partly to the Poverty of the *Company*, occasion'd by its Losses in the Wars with *England*, which had necessitated it to borrow above a Million; and even to alienate its exclusive Privilege for the Coasts of *Guinea*: but also to its having in good measure answer'd its End; which was to recover the Commerce of the *West-Indies* from the *Dutch*, who had tore it from 'em: For the *French* Merchants being now accustom'd to traffick to the *Antilles*, by permission of the *Company*, were so attach'd to it, that it was not doubted they would support the Commerce after the Dissolution of the *Company*.

French Missisippi Company, was first establish'd in 1684, in favour of the Chevalier *de la Salle*; who having projected it in 1660, and being appointed Governor of the Fort of *Frontignac*, at the Mouth of that River, travell'd over the Country in the Year 1683, and return'd to *France* to solicit the Establishment. This obtain'd, he set sail for his new Colony, with four Vessels loaden with Inhabitants, &c. but entering the Gulf of *Mexico*, did not, it seems, know the River that had cost him so much fatigue; but settled on another River, unknown; where his Colony perish'd by degrees: so that in 1685 there were not 100 Persons remaining. Making several Expeditions to find the *Missisippi*, he was kill'd in one of 'em by a Party who mutiny'd against him: whereupon the Colony was dispers'd and lost. M. *Haberville* afterwards succeeded better; he found the *Missisippi*, built a Fort, and settled a *French* Colony: But he being poison'd, 'tis said, by the Intrigues of the *Spaniard*, who fear'd such a Neighbour; in 1712, M. *Crouzat* had the whole Property of trading to the *French* Territories, call'd *Louisiana*, granted him for 15 Years.

Company *of the West*. In 1717, the Sieur *Crouzat* surrender'd his Grant; and in the same Year a new *Company* was erected, under the Title of *Company of the West*: To which, besides every thing granted to the former *Company*, was added the Commerce of *Castor*, enjoy'd by the *Canada Company* from the Year 1706, but expiring in 1717. In this Establishment, an equal View was had to the Finances, and the Commerce of the Nation: And accordingly, part of the Conditions of its Establishment regarded the settling a Colony, a Trade, &c. the other the venting part of the Bills, call'd *Bills of State*; which could no longer subsist on their present Footing. The former are no more than are usual in such Establishments: for the latter, the Actions are fix'd at five hundred Livres; each payable in Bills of State: The Actions to be esteem'd as Merchandize; and in that Quality to be bought, sold, and traffick'd. The Bills of State, which make the Fund of the Actions, to be converted into yearly Revenue. To put the finishing hand to the *Company*, in 1717 its Fund was fix'd at an hundred Million of Livres: which being fill'd, the Cash was shut up.

India Company. The Junction of the former *Company* with that of *Canada*, was immediately follow'd by its Union with that of *Senegal*; both, in the Year 1718, by an Arret of Council, which at the same time granted the new *Company* the Commerce of *Castor*, and made it Mistress of the Negro, or *Guinea* Trade, to the *French* Colonies in *America*.

Nothing was now wanting to its Perfection, but an Union with the *East-India Company*, and with those of *China* and *S. Domingo*, which were effected; the two first in 1719, and the third in 1720. This Union of the *East-India* and *China Company* with the *Company of the West*, occasion'd an Alteration of the Name, and it was henceforth call'd the *India Company*.

The Reasons of the Union, were the Inability of the two former to carry on their Commerce, the immense Debts they had contracted in the *Indies*, especially the *East-Company*; Complaints whereof had been sent to Court by the *Indians*, which discredited the *Company* so, that they durst not appear any longer at *Surat*: Lastly, the little Care they took to discharge their Engagements; and their having transferr'd their Privilege to the private Traders of *S. Malo*, in consideration of a tenth in the Profits of the Returns of their Ships.

The antient Actions of the *Company of the West*, which were not at Par when this Engraftment was projected, ere it was compleated, were risen to 300 *per Cent.* which unexpected Success, gave occasion to conclude the new Actions of the united *Companies* would not bear less Credit. The Concourse of Subscribers was so great, that in a Month's time there were above fifty Millions subscrib'd for: The first twenty five Million Actions which were granted to the *India Company*, beyond the 100 Millions of Stock allow'd the *Company of the West*, being fill'd as soon as the Books were open'd; to satisfy the Earnestness of the Subscribers, the Stock was increas'd by several Arrets to three hundred Millions. Credit still increasing, the new Actions rose to 1200 *per Cent.* and those of the antient *Company of the West* to 1900 *per Cent.* an exorbitant Price, to which no other *Company* ever rose.

Its Condition was now so flourishing, that in 1719 it offer'd the King to take a Lease of all his Farms for nine Years, at the Rate of three Millions five hundred thousand Livres *per Annum*, more than had been given before; and to lend his Majesty twelve hundred Millions to pay the Debts of the State: These Offers were accepted: and the King, in consideration hereof, granted 'em all the Privileges of the several Grants of the *Companies* united to that *Company*, to the Year 1770: On condition, however, of discharging all the Debts of the old *East-India Company*, without any Deduction at all. The Loan of twelve hundred Millions not being sufficient for the Occasions of the State, was augmented, three Months afterwards, with three hundred Million more; which, with the former Loan, and another of one hundred Million before, made sixteen hundred Millions: for which the King was to pay Interest at the Rate of three *per Cent.*

The Duke of *Orleans*, in *February* 1720, did the *Company* the Honour to preside in their Assembly, where he made several Proposals to 'em on the Part of the King: the principal was, that they should take on 'em the Charge and Administration of the Royal Bank. This was accepted of, and Mr. *Law*, Comptroller-General of the Finances, was named by the King, *Inspector-General of the India-Company and Bank united*.

This Union, which, it was proposed, would have been a mutual help to both those famous Establishments, proved the fatal Point from whence the Fall of both commenc'd: From this time, both the Bank-Bills and the Actions of the *Company* began to fall: in effect, the first perish'd absolutely, and the other had been drawn along with it, but for the prudent Precautions taken for its Support.

The first Precaution was the revoking the Office of Inspector-General, and obliging Mr. *Law* to quit the Kingdom: The antient Directors were discarded, and new ones substituted; and, to find the bottom of the *Companies* Affairs, it was order'd, they should give an account of what they had receiv'd, and disburs'd; both on the account of the *Company*, and of the Bank, which they had had the Management of near a Year. Another Precaution to come at the State of the *Company*, was by endeavouring to distinguish the lawful Actionaries from the *Missisippi* Extortioners; whose immense Riches, as well as their criminal Address in realising their Actions, either into Species or Merchandize, were become so fatal to the State; in order, if possible, to secure the honest Adventurers their Stock. To this end, an Inquisition was made into their Books, &c. by Persons appointed by the King: And the new Directors, or, as they were called *Regisseurs*, began seriously to look about for their Commerce abroad.

The *French* have had several other *Companies*; some whereof have fallen of themselves, the rest upon the Expiration of their Grants: as, the

Bastion Company *of France*, which was, at first, a simple Association of two Merchants of *Marseilles*, in the XVth Century, for fishing of Coral in the Gulf of *Stora-Courcoury* on the Coast of *Barbary*, on the Frontiers of *Algier* and *Tunis*. Having obtained leave of the Sultan *Solyman* II. to make an Establishment, and having likewise treated with the *Moorish* Princes of the Country; in 1561 they built a little Fort, called the *Bastion of France*, whence the *Company* took its Name.

The

The first Undertakers not being successful, a new Grant was obtain'd of *Mahomet* III. in 1604, to new Undertakers: In 1628 it began to flourish, and the Colony consisted of 800 People: but the Death of their Governor in 1633, gave them a Blow they never recover'd.

Several of the *Companies* have since endeavour'd to set the fishing of Coral on its antient Foot, but hitherto in vain.

Guinea Company, was establish'd in 1685: Its Grant expir'd in 1705, but it continued its Trade of Negroes, by the King's Permission, under the Name of *Assienta Company*, to the Year 1713; when, by the Treaty of *Utrecht*, that Trade was surrender'd to the *English South-Sea Company*; which see.

Assienta Company. See *Guinea* Company, and Assienta.

Cape Verd Company, the same with that of *Senegal*, under another Name: It was establish'd in 1664, before the *Company of the West*; but the Coasts of *Africa* being included in the Grant of this last, we hear no more of the *Cape Verd Company* till the Year 1673, when it rose afresh under the Title of *Company of Senegal*.

French South-Sea Company, the same with the *Assienta Company*; which see.

Canada Company, establish'd in 1628, for the Commerce of Castor-Skins, *&c.* Its Grant expiring in 1717, it was united to the *Company of the West*; which see.

Accadie Company, establish'd in 1683. Its Grant expiring in 1703, and the War, *&c.* preventing a new one, the Colony was neglected; and was taken by the *English* in 1710, and confirm'd to 'em by the Treaty of *Utrecht*.

French Levant Company, establish'd in 1670; but its Privilege revok'd in 1684.

French North Company, establish'd in 1669, and expiring with its Grant in 1690.

S. Domingo Company, establish'd in 1698, for fifty Years; carry'd on with honour to the Year 1720, and then united to the *India Company*.

Danish, &c. Companies.

Danish North Company, was establish'd at *Copenhagen*, in 1647: Its Establishments are very considerable in *Norway*; besides which, it sends Vessels to *Varanger*, whence they convey their Merchandizes by Land into the *Danish Lapland*; and by Sledges drawn by Rein-Deer, into the *Muscovite Lapland*. It sends others for *Borandai* and *Siberia*; where its Agents take 'em up, and convey 'em, in like manner, on Sledges, to *Panigorod*, the Capital of this Part of the *Muscovite* Empire.

The Commodities it sends thither are Rixdollars, Tobacco, and Linnens; it returns nothing but Furs and Skins.

Danish Island Company, establish'd in the same Year with the *North Company*: Its chief Factory is *Kirkebar*, a large Town in that Island.

Danish East-India Company, establish'd in the middle of the XVIIth Century; their chief Factory is at *Trinquebast*, whither they send two or three Vessels every Year.

Levant Company *of the Genoese*, establish'd in 1664, and confirm'd by the Port; notwithstanding the Opposition of the *French*.

Its chief Commerce was to be in Pieces of 5 Sols, which the *Genoese* had before furnish'd the *Turks* withal; tho in the *French* Name, and under their Banner; they were now to do it under their own Banner: And accordingly, while the Humour of these Pieces lasted, as they serv'd not only for Money, but were likewise used by the *Greek* and *Turkish* Women of the Islands, as Ornaments in their Head-dress, at the bottom of their Vests, or Petticoats, which were cover'd with 'em; the *Company* succeeded well enough: But that Money being decried in 1670, the *Company* has languish'd ever since; and can now scarce support a miserable Commerce.

Company *of Ships*, is a sort of Fleet of several Merchant-Vessels, who make a kind of Charter-Party among themselves; whereby, under several Clauses and Conditions tending to their common Safety, they engage not to quit one another, but to defend each other reciprocally, during their Voyage.

These Associations, in the *Mediterranean*, are call'd *Conserves*. See Conserve.

The chief Conditions of the Charter-Party, are, that such and such shall be own'd Admiral, Vice-Admiral, and Counter-Admiral. That those which bear no Guns, shall pay so much *per Cent.* of their Cargo, for the Expences of the Admiral, *&c.* that such and such Signals shall be observed; that if they be attack'd, the Damages shall be reimburs'd by the *Company* in general, *&c.* See Charter-*Party*.

Rule of Company, or *Fellowship*, in Arithmetick, is a Rule whereby we discover, or ascertain the Share of the Profits, or Losses, belonging to the several Partners, or Associates in any Enterprize, in proportion to the Stock each contributed thereto, and the time that Stock was in Bank. See Fellowship.

Company, in War, is a little Body of Infantry, commanded by a Captain. See Captain.

The *French* use the Word indifferently for Horse, or Foot; but the *English* appropriate the Term *Troop* to a Company of Horse. See Troop.

The Number of Men in a *Company* is uncertain; in the ordinary Regiments 'tis 50, in the Guards more. See Regiment, and Guard.

In the *French* Guards the *Company* is 120, in the *Swiss Guards* 200.

Companies not imbodied into Regiments, are called *Independent Companies*.

The *French* have their *Free Companies*, who never enter the Body of any Regiment; and *Companies of Ordonnance*, who in like manner never enter the Body of a Regiment, but consist of the *Gens d'Armes* and Light-Horse. They were instituted by *Charles* VII. who chose out fifteen Captains, under each of whom was to be 100 Lances, or Men at Arms, each Man at Arms to receive Pay for six Persons, himself among the Number; the rest to three Archers on Horseback, a Cutler, and a Servant.

COMPARATES, COMPARATA, in Logic, the Terms or Subjects of a *Comparison*; or the two Things compared to each other. See Comparison.

COMPARATIVE *Anatomy*, is that Branch of Anatomy which considers the same Parts of different Animals, with relation to the particular Structure, and Formation which is most suited to the manner of living, and the Necessities of every Creature. See Anatomy.

Thus, in the *Comparative Anatomy* of Stomachs, for instance, it is remarkable, that those Creatures which have the Opportunities of frequent feeding, have their Stomachs very small, in comparison to some Creatures of prey, which, probably, may be under a necessity of fasting a long time; and therefore have Stomachs large enough to hold Food sufficient for such a time. See Stomach, Rumination, *&c.*

However, in the common use of the Term, *Comparative Anatomy* is understood of any Anatomy of Brutes; whether with any immediate reference of their Structure to that of other Animals, or not.

Comparative *Degree*, in Grammar, is an Inflexion between the Positive and Superlative Degrees; whose effect is, to set a thing above or beneath the Level of another. See Degree.

The *Latins* express'd their *Comparative Degree* by a particular Termination of their Adjectives, and Participles; wherein they are follow'd by the *English*, tho by few other of the modern Languages.

The *French* form most of their *Comparatives*, by adding the Participles *plus*, *moins*, and *aussi*; the *Italians* by *piu*, *meno*, &c. as the Thing is to be rais'd, lower'd, or equall'd to another.

COMPARISON, *parallel*; the Relation of two Persons or Things, consider'd as opposed, or set before each other, in order to find wherein they agree or differ; or wherein one has the Advantage of the other.

Comparison, in Rhetorick, is a Figure, or rather Place, in Speech, whereby two Things are consider'd with regard to some third, which is common to them both. See Figure, and Place.

Thus, *Cicer. Topic. Catoni licuit sequi bellum civile, igitur & Ciceroni licebit.* 'Twas allow'd Cato *to engage in the Civil Wars, therefore it may be allow'd* Cicero: where, to *engage in the Civil Wars* is common to both.

There are three Kinds of *Comparison*; the first *à majori, i. e.* from the Major to the Minor, as that of *Cicero* against *Anthony*, *Quid feceris domi tuæ, cum alienæ tam sis insolens.* Or that of *Terence*; *Quem ferat, si parentem non fert suum.* From the same Place, *Ovid* endeavours to appease *Cæsar*.

Cur ego posse negem leniri Cæsaris iras,
Cum videam mites hostibus esse Deos?

The second *à minori, i. e.* from the Minor to the Major: Thus *Cicero*, *Majores nostri sæpe mercatoribus, ac naviculatoribus injuriosius tractatis, bella gesserunt; vos tot civium Romanorum millibus uno nuntio atque uno tempore necatis quo tandem animo esse debetis?*

The third *à part*; as when we contend that what obtains in one Thing, ought to obtain in another of the same Kind: Thus, *'Twas a Law, that he who kill'd his Father should be sew'd up in a Sack and thrown into a River; therefore, he who kill'd his Mother deserves the same Punishment.*

Capto tuam, pudet heu, sed capto, Maxime, cœnam
Tu captas alterius; jam sumus ergo pares.
Mane salutatum venio, tu diceris esse,
Ante salutatum: jam sumus ergo pares, &c.
Mart. *Lib.* II.

Comparison *of Ideas*, an Act of the Mind, whereby it *compares* its Ideas one with another, in respect of Extent, Degree, Time, Place, or any other Circumstances. See Idea.

This Operation of the Mind is the Ground of *Relations*. See Relation.

Brutes seem not to have this Faculty in any great degree: They have, probably, several Ideas distinct enough; but cannot *compare* them farther than as to some sensible Circumstances annexed to the Objects themselves: The Power of *comparing* general Ideas, which we observe in Men, we may probably conjecture they have not at all. See ABSTRACT, GENERAL *Terms*, &c.

COMPARTIMENT, or COMPARTMENT, a Design compos'd of several different Figures, dispos'd with Symmetry; to adorn a Parterre, Plafond, Panes of Glass, or Pannels of Joinery, the Squares of a Cieling, &c.

A Compartiment of Tiles, is an Arrangement of white and red Tiles varnish'd, for the Decoration of the Covering of a Roof.

The Term *Compartiment* is also used in Painting: Thus, we say, all the *Turkish* and *Moorish* Paintings are only *Compartiments*: The fine Bindings of Books are in *Compartiments*, &c.

COMPARTIMENT, in Heraldry. See PARTITION.

COMPARTITION, in Architecture, the useful and graceful *Distribution* of the whole Ground-Plot of an Edifice, into Rooms of Office, of Reception, or Entertainment. See DISTRIBUTION, HOUSE, &c.

Compartition makes one of the great Divisions of the Art of Building. See BUILDING.

COMPASS. The *Mariner's*, or *Nautical* COMPASS, is an Instrument used by Pilots, to direct the Course of their Ships. See COURSE, NAVIGATION, &c.

It consists of a Box, which includes a magnetical Needle, that always turns to the North; excepting for a little Declination, which is various in various Places, and even at various Times, in the same Place. See NEEDLE, and VARIATION.

In the middle of the Box is fix'd a perpendicular Pivot, which bears a Card, or Pasthoard, on whose upper Surface are describ'd several concentric Circles; the outmost of which is divided into 360 Degrees; the other into 32 Points, answering to the 32 Winds. See WIND.

In the Centre of this Card is fitted a Brass Cone, or Cap, a little concave, which plays at liberty on the Pivot; and along, in the Thickness of the Card, is fitted the Needle, which is cover'd over with a Glass, that its Motions may be observ'd: The whole is inclos'd in another Box; where it is sustain'd by brass Hoops, to keep the Needle horizontal. See it represented, Tab. *Navigation*, Fig. 1.

The Needle, which is, as it were, the Soul of the *Compass*, is made of a thin Plate of Steel, in form of a Lozenge: the middle being cut out, so as to leave nothing but the Extremities and an Axis in the middle, to which the Cap is fitted. To animate, or touch it, it must be rubb'd on a good Loadstone: that End intended for the North Point on the North Pole of the Stone, and that for the South Point on the South Pole. In rubbing it, care must be taken to begin first in the middle of the Lozenge, drawing it gently to the acute Angle of the Lozenge intended for the North; never suffering it to stay at the End when arrived there, nor drawing it back again from the End to the Middle, but rubbing it a second, and even a third time, in the same manner as the first, only beginning a little further and further from the North Point: Some say, the Stone and Needle must be so disposed as that the Line of the Rub be in the Direction of the Meridian. See MAGNET.

The Invention of the COMPASS is usually ascrib'd to *Flavio de Melphe*, or *Flavio Gioia* a *Neapolitan*, about the Year 1302: and hence it is, that the Territory of *Principato*, which makes a part of the Kingdom of *Naples*, where he was born, bears a *Compass* for its Arms.

Others say, that *Marcus Paulus* a *Venetian*, making a Journey to *China*, brought back the Invention with him in 1260: What confirms this Conjecture, is, that at first they used the *Compass* in the same manner as the *Chinese* still do; *i. e.* they let it float on a little piece of Cork, instead of suspending it on a Pivot. 'Tis added, that their Emperor *Chinungus*, a celebrated Astrologer, had the Knowledge of it 1120 Years before Christ. The *Chinese* only divide their *Compass* into 24 Points.

Fauchet relates some Verses of *Guyot de Provence*, who lived in *France* about the Year 1200, which seem to make mention of the *Compass* under the Name of *Marrinette*, or *Mariner's Stone*; which shews it to have been used in *France* near 100 Years before either the *Melphite* or *Venetian*. The *French* even lay claim to the Invention from the Flower de Lis, wherewith all Nations still distinguish the North Point of the Card.

With as much Reason Dr. *Wallis* ascribes it to the *English*, from its Name *Compass*, whereby most Nations call it; and which he observes, is used in many Parts of *England* to signify a *Circle*.

The Use of the Sea-COMPASS *is obvious*. For, the Course a Ship is to sail in, being known by the Chart; and the *Compass* so placed, as that the two parallel Sides of the square Box be dispos'd according to the length of the Ship, *i. e.* parallel to a Line drawn from the Head to the Stern; the Rudder is to be directed accordingly; *v. g.* If the Course be found on the Chart between the South-West and South-South-West, *i. e.* South-West $\frac{1}{4}$ to the South: turn the Stern so as that a Line from the South-West, $\frac{1}{4}$ South exactly, answer the Mark on the middle of the side of the Box. This is all that is requir'd. See SAILING, CHART, &c.

COMPASS is also an Instrument of considerable use in surveying Land, Dialling, &c. See SURVEYING, DIALLING, &c.

Its Structure, in the main, is the same with that of the *Mariner's Compass*; consisting, like that, of a *Box* and *Needle*: The principal difference consists in this, that instead of the Needle's being fitted into the Card, and playing with it on a Pivot, it here plays alone; the Card being drawn on the bottom of the Box, and a Circle divided into 360 Degrees on the Limb. See Tab. *Surveying*, Fig. 15.

This Instrument is of obvious use to Travellers, to direct 'em in their Road; and to Miners, to shew them what way to dig, &c. But it has other Uses, tho less easy, yet more considerable.

1. *To take the Declination of a Wall by the* COMPASS. Apply that side of the *Compass* whereon the North is mark'd along the side of the Wall; the Number of Degrees o'er which the North End of the Needle fixes will be the Declination of the Wall, and on that side: *v. g.* if the North Point of the Needle tends towards the Wall; that Wall may be shone on by the Sun at Noon; if it fix over 50 Degrees, counting from the North towards the East, the Declination is so many Degrees from South towards East.

But since the Needle it self declines from the North towards the West, with us, 13°; it must be noted, that to retrieve the Irregularity, 13° be always added to the Degrees shewn by the Needle, when the Declination of the Wall is towards the East: on the contrary, when the Declination is towards the West, the Declination of the Needle to be subtracted. See DECLINATION.

2. *To take an Angle with the* COMPASS. Suppose the Angle requir'd be D A E, (Tab. *Surveying*, Fig. 11.) apply that side of the *Compass* whereon the North is mark'd to one of the Lines A D; when the Needle rests, observe the Degrees at which its North Point stands, which suppose 80: so many Degrees does the Line decline from the Meridian.

In the same manner take the Declination of the Line AE, which suppose 215°; subtract 80° from 215, the Remainder is 135; which subtracted from 180, there will remain 45°; the quantity of the Angle requir'd.

But if the difference between the Declination of the two Lines exceed 180°; in that Case, 180° must be subtracted from that difference: the Remainder is the Angle requir'd.

For the Method of laying this down on Paper. See PLOTTING.

Note, In measuring Angles by the *Compass*, there needs not any regard be had to the Variation; that being suppos'd the same in all the Lines of the Angles.

3. *To take the Plot of a Field by the* COMPASS. Suppose the Field A, B, C, D, E, (Fig. 12.) for the greater accuracy let there be two Sights fitted to the Meridian Line of the *Compass*, place it horizontal, and thro' the Sights look along the Side A B, or a Line parallel to it; applying the Eye to the Sight at the South-Point of the *Compass*. Draw a rough Sketch of the Field by the Eye, and on the corresponding Line enter down the Degree to which the Needle points, which suppose 90; measure the length of the Side, and enter that too, which suppose 10 Chain.

In this manner proceed with all the rest of the Sides of the Field; the Sides which suppose 70,65,70,50,94 Chains; and the Angles which suppose 30,100,130,240,300 Degrees.

To *protract* the Field, set down the several Angles observ'd, one after another, and subtract the lesser from the next greater: thus will you have the quantity of the several Angles, and the length of the Lines that include them. For the rest see PLOTTING, and PROTRACTING.

Note, All the Angles of the Figure taken together, must make twice as many right Angles, abating two; if no Mistake have been committed.

Azimuth COMPASS, differs from the common Sea-*Compass* in this; that there is fasten'd, on the round Box wherein the Card is, a broad Circle A B, (Tab. *Navigation*, Fig. 12.) one half whereof is divided into 90 Degrees, and those subdivided diagonally into Minutes: *b c* is an Index moveable on *b*, having a Sight, *b a*, erected thereon, and moving on a Hinge. From the upper part of the Sight, to the middle of the Index, is fasten'd a fine hypothenusal Lute String *d e*, to give a Shadow on a Line in the middle of the Index. The Circle A B is cross'd at right Angles with two Threads, from the Extremities whereof are drawn four Lines on the inside of the round Box: there are also four Lines drawn at right Angles to each other on the Card. The round Box fitted with its Card, graduated Circle, and Index, is hung in the brass Hoops B B, and those Hoops fasten'd to the square Box C C.

The Use of the Azimuth COMPASS, is for finding the Sun's magnetical Azimuth, or Amplitude; and thence the Variation of the *Compass*.

If the Observation be for an Amplitude at Sun-rising, or an Azimuth before Noon, apply the Centre of the Index *bc* on the West Point of the Card, within the Box; so that the four Lines on the Edge of the Card, and those on the inside of the Box may meet. If the Observation be for the Sun's Amplitude setting, or an Azimuth in the Afternoon, turn the Centre of the Index right against the East Point of the Card, and make the Lines within the Box concur with those on the Card: The Instrument thus fitted for Observation, turn the Index *bc* towards the Sun, till the Shadow of the Thread *de* fall directly on the Slit of the Sight, and on the Line that is along the middle of the Index; then will the inner Edge of the Index cut the Degree and Minute of the Sun's magnetical Azimuth from the North or South.

But note, that if, when the *Compass* is thus placed, the Azimuth is less than 45° from the South, and the Index *bc* turn'd towards the Sun, it will pass off the Divisions of the Limb: the Instrument, therefore, in this Case, must be turn'd just a quarter of the *Compass*; *i. e.* the Centre of the Index must be place'd on the North or South Point of the Card, according as the Sun is from you; and then the Edge will cut the Degree of the magnetic Azimuth, or Sun's Azimuth from the North, as before. See AMPLITUDE.

The Sun's magnetical Amplitude thus found, the Variation of the Needle is thus determin'd.

Being out at Sea the 15th of *May* 1715, in 45° N. Lat. the Tables give me the Sun's Latitude 19° North, and his East Amplitude 27° 25′ North: By the *Azimuth Compass*, I find the Sun's magnetical Amplitude at his rising and setting; and find he rises, *v. g.* between the 62d and 63d Deg. reckoning from the North towards the East Point of the *Compass*, *i. e.* between the 27th and 28th Deg. reckoning from the East.

The magnetical Amplitude, therefore, being here equal to the true one, the Needle has no Variation: But if the Sun at his rising should have appear'd between the 52d and 53d Deg. from the North towards the East; his magnetical Amplitude would then be between 37 and 38 Deg. *i. e.* about 10 Deg. greater than the true Amplitude: therefore, the Needle would vary about 10 Deg. North-Easterly.

If the magnetical East Amplitude found by the Instrument, should be less than the true Amplitude, their Difference would shew the Variation of the Needle Easterly.

If the true East-Amplitude be Southwardly, as also the magnetical Amplitude and this last be the greater; the Variation of the Needle will be North-West, and *vice versa*.

What has been said of North-East Amplitudes, holds also of South-West Amplitudes. And what of South-East Amplitudes, holds of North-West Amplitudes. See AMPLITUDE.

Lastly, if Amplitudes be found of different Denominations, *v. g.* if the true Amplitude be 6 Deg. North, and the magnetical Amplitude 5 Deg. South; the Variation, which in this Case is North-West, will be equal to the Sum of the magnetical and true Amplitudes: Understand the same for West Amplitudes.

The Variation may likewise be found from the Azimuth: but in that Case, the Sun's Declination, Latitude of the Place, and his Altitude must be given, that his true Azimuth may be found. See AZIMUTH.

COMPASS *of Proportion*. See SECTOR.

COMPASS-*Dials*, are small Dials, fitted in Boxes, for the Pocket, to shew the Hour of the Day by direction of the Needle; which shews how to place them right by turning the Dial about, till the Cock or Style stand directly over the Needle, and point up to the Northward; but these can never be very exact, because of the Variation of the Needle itself. See DIAL.

COMPASSES, or *Pair of* COMPASSES, a Mathematical Instrument, used for the describing of Circles, measuring the Distances of Points, Lines, &c. See CIRCLE, LINE, &c.

The common *Compasses* consist of two *Branches* or *Legs*, of Iron, Brass, or other Metal, pointed at bottom; and a-top join'd by a Rivet, whereon they move, as on a Centre.

The Invention of *Compasses* is ascrib'd to *Calus*, Nephew of *Dædalus* by his Sister, whom the Poets say, *Dædalus* kill'd out of envy.

We have *Compasses* now of various Kinds and Contrivances, accommodated to the various Uses they are intended for: As,

Hair-COMPASSES, so contrived within-side, as to take an Extent to a Hair's-breadth.

German COMPASSES, whose Legs are a little bent outwards towards the top: so that when shut, only the Points meet.

The Points are usually made to take off, and on; and other Points for particular occasions put in their Places; as Drawing-pen Point, Dotting-wheel Point, Porte-crayon Point, &c.

Spring COMPASSES, or *Dividers*, made of harden'd Steel, the Head arch'd; which, by its Spring, opens the *Compasses*; the opening being directed by a circular Screw, fasten'd to one Leg and let thro' the other, work'd with a Nut.

Clock-makers COMPASSES are very substantial, serving to cut Pastboard, Brass, &c. jointed like the common *Compasses* with a Quadrant, or Bow, as the *Spring Compasses*; only its use different; as serving here, to keep the Instrument firm at any opening.

Turn-up COMPASSES, a late Contrivance to save the trouble of changing the Points: The Body is like the common *Compasses*; towards the bottom of the Legs, without-side, are added two other Points, besides the usual ones; the one carrying a drawing Pen-point, the other a Porte Craion; both adjusted so as to turn round, and so be in the way of use, or out of it, as occasion requires.

The Points of small *Compasses* are temper'd by a Lamp and Blow-pipe, heating 'em red-hot; when cold they are hard: The larger are temper'd by a charcoal Fire and a Blow-pipe, heating them to a Cherry-colour, then plunging them in Water. See TEMPERING.

COMPASSES *of three Branches*. Their Structure is like that of the common *Compasses*, setting aside the Excess of a Leg: Their use is to take three Points at once; and so to form Triangles; to lay down three Positions of a Map to be copied at once, &c.

Trissecting COMPASSES, the Invention of M. *Tarragon*, for the Trissection of Angles, geometrically. See TRISSECTION.

The Instrument consists of two central Rules, and an Arch of a Circle of 120 Deg. immoveable, with its Radius: The Radius is fasten'd with one of the central Rules, like the two Legs of a Sector, that the central Rule may be carried thro' all the Points of the Circumference of the Arch. The Radius and Rule to be as thin as possible, and the Rule fasten'd to the Radius hammer'd cold, to acquire an Elasticity: The breadth of the other central Rule, to be triple the breadth of the Radius. In this Rule to be a Groove, with a Dove-tail, to be fasten'd on it, for its Motion: In the Centre of each Rule must likewise be a Hole. See the *Journ. de Scavans*, *Sept.* 1688.

Beam COMPASSES, consist of a long Branch, or Beam, carrying two brass *Cursors*; the one fix'd at one end, the other sliding along the Beam, with a Screw to fasten it, on occasion. To the Cursors may be screw'd Points of any kind; whether Steel, for Pencils, or the like. It is used to draw large Circles, take great Extents, &c.

Elliptick COMPASSES. Their use is to draw Ellipses, or Ovals of any kind: They consist of a Beam A B, (Plate *Geom.* Fig. 2.) about a Foot long, bearing three Cursors; to one of which may be screw'd Points of any kind: to the bottom of the other two are rivetted two sliding Dove-tails, adjusted in Grooves made in the cross Branches of the Beam. The Dove-tails having a Motion every way, by turning about the long Branch, go backwards and forwards along the Cross: so that when the Beam has gone half way about, one of these will have mov'd the whole length of one of the Branches; and when the Beam has got quite round, the same Dove-tail has got back the whole length of the Branch: Understand the same of the other Dove-tail.

Note, the Distance between the two sliding Dove-tails, is the Distance between the two *Foci* of the Ellipsis; so that by changing that distance, the Ellipsis will be rounder or slenderer. Under the Ends of the Branches of the Cross, are placed four Steel Points to keep it fast.

The use of this *Compass* is easy; by turning round the long Branch, the Ink, Pencil, or other Point, will draw the Ellipsis requir'd. Its Figure shews both its Use and Construction.

Cylindrick and Spherick COMPASSES, used in taking the Diameter, Thickness, or Calliber of round, or cylindrick Bodies; as, Cannons, Pipes, &c. They consist of four Branches join'd in a Centre; two of 'em circular, two flat, a little bent at the Ends.

To use 'em, one of the flat Points is put within the Cannon, the other without: the two opposite Points shew the Thickness. See CALLIPER.

There are also *Spherical Compasses*, differing in nothing from the common ones, but that their Legs are arch'd; serving to take the Diameters of round Bodies, &c.

Proportional COMPASSES, consist of two Branches, (Plate *Geom.* Fig. 3.) each pointed at either end with Steel: the length of the Branches is cut thro', for a Cursor to slide up and down; in the middle of which Cursor is a Screw, serving to join the Branches, and to fix 'em at any Point requir'd.

On the one Leg are Divisions, serving to divide Lines into any number of equal Parts, for reducing of Figures, &c. On the other are Numbers, for the inscribing any regular Polygon in a Circle propos'd.

The Use of the first is easy: Suppose, *v. g.* a right Line to be divided into three equal Parts; push the Cursor till the Screw be just on the Figure 3; where fixing it, take the length of the given Line between the longest Parts of the Legs: the distance between the two shortest, will be

one third of the given Line. In the same manner may the Line be divided into another number of Parts.

For the Use of the Line of Polygons: Suppose, *v. g.* a Pentagon requir'd to be inscrib'd in a Circle; push the Cursor till the middle of the Screw be against 5, the number of Sides in a Pentagon; between the shortest Parts of the Legs take the Semidiameter of the Circle: the Legs thus open'd, the distance between the Points of the longest Parts, will be the side of the Pentagon to be inscrib'd in the Circle. And thus for a Figure of any other number of Sides.

Proportional COMPASSES *with the Sector Lines.* The Structure of these is so like that of the common *Proportional Compasses*, only a little nicer, that it needs no particular Description. See Plate *Geometry*, Fig. 4.

The Lines on the first Face, are the Line of Lines, mark'd *Lines*: it is divided into 100 unequal Parts, every tenth number'd: And the Line of Chords, which goes to 60°; and is mark'd *Chords*. On the other Face are a Line of Sines to 90°, and a Line of Tangents to 45°. On the first side are the Tangents from 45° to 71°.34′; on the other Secants from 0° to 70°.30′.

For the Use of these Compasses. 1. To divide a Line into any number of equal Parts, less than 100: Divide 100 by the number of Parts requir'd; slip the Cursor till the Line on the sliding Dove-tail be against the Quotient on the Line of Lines: Then, the whole Line being taken between the Points of the *Compasses* most remote from the Centre; the Aperture of the other will be the Division requir'd. 2. A right Line given, supposed to be divided into 100 Parts, to take any number of those Parts: Slip the Line on the sliding Dove-tail to the number of Parts requir'd: the whole Line being taken between the Points furthest from the Centre, the Aperture of the other two will include the number of Divisions requir'd. 3. The Radius being given, to find the Chord of any Arch under 60°: Slip the Line on the sliding Dove-tail to the Degrees requir'd on the Line of Chords: the Radius being taken between the Points furthest from the Centre of the Cursor; the Aperture of the other Line will be the Chord requir'd; provided the number of Degrees be greater than 29: if it be less, the Aperture taken from the Radius will leave the Chord requir'd. 4. If the Chord of an Arch under 60° be given, and the Radius requir'd; slip the Line on the Dove-tail to the Degrees given on the Line of Chords: the given Chord being taken between the two Points next the Cursor, the Aperture of the other will be the Radius requir'd. 5. The Radius being given, to find the Sine of any number of Degrees. Slip the Line on the Dove-tail to the Degree on the Line of Sines whose Sine is requir'd: The Radius taken between the Points furthest from the Cursor; the Aperture of the other will give the Sine of the Angle requir'd. But if the Sine sought be less than 30°, the Difference of the Apertures of the opposite Points, will be the Sine requir'd. 6. The Radius being given, to find the Tangent of any number of Degrees under 71: If the Tangent requir'd be under 26°.30′, slip the Line on the Dove-tail to the Degree proposed on the Tangent-Line: the Radius taken between the Points furthest from the Cursor; the Aperture of the others, will be the Tangent of the Degrees requir'd: If the Tangent requir'd be above 26°.30′, but under 45°; the Line on the Cursor must be slip'd to the Degrees given on the Tangent-Line: then the Radius being taken between the Points furthest from the Cursor; the Aperture of the others will be the Tangent. If the Tangent requir'd be greater than 45°, but less than 56°.20′; slip the Notch on the Tangent-side of the turn'd Cheek to the Degree 0 in the Tangent-line on the Side of the *Compass*: the Radius taken between the Points furthest from the Cursor; the difference between the Aperture of the other, and these, added together, will be the Tangent requir'd. Thus, for the Tangents of other Degrees under 71. After the like manner may the Secant of any number of Degrees under 71 be found.

Lapidary's COMPASSES, a piece of Wood in form of the Shaft of a Plane, cleft a-top, as far as half its length; wherewith they measure the Angles, *&c.* of the precious Stones as they cut 'em.

In the Cleft is a little brass Rule, fasten'd there, at one end, by a Pin; but so as it may be mov'd in the manner of a Bevel: with this kind of Square they take the Angles of the Stones, laying 'em on the Shaft as they cut them.

COMPATIBLE, something that may suit, or consist with another. See INCOMPATIBLE.

COMPENDIUM, an Abstract, Epitome, or Reduction of a large Matter into a little compass. See EPITOME.

COMPENSATION, an Action whereby any thing is admitted as a Parallel, or an Equivalent to another.

Compensation, in the Civil Law, is a kind of Right, whereby a Debtor pursu'd by his Creditor, for the Payment of a Debt, demands that the Debt may be *compensated* with what is owing him by the Creditor.

Compensation is equivalent to Payment.

COMPETENCE, in Law, the Authority, or Right, of a Judge for taking Cognizance of any certain Matter. See JURISDICTION.

COMPITALITIA, Feasts held among the Antients in honour of the *Lares*. See FEAST, and LARES.

The Word comes from the Latin *Compitum*, a Cross-way; by reason the Feast was held in the Meetings of several Roads.

This Feast is more antient than the building of *Rome*. *Dionysius Halicarnasseus* and *Pliny*, indeed, say, they were instituted by *Servius Tullius*; but this only signifies that they were then introduc'd into *Rome*.

Notwithstanding what *Dion* relates, that the *Compitalitia* were celebrated a little after the *Saturnalia*; and that the *Roman* Calendar fixes 'em on the 12th of *January*; it appears that they had not any fix'd Day; at least, not in the time of *Varro*, as is observ'd by *Casaubon*.

The Feast being thus moveable, the Day whereon it was to be held, was proclaim'd every Year. It was ordinarily held on the 4th of the Nones of *February*, *i. e.* on the 2d of that Month.

Macrobius observes, that they were held not only in honour of the *Lares*, but also of *Mania*, Madness. The Priests who officiated at 'em were Slaves and *Liberti*; and the Sacrifice a Sow.

They were re-establish'd, after a long neglect, by *Tarquin* the Proud; and on occasion of an answer of the Oracle, *That they should sacrifice Heads for Heads*, *i. e.* for the Health and Prosperity of each Family, Children were ordain'd to be sacrificed: But *Brutus*, after expelling the Kings, in lieu of those barbarous Victims, substituted the Heads of Garlick and Poppy; thus satisfying the Oracle which had enjoin'd Heads, *Capita*.

During the Celebration of this Feast, each Family placed at the Door of their House, the Statue of the Goddess *Mania*: They also hung up at their Doors Figures of Wool, representing Men and Women; accompanying them with Supplications that the *Lares* and *Mania* would be contented with those Figures, and spare the People of the House.

As for Slaves, in lieu of the Figures of Men, they offer'd Balls, or Fleeces of Wool. *Servius Tullius* order'd, that the Slaves who assisted at the *Compitalitia*, should be free during the whole Time of the Feast. *Augustus* order'd the Statues of the *Lares*, placed in the Cross-way, to be adorn'd with Flowers twice a Year.

COMPLAINANT, in Law, a Plaintiff, or one who prefers a *Complaint* against another, to be reliev'd by Justice, or Equity. See PLAINTIFF.

COMPLEMENT, in Geometry, is what remains of a Quadrant of a Circle, or of 90 Deg. after a certain Arch has been retrench'd from it. See ARCH.

Thus, if an Arch or an Angle be 30 Deg. we say its *Complement* is 60 Deg. since $60 + 30 = 90$.

The Arch and its *Complement* are Relatives; and are only used with regard to each other.

The Sine of the *Complement* of an Arch, is call'd the *Co-sine*; of a Tangent, the *Co-tangent*, &c. See CO-SINE, CO-TANGENT, *&c.*

We sometimes also say, the *Complement of an Angle*; meaning so much as it wants of a right Angle, or 90 Deg. See ANGLE.

COMPLEMENT *of the Course*, in Navigation, is the Number of Points the Course wants of 90 Deg. or 8 Points, *viz.* of a Quarter of the Compass. See COURSE.

COMPLEMENT, in Astronomy, is used for the distance of a Star from the Zenith; or the Arch comprehended between the Place of a Star above the Horizon, and the Zenith. See ZENITH, STAR, *&c.*

COMPLEMENT *of the Curtain*, in Fortification. The inner Polygon consists of the Curtain and two Demigorges: The *Complement of the Curtain*, therefore, to the inner Polygon, is the Demigorges. See CURTAIN, and DEMIGORGE.

COMPLEMENT *of the Line of Defence*, is the Remainder of the Line of Defence, after you have taken away the Angle of the Flank. See DEFENCE.

COMPLEMENTS *of a Parallelogram*, are the two lesser Parallelograms, made by drawing two right Lines parallel to each side of the Figure, thro' a given Point in the Diagonal.

Such are the Parallelograms C and M, (Plate *Geometry*, Fig. 5.)

'Tis demonstrated, that in every Parallelogram, the *Complements* C and M are equal: For $Z + C + O = R + M + X$; as making up on each side the great Triangle, made = by the Diagonal; of which, $Z = R$, and $O = X$, (because the Diagonal makes them so;) wherefore, the remaining Parallelogram $C = M$.

COMPLEX, a Term ordinarily used as synonymous with *Compound*; tho, strictly speaking, there be some difference between 'em.

Complex may be applied where a thing contains divers others, or consists of divers Parts, not really distinct from one another; but only imaginarily, or in our Conception.—

In

In this Sense, the Soul may be said to be *Complex*, in respect of the Understanding and Will, which are two things our Reason alone distinguishes in it. See COMPOUND.

A *Complex Term*, or *Idea*, is a Term or Idea compounded of several *simple*, or *incomplex* ones. See TERM, and IDEA.

Thus, in the Proposition, *A just God cannot leave the Crime unpunish'd*; the Subject of this Proposition, *viz. a just God*, is a *Complex Term*, or stands for a *Complex Idea*, compos'd of two simple, or *incomplex* ones, *viz. God* and *Just*.

A *Complex Proposition*, is either that which has at least one of its Terms *complex*, as that just mention'd; or such a one as contains several Members, as causal Propositions.

Thus, *e.g. If God be almighty, the Wicked can never escape him.* See PROPOSITION.

Mr. *Locke* observes, that tho the Mind be perfectly passive in the Formation of simple Ideas; yet it exerts several Actions of its own about them, when once form'd: and that by this means it is, they become the Materials and Foundation out of which all our Knowledge is framed. See KNOWLEDGE.

These Acts are chiefly three, *viz.* the combining of several simple Ideas into one compound one: And thus it is that all *Complex Ideas* are made.

2dly, It brings two Ideas, whether *simple* or *complex*, together; sets 'em by each other, and so views 'em, without uniting 'em into one: And thus it gets its Ideas of Relation. See RELATION.

Lastly, It separates several Ideas from all other Ideas that accompany them in their real Existence: And thus all its general Ideas are form'd. See GENERAL, and ABSTRACT.

As simple Ideas are observ'd to exist in several Combinations united together; so the Mind may consider them as united, not only as they are really united in external Objects, but as it self has join'd them: Ideas thus made up of several ones put together, we call *Complex*; as Man, Beauty, Army, Gratitude, *&c.* *Complex Ideas*, however compounded and decompounded, tho their Number be infinite, and their Variety endless, may be all reduc'd under these three Heads, *viz. Modes*, *Substances*, and *Relations*; *which see under their proper Heads*, MODE, SUBSTANCE, and RELATION.

COMPLEXIO, COMPLEXION, in Metaphysicks, the Union or Coalition of several Things different from each other; either really, or only in our Conception. See COMPLEX.

COMPLEXIO, in Logicks, is sometimes applied to the second Operation of the Mind, *viz.* the Judgment; consider'd as it affirms or denies any thing: such Affirmation, *&c.* importing a Combination of several things.

COMPLEXIO, is sometimes also used by Logicians in the Sense of *Dilemma*. See DILEMMA.

COMPLEXIO, in Rhetorick, *&c.* is a Figure including a Repetition, and a Conversion at the same time; the Sentence both beginning and ending with the same Word.

Thus *Tully*, *Quis legem tulit? Rullus. Quis majorem partem populi suffragiis privavit? Rullus. Quis comitiis præficit? Rullus*, See CONVERSION, and REPETITION.

COMPLEXION, in Physicks, is used for the Temperature, Habitude, or natural Disposition of the Body. See CONSTITUTION.

Some Philosophers distinguish four general and principal *Complexions* in Man, *viz.* the *sanguine Complexion*, which, according to them, answers to the Air; having the Qualities thereof, as being hot and moist. It takes its Name from *Sanguis*; because the Blood is there suppos'd to be predominant. See SANGUINE.

The *phlegmatic Complexion* takes its Name from the *Pituita*, or *Phlegm*, in which it abounds, and corresponds to Water; being cold, and moist. See PHLEGMATIC.

The *bilious*, or *choleric Complexion*, takes its Name from the Bile, or Choler: it is suppos'd of the Nature of Fire, hot and dry. See CHOLERIC.

Lastly, the *melancholy Complexion* partakes of the Nature of Earth, being cold and dry. See MELANCHOLY.

COMPLEXUS, or *Par* COMPLEXUM, in Anatomy, is a Pair of Muscles, arising with six thin small Tendons from the transverse Processes of the *Vertebræ* of the Neck and Thorax; growing fleshy in its Ascent; again becoming tendinous about the middle; and again fleshy, where it is inserted laterally into the upper Part of the *Os Occipitis*, and the hind Part of the *Processus Mastoides*.

When they act together, they pull the Head directly backwards, but either of 'em acting alone, draws it obliquely back.

COMPLICATION *of Diseases*, a Mixture, or Junction of several Diseases; especially where they have any affinity to one another; as the Dropsy, Asthma and Jaundice happening together. See DISEASE.

What perplexes the Physicians, is, when with a Fever there is a *Complication* of some other Disorder. See FEVER.

COMPONE, or COMPONED, or *Gobony*, in Heraldry. A *Bordure Compone*, is that form'd or compos'd of a row of angular Parts, or Chequers of two Colours; as in the Figure adjoining.

COMPONED, or COMPOSED, is also used in the general for a Border, a Pale or a Fess, compos'd of two different Colours, or Metals, dispos'd alternately, separated and divided by Fillets, excepting at the Corners; where the Junctures, are made in the form of a Goats-foot.

COMPOSITE *Order*, in Architecture, the last of the five Orders of Columns; so called, because its Capital is *compos'd* out of those of the other Columns. See ORDER.

It borrows a Quarter-round from the *Tuscan*, and *Doric*; a double Row of Leaves, from the *Corinthian*; and Volutes from the *Ionic*: Its Cornice has simple Modillions or Dentils. See CAPITAL.

The *Composite* is also called the *Roman* and *Italic* Order; as having been invented by the *Romans*; conformably to the rest, which are denominated from the People among whom they had their rise. See its Figure in Tab. *Architecture*.

Most Authors rank this after the *Corinthian*; either as being the richest, or as the last that was invented: *Scamozzi* alone places it between the *Ionic* and *Corinthian*; out of a view to its delicacy and richness, which he esteems inferior to that of the *Corinthian*; and therefore makes no scruple to use it under the *Corinthian*: wherein he is follow'd by M. *le Clerc*. See CORINTHIAN.

The Proportions of this Order are not fix'd by *Vitruvius*; he only marks its general Character, by observing that its Capital is compos'd of several Parts taken from the *Doric*, *Ionic*, and *Corinthian*: He does not seem to regard it as a particular Order; nor does he vary it at all from the *Corinthian*, except in its Capital. In effect, it was *Serlio* who first added the *Composite* Order to the four of *Vitruvius*, forming it from the Remains of the Temple of *Bacchus*, the Arches of *Titus*, *Septimius*, and the Goldsmiths: Till then, this Order was esteem'd a Species of the *Corinthian*, only differing in its Capital.

The Order being thus left undetermin'd by the Antients, the Moderns have a kind of a Right to differ about its Proportions, *&c.* *Scamozzi*, and after him M. *le Clerc*, make its Column 19 Modules and an half; which is less by half a Module than that of the *Corinthian*: as, in effect, the Order is less delicate than the *Corinthian*. *Vignola* makes it 20; which is the same with that of his *Corinthian*: but *Serlio*, who first form'd it into an Order, by giving it a proper Entablature and Base, and after him M. *Perrault*, raise it still higher than the *Corinthian*.

This last does not think different Ornaments and Characters sufficient to constitute a different Order, unless it have a different Height too: Agreeably, therefore, to his Rule of augmenting the Heights of the several Columns by a Series of two Modules in each; he makes the *Composite* 20 Modules, and the *Corinthian* 18; which, it seems, is a Medium between the Porch of *Titus* and the Temple of *Bacchus*. See PROPORTION.

For the Parts of the Order, see COLUMN, ENTABLATURE, CAPITAL, BASE, *&c.*

M. *Perrault*, in his *Vitruvius*, distinguishes between the *Composite* and *Composed* Order.

The latter, he says, is any Composition whose Parts and Ornaments are extraordinary and unusual; but have, withal, somewhat of Beauty; both on account of their Novelty, and in respect of the Manner or Genius of the Architect: So that a *Composed* Order is an arbitrary, humourous Composition, whether regular, or irregular.

The same Author adds, that the *Corinthian* Order is the first *Composite* Order, as being compos'd of the *Doric* and *Ionic*; which is the Observation of *Vitruvius* himself, *Lib.* 4. cap. 1.

COMPOSITION, in a Physical Sense, is the uniting or joining of several different Things, so as to form one whole, call'd a *Compound*. See COMPOUND.

The Schoolmen distinguish two Kinds of *Composition*; the one *Entitative*, which is between Things of the same Nature, *e.g.* two or more Drops of Water: the other *Essential*, when Things of different Kinds are join'd, and thus constitute new Things, or Essences, different from any of the Parts; and thus, say they, from the Matter and the Form of Wood, arises Wood; whose Essence is very different from either of those Ingredients taken separately.

COMPOSITION *of Ideas*, is an Operation of the Mind, whereby it combines several of its Simple Ideas into Complex ones. See COMPLEX *Idea*.

Under the same Operation may likewise be reckon'd that of enlarging; whereby we put several Ideas together of the same Kind, as several Unites to make a Dozen.

In this, as in others, Brutes come far short of Men; for tho they take in and retain several Combinations of Simple

Ideas; as, possibly, a Dog does the Shape, Smell, and Voice of his Master: yet these are rather so many distinct Marks whereby he knows him, than one Complex Idea, made out of those Simple ones.

Composition, in Grammar, the joining of two Words together; or prefixing a Particle to another Word, to augment, diminish, or change its Signification.

Composition, in Oratory, the proper Order of the Parts of a Discourse, adhering to each other.

To *Composition* belongs both the artful joining of the Letters whereof the Style is form'd, and whereby it is render'd soft and smooth, gentle and flowing, or full and sonorous; or the contrary. See Style.

And the *Order*, which requires the Grave to be placed after the Humble, and Things first in Nature and Dignity, before those of inferior Consideration. See Period.

Composition, in Painting, includes the Invention and Disposition of the Figures, the Choice of Attitudes, &c. *Composition*, therefore, consists of two Parts; one of which finds out, by means of History, proper Objects for a Picture; and the other disposes 'em to advantage. See Painting.

Composition, in Musick, the Art of disposing musical Sounds into Airs, Songs, &c. either in one, or more Parts; to be sung with the Voice, or play'd on Instruments. See Musick, and Song.

Zarlin defines it the Art of joining and combining Concords together, which are the Matter of Musick: But this Definition is too scanty; in regard, Discords are always used with Concords in the *Composition* of Parts. See Concord, and Discord.

Under *Composition* are comprehended the Rules, first, of *Melody*, or the Art of making a single Part; *i. e.* of contriving and disposing the simple Sounds, so as that their Succession and Progress may be agreeable. See Melody.

2dly, Of *Harmony*, or the Art of disposing and concerting several single Parts so together, that they may make one agreeable Whole. See Harmony.

It may be here observ'd, that Melody being chiefly the Business of the Imagination, the Rules of its *Composition* serve only to prescribe certain Limits to it; beyond which, the Imagination, in searching out the Variety and Beauty of Airs, ought not to go: But Harmony, being the Work of Judgment, its Rules are more certain, extensive, and more difficult in practice.

In the Variety and Elegancy of the Melody, the Invention labours a great deal more than the Judgment; so that Method has but little place: but in Harmony 'tis otherwise; the Invention, here, has nothing to do; and the *Composition* is conducted from a nice Observation of the Rules of Harmony, without any Assistance from the Imagination at all.

Composition, in Logic, is a Method of reasoning, wherein we proceed from some general self-evident Truth, to particular and singular ones. See Method.

The Method of *Composition*, call'd also *Synthesis*, is just the reverse of that of *Resolution*, or *Analysis*. See Resolution.

Resolution is the Method whereby we ordinarily search after Truth; *Composition*, that whereby a Truth found, is discover'd and demonstrated to others: Resolution is the Method of Investigation; *Composition* of Demonstration.

The Method of *Composition* is that used by *Euclid*, and other Geometricians; Resolution that used by Algebraists and Philosophers. The two Methods differ, just as the Methods of searching a Genealogy; which are either by descend- from the Ancestors to the Posterity, or by ascending from the Posterity to their Ancestors; each have this in common, that their Progression is from a thing known, to another unknown.

The Method of *Composition* is best observ'd by the Mathematicians: The Rules hereof are, 1st, to offer nothing but what is couch'd in clear express Terms; and to that End, to begin with Definition. 2dly, To build only on evident and clear Principles; to that End, to proceed from Axioms or Maxims. 3dly, To prove demonstratively all the Conclusions they draw hence; and to this purpose, to make use of no Arguments or Proofs, but Definitions already laid down, Axioms already granted, and Propositions already proved; which serve as Principles to Things that follow.

Composition *of Motion*, is an Assemblage of several Directions of Motion, resulting from Powers acting in different, tho not opposite Lines. See Motion.

If a Point move or flow according to one and the same Direction; whether that Motion be equable or not, yet it will still keep the same right Line; the Celerity alone being chang'd, *i. e.* increas'd, or diminish'd according to the Forces with which it is impell'd.

If the Directions be opposite, as one, *e. g.* directly downward, the other upward, &c. yet still the Line of Motion will be the same.

But if the *compounding* Motions be not according to the same Line of Direction, the compound Motion will not be according to the Line of Direction of either of 'em, but a different one from them both; and this either strait or crooked, according as the Directions or Celerities shall require.

If two *compounding* Motions be each of them equable, the Line of the compound Motion will still be a strait Line; and this, tho the Motions be neither at right Angles one to another, nor equally swift, nor (each to its self) equable; provided that they be but similar; that is, both accelerated and retarded alike.

Thus, if the Point *a*, (Tab. *Mechanics*, Fig. 4.) be impell'd equally with two Forces; *viz.* upwards towards *b*, and forwards towards *d*; 'Tis plain, that when it is gone forwards as far as *ae*, it must of necessity be gone upwards as far as *e e*; so that were the Motions both equable, it would always go on in the Diagonal *a e c*.

Nay, suppose the Motions unequal as to Celerity, so *v. g.* as that it move twice as fast upwards as forwards, &c. yet still it must go on in the Diagonal *ac*; because the Triangles *a e e*, *a e c*, &c. and *a c d* will still be similar, being as the Motions are.

But, if the Motions be dissimilar, then the compound Motion must be a Curve. See Circular *Motion*.

Thus, if a Body, as *b*, (Fig. 5.) be impell'd or drawn by three different Forces, in the three different Directions *b a*, *b c*, and *b d*, so that it yields to none of them, but continues *in Æquilibrio*: then will those three Powers or Forces be to one another, as three right Lines drawn parallel to those Lines, expressing the three different Directions, and terminated by their mutual Concourses.

Let *b e* represent the Force by which the Body *b* is impell'd from *b* to *a*, then will the same right Line *b e*, represent also the contrary equal Force, by which it is impell'd from *b* to *e*; but by what hath been said before, the Force *b e* is resolvable into the two Forces acting according to the two Directions *b d* and *b c*, to which the other impelling from *b* to *e*, is as *b e* to *b d*, and *b c* or *d e*, respectively.

So likewise two Forces, acting without the Directions *b d*, *b c*, and being equipollent to the Force acting without the Direction *b e*, from *b* to *e*; will be to the Force acting according to the Direction *b e*, from *b* to *e*, as *b d*, *b c*, to *b d*: and therefore, the Forces acting in the Directions *b d*, *b c*, and equipollent to the Force acting in the Directions *b e*, are to the Force acting in the Direction, as *b d*, *b c*, or *d c* to *b e*: That is, if a Body be urg'd by three different equipollent Powers in the Directions *b a*, *b d*, and *b c*; these three Forces shall be to one another as *b e*, *b d*, and *d e*, respectively. *Q. E. D.*

This Theorem, with its Corollaries, Dr. *Keil* observes, is the Foundation of all the new Mechanicks of M. *Varignon*: By help hereof, may the Force of the Muscles be computed, and most of the mechanick Theorems in *Borelli*, *de Motu Animalium*, be immediately deduced.

Composition *of Proportion*, signifies the comparing of the Sums of the Antecedent and Consequent, with the Consequent in two equal Ratios. See Ratio; see also Compound *Ratio*.

Suppose 4 : 8 : : 3 : 6; by *Composition of Proportion* we say, 12 is to 8 : as 9 to 6.

There is, however, a great difference between *Composition of Proportion* by *Addition*, and by *Multiplication*: the Instance above is of *Composition* by *Addition*. If it had been 4 × 8, it would have been *Composition* by *Multiplication*.

In a word, *Composition of Proportion* by Addition, is by Addition of the Indices of the Ratios; but by Multiplication, it is when the Ratios are multiplied into one another.

Composition, in Pharmacy, the Art, or Act of mixing many Ingredients together into a Medicine; so as they may assist each other's Virtues, supply each others Defects, or correct any ill Qualities thereof. See Pharmacy.

Composition, in Printing, ordinarily call'd *Composing*, is the arranging of several Types, or Letters in the Composing-Stick, in order to form a Line; and of several Lines rang'd in order in the Galley, to make a Page; and of several of those to make a Form. See Printing, Page, Form, &c.

The Composing-Stick is made of Iron generally, sometimes Brass, or Wood; of more or less length and depth, according to the Page to be compos'd, or the Composer's Fancy: It hath two sliding Pieces, to be fasten'd by means of a Nut and Screw, which are slipp'd forwards or backwards, at the Pleasure of the Compositor, and according to the Space which the Lines, Notes, &c. are to take up.

The *Composing-Stick* ordinarily contains seven or eight Lines of a middle-siz'd Letter; which, when set, are taken out, by help of a thin slip of Brass, term'd a Rule, and dispos'd in the Galley; and others compos'd, till a Page be form'd. The Page being compos'd, is ty'd up, and set by; and the rest of the Pages of the Sheet prepar'd in the same manner: When done, they are carry'd to the Imposing or Correcting-Stone; there rang'd in order, and dispos'd in a Chase, or Iron Frame, fitted with wooden Furniture; then, the Quoins being struck in, 'tis carried to the Press to be printed. See Press, Case, Chase, &c.

Composition, in Commerce, a Contract between an insolvent Debtor and his Creditors; whereby the latter agree to accept of a Part of the Debt, in compensation for the Whole, and give a general Acquittance accordingly.

COMPOSSIBLES, *Compossibilia*, in Logick, such Things as are compatible, or capable of subsisting together.

COMPOST, in Agriculture and Gardening, a Compound, or Mixture of Earths, Dungs, *&c.* applied, by way of Manure, for the meliorating and improving of Soils, and assisting the natural Earth in the Work of Vegetation. See Manure.

The Gardeners have Magazines, or Laystalls of *Composts*, adapted to the different sorts of Soil. Light loose Land requires a *Compost* of a heavy Nature; such as the scouring of Ditches, Ponds, *&c.* mix'd with Earth, Dung, *&c.* A heavy, clayey, or cloddy Land requires a *Compost* of a more sprightly and active Kind, to insinuate into the heavy, lumpy Clods; as Dungs, Sand, Ashes, and natural Mould.

Mr. *Bradley* prescribes seven different sorts of *Composts*, to forward the growth of Trees; *viz.* a quantity of stiff Soil, broke, and mix'd with sharp Sand, and Ashes of burnt Furzes, Weeds, *&c.* or stiff Soil with Sand and burnt Grass-turf, and rotten Wood; or stiff Soil with Sand and Rape-seed, after the Oil is press'd out, with burnt Turf; or stiff Soil with Sand and Malt-grains; or Sheeps Dung, with Wood Ashes and Loam, or Mother Earth. See Soil.

The same Author recommends a Mixture or Preparation of Soils answering to Loam, or Mother Earth, as preferable for planting or sowing Forest-Trees in, to any of these richer *Composts*; which, tho they hasten the Growth of the Tree, will not make the Timber near so firm and durable. See Timber.

COMPOUND, the Result or Effect of a Composition of different Things; or that which arises therefrom. See Composition.

Strictly speaking, every new *Composition* does not produce a new natural *Compound*; but only that from which a new Essence arises. Thus, when one drop of Water is added to another, there does not arise a new physical *Compound*; the Essence being the same now, as before the Union.

Compound *Flowers*, call'd also *Composite*, and *Aggregate*; are such as consist of many little Flowers, concurring to make up one whole one; each of which hath its Style, Stamina, and adhering Seed, but are all contained within one and the same Calyx, or Perianthium. See Flower.

This *compounded* Flower distinguishes a large Genus of Plants, which Mr. *Ray* divides thus:

Herbs of *compounded* or *aggregated* Flowers, are,

1st, Such as have a plain-leav'd Flower naturally, and for the most part full; and having their whole Body milky, (yielding a milky Juice on cutting them;) and these have their Seeds,

First, *Pappous*, or *Winged*; that is, having a little Lanugo adhering to each Seed, by which the Wind can easily carry it from place to place: Such as the *Lactuca*, *Tragopogon*, *Scorzonera*, *Dens Leonis*, *Hieracium*, and the *Pilosella*.

Secondly, Such as have a solid Seed, without any *Pappus* or Down upon them; as the *Eringium Lutcum*, *Cichorium*, *Lampsana*.

2d, Such as have a *discous* Flower; *i. e.* one composed of many short, thick, compressed, small *Flosculi* (which some, by mistake, call *Stamina*) set together, so as to make one flat, or hollowish Superficies: And these are also either such as have their Seeds,

First, *Pappous*, as the *Tussilago*, *Petasites*, *Carlina*, *Helenium*, *Doronicum*, *Conyza*, *Aster*, *Virga Aurea*, *Jacobæa*, *Stœchas Citrini*, *Jacea*, *Senecio*, *Eupatorium Avicennæ*, *Cacalia Valgaris*, *Gnaphalium Maritimum*, and *Monspeliensium*.

Secondly, Such whose Seeds are solid, and not pappous; as the Corymbiferous Herbs.

Compound *Motion*, that effected by several conspiring Powers. See Power.

Now, Powers are said to conspire, if the Direction of the one ben't directly opposite to that of the other; as when the Radius of a Circle is conceiv'd to revolve about a Centre; and at the same time a Point to move strait along it.

All curvilinear Motion is *compound*.

'Tis a popular Theorem, in Mechanicks, that in an uniform *compound* Motion, the Velocity produc'd by the conspiring Powers, is to that of either of the Powers separately, as the Diagonal of a Parallelogram, according to the Direction of whose Sides, they act separately; to either of the Sides. See Motion, and Diagonal.

Compound *Pendulum*, in Mechanicks, that which consists of several Weights constantly keeping the same Distance, both from each other, and from the Centre about which they oscillate. See Pendulum.

Compound *Ratio*, or *Proportion*. A Proportion is said to be *compounded* of two or more others, which the *Factum* of two or more Antecedents of Ratios has to the *Factum* of their Consequents: Thus, 6 to 72 is in a Ratio *compounded* of 2 to 6, and 3 to 12. See Proportion.

Compound *Quantities*, in Algebra, are such as are connected together by the Signs + and —; and are express'd by the same Letters equally or unequally repeated: Thus; $a+b-c$, and $bb-b$ are *compound Quantities*. See Quantity.

Compound *Numbers*, are those which may be measur'd, or exactly divided, by some other Number beside Unity. See Number.

Such is 15; which is measured by 3 and also by 5.

Compound *Interest*, call'd also *Interest upon Interest*, is that which is reckon'd not only upon the Principal, but upon the Interest it self forborn; which hereby becomes a sort of secondary Principal. See Interest.

Compound *Machine*. See Machine.

Compound *Rule of Three*. See Rule *of Three*.

COMPREHENSION, in Metaphysicks, the Act of the Mind, whereby it apprehends or knows any Object presented to it, on all the Sides whereon it is capable of being apprehended, or known. See Apprehension, and Knowledge.

To comprehend a thing, is defined by the Schoolmen, *rem aliquam totam & totaliter cognoscere*: And, in this Sense, 'tis a popular Point of Controversy among the School-Divines, *whether the Blessed in Heaven* comprehend *God*? The more Orthodox maintain the Negative, by reason such Knowledge must be infinite.

Comprehension, in Rhetorick, a Trope, or Figure whereby the Name of a Whole is put for a Part; or that of a Part for a Whole: or a definite number of any Thing for an indefinite. See Metonymia.

COMPRESS, in Chirurgery, a *Bolster* of linen Cloth, folded in several Doubles, and laid under the Bandages, to prevent a Wound from bleeding or swelling; or to retain the Medicines applied thereto. See Wound.

Scultetus, in his *Arsenal of Chirurgery*, observes, that the Antients compns'd their *Compresses* of carded Flax, or of Feathers, sew'd between two Linens; and called them *Pillows*, or *Plumages*.

The Word comes from *Comprimere*, to press hard.

COMPRESSION, the Act of pressing or squeezing something, so as to set its Parts nearer each other, and make it possess less space. See Pression.

Compression differs from *Condensation*, in that the latter is perform'd by the Action of Cold, the former by some external Violence. See Condensation.

Thus, we say, that Pumps, which the Antients imagin'd to act by Suction, do, in reality, act by *Compression*; the *Embolus*, or Sucker, in going and returning in the narrow Pipe, *compresses* the Air inclos'd therein, so as to enable it by the Force of its Elasticity to raise the Valve, and make its escape: upon which, the Balance being destroy'd, the Pressure of the Atmosphere on the stagnant Surface, drives up the Water into the Pipe thus evacuated of its Air. See Pump.

Water is incapable of *Compression*; after the Air has been purg'd out of it, no Art or Violence is able to bring its Parts closer, or make it take up less compass. In an Experiment made by the Academy *de el Cimento*, Water, when violently squeez'd, made its way thro' the infinitely fine Pores of a Ball of Gold, rather than undergo *Compression*. See Water.

The Compression *of the Air*, by its own weight, is surprizingly great: It appears, by Calculation, that the common Air we breathe, near the Surface of the Earth, is *compress'd* by the Weight of the super-incumbent Atmosphere, into $\frac{1}{13760}$ part of the space it would take up were it at liberty. See Atmosphere.

But the Air may be still further *compress'd* by Art; and it appears from Mr. *Boyle*'s Experiments, that the Space which the Air takes up, when at its utmost Dilatation, is to that it takes up when most *compress'd*, as five hundred and fifty thousand to one. See Air.

This immense *Compression* and Dilatation, Sir *Isaac Newton* observes, cannot be accounted for from supposing the Particles of the Air elastick and branched, or in form of slender Twigs interwoven into Circles; nor any other way; but by a repelling Force, wherewith they are endued; by virtue whereof, when at liberty, they mutually fly each other. See Attraction.

This repelling Power, he adds, is stronger and more sensible in Air, than in other Bodies; in regard Air is generated out of very fix'd Bodies; but not without great difficulty, and the help of Fermentation: Now those Particles always recede from each other with the greatest violence; and are *compress'd* with the greatest difficulty, which, when contiguous, cohere the most strongly. See Light.

That there is such a *repelling Power*, appears from this; that Flies walk on the Water without wetting their Feet; that the Object-Glasses of Telescopes laid on each other do not touch; that dry Dust is not brought to touch or cohere

without difficulty, *v. g.* unless either liquify'd by Fire, or wet with Water; and that two polish'd Pieces of Marble, which as often as they touch cohere, are yet very hardly press'd so closely and join'd so aptly as to cohere. See REPELLING *Force*; see also COHESION, DILATATION, *&c.*

COMPROMISE, an *Arbitration*, or a Treaty, or Contract, whereby two contending Parties establish one or more *Arbitrators*, to judge of and terminate their Differences in an amicable way. See ARBITRATOR.

The regular way of appointing a *Compromise*, is by a Writing, expressing the Names of the Arbitrators, the Power of chusing a Super-Arbitrator in case of need, a Time limited for the Arbitrage, and a Penalty on the Party who does not abide by the Decision.

By the Civil Law, a Slave cannot make a *Compromise* without the Leave of his Master, nor a Pupil without the Authority of his Guardian, or a Wife without that of her Husband. So a Slave, a deaf or dumb Man, a Minor, and the Person who is a Party in the Cause, are incapable of being chosen Arbitrators in a *Compromise*.

The Occasions on which a *Compromise* is not allow'd of, are Restitutions, Marriage Causes, Criminal Affairs, Questions of State; and, generally, any thing wherein the publick Interest is more concern'd than that of private Persons.

In our Law, *Compromise* is not of so much extent: *West* defines it the Faculty, or Power of pronouncing Sentence between Persons at Controversy, given to Arbitrators by the Parties mutual private Consent, without publick Authority.

The Word is also used in Beneficiary Matters; where it signifies an Act, whereby those who have the Right of Election, transfer it to one or more Persons, to elect a Person capable of the Office or Dignity.

Thus, we have seen Members of Parliament elected by *Compromise*; when the Electors, not being able to agree among themselves, give the Power of electing, at least of nominating, to two Persons; obliging them by Oath, or otherwise, to chuse such as they think the most capable, and best dispos'd.

COMPTING, or COUNTING-*House*, an Office in the Houshold, under the Direction of the Lord Steward; so called, because the Accompts for all Expences of the King's Houshold are there taken daily, by the Lord Steward, Comptroller, Cofferer, Master of the Houshold, the two Clerks of the Green-Cloth, and the two Clerks Comptrollers. See HOUSHOLD.

They also make Provision for the Houshold, and make Payments, and Orders for the good Government thereof.

In the *Compting-House* is the Board of *Green-Cloth*. See GREEN-*Cloth*.

COMPULSOR, an Officer under the *Roman* Emperors, dispatch'd from Court into the Provinces, to force the Payments of Taxes, *&c.* not pay'd within the time prescrib'd.

These were charg'd with so many Exactions, under Colour of their Office, that *Honorius* cashier'd 'em by a Law in 412.

The Laws of the *Visigoths* mention Military *Compulsors*; which were Officers among the *Goths*, whose Business was to oblige the tardy Soldiers to go into the Fight, to run to an Attack, *&c.*

Cassian mentions a kind of Monastick *Compulsors*, whose Business was to declare the Hours of Canonical Office, and to take care the Monks went to Church at those Hours.

The Word is *Latin*, form'd of the Verb *Compellere*, to oblige, constrain.

COMPUNCTION, in Theology, an inward Grief in the Mind, for having offended God. See REPENTANCE.

The *Romanists* own their Confession insignificant, unless attended with *Compunction*, or pricking of Heart. See CONFESSION.

Among Spiritualists, *Compunction* carries a more extensive Signification; and implies not only a Grief for having offended God, but also a pious Sensation of Grief, Sorrow, and Displeasure on other Motives. Thus, the Miseries of Life, the Danger of being lost in the World, the Blindness of the Wicked, *&c.* are to pious People Motives of *Compunction*.

The Word comes from *pungere*, *compungere*, to prick.

COMPURGATOR, in Law, one that by Oath justifies or clears another's Innocence. See LAW, and OATH.

COMPUTATION, or *Supputation*, the manner of accounting and estimating Time, Weights, Measures, and Monies. See TIME, WEIGHT, MEASURE, MONEY, *&c.*

The Word is sometimes also used among Mathematicians in the like Sense as *Calculation*. See CALCULATION.

COMPUTATION is particularly used in Law, in respect of the true Account or Construction of Time, so understood, as that neither Party do wrong to the other, nor the Determination of Time be left at large; so as to be taken otherwise than according to the Judgment and Intention of Law.

If Indentures of Demise be ingrossed, bearing Date 11 *May* 1679, to have and to hold the Land in *S.* for three Years from henceforth; and the Indentures be deliver'd the 4th of *June* following: In this Case, *from henceforth* shall be accounted from the Day of the Delivery, and not from the Date. And if the Indenture be deliver'd at four of the Clock in the Afternoon, the said 4th of *June*, the Lease shall end the third Day of *June* in the third Year: the Law, in such *Computation*, rejecting all Fractions or Divisions of the Day, on account of that uncertainty which is the Mother of Contention.——In Writings order'd by the Stat. 27 *Hen.* VIII. to be inroll'd within six Months; if such Writings have Date, the six Months shall be accounted from the Date, and not from the Delivery: If they want Date, it shall be accounted from the Delivery. *Coke*, Lib. V.

If a Deed be shew'd to a Court at *Westminster*, it shall remain in Court (by Judgment of Law) all the Term in which it is shew'd: for all the Term is but as one Day in Law. *Coke* Ibid.——If a Church be void, and the Patron does not present within six Months, the Bishop of the Diocess may collate his Chaplain: But these *six Months* shall be *computed* according to twenty eight Days of the Month; and not according to the Calendar. See CALENDAR.

COMPUTO, a Writ, thus called from its Effect, which is to compel a Bailiff, Chamberlain, or Receiver to yield his Accompts.

The same lyes for Executors of Executors; and against the Guardian in Soccage, for Waste made in the Minority of the Heir.

CONARION, or CONOIDES, called also *Glandula Pinealis*, is a small Gland, about the bigness of a Pea, placed in the upper Part of that Hole in the third Ventricle of the Brain, called the *Anus*; and ty'd by some Fibres to the *Nates*. See GLAND, BRAIN, ANUS, and NATES.

It is composed of the same Substance as the rest of the Brain; and has this peculiar, that it is single; whereas all the other Parts are double: Hence, *Des Cartes* takes occasion to suppose it the immediate Place, or Seat of the Soul. See PINEAL *Gland*, SENSORY, *&c.*

CONATUS, *Endeavour*, a Term frequently used in Philosophical and Mathematical Writers; and sometimes also called *Nisus*.

The *Conatus* seems to be the same, with respect to Motion, that a Point is with respect to a Line; at least, the two have this in common, that as the Point is inceptive of the Line, or the Term from which it commences; so is the beginning of all Motion call'd the *Conatus*. Add, that as in Mathematical Demonstrations, the Extension of the Point is conceiv'd as if it were nothing at all; so, in the *Conatus* of Motion, there is no regard to the Time wherein, or the length which it advances. See *Laws of* NATURE.

Hence, some define a *Conatus* to be a quantity of Motion, not capable of being express'd by any time or length.—Accordingly, all Motion tends precisely the same way wherein the moveable is acted on, or determined by the moving Power. See MOTION.

CONCATENATION, in Philosophy, the connecting of Things, in manner of a *Chain*, *Catena*.

The *Concatenation* of Second Causes, is an Effect of Providence. See SECOND CAUSE, PROVIDENCE, *&c.*

CONCAVE, is applied to the inner Surface of a hollow Body; especially if it be circular. See CONVEX.

Concave is particularly understood of Mirrors and Lenses: *Concave* Lenses, are either *concave* on both Sides, called *Concavo-Concave*; or *concave* on one side, and Plane on the other, called *Plano-Concave*; or *Concave* on one side, and convex on the other, call'd *Concavo-Convex*, or *Convexo-Concave*, as the one or the other Surface is a Portion of a less Sphere.

The Properties of all *concave* Lenses are, that the Rays of Light, in passing thro' them are deflected, or made to recede from one another; as in *convex* Lenses they are inflected towards each other; and that the more, as the *Concavity* or *Convexity* are Portions of less Circles. See LENS.

Hence, parallel Rays, as those of the Sun, by passing thro' a *concave* Lens, become diverging; diverging Rays are made to diverge the more, and converging Rays either made to converge less, or become parallel, or go out diverging. See RAY.

Hence, Objects view'd thro' *concave* Lenses, appear diminish'd; and the more so, as they are Portions of less Spheres; and this in oblique, as well as in direct Rays. See REFRACTION.

Concave Mirrors have the contrary Effect to Lenses: They reflect the Rays which fall on 'em, so, as to make them approach more to, or recede less from each other than before; and that the more as the *Concavity* is greater, or the Spheres whereof they are Segments, less. See MIRROR.

Hence, *Concave* Mirrors magnify Objects presented to them; and that in a greater proportion, as they are Portions of greater Spheres. See REFLECTION, MICROSCOPE, *&c.*

Hence also, *Concave* Mirrors have the Effect of burning Objects, when plac'd in their *Focus*. See BURNING *Glass*.

CONCEALERS, in Law, such as find out *conceal'd* Lands, *i. e.* Lands kept privily from the King, by common Persons

Persons; having nothing to shew for their Title, or Estate therein.

They are thus called *per Antiphrasin, à concelando*; as *Mons* is *à movendo*, &c. My Lord *Coke* calls 'em *turbidum hominum genus*.

CONCENTRATION, the retiring, or withdrawing of a thing inwards; or driving toward the *Centre*, the Middle.

Thus, external Cold is said to *concentrate* the Heat within Bodies. After Meals, the natural Warmth retires, and as it were *concentrates*, to promote the Digestion. See HEAT, and COLD.

CONCENTRATION is also used by Dr. *Grew* for the highest degree of Mixtion, *viz.* that wherein two or more Atoms or Particles touch, by a Reception, and Intrusion of the one within the other. See MIXTION.

This he takes to be the Case of all Fix'd Bodies without Taste or Smell; their Constitution being so firm, that till the Particles be detach'd from each other by some extraordinary means, they cannot affect those Senses. See SMELL, and TASTE.

CONCENTRIC, in Geometry and Astronomy, something that has the same common Centre with another. See CENTRE.

The Word is principally used in speaking of round Bodies, and Figures, *viz.* Circular, Elliptical ones, *&c.* but may be likewise used for Polygons, drawn parallel to each other, upon the same Centre. See CIRCLE, POLYGON, *&c.*

Concentric stands opposed to *excentric*. See ECCENTRIC, and ECCENTRICITY.

CONCEPTION, in Logicks, the simple Apprehension, Perception, or Idea which we have of any Thing, without proceeding to affirm or deny any thing about it. See PERCEPTION.

The Schoolmen usually make two Kinds of *Conception*; the one *formal*, the other *objective*.

The *first* is defined the immediate and actual Representation of any thing proposed, to the Mind; on which footing, it should be the same thing to the Understanding, that a Word or Voice is to the Ear: whence some call it *Verbum Mentis*. See NOTION.

The *second* is the Thing it self represented by a formal *Conception*. But others explode the Notion of an *objective Conception*, as being, in reality, no *Conception* at all; excepting where the Mind contemplates its own Acts, *&c.*

Formal, or *proper Conceptions*, are subdivided into *Univocal*, where several Things are distinctly represented as under some common Ratio, or in the same degree of Perfection; *Analogous*, where several Things are represented as under some proportional Likeness; and *Equivocal*, where they are represented immediately as such, without regard to any common Ratio or Likeness.

CONCEPTION, in Medicine, the first Formation of the Embryo, or *Fœtus*, in the Womb. See FOETUS, and EMBRYO.

Conception is no other than such a Concourse and Commixture of the prolific Seed of the Male, with that of the Female, in the *Cavity* of the *Uterus*, as immediately produces an Embryo. See EMBRYO.

The Symptoms of *Conception*, or Pregnancy, are, when in a few Days after the Conjugal Act, a small Pain is perceiv'd about the Navel, attended with some gentle Commotions in the bottom of the Abdomen; and within one, two, three, or even four Months, the Menses cease to flow, or prove in less quantity than usual. Upon the first Failure of this kind, the Woman begins to count the Series of her Weeks, without taking any notice of the Time before elapsed: After this, or between the second and third Months, but generally about the third, the Motions of the Embryo become perceivable to the Mother; who hereupon becomes troubled with a *Nausea*, Vomiting, Loathing, Longing, *&c.* About this time, the Breasts begin to swell, grow hard and painful, and contain a little Milk; the Nipples also become larger, firmer, and darker colour'd, a livid Circle appearing around 'em: The Eyes seem sunk and hollow. During the two first Months pregnancy, the Woman grows thinner, and slenderer; the Abdomen being also depress'd; tho it afterwards distends, and grows gradually larger. See GESTATION.

The Manner wherein Conception is effected, is thus laid down by the modern Writers: In the Superficies of the *Ovaries* of Women, are found little pellucid Spherules, consisting of two concentric Membranes, fill'd with a lymphatic Humour, and connected to the Surface of the *Ovaria*, underneath the Tegument, by a thick Calix, contiguous to the Extremities of the minute Ramifications of the Fallopian Tubes. See OVARY.

These Spherules, by the use of Venery, grow, swell, raise, and dilate the Membrane of the Ovary into the form of *Papillæ*; till, the Head propending from the Stalk, it is at length separated from it; leaving behind it a hollow Cicatrix, in the broken Membrane of the Ovary; which, however soon grows up again.

Now, in these Spherules, while still adhering to the Ovary, *Fœtus*'s have been frequently found: whence it appears, that these are a kind of *Ova*, or *Eggs*, deriving their Structure from the Vessels of the Ovary, and their Liquor from the Humours prepar'd therein. See EGG.

Hence, also, it appears, that the Fallopian Tubes being swell'd, and stiffen'd by the Act of Venery, with their muscular *Fimbriæ*, like Fingers, may embrace the Ovaries, compress 'em, and by that Compression expand their own Mouths: And thus the Eggs, now mature, and detach'd as before, may be forced into their Cavities; and thence convey'd into the Cavity of the *Uterus*; where they may either be cherish'd and retain'd, as when they meet with the Male Seed; or, if they want that, again expell'd. See FALLOPIAN *Tube*.

Hence the Phænomena of *false Conceptions*, *Abortion*, *Fœtus*'s found in the Cavity of the Abdomen, the Fallopian Tubes, *&c.* See ABORTION, *&c.*

For, in Coition, the Male Seed, abounding with living *Animalculas*, agitated with a great Force, a brisk Heat, and, probably, with a great quantity of Animal Spirits, is violently impell'd thro' the Mouth of the *Uterus*, which on this occasion is opener; and thro' the Valves of the Neck of the *Uterus*, which on this occasion are laxer than ordinary, into the *Uterus* it self; which now, in like manner, becomes more active, turgid, hot, inflam'd, moisten'd with the Flux of its Lymph and Spirits, by means of the Titillation excited in the nervous *Papillæ* by the Attrition against the *Rugæ* of the *Vagina*. See SEED.

The Semen thus dispos'd in the *Uterus*, is retain'd, heated, agitated by the convulsive Constriction of the *Uterus* it self; till meeting with the *Ova*, the finest and most animated Part enters thro' the dilated Pores of the *Membranula* of the *Ovum*, now become glandulous, is there retain'd, nourish'd, dilated, grows to its *Umbilicus*, or Navel; stifles the other less lively *Animalculas*: and thus is *Conception* effected.

Hence, it appears, that *Conception* may happen in any Part where the Semen meets with an *Ovum*: Thus, whether it be carried thro' the Fallopian Tube to the Ovary, and there cast upon the *Ovum*; or whether it meet in some Recess of the Tube it self; or, lastly, whether it join it in the Cavity of the *Uterus*, it may still have the same Effect; as it appears from Observation it actually has. But 'tis probable that *Conception* is then most perfect, when the two, *viz.* the *Semen* and *Ovum*, are carried at the same time into the *Uterus*, and there mix'd, *&c.*

Other Anatomists chuse to suppose the Male Seed taken up, ere it arrive in the *Uterus*, by the Veins which open into the *Vagina*, &c. and thus mix'd with the Blood; by which, in the Course of Circulation, it is carried, duly prepared, into the Ovary, to impregnate the Eggs. See GENERATION.

For the Progress of the Fœtus *after* Conception, see NUTRITION, CIRCULATION, *&c.* see also UTERUS, UMBILICAL *Vessels*, &c.

CONCEPTION *Immaculate* of the Holy Virgin, is a Feast in honour of the Holy Virgin; particularly with regard to her having been conceiv'd and born *Immaculate*, *i. e.* without Original Sin; held in the *Romish* Church on the 8th of *December*. *Allatius*, in his *Prologomena* on *Damascenus*, endeavours to prove this Feast to have been celebrated by several Churches in the *East*, as early as the VIIIth Century. See FEAST.

The *Immaculate Conception* is the great Head of Controversy between the *Scotists* and *Thomists*; the former maintaining, and the latter impugning it. See SCOTIST, and THOMIST.

The *Jacobins* espous'd the Party of S. *Thomas*, and held out a long time, in defence of the Virgin's being conceiv'd in Original Sin: They were condemn'd by Pope *Clement* VII. in 1308, at the Prosecution of the University of *Paris*, and oblig'd to retract.

The Council of *Trent*, Sess. V. in the Decree of *Original Sin*, declares it not to be the Intention of the Council to include the Virgin under it; Her *Conception* it calls *Immaculate*; and appoints the Constitutions of *Sixtus* IV. to be observ'd with regard thereto.

Some Authors have observ'd several Passages dispers'd in the old Editions of S. *Thomas*'s Works, which assert the *Immaculate Conception* in express Terms; but many of them are corrupted in the later Editions, say some: tho others will have the Corruption lie on the side of the old ones.

In the three *Spanish* Military Orders of *S. James of the Sword*, *Calatrava*, and *Alcantara*; the Knights take a Vow, at their Admission, to defend the *Immaculate Conception*. This Resolution was first taken in 1652. See CALATRAVA, *&c.*

Peter d'Alva, and *Astorga*, have publish'd 48 huge Volumes in Folio on the Mysteries of the *Conception*.

For Religious of the Order of the CONCEPTION, see THEATINES.

CONCERT, or CONCERTO, popularly CONSORT, a Number, or Company of Musicians playing, or singing the same Song, or piece of Musick together. See Musick.

The Word *Concert* may be applied where the Musick is only Melody, *i. e.* the Performers are all in Unison; but it is more properly, as well as more usually understood of Harmony, or where the Musick consists of divers Parts; as Bass, Tenor, &c. See Melody, Harmony, Part, &c.

CONCESSI, a Term much used in Conveyances, &c. its Effect is to create a Covenant, as *Dedi* does a Warranty. See Covenant.

CONCESSION, in Rhetorick, a Figure whereby something is granted, or allow'd the Adversary, either to prevent being detain'd by unnecessary Incidents, or to make some Advantage of. *I will not contest with you the Reality of the Contract; what I plead for is relief against the Injustice of it.——True, she is fair, but ought she not to shew her Acknowledgments to Heaven for the Favour, by making a virtuous use of her Beauty?*

CONCHA, *Shell*, in Anatomy, a Name given the second, or inward Cavity of the Auricle, or external Ear; reaching to the Entrance of the Auditory Duct. See Ear, and Auricle.

Some also give the same Name to the first Cavity of the inward Ear, which others call the *Drum*; and others to the *Vestibulum* of the Labyrinth, which is the second Cavity of the internal Ear. See Tympanum, and Vestibulum.

The Name has its Origin from a resemblance these Cavities bear to a *Concha*, or *Sea-shell*.

CONCHILIS, or CONCHOID, in Geometry, a Curve Line, which always approaches nearer a strait Line to which it is inclined, but never meets it. See Curve.

It is describ'd thus: Draw a right Line BD, (Plate *Analyticks*, Fig. 1.) and another AC, perpendicular to it in E; draw any Number of right Lines, as CM, CM cutting BD in Q; make QM=QN=AE=EE; the Curve wherein the Points MM are found, is the *Conchilis*, or *Conchois prima*; so called by its Inventor *Nicomedes*.

The others, wherein the Points NN are found, is the *Conchois secunda*; the right Line BD the *Rule*, the Point C the *Pole*.

The Inventor also contriv'd an Instrument, whereby the first *Conchois* may be described mechanically: Thus, in the Rule AD, (Plate *Analyticks*, Fig. 2.) is a Channel or Groove cut, so as a smooth Nail, firmly fix'd in the moveable Rule CB, in the Point F, may slide freely within it: Into the Rule EG is fix'd another Nail in K, for the moveable Rule CB to slide upon.

If then the Rule BC be so mov'd, as that the Nail F passes along the Canal AD; the Style, or Point in C, will describe the first *Conchoid*.

Now let $AP=x$, (Fig. 1.) $AE=a$; $PE=MR=a-x$; wherefore, as x increases, $a-x$ or MR will decrease: and therefore the Curve continually approaches nearer to the Rule BD.

In the same manner it appears, that the right Line NO must continually decrease; and therefore, the second *Conchoid*, also, must continually approach nearer the Rule.

But inasmuch as between each *Conchoid* and the right Line BD, there will still be the right Line QM or QN, equal to AE; neither of the *Conchoids* can concur with the right Line BD: consequently, B is an Assymptote of each *Conchoid*. See Assymptote.

There will be other Kinds of *Conchoids* produced, if $CE:CQ::QM:AE$, or indefinitely, if $OE^m:CQ^m::QM^m:AE^m$; wherefore, if $CE=b$, $EA=a$, $CQ=x$, $QM=y$; then, $ab=xy$: and for infinite *Conchoids*, $a^m b^m = x^m y^m$.

CONCINNOUS *Intervals*, in Musick. Discords are distinguish'd into *Concinnous* and *Inconcinnous* Intervals: The *Concinnous* are such as are fit for Musick, next to, and in Combination with Concords; being neither very agreeable nor disagreeable in themselves; but having a good Effect, as by their opposition they heighten the more essential Principles of Pleasure; or as by their mixture and combination with 'em, they produce a Variety necessary to our being better pleased. See Harmony.

The other Discords, that are never used in Musick, are called *Inconcinnous*. See Discord.

Systems are also divided into *Concinnous* and *Inconcinnous*. A System is said to be *concinnous*, or *concinnously* divided, when the Parts thereof, consider'd as simple Intervals, are *concinnous*; and are, besides, placed in such an Order, between the Extremes, as that the Succession of Sounds from one Extreme to the other, may have an agreeable Effect. See System.

Where the simple Intervals are *inconcinnous*, or ill-disposed between the Extremes, the System is said to be *inconcinnous*.

CONCLAVE, an Assembly, or Meeting of all the Cardinals that are at *Rome*, for the Election of a Pope. See Pope, Election, &c.

The *Conclave* had its rise in the Year 1270, and on this occasion: *Clement* IV. being dead at *Viterbo*, in 1268; the Cardinals were two Years without being able to agree on the Election of a Successor: In effect, things were carried to that pass, that they were upon the Point of breaking up, without coming to any Conclusion at all.

The Inhabitants of *Viterbo*, then, being appriz'd of their Design, by the Advice of S. *Bonaventure*, then at *Viterbo*, shut the Gates of their City, and lock'd up the Cardinals in the Pontifical Palace adjoining to the Cathedral, till they were brought to a better understanding.

Hence arose the Custom which has since prevail'd, of shutting up the Cardinals in a single Palace, till they have elected the Pope. Such was the Origin of the *Conclave*, as related by *Onuph. Panvinius*, *Ciacontus*, and *Papebroch*. See Cardinal.

Conclave is also used for the Place wherein the Election of the Pope is perform'd; which is, now, at St. *Peter's* in the Vatican; tho *Gregory* X. and *Clement* V. appointed it should always be held in the Place where the last Pope should die.

While the Affair is in hand, if it be in Winter, the Walls and Windows are all mured up, excepting a single Pane, to give a little Light: In Summer the Windows are not closed; but the great Door of the Hall is secured with four Locks, and four Bolts; an Aperture being, however, left, to supply the imprison'd Prelates with Victuals thro'.

In the Hall, which is very ample, there are Cells or Stalls erected for as many Cardinals as are to be present at the Election; the Cells being only separated by Deal Boards.

The Cells are mark'd with Letters of the Alphabet, and are distributed to the Cardinals by Lot: Each Cardinal puts his Arms on the Cell that falls to his share. See Cell.

After the Assembly has held three Days, they are only allow'd one Dish for a Meal; after five Days, only Bread and Water: Tho this Rule is not over-religiously regarded.

Each Cardinal is allow'd two *Conclavists*, or Servants to attend him, and to be shut up with him.

Mathew Paris says, the Word *Conclave* antiently signify'd the Pope's Wardrobe.

'Tis a popular Proverb in *Italy*, *Chi entra Pape, esce Cardinale*; He who enters Pope, comes out Cardinal; *q. d.* He who according to common Report will be elected Pope, ordinarily is not.

CONCLUSION, in Logick, the last Part of an Argument; or the Consequence drawn from something either assumed or proved before.

The *Conclusion* of an Argument contains two Parts; the *Consequent*, which is the Matter of it; and the *Consequence*, which is its Form; and which, of a simple absolute Proposition, renders the *Conclusion* relative to the Premises whence it is drawn. See Consequent.

The Question, and *Conclusion*, say the Schoolmen, are the same Ideas, only consider'd in different Views, or Relations: In the *Question* they are consider'd as doubtful; in the *Conclusion* as void of doubt.

Conclusion, in Oratory, consists of two Parts; the *Recapitulation* or *Enumeration*, and the *Passions*. See Rhetorick.

The Recapitulation consists in a Repetition of the principal Arguments. See Recapitulation; see also Passion.

CONCOCTION, in Medicine, the Change which the Food undergoes in the Stomach, &c. to become Chyle. See Chylification.

This Change consists in destroying the Texture and Cohesion of the Parts of the Food; preparing part of it for some particular Service of the animal Frame, and the rest to be carried off as Excrements, by proper Emunctories. See Food, Excrement, &c.

The Antients gave the Term *Concoction*, to what we now ordinarily call *Digestion*; from a Notion of the Food's being, as it were, *boil'd* in the Stomach; and its nutritious Juice express'd by the Heat of the adjacent Parts. See Digestion.

They assign'd two *Concoctions*, *viz.* one in the Stomach, and a second in the small Intestines, &c. which latter they attributed to the Admixture of the Bile and pancreatick Juice.

The several *Concoctions* in the Body, with regard to the Propagation of the Species, and the Preservation of the Individual, have been since reduced to five; *Chylosis* for Chyle, *Chymosis* for Chyme, *Hematosis* for Blood, *Pneumatosis* for Spirits, and *Spermatosis* for Seed. See Chylosis, Chymosis, Hematosis, &c. see also Coction.

CONCOMITANT, in Theology, something that accompanies, or goes along with, another.

Concomitant Grace, is that which God affords us during the Course of our Actions to enable us to perform 'em; and as the *Romish* Schoolmen say, to render 'em meritorious. See Grace.

Concomitant Grace differs, at least with regard to its Effect, from preventing Grace: the latter is given us to prevent an Action, the former to accompany it.

According to the *Romish* Doctrine, the Blood of Jesus Christ is under the Accidents of Bread, as his Body is under the Accidents of Wine, by *Concomitance*.

CONCORD, in Grammar, that part of Syntax, or Construction, whereby the Words of a Sentence *agree* among themselves, *i. e.* whereby Nouns are put in the same Case, Number, Gender, *&c.* and Verbs in the same Number and Person with Nouns and Pronouns. See SYNTAX.

The Rules of *Concord* are generally the same in all Languages, as being of the Nature of what is in use almost every-where for the better distinguishing of Discourse.

Thus, the Distinction of the two Numbers Singular and Plural, obliges us to make the Adjective agree with the Substantive in Number; that is, to put the one either in this or that Number, as the other is: For the Substantive being the Thing confusedly, tho directly mark'd by the Adjective; if the Substantive Word mark several, there are several Subjects of the Form mark'd by the Adjective, and of consequence it should be in the Plural, *Homines Docti*, &c. See NUMBER.

Again, the Distinction of Masculine and Feminine, renders it necessary to put the Substantive and Adjective in the same Degree. See DEGREE.

And Verbs should have a *Concord* or Agreement with Nouns and Pronouns in Number and Person. See PERSON, PRONOUN, *&c.*

If any thing occur apparently contrary to those Rules, 'tis by a Figure, *i. e.* something is implied, or the Ideas are consider'd more than the Words themselves. See FIGURE.

CONCORD, in Law, is the Agreement between two Parties who intend the levying a Fine of Lands to one another, how and in what manner it shall pass. See FINE.

CONCORD is also an Agreement made upon any Trespass committed, (betwixt two, or more) and is divided into *Cocord executory*, and *Concord executed*.

Plowden observes, that the first binds not, being imperfect; but the latter is perfect, and binds the Party.

Others are of Opinion, that *Concords executory* are perfect, and bind no less than those *executed*.

CONCORD, in Musick, is the Relation of two Sounds that are always agreeable to the Ear, whether applied in Succession or Consonance. See SOUND.

If two single Sounds be in such a Relation, or have such a difference of Tune, as that being sounded together, they make a Mixture, or compound Sound, which affects the Ear with pleasure; that Relation is called *Concord*: and whatever two Sounds make an agreeable Compound in consonance, those same will always be pleasing, in Succession, or will follow each other agreeably. See TUNE.

The Reverse of a *Concord*, is what we call a *Discord*; which is a Denomination of all the Relations or Differences of Tune that have a displeasing Effect. See DISCORD.

Concord and Harmony are, in effect, the same thing; tho Custom has applied them differently. As *Concord* expresses the agreeable Effect of two Sounds in Consonance; so Harmony expresses that Agreement in a greater Number of Sounds in Consonance: Add, that Harmony always implies Consonance; but *Concord* is sometimes applied to Succession: tho never but when the Terms will make an agreeable Consonance: whence it is that Dr. *Holder*, and some other Writers, use the Word *Consonance* for what we call *Concord*. See CONSONANCE.

Unisonance, then, being the Relation of Equality between the Tunes of two Sounds, all Unisons are *Concords*, and in the first Degree: but an Interval being a Difference of Tune, or a Relation of Inequality between two Sounds, becomes a *Concord* or Discord, according to the Circumstances of that particular Relation. Indeed, some restrain *Concord* to Intervals, and make a difference of Tune essential thereto; but that is precarious: and Mr. *Malcolm* thinks, that as the Word implies Agreement, 'tis applicable to Unison in the first degree. See UNISON.

'Tis not easy to assign the Reason or Foundation of *Concordance*: The differences of Tune, we have already observ'd, take their rise from the different Proportions of the Vibrations of the sonorous Body, *i. e.* of the Velocity of those Vibrations in their recourses; the frequenter those recourses are, the more acute being the Tune, and *vice versa*. See GRAVITY, *&c.*

But the essential difference between *Concord* and Discord lies deeper: there does not appear any natural Aptitude in the two Sounds of a *Concord*, to determine it to give us a pleasing Sensation, more than in the two Sounds of a Discord: These different Effects are merely arbitrary, and must be resolv'd into the divine good pleasure. See SENSATION.

We know by experience what Proportions and Relations of Tune afford Pleasure, what not; and we know also how to express the Differences of Tune by the Proportion of Numbers; we know what it is pleases us, tho we don't know why: We know, *v. g.* that the Ratio of 1 : 2 constitutes *Concord*, and 6 : 7 Discord; but on what original Grounds agreeable or disagreeable Ideas are connected with those Relations, and the proper Influence of the one on the other, is above our reach.

By Experience, we know that the following Ratios of the Lengths of Chords are all *Concord*, *viz.* 2 : 1, 3 : 2, 4 : 3, 5 : 4, 6 : 5, 5 : 3, 8 : 5; that is, take any Chord for a Fundamental, which shall be represented by the Number 1, and the following Divisions thereof will be all *Concord* with the whole, *viz.* 1 2 3 4 5 3 5 / 2. 3. 4. 5. 6. 5. 8. So that the distinguishing Character between *Concords* and Discords, must be look'd for in these Numbers, expressing the Intervals of Sound; not abstractedly, and in themselves, but as expressing the Number of Vibrations.

Now, Unisons are in the first Degree of *Concord*, or have the most perfect Likeness or Agreement in Tune; and therefore have something in 'em accessory to that Agreement, which is found, less or more, in every *Concord*: but 'tis not true, that the nearer two Sounds come to an Equality of Tune, the more Agreement they have; therefore, 'tis not in the Equality or Inequality of the Numbers that this Agreement lies.

Further, if we consider the Number of Vibrations made in any given time by two Chords of equal Tune; on the Principle laid down, they are equal: And therefore, the Vibrations of the two Chords coincide, or commence together as frequently as possible, *i. e.* they coincide at every Vibration; in this frequency of which Coincidence, or united Mixture of the Motions of the two Chords, and of the Undulations of the Air occasion'd thereby, it is, that the Difference of *Concord* and Discord must be sought.

Now, the nearer the Vibrations of two Strings approach to a Coincidence as frequent as possible, the nearer they should approach the Condition and, consequently, the Agreement of Unisons; which agrees with Experience.

For if we take the natural Series 1, 2, 3, 4, 5, 6, and compare each Number to the next, as expressing the Number of Vibrations in the same time of two Chords, whose Lengths are reciprocally as those Numbers; the Rule will be found exact, for 1 : 2 is best, then 2 : 3; after 6 the Consonance is unsufferable; the Coincidences being too rare: tho there are other Ratios that are agreeable, besides those found in that continued Order, *viz.* 3 : 5, and 5 : 8, which, with the preceding five are all the *concording* Intervals within, or less than an Octave, or 1 : 2; that is, whose acutest Term is greater than half the Fundamental.

On this Principle, 3 : 5 will be preferable to 4 : 5; because being equal in the number of Vibrations of the acuter Term, there is an advantage on the Side of the Fundamental in the Ratio 3 : 5, where the Coincidence is made at every third Vibration of the Fundamental, and every fifth of the acute Term: So also the Ratio 5 : 8 is less perfect than 5 : 6; because, tho the Vibrations of each Fundamental are equal; yet in the Ratio 5 : 6, the Coincidence is at every sixth of the acute Term, and only at every eighth in the other Case.

Thus, we have a Rule for judging of the Preference of *Concords*, from the Coincidence of their Vibrations: agreeable to which Rule, they are dispos'd into the Order of the following Table; to which the *Names of the Concords* in Practice, the *Ratio of their Vibrations*, the *Lengths of the Chords*, and the *Number of Coincidences* in the same, are express'd.

Table of CONCORDS.

Ratio's, or Vibrations.				Coincid.
		Grave Term.	*Acute Term.*	
Unison	——	1	: 1	
Octave, 8ve	——	2	: 1	60
Fifth, 5th	——	3	: 2	30
Fourth, 4th	——	4	: 3	20
Sixth, gr.	——	5	: 3	20
Third, gr.	——	5	: 4	15
Third, lesser	——	6	: 5	12
Sixth, lesser	—	8	: 5	12
		Grave Lengths.	*Acute Lengths.*	

Tho this Order be settled by Reason, yet it is confirm'd by the Ear. On this bottom, *Concords* must still be the more perfect, as they have the greatest Number of Coincidences, with regard to the Number of Vibrations in both Chords; and where the Coincidences are equal, the Preference will fall on that Interval, whose acutest Term has fewest Vibrations to each Coincidence; which Rule, however, is in some Cases contrary to Experience; and yet it is the only Rule yet discover'd.

F. *Mer-*

F. *Mersenne*, indeed, after *Kircher*, gives us another Standard for settling the comparative Perfection of Intervals with regard to the Agreement of their Extremes in Tune: And 'tis this.

The Perception of *Concordance*, say they, is nothing but the comparing of two or more different Motions which in the same time affect the auditory Nerve: Now we can't make a certain Judgment of any Consonance, till the Air be as oft struck in the same time by two Chords, as there are Unites in each Member expressing the Ratio of that *Concord*, *v. g.* we can't perceive a Fifth, till two Vibrations of the one Chord, and three of the other are accomplish'd together; which Chords are in length as 3 to 2: The Rule then is, that those *Concords* are the most simple and agreeable, which are generated in the least time; and those, on the contrary, the most compound and harsh, which are generated in the longest time.

For instance, let 1, 2, 3, be the Lengths of 3 Chords 1 : 2 is an Octave; 2 : 3 a Fifth; and 1 : 3 an Octave and Fifth compounded, or a Twelfth. The Vibrations of Chords being reciprocally as their Lengths, the Chord 2 will vibrate once, while the Chord 1 vibrates twice, and then exists an Octave; but the Twelfth does not yet exist, because the Chord 3 has not vibrated once, nor the Chord 1 thrice, which is necessary to form a Twelfth.

Again, for generating a Fifth, the Chord 2 must vibrate thrice, and the Chord 3 twice; in which time, the Chord 1 will have vibrated 6 times; and thus the Octave will be thrice produc'd, while the Twelfth is only produced twice; the Chord 2 uniting its Vibration sooner with the Chord 1, than with the Chord 3; and they being sooner consonant than the Chord 1 or 2 with that 3.

Whence, that Author observes, many of the Mysteries of Harmony, relating to the Performance of Harmonious Intervals and their Succession, are easily deduced.

But this Rule, upon examining it by other Instances, Mr. *Malcolm* has shewn defective, as it does not answer in all Positions of the Intervals with respect to each other; but a certain Order, wherein they are to be taken, being requir'd: and there being no Rule, with respect to the Order, that will make this Standard answer to Experience in every Case: So that at last we are left to determine the Degrees of *Concord* by Experience and the Ear.

Not but that the Degrees of *Concord* depend much on the more or less frequent uniting the Vibrations, and the Ear's being more or less uniformly mov'd, as above; for that this Mixture or Union of Motion, is the true Principle, or, at least, the chief Ingredient in *Concord*, is evident: But because there seems to be something further in the Proportion of the two Motions, necessary to be known, in order to fix à catholick Rule for determining all the Degrees of *Concord*, agreeable to Sense and Experience.

The Result of the whole Doctrine is summ'd up in this Definition.

Concord is the Result of a frequent Union, or Coincidence of the Vibrations of two sonorous Bodies, and, by consequence, of the undulating Motions of the Air, which, being caus'd by these Vibrations, are like and proportionable to 'em; which Coincidence, the more frequent it is, with regard to the number of Vibrations of both Bodies, perform'd in the same time, *cæteris paribus*, the more perfect is that *Concord*: till the Rarity of the Coincidence, in respect of one or both the Motions, commence *Discord*. *See some of the remarkable Phænomena of Sounds accounted for from this Theory, under the Word* UNISON; see also INTERVAL, *&c.*

Concords are divided into *simple*, or original, and *compound*.

A *simple*, or original *Concord*, is that whose Extremes are at a Distance less than the Sum of any two other *Concords*.

On the contrary, a compound *Concord* is equal to two or more *Concords*.

Other Musical Writers state the Division thus: An Octave 1 : 2 and all the inferior *Concords* above express'd are all simple and original *Concords*: and all greater than an Octave, are called *compound Concords*; as being compos'd of, and equal to the Sum of one or more Octaves, and some single *Concord* less than an Octave, and are usually, in practice, denominated from that *simple Concord*.

As to the Composition and Relations of the original Concords, by applying to them the Rules of the Addition and Subtraction of Intervals, they will be divided into *simple* and *compound*, according to the first and more general Notion; as in the following Table.

Simple *Concords*.	Compound *Concords*.			
5 : 6 a 3d less.	5th	3d g. and	3d l.	8ve. compos'd of 5th 4 or 6th g. 3d l. or 3d g. 3d l. 4th.
4 : 5 a 3d gr.	6th l.	4th	3d l.	
3 : 4 a 4th.	6th g.	4th	3d g.	

The Octave is not only the first *Concord* in point of Perfection, the Agreement of whose Extremes is greatest, and the nearest to Unison; insomuch that when sounded together, 'tis impossible to perceive two different Sounds; but 'tis also the greatest Interval of the seven original *Concords*; and as such, contains all the lesser, which derive their sweetness from it, as they arise more or less directly out of it; and which decrease gradually, from the Octave to the lesser Sixth, which has but a small degree of *Concord*. See OCTAVE.

What is very remarkable, is the manner wherein these lesser *Concords* are found in the Octave, which shews their mutual Dependencies.

For, by taking both an Harmonical and Arithmetical Mean between the Extremes of the Octave, and then both an Harmonical and Arithmetical Mean betwixt each Extreme, and the most distant of the two Means last found, *viz.* betwixt the lesser Extreme and the first Arithmetical Mean, and betwixt the greater Extreme and the first Harmonical Mean, we have all the lesser *Concords*.

Thus, if betwixt 360 and 180 the Extremes of Octave, we take an Arithmetical Mean, it is 270; and an Harmonical Mean is 240: then, betwixt 360 the greatest Extreme, and 240 the Harmonical Mean, take an Arithmetical Mean, it is 300; and an Harmonical Mean, is 288. Again, betwixt 180 the lesser Extreme of the Octave, and 270 the first Arithmetical Mean, it is 225, and an Harmonical one 216.

Thus have we a Series of all the *Concords*, both ascending towards Acuteness from a common Fundamental, 360; and descending towards Gravity from a common acute Term, 180: which Series has this Property, that taking the two Extremes, and any other two at equal Distances, the four will be in Geometrical Proportion.

The Octave, by immediate Division, resolves it self into a Fourth and Fifth; the Fifth, again, by immediate Division, produces the two Thirds; the two Thirds are therefore found by Division, tho not by immediate Division; and the same is true of the two Sixths. Thus do all the original *Concords* arise out of the Division of the Octave; the Fifths and Fourths immediately and directly, the Thirds and Sixths mediately.

From the Perfection of the Octave arises this remarkable Property, that it may be doubled, tripled, *&c.* and yet still persevere a *Concord*, *i. e.* the Sum of two or more Octaves are *concord*; tho the more compound will be gradually less agreeable: But it is not so with any other *Concord* less than Octave; the Doubles, *&c.* whereof, are all Discords.

Again, whatever Sound is *concord* to one Extreme of the Octave is *concord* to the other also: and if we add any other simple *Concord* to an Octave, it agrees to both its Extremes; to the nearest Extreme it is a simple *Concord*, and to the farthest a compound one.

Another thing observable in this System of *Concords*, is, that the greatest Number of Vibrations of the Fundamental cannot exceed five; or that there is no *Concord* where the Fundamental makes more than five Vibrations, to one Coincidence with the acute Term. It may be added, that this Progress of the *Concords* may be carried on to greater degrees of Composition, even *in infinitum*; but the more compound, the less agreeable.

So a single Octave is better than a double one, and that than a triple one; and so of Fifths, and other *Concords*. Three or four Octaves is the greatest length we go in ordinary Practice: The old Scales went but to two; no Voice or Instrument will well go above four. See THIRD, FOURTH, FIFTH, *&c.*

CONCORDANCE, a Dictionary or Index to the Bible, wherein, all the Words, used in the Course of the inspir'd Writings, are rang'd alphabetically; and the various Places where they occur referr'd to; to assist in finding out Passages, and comparing the several Significations of the same Word.

Cardinal *Hughs* is said to have employ'd 500 Monks at the same time in compiling a Latin *Concordance*: Beside which, we have several other *Concordances* in the same Language; one, in particular, called the *Concordance of England*, compiled by *J. Darlington* of the Order of *Predicants*; another more accurate one, by *Zamora*.

R. *Mardochai Nathan* has furnish'd us with a Hebrew *Concordance*, printed at *Basil* in 1541; containing all the *Hebrew* Roots branch'd into their various Significations, and under each Signification all the Places in Scripture wherein it occurs: But the best and most useful Hebrew *Concordance* is that of *Buxtorf*.

The Greek *Concordances* are only for the New Testament: indeed we have one of *Kircher*'s on the Old; but this is rather a *concordantial* Dictionary than a *Concordance*; containing all the *Hebrew* Dictions in an alphabetical Order; and underneath, all the Interpretations or Senses the Seventy give 'em; and in each Interpretation, all the Places where they occur in that Version.

Calasius, an *Italian* Cordelier, has given us *Concordances* of the *Hebrew*, *Latin*, and *Greek*, in two Columns; the first, which is *Hebrew*, is that of R. *Mardochai*, word for word, and according to the Order of the Books and Chapters: On the other Column is a *Latin* Interpretation of each Passage of Scripture quoted by R. *Mardochai*: This Interpretation is *Calasius*'s own; but in the Margin he adds that of

of the Seventy and the Vulgate, when different from his. The Work is in four Volumes Folio, printed at *Rome* in 1621.

CONCORDANT *Verses*, such as have several Words in common; but which, by the addition of other Words, convey an opposite, at least, a different Meaning. Such are those,

Et { *Canis* / *Lupus* } *in silva* { *venatur* / *nutritur* } *& omnia* { *servat.* / *vastat.* }

CONCORDAT, in the Canon Law, a Covenant, or Agreement in some beneficiary Matter; as, relating to a Resignation, Permutation, or other Ecclesiastical Cause.

The Council of *Trent*, Sess. VI. *de Reform.* Cap. 4. speaking of *Concordats* made without the Authority and Approbation of the Pope, calls 'em *Concordias quæ tantum suos obligant Authores, non Successores.* And the Congregation of Cardinals, who have explained this Decree, declares, that a *Concordat* cannot be real, or descend to the Successors, unless confirm'd by the Pope.

Concordat is used, absolutely, among the *French*, for an Agreement concluded at *Boulogn* in 1516, between Pope *Leo* I. and *Francis* I. of *France*, for regulating the manner of nominating to Benefices.

The *Concordat* serves in lieu of the *Pragmatic Sanction*, which had been abrogated; or, rather, it is the *Pragmatic Sanction* soften'd and reform'd.

There is also a *German Concordat*, made between Pope *Nicholas* V. and the Emperor *Frederick* III. and the Princes of *Germany*, in 1448, relating to Beneficiary Matters.

CONCORDIÆ *Vasa*. See Vessels *of Concord*.

CONCOURSE, or CONCURRENCE, the reciprocal Action of divers Persons or Things, co-operating toward the same Effect or End.

Divines generally hold, that the Actions and Operations of all Creatures are continually dependent on the immediate *Concurrence* of the divine Mind: For second Causes to act, or produce Effects, God himself must *concur*, and by his Influence give 'em the Efficacy they themselves are destitute of: If they did not need the immediate *Concurrence* of God to make 'em act, they would have a sort of Independency, which must be injurious to the immediate Creator to suppose. See Cause.

The Schoolmen distinguish two Kinds of *Concurrence*, viz. *mediate*, which consists in the giving a Power or Faculty to act; and *immediate*, which is a cotemporary Influence of one Cause along with another, to produce an Effect: Thus, the Grandfather *concurs* mediately to the Production of a Grandson, as he gives the Power of generating to the Father: but the Father *concurs* immediately with the Mother to the Production of the same Child. Now 'tis allow'd that God *concurs* mediately with all his Creatures, to enable them to act: but whether this be sufficient; or whether it be farther requir'd that he *concur* with 'em immediately by a new Influence, for the Production of every act, in the same manner as the Father *concurs* with the Mother toward producing the young, is controverted: The generality of Scholastic Writers are for the Affirmative; *Durandus* and his Followers maintain the Negative.

Point of Concourse. See Focus.

CONCRETE, in the School Philosophy, an Assemblage, or Compound. See Compound.

A *Physical Concrete*, or *concrete Body*, may denote any *mix'd* Body, or Body compos'd of different Principles; and consequently, all sensible Bodies whatever, as all Bodies arise from a Coalition of divers Elements, or at least of divers Principles, Matter and Form. See Body, Element, and Principle.

But, in strictness, *Concrete* is only used for those Compounds wherein the Ingredients still retain their distinct Natures, nor are wholly converted into any new common Nature. See Mixt.

Authors distinguish *Natural Concretes* and *Artificial* ones: Thus Antimony is a *natural Concrete*, and Soap a *factitious Concrete*.

A *Logical Concrete*, or *concrete Word*, called also *Paronymus*, is that which has a compound kind of Signification; as signifying both the Subject, and some Quantity or Accident of the Subject, which gives it its Denomination: As *Man, learned, white*: for Man signifies as much as *having human Nature*; *learned*, as much as *having learning*, &c.

Hence, the Word *Concrete* is chiefly used to express the Union of Qualities or Quantities with the Bodies or Subjects, without separating them in Idea. The opposite Term, whereby the Things are separated in Thought, is *Abstract*. *Concrete* properly signifies a Subject with its Form or its Quality; as a *pious Man, hard, white*: *Abstract*, on the contrary, expresses the Form and Quality without the Subject, as, *Piety, Hardness, Whiteness*. See Abstraction.

Concrete *Numbers*, are those which are applied to express or denote any particular Subject; as, two Men, three Pounds, two thirds of a Shilling, &c.

Whereas, if nothing be connected with a Number, it is taken abstractly or universally: Thus, three signifies only an aggregate of three Unites; let those Unites be Men, Pounds, or what you please.

CONCRETION, the Act whereby soft Bodies are render'd hard: Or, it is an insensible Motion of the Particles of a Fluid or soft Body, whereby they come to a Consistence.

The Word is used indifferently for *Induration, Condensation, Congelation*, and *Coagulation*. See Induration, Condensation, Coagulation, &c.

Concretion is also used for the Coalition of several little Particles into a sensible Mass, called a *Concrete*; by virtue of which Union, the Body acquires this or that Figure, and these or them Properties. See Concrete.

CONCUBINAGE, sometimes expresses a criminal or prohibited Commerce between the two Sexes; in which Sense it comprehends *Adultery, Incest*, and *simple Fornication*. See Adultery, Incest, and Fornication.

In its more restrain'd Sense, *Concubinage* is used for a Man and a Maid's cohabiting together in the way of Marriage; without having pass'd the Ceremony thereof. See Concubine.

Concubinage was antiently tolerated: The *Roman* Law calls it an allowed Custom, *licita consuetudo*. When this Expression occurs in the Constitutions of the Christian Emperors, it signifies what we now call a *Marriage in Conscience*.

The *Concubinage* tolerated among the *Romans* in the Time of the Republick, and of the Heathen Emperors, was that between Persons not capable of contracting Marriage together: Nor did they even refuse to let Inheritances descend to Children sprung from such a tolerated Cohabitance.

Concubinage between such Persons they look'd on as a kind of Marriage, and even allow'd it several Privileges: but then this *Concubinage* was confin'd to a single Person, and was of perpetual Obligation, as Marriage it self.

Hottoman observes, that the *Roman* Laws had allow'd of *Concubinage* long before *Julius Cæsar* made that Law whereby every one was allow'd to marry as many Wives as he pleas'd. The Emperor *Valentinian, Socrates* tells us, allow'd every Man two. See Marriage.

Concubinage is also used for a Marriage perform'd with less Solemnity than the formal Marriage; or a Marriage with a Woman of inferior Condition, and to whom the Husband does not convey his Rank or Quality.

Cujas observes, that the antient Laws allow'd a Man to espouse, under the Title of *Concubines*, certain Persons, such as were esteem'd unequal to 'em, on account of the want of some Qualities requisite to sustain the full Honour of Marriage. He adds, that tho *Concubinage* was beneath Marriage, both as to Dignity and to Civil Effects; yet was *Concubine* a reputable Title, very different from that of Mistress among us.

The Commerce was esteem'd so lawful, that the *Concubine* might be accused of Adultery in the same manner as a Wife. See Concubine.

This kind of *Concubinage* is still in use in some Countries, particularly *Germany*, under the Title of a Half-Marriage, or Marriage with the left Hand; alluding to the manner of its being contracted, *viz.* the Man's giving the Woman his left Hand instead of the right. See Marriage.

This is a real Marriage, tho without Solemnity: the Parties are both bound for ever; tho the Woman be thus excluded from the common rights of a Wife, for want of Quality or Fortune.

CONCUBINE, a Woman whom a Person takes to cohabit with him, in the manner, and under the Character of a Wife, without being authoriz'd thereto by a legal Marriage. See Concubinage.

Concubine is also used for a real, legitimate, and only Wife, distinguish'd by no other Circumstance, but a Disparity of Birth or Condition, between her and the Husband.

Du Cange observes, that one may gather from several Passages in the Epistles of the Popes, that they antiently allow'd of such *Concubines*. The XVIIth Canon of the first Council of *Toledo*, declares, that he who with a faithful Wife, keeps a *Concubine*, is excommunicated; but that if the *Concubine* serv'd him as Wife, so that he had only one Woman, under the Title of *Concubine*, he should not be rejected from Communion: Which shews that there were legitimate Wives under the Title of *Concubines*.

In effect, the *Roman* Laws did not allow a Man to espouse whom he pleas'd; there was requir'd a kind of parity, or proportion between their Conditions: but a Woman of inferior Condition, who could not be espoused as a Wife, might be kept as a *Concubine*; and the Laws allow'd of it, provided he had no other Wife.

The Children of *Concubines* were not reputed either Legitimate or Bastards, but Natural Children, and were capable only of Donations.

They were deem'd to retain the low Rank of the Mother; and were on this ground unqualify'd for inheriting the Effects of the Father.

'Tis certain the Patriarchs had a great Number of Wives, and that these did not all hold the same Rank; some being subaltern to the principal Wife; which were what we call *Concubines*, or Half Wives. The *Romans* prohibited a plurality of *Concubines*, and only had regard to the Children issuing from a single *Concubine*, because she might become a legitimate Wife. *Solomon* had 700 Wives and 300 *Concubines*: The Emperor of *China* has sometimes two or three thousand *Concubines* in his Palace. *Q. Curtius* observes, that *Darius* was follow'd in his Army by 365 *Concubines*, all in the Equipage of Queens.

CONCUPISCENCE, among Divines, an irregular Desire, Appetite, or Lust after divers Things, inherent in human Nature ever since the Fall.

F. *Malebranch* defines *Concupiscence*, on his System, to be a natural Effort, which the Traces or Impressions of the Brain make on the Mind, to attach it to sensible Things. The Dominion or Prevalency of *Concupiscence*, according to him, is what we call *Original Sin*. See ORIGINAL *Sin*.

The Origin of *Concupiscence* he ascribes to those Impressions made on the Brain of our first Parents at their fall; which are still transmitted and continued on those of their Children: For as Animals produce their like, and with like Traces in the Brain; (whence the same Sympathies and Antipathies in the same Kind; and whence the same Conduct on the same Occasions:) So our first Parents, after their fall, receiv'd such deep Traces in the Brain, by the Impression of sensible Objects, that they might well be supposed to communicate them to their Children.

The Schoolmen use the Term *Concupiscible Appetite*, for the Desire we have of enjoying any Good; in opposition to the *Irascible Appetite*, whereby we eschew what is Evil. See APPETITE.

CONDEMNATION, the Act of passing or pronouncing Sentence, or giving Judgment against a Man; whereby he is subjected to some Penalty or Punishment; either in respect of Fortune, Reputation, or Life. See SENTENCE, and PUNISHMENT.

CONDENSATION, the Act whereby a Body is render'd more dense, compact, and heavy. See DENSITY, *&c.*

Condensation consists in bringing the Parts closer to each other, and increasing their Contact: in opposition to *Rarefaction*; which renders the Body lighter and looser, by setting the Parts further asunder, and diminishing their Contact, and of consequence their Cohesion. See RAREFACTION.

Wolfius, and some of the more accurate Writers, restrain the use of the Word *Condensation* to the Action of Cold: what is done by external Application, they call *Compression*. See COMPRESSION.

Air easily *condenses*, either by Cold, or by Art: Water congeals, but never *condenses*; can never be brought into a less space, but will penetrate the most solid Body, even Gold, rather than lose of its bulk. See WATER.

A Syrup *condenses* in Ebullition.

It was found, in the Observatory of *France*, during the great Cold of the Year 1670, that the hardest Bodies, even Metals, Glass, and Marble it self, were sensibly *condens'd* by the Cold, and became much harsher and more brittle than before; till their former State was retriev'd by the ensuing Thaw. See FROST.

Water alone seems to expand by Cold; inasmuch as when congeal'd, the Ice takes up more space than the Water before. But this must be rather owing to the Intromission of some foreign Matter; as the nitrous Particles of the ambient Air, than to proper Rarefaction of the Water by the Cold. See COLD, and FREEZING.

The *Cartesians*, indeed, taking it for granted there is no Vacuum, deny any such thing as proper *Condensation*, or Rarefaction. According to them, when a Body takes up more space than it did before, its Parts are distended by the Intrusion of a subtil Matter thro' its Pores: And when its bulk, again, is reduced into less Space, this is owing to the Extrusion or Egress of that Matter thro' the same Pores; by virtue whereof, the Parts of the Body, tho not the Parts of Matter, come nearer each other. For as Extension and Matter, according to them, are the same thing; a Body can never take up more or less place, any otherwise than by the Accession or Diminution of Matter: And thus they conclude there is no Vacuum.

Now, that, in the Rarefactions of gross Bodies, their Parts are distended by the accession of Air, is frequently manifest; but this does not follow from the Plenitude of the World, but from the fluid and elastick Nature of Air; or from its Gravity and Pressure. See MATTER, VACUUM, *&c.*

That there is such a thing as *Condensation*, without the Loss of any Matter, is evident from *Galileus*'s Experiment: A Cock, being with a female Screw fitted to a hollow brass Ball, or Cylinder, so as a Syringe, by means of a male Screw, may be applied to it; by working the Syringe, the Air will be force'd into the Ball, and turning the Cock, will be retain'd; insomuch, that upon the examining the Vessel by the Balance, its weight will be found increas'd. If the Cock be re-turn'd, the Air will burst out with violence, and the Ball sink to its former weight.

From the Experiment it follows, first, that Air may be crouded into a less Volume and Bulk than it ordinarily takes up, and is therefore compressible. *For the Quantity of its Compression*, see COMPRESSION.

2dly, That from the Recovery of its weight, just so much Air is expell'd as was injected; and that, therefore, compress'd Air returns to its primitive Expansion, if the compressing Force be removed; and has therefore an elastick Force. See ELASTICITY.

3dly, That 'tis a certain Sign of Compression, if, upon opening the Orifice of a Vessel, any portion of Air be observ'd to fly out.

4thly, That since the Weight of the Vessel is increas'd by injecting Air; the aerial Mass must have a *Nisus* downwards, in Lines perpendicular to the Horizon; and is therefore heavy, and presses subject Bodies in Lines perpendicular to the Horizon; according to the Conditions of Gravity. See GRAVITY.

Condens'd Air, has Effects just opposite to those of rarefy'd Air; Birds, *&c.* appear brisker and more lively therein than in the common Air, *&c.* See VACUUM, RAREFACTION, *&c.*

CONDENSER, a pneumatick Engine, whereby an unusual quantity of Air may be crouded into a given Space.

They can throw in 3, 4, 5, or 10 Atmospheres into the *Condenser*, *i. e.* twice, thrice, four, *&c.* times as much Air as there is in the same compass without the Engine. See CONDENSATION.

CONDERS, or *Huers*, in our Customs, are Persons who stand on high Places near the Sea Coast, in time of Herring-fishing, to make Signs with Boughs, *&c.* to the Fishers which way the Shoal of Herrings passes: their Course being more discernable to those who stand on high Cliffs, by means of a blue Colour they cause in the Water, than to those aboard the Vessels. See *Herring*-FISHERY.

They are also called *Balkers*, *Directors*, &c.

CONDITION, in the Civil Law, an Article of a Treaty, or Contract; or a Clause, Charge, or Obligation, stipulated in a Contract; or added in a Donation, Legacy, Testament, *&c.*

The Donee does not lose his Donative, if it be charg'd with any dishonest or impossible *Conditions*. The Doctors distinguish three Kinds of *Conditions*, under which a Legacy or Donation may be made: the *Casual*, which depends merely on chance; the *Potestative*, which is absolutely in our Power; and the *Mixt Condition*, which is both Casual and Potestative together.

CONDITION, in Common Law, is a Manner, Quality, or Restriction, annex'd to an Act; qualifying or suspending the same; and making it precarious and uncertain, whether or no it shall it take effect.

In a Lease there may be two sorts of *Conditions*, *Condition collateral*, and *Condition annex'd to the Rent*.

Collateral Condition is that annex'd to a *collateral* or foreign Act; as, *v. g.* that the Lessee shall not go to *Paris*.

Condition is also divided into *Condition in Deed*, and *Condition implied*.

Condition in Deed, is that knit and annex'd by express Words to the Feoffement, Lease, or Grant, either in writing or without: As if I infeoffe a Man in Lands, reserving a Rent to be paid at such a Feast; *upon Condition*, if the Feoffee fail of payment, it shall be lawful for me to re-enter.

Condition implied, call'd also *Condition in Law*, is when a Man grants to another the Office of a Steward, Bailiff, Keeper of a Park, *&c.* for Life: tho there be no *Condition* express'd in the Grant, yet the Law makes one covertly; which is, if the Grantee do not justly execute all Things belonging to his Office, it shall be lawful for the Granter to discharge him.

A CONDITION *without which*, *sine qua non*, is used in Philosophy, in speaking of some Accident or Circumstance, which is not essential to the Thing, but is yet necessary to its Production.

Thus, Light is a *Condition without which* a Man can't see Objects, tho he have good Eyes; and thus Fire, tho consider'd in it self it may burn without Wood; yet is its Presence a *Condition without which* the Wood can't be burnt.

CONDITIONAL, something not absolute, but subject to Charges and *Conditions*. See CONDITION.

Thus, we say, *Conditional* Legacies are not due till the *Conditions* are accomplish'd. The Right of Conquest does not suppose any *conditional* Consent on the Part of the People.

The *Arminian* Divines maintain, that all the Decrees of God, relating to the Salvation and Damnation of Man are *conditional*; and the *Calvinists*, that they are absolute. See DECREE.

In Logick, we say, *Conditional Propositions* admit all kinds of Contradictions, *v. g.* If my *Transalpin* Mule flew; my *Transalpin* Mule had Wings.

CONDI-

Conditional *Conjunctions*, in Grammar, are those which serve to make Propositions *Conditional*; as, *if*, *unless*, *provided that*, *in case of*, &c.

Conditional *Propositions*, are such as consist of two Parts, connected together by the *conditional* Particle *if*. See Proposition.

Of these, the first, wherein the *Condition* lies, is call'd the *Antecedent*, and the other the *Consequent*. See Antecedent, and Consequent.

Thus, if the Soul be spiritual, it is immortal; is a *conditional Proposition*, wherein, *if the Soul*, &c. is the Antecedent, and *is immortal* the Consequent.

In Theology, we call the *Knowledge of Conditionals*, *i. e.* of *conditional Truths*, that Knowledge which God has of Things, consider'd, not according to their Essence, their Nature, or their real Existence; but under a certain Supposition, which imports a Condition never to be accomplish'd.

Thus, when *David* ask'd of God whether the People of *Ceila* would deliver him up to his Enemies; God, who knew what would befal in case *David* should continue at *Ceila*, told him they wou'd deliver him: which he knew by the *Knowledge of Conditionals*.

Some of the Schoolmen deny that God has the *Knowledge of Conditionals*: The *Thomists* maintain, that God's Knowledge of *Conditionals* depends on a predeterminating Decree: Others deny it.

F. *Daniel* observes, that the Truths which compose the Knowledge of *Conditionals*, being very different from those which compose the Knowledge of Intuition, and that of Understanding; a third Class must be added, and the Knowledge of God be divided into *Intuitive*, *Intellective*, and *Conditional*. See Knowledge.

CONDORMANTES, Religious Sectaries, whereof there have been two Kinds: The first arose in *Germany*, in the XIIIth Century; their Leader a Native of *Toleda*. They held their Meetings near *Cologne*; where they are said to have worship'd an Image of Lucifer, and to have receiv'd Answers and Oracles from him: The Legend adds, that an Ecclesiastick having brought the Eucharist to it, the Idol broke into a thousand Pieces; which put an end to the Worship.

They had their Name from their lying all together, Men and Women, young and old.

The other Species of *Condormantes*, were a Branch of *Anabaptists* in the XVIth Century; so called, because they lay, several of both Sexes, in the same Chamber; on pretence of Evangelical Charity.

Safe-CONDUCT. See Safe-*Conduct*.

CONDUCTOR, a Surgeon's Instrument, which being put up into the Bladder, serves to *conduct* the Knife, in the Operation of cutting for the Stone. See Lithotomy.

CONDUIT, a Canal, or Pipe, for the Conveyance of Water, or other fluid Matter. See Tube, *&c.*

In the Earth are several subterraneous *Conduits*, thro' which the Waters pass that form the Sources of Springs; and thro' which also pass the Vapours, which form Metals and Minerals. See Spring, Metal, *&c.*

Artificial Conduits for Water, are made of Lead, Stone, cast Iron, Pottery, *&c.* See Pipe, and Plumbery.

In the Province of *New Mexico*, there is said to be a subterraneous *Conduit*, in form of a Grotto, extending 600 Miles in length. See Duct.

CONDYLOMA, in Anatomy, the knitting of the Bones together in a Jonctnre or Articulation; from the *Greek* κονδυλος, *Jonctnre*, *Joining*.

The Word is particularly used for the Jonctures of the Fingers, popularly called *Knuckles*. See Finger.

Condyloma, in Medicine, is a soft, painless Tumor, of the Oedematous kind, arising on the internal Coat of the *Anus*, and the Muscles of that Part, or in the Neck of the Matrix. See Oedema.

By long continuance it grows fleshy, and shooting out as from a Stalk, takes the Denomination *Ficus*. See Ficus.

Condolymata are frequently the Effects of Venereal Ailments, and, if neglected, sometimes prove Cancerous: Their Cure depends on Mercurial Unctions, and proper Escharoticks to consume them; tho Extirpation either by Ligature or Incision, if the Nature of the Part will admit, is the most expeditious. A Salivation is often necessary, in order to facilitate and compleat the Cure.

The Word comes from κονδυλος; in regard the *Condyloma* has usually *Rugæ*, or Wrinkles, like the Joints of the Body.

CONDYLUS, a Name Anatomists give to a little round Eminence or Protuberance at the Extremity of a Bone. See Bone.

Such is that of the lower Jaw, receiv'd within the Cavity of the *Os Petrosum*. See Maxilla.

When this Eminence is large, 'tis called the *Head* of the Bone. See Bone.

The Word comes from the *Greek* κονδυλος, *Article*, *Joint*.

CONE, in Geometry, a solid Body, having a Circle for its Basis, and terminated a top in a Point, or Vertex. See Tab. *Conicks*, Fig. 2. see also Solid.

The *Cone* is generated by the Motion of a right Line, K L, round an immoveable Point K, called its *Vertex*, along the Circumference of a Plane, called its *Base*, M N: or it may be conceiv'd as generated by the Revolution of the Triangle K L M, about the right Line K L, which is call'd the *Axis* of the *Cone*; and K M its *Latus*, or Side.

If the Axis be perpendicular to the Base, it is said to be a *right Cone*; and if inclined, or oblique, a *scalenous Cone*.

Scalenous Cones are again divided into *obtuse-angled* and *acute-angled*.

Euclid defines a *Cone* a solid Figure, whose Base is a Circle, as C D, (Fig. 3.) and is produced by the entire Revolution of the Plane of a right-angled Triangle C A B, about the perpendicular Leg A B.

If this Leg, or Axis, be greater than C B, half the Base; the Solid produced is an *acute-angled Cone*: If less, an *obtuse-angled Cone*; and, if equal a *right-angled Cone*.

But, *Euclid*'s Definition only extends to a *right Cone*: that is, a *Cone* whose Axis is at right Angles to the Base; and not to *oblique* ones, whose Axis is not at right Angles to the Base.

For a more general and comprehensive Description of a *Cone*, which may take in both right and oblique ones, Suppose, an immoveable Point A, (Fig. 4.) without the Plane of the Circle B D E C; and suppose a right Line A E, drawn thro' that Point, and produced infinitely both ways, to be mov'd quite about the Circumference of the Circle; the two Superficies that will arise from this Motion, are each called *Conic Superficies*; but, taken conjunctly, are called *Superficies vertically opposite*, or only *opposite Superficies*: The immoveable Point A, common to both the Superficies, is called the *Vertex*; the Circle B D E C the *Base*; the right Line A C, drawn thro' the Vertex A and C, the *Centre of the Base*; and if infinitely produced, the *Axis*; and the Solid comprehended under the *conical* Superficies and the Base, is a *Cone*.

Properties of the Cone.

1. *The Area or Surface of every right* Cone, *exclusive of its Base, is equal to a Triangle whose Base is the Periphery, and its height the side of the* Cone. See Triangle.

Or, the curve Superficies of a right *Cone*, is to the Area of its circular Base, as A C, (Fig. 5.) the length of the Hypothenuse of the right-angled Triangle describing it, to C B, the Base of the same Triangle: that is, as the slant height of the *Cone*, to the Semidiameter of the Base.

Hence, the Surface of a right *Cone* is equal to a Sector of a Circle describ'd on the side of the *Cone*, as a Radius, whose Arch is equal to the Periphery of the *Cone*; and has therefore the same Proportion to its Periphery which the Diametet of the Base has to the Sides of the *Cone*. See Circle.

Coroll. *Hence we have a Method of describing a Rete or Cage that shall just cover a* Cone.

Thus, with the Diameter of the Base A B, (Plate *Conics*, Fig. 6.) describe a Circle, and produce the Diameter to C, till A C be equal to the side of the *Cone*. To 2 A C and A B, determin'd in Numbers, and 360°, find a fourth proportional; and with the Radius C A, on the Centre C, describe an Arch D E equal to the Number of Degrees found: the Sector C D E with the Circles A B will be a Rete for the right *Cone*.

If, then, the side of a truncated *Cone* be transferr'd from A to F, and an Arch G H be describ'd with the Radius G F; by finding a fourth proportional to 360°, to the number of Degrees of the Arch G H, and to F C; and thence determining the Diameter of the Circle I F, we shall have a Net or Cover for the truncated *Cone*.

For C D B A E is a Net for the entire *Cone*; C G F I H for the *Cone* cut off; therefore, D B E H for the truncated *Cone*.

2. *Cones and Pyramids, having the same Bases and Altitudes, are equal to each other.*

Now, 'tis shewn, that every triangular Prism may be divided into three equal Pyramids; and therefore, that a triangular Pyramid is one third of a Prism, standing on the same Base, and having the same Altitude.

Hence, since every multangular Body may be resolv'd into triangular ones, and every Pyramid is a third part of a Prism, having the same Base and Altitude; since a *Cone* may be esteem'd an infinite-angular Pyramid, and a Cylinder an infinite-angular Prism; a *Cone* is a third part of a Cylioder, which has the same Base and Altitude.

Coroll. *Hence we have a Method of measuring the Surface and Solidity of a Cone and a Cylinder.*

Thus, *for the Solidity*: find the Solidity of a Prism, or Cylinder, having the same Base with a *Cone*, or Pyramid. See Prism, and Cylinder.

Which found, divide by 3: the Quotient will be the Solidity of a *Cone*, or a Pyramid.

Thus, *v. g.* if the Solidity of a Cylinder be 605592960, the Solidity of the *Cone* will be found 201864320.

For the Surfaces; that of a right *Cone* is had by multiplying the Periphery of the Base into the Side, and adding the Product to the Base.

Suppose, *e. gr.* the Diameter of the *Cone* N M, (Fig. 2.) 56, its Periphery will be 17584, and the Base 246176. Suppose the Altitude of the Axis K L, 246; since L M = $\frac{1}{2}$ N M = 28, and K M^2 = K L^2 + L M^2 = 60516 + 784 = 61300, K M = 2474. Consequently, the Superficies of the *Cone* exclusive of the Base is 4310 = 816,0; and the whole together 455645760.

As to the Measure of the Surface, and Solidity of a truncated Cone, A B C D, (Fig. 7.) Its Altitude C H, and the Diameter of its Basis A B and C D being given, find their Circumferences. To the Square of the Altitude C H, add the Square of the Semi-difference of the Radii A H, and from the Aggregate extract the square Root, which will give the side A C: The Semi-sum of the Peripheries, multiplied by that side, gives the Superficies of the *truncated Cone*.

To find the Solidity: As the difference of the Semidiameter A H is to the Altitude of the truncated *Cone* C H, so is the greater Semidiameter A F, to the Altitude of the entire *Cone* F E. This found, subtract the Altitude of the truncated *Cone* G F, which will leave that of the *Cone* taken off E G.

Find the Solidity of the *Cone* C E D and A E B; subtract the other from this; the Remainder will be the Solidity of the truncated *Cone* A C D B.

For the Sections of the Cone, see Conic *Section*.

For the Ratio of Cones *and Cylinders*, see Cylinder.

For the Centres of Gravity and of Oscillation of a Cone, see Centre.

Cones *of the higher Kinds*, are those whose Bases are Circles of the higher Kinds; and are generated by supposing a right Line fix'd in a Point, on high, tho conceiv'd capable of being extended more or less, on occasion; and moved or carried round a Circle. See Circle.

Cone *of Rays*, in Opticks, includes all the several Rays which fall from any Point of an Object, on the Surface of a Glass. See Ray.

Cone, or Conn, in the Sea Language, signifies to guide or conduct a Ship in her right Course. See Course.

He that *Conns* her, stands aloft with a Compass before him, and gives the Word of Direction to the Man at Helm how to steer. See Steerage.

If the Ship go before the Wind, or, as they call it, betwixt the Sheets, the Word is either *Starboard*, or *Port the Helm*; according as the *Conder* would have the Helm put to the right or left side of the Ship, upon which the Ship always goes the contrary way.

If he says, *Helm a Mid-ship*, he would have the Ship go right before the Wind, or directly between her two Sheets.

If the Ship sail by a Wind, or on a quarter Wind, the Word is, *Aloof*, *Keep your Luff*, *fall not off*, *Veer no more*, *Keep her to*, *Touch the Wind*, *Have a care of the Lee-Latch*: All which Expressions are of the same import, and imply that the Steersman should keep the Ship near the Wind.

On the contrary, if he would have her sail more large, or more before the Wind, the Word is, *Ease the Helm*, *No near*, *Hear up*.

If he cries *Steady*, it means, keep her from going in and out, or making Yaws, (as they call it) howsoever she sails, whether large by a Wind: and when he would have her go just as she does, he cries, *Keep her thus*, *thus*, &c.

CONFARREATION, a Ceremony among the antient *Romans*, used in the Marriage of Persons whose Children were destin'd for the Honour of the Priesthood.

Confarreation was the most sacred of the three manners of contracting Marriage among that People; and consisted, according to *Servius*, in this, that the *Pontifex Maximus* and *Flamen Dialis* join'd and contracted the Man and Woman, by making them eat of the same Cake of salt Bread.

Ulpian says, it consisted in the offering up of pure wheaten Bread; rehearsing, withal, a certain *Formula*, in presence of ten Witnesses. *Dionysius Halicarnassæus* adds, that the Husband and Wife did eat of the same wheaten Bread, and threw part on the Victims.

CONFECTION, in Pharmacy, a kind of compound Remedy of the Consistence of a soft Electuary.

There are four Electuaries, which bear the Name of *Confections*; three whereof, in the Physicians Language, are *corroborative*, and one *purgative*.

The corroborative *Confections* are those of *Alkermes*, of *Hyacinth*, and the *Anacardine*: The purgative one is the *Confection Hamech*.

The *Confection of Alkermes* has its Name from the principal Ingredient therein; which is the *Kermes*, or *Alkermes*, or Scarlet-Grain. See Kermes, &c.

The other Ingredients are Pearls, Musk, Cinnamon, Ambergris, Leaf Gold, Juice of Pippins, and Rose-Water.

It is rank'd among the best Cardiacks, and is frequently used for the Palpitation of the Heart, or Syncope; sometimes in the Small-Pox and Measles.

The *Confection of Hyacinth* has nearly the same Virtues with that of Alkermes; but, beside, is frequently used as an Astringent. It consists of near triple the Number of Drugs; whereof the precious Stone, called the *Hyacinth*, is the Base: the chief of the rest are red Coral, Bole Armoniac, *Terra Sigillata*, Myrrh, the Santals, burnt Hartshorn, Camphire, Saphire, Emerald, Topaz, and most of the Ingredients of the *Confection* of Alkermes.

The *Anacardine Confection*, now disused in *England*, is compos'd chiefly of *Anacardines*, whence the Name: the other Drugs are Long Pepper, Black Pepper, most Kinds of Myrobalans, Castoreum, &c. It is used to purge the Blood, and is proper in cold Diseases.

The *Confection Hamech* takes its Name from that of its Inventor, an *Arabian* Physician. Its Ingredients are Polypody, Myrabolans, Agaric, Senna, Tamarinds, red Roses, Manna, Colocynth, &c. It is applied as a Drastic for the purging of the grosser Humors and Viscidities; 'tis also of some reputation in Vertigoes and Cancers.

CONFECTOR, among the antient *Romans*, a sort of Gladiator, hired to fight in the Amphitheatre against Beasts; thence also denominated *Bestiarius*. See Gladiator.

The *Confectores* were thus called *à conficiendis bestiis*, from their dispatching and killing Beasts. See Bestiarii.

The *Greeks* call'd 'em Παραβολοι, *q. d.* daring, rash, desperate; whence the *Latins* borrow'd the Appellations *Parabolani*, and *Parabolarii*. See Parabolani.

CONFECTS, or CONFITS, a Denomination given to Fruits, Flowers, Herbs, Roots, and Juices, when boil'd and prepar'd with Sugar, or Honey, to dispose them to keep; or render 'em more agreeable to the Taste.

The Antients only *confited* with Honey; at present, Sugar is more frequently us'd.

Confects half sugar'd, are those cover'd with a little Sugar, to leave more of the natural Taste of the Fruit.

Confects are reduced to eight Kinds, *viz. Liquid Confects*, *Marmalades*, *Jellies*, *Pasts*, *Dry Confects*, *Conserves*, *Candies*, and *Dragees*.

Liquid Confects, are those whose Fruits, either whole, in pieces, in grains, or in clusters, are *confited* in a fluid transparent Syrup, which takes its colour from that of the Fruits boil'd in it.

There is a good deal of Art in preparing these well; if they be too little sugar'd they turn; and if too much, candy. The most esteem'd of the liquid *Confects* are Plums, especially those call'd Mirabels, Barberries, Quinces, Apricots, Cherries, Orange-Flowers, little green Citrons from *Madera*, green Cassia from the *Levant*, Myrabolans, Ginger, Cloves, &c.

Marmalades are a kind of Pasts, half liquid, made of the Pulp of Fruits, or Flowers, that have some consistence; as Apricots, Apples, Pears, Plumbs, Quinces, Orange-Flowers, and Ginger. Marmalade of Ginger is brought from the *Indies* by way of *Holland*: 'tis esteem'd good to revive the natural Heat in old Men. See Marmalade.

Jellies are Juices of several Fruits, wherein Sugar has been dissolv'd, and the whole, by boiling, reduced into a pretty thick Consistence; so as, upon cooling, to resemble a kind of thin transparent Glue, or Size. *Jellies* are made of various Kinds of Fruits, especially Goosberries, Apples, and Quinces: There are other Jellies, made of Flesh, Fish, Hartshorn, &c. but they are not to be kept, being very subject to corrupt. See Jelly.

Pasts are a kind of Marmalades, thicken'd to that degree by boiling, as to assume any form, when put into little Moulds and dried in the Oven. The most in use are those of Goosberries, Quinces, Apples, Apricots, and Orange-Flowers: Those of Pistaches are much esteem'd; those of Ginger are brought from the *Indies*. See Past.

Dry Confects, are those whose Fruits, after having been boiled in the Syrup, are taken out again, drain'd, and put to dry in an Oven. Dry *Confits* are made of so many kind of Fruits, that it would be hard to explain 'em all: the most considerable are Citron and Orange-Peel, Plumbs, Pears, Cherries, Apricots, &c.

Conserves are a kind of dry *Confects*, made with Sugar, and Pasts of Flowers or Fruits, &c. the most ordinary are those of Betony, Mallows, Rosemary; of the Capillary Herbs; of Orange-Flowers, Violets, Jessamin, Pistacho's, Citrons and Roses.

Note, The Apothecaries, under the Title of *Conserves*, comprehend all kind of *Confects*, both dry and liquid; whether of Flowers, Fruits, Seeds, Roots, Barks, Leaves, prepared with Sugar or Honey, to preserve, &c. See Conserve.

Candies are ordinarily entire Fruits, candied over with Sugar, after having been boil'd in the Syrup; which renders 'em like little Rocks, crystalliz'd; of various Figures and Colours, according to the Fruits inclosed within 'em.

The best Candies are brought from *Italy*. See Candy.

Dragees, or *Sugar-Plumbs*, are a kind of little dry *Confects*, made

made of ſmall Fruits, or Grains, little Pieces of Bark, or odoriferous and aromatick Roots, &c. incrustated and cover'd over with a very hard Sugar, ordinarily very white.

Of theſe there are various Kinds, diſtinguiſh'd by various Names: Some made of Rasberries, others of Barberries, Melon-Seeds, Piſtachoes, Filberds, Almonds, Cinnamon, Orange Peel, Corianders, Aniſeed, Carroways, &c.

CONFEDERACY, an Alliance or League between divers Princes and States. See LEAGUE and ALLIANCE.

CONFEDERACY, in Law, is when two or more Perſons combine to do any damage to another, or to commit any unlawful Act.

Confederacy is puniſhable, tho nothing be put in execution: but then it muſt have theſe four Incidents; 1ſt, that it be declared by ſome matter of Proſecution; as by making of Bonds or Promiſes to one another: 2d, that it be malicious, as for unjuſt Revenge: 3d, that it be falſe, *i. e.* againſt the Innocent: and laſtly, that it be out of Court, voluntary.

CONFESSION, in a Civil Senſe, a Declaration, or Acknowledgment of ſome Truth, tho againſt the Intereſt of the Party who makes it; whether it be in a Court of Juſtice or out of it.

'Tis a Maxim, that in Civil Matters the *Confeſſion* is never to be divided; but always taken entire. A Criminal is never condemn'd on his ſimple *Confeſſion*, without other collateral Proofs: nor is a voluntary extrajudicial *Confeſſion* admitted as any Proof. A Perſon is not admitted to accuſe himſelf, according to that Rule in Law, *non auditur perire volens*.

CONFESSION, in a Theological Senſe, is a Declaration of a Perſon's Sins, made to a Prieſt, in order to obtain Abſolution for the ſame. See ABSOLUTION.

The *Romiſh* Church makes *Confeſſion* a part of the Sacrament of Penance. See PENANCE.

Confeſſion was antiently publick and general, in the Face of the Church; tho the *Romaniſts* have ſince alter'd it, and made it private, and *auricular*.

Confeſſions are to be buried in eternal ſilence, under Pain of the laſt Puniſhment to the Prieſt who reveals 'em.

Bellarmin, *Valentia*, and ſome other *Romiſh* Controverſy-Writers, endeavour to trace up auricular *Confeſſion* to the earlieſt Ages; and thus contend for a Point given up by the reſt. M. *Fleury* owns that the firſt Inſtance of auricular *Confeſſion* he can meet with, is that of S. *Eloi*, who being grown old, made a *Confeſſion* to a Prieſt of all his Sins from his youth upwards.

The *Indians*, according to *Tavernier*, have a kind of *Confeſſion*: and the ſame may be ſaid of the *Jews*; theſe laſt have *Formulas* for thoſe who are not capable of making a Detail of all their Sins: The ordinary Form is in an alphabetical Order, each Letter containing a Capital Sin; this they uſually rehearſe on Mondays and Thurſdays, and on Faſt Days and other occaſions: ſome, every Night and Morning. When any of 'em find themſelves near Death, he ſends for ten Perſons, more or leſs, one of 'em a Rabbin; and in their Preſence recites the *Confeſſion*. See *Leon de Modena*.

CONFESSION *of Faith*, is a Liſt, or Enumeration and Declaration of the ſeveral Articles of Belief, in a Church. See FAITH.

The *Augsburg Confeſſion* is that of the *Lutherans*, preſented to *Charles* V. in 1530.

In the Council of *Rimini*, the Catholick Biſhops found fault with Dates in a *Confeſſion of Faith*, and obſerv'd that the Church never us'd to date 'em.

CONFESSIONAL, or CONFESSIONARY, in Church-Hiſtory, a Place in Churches, uſually under the main Altar, wherein were depoſited the Bodies of deceas'd Saints, Martyrs, and Confeſſors.

Confeſſional is alſo uſed in the *Romiſh* Church for a little Bench, or Deſk in the Church, where the Confeſſor takes the Confeſſions of the Penitent.

CONFESSOR, a Chriſtian who has made a ſolemn and reſolute Profeſſion of the Faith, and has endured Torments in its defence.

A ſimple Saint is call'd a *Confeſſor*, to diſtinguiſh him from the Roll of dignify'd Saints; as, *Apoſtles*, *Martyrs*, *Prelates*, &c. See SAINT, MARTYR, &c.

In Eccleſiaſtical Hiſtory, we frequently find the Word *Confeſſors* uſed for Martyrs: In after-times, it was confin'd to thoſe, who after having been tormented by the Tyrants, came to live and die in Peace. At laſt it was alſo uſed for thoſe, who after having lived a good Life, died under an Opinion of Sanctity.

According to S. *Cyprian*, he who preſented himſelf to Torture, or even Martyrdom, without being call'd thereto, was not call'd a *Confeſſor*, but a *Profeſſor*: And if any out of a want of Courage abandon'd his Country, and became a voluntary Exile for the ſake of the Faith, he was call'd *Extorris*.

CONFESSOR is alſo a Prieſt, in the *Romiſh* Church, who has a Power to hear Sinners in the Sacrament of Penance, and to give 'em Abſolution. The Church calls him in *Latin Confeſſarius*, to diſtinguiſh him from *Confeſſor*, which is a Name conſecrated to Saints.

The *Confeſſors* of the Kings of *France*, from the Time of *Henry* IV. have been conſtantly Jeſuits: before him, the *Dominicans* and *Cordeliers* ſhar'd the Office between them. The *Confeſſors* of the Houſe of *Auſtria* have alſo, ordinarily, been *Dominicans* and *Cordeliers*, but the laſt Emperors have all taken Jeſuits.

CONFIGURATION, the exterior Surface, that bounds Bodies, and gives 'em their particular Figure. See FIGURE.

That which makes the ſpecifick Difference between Bodies, is the different *Configuration*, and the different Situation of their Parts. See BODY.

A ſhort, or a long Sight, depend on the different *Configuration* of the Cryſtalline. See CRYSTALLINE, SIGHT, &c.

CONFIGURATION, or *Aſpect of the Planets*, in Aſtrology, is a certain Diſtance, or Situation of the Planets in the Zodiack, whereby they are ſuppos'd to aid, or oppoſe each other. See ASPECT.

CONFIRMATION, the Act of ratifying, or rendering a Title, Claim, Pretenſion, Report, or the like, more ſure and indiſputable.

CONFIRMATION, in Law, is particularly uſed for the ſtrengthning or homologating an Eſtate of one already in poſſeſſion of it by a voidable Title.

Thus, if a Biſhop grant his Chancellorſhip by Patent, for term of the Patentee's Life; this is no void Grant: yet is it voidable by the Biſhop's Death, except it be ſtrengthen'd by the Dean and Chapter's *Confirmation*.

CONFIRMATION, in Rhetorick, is the third Part of an Oration, wherein the Orator undertakes to prove, by Laws, Reaſons, Authorities, and other means, the Truth of the Propoſitions advanc'd in his Narration. See ORATION.

Confirmation is either *direct*, or *indirect*; the firſt *confirms* what the Orator has to urge for ſtrengthning his own Cauſe: the ſecond, properly call'd *Confutation*, reſels the oppoſite arguing of the Adverſaries. See CONFUTATION.

The two Parts together are ſometimes placed under the Head or Title of *Contention*. See CONTENTION.

The *Confirmation* is, as it were, the Life and Soul of the Oration: In this the main ſtreſs of the Argumentation lies. Whence *Ariſtotle*, properly enough, calls it πίστις, *fides*.

CONFIRMATION, in Theology, the Ceremony of laying on of Hands, for the Conveyance of the Holy Ghoſt.

The Antients call'd it *Chriſma* and *Unction*; among them it was conferr'd immediately after Baptiſm; and was eſteem'd, in ſome meaſure, a part thereof: whence the Fathers call it the *Accompliſhment* of Baptiſm. See CHRISMA.

Among the *Greeks*, and throughout the *Eaſt*, it ſtill accompanies Baptiſm; but the *Romaniſts* make it a diſtinct independent Sacrament. See SACRAMENT.

It appears that *Confirmation* has all along been ordinarily conferr'd by the Biſhop: S. *Cyprian*, and moſt of the Fathers, ſpeak of it in ſuch Terms as imply it to have been confin'd to the Biſhop alone; and *Fleury*, and moſt of the Moderns, from them, lay it down as a diſtinguiſhing Character between the Offices of a Prieſt or Deacon, and that of a Biſhop, that the former might baptize, but the latter alone might anoint and confirm; by virtue of their Succeſſion to the Apoſtles, to whom it originally belong'd.

But from ſome Paſſages in S. *Gregory*, &c. others gather, that the Prieſts, on occaſion, had likewiſe the Power of *confirming*. 'Tis certain, among the *Greeks*; the Prieſt who baptizes alſo *confirms*: Which Practice, *Lucas Holſtenius* ſhews, is of ſo old a ſtanding among them, that it is now generally look'd on, as belonging properly and of right to the Prieſt: tho ſome will have it to have been borrow'd by them from the Biſhops.

Hence, ſome of the *Latin* Divines acknowledge that tho the Biſhop be the ordinary Miniſter of *Confirmation*, yet, that the Prieſt, in his abſence, may alſo confer it, in quality of Miniſter Extraordinary.

The Council of *Rouen*, held in 1072, decrees, that *Confirmation* be confer'd faſting, both on the ſide of the Giver and Receiver.

CONFISCATE, in Law, is applied to Goods forfeited to the Exchequer, or publick Treaſury. The Word is deriv'd from *Fiſcus*, a Hamper, Panier, or Baſket, wherein the Emperor's Money uſed to be kept. See FISC.

The Title to thoſe Goods is given by the Law to the King, when they are not claimed by any other. If a Man indicted for ſtealing the Goods of another, in which Caſe they become, in effect, the proper Goods of him indicted, be aſk'd about 'em in Court, and diſclaim 'em; he thereby loſes the Goods, tho he be afterwards acquitted of the Theft, and the King ſhall have 'em as *Confiſcate*: but otherwiſe, had he not diſclaim'd them. See CONFISCATION.

CONFISCATION, a Legal Adjudication of Goods or Effects to the *Fiſc*, or Treaſury. See TREASURY.

Thus, the Bodies and Effects of Criminals, Traitors, &c. and Merchandizes that are contraband, prohibited, or brought aboard

aboard or ashore without paying the Duties, when seiz'd, are *confiscated*.

'Tis an Axiom in Law, that he who *confiscates* the Body *confiscates* the Effects, to the Profits of the King, or the Lord of the Fee; *i. e.* he who is condemn'd to lose his Life, must also lose his Effects: Yet the Widows of Criminals don't lose their Dowries, nor their share in the Goods of the Community, by the Forfeiture of their Husbands.

CONFLAGRATION, a general burning of a City, or other considerable Place: In this Sense, we say, *Nero* procured the Christians to be accus'd of the *Conflagration*, or burning of *Rome*, which was done by his own order.

But the Word is ordinarily restrain'd to that grand Period, or Catastrophe of our World; wherein the Face of Nature, is to be chang'd by a deluge of Fire, as it was antiently by that of Water. See DELUGE.

The antient *Pythagoreans*, *Platonists*, *Epicureans*, and *Stoicks* appear to have had a Notion of the *Conflagration*; tho whence they should derive it, unless from the sacred Books, is difficult to conceive, unless, perhaps, from the *Phœnicians*, who themselves had it from the *Jews*.

Seneca says expresly, *Tempus advenerit quo sidera sideribus incurrent, & omni flagrante materia uno igne, quicquid nunc ex disposito lucet, ardebit.* This general Dissolution the *Stoicks* call ἐκπύρωσιν, *Ecpyrosin*. Mention of the *Conflagration* is also made in the Books of the *Sibyls*, *Sophocles*, *Hystaspes*, *Ovid*, *Lucan*, &c.

Dr. *Burnet*, after F. *Tachard* and others, relates that the *Siamese* believe that the Earth will at last be parch'd up with heat; the Mountains melted down; the Earth's whole Surface reduc'd to a Level, and then consum'd with Fire. And the *Bramans* of *Siam* do not only hold that the World shall be destroy'd by Fire; but also, that a new Earth shall be made out of the Cinders of the old.

Various are the Sentiments of Authors on the Subject of *Conflagration*; the Cause whence it is to arise, and the Effects it is to produce.

The Divines ordinarily account for it Metaphysically; and will have it take its rise from a Miracle, as a Fire from Heaven.

The Philosophers contend for its being produced from Natural Causes; and will have it effected according to Laws of Mechanicks: Some think an Eruption of the central Fire sufficient for the Purpose; and add, that this may he occasion'd several ways, *viz.* either by having its Intension increas'd; which, again, may be effected either by being driven into less Space by the Incroachments of the superficial Cold, or an increase of the Inflammability of the Fuel whereon it is fed: or by having the Resistance of the imprisoning Earth weaken'd; which may happen, either from the Diminution of its Matter, by the Consumption of its central Parts, or by weakening the Cohesion of the constituent Parts of the Mass by the Excess or the Defect of Moisture.

Others look for the Cause of the *Conflagration* in the Atmosphere; and suppose, that some of the Meteors there engender'd in unusual Quantities, and exploded with unusual Vehemence, from the Concurrency of various Circumstances; may effect it, without seeking any further.

The Astrologers account for it from a Conjunction of all the Planets in the Sign *Cancer*; as the Deluge, say they, was occasion'd by their Conjunction in *Capricorn*.

Lastly, Others have recourse to a still more effectual and flaming Machine, and conclude the World is to undergo its *Conflagration* from the near approach of a *Comet*, in its return from the Sun.

Those wandering Bodies do indeed seem to menace us a little; being able, both by their transverse Motion across the Earth's way, by the hugeness of their Size, and the intense Fire wherewith they glow in their recess from the Perihelion, to produce the most signal Changes and Revolutions in the System of Things. See COMET.

Mr. *Whiston* has shewn, that they are extremely well fitted to produce the Phænomena of the Deluge; and has gone a good way towards proving, that the Comet of 1668 was the very Body to which that Event was owing; as being then in its approach toward the Sun, and its Atmosphere crouded with the watery Vapours it had gather'd in those inconceivably cold Regions, into which it had fled off in its Aphelion. See DELUGE.

This same Comet, Sir *I. Newton* has calculated, when in its Perihelion, *December* the 8th, was heated by the Vicinity of the Sun, to a degree 2000 times more hot than red hot Iron: he shews, likewise, that it would scarce be cool again in 50000 Years. See HEAT.

This same Comet, again, Dr. *Halley* observ'd *November* 11. was not above a Semidiameter of the Earth from the Earth's Way: So that had the Earth at that time been in that Part of its Orbit, something very extraordinary might have been apprehended: but whether in the way of Fire or Water, may, perhaps, to some, leave room to doubt: To us 'tis none; it being scarce conceivable the Comet should bring any vehement degree of heat, out of those bleak Regions it comes from, whatever heat it might carry thither.

CONFLUENCE, CONFLUX, the Place where two Rivers join, and mix their Waters. See RIVER.

CONFLUENT, in Medicine, an Epithet added to that Species of Small-Pox wherein the Pustules run into one another. See SMALL-POX.

CONFORMATION, the particular Texture and Consistence of the Parts of a Body, and their disposition to make a Whole: Thus, we say, Light of different Colours is reflected from Bodies according to their different *Conformation*; in opposition to the *Cartesians*, who say, that reflected Light becomes of different Colours, according to the different *Conformation* of the Bodies that reflect it. See LIGHT, and COLOUR.

Again, we say, that the *Conformation* of the Members of an Embrio, is not perfect enough to allow of a Dissection.

CONFORMATION, in Medicine, is used to express that Make and Construction of the Body which is peculiar to every Individual: Hence, a *mala Conformatio* signifies some Fault in the first Rudiments; whereby a Person comes into the World crook'd, or with some of the *Viscera*, or Cavities unduly proportion'd.

Thus, many are subject to incurable Asthma's, from too small a Capacity of the Thorax, and the like vitious *Conformations*.

CONFORMIST. } See NONCONFORMISTS, and NON-
CONFORMITY. } CONFORMITY.

Occasional CONFORMITY. See OCCASIONAL *Conformity*.

CONFORMITY, in the Schools, is the *Congruency*, or Relation of Agreement between one thing and another: as between the Measure and the Thing measur'd; the Object and the Understanding; the Thing and the Conception; the Thing and the Division thereof, &c. See CONGRUENCY.

CONFRONTATION, the Action of setting two People in presence of each other, to discover the Truth of some Fact which they relate differently.

The Word is chiefly used in criminal Matters; where, the Witnesses are *confronted* with the Accused; the Accused with one another, or the Witnesses with one another.

Confrontation of Witnesses, by the Civil Law, is not to be out of Prison.

CONFUSION, in its Metaphysical Sense, is opposed to *Order*; in a Perturbation whereof, *Confusion* consists, *e. g.* when things prior in Nature do not precede; or posterior do not follow, &c.

In a Logical Sense, *Confusion* is opposed to Distinctness, or Perspicuity; and may happen, either in *Words*, as when misconstru'd or misapply'd; or in Ideas, as when the Idea of any thing presents something along with it, which does not properly belong to that thing. See IDEA, and NOTION.

In a Physical Sense, *Confusion* is a sort of Union, or Mixture by mere Contiguity. Such is that between Fluids of contrary Nature, as Oil and Vinegar, &c.

CONFUTATION, in Rhetorick, &c. a Part of an Oration, wherein the Orator seconds his own Arguments, and strengthens his Cause, by refelling and destroying the opposite Arguments of the Antagonist. See ORATION.

Confutation makes a Branch of what we call the *Confirmation*. See CONFIRMATION.

The *Confirmation* and *Confutation* are sometimes call'd the Head of *Contention*.

CONGE, a Licence, or Permission, granted by a Superior to an Inferior, which gives him a Dispensation from some Duty to which he was before oblig'd.

Thus, we say, a Woman cannot obligate her self without the *Conge* or Licence of her Husband: A Monk cannot go out of his Convent, without the *Conge* of his Superiors.

The Word is *French*: *Menage* derives it from the *Latin Commeatum*, used for *Commeatum*, and *Commeare*, often seen among antient Writers: The *Italians* say *Congedo*.

CONGE *d'Elire*, is the King's Permission Royal to a Dean and Chapter, in time of a Vacancy, to chuse a Bishop. See CHAPTER, CANON, and COLLATION.

Gwin observes, that the King of *England*, as Sovereign Patron of all Bishopricks and other Benefices, had antiently the free Appointment of all Ecclesiastical Dignities; investing, first, *per Baculum & Annulum*; See INVESTITURE.

And afterwards by Letters Patent.

But that, in process of Time, he made the Election over to others, under certain Forms and Conditions: As, that they should at every Vacancy, ere they chose, demand of the King *Conge d'Elire*, *i. e.* leave to proceed to Election; and after Election to crave his Royal Assent, &c.

He adds, that King *John* was the first who granted this; which was afterwards confirm'd by Stat. *Westm.* and again *Articuli Cleri*.

CONGE, in Architecture, a Moulding either in form of a Quarter-Round, or of a Cavetto; which serves to separate two Members from one another.

Such is that which joins the Shaft of the Column to the Cincture, call'd also *Apophyge*; which, in *Greek*, signifies *Flight*; the Column seeming to arise hence: By the *Latins* it

it is called *Scapus*, the Shaft of the Column. See APOPHYGE.

CONGELATION, *Freezing*, the Act of fixing the Fluidity of any Liquid, by Cold, or the Application of cold Bodies; in which it differs from Coagulation, which is produced by other Causes. See COLD, &c.

Thus, Salt-petre *congeals* Water in Summer. See ICE.

Metals and Minerals are said to be Juices *congeal'd* in the Veins of the Earth, by their intermixing with one another, or with other heterogeneous Bodies, or by the Consumption and Evaporation of their finest Parts. See METAL.

Rock Crystal is usually held to be nothing but Water *congeal'd* in the Mountains. See CRYSTAL.

The Bites of Aspicks are mortal, by the sudden *Congelation* which they induce on the Blood, which stops its Circulation. See POISON, BLOOD, &c.

CONGERIES, a *Latin* Word, sometimes used for a collection, or heap of several Particles, or Bodies, united into one Mass.

CONGESTION, in Medicine, a Mass, or Collection of Humours, crouded together, and harden'd, in any Part of the Body; and there forming preternatural Tumors. See TUMOR.

Congestion is effected by little and little; in which it differs from a Defluxion, which is more sudden. See DEFLUXION.

CONGIARIUM, CONGIARY, among Medalists, a Gift, or Donative represented, on a Medal.

The *Congiary* was properly a Present made by the Emperors to the People of *Rome*: Those made the Soldiers were not called *Congiaries*, but *Donatives*. See DONATIVE.

Tiberius gave a *Congiary* of three hundred Pieces of Money to each Citizen: *Caligula* twice gave three hundred Sesterces a head: *Nero*, whose *Congiaries* are the first that we find represented on Medals, gave four hundred. See SESTERCE.

The Legend on Medals representing *Congiaries* is CONGIARIUM, or LIBERALITAS.

The Word comes from the Latin *Congius*; in regard, the first Presents made the People of *Rome* consisted in Wine and Oil, which were measur'd out to them in *Congii*.

CONGIUS, an antient *Roman* Measure for things Liquid; containing six Sextaries; equal to about a Gallon and a Pint *English* Measure. See MEASURE.

The *Congius* was used in *England*, as appears by a Charter of King *Edmund* in 946. See SEXTARY.

CONGLOBATE *Glands*, in Anatomy, those Glands whose Substance is not divided, but firm, entire, and continu'd; and their Surface smooth and uniform. See GLAND.

They are thus call'd, in opposition to *conglomerate* Glands. See CONGLOMERATE.

Conglobate Glands have each of 'em an Artery which brings 'em Blood, a Vein which carries it back again, after the proper Juice has been filtrated; and several excretory Ducts.

Some of 'em have a Cavity in the middle, with Lymphatick Vessels, which discharge themselves into a common Reservoir, or Canal. See LYMPHATICKS.

CONGLOMERATE *Glands*, are those which are compos'd of several little ones; or they are glandulous Bodies join'd together under the same common Membrane. See GLAND.

Such are the Salival Glands, Lachrymal Glands, the Pancreas, &c. which see.

The *Conglomerate Glands*, besides their Arteries, Veins, and Nerves, are also each furnish'd with an excretory Vessel, ramify'd throughout their own Substance; by means whereof they discharge the Liquors they have filtrated into Reservoirs.

CONGLUTINATION, the Act of *gluing*, or fastening two Bodies together, by the Intervention of some third, whose Parts are unctuous and tenaceous, in the Nature of a Glue, *Gluten*; from whence the Word is form'd. See GLUE.

Thus, in the Animal Oeconomy, the Parts of the Body are said to be *conglutinated* by means of their natural Moisture; by the help of Bandages, as in several Cases of Surgery; or by the Supply of viscid Particles. In which last Acceptation, *Conglutination* differs little from Accretion, or Nutrition. See NUTRITION.

CONGREGATION, an Assembly of several Ecclesiasticks, united so as to constitute a Body.

The Term is principally used for Assemblies of Cardinals, appointed by the Pope, and distributed into several Chambers, to discharge several Offices, or Jurisdictions, after the manner of our Offices, or Courts. See CARDINAL.

The first, the *Congregation* of the *Holy Office*, or the *Inquisition*: The second, the Jurisdiction over *Bishops* and *Regulars*: The third that of *Councils*; this has Power to interpret the Council of *Trent*: The fourth that of *Customs*, *Ceremonies*, *Precedences*, *Canonizations*; call'd the *Congregation* of *Rites*: The fifth that of *St. Peter's Fabrick*; which takes cognizance of all Causes relating to Piety and Charity part whereof, is due to the Church of St. *Peter*: The sixth that of *Waters*, *Rivers*, *Roads*: The seventh of *Fountains*, *Streets*: The eighth that of the *Index*, which examines the Books to be printed or corrected: The ninth that of the Government of the whole *State of the Church*: The tenth *de bono Regimine*; of which two last, the Cardinal-Nephew is chief. The eleventh that of *Money*: The twelfth that of *Bishops*; wherein those who are to be promoted to Bishopricks in *Italy* are examin'd: This is held before the Pope. The thirteenth that of *Consistorial Matters*; the Chief whereof is the Cardinal-Dean. There is also a *Congregation* of *Alms*, which takes care of what relates to the Subsistence of *Rome*, and the State of the Church.

CONGREGATION is also used for a Company or Society of Religious; canton'd out of this or that Order; and making, as it were, an inferior Order, or a Subdivision of the Order it self. See ORDER, and MONASTERY.

Such are the *Congregations* of the *Oratory* of *Cluny*, &c. among the *Benedictins*. See ORATORY, CLUNY, BENEDICTINS, &c.

Also for Assemblies of pious Persons, in manner of Fraternities; frequent among the Jesuits, in honour of the Virgin, &c. See FRATERNITY.

CONGREGATION, in Physicks, is used by Dr. *Grew* for the least degree of Mixture; or that wherein the Parts of the Mixt do not consist with, or adhere to each other, but only touch in one Point. See MIXTURE.

That Author declares himself of Opinion, that the Particles of all Fluids only touch in this manner; or that their Cohesion only amounts to a *Congregation*. See FLUID, and COHESION.

CONGRESS, *Congressus*, is used for an Assembly of Commissioners, Deputies, Envoys, &c. from several Courts, meeting to concert Matters for their common Good.

The *Congress* at the *Hague*, which held during the Course of the War, terminated in 1697, by the Treaty of *Reswick*, was composed of the Envoys of all the Princes in the Confederacy against *France*.

CONGRESS is also used in an obscene Sense, for an Essay, or Trial, made by Appointment of a Lay or a Spiritual Judge, in the Presence of Chirurgeons and Matrons, to prove whether or no a Man be impotent; in order for the dissolving of a Marriage. See IMPOTENCE.

Neither the Civil nor Canon Law make any mention of this Trial of Virility by *Congress*: It had its Origin in *France*, from the Boldness of a young Fellow, who in open Court, being hard press'd by his Wife, demanded the *Congress*. The Judge, surpriz'd with the Novelty of the Demand, found it could not be deny'd, as being the surest Evidence the Case could admit of.

In time it became a Branch in their Jurisprudence, and was authoriz'd by Decrees and Arrets. It obtain'd for about the Space of 120 Years, and was annull'd by an Arret of Parliament in 1677, as being found precarious; some having fail'd under the Experiment out of mere Modesty and Shame, which is found to have the same Effect with actual Impotency.

CONGRUITY, or CONGRUENCY, in the Schools, a Suitableness or Relation between Things; whereby we come at a Knowledge of what is to come to pass therein.

The System of *Congruity* in Matters of Grace consists in this; that God, who knows perfectly the Nature of Grace, and the Dispositions of the Will in all the Circumstances that shall befal a Man, gives Graces, wherewith, by Virtue of their *Congruity* with the Will of Man, consider'd in those Circumstances, Man will always infallibly, but not necessarily, do, what God would have him do: In regard, the Will, in the Language of the *Congruists*, does always infallibly, tho voluntarily, follow what appears best.

CONGRUITY, in Geometry, is applied to Figures, Lines, &c. which exactly correspond when laid over one another; as having the same Terms, or Bounds.

Those Things between which there is a *Congruity*, are equal and similar. See EQUALITY, and SIMILAR.

Euclid, and by his Example, most other Geometricians, demonstrate all their Elements from the sole Principle of *Congruency*: M. *Leibnitz*, and after him *Wolfius*, substitute the Notion of Similitude in lieu of that of *Congruency*. See SIMILITUDE.

CONGRUITY, in a lax Sense, is also us'd to express an Aptitude in some Bodies, to unite, or incorporate, from some similitude or fitness of their Figures: as *Incongruity* denotes an Unfitness of their Surfaces for joining together.

Thus, Quickfilver will unite with Gold, and many other Metals, but will roll off from Wood, Stone, Glass, &c. and Water, which will wet Salt and dissolve it, will slip off from Tallow without adhering to it; as also from a dusty Surface, and from the Feathers of Water-Fowl.

Two drops of Water, or of Mercury, will, on contact, immediately join and coalesce; but Oil of Tartar, pour'd upon Quickfilver, and Spirit of Wine and Oil of Turpentine on that, and Air over all, will remain in the same Vessel without any manner of Union, or Mixture with each other.

And the Cause hereof, is, that the Figures of some Bodies will not admit other Bodies near enough to be within their Spheres of Attraction, whence they cannot join, and cohere;

cohere; but where their Fitness of Figure will let them approach near enough to feel each others attractive Power, then they close and hold together. See COHESION.

CONIC *Section*, a curve Line arising from the Section of a *Cone*. See CONE, and SECTION.

The *Conic Sections* are three, *viz.* the *Ellipsis*, *Hyperbola*, and *Parabola*; beside the *Circle*, which tho it arise from the Section of a Cone by a Plane parallel to the Base, is not usually consider'd in that Capacity. See CIRCLE.

Tho the Equations, Genesis, and many of the Properties, with the Ratio's, Dimensions, &c. of each of the *Conic Sections*, be separately given under their respective Articles in this Work, ELLIPSIS, HYPERBOLA, and PARABOLA; yet, to make the Doctrine of *Conics*, which is so considerable a Part of the higher Geometry, and of such frequent use in the new Astronomy, the Motion of Projectiles, &c. more complete, we shall here put the whole in a new Light, and bring it togerher into one contracted view.

The common Intersection, then, of any Plane with a *Conic* Superficies, we observe, is called a *Conic Section*: And this Section varies, and acquires a different Name, according to the different Inclinations of the cutting Plane. For,

1st, If ABC, (Tab. *Conics*, Fig. 12.) be a Cone any how cut by a Plane ADE, thro' the Vertex; and again by another Plane parallel to the former Plane ADE: then, the Section BFGH, made in the Superficies thereof, is called an *Hyperbola*; the Plane of which being produced to meet the opposite Superficies, will make the Section fhg; which is likewise call'd an *Hyperbola*: and both these, conjunctly, are called *opposite Sections*.

2dly, If thro' the Vertex A of a Cone, a Plane DAE, passes without the Superfices thereof, that is, neither cutting nor touching it; and the Cone be again cut by a Plane parallel to the Plane DAE, the Section FHG made in the Superficies thereof, is called an *Ellipsis*.

3dly, If a Plane ADE touches the Superficies of a Cone, and the Cone be cut by a Plane, the Section is a *Parabola*.

But instead of considering these Curves as arising by Section of the Cone it self, their Description, Nature, and Properties, are found more easy of Conception, when consider'd as drawn on a Plane: For which Reason, after *Des Cartes* and most of the later Writers, we shall rather chuse to lay 'em down in this second manner.

Genesis, or Construction of the Ellipsis.

To conceive the Production and Nature of an Ellipsis, then, let H and I, (Fig. 13.) be two Points, Nails, or little Pegs, about which put a Thread BHI, then putting your Finger to the Thread, and keeping the same always in an equal Tension, move the Finger round from the Point B, till you return to the same Point B again.

By this Revolution of the Point B, is describ'd the curve Line, called the *Ellipsis*; which differs from the Delineation of a Circle only in this, That a Circle hath only one Centre, but the Ellipsis two; which, if the Points H and I should come together, into one, the elliptic Curve would become perfectly *circular*.

But by how much greater the distance is betwixt those Points, the same length of the Thread still remaining; so much the farther is this Figure removed from the Circular. So that according to the diverse Proportion of the Distance HI to the Thread BHI, or to the Line DK, which is equal to the same Thread, divers Species of Ellipses will be describ'd.

But then, if the Length of the Thread be increas'd or diminish'd, in the same Proportion as the Distance of the Points H and I is increased, or diminish'd, there will indeed be describ'd divers Ellipses, but all of the same Species: whence it appears, that Ellipses are not only innumerable in Magnitude, but in Species also; and reach from a Circle to a right Line: For, as when the Points H and I meet together, the Ellipsis becomes a Circle; so, when they are removed from each other half the length of the Thread, it becomes a right Line, both sides meeting together.

Whence also it appears, that every Species of Ellipses is no less different from any other, than the Extremes of them are different on this side from a Circle, and on that from a right Line. It also appears from this Delineation, that if from a Point taken at pleasure in the Elliptick Periphery, as the Point B, you draw two Lines to the two central Points; these two Lines BH and BI, taken together, will be equal to the greatest Diameter DK; and consequently, that the Sum of them is always given.

In the Ellipsis DFKR, (Fig. 14.) the Point C is call'd the *Centre*, the Points H and I the *Foci*, DK the *greater Axis*, or *transverse Axis*, or the *principal Diameter*, or *Latus transversum*; and FR is the *lesser Axis*: All the right Lines passing through the Centre C are *Diameters*; and all right Lines terminated at the Periphery, and divided into two equal Parts by any Diameter, are called *Ordinates*. That Part of every Diameter intercepted betwixt the Vertex thereof, and the Ordinate as $M\mu$, is called the *Abscissa* thereof. A Line drawn from the Vertex of the Diameter, parallel to the Ordinates thereof, as $n\theta$, is a *Tangent* to the Ellipsis in that Vertex. A Diameter parallel to the Ordinates of another Diameter, is term'd a *Conjugate Diameter*; and the Ordinate to the greater Axis, which passeth thro' either of the *Foci*, as MA is termed the *principal Latus Rectum*, or the *Parameter* of the greater Axis. See CENTRE, FOCUS, AXIS, DIAMETER, ORDINATE, PARAMETER, &c.

Properties of the Ellipsis.

1. The Ordinates of every Diameter are demonstrated to be parallel to each other.

2. The Ordinates of the Diameters or Axes are perpendicular to the Axes themselves; but the Ordinates of the rest of the Diameters are oblique to their Diameters; and in Ellipses of divers Species, so much the more oblique, at equal Distance from the Axis, by how much the Proportion of the greater Axis to the lesser is the greater; but in the same Ellipsis, so much the more oblique, by how much the more remote the Diameters are from the Axes.

3. There are only two Conjugate Diameters, which are equal each to other; *viz.* those whose Vertices are at equal Distances from the Vertices of the Axes: Thus, the Diameter VT is conjugate, and equal to that other GM; where VF is equal to MF, and VD equal to MK.

4. The obtuse Angle VCM of these two Diameters, which are conjugate and equal, is greater and the acute Angle VCG is less than every other Angle contain'd by the rest of the Diameters that are conjugate to each other.

5. If the Lines μP and νB be Semi-ordinates to any Diameter, as MG, the Square of the Semi-ordinate μP is to the Square of the Semi-ordinate νB, as is the Rectangle $M\mu \times \mu G$, to the Rectangle $M\nu \times \nu G$; that is, μPq is to the Rectangle comprehended under the two Parts, into which the Diameter is divided by the Ordinate KP, as νBq is to the Rectangle under the Parts of the Diameter made by the Ordinate AB.

6. The Parameter, or *Latus Rectum* of any Diameter, is a third Proportional to that Diameter and its conjugate: That is, (in Fig. 1.) if the Diameter DK is to its conjugate Diameter EF, as EF is to Y; then Y is the Parameter or *Latus Rectum* of the Diameter DK: whence AM, an Ordinate to the Axis thro' the *Focus* is, as above, equal to the principal Parameter, and is a third Proportional after the greater and lesser Axis.

7. The Square of every Semi-ordinate, as MI, (Fig. 13.) is less than the Rectangle made of any Abscissa whatever; as IK drawn into the *Latus Rectum* of its own Diameter, or than $IK \times y$. And in the other Figure, $P\mu q$ is less than the Rectangle made of the Abscissa $M\mu$, and the *Latus Rectum* of MG: From which *Defect*, or ἔλλειψις, this Section hath its Name.

8. If from any Point, as B in the first Figure, you draw the right Lines BH and BI to the *Foci*, the Sum of them will be equal to the greater Axis, as was shew'd above: And if the Angle IBH, comprehended by those Lines, be bisected by the right Line ba, the Line A is perpendicular to the Tangent VB in the Point B; that is, to the Curve in the Point of Contact.

9. The Distance of a Body turn'd round in an Ellipsis, about the *Focus* H, from the same *Focus*, is the greatest of all in the Point K; least of all in the Point D; and mean in the Points E and F; and that mean Distance HF is equal to the greater Half-Axis DC or CK; as is manifest from the Production of the Ellipsis.

10. The vanishing Subtense of the Angle of Contact, parallel to the Distance from the *Focus*, at an equal perpendicular Interval from that distance, always remains given and unvaried in the same Ellipsis, yea, and in the same Parabola, and Hyperbola too. Thus if dZ be always given, gd also will always remain given in a distance infinitely small.

11. The Area of the Ellipsis is to the Area of the Circle circumscrib'd, as the lesser Axis is to the greater; and so are all correspondent Parts whatsoever among themselves, as MIK, mIK: and the Ordinates to the greater Axis, as mI, are divided by the elliptick Periphery always in the same Proportion, so that MI is to mI always in the same Proportion; to wit, that of the lesser Axis to the greater. And we are to reason in the same manner concerning a Circle inscrib'd in an Ellipsis.

12. All Parallelograms describ'd about the conjugate Diameters of the Ellipsis, and comprehending the Ellipsis, are equal. Thus, the Parallelogram $\alpha\beta\gamma\delta$ is equal to the other $\epsilon\zeta\eta\vartheta$: And thus it is every where.

13. If a right Line always passing thro' one of the *Foci* be so moved, that the Elliptic Area describ'd by the same, is proportional to the Time; the angular Motion of a right Line drawn from the other *Focus* to the former Line, will be almost equable: Thus, in the former Figure, if the angular Motion of the Line HB be so attemper'd, that the same being according to the reciprocal proportion of the Distance accelerated or retarded, doth describe the Area DHB,

TAB: CONICKS

Fig 1 Latus Transversum

Fig. 2 Cone

Fig. 3 & 5 Cone

Fig. 4 Cone

Fig. 5 Sectiones Sequentes

Fig. 5 Curve & Diameter

Fig 6 Cone

Fig. 6 Diameter of a Curve

Fig. 7 Cone

Fig. 8 Parabola

Fig. 9 Parabola

Fig. 10 Parabolic Cuneus

Fig. 11 Helicoid Parabola

Fig. 12 Asymptote

Fig. 13 Conick Section

Fig. 14 Conic Section

Fig. 15 Conic Section

Fig. 16 Conic Section

Fig. 17 Conic Section

Fig. 18 Focus

Fig. 19 Subnormal

Fig. 19 Focus

Fig. 21 Ellipsis

Fig. 20 Equilateral Hyperbola Asymptote

Fig. 22 Ellipsis

Fig. 24 Ellipsis

Fig. 25 Ellipsis

Fig. 26 Ordinate

Fig. 28 Hyperbola

Fig. 27 Hyperbola

Fig. 29 Hyperbola

Fig. 30 Hyperbola

Fig. 31 Conjugate Axis

Fig. 32 Conjugate Axis of the Hyperbola

Fig. 33 Asymptote

D H B, proportional to the Time; the angular Motion K I B about the other *Focus* I, will be almost proportional to the Time, and consequently without any notable Acceleration or Retardation, and nearly equable; that is to say, where the Ellipsis doth not differ much from a Circle.

Genesis of a Parabola.

Let D I be an infinite right Line, and I L another perpendicular to it; (Fig. 15.) Then, taking, in the Line D I, any Point, F, let the Line F I be bissected in the Point T; and let there be taken two Threads joined together in the Point T, one T I, the other T F: and let a Pin fixed to the Threads in the Point T be moved to the right and left, in such a manner, that when the Pin is in any other Position, as in P, the Thread T I which here becomes P L, be always perpendicular to I L; or, which is the same thing, parallel to D I, but equal to the Thread T F; which in this case becomes P F, ever passing thro' the Point F.

The Curve thus generated by the Pin, infinitely produced both ways, is a *Parabola*: in which *g* P *i* T *s* R *o*, is called the *Periphery*; I D the *Axis*, or *principal Diameter*; F the *Focus*; the Point T the *principal Vertex*.

An Ordinate to the Axis thro' the *Focus*, is equal to the principal *Latus Rectum*: all right Lines *n i*, parallel to the Axis, are Diameters, as dividing the Lines P and K T, which are parallel to the Tangents at their Vertices, into two equal Parts; and they are call'd Diameters belonging to the Vertices in which they terminate, as *i*.

Properties of a Parabola.

1. Every Diameter, or right Line parallel to the Axis, bissects all the Lines within the Figure, which are parallel to the Tangent of the Vertical Point: which bissected Lines are call'd *Ordinates*.

2. The Ordinates of the Axis are perpendicular thereto; but the Ordinates of the rest of the Diameters are oblique to their Diameters; and so much the more oblique, by how much the Vertex of the Diameter is further remov'd from the principal Vertex of the Parabola.

3. The *Latus Rectum*, or Parameter to every Diameter, is a third Geometrical Proportional after any Abscis, and its Semi-ordinate; that is, if the *Latus Rectum* of the Diameter *i n*, or that of the Vertex *i*, be *y*; then, as the Abscis *i q* is to the Semi-ordinate *q k*, so is that Semi-ordinate *q k* to *y*.

4. The principal *Latus Rectum*, or that belonging to the Axis, is equal to the Ordinate *h i* passing thro' the *Focus*; and quadruple of F T, the least Distance of the *Focus* from the principal Vertex.

5. The *Latus Rectum* belonging to any Vertex or Diameter, is also quadruple of the distance of that Vertex from the *Focus*: Thus, the *Latus Rectum* of the Vertex *s* is quadruple F *s*, and so it is every where.

6. The Distance of any Vertex or Point in the Parabola whatever, from the *Focus*, is equal to the least Distance of the same from the Line L L, which is perpendicular to the Axis; and is distant from the principal Vertex, by a quarter of the principal *Latus Rectum*.

7. The Square of every Semi-ordinate, as *q k*, is equal to a Rectangle made of the *Latus Rectum*, of the same Vertex as Y, and *i q* the Abscis of the Diameter of the Vertex. And from the Equality of the παραβολη, or Comparison in the Figure, betwixt the Rectangle and the Square of the Semi-ordinate, without any Excess or Defect, the Name of the Section is derived.

8. Since therefore the *Latus Rectum* in any Diameter is given, the Abscisses are as the Squares, or in the duplicate Ratio of the Semi-ordinates. Thus, T F is to T G as *i* F *q* is to *g* G *q*, and so likewise is *i q* to *i r*, as the Square of *q* T is to the Square of *r l*: and thus every where. From whence, also, when the Abscis of the Axis is equal to the principal *Latus Rectum*, or fourfold of the Distance from the Vertex, it will be equal to its Semi-ordinate.

9. The Angle, comprehended by any Tangent whatever, and a Line from the *Focus*, is equal to an Angle comprehended by the same Tangent, and any Diameter, or the Axis. Thus, the Angles I *i* F, and *p i n* are equal: whence, by the way, all the Rays of Light which fall on the Concave part of the Surface, produced by the Convolution of the Parabola about the Axis; which fall, we say, on the same Parallel to the Axis; will be reflected from a concave paraboloid Figure to the *Focus* F, and there beget a most vehement burning: from which Property, the Point F has the Name *Focus*, and has communicated the same to the like Points in the Hyperbola and Ellipsis. See Focus.

10. A Parabola, like an Hyperbola, does not inclose a Space, but stretches out *in infinitum*.

11. A Parabolic Curve always tends more and more, *in infinitum*, to a Parallelism with its Diameters; but can never arrive thereat.

12. If two Parabolas be described, with the same Axis and Vertex; the Ordinates to the common Axis will be cut off by the Parabola in a given proportion; and the Areas comprehended by the same Axis and Ordinate, and the respective Curves, will be in the same given Proportion to one another.

13. Every Parabolic Space comprehended betwixt the Curve and the Ordinate, is to the Parallelogram made of the same Base and Altitude in a subsesquialteral Proportion; that is, as 2 is to 3; and to the external Space in a duplicate Proportion, or as 2 is to 1: So *q i* T is to *q i* I, as 2 is to 3; and to *i* I T as 2 is to 1. From whence it becomes easy to square the Parabola. See QUADRATURE.

14. The Distance between the Vertex of the Axis, and the Point where any Tangent intersects it, as I, is equal to the Abscis of the Axis which belongs to the Ordinate applied from the Point of Contact: So T I is equal to T F; and thus it is every where.

15. All Parabolas are like, or of the same Species; as are also all Circles.

16. If a Diameter be continu'd thro' the Point of Concourse of two Tangents; this Diameter will bissect the Line that joins the Contacts: which Property of the Parabola may likewise be understood of the Ellipsis, and Hyperbola.

Genesis of an Hyperbola.

Suppose a Staff or Rule of a sufficient Length, as I B; (Fig. 16.) let I and H be two central Points, answering to the *Foci* of an Ellipsis, in which let Nails be fasten'd; then, there being tied to one end of the Stick, a Rope or Thread as long again as the Stick, let the other end thereof be bor'd thro', and so fix'd upon the Nail I; and fix the other end of the Rope, by a Knot, upon the other Nail H: which done; laying your Finger on the Point B, where the Rope and Staff are tied together, let your Finger descend so long, till you have thereby applied, and joined the whole Rope to the Staff, or Rule; the Staff having been in the mean while, as it needs must, wheel'd about the Centre I. Thus, with the Point B, the Vertex of the Angle H B I, you will have described a Curve Line X B D, which is part of an Hyperbola; the whole consisting of that Curve which will result from the Curve X B D; which hath added to it the Curve Y D, the Produce of the Rule and Work, as turn'd to the other Side.

Further, transferring the Hole, or Knot of the Rope to the Nail I, and fastening the End of the Staff on the Nail H, you will describe another Hyperbola, vertically opposite to the former, which is altogether like and equal thereto. But if, without changing any thing in the Rule and Nails, you only apply a longer Rope; you will have an Hyperbola of a different Species from the former: and if you still lengthen the Rope, you will have still other sorts of Hyperbolas; till at length, making the Rope double the length of the Rule, you will have the Hyperbola chang'd into a right Line.

But if you alter the Distance of the Nails, in the very same proportion in which you change the Difference betwixt the Length of the Rope, and that of the Stick; in this Case you will have Hyperbolas mark'd out, which are altogether of the same Species, but have their similar Parts differing in magnitude.

Lastly, If the length of the Rope and Rule be equally increas'd, their Difference in the mean while, and the Interval of the Nails remaining the same; not a different Hyperbola, either as to Species or Magnitude, will be describ'd, nor any other than a greater Part of the same Hyperbola.

It must be own'd, however, that many Properties of an Hyperbola are better known from another manner of generating the Figure, which is as follows: Let L L and M M, (Fig. 17.) be infinite right Lines intersecting each other at any Angle whatever, in the Point C: from any Point whatever, as D or *e*, let D *c* D *d* be drawn parallel to the first Lines; or *e c*, *e d*; which, with the Lines first drawn, make the Parallelograms, as D *e* C *d*, or *e c* C *d*. Now, conceive two sides of the Parallelogram, as D *c* D *d*, or *e c e d*, to be so moved, this way and that way, that they always keep the same Parallelism; and that at the same time the Areas always remain equal; that is to say, that D *c* and *e c* remain always parallel to M M; and D *d* or *e d* always parallel to L L; and that the Area of every Parallelogram be equal to every other, one Side being increas'd in the same Proportion wherein the other is diminish'd: By this means, the Point D or *e* will describe a Curve-Line within the Angle comprehended by the first Lines; which is altogether the same as that describ'd above. So also in the Angle vertically opposite will be describ'd a like and equal Hyperbola; if the Parallelogram C *c* K *d*, equal to the former, be supposed to be moved, in the same manner as before: which Hyperbolas are, as was said before, called opposite *Sections*, or opposite Hyperbola's.

In each Figure, D K is the *transverse Axis*, or *transverse Diameter of the Hyperbola of the opposite Sections*; the Point C the *Centre*; H and I the *Foci*. In the latter Figure, all the Lines passing thro' the Centre C, as *i h*, are *Diameters*: but if Hyperbola's be describ'd in the following Angles, as

LCM, MCL, those Sections will be called the *following Sections*: And if the Distance of the primary Vertex of those Hyperbola's from the common Centre C, as C β, or C γ, be equal to the Semi-tangent K ρ or K ω; at the primary Vertex of these, those Sections are called *conjugate Sections*: And all the Figures together are named the *Hyperbolic System*.

Further, *i h* the Ordinate to the Axis thro' the *Focus*, is equal to the principal *Latus Rectum*, or the Parameter of the Axis; and an indeterminate Diameter, which is parallel to the Ordinates of any determinate Diameter, is called the *conjugate Diameter* of the same.

Properties of the Hyperbola.

1. Any Diameter or right Line passing thro' the Centre, bisects all its Ordinates; that is, all the right Lines terminated on both Sides by the Hyperbolic Periphery.

2. The Ordinates of the Axis are perpendicular to the same; but the Ordinates of the rest of the Diameters are oblique to their Diameters: and so much the more in divers Species, at equal Distances from the Axis, by how much the Difference of the Angles including the Hyperbola's is the greater: and in the same Hyperbola, so much the more oblique, by how much the Diameters are remov'd from the Axis.

3. If any Lines, as H *h* and Q *s*, be Semiordinates to any Diameter whatever, as K D; the Square of the Semi-ordinate H *h*, is to the Square of the Semi-ordinate Q *s*, as the Rectangle K H D H is to the Rectangle K Q D Q: and so the Square *b n* is to the Square *a* K, as the Rectangle *i b h b* is to the Rectangle *i a h a*: And thus every where.

4. The *Latus Rectum*, or Parameter of every Diameter, is a third Geometrical Proportional, after the Diameter, and the Conjugate thereof, (or its Tangent, which is equal to it:) That is, if the *Latus Rectum* of any Diameter, as D K, be *y*; then, as the Diameter D K is to its conjugate $\beta\nu$, or its equal $\omega\nu$; so that Conjugate $\beta\gamma$, or that Tangent $\omega\nu$ is to *y*. And as the Ordinate to the Axis thro' the *Focus* is the principal *Latus Rectum*, so it is more than double of the least Distance of the *Focus* from the Vertex.

5. The Square of any Semi-ordinate, as Q *r*, is greater than a Rectangle made of the Abscis D Q, drawn into the *Latus Rectum* of its own Diameter, as *y*: And, in like manner, the Square of the Semi-ordinate *b n*, is greater than the Rectangle of the Abscis *i b*, into the *Latus Rectum* of the Diameter *b i*. From which ὑπερβολή, or Excess, this Section hath its Name.

6. If from any Point of the Hyperbola, as B, (Fig. 16.) there be drawn right Lines to both the *Foci*, as B H, B I, the Difference of these Lines will be equal to the Axis DK; as will easily appear from the Delineation it self.

7. If the Angle B H I, comprehended by Lines drawn to the *Foci*, be bissected by the right Line E B, that right Line will be a Tangent to the Hyperbola in the Point B.

8. The right Lines L L and M M, which inclose the Hyperbola's, are Asymptotes of the Hyperbola's; that is, they are such, to which, on both sides, the Curve approaches nearer and nearer, but is never able to touch or coincide therewith.

9. The Species of Hyperbola's are various, according to the different Magnitude of the Angle L C M, comprehended by the Asymptotes: but that Angle remaining the same, the Species of the Hyperbola remains unchang'd; but according to the different Magnitudes of the Parallelograms, by which Hyperbola's are describ'd, Hyperbola's of divers Magnitudes do arise: If the Angle contained by the Asymptotes be a right Angle, the Hyperbola is called *Equilateral*, or *Rectangular*; and the *Latus Rectum* of all the Diameters will (as in a Circle) be equal to their Diameters. And, lastly, if Hyperbola's be describ'd about the same Axis in divers Angles of the Asymptotes, the right Lines perpendicular to the Axis will be cut off in a given Proportion by them all; and the Spaces likewise inclosed by the right Lines, or Ordinates, the produced Axis, and the Curves, will be in the same given Proportion.

10. If the Distances from the Centre of the Hyperbola, be taken in a Geometrical Proportion in one of the Asymptotes, so that C I, C II, C III, C IV, C V, C VI, be in continued Geometrical Proportion; and if from those Points there be drawn parallel to the other Asymptote the Lines, I 1, II 2, III 3, IV 4, V 5, VI 6, the Spaces I 2, II 3, III 4, IV 5, V 6, will be equal among themselves. And consequently, if that Asymptote C M be supposed to be divided, according to the Proportion of Numbers exceeding one another in a natural Series, those Spaces will be proportional to the Logarithms of all those Numbers.

Common Properties of all the Conic Sections.

From the whole it may be gather'd, 1st, That the *Conic Sections* are in themselves a System of regular Curves, allied to each other; and that one is chang'd into another perpetually, when it is either increas'd, or diminish'd, *in infinitum*.

Thus, the *Circle*, the Curvature thereof being never so little increas'd or diminish'd, passeth into an *Ellipsis*; and the Ellipsis, its Centre going away infinitely, and the Curvature being by that means diminish'd, is turn'd into a *Parabola*: And when the Curvature of the Parabola is never so little chang'd, there ariseth the first of the *Hyperbola's*; the Species whereof, which are innumerable, will all of them arise orderly by a gradual Diminution of the Curvature; until the Curvature vanishing away, the last Hyperbola ends in a *right Line* perpendicular to the Axis. From whence it is manifest, that every regular Curvature, like to that of a Circle, from the Circle it self into a right Line, is a *conical* Curvature, and is distinguish'd with its peculiar Name, according to the divers Degrees of that Curvature.

2dly, That the *Latus Rectum* of a Circle, is double to the Distance from the Vertex: That all the *Latera Recta* of the Ellipses, are in all Proportions to that distance betwixt the Double and Quadruple, according to their different Species: That the *Latus Rectum* of the Parabola is just quadruple to that Distance; and, lastly, that the *Latera Recta* of Hyperbola's are in all Proportions beyond the Quadruple, according to their various Kinds.

3dly, That all Diameters in a Circle and Ellipsis, intersect one another in the Centre of the Figure within the Section: That in the Parabola they are all parallel amongst themselves, and to the Axis; but that in the Hyperbola they intersect one another, but this without the Section, in the common Centre of the opposite Sections.

4thly, That the Curvature, with respect to the *Focus*, in all these Figures, is increas'd or diminish'd proportionably.

CONICKS, that Part of the higher Geometry, or Geometry of Curves, which considers the *Cone*, and the several Curve Lines arising from the *Sections* thereof. See Geometry; see also Cone, and Conic *Section*.

CONIFEROUS, a Term applied to such Trees, Shrubs, or Herbs, as bear a squammous or scaly Fruit, of a woody Substance, and a Figure approaching to that of a Cone; in which there are many Seeds, and when they are ripe, the several Cells or Partitions in the Cone gape or open, and the Seed drops out: Of this kind are the Firr, the Pine, Beach, and the like. See Plant.

CONJOINT, *Conjunctus*, is applied in the antient Musick, in the same Sense as *Consonant*, to two or more Sounds. See Consonance.

Conjoint *Degrees*, are two Notes which immediately follow each other in the Order of the Scale; as *Ut* and *Re*. See Degree.

Conjoint *Tetrachords*, are two Tetrachords, where the same Chord is the highest of the one, and the lowest of the other. See Chord.

CONISOR, or COGNISOR, in Law, is used in the passing of Fines, for him that acknowledges the Fine. See Fine.

He to whom the Fine is acknowledg'd, is called the *Cognizee*.

CONJUGATE *Diameter*, or *Axis*, in Conicks, or the Sections of the Cone, is a right Line bissecting the transverse Diameter. See Diameter, and Conic *Section*.

Conjugate *Diameter*, or *Axis*, of an Ellipsis, is the shortest Diameter, or Axis, bissecting the longer, or transverse Axis. See Ellipsis.

'Tis demonstrated, 1st, That in an Ellipsis, the *Conjugate* Axis is a Mean Proportional between the Transverse Axis and the Parameter. 2dly, The Square of the *Conjugate* Axis, is to that of the Transverse, as the Square of the Semi-ordinate is to the Rectangle of the Segments of the Axis. 3dly, That a right Line drawn from the *Focus* to the Extremity of the Half-*conjugate* Axis, is equal to the transverse Semi-axis.

Hence, the *Conjugate* Axes being given, the *Focus* is easily determin'd. See Focus. And the Ellipsis thence easily describ'd.

Conjugate *Axis*, in an Hyperbola, is a Mean Proportional between the transverse Axis and the Parameter. See Hyperbola.

It is thus called, because the *Conjugate Axis* of an Ellipsis has the same Ratio.

In an Hyperbola, the Square of the *Conjugate Axis*, is to the Square of the Transverse, as the Parameter to the transverse Axis. See Parameter.

CONJUGATION, in Grammar, an orderly Distribution of the several Parts of Verbs; or, a different Inflection of Verbs, made according to their different Moods and Tenses, to distinguish 'em from each other. See Verb.

The *Latins* have four *Conjugations*, distinguish'd by the Terminations of their Infinitive, *are*, *ere*, *ere*, *ire*; and most of the *French* Grammarians reduce the *Conjugations* of their Language to the same Number; ending in *er*, *re*, *ir*, and *oir*.

In *English*, where the Verbs have scarce any natural Inflections, but derive all their Variations from additional Particles, Pronouns, &c. we have scarce any such thing as strict *Conjugations*. See Mood, Tense, &c.

CONJUGATION, in Anatomy, is underſtood of a *Pair* of Nerves; or two Nerves, ariſing together, and ſerving for the ſame Operation, Senſation, or Motion; there being ſcarce any Nerve without its fellow. See NERVE.

The antient Phyſicians only knew of Seven Pairs, or *Conjugations* of Nerves; the Moderns have diſcover'd thirty new ones. See PAIR.

CONJUNCTION, in Aſtronomy, the Concourſe, or Coition of two Stars, or Planets, in the ſame optical Point of the Heavens, *i. e.* in the ſame degree of the Zodiack. See PLANET, PHASIS, *&c.*

If the two Bodies concur both in the ſame degree of Longitude and Latitude, a right Line drawn from the Eye thro' the Centre of one of them, paſſes thro' that of the other; and the *Conjunction* is ſaid to be *true*: if the lower hides the upper, the *Conjunction* is ſaid to be *corporal*; and if the ſame right Line, continu'd back from the two Centres thro' the Eye, do alſo paſs thro' the Centre of the Earth, the *Conjunction* is ſaid to be *central*: If the Line paſs wide of the Centre of the Earth, the *Conjunction* is ſaid to be *Partile*: And if the Bodies don't meet preciſely in the ſame Degree, but are join'd with ſome Latitude, the *Conjunction* is ſaid to be *apparent*.

Conjunctions are alſo divided into *great* and *greateſt*: *Great Conjunctions* are thoſe which only happen at conſiderable diſtances of Time from each other; as that of *Saturn* and *Jupiter*, which happens every 20 Years. *Greateſt*, are thoſe which happen in Times very remote; as that *Conjunction* of the three ſuperior Planets, *Mars*, *Jupiter*, and *Saturn*, which only returns once in 500 Years. But this Diviſion has little place in Aſtronomy; being founded on the Notion of the particular Influences, *&c.* of the heavenly Bodies in ſuch and ſuch Aſpects.

The Aſtrologers maintain, that the Deluge was owing to a *Conjunction* of all the Planets in *Capricorn*; and that the Conflagration will be occaſion'd by their *Conjunctions* in *Cancer*: whence they pretend to foretel the End of the World.

The *Conjunction* is the firſt, or the principal of all the Aſpects; and that whence the other Aſpects commence; as Oppoſition is the laſt, where they terminate. See ASPECT, and OPPOSITION.

The Moon is in *conjunction* with the Sun every Month. See MOON.

Her *Conjunctions* and Oppoſitions are called by a general Name, *Syzygies*. See SYZYGY.

The Eclipſes of the Sun never happen, but when there is a *Conjunction* of the Sun and Moon in the Nodes of the Ecliptic. See ECLIPSE.

CONJUNCTION, in Grammar, a Particle which expreſſes a Relation, or Dependance between Words and Phraſes; thus called, becauſe ſerving to *join*, or connect the Parts, or Members of a Diſcourſe. See PARTICLE, SENTENCE, *&c.*

The *Conjunction* is the ſixth of the eight vulgar Parts of Speech. See SPEECH.

Conjunctions render the Diſcourſe more ſmooth and fluent; and ſerve very good Purpoſes in the Argumentative and Narrative Style: but muſt ever be omitted where a Perſon ſpeaks with Emotion; as only ſerving to weaken and enervate it. *Boileau* obſerves, that nothing gives more heat and motion to a Diſcourſe, than to drop the *Conjunctions* or Copulatives: A Paſſion, adds he, embarraſs'd with *Conjunctions* and uſeleſs Particles, loſes all the Fire and Vehemence it would get in its progreſs.

Conjunctions are of various Kinds: *Copulative* or *conjunctive Conjunctions*, expreſs a Relation of Union, or Compariſon between Things; as *and*, *et*; *only*, *tantum*; *as much as*, *tantum quantum*; *in the ſame manner as*, *quemadmodum*; *neither more nor leſs*, *tantundem*; *inaſmuch as*, *quippe*; *not only*, *but alſo*, *&c. non modo*, *ſed etiam*, &c. See COPULATIVE.

Conjunctions Diſjunctive, expreſs a Relation of Separation or Diviſion; as, *neither*, *nec*; *whether*, *ſive*; *or*, *vel*. See DISJUNCTIVE.

Conjunctions Adverſative, expreſs a Reſtriction, or Contrariety; as, *but*, *ſed*; *nevertheleſs*, *tamen*; *altho*, *etiamſi*; *far from*, *adeo non*.

Conjunctions Conditional, are, *if*, *ſi*; *if not*, *ſi minus*; *on Condition that*, *ea lege ut*; *provided that*, *dummodo*; *in caſe of*, *ſi vero*. See CONDITION.

Conjunctions Continuative, expreſs a Succeſſion, or Continuation of the Diſcourſe; as, *in effect*, *reipſa*; *even*, *etiam*; *whatever it be*, *quicquid ſit*.

Conjunctions Cauſal, ſhew that the Reaſon of ſomething is brought: *for*, *nam*; *becauſe*, *quia*; *ſeeing*, *quippe*; *the rather ſince*, *eo magis quo*; *inaſmuch as*, *quatenus*. See CAUSAL.

Conjunctions Dubitative, expreſs ſome Doubt, or Suſpenſion of Opinion; as, *if*; *that is to ſay*, *if*, &c.

Exceptive Conjunctions, are, *if it ben't*, *niſi ſi*; *unleſs that*, *niſi*, &c.

Conjunctions Concluſive, denote a Conſequence drawn; as; *for which reaſon*, *quapropter*; *but then*, *atqui*; *of conſequence*, *ideoque*; *ſo that*, *ita ut*, &c.

CONJUNCTIVA *Tunica*, or *Adnata*, in Anatomy, the firſt Coat, or Membrane of the Eye; ſo called, becauſe it incloſes all the reſt; or becauſe it faſtens the Eye in its Orbit. See ADNATA, and EYE.

It is very ſmooth, when ſound, of a white Colour, like Alabaſter; whence it is ordinarily called the *White of the Eye*.

It is ſaid to have its riſe from the *Pericranium*, and to be only a Continuation or Extenſion thereof. See PERICRANIUM.

The *Conjunctiva* does not inveſt the Globe of the Eye intire; but terminates at the Edge of the *Sclerotica*. See SCLEROTICA.

It is cover'd with a Million of fine Veins and Arteries; which never appear, unleſs when the Motion of the Blood is more than uſually rapid, as in Opthalmia's; or when the Veſſels are more full and diſtended than ordinary, as in Drunkenneſs.

CONJURATION, Magick Words Characters or Ceremonies, whereby evil Spirits, Tempeſts, *&c.* are ſuppos'd to be rais'd, and driven away. See MAGICK.

The *Romiſh* Prieſts pretend to expel Devils, by preparing Holy Water in a particular manner, and ſprinkling it over the poſſeſs'd, with a number of *Conjurations*, and Exorciſms. See EXORCISM.

Some Authors make the difference between *Conjuration* and *Witchcraft* to conſiſt in this; that the former effects its Ends by Prayers, and Invocation of God's Name, *&c.* to compel the Devil to do what is deſir'd; ſo that the *Conjurer* is ſuppos'd to be at War with the Devil, and that evil Spirit to act merely out of Conſtraint: whereas the latter attains its End by an immediate Application to the Devil himſelf; and the Devil's Complaiſance is ſuppos'd to be the Conſequence of ſome Agreement between 'em: So that the Devil and the Witch have a good Underſtanding between 'em. See WITCHCRAFT.

Both theſe, again, differ from *Enchantment* and *Sorcery*; in that theſe latter operate ſecretly, and ſlowly, by Spells, Charms, *&c.* without ever calling on the Devil, or having any conference with him. See CHARM, *&c.*

CONNECTION, or CONNEXION, *binding*, a Relation whereby one thing adheres to, or depends on another.

Euclid's Propoſitions have ſuch a *Connection* among themſelves, that the latter cannot ſubſiſt without the former.

Philoſophers are at a loſs as to the Manner of the *Connection* between Soul and Body; between Cauſes and Effects *&c.* See SOUL, CAUSE, *&c.*

CONNECTION, in the Drama, conſiſts in the joining of the ſeveral Scenes together. See SCENE.

When the Scenes ſucceed one another immediately; and are ſo joined as that the Stage is never left empty, the *Connection* is ſaid to be obſerv'd. See TRAGEDY, *&c.*

CONNIVENTES *Valvulæ*, in Anatomy, are Wrinkles, or Corrugations in the inner Coat or Membrane of the two large Inteſtines, the *Jejunum* and *Ileum*. See INTESTINES.

They are formed as the *Rugæ* of the Stomach, *viz.* by the inner Coats being larger than the outer. See STOMACH.

Theſe Folds, or Corrugations, ſome Anatomiſts imagine in ſome meaſure to do the Office of Valves; by ſtraitning the Paſſages, and conſequently impeding the Motion of their Contents: by which means, the Lacteals have the more time to imbibe the Chyle. See LACTEAL, CHYLE, DIGESTION, *&c.*

CONNOISSEUR, a *French* Term, of late uſed in *Engliſh*: It literally denotes a Perſon well ſeen and verſed in any thing; being form'd of the Verb *Connoitre*, *to know*, *underſtand*.

Hence it comes to be uſed in our Language for a *Critick*, or a Perſon who is a thorow Judge or Maſter in any way; particularly in Matters of Painting, *&c.*

CONOID, CONOIDES, in Geometry, a ſolid Body, reſembling a *Cone*, except in this, that inſtead of a perfect Circle for its Baſe, it has an Ellipſis, or ſome other Curve approaching thereto. See CONE.

The *Conoid* is produced by the entire Circumvolution of a Conic Section around its Axis; and according to the Denomination of the Section from whence it is generated, it is differently denominated: If, *v. g.* the Solid be produced by the Motion of a Parabola, it is called a *Parabolic Conoid*; if by that of an Hyperbola, an *Hyperbolic Conoid*; and an *Elliptic Conoid*, or a *Spheroid*, when produced by the Rotation of an Ellipſis, around one of its Axes. See HYPERBOLIC, PARABOLIC, *&c.*

The famous Solid of the leaſt Reſiſtance, Sir *I. Newton*, M. *Fatio*, and the Marquis *de l'Hopital*, have demonſtrated to be a *Conoid*, whoſe Reſiſtance is only one 67th Part of that of the great Baſe.

Anatomiſts alſo give the Name *Conoid*, or *Conarium*, to a Gland found in the third Ventricle of the Brain, reſembling a Pine-

a Pine-Apple; whence M. *Des Cartes* call'd it *Pinealis*, and fix'd there the Seat of the Rational Soul. See PINEAL *Gland*.

CONSANGUINITY, the Relation of *Kinship*, between Persons of the same Blood, or issu'd from the same Root.

Marriage is prohibited by the Church to the fourth Degree of *Consanguinity*, inclusive; but by the Law of Nature, *Consanguinity* is no obstacle to Marriage, except in a direct Line. See AGNATION, and COGNATION.

Consanguinity terminates in the sixth or seventh Degree, excepting in the Succession to the Crown; in which Case, *Consanguinity* is continu'd to infinity.

The Civilians call *Fratres Consanguinei*, those born of the same Father; in opposition to *Fratres Uterini*, who are only born of the same Mother. See BROTHER.

According to the common Opinion, these, and Brothers-German were not allow'd to complain of an inofficious Testament, *i. e.* of being disinherited without cause; excepting from the Turpitude of the Person appointed Heir in their place. But *Van Water* endeavours to shew the contrary; and urges, that the *Consanguinei* might plead Inofficiosity, even where the Testament was not made in favour of a Person incapable.

CONSCIENCE, *Consciousness*, in Ethicks, a secret Testimony or Judgment of the Soul, whereby it gives its Approbation to Things it does that are naturally good; and reproaches it self for those that are evil. See JUDGMENT, GOOD, and EVIL.

Or, *Conscience* is a Dictate of the understanding Power, concerning Moral Actions; consider'd as it has the Knowledge of Laws; and consequently as conscious of what is to be done, or not done to the Legislator. See MORAL.

In the more popular Sense of the Word, *Conscience* is a Judgment, either true or false, whereby we pronounce a Thing good or evil. This makes what we call the *Inner Forum*, or Tribunal.

Some Divines maintain, that *Conscience* is infallible; and hold it to be that immutable Law whereby God will judge Men: They deny that the Understanding can be the Source of Errors, and lay 'em all at the door of the Will. A Man, say they, may secure himself from Error, by forbearing to judge of Things till he have a clear and distinct Perception thereof. See LIBERTY.

Some of the Schoolmen distinguish between the *Conscience* antecedent to an Action, and that consequent thereto: The first, called *antecedent Conscience*, determines what is good and what evil; and consequently prescribes what is to be done, and what avoided. *Consequent Conscience* is a kind of secondary or reflex Judgment, with regard to the Goodness, &c. of Things already done or committed.

The *Rule of Conscience* is the Will of God; so far as it is made known to us, either by the Light of Nature, or by that of Revelation. See REASON, and REVELATION.

With respect to the Knowledge of this Rule, *Conscience* is said to be *rightly informed*, or *mistaken*; *firm*, or *wavering*, or *scrupulous*, &c.

With respect to the Conformity of our Actions to this Rule when known, *Conscience* is said to be *good*, or *evil*, &c.

The Philosophers, in lieu of the Word *Conscience*, which seems appropriated to Theological Matters, ordinarily use that of *Consciousness*; whereby they mean an inner Sentiment of a Thing, whereof one may have a clear and distinct Notion. In this Sense, they say, that we don't know our own Soul, nor are assur'd of the Existence of our own Thoughts, otherwise than by *Self-consciousness*. See EXISTENCE.

CONSCRIPT, CONSCRIPTUS, a popular Term in the *Roman* History, used in speaking of Senators, who were called *Conscript*-Fathers, *Patres-Conscripti*; in regard their Names were written in the Register, or Catalogue of the Senate. See SENATOR.

Plutarch observes, that those only were properly denominated *Conscript*, whose Names were added to those of the Antients; as being new-created from among the Knights. See FATHER.

CONSECRATION, the Action of converting or setting apart any profane or common Thing, to a pious Purpose; with the Ceremonies, Prayers, Benedictions, &c. used therein.

Consecration is the reverse of Sacrilege; which consists in the perverting a Thing set apart for a pious Purpose, to a profane and popular one. See SACRILEGE.

Thus, we say, the Bishop *consecrates* a Church, or a Chalice; the Pope *consecrates* Medals, *Agnus Dei's*, Loaves, Cakes, *i. e.* he grants Indulgences to those who bear 'em about 'em with Devotion.

The *Consecration* or Dedication of a Church, is an Episcopal Ceremony, consisting in a great number of Benedictions, with Aspersions, and Unctions of Chrism, &c. on the Walls, both withinside and without. See CHURCH.

The Custom of *consecrating* Persons, Temples, Altars, Vestments, Utensils, &c. is very antient; and all the Ceremonies thereof are prescrib'd under the Old Law. Under the New Law, when those *Consecrations* relate to Men, and are perform'd by appointment of Jesus Christ, they are properly call'd *Ordinations*; excepting those perform'd to Bishops and Kings, which still retain the Name of *Consecration*. See BISHOP, and KING; see also ORDINATION.

Those which only consist in a Ceremony instituted by the Church, are more properly call'd *Benedictions*. See BENEDICTION.

When they regard Churches, Altars, Vessels, &c. they are strictly called *Dedications*. See DEDICATION.

CONSECRATION is particularly used for the Benediction of the Elements in the Eucharist.

The *Romanists* define it the Conversion of the Bread and Wine into the real Body and Blood of Jesus Christ; and that this is the Sentiment of that Church, is evident from the Priest's elevating the Host immediately after *Consecration*, for the People to adore it.

There is a great Controversy between the *Latin* and *Greek* Churches, touching the Words of *Consecration*: The common Opinion among the *Romanists*, agreeable to St. *Thomas* and the Schoolmen, is, that the *Consecration* of the Bread and Wine consists in these Words, *This is my Body*; *this is my Blood*. The *Greeks*, on the contrary, attribute the Change of the Elements to a certain Prayer which they call the *Invocation of the Holy Ghost*, rehears'd after the Words *This is my Body*, *this is my Blood*, which the *Greeks* maintain are only necessary in the Process of the *Consecration*, as they contain the History of the Institution; not as they contribute any thing to the Change.

CONSECRATION, among Medalists, is the Ceremony of the *Apotheosis* of the Emperors; or their Translation into Heaven, and Reception among the Gods: The Process whereof, see under APOTHEOSIS.

On Medals, the *Apotheosis* is thus represented; On one side is the Emperor's Head, crown'd with Laurel, sometimes veil'd, and the Inscription gives him the Title of *Divus*: on the Reverse is a Temple, a *Bustum*, an Altar, or an Eagle taking its Flight towards Heaven, either from off the Altar, or from a *Cippus*: At other times the Emperor is seen in the Air, bore up by the Eagle; the Inscription always, *Consecratio*.

These are the usual Symbols: yet on the Reverse of that of *Antoninus*, is the *Antonine* Column.

In the *Apotheosis* of Empresses, instead of an Eagle is a Peacock.

For the Honours render'd them after Death, they were explain'd by the Words *Consecratio*, *Pater*, *Divus*, and *Deus*. Sometimes, around the Temple or Altar are put, *Memoria felix*, or *Memoriæ Æternæ*: For Princesses, *Æternitas*, and *Sideribus recepta*; on the Side of the Head *Dea*, or Θεὰ.

CONSECTARY, is a Proposition that follows, or is deduced from some preceding Definitions, *Lemmata*, Axioms, Conclusions, or the like: Whence some chuse rather to call it a *Consequence*; and others a *Corollary*, &c. See COROLLARY, and CONSEQUENT.

CONSECUTIVELY, CONSECUTIVE, in the School-Philosophy, is sometimes used in opposition to *antecedently*, and sometimes to *effectively*, or *causally*.

Thus, say the Schoolmen, the Corruption of one Thing is the Generation of another, not *effectively*, but *consecutively*: That is, since Matter cannot be without Form, 'tis necessary that the Generation of one Thing follow upon the Corruption of another.

CONSENT *of Parts*, in the Animal Oeconomy, a certain Agreement, or Sympathy, by means whereof, when one Part is immediately affected, another, at a distance, becomes affected in like manner. See SYMPATHY.

This mutual Accord, or *Consent*, is doubtless effected by the Commerce of the Nerves, and their artful Distribution and Ramification throughout the Body. See NERVE.

The Effect is so sensible, as even to come under the Physicians cognizance: Thus, the Stone in the Bladder, by vellicating the Fibres there, will pain and draw them so much into Spasms, as to affect the Coats of the Bowels in the same manner, by the Intermediation of nervous Threads, and make a Cholic there; and also extend their Twitches sometimes so far as the Stomach, and occasion grievous Vomitings: The Remedy therefore, in such Cases, is to regard the Part originally affected, how remote and grievous soever may be the Consequences and Symptoms in other Places.

The fifth Conjugation of Nerves branch'd to the Parts of the Eye, the Ear, those of the Mouth, Cheeks, *Præcordia*, and Parts adjacent, &c. are suppos'd by Naturalists to be the Instruments of that extraordinary *Consent* between those Parts. Hence it is, that a savoury Thing seen or smelt, excites the Appetite, and affects the Glands and Parts of the Mouth; that a shameful thing seen or heard, affects the Cheeks with Blushes; on the contrary, if it please, it affects the *Præcordia*, and excites the Muscles of the Mouth and Face to laughter; if it grieve, affects the Glands of the Eyes, so as to occasion

occasion Tears, and the Muscles of the Face, putting them into an Aspect of crying.

Dr. *Willis*, quoted by the Reverend Mr. *Derham*, imputes the Pleasure of Kissing, and its Effects in exciting Love, and even Lechery, to this Pair of Nerves; which being branch'd both to the Lips and the genital Parts, when the former are affected, an Irritation is occasion'd in the latter: And Dr. *Sachs* judges it to be from the Consent of the *Labia Uteri* with the *Labia Oris*, that a breeding Lady, frighted with the sight of scabby Lips, had Pustules of the like kind broke out in the *Labia Uteri*.

CONSEQUENCE, in Philosophy, the Conclusion of a Reasoning, or Argument. See CONCLUSION.

Thus, we say, two Premises of a Syllogism being granted, the *Consequence* must also be granted. See SYLLOGISM.

In a more restrain'd Signification, *Consequence* is used for the Relation or Connection between two Propositions, whereof one follows, or is infer'd from the other. Thus: *It is an Animal, and therefore perceives.*

CONSEQUENT, the last Proposition of an Argument; being something deduced or gather'd from a preceding Argumentation.

An *Enthymeme* only contains two Propositions, the *Antecedent*, and *Sequela*, or *Consequent*: If the Antecedent be absurd, the *Consequent* must be so too. See ENTHYMEME.

CONSEQUENT, in a more precise Sense, is used for the Proposition which contains the Conclusion, consider'd in it self, and without any regard to the Antecedent: In which Sense, the *Consequent* may be true, tho the Consequence be false.

For Instance; Virtue ought to be rewarded; therefore Temperance is a Virtue. See PROPOSITION.

CONSEQUENT *of a Ratio*, in Arithmetick, the latter of two Terms of a Ratio; or that to which the Antecedent is refer'd. See RATIO, and PROPORTION.

Thus, in *a* : *b*, or *a* to *b*, *b* is the *Consequent*, *a* the Antecedent. See ANTECEDENT.

CONSERVATOR, an Officer establish'd for the Security and Preservation of the Privileges granted some Cities, Bodies, and Communities; or, a Person who has a Commission to judge of and decide the Differences arising among them.

In most Catholick Universities, there are two *Conservators*; the *Conservator* of Royal Privileges, or those granted by Kings; and the *Conservator* of Apostolical Privileges, or those granted by the Pope.

The first takes cognizance of Personal and Mixt Causes, between the Regents, Students, &c. and the latter of Spiritual Matters between Ecclesiasticks.

Antiently, there were appointed *Conservators* of Treaties of Peace between Princes; which *Conservators* became Judges of the Infractions made on a Treaty, and were charg'd with the procuring Satisfaction to be made. These were usually Feudatories of each Prince.

In lieu of *Conservators*, Princes now have recourse to other indifferent Princes to Guarantee the Treaties. See GUARANTEE.

CONSERVATOR *of the Peace*, in our antient Customs, was a Person who had an especial Charge, by Virtue of his Office, to see the King's Peace kept. See PEACE.

Till the Erection of Justices of the Peace by King *Edward* III. there were several Persons, who by Common Law were interested in keeping the same: Some having that Charge as incident to other Offices; others simply, or of itself, called *Custodes*, or *Conservators of the Peace*. See JUSTICE.

The Chamberlain of *Chester* is still a *Conservator* in that County; and Petty Constables are, by the Common Law, *Conservators*, &c. in the first Sense.

CONSERVATORY, in Gardening. See GREEN-*House*.

CONSERVE, in Pharmacy and Confectionry, a dry Confect, or Form of Medicine, or Food, contrived to preserve the Flowers, Herbs, Roots, Peels, or Fruits of several Simples, as near as possible to what they were when fresh gather'd; and to give them an agreeable Taste. See CONFECT.

Conserves are made by beating up the Thing to be preserv'd with a quantity of Sugar; *viz.* a triple Quantity thereof to those which are most moist and corruptible, and a double Quantity to such as are least so.

The Physicians, under the Name of *Conserves*, commonly comprehend all Kinds of Confects of Flowers, Fruits, Roots, Seeds, Barks, &c. both liquid and dry.

Thus, *e. gr.* to make *Conserve* of Roses, Rosemary Flowers, Sage Flowers, or the like; they pound 'em in a stone Mortar, and when pounded, put to 'em fine Sugar, in a Glass close stop'd up.

For Fruits, as Currants, &c. they set 'em on the Fire to make 'em cast their Juice, then drain and strain 'em, and thicken what comes from 'em over the Fire, and add it to the Sugar. See PRESERVE.

CONSIDERATION, in Law, the Material Cause, the *quid pro quo* of any Contract, and without which no Contract binds. See CONTRACT, PACT, &c.

This *Consideration* is either *express'd*; as if a Man bargain to give ten Guineas for a Horse: or *implied*, when the Law it self enforces a *Consideration*; as if a Man coming into an Inn, take Meat, Drink, and Lodging for himself and Horse, the Law presumes he intends to pay for 'em, tho there be no express Contract between him and his Host; and if he discharge not the House, the Host may stop his Horse. See ASSUMPSIT.

CONSIGNMENT, or CONSIGNATION, the depositing any Sum in Money, Bills, Papers, or Commodities, in sure Hands; either by order of a Court of Justice, in order to their being deliver'd to the Persons to whom they are adjudg'd; or voluntarily, in order to their being remitted to the Persons they belong to, or sent to the Places they are destin'd for.

CONSIGNMENT *of Goods*, is the delivering or making them over: Thus, Goods are said to be *consign'd* to a Factor, when they are sent to him to be sold, &c. or when a Factor sends back Goods to his Principal, they are said to be *consign'd* to him. See FACTOR.

CONSISTENCE, a State of Rest, wherein Things capable of Growth, or Decrease, continue for some time at a stand, without either.

The Term is particularly used with regard to Trees, for the Age beyond which they don't grow, and yet at which they don't decline. See TREE, &c.

The *Consistence* of the Age of an Oak, is from 50 to 160 Years: Some, however, hold that their *Consistence* only commences from 100 Years; asserting that they grow till that time, and that they continue in that State of Perfection to 200 Years of Age.

Thus we distinguish three States or Stages of a Tree; its Growth, *Consistence*, and Return: and these are common to all Trees, even Fruit-Trees.

CONSISTENCE, in Physicks, is that State of a Body wherein its component Particles are so connected, or intangled among themselves, as not to separate or recede from each other. See COHESION.

Consistence only differs from Continuity in this, that *Consistence* implies a regard to Motion or Rest, which Continuity does not; it being sufficient to denominate a thing continuous, that its Parts are contiguous to each other. See CONTINUITY.

Consistence is particularly used with regard to Bodies, consider'd as they are more soft or more hard, more liquid or more dry. See HARDNESS, SOFTNESS, FLUIDITY, &c.

Thus, Forms of Medicine, as Electuaries, Lambatives, Bolus's, Syrups, Unguents, &c. differ chiefly in *Consistence*. See ELECTUARY, &c.

CONSISTENT *Bodies*, is a Term much used by Mr. *Boyle* for such as we ordinarily call *firm*, or *fix'd Bodies*; in opposition to *fluid* ones. See FIXEDNESS, FIRMNESS, and FLUIDITY.

That Author has a particular Essay of the *Atmosphere of Consistent Bodies*; wherein he shews, that all, even solid, hard, ponderous, and fix'd Bodies, do exhale or emit *Effluvia* to a certain Space all around 'em. See ATMOSPHERE, EFFLUVIA, &c.

CONSISTORY, or *the Roman* CONSISTORY, is the College of Cardinals; or the Pope's Senate, and Council. See POPE.

The *Consistory* is the first Court or Tribunal of *Rome*: it never meets but when the Pope pleases to convoke it: The Pope presides in it in Person, mounted on a magnificent Throne, and habited in his *Pontificalia*; on the right are the Cardinal-Bishops and Priests, and on the left the Cardinal-Deacons. See CARDINAL.

The Place where it is held, is a large Hall in the Apostolical Palace, where Princes and Embassadors of Kings are receiv'd.

The other Prelates, Protonotaries, Auditors of the *Rota*, and other Officers, are seated on the Steps of the Throne; the Courtiers sit on the Ground; Embassadors on the right, and *Consistorial* and Fiscal Advocates behind the Cardinals.

Here are pleaded Judiciary Causes before the Pope.

Besides the publick *Consistory*, there is also a private one, held in a retir'd Chamber, call'd the Chamber of *Papegay*; the Pope's Throne here being only rais'd two Steps high.

No Body is here admitted but the Cardinals, whose Opinions are collected, and call'd *Sentences*. Here are first propos'd and pass'd all Bulls for Bishopricks, Abbies, &c. See BULL.

Hence, *Consistorial* Bishopricks and Abbies, are said to be *Consistorial Benefices*; in regard, they must be propos'd in the *Consistory*, the Annates be paid to the Pope, and his Bulls taken. See BENEFICE.

Antiently they were Elective; but by the *Concordate*, which abolishes Elections, they are appointed to be collated by the Pope alone, on the Nomination of the Prince. See CONCORDATE.

Du Cange derives the Word from *Consistorium*, i. e. *locus ubi consistitur*; used chiefly for a Vestibule, Gallery, or

Antichamber, where the Courtiers wait for Admission; and called *à consistente multitudine*.

Consistory was also the Name of a Court under *Constantine*, where he sat in Person, and heard Causes: The Members of this Court were called *Comites*. See Count.

Consistory is also used among the Reform'd, for a Council or Assembly of Ministers and Elders, to regulate their Affairs, their Discipline and Policy.

Consistory, or *Court Christian*, in the *English* Laws, is a Council-house of Ecclesiastical Persons, or the Place of Justice in the Ecclesiastical or Spiritual Court See Court.

Every Archbishop and Bishop has a *Consistory*-Court, held before his Chancellor or Commissary, either in his Cathedral, in some Chapel, Isle, or Portico belonging thereto; or in some other convenient Place of his Diocess, for Ecclesiastical Causes. See Ecclesiastical.

The Spiritual Court was antiently, in the Time of the *Saxons*, joined with the County or Hundred Court: And the Original of the *Consistory* Court, as divided from those Courts, is found in a Law of the Conqueror, quoted by my Lord *Coke*.

CONSOLATION, is one of the Places in Rhetorick, whereby the Orator endeavours to abate and moderate the Grief or Concern of another. See Place.

In *Consolation*, a principal Regard is to be had to the Circumstances and Relations of the Parties. *Scaliger* considers this exceeding well, *de Arte Poetica*: 'The *Consolator*, says he, is either a Superior, an Inferior, or an Equal; 'with regard, either to Preferment, Honour, Wealth, Wisdom, or Age. Now, *Livia* is to comfort *Ovid*, in a manner very different from that wherein *Ovid* comforts *Livia*. 'Thus, as to Authority, a Father and Son, *Cicero* and *Pompey* are to conduct their *Consolations* very differently: So 'in Wealth; as if a Client should undertake to comfort 'Crassus: In Wisdom; as when *Seneca* comforts *Polybius* 'and his Mother: As to Age, there needs no Examples.

'A Superior may interpose his Authority, and may 'even chide: A wise Man may even dispute; Sentences 'will become him. An Inferior is to shew Respect and Affection, and own he had this from some wise or learned 'Person: An Equal to appeal to their common Friendship.'

CONSOLE, in Architecture, or Joinery, a Part or Member projecting in manner of a Bracket, or Shoulder-piece; serving to support a Corniche, Bust, Vase, Beam, little Vault, &c. See Projecture.

These are also, upon occasion, call'd *Mutules*, *Modillions*, &c. according to their form. See Mutule, &c.

Some of them are striated, or fluted; others in form of Cartouches; others have Drops, in the manner of Triglyphs.

Vitruvius calls all those of Gates *Prothyrides*; of *Thyra*, Gate. See Prothyrides.

Those made of the End of a Plank of Wood, cut triangular wise, are called *Ancones*. See Aneo.

Consoles are frequently used as Keys of Arches, projecting out, to support a Vase, or other Ornament. See Key.

The Word is deriv'd from the French *Consolider*, to reunite, join, &c. agreeable to the Office of this Member.

CONSOLIDATION, in Law, the combining and uniting two Benefices into one. See Benefice.

The Term is borrow'd from the Civil Law; where it properly signifies an Union of the Possession Occupation or Profit, with the Property.

Thus, if a Man have by Legacy *usum-fructum fundi*, and afterwards buy the Property, or Fee-simple of the Heir; this is called a *Consolidation*.

Consolidation, in Medicine, the Action of uniting strongly the Fractures of broken Bones, or the Lips of a Wound, by means of *consolidating Remedies*, as they are call'd; which cleansing with a moderate heat and force, raking Corruption out of the Wounds, and preserving the Temperature of the Parts, cause the Nourishment to be fitly applied to the Part affected. See Wound, and Fracture.

CONSONANCE, in Musick, is ordinarily used in the same Sense with *Concord*, *viz.* for the Union or Agreement of two Sounds produced at the same time, the one Grave, the other Acute; which mingling in the Air, in a certain Proportion, occasion an Accord agreeable to the Ear. See Concord.

Dr. *Holder*, on this Principle, defines *Consonancy*, 'A Passage of several tunable Sounds thro' the Medium, frequently mixing and uniting in their undulated Motions caused 'by the well-proportion'd commensurate Vibrations of the 'sonorous Bodies, and consequently arriving smooth, and 'sweet, and pleasant to the Ear; as, on the contrary, *Dissonancy*, he maintains to arise from disproportionate Motions of Sounds, not mixing, but jarring and clashing as 'they pass, and arriving in the Ear grating and offensive.'

Which Notion of a *Consonance*, exactly quadrates with that we have already laid down for a *Concord*. Accordingly, most Authors confound the two together: Tho some of the more Accurate distinguish 'em; making *Consonance* to be what the Word implies, a mere *sounding of two or more Notes together*, or *in the same time*; in contradistinction to the Motion of those Sounds *in Succession*, or one after the other. See Succession.

In effect, the two Notions coincide; for two Notes, thus play'd in *consonance*, constitute a Concord; And two Notes that please the Ear in *Consonance*, will likewise please it in Succession.

Notes in *Consonance* constitute *Harmony*, as Notes in Succession *Melody*. See Harmony, and Melody; see also Tune.

In the popular Sense, *Consonances* are either *Simple*, or *Compound*, &c. The most perfect *Consonance* is Unison; tho many, both among the Antients and Moderns, discard it from the Number of *Consonances*; as conceiving *Consonance* an agreeable Mixture of different Sounds, grave and acute; not a Repetition of the same Sound. See Unison.

The second *Consonance* is the Octave; then the Fifth, the Fourth, the Thirds, and the Sixths: The rest are Multiples, or Repetitions of these. See Octave, &c.

Consonance, in Grammar, is understood of like Cadences, or Closes of Words, Periods, &c.

Consonances are ordinarily Faults in Discourse, especially in *English* Prose: tho the *Latins* make a Figure of 'em, which they call ὁμοιοτέλευτον. Too great a *Consonance* in the Rhymes has always an ill effect.

CONSONANT, a Letter which produces no Sound alone, or without some other Letter either Vowel or *Consonant*, join'd along with it. See Letter.

And hence the Name *Con-sonant*, q. d. *quæ sonant cum alia*.

A *Consonant*, considering it philosophically, is nothing else but the Modification of a Sound, produc'd by means of the Organs of the Voice, not a Production of a Sound itself: Thus, *v.g.* the Sounds signify'd by the Characters *a*, *e*, *i*, *o*, *u*, &c. are differently modify'd when we say *ab*, than when we say *ac* or *ca*, *ad* or *da*; and those Modifications are call'd *Consonants*.

The Letters of the Alphabet are divided into Vowels and *Consonants*. See Vowel.

Consonants, again, are divided into *single*, as *b h m q*, &c. and *double*, as *x* in *axillary*, &c. corresponding to the ξ of the *Greeks*.

Again, they are divided into *liquid*, as *l r m n*; and *mute*, as *b*, *d*, and the rest, which make no Sound at all without a Vowel. See Liquid, Mute, &c.

But the most natural Division of *Consonants* is that of the *Hebrew* Grammarians; who have been imitated therein by the Grammarians of the other Oriental Languages: These divide the *Consonants* into five Classes, with regard to the five principal Organs of the Voice; which all contribute, 'tis true, but one more notably than the rest, to certain Modifications, which make five general Kinds of *Consonants*. Each Kind, or Class, comprehends several *Consonants*, which result from the different Degrees of the same Modification, or from the different Motions of the same Organs.

These Organs are the *Throat*, *Palate*, *Tongue*, *Teeth*, and *Lips*; whence the five Classes of *Consonants* are denominated *Guttural*, *Palatal*, *Lingual*, *Dental*, and *Labial*. See Guttural, Palatal, &c.

We account seventeen *Consonants* in the *English* Alphabet, *viz.* *b*, *c*, *d*, *f*, *g*, *k*, *l*, *m*, *n*, *p*, *q*, *r*, *s*, *t*, *x*, *z*; to which there are three others to be added, *viz.* the *h*, the *j Consonant*, and *v Consonant*, which makes the whole Number of *Consonants* twenty: one whereof is *Guttural*, *viz.* the Aspirate *h*; five *Palatal*, *viz.* *c*, as when pronounced before *a*, *o*, and *u*, as in *Cavern*, *Corn*, *Curiosity*; *g*, as in *Geneva*; *j Consonant*, in *Julep*; *k* in *kernel*, and *q* in *query*.

The four *Lingual Consonants* are *d*, *l*, *n*, *t*; the four *Dental*, are *r*, *s*, *x*, *z*, the three last whereof are Hissers; and five *Labial*, *b*, *f*, *m*, *p*, and *v Consonant*.

With regard to which Division, it may be observ'd, that tho the *g* he modify'd in three different manners, as it comes before an *a*, an *o*, or a *u*; yet is it still a *Consonant* of the Palate; that the *j Consonant* differs in nothing but its Figure from the *g* before *e* or *i*; that *k* has the same Pronunciation with the *c*; that *x* comprehends the Sound of two Letters in its Sound, *viz.* *c* or *k*, and *s* or another *c*, as in *Alexander*, and *Alexis*, which we pronounce as if wrote *Alecsander*, and *Aleccis*, or *Alecsis*; and that the *c* before an *e* or *i*, is no *Consonant* of the Palate, because in that Case it loses its proper Sound, and assumes the hissing Sound of the *s*.

The Abbot *de Dangeau* thinks the Nature of the Division of the *Hebrew* Grammarians very reasonable; but does not acquiesce in the Distribution they have made of 'em: To find a natural and just Division of the *Consonants*, he observes, no regard must be had to the Character that represents 'em; nor any thing be consider'd but their Sound, or the Modification they give the Sound.

On this Principle, the same Author finds five *Labial Consonants*, *b*, *p*, *v*, *f*, and *m*; five *Palatal* ones, *d*, *f*, *g*, *k*, *n*; four *Hissers*, *i*, *z*, *j*, *ch*; two *Liquids*, *l* and *r*; two that run into and mix with each other, as *ll*, and *gn*; which last, however, is peculiar to the *French* Language, and the *h* Aspirate.

He adds, 1st, that *m* and *n* are properly two Nasal *Consonants*; the *m*, a *b* pass'd thro' the Nose, and the *n* a *d*, in like manner, pronounc'd thro' the Nose; and in effect, People in a Cold pronounce *barket* for *market*, *deed* for *need*, &c.

2dly, That among the *Consonants*, some are *weak*, others *strong*; their difference consisting in this, That the former are preceded with a small Emission of the Voice which softens 'em; which the latter have not. The weak are *b*, *c*, *d*, *g*, *z*, *i*; the strong, *p*, *f*, *t*, *k*, *s*, *ch*.

It may be here observ'd, that when we speak of a Person's talking thro' the Nose; it must be understood in a Sense quite different from what the Words seem naturally to import: Since the Nose in this Case concurs less to the Pronunciation than if he did not speak thro' the Nose; in regard the Air not being able to make its way thro' the Nose, is return'd into the Mouth, where it forms a dull obtuse Sound, call'd *Nasal*. See VOICE.

From the whole we may conclude, that the Excess of *Consonants* in one Language above another only consists in this, that there are more Modifications of Sound receiv'd and establish'd in the one than the other: For all Men having the same Organs, may form the same Modifications; so that 'tis entirely owing to Custom, nothing to Nature, that the *English* have not the θ of the *Greeks*, the *Ain* and *Heth* of the *Hebrews*, the *ch* of the *Germans*, the *gn* of the *French*, the *gl* of the *Italians*, the *ll* of the *Welch*, &c.

That the *Chinese* have no *r*, the *Iroquois* no Labial *Consonants*, the *Huros* abundance of Aspirates; and the *Arabs* and *Georgians* abundance of Double *Consonants*: which last is owing to this, that they make several Organs concur strongly and equally to the Modification of a Sound; whereas, in the rest, only one Organ is moved very strongly and sensibly, and the rest weakly.

'Tis hence also visible, that in all Languages the Aspirates, or Guttural Letters, are real *Consonants*; since the Throat modifies the Sound as much as the Palate, Tongue, or Lips. See ASPIRATE.

Lastly, to find all the *Consonants* that may be form'd in any Language; there needs nothing but to observe all the Modifications that the Sound of Speech will admit of, by which we shall have all the *Consonants* practicable.

CONSORT, in Musick. See CONCERT.

CONSPIRACY, in Law, is taken for a Combination or Confederacy to do something evil, or illegal: tho in the original Sense of the Word, and in its use in other Languages, it signifies an Agreement, either for good, bad, or Matters indifferent.

In our Statutes and Law-Books, *Conspiracy*, in a general Sense, is confounded with *Maintenance* and *Champarty*. See MAINTENANCE, and CHAMPARTY.

In its special Signification, it is used for a *Confederacy* of two, at least, falsly to indict one, or procure one to be indicted of Felony. See INDICTMENT.

The Punishment of this Confederacy, at the King's Suit, antiently was: that the Party attainted lose his Frank-Law; to the End that he mayn't be impannel'd on Juries, and the like; that his Lands, Goods, and Chattels be estreated; his Trees rased, and his Body committed to Prison.

Even *Conspiracies* in Cases of less moment, as those of Victuallers, touching selling of Victual, shall be grievously punish'd 37 *Hen.* VIII.

CONSPIRING *Powers*, in Mechanicks, are all such as act in Directions not opposite to one another. See POWER, and MOTION.

CONSTABLE, or *Lord High* CONSTABLE, an antient Officer of the Crown; now disused in *England*, but still subsisting in *France*, where the *Constable* commands the Mareschals, and is the first Officer in the Army.

Some derive the Word from the *Saxon*, and make it originally signify the Stay or Hold of the King. But others, with more probability, derive it from *Comes Stabuli*, the Master of the Stables, or perhaps of the Horse, (see COUNT) and suppose that the Dignity which at first was Civil, in time became Military, and the Master of the Stables made General of the Army. See MASTER.

The Function of the *Constable* of *England*, consisted in the Care of the common Peace of the Land, in Deeds of Arms, and Matters of War. To the Court of the *Constable* and that of the Marshals, belong'd the cognizance of Contracts, Deeds of Arms without the Realm, Combats, Blasonry of Arms, &c. within it. See MARSHAL.

The first *Constable* of *England* was created by the Conqueror: The Office continu'd hereditary till the 13th of *Henry* VIII. when it was laid aside, as being so powerful as to become troublesom to the King. Since that time, the *Constable* is only created occasionally.

From those mighty Magistrates, the *Constables of England*, are derived those inferior ones, since call'd the *Constables of Hundreds and Franchises*; first ordain'd in the 13th Year of *Edward* I. by the Statute of *Winchester*; which, for the Conservation of the Peace, and View of Armour, appointed that two *Constables* should be chose in every Hundred and Franchise. See HUNDRED, and FRANCHISE.

These are what we now call *Constabularii Capitales*, or *High Constables*; in regard, continuance of Time and increase of People, &c. have occasion'd others of like nature, but inferior Authority, in every Town, call'd *Petty-Constables*, or *Sub-Constabularii*.

The appointing of a Petty-*Constable* belongs to the Lords of divers Mannors, *Jure Feudi*.

Besides these, we have *Constables* denominated from particular Places, as *Constable of the Tower*, *of Dover Castle*, *of Windsor-Castle*, *of the Castle of Carnarvan*, and many other of the Castles of *Wales*; whose Office is the same with that of the *Castellani*, or Governors of Castles. See TOWER, &c.

CONSTAT, in Law, a Certificate given out of the Court of Exchequer, of all there is upon record relating to any Matter in question.

It is also used for an Exemplification or Copy of the Inrolment of Letters Patent.

CONSTELLATION, in Astronomy, an Assemblage or System of several Stars, express'd and represented under the Name and Figure of some Animal or other thing; call'd also an *Asterism*. See STAR.

The Antients portion'd out the Firmament into several Parts, or *Constellations*; reducing a certain number of Stars under the Representation of certain Images, in order to aid the Imagination and the Memory to conceive and retain their Number, Disposition, and even to distinguish the Virtues which they attributed to 'em: In which Sence, a Man is said to be born *under a happy Constellation*, *i. e.* under a happy Configuration of the heavenly Bodies.

The Division of the Heavens into *Constellations* is very antient; and, for ought appears, as old as Astronomy it self; at least, it was known to the most antient Authors extant, whether sacred or profane. In the most antient Book of *Job*, mention is made of the Names of some of 'em; witness that sublime Expostulation, *Canst thou restrain the sweet Influence of the* Pleiades, *or loosen the Bands of* Orion? And the same may be observ'd of the oldest among the Heathen Writers *Homer* and *Hesiod*.

The Division of the Antients only took in the visible Firmament, or so much as came under their notice: This they distributed into 48 *Constellations*; twelve whereof took up the Zodiack: The Names they gave them are *Aries*, *Taurus*, *Gemini*, *Cancer*, *Leo*, *Virgo*, *Libra*, *Scorpius*, *Sagittarius*, *Aquarius*, *Capricornus*, *Pisces*; from whence the Signs of the Ecliptick and Zodiack, take their Names; tho now no longer contiguous to the *Constellations* which denominate them. See SIGN.

The other Stars, on the Northern Side of the Zodiack, were dispos'd into 21 *Constellations*, viz. *Ursa Major* and *Minor*, *Draco*, *Cepheus*, *Bootes*, *Corona Septentrionalis*, *Hercules*, *Lyra*, *Cygnus*, *Cassiopeia*, *Perseus*, *Andromeda*, *Triangulum*, *Auriga*, *Pegasus*, *Equuleus*, *Delphinus*, *Sagitta*, *Aquila*, *Ophiuchus* or *Serpentarius* and *Serpens*: To which have been since added *Antinous*, and *Coma Berenices*.

The Stars on the South Side of the Zodiack, were distributed into fifteen *Constellations*; their Names, *Cetus*, *Eridanus Fluvius*, *Lepus*, *Orion*, *Canis Major* and *Minor*, *Argo*, *Hydra*, *Crater*, *Corvus*, *Centaurus*, *Lupus*, *Ara*, *Corona Meridionalis*, and *Piscis Australis*: To which have been since added twelve others; *viz. Phœnix*, *Grus*, *Indus*, *Pavo*, *Pisces Australis*, *Pisces Volans*, *Toucan*, *Hydrus*, and *Xiphias*. *See each* Constellation, *and the Stars contain'd in it, under its proper Head.*

Of these *Constellations*, the fifteen last, with the greatest Part of *Argo*, *Navis*, *Centaurus*, and *Lupus* are not visible in our Horizon.

The other Stars, not comprehended under these *Constellations*, yet visible to the naked Eye, the Antients called *Informes*, or *Sporades*, some whereof the modern Astronomers, have since reduced into new Figures, or *Constellations*. See INFORMES.

Thus, *Hevelius*, *v. g.* between *Leo* and *Ursa Major*, makes *Leo Minor*; and between *Ursa Minor* and *Auriga*, over *Gemini*, makes *Lynx*; under the Tail of *Ursa Major*, *Canes Venatici*, &c.

In these *Constellations*, the Stars are ordinarily distinguish'd by that Part of the Image wherein they are found. *Bayer* distinguishes 'em further by the Letters of the *Greek* Alphabet: And many of 'em, again, have peculiar Names, as *Arcturus*, between the Feet of *Bootes*; *Gemina*, or *Lucida*, in the *Corona Septentrionalis*; *Palilitium*, in the *Bull's* Eye,

Eye; *Pleiades* in the Back, and *Hyades* in the Forehead of the *Bull*: *Castor* and *Pollux* in the Heads of *Gemini*; *Capella*, with the *Hædi* in the Shoulder of *Auriga*; *Regulus*, or *Cor Leonis*; *Spica Virginis* in the Hand, and *Vindemiatrix* in the Shoulder of *Virgo*; *Antares*, or *Cor Scorpii*; *Fomahaut*, in the Mouth of *Piscis Australis*; *Regal*, in the Foot of *Orion*; *Sirius*, in the Mouth of *Canis Major*; and the *Pole-Star*, the last in the Tail of *Ursa Minor*.

The *Greek* and *Roman* Poets, out of the antient Theology, give us wild and romantick Fables about the Origin of the *Constellations*; which may be seen in *Hyginus*, *Natalis Comes*, and *Riccioli*. Hence, some out of a vain Zeal, rather than any Love for the Science, have been mov'd to alter either the Figures of the *Constellations*, or at least their Names.

Thus, Venerable *Bede*, instead of the profane Names and Figures of the twelve *Constellations* of the Zodiack, substituted those of the twelve Apostles; whose Example being follow'd by *Julius Schillerus*, in 1627, he compleated the Reformation, and gave Scripture-Names to all the *Constellations* in the Heavens.

Thus, *Aries*, or the Ram, became converted into St. *Peter*; *Taurus*, or the Bull, into St. *Andrew*; *Andromeda* into the Sepulchre of Christ; *Lyra* into the Manger of Christ; *Hercules* into the Magi coming from the East; *Canis Major* into *David*, &c.

Weigelius, a Professor of Mathematicks in the University of *Jena*, made a new order of *Constellations*; converting the Firmament into a *Cælum Heraldicum*; and introducing the Arms of all the Princes in *Europe*, by way of *Constellations*.

Thus, *Ursa Major*, he transform'd into the Elephant of the Kingdom of *Denmark*; the *Swan* into the Ruta with Swords of the House of *Saxony*; *Ophiuchus* into the Cross of *Cologne*; the *Triangle* into the Compasses, which he calls the *Symbol of Artificers*; and the *Pleiades* into the *Abacus Pythagoricus*, which he calls that of Merchants, &c.

But the more knowing among Astronomers never approv'd of these Innovations; as serving for no Purpose but to introduce Quarrels and Confusion into Astronomy. The old *Constellations*, therefore, are still retain'd; both because better could not be substituted, and likewise to keep the greater Correspondence and Uniformity between the old Astronomy and the new. See CATALOGUE.

CONSTIPATION, in Medicine, a hardness of the *Alvus*, or Belly, with a difficulty of discharging the same; otherwise call'd *Costiveness*. See COSTIVENESS.

Riding Post, eating of Medlars or Quinces, several Preparations of Milk, hard-roasted Eggs, &c. *constipate* the Belly.

A *Constipation* of the Belly, if it continue long, sometimes degenerates into the Iliac Passion. See ILIAC *Passion*.

Most Persons of a hot and dry Constitution are afflicted with a Costiveness, or *Constipation*: But this is seldom attended with any ill Effect.

The proper Remedy for a *Constipation* is a Clyster; if this fail, lenient Catharticks; and when they also fail, we must exhibit others of a more drastick or powerful Effect. See CLYSTER, and PURGATIVE.

CONSTITUTION, an Establishment, Ordinance, Decision, Regulation, or Law, made by Authority of a Prince or other Superior, Ecclesiastical or Civil. See LAW, &c.

The *Constitutions* of the *Roman* Emperors make a Part of the Civil Law. See CIVIL *Law*.

The *Constitutions* of the Church, part of the Canon Law. See CANON *Law*.

Some of the Papal *Constitutions* are in form of Bulls, others of Briefs. See BULL, BRIEF, &c.

Apostolical CONSTITUTIONS, are a Collection of Regulations attributed to the Apostles, and supposed to have been collected by S. *Clement*, whose Name they likewise bear.

They are divided into eight Books; consisting of a great Number of Rules and Precepts, relating to the Duties of Christians, and particularly to the Ceremonies and Discipline of the Church.

Authors are divided about their Genuineness: The generality hold them spurious, and endeavour to prove them posterior to the Apostolical Age, and maintain they were unknown till the fourth Century; which, if so, shews S. *Clement* had no hand in 'em.

Mr. *Whiston* has ventur'd to oppose the general Opinion; and with some Reason, much Learning, and more Warmth, asserted the *Apostolical Constitutions* to be one of the Sacred Writings, dictated by the Apostles in their Meetings, written down from their Mouths by S. *Clement*, and intended as a Supplement to the New Testament; or, rather, as a Scheme and System of Christian Faith and Polity. See his *Essay on the Apostolical Constitutions*, and his *Historical Preface*; wherein the several Steps he made in his fancied Discovery are traced.

What makes the *Constitutions* more suspected by the Orthodox, is, that they seem to favour of *Arianism*.

CONSTITUTION, is also used in a physical Sense, for the *Temperament* of the Body, or that Disposition of the Whole arising from the Quality and Proportion of its Parts. See TEMPERAMENT.

Physicians have consider'd the *Constitution*, as depending chiefly on the Humors or Juices of the Body; and hence, as this, or that Humour was supposed to predominate, the Bile, *e. gr.* or the Blood, Phlegm, Choler, or Mercury; the Person was denominated of a *Bilious*, *Sanguine*, *Phlegmatic*, *Choleric*, or *Mercurial Constitution*. See SANGUINE, CHOLERIC, &c. see also HUMOUR, BILE, CHOLER, BLOOD, &c.

CONSTRICTION, the Act of binding, or drawing the Parts of a Thing close together. See CONSTRICTOR.

CONSTRICTOR *Labiorum*, or *Orbicularis*, a Muscle proper to the Lips. See LIP.

Its Fibres make a kind of Ring about the Mouth; and serve to constringe and draw up the Lips, as in Kissing, &c. whence some call it *Basiator*.

This, *Verheyen* will not have to be one Muscle, but a Pair, whose Fibres meet and join at both Corners of the Mouth; each acting on one Lip only, tho concurrently.

Other Authors are unanimous in calling it one Muscle; and will have it of the Sphincter kind; tho Dr. *Drake* thinks improperly: in regard, it is not like the other Sphincters in constant Action, but at the Command of the Will: The distinguishing Mark between a Sphincter and another Muscle. See SPHINCTER.

CONSTRICTOR *Palpebrarum*. See ORBICULARIS.

CONSTRICTORES *Nasi*, a Pair of Muscles common to the *Alæ* of the Nose, and the upper Lip. See NOSE, &c.

They arise fleshy from the Forepart of the fourth Bone of the upper Jaw; and after a strait ascent, are inserted into the Roots of the *Alæ nasi*, and superior Parts of the upper Lip.

Their use is to draw the *Alæ* downwards, nearer each other; and at the same time draw the upper Lip also downwards: an Action we use in taking of Snuff, or smelling of any thing.

CONSTRUCTION, in Geometry, the Art or Manner of drawing, or describing a Figure, Scheme, the Lines of a Problem, or the like. See DESCRIPTION, FIGURE, &c.

The Equality of the Lines of such a Triangle, &c. is demonstrated from their *Construction*. See PROBLEM.

CONSTRUCTION *of Equations*, is the Method of reducing a known Equation into Lines and Figures; whereby the Truth of the Rule, Canon, or Equation, may be demonstrated geometrically. See EQUATION.

This Method of *constructing* Equations is different, according to the Diversity of Equations. For *Simple* and *Quadratick* Equations the Methods shall be here subjoin'd; As to *Cubic* Equations, Geometrical *Constructions* are of no use, in Practice; their Intent being better answer'd by the Method of extracting Roots by Approximation.

To Construct a simple Equation: The whole Mystery consists in this; that the Fractions, to which the unknown Quantity is equal, be resolved into proportional Terms: The Method of which will be better shewn by Examples than taught by many Rules.

1. Suppose $x=\frac{ab}{c}$; then will $c:a::b:x$, to be determin'd by the Method of finding a fourth Proportional.

2. Suppose $x=\frac{abc}{dc}$; let $d:a::b:\frac{bc}{d}$. This fourth Proportional found, being call'd g; $x=\frac{gc}{c}$ which is therefore found as in the former Case.

3. Suppose $x=\frac{aa-bb}{c}$. Since $aa-bb=(a+b)(a-b)$; $c:a+b::a-b:x$.

4. Suppose $x=\frac{a^2b-bcc}{ad}$. By the first Case we find $g=\frac{ab}{d}=\frac{a^2b}{ad}$, and $h=\frac{bc}{d}$; Again, by Case 1, $i=\frac{hc}{d}$: and $x=g-i$, the Difference of the Lines g and i.

5. Suppose $x=\frac{ab}{c}+\frac{adc}{bc}$. Find, as in the preceding Case, $g=\frac{ab}{c}$, and $f=\frac{adc}{bc}$. Then will $x=g+f$ be the Sum of the Lines g and f.

6. Suppose $x=\frac{a^2b+bcd}{af+cg}$. Seek $\frac{cg}{a}$, and let $f+\frac{cg}{a}=h$; then will $af+cg=ah$; consequently, $x=\frac{a^2b+bcd}{ab}$. Thus is the present Case brought to the preceding one.

7. Suppose $x=\frac{a^2b-bad}{af+bc}$. Find $\frac{af}{b}$, and make $\frac{af}{b}+c=h$; Then will $af+bc=bh$. Hence, $x=\frac{a^2b+bad=a^2-ad}{bh}$. Consequently, $h:a::a-d:x$.

8. Suppose $x=(a^2+b^2):c$. Construct the Triangle ABC, (Plate *Algebra*, Fig. 1.) whose Side $AB=a$, $BC=b$;

$=b$; then will $AC=\sqrt{(a^2+b^2)}$. Let $AC=m$; then will $a^2+b^2=m^2$. And therefore $x=\frac{m^2}{c}$; consequently, $c:m::m:x$.

9. Suppose $x=\frac{a^2-b^2}{c}$. On AB, (Fig. 2.) describe a Semicircle, and therein set off $AC=b$. Since the Triangle ACB is rectangular; $CB=\sqrt{a^2-b^2}$. Let $CB=m$: then will $x=\frac{m^2}{c}$; consequently, $c:m::m:x$.

10. Suppose $x=\frac{a^2b+bcd}{af+bc}$. Say, $b:a::f:\frac{fa}{b}$; and let $fa+c=h$; Then will $bc+af=bh$. Hence, $x=\frac{a^2b+bcd}{bh}=(a^2+cd):h$. Find betwixt $AC=c$, (Fig. 3.) and $CB=d$, a Mean Proportional $CD=\sqrt{cd}$. Let $CE=a$; then will $DE=\sqrt{(a^2-cd)}$. Call this m; then will $x=\frac{m^2}{h}$; consequently, $h:m::m:x$.

To Construct a quadratic Equation Geometrically. Since Quadratick Equations may be reduced to simple ones, (see EQUATION;) those may likewise be *constructed* from the Methods already laid down: For if the Equation be pure, $x^2=ab$; then will $a:x::x:b$; wherefore, we shall find $x=\sqrt{ab}$; if between $AC=a$, (Fig. 4.) and $BC=b$, we find a Mean Proportional DC. If this Equation be adfected, $x^2.\ ax=b^2$; Then will $x=\frac{1}{2}a(\sqrt{\frac{1}{4}a^2b^2})$ that is, either $x=\frac{1}{2}a+\sqrt{(\frac{1}{4}a^2+b^2)}$ or, $x=\sqrt{(\frac{1}{4}a^2+b^2)}\frac{1}{2}a$, or $x=\frac{1}{2}a+\sqrt{(\frac{1}{4}a^2-b^2)}$ or $x=\frac{1}{2}a-\sqrt{(\frac{1}{4}a^2-b^2)}$.

The whole Mystery, therefore, of *constructing* Quadraticks comes to this; that the Value of $\sqrt{\frac{1}{4}a^2+b^2}$, and also the Value of $\sqrt{\frac{1}{4}a^2-b^2}$ be found; both of which are shewn in the preceding Article. For, if in the Rectangular Triangle, (Fig. 1.) $AB=\frac{1}{2}a$ and $BC=b$; then will $AC=\sqrt{\frac{1}{4}a^2+b^2}$. But if on $AB=\frac{1}{2}a$, (Fig. 2.) be described a Semicircle; and therein applied $AC=b$; $CB=\sqrt{\frac{1}{4}a^2-b^2}$, as was shewn in the Article preceding. See EQUATION.

CONSTRUCTION, or *Syntax*, in Grammar, the arranging and connecting the Words of a Sentence; according to the Rules of the Language. See GRAMMAR, WORD, SENTENCE, SYNTAX, &c.

The *Construction* is generally more simple, easy, and direct in the modern Tongues than in the antient: we have very few of those Inversions which occasion so much Embarras and Obscurity in the *Latin*; our Thoughts are usually deliver'd in the same Order wherein the Imagination conceives 'em: The Nominative Case, for Instance, always precedes the Verb, and the Verb goes before the oblique Cases it governs.

The *Greeks* and *Latins*, M. *St. Evremont* observes, usually end their Periods, where, in good Sense and Reason, they should have begun; and the Elegance of their Language consists, in some measure, in this capricious Arrangment, or rather in this transposal and disorder of the Words. See LANGUAGE.

Construction is either *Simple* or *Figurative*: Simple, is that wherein all the Terms, or Parts of the Discourse are placed in their natural Order.

Figurative *Construction*, is that wherein we recede from this Simplicity, and use certain Expressions, shorter, and more elegant than Nature affords. See FIGURE.

The Syntax, or *Construction* of Words, is distinguish'd into two Parts, *Concord*, and *Regimen*, or *Government*. See CONCORD, and REGIMEN.

CONSUALIA, Feasts held among the Antients, in honour of the God *Consus*, i. e. *Neptune*. See FEAST.

They were introduced with a magnificent Cavalcade, or Procession on Horseback; by reason *Neptune* was reputed to have first taught Men the use of Horses; whence his Sirname of Ἱππιος, *Equestris*.

Evander is said to have first instituted this Feast: It was re-establish'd by *Romulus*, under the Name of *Consus*; in regard it was some God under the Denomination of *Consus*, that suggested to him the Rape of the *Sabines*.

'Tis said, that it was with a View to this Rape, that he made that Establishment. This, however, is certain, that it was to this Feast all his Neighbours were invited; when, taking advantage of the Solemnities and Sacrifices, he seiz'd the Women. To draw the greater Concourse of People, he gave out, that he had found an Altar hid under Ground, which he intended to consecrate, with Sacrifices to the God to whom it had been originally erected.

Those who take on 'em to explain the Mysteries of the Heathen Theology, say, That the Altar hid under Ground is a Symbol of the secret Design of *Romulus* to seize his Neighbour's Wives.

The *Consualia* were of the Number of Feasts call'd *Sacred*; as being consecrated to a Divinity.

Originally, these Feasts and Games were not distinguish'd from those of the Circus: whence it is, *Valerius Maximus* says, that the Rape of the *Sabines* was effected at the Games of the Circus. See CIRCUS.

Plutarch observes, that during the Days of this Solemnity, Horses and Asses were left at rest, and were dress'd out with divers Crowns, &c. on account of its being the Feast of *Neptunus Equestris*. *Festus* says, the Cavalcade was perform'd with Mules; it being an Opinion, that this was the first Animal used to draw the Car.

Servius gives us to understand, that the *Consualia* fell on the 13th of *August*; but *Plutarch* and *Dionysius* place it in the Month of *March*.

The *Consualia* differ'd from other Feasts of the same Deity, call'd *Neptunalia*. See NEPTUNALIA.

CONSUBSTANTIAL, in Theology, a Term of equal import with *Co-essential*; denoting something of the same Substance with another. See SUBSTANCE.

Thus, the Orthodox believe, the Son of God to be *consubstantial* with the Father. See TRINITY, FATHER, &c.

The Term ὁμοουσιος, *Consubstantial*, was first adopted by the Fathers of the Council of *Nice*, to express the Orthodox Doctrine the more precisely, and to serve as a Barrier and Precaution against the Errors and Subtilties of the *Arians*; who own'd every thing excepting the *Consubstantiality*.

The *Arians* declared that the Word was God, as having been made God; but denied that he was the same God, and of the *same Substance* with the Father: Accordingly, they exerted themselves to the utmost to abolish the Use of the Word. The Emperor *Constantine* used all his Authority with the Bishops, to have it expung'd out of the Symbols; but it still maintain'd it self, and is at this Day, as it was then, the distinguishing Criterion between an *Athanasian* and an *Arian*.

Sandius will have it, the Word *Consubstantial* was unknown till the Time of the Council of *Nice*; but 'tis certain it had been before propos'd to the Council of *Antioch*, wherein *Paulus Samosatanus* had been before condemn'd; tho it had there the fortune to be rejected. *Courcel*, on the other hand, maintains, that it was an Innovation in Doctrine in the Council of *Nice*, to admit an Expression, the use whereof had been abolish'd by the Council of *Antioch*.

According to S. *Athanasius*, the Word *Consubstantial* was only condemn'd in the Council of *Antioch*; inasmuch as it contain'd the Idea of a pre-existent Matter, prior to the Things form'd thereof: Now, in this Sense, 'tis certain, the Father and the Son are not *Consubstantial*, there having been no pre-existent Matter.

CONSUBSTANTIATION, a Tenet of the *Lutheran* Church, with regard to the manner of the Change made in the Bread and Wine in the Eucharist. The Divines of that Profession maintain, that after Consecration, the Body and Blood of our Saviour are substantially present, together with the Substance of the Bread and Wine; which is call'd *Consubstantiation*, or *Impanation*. See IMPANATION, TRANSUBSTANTIATION, LUTHERANISM, &c.

CONSUETUDINIBUS & *Servitiis*, in Law, a Writ of Right, which lies against the Tenant that deforceth his Lord of the Rent or Service due to him.

CONSUL, the chief Magistrate of the *Roman* Commonwealth.

The *Consuls* were the chief of the Senate; they commanded the Armies of the Republick, and were supreme Judges of the Differences between the Citizens. In regard, however, they had made some abuse of this Power, it was allow'd, by the *Valerian Law*, for the Party aggriev'd to appeal from their Tribunal to the People; especially in Cases where the Life of a *Roman* Citizen was concern'd.

In progress of Time, the *Consuls* being too much taken up with the grand Affairs of State, or at the Heads of Armies, there were other Magistrates created for the Distribution of Justice to the People, in lieu of the *Consuls*. See PRÆTOR.

After the *Romans* had expell'd their Kings, they were govern'd by two *Consuls*, establish'd in the Year of *Rome* 240; having their Name *à consulendo*. *Brutus* and *Collatinus* were the first, elected by an Assembly of the People: Their Office was to hold a Year; and if either of 'em died in the Course of the Year of their *Consulate*, a new one was elected.

To be elected *Consul*, it was requir'd that the Candidate should be at least 43 Years old. The Election was held in the Month of *January*, in the *Campus Martius*; afterwards in the Capitol.

Consuls were even continu'd under the Emperors, after the Republick was destroy'd: But the Office of *Consul* was here little else but an honourable Title; which, however, the People were fond of keeping up; as esteeming it some Remain of their antient Liberty.

It dwindled for a long time; and at last, became absolutely extinct in the Time of *Justinian*: after whom, no Emperor either created any *Consul*, or assumed the Dignity himself.

Basil is the last in the Consular List, for the Year 541. By this time, the Dignity was depretiated to that degree, that it was confer'd on the meanest Persons: Indeed, *Justinian* endeavour'd to retrieve it 25 Years after, and created himself *Consul*, but without effect.

From the Establishment of the Republick, and the *Consulate* under *L. Jun. Brutus* and *L. Tarq. Collatinus*, to the *Consulate* of *Basil*, *i. e.* from the Year of *Rome* 244 or 245; 509 Years before Jesus Christ; to the Year of *Rome* 1293, the Space of 1049 the Years were accounted by the *Consuls*: But from the Time of *Basil*, in the Year of Christ 540, we find no mention made of *Consuls* or *Consulates*; but the Time was computed by the Years of the Emperors Reigns, and the Indictions.

Indeed, for some time after the *Consulate* of *Basil*, the Years are mark'd thus; *Post consulatum Basilii*, 1, 2, 3, &c. *See the* Fasti Consulares *of M.* d'Almelooven. That Author reckons 1060 *Consuls*, beside the substitute *Consuls*, *Suffecti*, elected to supply Vacancies by Death; and yet there were but 1049 Years, and consequently only so many *Consulates*. See Fasti.

The perpetual *Consulates* of the Eastern Emperors, which compose the *Fasti Bizantini*, commenced in the Year of Christ 567, and ended in 668, in the last Year of *Constans*.

Constantine Pogonates would have the *Consulate* inseparable from the Empire; which it continued to be till the Time of *Constantine Porphyrogenetes*.

In this form of Government, the Empire and *Consulate* were so closely united, that the Empress *Irene* would needs assume the *Consulate*, when she was only Regent of the Empire.

But the *French* Kings, those of *Italy*, and the *Sarazen* Princes who commanded in *Spain*, taking on 'em the Title of *Consuls*, as well as Emperors of *Constantinople*; these last despis'd it, and laid it aside: so that the Name was only continu'd to the Magistrates of some Cities, and certain other Officers, as is shewn by F. *Pagi*.

Under the Emperors there were *Ordinary Consuls*, *Honorary Consuls*, and *Suffecti*; which last were also on foot in the Time of the Republick.

In the middle Age, we find the Word *Consul* used for *Comes*, Count, and Proconsul or Viconsul, for Vicount; as is observ'd by *Spelman*, and M. *de Marca*. See Count.

Consul, at present, is used for an Officer establish'd by virtue of a Commission from the King, and other Princes, in the Ports and Factories of the *Levant*, on the Coasts of *Africa*, *Barbary*, *Spain*, and other foreign Countries of any considerable Trade; to facilitate and dispatch Business, and protect the Merchants of the Nation. See Commerce, and Factory.

These Commissions are never granted to Persons under the Age of 30 Years. When the *Consulate* is vacant, the most antient of the Deputies of the Nation are to discharge the Function thereof, till the Vacancy be filled up by the King.

The *Consuls* are to keep up a Correspondence with the Ministers of *England* residing in the Courts whereon their *Consulates* depend. Their Business is to support the Commerce, and the Interest of the Nation; to dispose of the Sums given, and the Presents made to the Lords and Principals of Places; to obtain their Protection, and prevent the Insults of the Natives on the Merchants of the Nation. See Company.

There are *Consuls* of other Nations establish'd in the *Levant*, especially *French* and *Dutch*.

Consuls are also Judges, elected among Merchants and Dealers, in Ports and trading Towns chiefly in *France*; to terminate, *gratis*, and on the Spot, without any Process, such Differences and Demands as shall arise relating to their Merchandizes, Bills of Exchange, and other Articles of Commerce.

The first Jurisdiction of *Consuls* establish'd in *France*, is that of *Thelouse*; the Edict of whose Establishment bears date 1549, under the Reign of King *Henry* II. that of *Paris* follow'd fourteen Years afterwards. By degrees, they were establish'd in most of the considerable trading Towns in that Kingdom.

Consul, in our Law-Books, signifies an *Earl* or *Count*, *Comes*. See Earl, and Count.

In the Laws of *Edward* the Confessor, Cap. 2. it is express'd, That what we now call a *County*, *Comitatus*, was by the antient *Britons* nam'd *Consultate*, *Consultatus*; and those now call'd *Vicounts*, *Vicecomites*, were then called *Viceconsuls*.

CONSULTATION, in Law, a Writ whereby a Cause formerly removed by Prohibition from the Ecclesiastical Court to the King's Court, is return'd thither again.

If the Judges of the King's Court, upon comparing the Libel with the Suggestion of the Party; find the Suggestion false, or not prov'd; and therefore the Cause to be wrongfully call'd from the Court-Christian: Then, upon such Deliberation, or *Consultation*, they decree it to be return'd again. And the Writ obtain'd hereon is call'd a *Consultation*.

CONSUMMATION, the End, Period, or Completion of any Work.

Thus, we say, the *Consummation* of all Things; meaning the End of the World. See Conflagration.

By the Incarnation, all the Prophesies are said to be *consummated*. See Prophecy.

Consummation of a Marriage, is the last Act of Marriage, which makes its Accomplishment; or the most intimate Union between the married Pair. See Marriage, Divorce, &c.

CONSUMPTION, *Tabes*, in Medicine, a Disease arising from a Defect of Nourishment; or, a preternatural Decay of the Body, and particularly by a gradual waste of muscular Flesh.

It is frequently attended with an Hectic Fever; and is divided by Physicians into several Kinds, according to the Variety of its Causes; as *Universal*, or *Scorbutic Consumption*, where it arises from a *Cacochymia*, or Scorbutic Habit; and a *Pulmonic Consumption*, or *Consumption of the Lungs*, where it arises from some Cause in the Lungs, properly call'd a *Phthisis*. See Phthisis, and Scorbutus.

A *Consumption* may either be *Accidental*, *Natural*, or *Hereditary*: *Accidental*, which may arise, 1st, from Ulcers, Chalky Stones, or Polypus's in the Lungs; caused by something that obstructs the Circulation in the Pulmonary Vessels, or renders the Blood viscid; as a Suppression of any natural Evacuations. 2d, From Intemperance, occasioning either a Cacochymia, or Plethora. 3d, From Peripneumonies, Pleurisies, Asthma's, Coughs, Catarrhs, Diarrhæas, Venereal Disorders, and Excess of Venery. 4th, From Grief, hard Study, &c.

A *Natural Consumption* may arise from the Straitness of the Thorax, or an ill Conformation of the Parts. An *Hereditary* one may be communicated from the Parents, without any other visible Cause.

A *Consumption* usually begins with flying Pains, and Stitches; Pain at the Pit of the Stomach, or in the Diaphragm; frequent Spitting, loss of Appetite, a quick Pulse, a Sweetness or Saltness in the Saliva, Heat and Flushings in the Face and Palms of the Hands after Meals, an Hectic Fever toward the Evening, Heaviness, Faintness, Night-Sweats; and where the Lungs are first disorder'd, a Cough, Catarrh, or Asthma usually precede it.

When these Symptoms are violent, 'tis confirm'd; and then comes on an Expectoration of purulent or bloody Matter, and the *Vomica Pulmonum*; at length, the Feet swell, the Expectoration stops, a Diarrhæa comes on; then the *Facies Hippocratica*, and Death.

The Cure of an *Universal*, or *Muscular Consumption*, depends principally upon Removal into a proper Air, and the using of a regular nourishing Diet: the Appetite is to be excited by proper Bitters, and other Stomachics.

In a *Pulmonary Consumption*, or *Phthisis*, Balsamicks, and oleaginous Medicines are to be added. See Phthisis.

Dr. *Wainwright*, indeed, takes the Particles of oily Medicines to be too gross and viscid to enter the small Orifices of the Lacteals; and thinks, that their Operation or Effect being confin'd to the first Passages, they are not only of no service in the Cure, but are apt to pall the Appetite, occasion Obstruction in the Mouths of the Lacteals, and Diarrhæas.

But this is contrary to common Experience: That their Particles are small enough to enter the Lacteals, is evident from the sudden relief Nephritic Persons find in violent Paroxysms of the Stone, by the Passages being relax'd soon after their Exhibition. That Diarrhæas, and blunting the Appetite, in some Constitutions, will be the Consequence of their Continuance, or Exhibition in too great Quantities, must he allow'd; but then this is either accidental to some Kinds of Constitutions, or from some Error in using 'em.

As to the Lacteals being obstructed by their use, 'tis a mere Notion, and as much unsupported by Experience as that other Hypothesis, which a late Author, Dr. *Quincy*, has been fond of asserting, *viz.* that the Use of Butter is apt to foul the Glands. See Hectic.

CONTACT, the relative State of two Things that *touch* each other, or whose Surfaces join to each other without any Interstice.

Thus, we say, the *Contact* of two spherical Bodies, is only in one Point: and the same holds of the Tangent and the Circle.

Hence, because very few Surfaces are capable of touching in all Points, and the Cohesion of Bodies is in proportion to their *Contacts*, those Bodies will stick fastest together, which are capable of the most *Contact*. See Cohesion.

Angle of Contact, is the Angle HLM, (Tab. *Geometry*, Fig. 43.) form'd by the Arch of a Circle ML, with the Tangent HL, at the place of their *Contact*.

Euclid demonstrates, that the right Line IL, standing perpendicularly on the Radius CL, cuts the Circle only in one Point: Nor can there be any other right Line drawn between the Tangent and the Circle.

Hence,

Hence, the Angle of *Contact* is less than any rectilinear one; and the Angle of the Semicircle between the Radius CL and the Arch ML, greater than any rectilinear acute Angle.

This Paradox of *Euclid* has exercis'd the Wits of Mathematicians: It was the Subject of a long Controversy between *Peletarius* and *Clavius*; the first of whom maintain'd the *Angle of Contact* heterogeneous to a rectilinear one; as a Line is heterogeneous to a Surface: the latter maintain'd the contrary. Dr. *Wallis* has a formal Treatise on the *Angle of Contact*, and of the Semicircle; where, with other great Mathematicians, he approves of the Opinion of *Peletarius*. See TANGENT.

CONTAGION, or *Infection*, the communicating or transferring of a Disease from one Body to another. See DISEASE.

Contagion, in some Diseases, is only effected by an immediate Contact, or Touch: as the Madness of a Dog, which is communicated by biting; and the Venom of the Pox, which is transmitted from the infected Person in the Act of Copulation. See HYDROPHOBIA, and VENEREAL *Disease*.

In others it is convey'd by infected Clothes; as the Itch. See ITCH.

In others the *Contagion* is transmitted thro' the Air to a great distance, by means of Steams or Effluvia expiring from the Sick; as in the Plague, and other pestilential Distempers: in which Case, the Air is even said to be *contagious*, *i. e.* full of *contagious* Particles. See PLAGUE, POISON, *&c.*

CONTEMPLATION, an Act of the Mind, whereby it applies it self to consider, reflect on, and admire the wonderful Works of God, Nature, *&c.*

Contemplation, among the mystick Divines, is defin'd a simple, amorous View of God, as present. This *Contemplation* consists in Acts so simple, so direct, so uniform and peaceful, that there is nothing for the Mind to take hold on, whereby to distinguish it. See MYSTICS.

In the *Contemplative* State, the Soul is to be entirely passive, with regard to God; to be in a continual Repose, without any Perturbation or Motion; free from the Activity of unequal Minds, which must agitate themselves, to have their Operation sensible. Hence, some call *Contemplation* a Prayer of Silence and Quietude.

Contemplation is not a Ravishment, or an extatick Suspension of all the Faculties of the Soul; but 'tis something passive, 'tis Peace and infinite Pliantness; leaving it perfectly dispos'd to be mov'd by the Divine Impressions of Grace, and the better to follow the Divine Impulse.

Contemplation is the height of Perfection of the mystic Divines.

CONTEMPORARY, or COTEMPORARY, a Person, or Thing of the same Time, or that lives in the same Age with another.

Thus, we say, *Socrates*, *Plato*, and *Aristophanes* were *Contemporaries*: the best Histories are those of *contemporary* Authors.

CONTENEMENT, a Word in our antient Law-Books, about whose Signification Authors are not agreed. According to some, it should signify the Countenance, Credit, or Reputation a Person has, with and by reason of his Freehold. And in such Sense is it used in the Stat. 1 *Edw.* III. *&c.* where it stands as synonymous with Countenance.

Others will have it signify what is necessary for the Support and Maintenance of Men according to their several Qualities, Conditions, or States of Life. Thus, *Spelman*, *Contenementum est Æstimatio & Conditionis forma qua quis in Republica subsistit.*

CONTENT, a Term frequently used for the Capacity of a Vessel, or the Area of a Space; or the Quantity of any Matter or Space included in certain Bounds. See AREA; see also SUPERFICIES, and SOLID.

The *Content* of a Tun of round Timber is 43 solid Feet. A Load of hewn Timber contains 50 Cubic Feet: In a Foot of Timber are *contain'd* 1728 cubic or square Inches, and as often as 1728 Inches are *contain'd* in a Piece of Timber, he it round or square; so many Foot of Timber are *contain'd* in the Piece. See TIMBER.

In Gaging, the Gallon for Beer and Ale is allow'd to *contain* 282 Cubic Inches, and the Wine Gallon 231: the Gallon of dry Measure 272. See GALLON; see also MEASURE.

Hence, as oft as 282 Cubic Inches are *contain'd* in any Vessel round or square, so many Gallons of Ale or Beer it holds, and the like may be observ'd of the other Measures.

Multiply, therefore, one side of a Square or Oblong into the other; and divide by one of those Numbers, according to the Quality of the Liquor; the Quotient gives the Area in Gallons, upon an Inch deep.

Tho the Work may be shorten'd by only multiplying the Sides of Squares, or the Diameters of Rounds into themselves; the Product is the Number of Gallons, and Parts the Vessel *contains*, upon an Inch in Depth: and when that receives an Augmentation, by being 2, 3, or 4 Inches deep, it then commences a solid Body, and *contains* as many Gallons and Parts, as 'tis Inches and Parts deep.

A Cubic Foot *contains* 6 Gallons, and almost a Pint, of Ale and Beer; and 7 Gallons, 2 Quarts of Wine. A Cubic Foot of dry Measure *contains* 6 Gallons and a half, and something more. A Bushel of Salt *contains* 56 Pound Averdupoise.

CONTENTIOUS *Jurisdiction*, in Law, *Forum Contentiosum*, a Court, or Assembly, which has a Power to judge and determine Differences between contending Parties.

The Lords Chief Justices, Judges, *&c.* have a *Contentious Jurisdiction*: But the Lords of the Treasury, the Commissioners of Customs, *&c.* have none; being merely Judges of Accounts.

CONTEXT, among Divines and Criticks, that Part of Scripture, or other Writing, which lies about the *Text*; before or after it, or both. See TEXT.

To take the full Sense of the Text, the *Context* shou'd be regarded.

CONTIGNATION, in the antient Architecture, the Act of laying Rafters, *tigna*, together; and particularly, flooring. See FLOORING.

CONTIGUOUS, a Relative Term, understood of Things dispos'd so near each other, that they join their Surfaces, or touch. See CONTACT.

The Houses in antient *Rome* were not *contiguous* as ours are, but all insolated.

CONTIGUOUS *Angles*, in Geometry, are such as have one Leg common to each Angle; otherwise called *adjoining Angles*; in contradistinction to those produced by continuing their Legs thro' the Point of Contact, which are called *opposite* or *vertical* Angles. See ANGLE, *&c.*

CONTINENT, in Geography, a *Terra firma*, Main-land, or large extent of Country, not interrupted by Seas; in opposition to *Island*, &c. See EARTH, OCEAN, *&c.*

Thus, *Sicily* is said to have been antiently torn from the *Continent* of *Italy*; and 'tis an old Tradition, which some of our Antiquaries have still a regard to, that *Britain* was antiently a part of the *Continent* of *France*.

The World is ordinarily divided into two grand *Continents*, the old and the new: The old comprehends *Europe*, *Asia*, and *Africa*; the new the two *America's*, North and South.

The antient *Continent* is also called the *upper Continent*, from a vulgar Opinion, that it possesses the upper Part of the Globe. See TERRAQUEOUS *Globe*.

'Tis doubted whether *Japan* be an Island, or join'd to the *Continent*; the same may be said of *California*.

Some Authors are of Opinion, the two grand *Continents* are in reality no more than one; imagining the Northern Parts of *Tartary* to run out and meet those of N. *America*.

CONTINENT *Cause* of a Distemper, is that whereon the Disease depends so immediately, that it continues so long as that remains, and no longer. See DISEASE.

Thus, a Stone in the Bladder may be the *Continent Cause* of the Suppression of Urine. See STONE, *&c.*

CONTINENT *Fever*, is that which goes on to a Crisis without any Intermission, or Remission. See FEVER.

CONTINGENT, something casual, or uncertain. See CHANCE.

Future CONTINGENT, in Logick, is a conditional Proposition, which may or may not happen, according as Circumstances fall.

The *Socinians* maintain, that God cannot see *future Contingents*, because depending on the free Motion of the Will.

CONTINGENT is also a Term of Relation for the Quota that falls to any Person upon a Division.

Thus, we say, each Prince of *Germany*, in time of War, is to furnish so many Men, so much Money, and Munition for his *Contingent*. By the new Treaty of *Hanover* it is stipulated, that in case of a Rupture with the Emperor, the Kings of *Great Britain* and *Prussia* may furnish their *Contingents*, as Fiefs of the Empire, at the same time they are at War therewith.

CONTINGENT *Use*, in Law, is an Use limited in a Conveyance of Land, which may or may not happen to vest, according to the *Contingency* express'd in the Limitation of such Use.

CONTINGENT *Line*, or *Line of* CONTINGENCY, in Dialling, is a Line that crosses the Substyle at right Angles. See SUBSTYLE, and DIALLING.

CONTINGENTS is sometimes used by the Mathematicians in the same Sense as *Tangents*. See TANGENT.

CONTINUAL *Claim*. See *Continual* CLAIM.

CONTINUANCE, in Law, the same as *Prorogation* among the Civilians. See PROROGATION.

CONTINUANCE *of a Writ*, or *Action*, is from one Term to another, in a Case where the Sheriff has not return'd or executed a former Writ issued out in the said Action.

CONTINUANCE *of Assise*. If a Record in the Treasury be alledg'd by one Party, and deny'd by the other; a *Certiorari* shall be sued to the Treasurer and Chamberlain of the Exchequer: who, if they certify not that the said Record is there,

there, or likely to be in the Tower; the King shall send to the Justices, repeating the Certificate, and will them to continue the Assise.

CONTINUANDO, in Law, a Term used where a Plaintiff would recover Damages for several Trespasses in the same Action.

For, to avoid multiplicity of Suits, a Man may in one Action of Trespass recover Damages for forty or more Trespasses; laying the first to be done, with a *Continuance* to the whole Time wherein the rest of the Trespasses were done; which is done in this form, *Continuando transgressionem prædictam*, &c. *a prædicto die*, &c. *usque*, &c.

CONTINUED *Quantity*. } See CONTINUUM, and CONTINUED *Body*, &c. }

CONTINUED *Fever*, is such an one as does not *intermit*, or go intirely off, and return again, by Fits. See FEVER.

A *continued* Fever, may be defined the *Continuance* of an increas'd Velocity in the Circulation of the Blood, beyond what is natural to the Constitution.

If this Velocity often decreases, and rises again to the same height, it is called a *Continued periodical Fever*.

And if it intirely cease in the Space of a Day, or two, it is call'd an *Ephemeris*. See EPHEMERIS.

A *Continued Fever*, then, may *remit*, or abate and increase again, alternately; but not *intermit*, which would constitute it an intermitting Fever, or Ague. See REMITTING, and INTERMITTING *Fever*.

CONTINUED, or *Thorough Bass*, in Musick, is that which continues to play, constantly; both during the Recitatives, and to sustain the Choir, or Chorus. See BASS.

CONTINUED *Proportion*, in Arithmetick, is that wherein the Consequent of the first Ratio is the same with the Antecedent of the second; as, 3 : 6 :: 6 : 12. See PROPORTION.

On the contrary, if the Consequent of the first Ratio be different from the Antecedent of the second, the Proportion is said to be *discrete*; as, 3 : 6 :: 4 : 8. See DISCRETE.

CONTINUITY, is usually defined among the Schoolmen, the immediate Cohesion of Parts in the same *Quantum*. Others define it a Mode of Body, whereby its Extremes become one. And others, a State of Body resulting from the mutual Implication of its Parts. See PART.

There are two Kinds of *Continuity*, *Mathematical*, and *Physical*: The first is merely imaginary, and fictitious; since it supposes real or physical Parts where there are none.

Physical Continuity, is, strictly, that State of two or more Parts, or Particles, whereby they appear to adhere, or constitute one uninterrupted Quantity, or *Continuum*; or between which we perceive no intermediate Space. See CONTINUUM.

The Schoolmen distinguish two other sorts of *Continuity*, viz. *homogeneous* and *heterogeneous*. The first, where our Senses do not perceive the Bounds, or Extremes of the Parts; and this agrees even to Air, Water, *&c.* The second, where our Senses do indeed perceive the Extremes of certain Parts, yet at the same time observe the same Parts closely link'd to each other; either in virtue of their Situation or Figure, *&c.* and this is chiefly attributed to the Bodies of Animals and Plants.

The *Continuity* of Bodies, is a State merely relative to our sight and touch: *e.gr.* if the distance of two separate Objects be such, as that the visual Angle they subtend is insensible to the Eye, which it will if less than 16 Seconds; the two separate Bodies will appear *contiguous*.

Now, the Result of several *contiguous* Objects is a *Continuity*; so that any Number of visible Objects, being plac'd so as that their Distances subtend an Angle of less than 16 Seconds, they will appear to form one *Continuum*.

And hence, as we can determine the Distance at which any given Magnitude becomes invisible; 'tis easy finding at what distance any two Bodies, however remote from each other, will appear as contiguous; and several, as forming one *Continuum*. See CONTIGUOUS.

For the Physical Cause of Continuity, *or Cohesion*. See COHESION.

CONTINUUM, or *Continued Quantity*, in Physicks, a Quantity or Coextension, whose Parts are not divided, but join'd and connected together; so as to leave no room to determine where one begins and another ends. See CONTINUITY.

'Tis controverted among Philosophers, whether a *Continuum* be infinitely divisible, *i. e.* divisible into infinite proportionable Parts. See DIVISIBILITY.

Mathematicians divide Quantity into *continued* and *discrete*. See QUANTITY.

Continued Quantity is that express'd by Lines, and makes the Subject of Geometry. See LINE, and GEOMETRY.

Discrete Quantities, are those express'd by Numbers, which make the Subject of Arithmetick. See DISCRETE; see also NUMBER.

In Medicine and Chirurgery, Wounds, Ulcers, Fractures, *&c.* are express'd by the Word *Solutio Continui*, or *Solution of Continuity*. See SOLUTIO.

In a critical Sense, we say, there is to be a *Continuity*, i. e. a *Connection* between the Parts of a Discourse.

In the *Epopæa*, particularly, the Action should have a *Continuity* in the Narration; tho the Events or Incidents be not continued. As soon as ever the Poet has open'd his Subject, and brought his Persons on the Stage, the Action is to be continu'd to the End: Every Character must be at work; and no such thing as an idle Person to be seen. See ACTION.

F. *Bossu* observes, that by retrenching dull languishing Incidents, and Intervals void of Action, which break the *Continuity*, the Poem acquires a *continu'd* Force, which makes it run equally throughout.

The Antients attributed the Rise of Water in Pumps, to the love of *Continuity*, and the Abhorrence of a Vacuum; in regard the Weight and Pressure of the Air was not then known.

CONTOBABDITES, a Sect of Hereticks in the VIth Century.

Their first Leader was *Severus* of *Antioch*, who was succeeded by *John* the Grammarian, sirnam'd *Philoponus*, and one *Theodosius*; whence their Followers were called *Agnoetes* and *Theodosians*. See AGNOETES.

Part of them, who were willing to receive a Book compos'd by *Theodosius* on the Trinity, made a separate Body, and were called *Contobabdites*, from I know not what Place, which *Nicephorus* does not mention, but which must apparently have been the Place where they held their Assemblies.

The *Contobabdites* allow'd of no Bishops; which is the only Circumstance that Historian gives us of them.

CONTORSION, the Action of twisting, or wresting a Member of the Body out of its natural Situation.

Thus, we see Rope-Dancers accustom themselves to *Contorsions* of their Limbs from their Youth, to render the Fibres of their Articulations lax, and supple to all Kinds of Postures. See POSTURE.

CONTORSION is also used passively for the State of a Thing, *v. g.* of a Member that is awry.

The *Contorsion of the Neck*, is occasion'd, according to *Nucke*, by the Relaxation, or Paralysis of one of the Mastoidal Muscles: for hence it happens, that its Antagonist, whose Power is now no longer balanced, contracting with its proper Force, draws the Head towards its side. See PALSY.

He adds, that this Disorder cannot be remedied too speedily; and prescribes from the beginning, Liniments capable of relaxing and softening the Fibres; to be used, not only to the Muscle in Contraction, but also and principally to the relax'd paralytick Muscle, which is the Seat of the Disorder.

CONTOUR, the *Outline*, or that which terminates and defines a Figure. See FIGURE.

A great Part of the Skill of the Painter consists in managing the *Contours* well. See PAINTING.

The *Contour* of a Figure, makes what we call the *Draught*, or *Design*. See DESIGN.

The *Contour* of a Face, the *Italian* Painters ordinarily call the *Lineaments* thereof.

CONTOURNE, in Heraldry, is used when a Beast is standing or running with its Face to the Sinister-side of the Escutcheon: they being always supposed to look to the Dexter-side, unless it be otherwise express'd.

CONTOURNIATED, a Term used among Antiquaries for a kind of Medallions, struck with a certain hollowness all around, which leaves a Circle on each side; and with Figures that have scarce any Relievo, in comparison with the true Medallions. See MEDALLION.

They have their Name from their Edges, which appear as if turned in the Lathe.

All we have remaining of these *contourniated* Medals seem to have been made about the same time. F. *Hardouin* conjectures them to have been struck about the XIIIth Century: other Antiquaries go back as far as the Vth.

The Manner of the Work seems to have had its Origin in *Greece*; and to have been appropriated to honour the Memories of great Men: principally, those who had bore away the Prize at the Solemn Games: Such are those remaining of *Homer*, *Solon*, *Euclid*, *Pythagoras*, *Socrates*, *Apollonius Thyaneus*, and several *Athletæ*, whose Victories are express'd by Palms and Chariots, either *Bigæ* or *Quadrigæ*.

CONTRABAND, or CONTRABANDED *Commodity*, in Commerce, a *prohibited* Commodity; or a Merchandise bought or sold, imported or exported, in prejudice and contrary to the Laws and Ordonnances of a State, or the publick Prohibitions of the Prince. See COMMERCE, MERCHANDISE, *&c.*

The Word comes from the Italian *Contrabando*, *i. e.* contrary to Edict, or Publication of Prohibition.

Contraband Goods are not only liable to Confiscation themselves; but do also subject thereto all other allowed Merchandises found with 'em in the same Box, or Bale, together with the Horses, Waggons, *&c.* which conduct them to the same. See CONFISCATION.

There

There are *Contrabands*, which besides Confiscation, are prohibited on Pain of Dearh; as, *v. g.* in *France*, *India* and *China* Stuffs, Linens, *&c.*

In *England* there are two principal *Contrabands* for the *Export*, *v. g.* that of Wools and live Sheep, which all Strangers are prohibited from carrying out, on Pain of having the right Hand cut off; the other that of Sheep-skins and Calf-skins, which all Foreigners are in like manner prohibited from exporting, on Pain also of having the right Hand cut off: Yet, the Subjects of *England* are allow'd to transport the same from *France* to *England*. See Wool, and Woollen *Manufacture*.

The other *Contrabands* for Exportation are raw Horns, white Ashes, Stocking Looms, or any Part thereof, Fullers-Earth, and all raw Hides, or Skins.

Of Goods *Contrabanded* as to the *Import*, there are above 50 in the Lists made in 1662; and yet there are 25 of 'em which now stand in the Tariff; the Non-execution of the Acts of Parliament whereby they were impos'd, seeming to have restor'd 'em to the Freedom of Importation.

The chief of those still *contrabanded*, and not tariff'd, are woollen Caps, woollen Cloths, Saddles and Harness, Dice, Billiards, all sorts of tann'd or dress'd Hides, dress'd Furs, all sorts of Shoemakers Ware, Locks, and divers sorts of Cutlers Ware; all painted Goods; except Paper, Wires, Buckles, Gold and Silver Leaf, and Horns for Lanthorns.

Since the Year 1662, several other Commodities have been made *contraband*; particularly Silk and Galloons, Laces, Embroideries, Fringes, Buttons, and other Silk and Thread Manufactures; black Taffaries, call'd *Alamodes*, or Lutestring.

In 1719 and 1720, an Attempt was made in Parliament to pass a Bill for putting Gold and Silver, whether in Species or otherwise, among the Number of *Contraband* Goods for Exportation; but in vain, by reason of the strong Opposition made by those who enrich themselves by the Export of these Metals; which, by the Laws of the Kingdom, it has always been allow'd to send away, upon entering 'em, and paying the Duty of the Export.

It may be judg'd whether those who promoted the Bill were well affected to the Nation, from this, that in the single Month of *September* 1720, there were enter'd at the Customhouse in *London* 468119 Ounces of Gold, and 28988 Ounces of Silver; *viz.* 34302 Ounces of Gold, and 4000 Ounces of Silver for *Holland*; 12320 Ounces of Gold for *France*; 197 Ounces of Gold, and 5648 Ounces of Silver for *Portugal*; and 19340 Ounces of Silver for the *East-Indies*, exclusive of what was exported fraudulently by private Persons, without paying the Duties.

This shews, indeed, the abundance of Gold and Silver in *England*; but shews, at the same time, the danger it is in of being, at length, exhausted.

In Heraldry, the Bar is called a *Contre-band*, or *Counter-band*; because it cuts the Shield contrary, and opposite ways. See Bar.

They also say, *Contre-chevron*, *Contre-pal*, &c. when there are two Ordinaries of the same Nature opposite to each other; so as Colour be oppos'd to Metal, and Metal to Colour. And the Coat is said to be *Contre* or *Counter-paled*, *Counter-banded*, *Counter-fess'd*, *Counter-compon'd*, *Counter-bar'd* when so divided. See Contre-Bande, *&c.*

Counter-quarter'd, when one of the Quarters is quarter'd again; as also *Counter-flower'd*, *Counter-colour'd*, &c.

Animals are said to be *Counter-passant*, when one passes on one side, and another on another.

CONTRA *formam Collationis*, is a Writ that lays where a Man has given perpetual Alms to a Religious House, Hospital, School, or the like, and the Governor or Managers, have alienated the Lands, contrary to the Intention of the Donor.

Contra *formam Feoffamenti*, is a Writ for a Tenant who is infeoffed by the Lord's Charter to make certain Suit and Service to his Court; and is afterwards distrain'd for more than is contain'd therein.

CONTRACT, a mutual Consent of two or more Parties, who promise and oblige themselves, voluntarily, to do something, pay a certain Sum, or the like. See Pact, Covenant, *&c.*

Sales, Exchanges, Donations, Leases, *&c.* are so many different Species of *Contracts*.

Contract is particularly used in Common Law, for an Agreement or Covenant between two, with a lawful Consideration or Cause.

As, if I sell my Horse for Money, or Covenant, in Consideration of 20 *l.* to make you a Lease of a Farm; these are good *Contracts*, because there is *quid pro quo*.

Usurious Contract, is a *Contract* to pay more Interest for Money than the Laws allow. See Usury.

It is a Devastavit in Execution to pay a Debt upon an *Usurious Contract*. See Devastavit.

In Marriage, the *Romanists* distinguish the Civil *Contract*, which is the Consent of the Parties, from the Sacrament, which is the Benediction of the Priest. See Marriage.

Those *Contracts* are said to be *null* which the Law prohibits the making of; such are all *Contracts* between Persons incapable of *contracting*, as Minors, Religious, Lunaticks, Wives without Consent of their Husbands, *&c.*

The Word *Contract* is also used for the Instrument in Writing, which serves as a Proof of the Consent granted, and the Obligation pass'd between the Parties.

Among the antient *Romans*, *Contracts*, and all voluntary Acts, were wrote, either by the Parties themselves, or by one of the Witnesses, or by a Domestick Secretary of one of the Parties, whom they call'd a *Notary*; but who was no publick Person, as among us. See Notary.

The *Contract*, when finish'd was carry'd to the Magistrate, who gave it a publick Authority by receiving it *inter Acta*, into the Number of Acts under his Jurisdiction; giving each of the Parties a Copy thereof, transcrib'd by his Clerks or Domestick Registers, and sealed with his Seal.

Which Practice pass'd into *France*, where it obtain'd a long time.

CONTRACTILE *Force*, that Power or Property inherent in certain Bodies, whereby, when extended, they are enabled to draw themselves up again, to their former Dimensions.

For the Cause of this Property, which is of the utmost Consequence to a right understanding of the Animal Oeconomy, see Fibre.

CONTRACTION, in Logicks, is defined a Species of Reduction, wherein the Thing that reduces, *abridges*, or brings the Thing reduced into a lesser compass. See Reduction, and Abridgment.

The design of such *Contraction* is to bring Things, which before were too lax and diffusive, nearer together; that so their mutual Relation may appear the more clearly, and may better strengthen and support each other.

Thus, ' following the Argumentation, From that Proposition, *Therefore, now I am standing*, follows this other, ' *Therefore, now I am existing*;' may be thus *contracted*, *Existo sequitur sum*, from standing we conclude existing.

To this Head are refer'd the Arguments, as they are called, of Poems and Orations; the Titles and Summaries of Chapters, *&c.*

Contraction, in Physicks, is a diminishing of the Extent or Dimensions of a Body; or a bringing of its Parts closer to each other: upon which it becomes heavier, harder, *&c.* See Condensation.

Contraction, in this Sense, stands opposed to *Dilatation*. See Dilatation, *&c.*

All Bodies *contract* by Cold, and dilate or rarefy by Heat. See Cold, Heat, Rarefaction, *&c.*

Contraction *of the Heart*, *Arteries*, *Lungs*, &c. See Systole, Heart, Artery, Pulse, *&c.*

Contraction, a Term in Medicine, frequently used by Anatomical Writers, to express the shrinking up of a Fibre, or Assemblage of Fibres, when extended. See Fibre.

Convulsions and Spasms proceed from a preternatural *Contraction* of the Fibres of the Muscles of the Part convuls'd. See Convulsion.

On the contrary, Paralytic Disorders generally proceed from a too great laxness of the Fibres of the Parts affected; or from the want of that degree of *Contraction* necessary to perform the natural Motion or Action of the Part.

In the first, therefore, the Animal Spirits are suppos'd to flow, either in too great a quantity, or irregularly; and in the last, the Animal Spirits are either deny'd a free Passage into the Part affected, or the Tension of the *Fibrillæ* is suppos'd insufficient to promote the Circulation.

Contraction evidently appears to be the true natural State of all Muscles: For if a Muscle be at any time freed from the Power of its Antagonist, it is immediately found to *contract*; and is not by any Action of the Will or the Spirits, to be reduced to a State of Dilatation. See Muscle.

Contraction, in Grammar, the Reduction of two Vowels or Syllables into one.

The *Greeks* abound in *Contractions*, both in their Verbs and their Nouns; as, ποιῶ of ποίεω, *facio*; βοῶ of βοάω, *clamo*; χρυσῶ of χρυσόω, *inauro*; πλῶ of πλέω, *ambulo*; πλοῖς of πλοῖς, *ambulas*; Δημοσθένης, of Δημοσθένεος.

The *French* have something like it too, at least in their Pronunciation; as in *saouler*, *baailler*, *paon*, which they pronounce *souler*, *bailer*, *pan*.

CONTRADICTION, is a Species of direct opposition, wherein one thing is diametrically opposed to another. See Opposition; see also Contradictory.

The Schoolmen usually define it, *Oppositio inter ens & non-ens medio carens*: where, by *Ens* and *Non-ens*, are understood any two Extremes, whereof one affirms and the other denies: and it is said to be *medio carens*, to distinguish it from the other Species of Opposition; the Extremes, here, neither agreeing in Subject, as is the Case in Privation; nor in Essence and Kind, as in Contrariety. See Privation, Contrariety, *&c.*

CONTRADICTOR, in a Legal Sense, a Person who has a Right or a Quality to *contradict*, or gainsay: Thus, an Inventory of the Effects of a Minor ought to be made in presence of his Guardian, or Trustee, who is the Legal *Contradictor*: A Decree against a Farmer has no Effect on the Landlord, the first not being the legitimate *Contradictor*.

CONTRADICTORY *Propositions*, are Opposites, one of which imports a mere and naked denial of the other. See OPPOSITE.

Of these, therefore, one must be positive, and the other negative; as, sitting, and not sitting; white, and not white.

Contradictory Propositions mutually destroy each other. See PROPOSITION.

To have two Propositions truly *contradictory*, they must be opposite both in Quantity and Quality, *i. e.* one must be universal and the other particular, which makes the Opposition of Quantity; and the one Affirmative and the other Negative, which makes the Opposition in Quality. See OPPOSITION.

Thus, *v. g. All use of Wine and Silver is evil*; 'tis false: *Some use of Wine and Silver is not evil*; 'tis true.

To this it is necessary that the one deny, and the other affirm the same thing, of the same Subject, consider'd in the same Circumstances; unless the Question be about an essential Attribute; in which Case, no regard is had to Circumstances; every thing having always its own Essence.

This the Logicians express by *Affirmare & negare idem, de eodem, secundum idem*.

There may likewise be *Contradictory Propositions* on a particular Subject, *e. gr.* an individual: These are called *single Contradictory Propositions*; as, *Peter is just*; *Peter is not just*, or *is a Sinner*. Now, to have these Propositions *contradictory*, *Peter* must be consider'd at the same Time; without which they may be both true: since there was a Time wherein *Peter* was just, and another wherein he was a Sinner.

CONTRA-FISSURE, in Medicine, a Term apply'd to that Species of Fracture in the Skull, where the Side opposite to that where the Blow was receiv'd, is crack'd. See FISSURE.

The usual Symptoms attending a *Contra-fissure*, are a Delirium, sometimes a bleeding at the Nose and Mouth, Stupidity, an involuntary passing of the Urine and Excrements, Convulsions, *&c.*

If these happen, and after search made in the Part where the Injury was receiv'd, no Fracture or Depression of the Skull be found, there is suspicion of a *Contra-fissure*; especially if the Patient be apt to point to that Part.

If the Symptoms be by Intervals, and not to a great degree, or there be reason to believe the Fissure to have reach'd only thro' one of the Tables, 'tis sufficient to denude the Bone, and use a Raspatory; then to fill the *Rima*, or Crack with proper Pouders, of Iris, Gum, Myrrh, Pouder of Diapente, *&c.* and above all apply a Pledget dipp'd in Tincture of Euphorbium, or of equal Parts of Spirits of Wine, and Honey of Roses.

If these fail, the Trepan must be had recourse to. See TREPANNING.

CONTRA-HARMONICAL *Proportion*, that Relation of three Terms, wherein the Difference of the first and second, is to the Difference of the second and third, as the third is to the first. See PROPORTION.

Thus, *e. g.* 3, 5, and 6, are Numbers *contra-harmonically* proportional; for 2 : 1 : : 6 : 3.

To find a Mean contraharmonically *proportional to two given Quantities.* The Rule is; Divide the Sum of the two squared Numbers by the Sum of the Roots; the Quotient is a *contraharmonically* mean Proportional between the Roots. See HARMONICAL *Proportion*.

CONTRA-INDICATION, is an Indication which forbids that to be done which the main scope of a Disease points out. See INDICATION.

Suppose, *e. g.* in the Cure of a Disease a Vomit were judg'd proper; if the Patient be subject to a vomiting of Blood, 'tis a sufficient *Contra-Indication* as to its Exhibition.

CONTRAMANDATIO *Placiti*, in our antient Law-Books, signifies a respiting, or giving the Defendant farther time to answer: or, an Imparlance, or countermanding of what was formerly order'd.

Contramandatum is a lawful Excuse, which the Defendant by his Attorney alledgeth for himself, to shew that the Plaintiff has no cause to complain; *Si dies placiti sit contramandatus.* 11 *Hen.* 1.

CONTRAMURE, in Building, an Out-wall, built about the Wall of a City. See WALL, RAMPART, *&c.*

CONTRAPOSITION, in Logicks. See CONVERSION.

CONTRARIETY, that which denominates two Things *contrary* to each other. See CONTRARY.

Contrariety consists in this, that one of 'em imports a Negation of the other, either mediately or immediately; so that *Contrariety* may be said to be the Contrast or Opposition of two Things, one of which implies the absence of the other. See OPPOSITION.

CONTRARY *Things*, or CONTRARIES, are positive *opposites*; which being of the same Kind, or same common Nature, and subsisting by turns in the same Subject, are as remote from each other as possible, and mutually expel each other. See OPPOSITE.

Such are Whiteness and Blackness, Cold and Heat, *&c.*

Hence, properly speaking, only Qualities can be *Contraries*. *Contrariety* only agrees to Qualities *per se*; to other things it agrees *per accidens*, or *in ordine ad Qualitatem*. See QUALITY.

Contrary, however, is often used in a more extensive Signification, *viz.* for any inconsistence or difference between the Nature and Qualities of Things.

'Tis a popular Maxim in Philosophy, that *contraria juxta se posita magis elucescunt*; Contraries set off one another.

In this Sense, the Word *Contrary* is used in the Schools; as, An Argument *à contrario*; *e. g.* If Bodies whose Surfaces are rugged don't reflect any Light, polish'd Bodies must, by the Rule of *Contraries*, reflect it.

This Method of proving Things *à contrario*, is much used, and with good Success, by F. *Bourdaloue* in his Sermons.

The Schools use the Word *Contraries* in a still more precise Signification, as implying two positive Things, which cannot subsist together in the same Subject, but destroy or expel each other; as Heat and Cold, Dryness and Moisture.

CONTRARY, in Rhetorick. F. *de Colonia* lays down three Kinds of *Contraries* in Rhetorick, *viz. Adversatives*, *Privatives*, and *Contradictories*.

Adversatives are those that differ much in the same Thing, as Virtue and Vice, War and Peace: Thus *Tully*, *Si stultitiam fugimus, sapientiam sequamur*; *& bonitatem, si malitiam.* Thus *Quintilian*, *Malorum causa bellum est, erit emendatio pax.* Thus *Drances* argues in *Virgil*, *Nulla salus bello: pacem te poscimus omnes.*

Privatives are Habits, and their Privations. See PRIVATIVE.

Contradictories are those, one whereof affirms, and the other denies the same Thing, of the same Subject. See CONTRADICTORY.

CONTRAST, in Painting and Sculpture, expresses an *Opposition*, or difference of Position, Attitude, *&c.* of two or more Figures; contriv'd to make Variety in a Painting. See DESIGN.

Thus, when in a Group of three Figures, one is shewn before, another behind, and a third sidewise, there is said to be a *Contrast*. See GROUP.

M. *de Piles* defines *Contrast* an Opposition between the Lines which form the Objects; by means whereof they set off one another.

A *Contrast* well manag'd, is one of the greatest Beauties of a Painting.

The *Contrast* is not only to be observ'd in the Position of several Figures, but also in that of the several Members of the same Figure: Thus, if the right Arm advance the furthest, the right Leg is to be hindmost; if the Eye be directed one way, the right Arm to go the contrary way, *&c.* See FIGURE.

The *Contrast* must be pursued even into the Drapery. See DRAPERY.

To CONTRAST, in Architecture, is to avoid the Repetition of the same Thing, in order to please by Variety; as is done in the great Gallery of the *Louvre*, where the Pediments are, alternately, arch'd and angular.

The Word comes from the Italian *Contrastare*, to oppose, thwart; and that, according to M. *Huet*, from the Latin *Contrastatio*.

CONTRAT-*Wheel*, in Clock-work. See WHEEL; see also CLOCK, and WATCH.

CONTRAVALLATION, or the *Line of* CONTRAVALLATION, in Fortification, is a Trench guarded with a Parapet; usually cut round about a Place by the Besiegers, to secure themselves on that side, and to stop the Sallies of the Garrison. See LINE.

It is without Musket-shot of the Town; so that the Army forming a Siege, lies between the Lines of *Circumvallation* and *Contravallation*. See CIRCUMVALLATION.

CONTRAVENTION, a Man's failure of performing or discharging his Word, Obligation, Duty, or the Laws and Customs of the Place.

The Penalties imposed in Cases of *Contravention*, only pass for Comminatory.

In a more limited Sense, *Contravention* implies the Non-execution of an Ordinance, or Edict.

Contravention is suppos'd to be a degree below Prevarication; and to be only the Effect of Negligence, or Ignorance. See PREVARICATION.

CONTRA-YERVA, a Root brought from *Peru*; esteem'd an Alexiterial, and a sovereign Antidote against Poison.

It is said to take its Name from *Yerva*; which in the *Spanish* signifies white Hellebore, a Plant whose Juice is a violent Poison, used by the *Peruvians* to poison their Arrows

rows withal; in which Sense, *Contra-yerva* signifies *Counter-poison*.

The Root is smaller than that of the Iris, reddish without and white within, knotty, and fibrous. To be good, it must be new, heavy, and of a dusky red Colour.

In Smell it resembles Fig-leaves; its Taste is Aromatic, accompany'd with some Acrimony.

There is an Officinal Composition which takes its Name from this Root, prepar'd with the Testaceous Pouders, call'd *Lapis Contrayerva*. Both the Root and *Lapis Contrayerva* are of great efficacy in the Small Pox, Measles, Fevers, and all Cases where either a Diaphoresis or Perspiration is requir'd: its Success being more to be depended on than the *Gascons Pouder*; which, among the more knowing, begins to lose ground.

It is agreed on, by the generality of Writers, that the *Contra-yerva* Root is one of the best Anti-epidemicks yet known. Dr. *Hodges*, in his Treatise of the last *London-Plague*, has a Receipt which he says was attended with great Success, and of which this Root was one of the chief Ingredients. See PLAGUE.

There is another Kind of *Contra-yerva*, brought from *Virginia*, more ordinarily called *Viperine*, very aromatic; seldom prescribed, tho said to have the same Success against Poisons and Venoms with the *Contra-yerva* of *Peru*.

CONTRE-COMPONE.	in Heraldry. See	COUNTER-COMPONED.
CONTRE-CHANGED,		COUNTER-CHANGED.
CONTRE-BANDE,		COUNTER-BEND.
CONTRE-BARRE,		COUNTER-BARRED.
CONTRE-CHEVRONNE,		COUNTER-CHEVRON'D.
CONTRE-ERMINE,		COUNTER-ERMINE.
CONTRE-ESCARTELE, *&c.*		COUNTER-ESCARTELE, *&c.*

CONTRIBUTION, the Payment of each Person's Quota, or of the Part he is to bear in some Imposition, or common Expence.

Contributions are either *Involuntary*, as those of Taxes and Imposts; or *Voluntary*, as those of Expences for carrying on some Undertaking for the Interest of the Community.

In a Military Sense, *Contributions* are particularly used for the Conventions between the Governors of the Frontier Places and the Enemy; in order to secure themselves from being pillag'd and insulted.

The Peasants till their Ground under the Faith of *Contributions*, as securely as in time of profound Peace.

CONTRIBUTIONE *facienda*, a Writ which lies where several Persons are jointly bound to the same Thing, and one or more of 'em refuse to *contribute* their share.

E.gr. If Tenants in Common, or Joint, hold a Mill *pro indiviso*, and equally share the Profits thereof; the Mill falling to decay, and one or more of 'em refusing to *contribute* to its Reparation, the rest shall have this Writ to compel them.

And if there be three Coparceners of Land that owe Suit to the Lord's Court, and the Eldest performs the whole; then may she have this Writ to compel the Refuser to a *Contribution*.

CONTRITION, in Theology, a real Sorrow, resulting from the Thought of having offended God; from the sole Consideration of his Goodness; without any regard to the Punishment the Sin is intitled to. See REPENTANCE.

Some of the *Romish* Doctors avow, notwithstanding the Practice of their Church, that *Contrition* is valid, and carries with it every thing necessary to obtain Pardon, without the Ceremony, or as they call it, the *Sacrament* of Confession and Absolution. See CONFESSION, and ABSOLUTION.

And in this they make the difference between *Contrition* and Attrition to consist. See ATTRITION.

This Doctrine was lately maintain'd by F. *Sequenot* upon S. *Augustin*; but was censur'd by the Faculty of *Paris*.

CONTROLL, COMPTROLL, or CONTROLE, is, properly, a double Register, kept of Acts, Issues, *&c.* of the Officers or Commissioners in the Revenue, Army, *&c.* in order to perceive the true State thereof, and to assure the Truth, and the keeping of the Acts subject to that Enregisterment. See REGISTER. Hence,

CONTROLLER, or COMPTROLLER, an Officer establish'd to *controll*, or to keep the Register called *Controll*; and to certify, on occasion, whether the Things have been *controll'd* or not. Thus, we have,

CONTROLLER *of the King's Houshold*, or *of the Accounts of the Board of Green-Cloth*. See HOUSHOLD, and GREEN-CLOTH.

CONTROLLER *General of the Customs*. See CUSTOMS.

CONTROLLER *of the Navy*. See NAVY.

CONTROLLER *of the Mint*. } See { MINT.
CONTROLLER *of the Excise*. } See { EXCISE.

CONTROLLER *of the Accompt of the Army*; *of the Chamber*, &c. See CHAMBER, *&c.*

CONTROLLER *of the Hamper*, is an Officer in Chancery, attending the Lord Chancellor daily in Term and Seal time. See CHANCERY.

This Officer is to take all Things seal'd from the Clerk of the Hamper, inclos'd in Bags of Leather, and to note the just Number and Effect of all Things so receiv'd; and to enter 'em in a Book, with all the Duties belonging to the King and other Officers for the same, and so charge the Clerk of the Hamper with 'em. See HAMPER.

CONTROLLER *of the Pipe*, an Officer of the Exchequer, who writes out Summons twice a Year, to levy the Farms and Debts of the Pipe. See PIPE, and EXCHEQUER.

He was antiently called the *Duplex Ingressator*.

CONTROLLERS *of the Pell*, are Officers of the Exchequer, whereof there are two, *viz.* two Chamberlains Clerks, who keep a *Controll* of the Pell, of Receits, and Goings-out: Originally they took Notes of other Officers Accompts, in order to discover if they did amiss. See PELL.

CONTROVER, in Law, he who of his own Head devises or invents false or feigned News.

CONTROVERSIAL *Divinity*. See POLEMICAL *Divinity*.

CONTUMACY, in Law, *Contempt*; or a Refusal to appear in Court when legally summon'd.

The Word is used in Civil, as well as Criminal Matters; but more rarely in the first, wherein the Word *Defaut* ordinarily supplies its Place: The Refunding of the Charges of a Defaut judg'd at the hearing is also the Penalty of *Contumacy*.

In a Criminal Sense, the *Contumacious* is condemn'd, not because the Crime is proved on him, but because he is absent. By the *Roman* Laws, there was no Process in case of *Contumacy*, during the first Year of absence: they only took an Inventory of the Goods of the Fugitive, and if he died in the Year, he died *integri status*; but after the Year was expir'd he was deem'd culpable.

In *England*, *Contumacy* is prosecuted to Outlawry. See OUTLAWRY.

In *France*, all *Contumacies* are annull'd, if the Accused make his Appearance in five Years; if he die in that Time, his Relations are permitted to purge his Memory.

CONTUSION, *Bruise*, in Medicine, a Solution of Continuity, either in Flesh or Bone, occasion'd by a Fall, a Blow, or a violent Pressure, whereby the Flesh is broke, the Skin still remaining entire; and an Effusion of Blood ensues, from several little broken Vessels, so as to discolour the Skin, tho it don't make its way thro' the Pores thereof.

Or, *Contusions* may be defin'd a particular sort of Tumors, attended with a Stagnation of the Blood in the Part affected; and, generally, with an Inflammation, Discolouration, and Pain. See TUMOUR.

Contusions are either *internal*, or *external*. When from any external Injury, there proceeds an internal Disorder, *e.gr.* an Asthma, spitting of Blood, or the like, the *Contusion* is said to be *internal*. If only external Symptoms appear, as a Tumour, Blackness, *&c.* it is term'd *external*.

In case of inward *Contusions*, bleeding the Patient is necessary, and halsamicks must be given internally, such are Spermaceti, Pouder of Rhubarb, Irish Slate, oleaginous and pectoral Medicines, *&c.* Externals proper for *Contusions*, are Liniments or Ointments of Marshmallows, Oil of sweet Almonds, Spirit of Wine with Camphire; proper Fomentations and strengthoing Emplaisters; as that of Oxycraceum, *&c.* according as the Nature of the *Contusion* and Part *contus'd* requires.

CONVENT, a Monastery of Religious, of the one or the other Sex. See MONASTERY.

The Word comes from the Latin *Conventus*, Meeting, of *Convenire*.

CONVENTICLE, a diminutive of *Convent*; denoting, properly, a Cabal or secret Assembly of a Part of the Monks of a *Convent*, to make a brigue in the Election of an Abbot.

From the ill Use of these Assemblies, the Word is come into disrepute; and now stands for any seditious or irregular Assembly.

F. *Doucine* observes, the Occidentals always esteem'd the Vth General Council an unlawful *Conventicle*.

The Term *Conventicle* is said by some to have been first attributed, in *England*, to the Schools of *Wickliff*: Now it is apply'd to the Meetings of Nonconformists.

CONVENTION, a Treaty, Contract or Agreement between two or more Parties. See TREATY, *&c.*

Every *Convention* between Men, provided it be not contrary to Honesty and good Manners, produces a natural Obligation, and makes the Performance a Point of Conscience. See OBLIGATION.

Every *Convention* has either a Name, and a Cause or Consideration, or it has none: In the first Case, it obliges civilly and naturally; in the latter only naturally. See CONTRACT.

CONVENTION is much used both in antient and modern Pleadings for an Agreement, or Covenant. See COVENANT.

Hence, *Conventione facienda*, a Writ that lies for breach of Covenant in writing.

In the Book of Rolls of the Manor of *Hatfield* in *Yorkshire*, we have a Record of a pleasant *Convention*, *Anno* 11. *Ed.* III. between *Robert de Roderham* and *John de Ithen*, the latter of whom sold the Devil in a string for three-pence halfpenny to the former, to be deliver'd on the fourth Day after the *Convention*: when, the Purchaser making his demand, the Seller refus'd to give him livery; to the great Loss (as the Record represents it) of forty Shillings to the Purchaser, &c. But it appearing to the Court that such a Plea does not lie among Christians; the Parties were adjourn'd to Hell for Judgment.

CONVENTION is also the Name given to an extraordinary Assembly of Parliament, or of the States of the Realm, held without the King's Writ. See PARLIAMENT.

The *Convention* of Estates, in 1688, after the Retreat of K. *James* II. upon mature Deliberation, came to a Conclusion, that K. *James*, by his Practices here, and his Flight hence, had abdicated the Kingdom; and that the Throne was vacant; and therefore devolv'd upon King *William* and Queen *Mary*. See ABDICATION.

Upon this their Assembly expir'd, and a Parliament was summon'd in their stead.

There was a *Convention* of the like kind in *Scotland*, and with the like effect.

CONVENTIONE, in Law, is a Writ which lies for the Breach of any Covenant. See COVENANT.

Fitzherbert calls it a Writ of *Covenant*.

CONVENTUAL something belonging to a Convent. See CONVENT.

CONVENTUAL, is particularly used for a Religious who actually resides in a Convent; in contradistinction to those who are only Hosts, or are entertain'd there, or are in possession of Benefices depending on the House.

Conventual Prior differs from a *Claustral Prior*, in that the former has the full right and Authority of an Abbot; the only difference between 'em being in the Name: Whereas the Claustral Prior is a Dependant of the Abbot, and derives all his Authority from him. See PRIOR, and ABBOT.

The *Conventual* Prior is oblig'd to assume the Priesthood in a Year, or at most in two Years, from the Day of his Admission: in default whereof, the Benefice becomes vacant.

Some Priories are actually *Conventual*, *i. e.* are stock'd with Religious; others are only *Conventual* by habitude, *v. g.* where there have been no Religious during the space of 40 Years: The Continuance of one single Religious, keeps the Priory *Conventual Actu*; for in default of one the Priory becomes simple.

By a Declaration of the King of *France*, in 1680, 'tis decided, that a *Conventuality* never degenerates in any lapse of time, while there are regular Places subsisting in it for twelve Religious, with Revenues for their support. See PRIORY.

CONVENTUAL *Church*. See PARISH.

CONVERGING, or CONVERGENT *Lines*, in Geometry, are those which continually approximate, or whose distance becomes continually less and less. See LINE.

In opposition to *divergent Lines*, whose distance becomes continually greater. See DIVERGING.

Lines that *converge* one way, diverge the other.

CONVERGING *Rays*, in Dioptricks, are those Rays which in their Passage out of one Medium, into another of a different Density, are refracted towards one another; so, as if far enough continu'd, they meet in a Point, or Focus. See RAY, REFRACTION, &c.

Thus, all convex Lenses make the Rays *converge*, and concave ones to diverge, *i. e.* the one inflects 'em towards a Centre, and the other deflects 'em from it; and the more, as such Lenses are Portions of smaller Spheres. See CONCAVE, and CONVEX.

On which Properties, all the Effects of Lenses, Microscopes, Telescopes, &c. depend. See LENS, MICROSCOPE, &c.

Rays coming *converging* out of a denser Medium into a rarer, become more *convergent*, and concur sooner than if they were to continue their Motion thro' the first. See MEDIUM.

Rays coming *converging* out of a rarer into a denser Medium, *converge* less, and concur later, than if they had continued their Motion thro' the first.

Parallel Rays, passing from a denser into a rarer Medium, *v. g.* from Glass into Air, the Surface of the Glass being towards the Air, will become *convergent*, and concur in a *Focus*. See PARALLEL.

Diverging Rays, or Rays coming from a Point, under the same Circumstances, become *converging*, and meet in a *Focus*; and as the radiant Point comes nearer, the *Focus* goes further off: If the Radiant be near, the *Focus* will be infinitely distant; *i. e.* the Rays will be parallel: And if the Point be brought nearer still, the Rays will diverge. See DIVERGENT; see also CONVEXITY, CONCAVITY, and PARALLELISM.

CONVERGING *Series*, in Mathematicks, a Method of Approximation, or coming still nearer and nearer towards the true Root of any Number, or Equation; even tho it be impossible to find any such true Roots in Numbers. See APPROXIMATION; see also SERIES, QUADRATURE, &c.

CONVERSE, in Geometry, &c. A Proposition is said to be the *Converse* of another, when, after drawing a Conclusion from something first suppos'd, we proceed to suppose what had been before concluded, and to draw from it what had been suppos'd. See CONVERSION.

Thus, 'tis demonstrated in Geometry, That if the two Sides of a Triangle be equal; the two Angles opposite to those Sides are equal also: The *Converse* of the Proposition is, That if the two Angles of a Triangle be equal, the two Sides opposite to those Angles are equal also.

In Astrology, *Converse Direction* is used in opposition to *direct* Direction; *i. e.* by the latter, the Promoter is carried to the Significator, according to the Order of the Signs: by the former it is carried from East to West, and contrary to the Order of the Signs.

CONVERSION, in a moral Sense, a return from Evil to Good; resulting from a Sense, either of the natural Deformity of the one, and Amiableness of the other; or of the Advantages and Disadvantages that await the one and the other.

Or, It is a Change of the Heart, with a regard to the Morals, Passions, Desires, Pursuits; and of the Mind, with regard to the Sentiments, &c.

CONVERSION, CONVERSIO, in Logicks, a Circumstance, or Affection of Propositions, wherein the Order of the Terms, or Extremes is changed; so that the Subject comes into the Place of the Prædicate, and the Prædicate into that of the Subject; without any Alteration in the Quality of either.

As, *No Virtue is Vice*, *No Vice is Virtue*: In which we see the Subject of the former, made the Prædicate of the latter, and the Prædicate the Subject; yet both true.

Conversion is usually defined *a due Change of the Order of the Extremes*, *i. e.* under such a Habitude and Coherence, with respect to each other, that the one is rightly infer'd from the other. Hence, in every legitimate *Conversion* two Things are requir'd; 1st, A Communication or Reciprocation of Terms; not in respect of Words but of Order. 2d, The Inference of one Proposition out of the other.

Aristotle makes two Kinds of *Conversion*; the one *Simple*, by others call'd *Universal*; wherein nothing is chang'd beside the Order of Extremes, *i. e.* the Terms are transpos'd, without altering either the Quality or Quantity thereof: As, *No Mind is Body*, *No Body is Mind*.

The 2d, *per Accidens*, called also *particular*; wherein, beside changing the Places of the Terms, there is a Change of an universal Sign into a particular one: As, *Every good Man studies the Welfare of his Country*, *Some Man that studies the Welfare of his Country is good*.

To these, some of *Aristotle*'s Followers add a third Kind of *Conversion*, call'd *by Contraposition*: As, *Every Man is an Animal*, *Every no-Animal is no-Man*.

CONVERSION, in Rhetorick, &c. is understood of Arguments which are return'd, retorted, and shewn on opposite Sides, by changing the Subject into the Attribute, and the Attribute into the Subject.

There are *Conversions* of Arguments; from one Figure to another, and from general Propositions to particular ones.

Thus *Cicero* against *Anthony*; *Doletis tres exercitus* P.R. *interfectos? interfecit Anthonius. Desideratis clarissimos cives? eosque vobis eripuit Anthonius. Auctoritas hujus ordinis afflicta est? afflixit Anthonius.*

CONVERSION, in War, is when the Soldiers are order'd to present their Arms to the Enemy, who attack 'em in Flank, whereas they were before suppos'd to be in Front: The Evolution necessary thereto is called *Conversion*, or *Quarter-wheeling*. See QUARTER-WHEELING.

CONVERSION *of Equations*, in Algebra, is when the Quantity sought, or any Part thereof, being in Fractions, the Whole is reduc'd to one common Denomination; and then, omitting the Denominators, the Equation continued in the Numerators only. See EQUATION, and FRACTION.

Thus, suppose $a - b = \frac{aa + cc}{d} + b + b$; multiply all by d, and it will stand thus, $da - db = aa + cc + db + db$.

In Arithmetick, we use the Term *Proportion by Conversion of Ratio*, for a Comparison of the Antecedent, and Consequent in two equal Ratios. See RATIO.

Thus, as there is the same Ratio between 2 and 2, as between 8 and 12; 'tis concluded there is the same Ratio between 2 and 1, as between 8 and 4.

CONVERSOS. See CONVERT.

CON-

CONVERT, a Person who has undergone a *Conversion*. See CONVERSION.

Convert is chiefly used in respect of Changes from one Religion or Religious Sect to another.

Converts, with relation to the Religion turn'd to; are denominated *Apostates*, with regard to that they have relinquish'd. See APOSTATE.

The *Jews* formerly *converted* to Christianty in *England*, were called *Conversos*. *Henry* III. built 'em a House in *London*, and allow'd 'em a competent Subsistence for their Lives; which House was called *Domus Conversorum*. The Number afterwards increasing, they grew a Burden to the Crown; upon which they were distributed among the Monasteries: and after the Expulsion of the *Jews* under *Edward* III. the *Domus Conversorum* was given for keeping of the Rolls. See ROLLS.

CONVERTS, in a Monastick Sense, are *Lay-Friers*, or *Brothers*, admitted for the Service of the House; without Orders, and not allowed to sing in the Choir. See LAY.

Till the XIth Century, the Word was us'd for Persons who embrac'd the Monkish Life at the Age of Discretion, by which they were distinguish'd from those devoted in their Childhood by their Parents, call'd *Oblati*. See OBLATI.

But in the XIth Century, when they began to receive into Monasteries illiterate Persons, incapable of being Clerks, and only destin'd for Bodily Labour; the Signification of the Word was chang'd. F. *Mabillon* observes, that it was *John* first Abbot of *Vallombrosa*, who first introduc'd these *Brothers-Converts*, distinguish'd by their State from the Monks of the Choir, who were then either Clerks, or capable of becoming so.

CONVEX. } See { CONVEXITY.
CONVEX *Mirror*. } { MIRROR.
CONVEX *Lens*. } { LENS.

CONVEXITY, the exterior Surface of a *Convex*, *i. e.* a gibbous and globular Thing; in opposition to *Concavity*, or the inner Surface, which is hollow or depress'd. See CONCAVITY.

The Word is of particular import in Catoptricks and Dioptricks; where 'tis apply'd to Mirrors and Lenses. See MIRROR, and LENS.

A *Convex Mirror* represents its Images smaller than the Objects; as a concave one represents 'em larger: A *convex* Mirror reflects the Rays from it, diverging; and therefore disperses and weakens their Effect: as a concave one reflects them converging; so as they concur in a Point, and have their Effect increas'd; and by how much the Mirror is a Portion of a smaller Sphere, by so much does it diminish the Objects, and disperse the Rays the more. See MIRROR.

A *Convex Lens* is either *convex* on both sides, called a *Convexo-Convex*; or 'tis plain on one Side and *convex* on the other, called a *Plano-Convex*: or concave on one side and *convex* on the other, called a *Convexo-Concave*, or *Concavo-Convex*, as the one or the other Surface prevails; *i. e.* as this or that is a Portion of a smaller Sphere.

All *Convex* Lenses inflect the Rays of Light in their Passage, *i. e.* send them out from their *convex* Surface converging; so as that they concur in a Point, or *Focus*. See CONVERGENT.

Hence, all *Convex* Lenses magnify, *i. e.* represent their Images larger than their Objects; and this the more, as they are Portions of smaller Spheres. See LENS, REFRACTION, *&c.*

CONVEYANCE, in Law, a Deed, or Instrument, by which Lands, *&c.* are *convey'd*, or made over by the Proprietor, or Owner thereof, to some other Person. See DEED.

CONVICT, in Common Law, is one that is found guilty of an Offence, by the Verdict of a Jury. See CRIMINAL, VERDICT, *&c.*

According to *Crompton*, a Person is also a *Convict*, or said to be *convicted*, when, after having been outlawed, he appears and confesses. See OUTLAWRY.

Conviction and Attainder are frequently confounded. See ATTAINDER, and ATTAINTED.

A *Convict Recusant*, is he who has been legally presented, indicted, and *convict* for refusing to come to Church to hear the Common Prayer, according to the Statutes 1 and 23 *Eliz.* and 3 *Jac.* I.

This is commonly understood to be a Popish Recusant; tho any others that refuse coming to Church on the same Account are as properly denominated Recusants. See RECUSANT.

CONVICTION, in Theology, the first degree of Repentance; wherein the Sinner becomes sensible of his Guilt, of the evil Nature of Sin, and the danger of his own ways. See REPENTANCE.

CONVICTION, in Law. See CONVICT.

CONVIVIUM, *Banquet*, in our antient Customs and Law-Books, signifies the same Thing among the Laity, as *Procuratio* among the Clergy; *viz.* when the Tenant is obliig'd, in virtue of his Tenure, to provide Meat and Drink for his Lord once or oftner in the Year.

CONVOCATION, a *National Synod*, or general Assembly of the Clergy; summon'd by the King's Writ to consult of the more weighty Affairs of the Church, as oft as a Parliament is convok'd to consult of those of the State. See SYNOD, CLERGY, *&c.*

The King's Writ is directed to the Archbishop of each Province, requiring him to summon all Bishops, Deans, Archdeacons, Cathedral and Collegiate Churches, *&c.*

Upon which, the Archbishop directs his Mandate to his Dean Provincial, first citing him peremptorily; then willing him, in like manner, to cite all the Bishops, Deans, *&c.* and all the Clergy of his Province; but directing, withal, that one Proctor sent for each Cathedral and Collegiate Church; and two for the Body of the inferior Clergy of each Diocess may suffice: Which the Dean accordingly does.

The Place where the *Convocation* of the Province of *Canterbury* has been usually held is St. *Paul's* Church; whence, of late, they have been prorogu'd to St. *Peter's* in *Westminster*, in the Chapel of *Henry* VII. or the *Jerusalem-Chamber*, were there is an upper and lower House.

The *higher* House, in the Province of *Canterbury*, consists of 22 Bishops, whereof the Archbishop is President; all, at the opening of a *Convocation*, in their scarlet Robes and Hoods.

The *lower* House consists of 22 Deans, 24 Prebendaries, 54 Archdeacons, and 44 Clerks, representing the Diocesan Clergy.

Things are first usually propos'd in the upper House; then communicated to the lower. All the Members of both Houses have the same Privileges for themselves and menial Servants as the Members of Parliament have. See PARLIAMENT.

The Archbishop of *York*, at the same Time, holds a *Convocation* of the Clergy of his Province, after the like manner, at *York*; and, by constant correspondence, debates and concludes of the same Matters as are debated by that of *Canterbury*. Not that the Northern Province is oblig'd to follow what the Southern one does. See PROLOCUTOR.

The *English* Clergy, antiently, had their Representatives in the lower House of Parliament; as appears by the Record much priz'd by my Lord *Coke*.

CONVOLUTION, a winding or turning Motion, proper to the Trunks of some Plants; as the *Convolvulæ*, or Bindweeds, and the Clasper of Vines, and Briony.

Dr. *Grew* thinks, that all those Plants whose Roots are twisted, have such a *Convolution*: and he assigns two great efficient Causes of this winding Motion, the Sun and the Moon.

It is very easy to try whether there be any such *Convolution* or not in the Trunks of Plants; which may be done, as he hints, by tying a little bit of Paper to any of the Branches which are exactly North, South, *&c.* and then seeing whether it will change its Position or not, in respect of the Point of the Compass.

CONVOY, *Escort*, a Sea Term, signifying one or more Vessels of War, intrusted with the Conducting of a Fleet of Merchants; serving as a Watch, and a Shelter from the Insults of the Enemies of the State, or of Pirates. See ESCORT, and CONSERVE.

The Word is also used in speaking of Military Affairs by Land; where it signifies a Body of Forces sent to guard a Supply of Provisions, Arms, Ammunition, or the like, going to a Camp, or the like.

CONUSANCE. } See { COGNISANCE.
CONUSOR. } { COGNISOR.

CONVULSION, *Spasmus*, in Medicine, a continued involuntary Contraction of some Parts of the Body otherwise accustom'd to move according to the Direction of the Will. See SPASMUS.

It owes its Origin to a Contraction of the Muscles of the Part, occasion'd by a too copious and violent influx of the nervous Juice: Of these may be infinite Causes in the Blood, Arteries, Meninges, Brain, Nerves, Muscles, Cranium, *&c.* See CONTRACTION.

If the *Convulsion* be universal, attended with violent Motions, foaming at the Mouth, and periodical; it is usually called the *Epilepsy*. See EPILEPSY.

The usual Evacuations and Medicines proper for the Cure of *Convulsions*, are *Phlebotomy*, *Emeticks*, *Catharticks*, *Epispasticks*, and proper *Cephalicks*; as *Sal. Volat. Oleos. Spirit of Lavender*, *Spirit of Hartshorn*, *Tincture of Castor*, *Cinnabar of Antimony*, *Cassiminor Root*, *Valerian Root*, *Volatile Salt of Amber*, &c. given in different forms.

In periodical universal *Convulsions*, a Salivation sometimes answers, after other Courses have fail'd.

Women and Children are particularly liable to *Convulsions*: Women after Delivery; as upon a Stoppage of the *Lochia*, or a violent Extraction of the *Placenta*. See CONVULSIVE.

CONVULSIVE, in Medicine, is applied to those Motions which, naturally, should depend on the Will; but which, by some external Cause, become involuntary.

A *Convulsive* Motion, is a Contraction made by Fits and Intervals; wherein it differs from a *Convulsion*, which is a continued Contraction.

Convulsive Motions arise from a Disorder in the Origin of the Nerves. A *Convulsive* Tension of the Solids, is one of the principal Causes which destroy the *Æquilibrium* that should obtain between the Solids and the Fluids. *Journ. de Scav.*

CONVULSIVE is also used for any Thing that occasions *Convulsion*, or a *Convulsive Motion*.

Thus, Wounds of Nerves are said to be *Convulsive*; white Hellebore is *Convulsive*.

Children are very liable to *Convulsive* Disorders from various Causes; as Repletion, curdling of the Blood in the Stomach or Intestines, Worms, Dentition, &c. See CHILDREN, WORMS, DENTITION, &c.

The Cramp is a *Convulsive* Contraction of some muscular Part of the Body. See CRAMP.

COOK-ROOM, in a Ship, is where the Cook and the Mate dress and deliver out the Meat, &c.

COOLERS, in Medicine, Remedies so call'd; which may be consider'd under these two Divisions: 1st, Those which produce an immediate Sense of Cold; which are such as have their Parts in less Motion than those of the Organs of Feeling. See COLD.

2dly, Such as by a particular Viscidity, or Grossness of Parts, give a greater Consistency to the Animal Fluids than they had before; whereby they are disabled from moving so fast, and will therefore have less of that intestine Force on which their Heat depends. See CALIDUM.

Of the former Kind are Fruits, and acid Liquors; to the latter belong Cucumbers, and all Substances producing Viscidity.

COOM, a Term for Soot that gathers over an Oven's Mouth; and also for what works out of the Wheels of Carriages.

Soot is sometimes used in Medicine, infus'd in Wine with other Ingredients, as an Antihysterick, and against Palpitations of the Heart, &c. See SOOT.

The Spirit of Soot is also used for the same Intentions, and in Cephalick Cases.

COOMB, or COMB *of Corn*, is a dry Measure, containing four Bushels, or half a Quarter. See MEASURE; see also BUSHEL, &c.

COORDINATE, something of equal Order, Rank, or Degree with another.

COORDINATION, in respect of Causes, is an Order of Causes, wherein several, of the same Kind, Order, and Tendency, concur to the Production of the same Effect. See CAUSE.

COPAL, a Gum, of an agreeable smell, resembling that of Incense; brought from *New Spain*, where it oozes out from Incisions made in the Bark of a large Tree; much after the manner in which the Vine yields its Water, when cut in the Spring. See GUM.

The *Indians* use it to burn on their Altars: Among the *Europeans*, it is used in Diseases of the Heart. 'Tis very rare: when good, 'tis of a fine transparent yellow; and melts easily, either in the Mouth or Fire.

In defect of this is brought another Kind from the *Antilles*, which is almost the only one known among the Druggists. Its chief Consumption is in the making of Varnish. See VARNISH.

COPARCENERS, or *Parceners*, *vulgo* COPARTNERS, and *Partners*, are such as have equal Portions in the Inheritance of their Ancestor. See PARCENERS.

Parceners are so either by *Law* or *Custom*. *Parceners by Law*, are the Issue Female; which, in default of a Male Heir, come equally to the Lands of their Ancestor.

Parceners by Custom, are those who by some peculiar Custom of the Country, challenge equal Parts in such Lands; as in *Kent*, by the Custom of *Gavelkind*. See GAVELKIND.

The Crown of *England* is not subject to *Coparceny*. See CROWN.

COPARCENY, or COPARSENY, the Share or Quota of a *Coparcener*. See COPARCENER.

COPE, an Ecclesiastical Ornament, usually wore by Chantors and Sub-Chantors, when they officiate in Solemnity. See CHANTOR.

'Tis also wore by the *Romish* Bishops and other Ordinaries: It reaches from the Shoulders to the Feet. The Antients called it *Pluvial*.

S. Martin's COPE, was a Relick, formerly in great Esteem among the *French* Kings; and carried with them to War as their Standard. See CHAPEL, and CHAPLAIN.

COPERNICAN *System*, or *Hypothesis*, is the System of the World, wherein the Sun is suppos'd at rest in the Centre; and the Planets, with the Earth, to describe Ellipses round him. See SYSTEM.

The Heavens and Stars are here suppos'd at rest; and that diurnal Motion which they appear to have from East to West, is imputed to the Earth's Motion from West to East. See EARTH, SUN, STAR, &c.

This System was asserted by many of the Antients; and particularly *Ecphantes*, *Seleucus*, *Aristarchus*, *Philolaus*, *Plato*, and *Pythagoras*; from whom it was antiently denominated the *Pythagoric System*. See PYTHAGOREAN.

It was also held by *Archimedes*, in his Book *de granorum arenæ numero*; but after him it became neglected, and even forgotten, for many Ages; till about 200 Years ago when *N. Copernicus* reviv'd it; from whom it took the Name of the *Copernican System*.

Nich. Copernicus, now a Name so popular, was born at *Thorn*, in *Polish Prussia*, in the Year 1472, according to *Junctinus*, or 1473 according to *Mæstlinus*. After the usual domestick Education, he was sent to the University of *Cracow*; where he applied himself to Philosophy and Physick, and at length commenced Doctor in Medicine. In the mean time, having a strong Propensity to Mathematicks, he diligently attended the Lectures of *Albert. Brudzevius*, and even learnt of him at home. After he had here attain'd to the Use of the Astrolabe, and was entering upon Astronomy, he took *Regiomontanus* for his Guide: Tho he run thro' all the Mathematicks of the Age, yet he seem'd most taken with Perspective; on occasion whereof he learnt Painting, in which he is said to have excell'd. When 23 Years of age, being at *Boulogn*, he became acquainted with that eminent Mathematician Dom. *Maria Ferrariensis*; and was admitted to share with him in making of Astronomical Observations. Here, in the Year 1497, *Copernicus* first observ'd an Occultation of *Palilicium* by the Moon. Going on to *Rome*, he taught publickly, and made some considerable Observations; and at his return to *Cracow*, was made Canon of the Church of *Wermelandt*, or *Ermeland*, and at length Vicar-General.

The Course he took in prosecuting Astronomy, which has render'd his Name immortal, is as follows: Observing how the Astronomers of those Times were gravell'd to make the Planets move equably in circular Orbits, *viz.* to suppose 'em to move, not about their own Centre, but that of the Equant; and that they could no way make out a tolerably regular System, out of all their Shifts and Hypotheses; He resolv'd to try what he could do. With this View he perus'd the Writings of all the Philosophers and Astronomers extant; and pick'd out of each what appear'd probable and elegant. In this Review he was chiefly taken with two almost similar Opinions; (the one attributed to *Martianus Capella*, the other to *Apollonius Pergæus*:) which give a very good Account of the Motions of *Venus* and *Mercury*; and explain the Cause of their Directions, Stations, and Retrogradations very happily: The latter, withal, performing the same in the three superior Planets. But, then, in both these Hypotheses, the Earth being suppos'd the Centre; *Copernicus* chose rather to adopt the Opinion of the *Pythagoreans*; to remove the Earth out of the Centre of the World, and to give it, not only a diurnal Motion round its own Axis; but also an annual one round the Sun.

On this Footing he began to observe, calculate, compare, &c. and at length, after a long solicitous Disquisition, found himself in a Condition to account for the Phænomena and Motions of all the Planets; and to make an orderly Arrangement, or Disposition of the whole Heavens; wherein nothing could he alter'd, or displac'd, without bringing the last Confusion into the whole.

These Things he began to write down about the Year 1507. He then proceeded to furnish himself with some new *Apparatus*; particularly a Parallactick Instrument, and some *Ptolemaic* Rulers, wherewith to observe the Altitude of the Stars, and determine the Periods of the Sun and Moon: And without other Means, composed his six Books *de Orbium Cælestium Revolutionibus*; containing the Whole of Astronomy, deliver'd after the Example of *Ptolemy*, in the Geometrical Method. We have already observ'd that he began it in 1507; He finish'd it in 1530. Five Years after he polish'd and improv'd it. He died of a Dysentery, and a Palsy on his right Side, in the Year 1543.

See the Order, and Disposition of the heavenly Bodies, as laid down by him, compar'd with those in the other Systems, under the Head SYSTEM.

COPERNICUS, is the Name of an Astronomical Instrument, contriv'd by Mr. *Whiston*, for the Calculation and Exhibition of Eclipses, and of the Motions of the Planets, both Primary and Secondary, &c.

It was so call'd by the Inventor, as being built on the *Copernican* System; or as representing the Heavenly Bodies agreeably thereto.

It consists of several concentrical Circles of Wood; upon which are inscrib'd Numbers, transfer'd thither from the Astronomical Tables: By the various Disposition of these Circles, which are made so as to slide within each other, Questions are solv'd; and thus long Calculations are sav'd, and the Work of many Hours brought into a few Minutes.

For

For the Exhibition of Eclipses, there is a peculiar *Apparatus*, consisting of a terrestrial Globe, so disposed, as that being turn'd round its Axis, the Light of the Sun, or a Candle, is projected thro' a glass Plane, mark'd out into concentrick Circles, expressing Digits of the Eclipse; and thus is the Path of the Eclipse, with its Degree or Quantity in every Part of its Path, agreeably and accurately represented.

The Instrument not being very common, a particular Description were superfluous. The Author has wrote a Volume to explain it.

COPHTI, or COPTI, a Name given to the Christians of *Egypt*; who are of the Sect of *Jacobines*. See JACOBINES.

The Criticks are extremely divided about the Origin and Orthography of the Word: some write it *Gophti*, and others *Gophte*, *Cophtites*, *Cophtitæ*.

Scaliger derives the Name *Cophti* from *Cophtæ*, an antiently celebrated Town of *Egypt*, the Metropolis of the *Thebaide*: *Kircher* refutes this Opinion, and maintains, that the Word originally signifies *cut*, and *circumcised*; and was given these People by the *Mahometans*, by way of Reproach, in regard of their Practice of Circumcising: But *P. Sollier*, another Jesuit, refutes this Opinion. *Scaliger* afterwards changed his Opinion, and deriv'd the Word from ΑΙΓΥΠΤΟΣ, the antient Name of *Egypt*, by retrenching the first Syllable: But this Opinion, too, *P. Sollier* disputes. *John de Leo* and others say, that the *Egyptians* antiently called their Country *Elchibth* or *Chibth*, from *Chibth* their first King, whence *Cophtite*, &c. others say from *Cobtim* second King of *Egypt*. *Vansleb* derives the Word *Cophti* from *Copt* Son of *Misraim*, Grandson of *Noah*.

All these Etymologies *P. Sollier* rejects, on this Principle, that were they true, all the *Egyptians* ought equally to be called *Cophti*; whereas, in effect, none but the Christians, and among those none but the *Jacobines* bear the Name; the *Melchites* not being comprehended under it.

Hence he chuses to derive the Word from the Name *Jacobite*, by retrenching the first Syllable; whence *Cobite*, *Cobta*, *Copta*, and *Cophta*.

As to the Hierarchy of the *Cophti*, they have a Patriarch, who resides at *Cairo*, but takes his Title from *Alexandria*: He has no Archbishop under him, but 11 or 12 Bishops. The rest of the Clergy, whether Secular or Regular, is compos'd of the Orders of S. *Anthony*, S. *Paul*, and S. *Macarius*, who have each their Monasteries.

Beside the Order of Priests, Deacons, and Subdeacons, the *Cophti* have likewise *Igoumenes*, or *Archimandrites*, the Dignity whereof they confer with all the Prayers and Ceremonies of a strict Ordination.

This makes a considerable Difference among the Priests; and besides the Rank and Authority it gives them with regard to the Religious, comprehends the Degree and Functions of Arch-Priests. By a Custom of 600 Years standing, if a Priest elected Bishop be not already *Archimandrite*, the Dignity must be confer'd on him before Episcopal Ordination.

The second Person among the Clergy, after the Patriarch, is the Titular Patriarch of *Jerusalem*, who also resides at *Cairo*, by reason of the few *Cophti* at *Jerusalem*; He is, in effect, little more than Bishop of *Cairo*: only he goes to *Jerusalem* every *Easter*, and visits some other Places in *Palestine* near *Egypt*, which own his Jurisdiction. To him belongs the Government of the *Cophtic* Church, during the Vacancy of the Patriarchal See.

To be elected Patriarch, 'tis necessary the Person have lived all his Life in Continence; and even that he be a Virgin: 'Tis he confers the Bishopricks. To be elected Bishop, the Person must be in the Celibate; or, if he have been married, it must not be above once.

The Priests and inferior Ministers are allow'd to be married before Ordination; but are not oblig'd to it, as *Ludolphus* mistakenly observes. They have an Infinity of Deacons, and even confer the Dignity frequently on Children. None but the lowest Rank among the People commence Ecclesiasticks; whence arises that excessive Ignorance found among 'em: Yet the Respect of the Laity towards the Clergy is very extraordinary.

Their Office is longer than the *Roman* Office, and never changes in any thing: They have three Liturgies, which they vary occasionally.

The Monastick Life is of great Esteem among the *Cophti*: to be admitted into it, there is requir'd the Consent of the Bishop. The Religious *Cophti* make a Vow of perpetual Chastity; renounce the World, and live with great Austerity in Deserts: They are oblig'd to sleep in their Cloths and their Girdle, on a Matt stretch'd on the Ground; and to prostrate themselves every Evening 150 times, with their Face and Breast on the Ground. They are all, both Men and Women, of the Scum of the People; and live on Alms. The Nunneries are properly Hospitals; and few enter but Widows reduc'd to Beggary.

F. *Roderic* reduces the Errors and Opinions of the *Cophti* to the following Heads: 1st, That they put away their Wives, and espouse others while the first are living. 2d, That they have seven Sacraments, *viz.* Baptism, the Eucharist, Confirmation, Ordination, Faith, Fasting, and Prayer. 3d, That they deny the Holy Spirit to proceed from the Son. 4th, That they only allow of three Oecumenical Councils; that of *Nice*, *Constantinople*, and *Ephesus*. 5th, That they only allow of one Nature, Will, and Action in Jesus Christ after the Union of the Humanity with the Divinity.

For their Errors in Discipline, they may be reduced, first, To the Practice of circumcising their Children before Baptism, which has obtain'd among 'em from the XIIth Century. 2d, To their ordaining Deacons at five Years of Age. 3d, To their allowing of Marriage in the second Degree. 4th, To their forbearing to eat Blood: To which some add their Belief of a Baptism by Fire, which they confer by applying a hot Iron to their Forehead or Cheeks.

Others palliate these Errors, and shew that many of 'em are rather Abuses of particular Persons, than Doctrines of the Sect. This seems to be the Case with regard to their Polygamy, eating of Blood, marrying in the second Degree, and the Baptism of Fire: For Circumcision, it is not practis'd as a Ceremony of Religion; nor as of any divine Appointment, but merely as a Custom which they derive from the *Ismaelites*; and which, perhaps, may have had its Origin from a View to Health and Decency in those hot Countries. See CIRCUMCISION.

The *Cophti*, in different Times, have made several Reunions with the *Latins*; but always in Appearance only, and under some Necessity of their Affairs. In the Time of Pope *Paul* IV. a *Syrian* was dispatch'd to *Rome* from the Patriarch of *Alexandria*, with Letters to that Pope; wherein he acknowledg'd his Authority, and promis'd Obedience; desiring a Person might be dispatch'd to *Alexandria*, to treat about a Re-union of his Church to that at *Rome*: pursuant to which, *Pius* IV. Successor to *Paul*, chose F. *Roderic*, a Jesuit, whom he dispatch'd in 1561, in Quality of Apostolical Nuntio.

But the Jesuit, upon a Conference with two *Cophti* deputed for that Purpose by the Patriarch, was made to know, that the Titles of *Father of Fathers*, *Pastor of Pastors*, and *Master of all Churches*, which the Patriarch had bestow'd on the Pope in his Letters, were mere Matters of Civility and Compliment; and that it was in this manner the Patriarch us'd to write to his Friends: They added, that since the Council of *Chalcedon*, and the Establishment of different Patriarchs independent of one another; each was Chief and Master of his own Church. This was the Answer the Patriarch gave the Pope, after he had receiv'd a Sum of Money remitted to him from *Rome*, by the Hands of the *Venetian* Consul.

COPHTIC, or COPTIC *Language*, the Language of the *Cophti*. This is the antient Language of the *Egyptians*, mix'd with a great deal of *Greek*; the Characters it is written in being all *Greek*. See COPHTI, and LANGUAGE.

F. *Kircher* is the first who publish'd a Grammar and Vocabulary thereof. There is not known any Book extant in the *Cophtic*, except Translations of the Holy Scripture, or of Ecclesiastic Offices; or others that have relation thereto, as Dictionaries, &c. See BIBLE.

The antient *Cophtic* is now no longer found, but in their Books: The Language they now use throughout the Country is *Arabic*.

The old *Cophtic*, which *Kircher* maintains to be a Mother Tongue, and independent of all others, has been much alter'd by the *Greek*: For besides that it retains all its Characters, with a very little Variation, a great number of the Words are pure *Greek*.

Vossius, indeed, asserts that there was no *Cophtic* Language till *Egypt* became subject to the *Arabs*. The Language, according to him, is a Mixture of *Greek* and *Arabic*: the very Name thereof not being in the World till after the *Arabs* were Masters of the Country. But this, M. *Simon* observes, proves nothing; except that what was antiently call'd *Egyptian*, has since by the *Arabs* been call'd *Cophtic*, by a Corruption of Speech. There are, 'tis true, *Arabic* Words in the *Cophtic*; yet this by no means proves but that there was a Language before that time, either *Cophtic* or *Egyptian*. *Pietro de la Valle* observes, that the *Cophti* have entirely lost their antient Tongue; that 'tis now no longer understood among 'em; that they have nothing extant therein but some sacred Books; and that they still say Mass in it, and *solo hanno in essa alcuni libri sacri, dicendo ancora la massa in quella lingua*.

All their other Books have been translated into the *Arabic*, which is their vulgar Tongue; which has occasion'd the Originals to be lost: 'Tis added, that they rehearse the Epistles and Gospels in the Mass twice; once in *Arabic*, and once in *Cophtic*.

Indeed, if we believe F. *Vansleb*, the *Cophti* say Mass in *Arabic*, all but the Epistles and Gospels, which they rehearse both in that and *Cophtic*; *La Massa celebrano in lingua*

gua Arabica, eccetto l'Evangelio & alcune altre cose che sfsghano leggere nella lingua Copta & Araba.

COPIA *Libelli deliberanda*, a Writ which lies in Case where a Man cannot get the Copy of a Libel at the Hands of the Ecclesiastical Judge.

COPIATE, under the Western Empire, a *Grave-digger*. In the first Ages of the Church, there were Clerks destin'd for this Employment. In 357, *Constantine* made a Law in favour of the Priests *Copiates*, *i.e.* of those who had the Care of Interrment; whereby he exempts 'em from the Lustral Contribution which all other Traders paid.

It was under him that they first began to be called *Copiates*, *q. d.* Clerks destin'd for bodily labour, from κοπτω, of κοπτω, *scindo*, *cædo*, *ferio*. Before that Time they were called *Decani* and *Lecticarii*; perhaps, because they were divided by Decads or Tens, each whereof had a Bier or Littre for the Carriage of the dead Bodies. See DECANUS, and LECTICARIUS.

Their Place among the Clerks, was the next in order before the Chantors.

COPING *of a Wall*, the Top or Cover of a Wall, made sloping to carry off the wet. See WALL.

COPING *over*, in Carpentry, a sort of hanging over, not square to its upright, but bevelling on its under Side till it end in an Edge.

COPIVI, CAPIVI, COPAYBA or CUPAYBA, a Balm or Balsam, oozing out of Incisions made in a Tree of *Brasil*; not taken notice of but by very late Writers; at least, not under this Name. See BALM.

It is of a thinner Consistence than common Turpentine, but much more fragrant and detersive. It is extremely quick in passing off by Urine, and mightily cleanseth those Passages; by which it has obtain'd very much in Gonorrhæas, Seminal Weaknesses, the Whites, and all Obstructions, and Ulcerations of those Parts. It is likewise a powerful Balsamick, and good in many Distempers of the Breast, especially Catarrhs, tickling Coughs, spitting of Blood, &c. In Dysenteries and Diarrhæas of long continuance, where the *Mucus* that lines the Intestines is, by the Acrimony of the Humours abraded, it is of great service in supplying its Place by its balsamick quality. It mixes intimately with the Yolk of an Egg.

The *Jews* use it to stop the Flux of Blood after Circumcision.

COPPEL, COPEL, or CUPPEL, call'd also *Test*, a Vessel used by Refiners and Essayists, to try and purify their Metals.

The *Coppel of Essay*, is a little flat Vessel, compos'd of Vine Ashes, and Bones of Sheeps Feet, calcin'd and lixiviated, to separate the Salts, which would otherwise make it crackle. At the bottom of the Vessel is a little Cavity fill'd with a kind of white Varnish, compos'd of Hartshorn or of Bones of Pike, calcin'd and diluted in Water: the Use of this Liquor is, that the Gold or Silver to be essay'd may be more conveniently lodg'd, and that the Button of the Essay may be separated the more easily. See ESSAY.

Note, Tho Metals may be tried otherwise than by *Coppeling*: and tho the Touchstone, Graver, &c. are of some service to the Goldsmith in judging of their Purity; yet, 'tis certain, without the *Coppel* 'tis difficult, not to say impossible, to know their precise degree of Purity.

The Refiner's Coppel, is a large Free-stone Vessel, lined withinside with a kind of Plaster made of Ashes well lixiviated, cleans'd, dry'd, beaten and sifted.

In this Kind of *Coppel* it is that the Refiners purify their Gold and Silver, by adding Lead to it, and exposing the whole to a violent Fire. See REFINING.

COPPER, a hard, dry, heavy, ductile Metal; found in Mines, in several Parts of *Europe*, but most abundantly in *Sweden*. See METAL.

Copper is of all Metals the most ductile and malleable after Gold and Silver; and abounds much in Vitriol and Sulphur. See VITRIOL, &c.

The Chymists call it *Venus*; as supposing it to have some more immediate Relation to that Planet. See VENUS.

By an Analysis it appears compos'd of a Sulphur ill digested, a yellowish Mercury, and a red Salt.

'Tis found both in Dust and in Stones, each of which are first well wash'd, to separate 'em from the Earth wherewith they are mix'd. In this State 'tis call'd *Virgin Copper*.

After washing 'tis melted, and the melted Matter run into a kind of Molds, to form large Blocks, by some call'd *Salmons*, and by others *Pigs of Copper*. This is the ordinary *Copper*.

To render it more pure and beautiful, they melt it again once or twice; some of its coarse earthy Parts being left at each Fusion, and a Quantity of Tin and Antimony added in each. In this State 'tis call'd *Rose Copper*, in Latin *Æs Pelosum*.

Of a Mixture of this and *Lapis Calaminaris*, is form'd Brass, which the *French* call *yellow Copper*, in contradistinction to *Natural Copper*, which they call *red Copper*. See BRASS.

Copper melted together with 22 or 23 Pounds of fine Tin *per* Quintal, makes Bell Metal. See BELL *Metal*.

Copper melted with Calamine, quantity for quantity, makes Brass. See CALAMINE.

Copper and Brass melted in equal Quantities, make what the *French* call *Bronze*, used for Figures, Statues, &c. See FOUNDERY.

Copper turns white by an Unction of Spirit of Wine and Orpiment. *Pliny* says there is a *Copper* naturally white, found underneath the Silver Mines.

The Use of Copper is very extensive: Among other Works of *Copper* may be reckon'd those of Brass, Bell Metal, Pot Metal, &c. which are all Compositions where *Copper* makes the prevailing Ingredient.

The Chymists call *Saffron of Copper*, or *Crocus veneris*, a Preparation of *Copper* Plates stratify'd with decrepitated Salt, in a Crucible; after having extinguish'd 'em in Water, and scrap'd 'em with Iron Brushes. This Saffron is very red, and is used in Emplaisters to mundify Wounds and Ulcers. See CROCUS.

Some Chymists have pretended that the Spirit of *Venus* was a real Alkahest, capable of dissolving wholly Pearls, Corals, Crabs Eyes, &c. without any Diminution of its force; but Experience has shewn the contrary. See ALCAHEST.

The Calx of Brass, called *Æs Ustum*, and sometimes also *Saffron of Venus*, is nothing but *Copper* calcin'd in a violent Fire. See Æs USTUM.

Verdigrease is a Rust of *Copper*. See VERDIGREASE.

M. *Becher* observes, that the drinking of acid Liquors, even out of common Silver Plate, is very unwholesom, by reason of the Mixture of *Copper* therein; much more out of Vessels of *Copper*.

The *Indian* Physicians are said to set a great Value on Talc and yellow *Copper*; which, they say, consumes the most viscid Humours, and removes the most obstinate Obstructions.

COPPERAS, or COPERAS, a Mineral, form'd in *Copper*-Mines, and which is properly a Kind of Vitriol. See VITRIOL.

Copperas is purify'd and prepar'd in the same manner as Allum and Salt-petre, by passing thro' several Lixiviums, till it be wholly reduced to Crystal. See SALT.

Some make *Copperas* to be the Chalcitis of the Antients. See CHALCITIS.

But the more common Opinion is, that 'tis rather a Calcanthum, or Vitriol. See CALCANTHUM.

There is *Copperas* of *England*, of *Pisa*, *Germany*, *Cyprus*, *Hungary*, and *Italy*, which only differ from each other in Colour and Perfection; being all the same Mineral.

White Copperas, is the *Copperas* of *Germany*, calcin'd, laid in Water, thence filtrated, and reduced to Salt; whereof, as it coagulates, they form Cakes of 40 or 50 Pound each: such are those brought from *Goslelar* in *Saxony*. This *Saxon Copperas*, ere it be whiten'd, is of a bluish green, clear and transparent.

The *English Copperas* is of a fine green; that of *Cyprus* and *Hungary* a sky-blue, in Pieces cut like the Point of a Diamond. That of *Pisa* and *Italy* is likewise green; and the last as transparent as Glass.

Copperas is of considerable use in many Preparations; but especially in Dying. The Hatters also use it in their dye; and this and Galls are the Ingredients that compose writing Ink. See INK, &c.

The ordinary *English Copperas* is made of a Kind of Stones found on the Sea-shore in *Essex*, *Hampshire*, and so Westward, ordinarily called *Gold Stones*, from their Colour: they abound much with Iron.

To prepare the *Copperas* from them, they are laid in Heaps or Beds under ground. In process of Time they swell and ferment; and, by degrees, a Humour distils out, which draining into a Cistern, and afterwards boil'd, in the boiling shoots into those Crystals we see it in.

The Works at *Deptford* for making it, are known to most People.

Many Chymists dissolve this, and shoot it again for the common Salt of Steel.

COPPICE, or COPSE, a little Wood, consisting of Under-woods; and may be rais'd both by sowing and planting. See WOOD.

COPULA, in Logick, a Verb that connects any two Terms in a Proposition, either Negative or Affirmative: As, *A Rose is sweet*; where *is* is the *Copula*.

COPULATION. See COITION.

COPULATIVE *Propositions*, are those which include several Subjects, or several Attributes join'd together by an affirmative or negative Conjunction. See CONJUNCTION.

Thus, *v. g. Power and Riches don't make a Man happy.* Where *and* is the Conjunction that couples *Power* and *Riches*.

Conjunction COPULATIVE. See CONJUNCTION.

COPY, a Minute, Draught, or first Design of an Instrument, to be afterwards put into form.

The Word comes from the Latin *Copia*, which was used for the same thing.

Copy is also used for a Transcript of a Writing or Instrument, made for the Use and Satisfaction of some of the Parties concern'd; or in order to preserve the Memory thereof.

Such a *Copy* was taken from the Original; has been collated with the Original. Ancient Titles do now few of 'em subsist otherwise than in *Copies*.

Copy is also used for an Imitation of any original Work; particularly a Painting, Draught, Figure, &c. See Original.

Among Printers, *Copy* is the Manuscript, or Original of a Book given them to print from. In this Sense, they say, The Press stands still for want of *Copy*: Such an Author's *Copy* is good, *i. e.* fair, legible, orderly, &c. and such another's, otherwise.—— In the Booksellers Language, a *good Copy* is that which produces a saleable Book.——*To cast off a Copy*, is to make a Computation of the Number of Sheets a Manuscript will make in print.

COPY-HOLD, is a Tenure for which the Tenant has nothing to shew but the *Copy* of the Roll made by the Steward of the Lord's Court. See Tenure.

The Steward of the Court is, among other Things, to enroll and keep a Register of all such Tenants as are admitted to any Parcel of Land, or Tenement belonging to the Manor; and the Transcript is called the *Copy of the Court Roll*, which the Tenant keeps as his own Evidence. See Roll.

This Tenure is called a *base Tenure*, because the Tenant holds at the Will of the Lord. *Fitzherbert* says, it was formerly called *Tenure in Villenage*; and that *Copy-hold* is but a modern Name.

However, it is not simply at the Lord's Will, but according to the Custom of the Manor; so that if the *Copy-holder* doth not break that Custom, and forfeit his Tenure, he seems not to stand at the Lord's Courtesy.

These Customs are infinite; varying in one Point or other almost in every Manor. See Custom, and Manor.

Copy-holders upon admittance pay a Fine to the Lord; which Fines are in some Manors certain, in others not; but yet, if the Lord exceeds two Years Value, the Court of Chancery, King's-Bench, &c. have, in their several Jurisdictions, Power to reduce the Fine. See Fine.

In many Places the *Copy-holds* are a kind of Inheritance, and term'd *Customary*, because the Tenant dying, and the Hold becoming void, the next of Blood paying the customary Fine, as two Shillings an Acre, or the like, may not be denied his Admission.

Some *Copy-holders* have by Custom the Wood growing upon their own Land; some, again, hold by the Verge in antient Demesne, so that tho they hold by *Copy*, they are yet accounted a kind of Free-holders: Lastly, some others hold by common Tenure, called *mere Copy-hold*; whose Land, upon Felony committed, escheats to the Lord of the Manor.

This is the Land which the *Saxons* called *Folkland*, as being held *sine scripto*; in contradistinction to *Bockland*, or Charter-Land, *Terra ex scripto*, and now Free-Land. See Charter-Land, and Free-hold.

COPY-HOLDER, is defined by *West* to be a Person admitted Tenant of any Lands or Tenements within a Manor, which, Time nut of Mind, by the Use and Custom thereof, have been demisable to such as will take the same by *Copy* of Court Roll, according to the Custom of the said Manor.

COQ. *ad Med. Consumpt.* an Abbreviature among Physicians, signifying that the Thing is to be boil'd till half of it be consum'd.——*Coq. in S. Q. Aq.* implies it to be boil'd in a sufficient Quantity of Water.

COR, in Anatomy. See Heart.

Cor *Hydræ*, in Astronomy, a Star of the second Magnitude, in the Heart of the Constellation *Hydra*; the 12th in Order in *Ptolemy*'s Catalogue; the 11th in *Tycho*'s; and the 25th in the *Britannic*. See Star.

Its Longitude is 22° 57′ 59″. its Latitude 22° 24′ 32″ South. See Hydra.

Cor *Leonis*, or *Regulus*, a Fix'd Star of the first Magnitude, in the Constellation *Leo*. See Leo.

Cor *Caroli*, in Astronomy, an extra-constellated Star in the Northern Hemisphere, situated between the *Coma Berenices* and *Ursa Major*; so call'd by Dr. *Hally* in honour of King *Charles*. See Star, and Constellation.

CORACOBRACHIALIS, a Muscle which ariseth from the *Processus Coracoides* of the *Scapula*, by a tendinous beginning; and passing over the Articulation of the *Humerus*, is inserted into the middle and internal Part of that Bone, and with the *Deltoides* and *Supra-spinatus*, lifts the Arm upwards; and alone, obliquely outwards.

CARACOHYOIDEUS, in Anatomy, a Muscle which hath its Origin from the *Processus Caracoides* of the *Omoplata*; or rather, according to *Keil*, from the upper Edge of the *Scapula*, near its Neck; whence ascending obliquely under the *Mastoidæus*, it is inserted into the *Os Hyoides*; which it serves to pull obliquely downwards. See Hyoides.

It is also called *Digastricus*, as having two Bellies at its two Extremities, and a Tendon in the middle, to give room for the Passage of the Carotid and inner Jugular Artery. See Digastric.

The Word is form'd from *Caracoides* and *Hyoides*, the two Parts.

CARACOIDES, in Anatomy, a Process, so call'd from its resembling a Crow's Bill. See Process.

The *Caracoides* is plac'd in the upper Part of the Neck, and projects over the Head of the Bone of the Arm.

It serves to strengthen the Articulation of the Shoulder; and gives Origin to one of the Muscles of the Arm.

The Word comes from the *Greek* κόραξ, κόρακος, *corvus*, and εἶδος, *imago*.

CORAL, in Natural History, a Production of the Sea, rank'd among the Number of Marine Plants. See Plant.

This Opinion, which we received from the Antients, is now so well establish'd, that all other Sentiments seem precluded. *P. Kircher*, that learned Naturalist, supposes entire Forests of it, at the bottom of the Sea; and M. *Tournefort*, that able Botanist, maintains that it evidently multiplies by Seed; tho neither its Flower nor Grain be known. However, the Count *de Marsigli* has discover'd some Parts therein which seem to serve the Purpose of Grains and Flowers. See Seed, &c.

Coral, then, being establish'd a Plant, has, in that Quality, *Roots*, wherewith it is fasten'd to the Rock whereon it grows: these Roots are cover'd with a *Bark*, set with starry Pores, which traverse 'em from top to bottom. Above the Roots is the ligneous or *woody* Part of the Plant, if we may so call a Matter that rather seems to resemble Stone than Wood. It is divided into Branches like other Plants; having white Streaks therein, which seem to represent a kind of Fibres. The Extremities of the Plant are soft, and rounded into little Bowls, ordinarily divided into six Cells, fill'd with a Humour somewhat like Milk, fatty, sharp, and astringent.

Lastly, that nothing may be wanting to constitute a real Tree, these Bowls are esteem'd a kind of Pods, or *Capsulæ*, containing the Seed of the *Coral*. 'Tis even said, that in what Place, or on what Matter soever this Juice be shed, it carries Fecundity with it, and produces a Plant of *Coral*: whence it is, that in the Cabinets of the Curious, we find some of it on dead Mens Skulls, Pieces of Earthen Ware, and other Kinds of solid Bodies, which Chance and the working of the Sea have thrown into some of F. *Kircher*'s Forests.

Coral, M. *le Comte de Marsigli* observes, grows chiefly in Grottos, whose Mouth or Aperture is towards the South, and the Vault, or concave Arch nearly parallel to the Surface of the Earth. For its Growth, 'tis necessary the Sea be as quiet as a Pond: It vegetates the contrary way to all other Plants; its Foot adhering to the top of the Grotto, and its Branches extending downwards. The Foot takes the exact form of the Solid it grows to, and even covers it, like a Plate, to a certain extent; which M. *de Marsigli* thinks a Proof that its Substance was originally fluid: And what confirms the Thought, is, that the same Substance shall sometimes line the inside of a Shell, which it could never enter but in form of a Fluid.

Upon a nice Examen of the several Parts of *Coral*, M. *de Marsigli* gathers, that all its Organism, with regard to Vegetation, consists in its Bark, or Surface; that the Tubules of the Bark filtrate a Juice which fills the Cellules, and runs along the Canals as far as the Extremities of the Branches; and that this Juice being petrify'd, both in the Cells encompassing the *Coralline* Substance, and in those of the Extremes of the Branches whose Substance is not yet form'd, makes the Plant grow both in height and bulk. See Vegetation, &c.

The Antients believ'd that *Coral* was soft while it continu'd in the bottom of the Water; and that it only became hard and solid by the Impression of the Air. But the Moderns are convinc'd of the contrary from Experience; and know that there was more of Imagination than Truth in the Name *Gorgonium*, which they gave it to shew that *Medusa*'s Head did not convert Objects into Stone, more surely than *Coral* was converted as soon as it appear'd in the Air.

There are, properly, but three Kinds of *Coral*, *red*, *white*, and *black*: The white is the rarest and most esteem'd; but 'tis the red is ordinarily used in Medicine. It must be chosen thick, smooth, and shining, and of a beautiful red, not cover'd with any tartareous Matter.

There is a kind of white *Coral* pierc'd full of holes, and a black *Coral*, named *Antipathes*; appearing of a different Nature from the rest: but these are of no use.

The Chymists draw a magisterial Tincture from *Coral*, and a Salt.

It gives Title to an Officinal Composition, call'd *Syrup of Coral*, often prescrib'd by Physicians; as is the Pouder of *Coral* finely ground, and after levigated on a Marble, and made up into a proper form. But there are few except those who are fond of Medicines with Pearls in 'em that make use hereof. By means of its exceeding hardness, it is suspected to take away with it a great deal of the levigating Stone.

The Virtues attributed to *Coral* and its Prepatations, are that it is Cardiac, and therefore of use in Diarrhæas, too large Fluxes of the Menstrua, and Floodings; of service in the *Fluor Albus*, and to prevent Miscarriages; beside its use in common as a Testaceous Pouder in Childrens Diseases, &c. See CHILDRENS *Diseases*.

Some also attribute to *Coral* the immediate stopping of Blood, the securing of Houses from Thunderbolts, the keeping away of evil Spirits, and the promoting of Dentition. 'Tis added, that *Coral* appears redder wore on a Man than on a Woman; that it becomes pale and livid when wore by a sick Person; and that the Changes in the Plant correspond with those in the Disease. But for these, and many more Fancies of the same kind, *Credat Judæus Apella*.—Its chief Use we know of, is in Chaplets, Beads, and other Toys.

CORAL *Fishery*. The Time for fishing *Coral* is from *April* to *July*: The Places are the *Persian* Gulf, Red Sea, Coasts of *Africa* towards the *Bastion* of *France*, the Isles of *Majorca* and *Corsica*, and the Coasts of *Provence* and *Catalonia*.

The Method of fishing is nearly the same in all Places: That used at the *Bastion* of *France*, where there is an established Fishery, under the Direction of a Company (see COMPANY) at *Marseilles*, is as follows.

Seven or eight Men go in a Boat, commanded by the Patron or Proprietor; the Caster throws his Net, if we may so call the Machine wherewith he uses to tear up the *Coral* from the bottom of the Sea; and the other six manage the Boat. The Net is compos'd of two Beams tied across, with a leaden Weight to press 'em down: To the Beams is fasten'd a great quantity of Hemp loosely twisted round, among which they mix some strong Nets.

In this Condition the Machine is let down into the Sea; and when the *Coral* is pretty strongly embarrass'd in the Hemp and the Nets, draw it out by a Rope; which they unwind according to the Depth, and which sometimes requires half a dozen Boats to draw. If the Cord happen to break, the Fishermen are in great danger of drowning.

Before the Fishers go out, they agree on the Price of the *Coral*, which is ordinarily at the Rate of 4 *s.* 6 *d. per* Pound.

When the Fishery is over, which in a Season usually amounts to 25 Quintals of *Coral* each Boat; it is divided into 13 Parts; the Patron whereof, or Master *Coraller*, has four, the Caster two, and each of the six Companions one: the 13th being reserv'd for the Company, &c.

Artificial CORAL, is made of Cinnabar well beaten; a Lay whereof is applied on a piece of Wood well dried, and polish'd, first moisten'd with Size: The whole is again polish'd; and for varnish, rubb'd over with the White of an Egg.

CORALLINE, or *Sea Moss*, a Plant found adhering to Rocks, Shells, and even to *Coral*.

It has no Stem, but its Branches shoot immediately out of the Root. Its Use in Medicine is not very considerable: yet 'tis suppos'd of some effect to destroy Worms in Children when taken in Pouder; and is also used as an Ornament in Rock-work. The best is greenish; the worst ash-colour'd; the red is not much better.

CORAM *non Judice*, in Law, is when a Cause is brought into a Court where the Judges have no Jurisdiction.

CORBAN, a Scripture Term, signifying an Oblation, or Offering to God on the Altar. See OFFERING, &c.

The Word is *Hebrew*, קרבן.

CORBAN is also a Ceremony in use among the *Mahometans*; yearly perform'd at the foot of Mount *Ararat* in *Arabia*, near *Mecca*. It consists in staying a great Number of Sheep, and distributing 'em among the Poor.

CORBEILS, in Fortification, little Baskets, about a Foot and an half high, eight Inches broad at the bottom, and twelve at the top; which being fill'd with Earth, are frequently set one against another upon the Parapet, or elsewhere; leaving certain Port-holes, from whence to fire upon the Enemy under covert, without being seen by them.

CORBEL, in Architecture, the Representation of a Basket, sometimes seen on the Heads of Cariatides. See CARIATIDES.

The Word is also used for the Vase or Tambour of the *Corinthian* Column; so call'd from its resemblance of a Basket; or because it was first form'd on the Model of a Basket. See CORINTHIAN *Order*.

CORBELL, CORBIL, or CORBEL, is also used in Building for a short Piece of Timber placed in a Wall, with its End sticking out six or eight Inches, as occasion serves, in manner of a Shouldering-piece.

The under Part of the End thus sticking out, is sometimes cut into the form of a Boultin; sometimes of an Ogive, and sometimes of a Face, &c. according to the Workman's Fancy; the upper side being plain and flat.

These *Corbels* are usually placed for Strength immediately under the Semi-girders of a Platform, and sometimes under the Ends of Chamber-Beams: in which latter Case, they are commonly placed a Foot or two below the Beam, and have a piece of Timber standing upright close to the Wall from the *Corbel* to the Beam.

CORBEL is also used by some Architects for the hollow Niches, or hollows left in Walls for Images, Figures, or Statues to stand in. See NICHE.

CORD, or CHORD, an Assemblage of several Threads of Hemp, cabled or twisted together by means of a Wheel. See CORDAGE.

The Word comes from the *Greek* χορδὴ, which properly signifies an Intestine, or Gut, whereof *Cords* may be made. See CHORD.

CORD *of S.* Francis, a kind of Rope adorn'd with Knots, wore by the Brothers of the Fraternity instituted in honour of that Saint. See FRANCISCAN.

Some, as the Cordeliers, Capuchins, Minorites, and Recolets wear it white; others, as the Pique Puces, black.

Its design is to commemorate the Bonds wherewith Jesus Christ was bound.

The Society of the CORD, includes a great Number of People beside Religious. To obtain Indulgences, they are only oblig'd to say five *Paters*, five *Ave Marys* and *Gloria Patri*'s, and to wear this Rope, which must have been first bless'd by the Superiors of the Order.

CORD *of Wood*, a certain Quantity of Wood for burning; so called, because formerly measur'd with a *Cord*. See MEASURE.

'Tis now measur'd between two Stakes of Wood, four Foot high, and eight Foot apart.

CORD-*Wood*, is properly new Wood; and when brought by Water comes aboard a Vessel, in opposition to that which is floated. All burning Wood not exceeding 18 Inches in circumference, is deem'd *Cord-Wood*.

CORD, in Geometry, Musick, &c. See CHORD.

CORDAGE, in the Sea Language, is used in general for all the Ropes and *Cords*, big and small, used in the Rigging and fitting out of a Vessel. See RIGGING.

The Word is also used for the Art of preparing and manufacturing the Ropes, &c.

The *Cordage* is said to be *baked*, when having pass'd a Stove or other hot Place, 'tis drain'd of all its Moisture.

White Cordage, is that not yet pitch'd. *Cordage pitch'd in the Stove*, is that which is pass'd thro' hot Pitch as it comes out of the Stove. Each Quintal of *Cordage* may take up about 20 Pounds of Pitch. The *Cordage* is sometimes pitch'd in the Thread.

When a *Cordage* is said to be of six Inches, 'tis understood of six Inches around, or in Circumference. The Commerce of *Cordage* is very considerable at *Amsterdam*: That made of *Coningsberg* Hemp is valued at 20 *per Cent.* more than that of *Muscovy* Hemp. They are sold by weight.

The Number of Ropes requir'd in fitting out of a Vessel is almost inconceivable: Each has its particular Name and Use. See CABLE, HALSER, &c.

The *Spaniards* make a kind of Shoes of *Cordage*, which they call *Alpargates*, whereof they use great Quantities at home, and yet drive a very considerable Commerce to the *Indies*; so as to send away whole Ship-loads thereof.

The *Indians* make their *Cordage* of the Bark of *Cocao*, *Magnay*, and other Trees.

As to the Strength of Ropes or Cordage, M. *Reaumur* takes occasion, in the Memoirs of the *French* Academy, to consider the Question, whether a Rope compos'd of several Twists or Strands interwoven, *v. g.* ten, have more force to sustain a Weight, than the ten Twists would have separately, placed parallel over one another: or, which is the same thing, whether if each Twist be capable of sustaining the weight of a Pound, the whole *Cord* be able to sustain more than ten?

There, indeed, appears no great difficulty in the Question; the Evidence seems strong on the side of the Affirmative: For, 1st, by Virtue of the Twisting, the Diameter of the Rope is made larger than are those of the ten Twists together; but, 'tis apparently by its thickness that a Rope sustains a Weight or resists a Fracture.

2d, Twisted Strands have not all, as when parallel, a vertical Direction with regard to the Weight: Several of 'em, and even the greatest Part, have oblique Directions, and of consequence don't bear all the Share of the Burden they would otherwise bear. In effect, they are inclined Planes that are only press'd with a part of the Load.

Hence it would follow, that the Surplus of the Strength of the Twists, might be employ'd in raising a larger Weight.

On

On the other hand, 'tis true, that in twisting the Strands, some are stretch'd, and others left more loose; and the new Tension given the former, serves to weaken 'em, and has of it self the effect of a Weight: Thus they become less able to sustain one so large. Those more lax, on the contrary, evade in some measure the Action of the Weight. For the Action is distributed equally on the ten supposedly equal Twists; and if some, by reason of their particular Disposition, receive less than their Quota, the Weight will act more forcibly on the rest, and will break them first, as being more tense; after which it will easily dispatch the rest, as not being in sufficient Number to oppose it.

This is the Sum of what can be urg'd for and against the twisting. To decide between 'em M. *Reaumur* had recourse to Experiment. The Result was, that contrary to all Expectation, he still found the twisting diminish'd the Force of the Rope: whence it is easily infer'd, that it diminishes it the more, as the Rope is the thicker: For inasmuch as the twisting diminishes; the more Twisting the more Diminution.

The Resistance or Friction of the Cordage is very considerable; and by all means to be consider'd in calculating the Force of Machines. M. *Amontons* observes, in the *French* Memoirs, that a Rope is so much the more difficult to bend, first, as it is stiffer, and more stretch'd by the Weight it draws. 2d, As it is thicker; and, 3d, as it is to be more bent; *i. e.* as it is to be roll'd, for instance, into a smaller Gyre.

The same Author has thought of ways to prove in what proportion these different Resistances increase: That arising from the Stiffness or Rigidity occasion'd by the Weight which draws the Rope, increases in proportion to the Weight; and that arising from its thickness in proportion to their Diameter. Lastly, that arising from the smallness of the Gyres, or Pullies about which it is to be wound, is indeed greater for smaller Circumferences than great ones, but does not increase so much as in the Proportion of those Circumferences.

On this footing, the Loss a Machine sustains by the *Cordage* being estimated in Pounds; becomes, as it were, a new Weight, added to that which the Machine is to raise. This Augmentation of weight will render the *Cords* still the more stiff: which excess is to be computed as before.

Thus we shall have different Sums still decreasing; which are to be added together, as in the Article of Friction, and it will be surprizing to see what a Sum they will amount to. See FRICTION.

Where Ropes are us'd in a Machine, all the Resistance resulting from their stiffness is to be put together; and all that occasion'd by the Friction; which will make so considerable an Augmentation to the difficulty of the Motion, that a Power which to raise a Weight of 3000 Pound, by means of a fix'd and a moveable Pully, needed only 1500 Pound; must, according to M. *Amontons* have 3942 Pounds, on account of the Frictions, and the Resistance of the *Cordage*. See RESISTANCE.

CORDED, in Heraldry. *A Cross corded*, some Authors take for a Cross wound or wrench'd about with *Cords*: The others, with more probability, take it for a Cross made of two Pieces of *Cord*. See CROSS.

CORDELIER, a *Franciscan*, or Religious of the Order of S. *Francis*. See FRANCISCAN.

The *Cordeliers* are cloth'd in thick grey Cloth, with a little Cowl, a Chaperon, and Cloke of the same; having a Girdle of Rope or *Cord*, tied with three Knots, whence the Name. See CORD.

The *Cordeliers* are otherwise called *Minor Friers*, their original Name. The Name *Cordelier* is said to have been first given 'em in the War of S. *Louis* against the Infidels; wherein the *Friers Minor* having repuls'd the *Barbarians*, and that King having enquir'd their Name; it was answer'd they were People *corde liez*, tied with Ropes.

The *Cordeliers* are, to a Man, profess'd *Scotists*. See SCOTIST.

CORDIAL, *Cardiac*, in Medicine, a comfortative or refreshing Remedy, that gives a sudden Strength and Chearfulness to the Spirits, by raising them when depress'd by too much Exercise, the Consequence of some Disease, or the like Cause.

Cordials act by giving a Springiness and Force to the Fibres, and by some of their fine Particles directly entering the *Tubuli*, or Pores of the Nerves and fine Vessels, and so mixing directly with the Fluids.

Thus, some of the Particles of the Spirit of Lavender, when dropt into Sugar and taken, are suppos'd to enter the Nerves of the Palate directly. Spirituous Liquors, as Brandy, Cinnamon Water, &c. are suppos'd also to act immediately on the Palate; but especially on the nervous Coat of the Stomach, and not by the common Current of the Circulation: by which means they often prove an immediate *Cordial*.

In Faintings, where the Circulation of the Blood is languid, Sal Volatile Oleosum, or Spirit of Hartshorn dropt in cold Water and drank immediately, occasion a Contraction of the *Fibrillæ*, the last by its coldness, and the first by entering the small Vessels; and thus they instantly augment the Circulation, or in other Words, prove *Cordial*. In Officinal Compositions, the four *Cordial* Flowers are *Borrage*, *Bugloss*, *Roses* and *Violets*.

The four *Cordial* Waters are those of *Borrage*, *Bugloss*, *Endive*, and *Chicory*; some add those of *Carduus Benedictus* and *Scorzonera*, *Scabiosa*, *Sorrel*, &c.

CORDON, in Fortification, a row of Stones jutting out between the Rampart and the Basis of the Parapet.

The *Cordon* ranges round the whole Fortress; and serves to join the Rampart, which is a slope, and the Parapet, which is perpendicular, more agreeably together.

In Fortifications rais'd of Earth, this Space is fill'd up with pointed Stakes instead of a *Cordon*.

CORDWAINERS, or CORDINERS, the Term whereby the Statutes denominate *Shoe-makers*; from the *French Cordonnier*, which *Menage* derives from *Cordouan*, a kind of Leather brought from *Cordoua*, whereof they formerly made the Upper-leathers of their Shoes.

Others derive it from *Corde*, Rope, because antiently Shoes were made of Cords; as they still are in some Parts of *Spain*, under the Name of *Alpargates*, vast Quantities whereof they export to *America*.

But the former Etymology is better warranted: for, in effect, the *French* Workmen who prepare the *Cordoua's* are still call'd *Cordouanniers*.

In *Paris* they have two pious Societies, under the Titles of *Freres Cordonniers*, Brothers Shoemakers; establish'd by Authority towards the middle of the XVIIth Century; the one under the Protection of S. *Crispin*, the other of S. *Crispianus*, two Saints who had formerly honour'd the Profession. They live in Community, and under six'd Statutes and Officers; by which they are directed both in their spiritual and secular Concerns.

The Produce of their Shoes goes into a common Stock, to furnish Necessaries for their support; the rest to be distributed among the Poor.

Bennet Baudouin, a Native of *Amiens*, the Son of a *Cordwainer*, and himself a Workman in his Father's Shop, has among other learned Works publish'd a Treatise *de Calceo antiquo & mystico*, to do honour, as he himself owns, to his antient Trade. *John Battista Gallo*, a Shoemaker of *Florence*, has given some fine Pieces in the *Italian* Language; and among others, Dialogues in Imitation of *Lucian*.

CORIANDER, the Seed of a Plant of the same Name. See SEED.

Both the Taste and Smell of the Seed is very agreeable; yet both in the Plant extremely nauseous. Besides the Confections made of the *Coriander*-Seed, it is of use in Medicine as a Carminative, and a Corrective to some sorts of Catharticks. It is much us'd by the Brewers both in *England* and *Holland*, to give a Flavour to their strongest Beer. The Antients had a Notion that the Juice of *Coriander* would deprive People of their Senses, and even of Life.

Some derive the Word from κόρις, on account of the stinking Quality of the Leaves; others from κόρη, *apple of the Eye*, and ἄνθρωπον, *hominum*, because it is suppos'd to weaken the Sight.

CORINTHIAN *Order*, the fourth, or as *Scamozzi*, and M. *le Clerc* make it the fifth and last of the Orders of Architecture; being the noblest, richest, and most delicate of all others. See ORDER.

The Invention of this Order most of the Moderns, after *Vitruvius*, ascribe to *Callimachus* a *Corinthian* Sculptor, who passing by the Tomb of a young Lady, over which her Nurse had placed a Basket with some of her Play-things, and cover'd it up from the Weather with a Tile; the whole having been plac'd on a Root of Acanthus; as it sprung up, the Branches encompass'd the Basket, and bending down atop under the Corners of the Tile, form'd a kind of Volutes.

Hence *Callimachus* took his hint: The Basket he imitated in the Vase of his Column; the Leaves in the Volutes; and the Tile in the Abacus of his Order. See ABACUS, ACANTHUS, &c.

Villalpandus treats this Story of *Callimachus* as a Fable; and will have the *Corinthian* Capital to have taken its Origin from an Order in *Solomon*'s Temple, the Leaves whereof were those of the Palm-Tree. See LEAVES.

The *Corinthian* Order has several Characters whereby it is distinguish'd from the rest: Its Capital is adorn'd with two Rows of Leaves, between which rise little Stalks, or Caulicoles, whereof the Volutes are form'd, which support the Abacus, and which are in Number 16.

It has no Ovolo, nor even Abacus properly speaking; for the Member which goes by that Name is quite different from the Abacus in the other Orders, being cut with a Sweep, in the middle of which is carved a Rose, or other Ornament. See CAPITAL, VOLUTE, ABACUS, CAULICOLE, &c.

Vitruvius obſerves, that the *Corinthian* Order has no particular Ordonnance for its Cornice, or any of the other Ornaments of its Entablature; nor does he give it any other Proportions than thoſe of the *Ionic* Order: So that if it appears higher than the *Ionic*, 'tis purely owing to the Exceſs of the height of its Capital. See IONIC.

He alſo makes the reſt of the Entablature the ſame; and the *Attic* Baſe he uſes indifferently for the one and the other. See ATTIC.

But *Vitruvius* differs widely in this Order from all the Examples now remaining of Antiquity; the moſt beautiful whereof have a particular Baſe, and the whole Order 20 Modules high; whereas the *Ionic* has but 18. Again, its Capital is higher than that of *Vitruvius* by one third of a Module: and its Entablature, which has Modillions, and ſometimes Dentils together with Modillions, is very different from the *Ionic* Entablature.

Moſt of the modern Architects ſet aſide *Vitruvius's Corinthian* Ordonnance, and follow that of the antient Buildings; ſelecting from them according to their ſeveral Taſtes: So that the modern *Corinthian* is a kind of *Compoſite*; differing from any of the antient Buildings, and much more from *Vitruvius's* Rules.

Vignola and M. *le Clerc* make the *Corinthian* Order 20 Modules high: yet *Serlio* only makes it 18; and M. *Perrault* $18\frac{3}{4}$, retrenching ſomething from the 19 of *Vitruvius*.

The height of the Shaft M. *Perrault* makes leſs than that of the *Ionic*, by reaſon of the Exceſs of its Capital. See COLUMN; ſee alſo SHAFT, BASE, and ENTABLATURE.

CORINTHIAN *Braſs*. See BRASS.

CORK, the Bark of a Tree of the ſame Name, much reſembling the Holm-Tree. See BARK.

Its Leaves are green above, and white underneath; and its Fruit a real Acorn, which feeds much more than that of the Oak. It is found in great abundance in *Spain*, *Italy*, *France*, &c.

To take off the Bark they make an Inciſion from top to the bottom of the Tree, and at each Extremity another round the Tree, perpendicular to the firſt. When ſtripp'd from the Tree, which does not therefore die, 'tis pil'd up in a Pond or Ditch, and loaden with heavy Stones to flatten it, and reduce it into Tables: Hence it is taken, to be dry'd; and when ſufficiently dry put in Bales for Carriage.

If care ben't taken to ſtrip the Bark, it ſplits and peels off it ſelf; being puſh'd up by another Bark form'd underneath.

The Bark of *Cork*, as well as the Acorn, are of ſome uſe in Medicine; being both reputed Aſtringents, after being burnt and pouder'd, when us'd externally; but the chief employ of the former is to put under Slippers, &c. and to ſtop Bottles.

The *Spaniards* burn it to make that light kind of black we call *Spaniſh Black*, uſed by Painters. See BLACK.

CORN, a Plant, or Genus of Plants, that produce a Grain fit for Bread, the ordinary Food of Man. See BREAD.

Corn is alſo uſed for the Grain or Seed of that Plant, ſeparated from the *Spica*, or Ear.

In the Commerce of *Corns*, they only diſtinguiſh three Kinds, *viz. Corn*, properly ſo called, or *Wheat*; *Rye*, which is a Species very different, and of a Quality far inferior; and a third kind reſulting from a Mixture of the two, and called *Maſlin*.

The Farmers, indeed, rank among the Number of *Corns* ſeveral of the Grains ſow'd in *March*; as Barley, Oats, and even Pulſe, as Peas, Vetches, &c. which, however, they ſometimes diſtinguiſh by the *ſmaller Corn*. Maiſe and Sarraſin are number'd among the *Corns*; the firſt call'd *Turky* and *Indian Corn*, the ſecond *French*, or *black Corn*.

Europe, in every Part of it; *Egypt*, and ſome other Cantons of *Africa*, particularly the Coaſts of *Barbary*; and ſome Parts of *America* cultivated by the *Europeans*, particularly *New-England*, *New-France*, and *Acadia*, are the Places which produce *Corn*. Other Countries have Maiſe and Rice in lieu of it; and ſome Parts of *America*, both in the Iſlands and Continents, ſimple Roots, ſuch as Potatoes, and Manioc.

Egypt was antiently the moſt fertile of all other Countries in *Corn*; as appears both from ſacred and profane Hiſtory: It furniſh'd a good Part of the People ſubject to the *Roman* Empire, and was call'd the Dry Nurſe of *Rome* and *Italy*. *France* and *Poland* ſeem now in the place of *Egypt*, and with their Superfluities ſupport a good part of *Europe*.

For the firſt Diſcovery and Culture of Corn, Authors are much divided: The common Opinion is, that in the firſt Ages Men liv'd on the ſpontaneous Fruits of the Earth; as Acorns, and the Nut or Maſt produced by the Beech, which, they ſay, took its Name *Fagus* from the *Greek* φάγομαι, *I eat*. 'Tis added, that they had not either the Uſe of *Corn*, nor the Art of preparing or making it eatable.

Ceres has the Credit of being the firſt that ſhew'd the Uſe of *Corn*, on which account ſhe was placed among the Gods. Others give the Honour to *Triptolemus*: Others ſhare it between the two; making *Ceres* the firſt Diſcoverer, and *Triptolemus* the firſt Planter and Cultivater of *Corn*.

Diodorus Siculus aſcribes the Whole to *Iſis*; in which *Polydore Virgil* obſerves, he does not differ from the reſt; *Iſis* and *Ceres* being the ſame. The *Athenians* pretend it was among them the Art began, and the *Cretans* or *Candiots*, *Sicilians*, and *Egyptians* lay claim to the ſame. Some think the Title of the *Sicilians* beſt ſupported, that being the Country of *Ceres*: and Authors add, ſhe did not teach the Secret to the *Athenians*, till ſhe had firſt inſtructed her Country-men. Others ſay, *Ceres* paſs'd firſt into *Attica*, thence into *Crete*, and laſt of all into *Sicily*. Many of the Learned, however, maintain it was in *Egypt* the Art of cultivating *Corn* firſt began; and 'tis certain there was *Corn* in *Egypt* and the Eaſt, long before the Time of *Ceres*.

For the Preſervation of Corn: It muſt be well dried and clean'd; the Granary have its Openings to the North or Eaſt, and Vent-holes a-top. For the firſt ſix Months it muſt be well ſtirr'd every 15 Days; afterwards it will be ſufficient to ſift it once *per* Month: After two Years it heats no more; nor is there any thing to fear, but from the Air and foreign Moiſture.

A little time after the Siege of *Metz* under *Henry* II. of *France*, the Duke *d'Eſpernon* laid up vaſt Stores of *Corn* in the Citadel; which was preſerv'd in good plight to the Year 1707, when the *French* King and his Retinue paſſing that way eat Bread baked thereof.

The chief Thing that contributes to the Preſervation of *Corn*, is a Cruſt which forms on its Surface, by the Germination of the Grain underneath, to the thickneſs of an Inch and half. On that at *Metz* People walk'd, without its giving the leaſt way. At *Sedan* was a Granary cut in a Rock, wherein a heap of *Corn* was preſerv'd 110 Years: It was cover'd with a Cruſt a Foot thick.

At *Chalons* they have Granaries where they ſtill keep *Corn* 30 or 40 Years: Over the Heap they ſtrew Quick-lime, in fine Duſt, to the thickneſs of three Inches; and ſprinkle this over with Water, whence ariſes a Cruſt. The Grain near the Surface ſprouts to the height of a Foot and half: theſe the Winter kills; and the Heap is left untouch'd till Neceſſity obliges 'em to it.

CORNACHINE *Pouder*, a purging Pouder, call'd alſo *Earl of* Warwick's *Pouder*, and *Pulvis de Tribus*.

It is compos'd of equal Parts of *Antimonium Diaphoreticum*, *Diagridium*, and *Cream of Tartar*.

CORNAGE, an antient Tenure, the Service whereof was to blow a Horn, when any Invaſion of the *Scots* was perceiv'd. See SERVICE.

This Tenure was very frequent in the Northern Counties, near the *Picts* Wall. But by Stat. 12 *Car.* II. all Tenures are converted into free and common Soccage. See TENURE, and SOCCAGE.

An old Rental calls *Cornage*, *Nowtgeld*, q. d. *Neat geld*. My Lord *Coke* ſays, in old Books it is called *Horngeld*.

CORNEA *Tunica*, in Anatomy, the third Coat of the Eye; ſo call'd from its Subſtance reſembling the Horn of a Lanthorn. See EYE.

It is ſituated in the Fore-part; and is ſurrounded by the White. It has a greater Convexity than the reſt of the Globe of the Eye, and is compoſed of ſeveral parallel *Laminæ*, which are nouriſh'd by many Blood-Veſſels, ſo fine, as not to hinder even the ſmalleſt Rays of Light from entering the Eye. It has a moſt exquiſite Senſe, to the end that upon the leaſt Pain, the Tears may be ſqueez'd out of the Lachrymal Gland, to waſh off any Filth, which, by ſticking to the *Cornea*, might render it cloudy or dim. See LACHRYMAL; ſee alſo TEAR, &c.

In the Memoirs of the *French* Academy, M. *Gandolphe* gives us an Inſtance of Inciſions deſignedly made in the *Cornea*, to diſcharge a quantity of Blood ſettled there by a violent Blow on the Eye, by means whereof the Sight had been almoſt entirely extinguiſh'd.

The extravaſated Blood, it ſeems, was in too great a quantity to be diſſipated by Topical Medicines; beſides that the Proceſs would have been ſo tedious, that the aqueous Humour would have been in danger of being quite ruin'd in the mean time.

The *Cornea*, therefore, was open'd by three Inciſions, all made acroſs; the Blood was diſcharg'd; the Eye bound up with Compreſſes ſteep'd in a Mixture of four Ounces of Plantain Water, and two of Vulnerary Water. In eight Days the Eye reſum'd its natural tranſparency; and there remain'd no Scar after the Inciſions.

After the Cure, the Pupil of that Eye continued dilated much beyond its natural Dimenſions.

CORNEA *Lunæ*. See LUNÆ *Cornea*.

CORNELIAN, otherwiſe called *Sardoin*, a precious Stone, ordinarily red, hordering on an Orange. See PRECIOUS *Stone*.

It is but little tranſparent, cuts eaſily; and we find moſt of the fine Gravings of Antiquity, whether in relievo or indented, on this Stone.

It

It bears the Fire admirably: The largeſt Pieces found don't exceed three Inches in height.

The fineſt *Cornelians* are thoſe brought from near *Babylon*; the next are thoſe of *Sardinia*; the laſt thoſe of the *Rhine*, *Bohemia*, and *Sileſia*.

To give theſe Stones the greater Luſtre, in ſetting them they lay a piece of Silver Leaf underneath.

The principal uſe made of *Cornelians* is in Seals; by reaſon they grave well, and take a fine poliſh. The Author of the Book uſually but falſely attributed to *Albertus Magnus*, gives the *Cornelian* Virtues which, were they real, would make it ineſtimable. See AGAT.

The *Cornelian* is otherwiſe call'd *Carneola* and *Corneola*: The *Italians* call it *Corniolos*; 'tis ſaid from *Corno*, Horn; on account of the reſemblance it bears to Horn.

CORNET, a Horn, or Muſical Inſtrument us'd by the Antients in their Wars. See MUSICK.

Vegetius informs us, that the Legions had Trumpets, *Cornets*, and Buccinæ: that when the *Cornets* ſounded, only the Enſigns regarded; none of the Soldiers: that when the Enſigns were to march alone without the Soldiers, the *Cornet* alone was ſounded: as, on the contrary, when the Soldiers were to move without the Enſigns, the Trumpets alone were ſounded: That the *Cornets* and *Buccinæ* ſounded the Charge and Retreat; and the *Cornets* and Trumpets during the Courſe of the Battle.

CORNET, in War, an Officer in the Cavalry, who bears the Enſign or Colours of the Company. See ENSIGN.

The *Cornet* is the third Officer in the Company, and commands in the Abſence of the Captain and Lieutenant. He takes his Title from his Enſign which is ſquare, and is ſuppoſed to be call'd by that Name, from *Cornu*; becauſe placed on the Wings, which form a kind of Points or Horns of the Army.

Others derive the Name from *Coronet*; it being the antient Cuſtom for theſe Officers to wear Coronets or Garlands on their Heads.

CORNICHE, or CORNICE, in Architecture, the uppermoſt Member of the Entablature of a Column; or that which crowns the Order. See ENTABLATURE, CROWNING, &c.

The *Cornice* is the third grand Diviſion of the Trabeation, commencing from the Frize and ending with the Cymatium.

The Word is form'd from the Latin *Coronis*, a Crowning.

The *Cornice* is different in the different Orders: In the *Tuſcan* Order it is the moſt plain. *Vignola* makes it to conſiſt of an Ovum or Quarter-round, an Aſtragal or Baguette, the Reglet or Fillet, the Larmier, and the Talon. See TOSCAN.

In the *Doric*, he makes Capitals of the Triglyphs of the Frize with their Bandilettes, a Talon, Mutules or Dentils, a Larmier with its *Guttæ* underneath, a Talon, Fillet, Cavetto, and Reglet. See DORIC.

In the *Ionic*, the Members are in moſt reſpects the ſame as in the *Doric*; except that they are frequently enrich'd with carving, and there are always Dentils. See IONIC.

In the *Compoſite* there are Dentils; its Mouldings are carv'd, and there are Channels under the Soffit. See COMPOSITE.

The *Corinthian Cornice* is the richeſt; and is diſtinguiſh'd by having both Modillions and Dentils: contrary to the Opinion of *Vitruvius*, who looks on thoſe two Ornaments as incompatible; and of M. *le Clerc*, who regards the Dentils as peculiar to the *Ionic*. See MODILLION, DENTIL, &c. ſee alſo ORDER.

For the Heights and Projectures of the Cornices in the ſeveral Orders; *Goldman* makes the Height of the *Tuſcan* $1\frac{1}{2}$, and its Projecture $2\frac{1}{3}$ Modules: The Height of the *Doric* $1\frac{1}{2}$, its Projecture $2\frac{1}{6}$; Height of the *Ionic* $1\frac{2}{3}$, its Projecture $2\frac{1}{3}$; Height of the *Compoſite* $1\frac{1}{2}$, Projecture $2\frac{11}{30}$; Height of the *Corinthian* $1\frac{2}{11}$, Projecture $2\frac{33}{30}$.

CORNICE is uſed in the general for all little Projectures of Maſonry or Joinery; even where there are no Columns.

Thus, we ſay, the *Cornice* of a Chimney, a Buffet, &c.

Architrave CORNICE, is that immediately contiguous to the Architrave; the Frize being retrench'd.

Mutilated CORNICE, is that whoſe Projecture is cut or interrupted, to the right of the Larmier, or reduced into a Platband with a Cimaiſe.

Cantaliver CORNICE, a Term uſed by the Workmen for a *Cornice* that has Cantalivers underneath it. See CANTALIVER.

Modillion CORNICE, a *Cornice* with Modillions under it. See MODILLION.

Coving CORNICE, a *Cornice* which has a great Caſement or hollow in it; ordinarily lathed and plaiſter'd upon Compaſs, Sprockets, or Brackets.

CORNICE is alſo uſed for the Crownings of Pedeſtals. See PEDESTAL.

This *Cornice*, too, is different in the different Orders: In the *Tuſcan*, according to M. *Perrault*, it has a Platband which ſerves as a *Corona*, and a Cavetto with its Fillet: In the *Doric*, it has a Cavetto with a Fillet, which bears a Drip crown'd with a Square: In the *Ionic*, a Cavetto with its Fillet above, and a Drip or hanging Square crown'd with an Ogee and its Fillet: In the *Corinthian*, an Ogee with its Fillet, a Cymatium under the *Corona*, which it hollows to make a Drip, a *Corona*, and an Ogee with its Fillet: Laſtly, in the *Compoſite*, a Fillet with a Sweep over the Die, an Aſtragal, Cyma with its Fillet, *Corona*, and Ogee with its Fillet: *See each in its Place.*

CORNICE *Ring* of a Piece of Ordnance, is that which lies next the Trunnion Ring; or next from the Muzzle Ring backwarks. See ORDNANCE.

CORNICULARIS *Proceſſus*, the Proceſs or Knob of the Shoulder Bone; thus call'd, as reſembling the Figure of a Crow's Beak.

CORNICULARIUS, in Antiquity, an Officer in the *Roman* Army.

His Buſineſs was to aid and aſſiſt the Military Tribune in the exerciſe of his Poſt, in quality of Lieutenant.

The *Cornicularii* went the Rounds in lieu of the Tribune, viſited the Watch, and were nearly what the *Aids Major* are in the *French* Army.

The Name *Cornicularius* was given 'em from a little Horn, called *Corniculum*, which they uſed in giving Orders to the Soldiers: Tho *Salmaſius* derives it from *Corniculum*, the Creſt of an Headpiece; it being an Obſervation of *Pliny*, that they wore Iron or Braſs Horns on their Helmets; and that theſe were call'd *Cornicula*.

In the *Notitia Imperii*, we find a kind of Secretary or Regiſter of the ſame Name; his Buſineſs was to attend the Judge, and to enter down his Sentences and Deciſions.

The Criticks derive the Word, in this Senſe, from *Corniculum*, a little Horn to put Ink in.

CORNICULATE *Plants*, are ſuch as after they have blown into Flower, produce many diſtinct and horned Pods, or Seed-Veſſels, called *Siliquæ*; For which Reaſon, the Plants are alſo denominated *ſiliquous Plants*. See SILIQUOUS.

Such are the *Sedum* or *Sempervivum*, *Telephium*, *Juncus Floridus*, *Helleborus niger*, *Pæonia*, *Caltha Paluſtris*, *Althæa Lutea*, &c. See PLANT.

CORNU *Ammonis*, in Natural Hiſtory, an extraordinary kind of Stone, which in Vinegar, Juice of Lemons, &c. has a Motion like that of an Animal. See STONE.

'Tis rough, knotty, of an Aſh-colour, and crooked in manner of a Ram's-horn ſuch as thoſe wherewith the Antients repreſented *Jupiter Ammon*: whence its Name.

'Tis diſputed among Naturaliſts, whether it be a Foſſil, or a *Nautilus*, or a Rock-Plant. *Camerarius* maintains the firſt, urging that 'tis frequently dug out of the Tops of Mountains; and that 'tis ſeldom found near the Sea-ſhore.

Dr. *Woodward* aſſerts it a Shell, and of the Number of the Nautili, form'd in the Sea, and carried thence by the Waters of the Deluge into the Countries whence 'tis dug. He argues, that if it be rarely found on the Sea-Coaſts, 'tis becauſe Shells and other Bodies faſten'd to the bottom of the Sea, as moſt Kinds of the *Cornua Ammonis* muſt be, are only to be tore thence and driven aſhore by Tempeſts: but the moſt violent Tempeſts never move the Bottom of the Sea, as the Divers have put paſt doubt; ſo that 'tis no wonder if none of the *Cornua* be thrown up: But in the overturning of the Earth by the Deluge, theſe, with a thouſand more Productions of the Sea, might be thrown from the bottom of the Waters to the Places where they are now found. See SHELL.

The *Cornua Ammonis* are of different thickneſſes and lengths; ſome of 'em weigh about three Pounds. It is found in ſeveral Places in *Germany*. From ſome Experiments that have been made therewith, it's found to contain a little quantity of Gold; which ſinks to the bottom upon pounding it ſmall, and ſtirring it in a running Water, till all the earthy Parts were carried off.

'The Stone call'd *Cornu Ammonis* is frequent in the Clay 'wherein the Trochites and Entrochi are found: The largeſt I have is ſeven Inches in length, and four in circumference at the big End, and two and a half at the ſmaller; the Tip being broke off. Tracing its Origin, I find ſome of the firſt Buddings out of it about the bigneſs of a young Cock's Spur, and very much like it: I have ſome in raw Clay; and one growing of a white cawky Stone. They generally become at laſt a whitiſh Spar, and ſome milk-white, as ſome of the Trochites are.' See TROCHITÆ.

'There are of all intermediate Proportions between theſe two; tho very few of any bigneſs are to be found entire, but all broken and imperfect Pieces. The Texture of the Stone is thus: Some have a moſſy Spar in their inſides, which takes up three Parts of the Stone; then from the ſharp top there grows thin flat Cells, or ſmall Pipes of Spar ſet edgewiſe one cloſe to the other, which ſhoot towards the broad End, and appear outwardly like ſmall Ridges or Seams. There are likewiſe Rings running round it, tending in their growth towards the broad End, as in a Ram's Horn. Moſt of the leſſer Stones have very little moſſy

'Spar within 'em, and some none, with Cells coming down 'inwardly from the top of the Stone, resembling those in 'the Flowers of Coral, that terminate its Branches. And 'doubtless, if taken from their Beds in a seasonable time, 'would yield the like milky Juice.' *Mr.* Beaumont, *ap.* '*Philosoph. Transact.* N° 129. See Rock-*Plant.*

Cornu *Cervi*, *Hartshorn*, in Medicine, one of the Testaceous Pouders. See Testaceous.

Among Chymists, the same Name is used for the Mouth of an Alembic.

CORNUA *Uteri*. See Uterus.

CORNUCOPIA, among the Poets, a Horn out of which proceeded all things in abundance, by a particular Privilege which *Jupiter* granted his Nurse, supposed to be the Goat *Amalthea*.

The real Sense of the Fable is this; that in *Lybia* there is a little Territory shaped not unlike a Bullock's Horn, exceedingly fertile, given by King *Ammon* to his Daughter *Amalthea*, whom the Poets feign to have been *Jupiter*'s Nurse.

In Architecture and Sculpture, the *Cornucopia*, or Horn of Plenty, is represented under the Figure of a large Horn, out of which issue Fruits, Flowers, &c.

On Medals, F. *Jobert* observes, the *Cornucopia* is given to all Deities, Genii, and Heroes.

CORNUTUM *Argumentum*. See Dilemma.

CORONA, *Crown*, or *Crowning*, in Architecture, a large flat strong Member of the Cornice; so called, because it crowns not only the Cornice, but the Entablature, and the whole Order. See Entablature.

The *French* call it the *Larmier*, our Workmen the *Drip*, as serving, by its great Projecture, to skreen the rest of the Building from the Rain. See Larmier.

Some *Latin* Authors call it *Supercilium*; but, as it shou'd seem, by mistake for *Stillicidium*. Some *French* Authors call it *Mouchette*; some *Latin* ones *Mentum*, Chin; from its keeping off the Weather from the Parts underneath, as the Chin does the Sweat, &c. out of the Neck.

Some call it absolutely the *Cornice*, as being the principal Member thereof. *Vitruvius* frequently uses the Word *Corona* for the whole Corniche. See Corniche.

The *Corona* is it self *crown'd* or finish'd with a Reglet, or Fillet.

There are sometimes two *Corona's* in a Cornice; as in the *Corinthian* of the *Rotunda*.

Corona *Borealis*, *Northern Crown*, in Astronomy, a Constellation of the Northern Hemisphere. See Constellation.

The Stars in the Constellation of the *Northern Crown*, in *Ptolemy*'s Catalogue are 8; in *Tycho*'s as many; in the *Britannic Catalogue* 21. The Order, Names, Longitudes, Latitudes, Magnitudes, &c. are as follow.

Stars in the Constellation Corona Borealis.

Names and Situations of the Stars.	Signs.	Longitude. °	′	″	Latitude. °	′	″	Magn.
	♏	2	5	16	45	57	52	6 7
That preced. the *Corona*, withoutside		2	44	45	46	49	30	5
That next the *Lucida*, towards the N.		4	45	53	46	0	40	4
Anoth. following this, and more Nor.		5	5	20	48	34	50	4 5
Lucida of the *Corona*		7	55	56	44	21	17	2 3
5								
1st of the *Informes* over the Crown		0	58	43	55	48	50	5
Second		3	58	22	53	59	32	4
That following the *Lucida* to the So.		10	31	50	44	32	18	4
Nor. in the Circumference of the *Coro.*		7	50	41	50	30	3	5
Sou. in the Circumference of the *Coro.*		12	40	33	44	48	22	4
10								
3d of the *Informes* over the Crown		8	17	34	53	59	43	5
4th of the *Informes*		3	49	7	60	15	50	6
5th over the *Corona*		8	18	21	56	25	32	5
3d of those following the *Lucida* Sout.		14	46	15	46	6	27	4 5
Last of all in the *Corona*		14	39	38	49	11	21	5 6
15								
6th over the *Corona*		12	48	24	52	30	42	6
North. of those following the *Corona*		13	42	50	55	57	53	6
Preced. of the middle		17	4	43	53	52	41	6
South. of those following the *Corona*		19	51	15	49	28	4	6
Posterior of the middle ones		20	54	10	51	27	0	5
20								
Another following 'em all	♏	19	40	31	54	16	36	5

Corona *Clericalis*. See Crown; see also Coif.

CORONALE *Os*, in Anatomy, the Bone of the Forehead; called also *Os Frontis*, *Os Puppis*, and *Verecundum*. See *Os* Frontis.

CORONALIS, the first Suture of the *Cranium*, or Skull. See Suture.

The *Coronal* Suture reaches transversly from one Temple to the other; and joins the *Os Frontis* with the *Ossa Parietaria*.

It is open, the breadth of a Finger or two in the middle, in young Children, but grows closer with Age: tho sometimes, by Convulsion-Fits, or a bad Conformation, it not only closes in Children, but the Edges shoot over one another; which is what the Women call *Head-mould-shot*; after which they seldom live long.

CORONARIA *Vasa*, CORONARY *Vessels*, the Arteries and Veins which surround the Heart, to nourish and supply it with Blood, &c. See Coronary *Arteries*.

Coronary *Arteries*, are two Arteries springing out of the *Aorta*, ere it leaves the *Pericardium*; and serving to carry the Blood into the Substance of the Heart. See Heart.

At their rise out of the *Aorta*, there is a Valve to hinder the Reflux of the Blood; first discover'd by *B. Eustachio* a Native of *San Severino*. See Valve.

They are call'd *Coronary*, because of their spreading into Branches, and encompassing the Basis of the Heart, in manner of a *Crown*, or Garland. In their progress, they send out several Branches lengthwise of the Heart; and, as *Ruysch* observes, to the Auricles, and into the very Substance of the Heart: After incompassing the Basis, and meeting again, they inosculate with each other.

Coronary *Vein*, is a Vein diffus'd over the exterior Surface of the Heart: It is form'd from several Branches arising from all Parts of the *Viscus*, and terminates in the *Vena Cava*, whither it conveys the Remains of the Blood brought by the *Coronary* Arteries.

Stomachic Coronary, is a Vein inserted into the Trunk of the Splenic Vein; which by uniting with the *Mesenteric*, forms the *Vena Porta*.

CORONE, in Anatomy, a sharp pointed Eminence, or Process of a Bone. See Bone.

Of these there are several in the Body, distinguish'd, according to their Figures, by different Names; *e.g.* one of the *Os Petrosum*, called *Styloides*; as being slop'd like a Bodkin: Another call'd *Mastoides*, from its resembling a Nipple; another of the *Omoplata*, call'd *Coracoides*; as being in the Figure of a Crow's Bill: lastly, another of the *Os Sphenoides*, called *Pterigoides*, from its shape, which resembles the Wings of a Bat. See Styloides, Coracoides, &c.

CORONER, an Officer, whereof there are two in every County, whose Business is to inquire, by a Jury of twelve Neighbours, how, and by whom any Person came by a violent Death; and to enter the same upon record. This, being Matter Criminal, and a Plea of the Crown, 'tis hence they are called *Crowners*, or *Coroners*.

They are chosen by the Freeholders of the County, by Virtue of a Writ out of Chancery.

This Officer, by the Statute of *Westminster*, ought to be a Knight; and there is a Writ in the Register *Nisi sit Miles*, whereby it appears to be a sufficient Cause for removal of a *Coroner* chosen, if he were not a Knight, and had not 100 Shillings *per Ann.* Freehold. Mention is made of this Officer as early as the Time of King *Athelstan*, *Anno* 925.

The Lord Chief Justice of the King's-Bench is the Sovereign *Coroner* of the whole Realm, or wheresoever he abides.

There are also certain *Special Coroners* within divers Liberties, as well as the ordinary Officers in every County; and some Colleges and Corporations are impower'd by their Charters, to appoint their *Coroner* within their own Precincts.

CORPORA *Cavernosa*, in Anatomy, two spongious Bodies, called also *Corpora Nervosa*, and *Corpora Spongiosa*. See Cavernosa *Corpora*, &c.

Corpora *Olivaria*. See Olivaria *Corpora*.

Corpora *Pyramidalia*, are two Protuberances of the Under-part of the *Cerebellum*, about an Inch long; so called from their Resemblance to a Pyramid. See Pyramidalia.

Corpora *Striata*, two Protuberances of the *Crura* of the *Medulla Oblongata*. See Medulla *Oblongata*.

CORPORAL, an inferior Officer in a Company of Foot, who hath charge over one of the Divisions; places and relieves Centinels, and keeps good Order in the *Corps de Garde*; receiving, withal, the Word, of the inferior Rounds that pass by his *Corps de Garde*.

There are usually three *Corporals* in each Company. See Company.

The Word comes from the Italian *Corporale*, which signifies the same thing; and that from *Caput*, Head, Chief; the *Corporal* being the first of the Company.

Corporal *of a Ship*, is an Officer who hath the Charge of setting the Watch and Centries, and relieving them; and who sees that all the Soldiers and Sailors keep their Arms neat and clean: He also teaches them how to use their Arms, and hath a Mate under him.

Corporal *Oath*. See Oath.

Corporal, Corporale, is also an antient Church Term, signifying the Sacred Linen, spread under the Chalice in the Eucharist and Mass, to receive the Fragments of the Bread, if any chanced to fall.

Some say, it was Pope *Eusebius* who first enjoin'd the Use of the *Corporal*; others say S. *Silvester*. It was the Custom to carry *Corporals*, with some Solemnity, to Fires, and to raise 'em against the Flames, in order to extinguish 'em.

Philip de Comines says, the Pope made *Louis* XI. a Present of the *Corporale* wherein my Lord S. *Peter* sung Mass.

CORPORATION, a Body Politick, or *Incorporate*; so call'd, because the several Members thereof are form'd into one Body; and are qualify'd to take, purchase, grant, have a common Seal, sue and be sued, &c. in their joint Capacity.

A *Corporation* may be establish'd three ways, *viz.* by Prescription, by Letters Patent, and by Act of Parliament.

Corporations are either *Ecclesiastical*, or *Lay*.

Ecclesiastical are either *Regular*, as Abbies, Priories, Chapters, &c. or *Secular*, as Bishopricks, Deanaries, Archdeaconries, Parsonages, &c. Universities, Colleges, Hospitals. See ABBY, PRIORY, CHAPTER, &c. see also HOSPITAL, &c.

Lay, as those of Cities, Towns, Mayoralties, Bailliwicks, Companies or Communities of Commerce, &c. See COMPANY, &c.

Again, a *Corporation* is either *sole*, or an aggregate of *many*; which last is what the Civilians call a *College*. See COLLEGE; see also COMMUNITY.

CORPOREITY, a School Term. Substance is usually divided into *Corporeal* and *Spiritual*: Now *Corporeity* is the Quality of that which is *Corporeal*, or has Body; or that which constitutes or denominates it such. See SUBSTANCE, and BODY.

The *Corporeity* of God was the capital Error of the *Anthropomorphites*. Some Authors reproach *Tertullian* with admitting a *Corporeity* in the Deity; but 'tis manifest, by *Body* he means no more than *Substance*.

The *Mahometans* reproach the *Samaritans* at this Day, with a Belief of the *Corporeity* of God. Many of the Antients believ'd the *Corporeity* of Angels.

CORPORIFICATION, or *Corporation*, in Chymistry, the Operation of recovering Spirits into the same Body, or at least into a Body nearly the same, with that which they had before their Spiritualization. See SPIRIT.

CORPS *de Garde*, a Post in an Army, sometimes under Covert, sometimes in the open Air, to receive a Body of Soldiery, who are reliev'd from time to time, and who are to watch in their Turns, for the Security of a Quarter, a Camp, Station, &c.

The Word is also used for the Men who watch therein.

'Tis usual to have, beside the *great*, a *little Corps de Garde*, at a good distance before the Lines; to be the more readily advertis'd of the Approach of the Enemy.

CORPS, in Architecture, is a Term borrow'd from the *French*, signifying any Part that projects or advances beyond the Naked of a Wall; and which serves as a Ground for some Decoration. See PROJECTURE.

CORPS *de Bataille*, is the main Body of an Army, drawn up for Battle.

CORPULENCY. See OBESITY, and FATNESS.

CORPUS, and CORPORA, *Body*, *Bodies*, in Anatomy, Terms apply'd to several Parts in the Animal Structure; as the *Corpus Callosum*, *Corpora Striata*, and *Olivaria* of the Brain; the *Corpora Cavernosa* and *Nervosa* of the Penis; *Corpus Glandulosum*, *Corpus Reticulare*, &c. See CALLOSUM *Corpus*, OLIVARIA *Corpora*, &c.

CORPUS is also used in Matters of Learning, for several Works of the same Nature, collected, join'd, and bound together. Thus, *Gratian* made a Collection of the Canons of the Church, called *Corpus Canonum*. See CANON.

The *Corpus* of the Civil Law is compos'd of the Digest, Code, and Institutes. See CIVIL *Law*; see also CODE, and DIGEST.

We have also a *Corpus* of the *Greek* Poets; and another of the *Latin* Poets. See BODY.

CORPUS *Callosum*, is the Upper-part, or covering of the two lateral Ventricles of the Brain, appearing immediately under the Process of the *Dura Mater*, below the Depth of all the Circumvolutions; being form'd by the Union of the Medullary Fibres of each side. See BRAIN.

CORPUS *Glandulosum*. See PROSTRATÆ.

CORPUS *Reticulare*. See RETICULARE *Corpus*.

CORPUS *cum Causa*, in Law, a Writ issuing out of Chancery, to remove both the Body and Record touching the Cause of any Man lying in Execution upon a Judgment for Debt, into the King's-Bench, &c. there to lie till he has satisfy'd the Judgment.

CORPUSCLE, in Physicks, a Diminutive of *Corpus*, us'd to express the minute Parts, or Particles that constitute Natural Bodies. See PARTICLE, and BODY.

Corpuscles are the same with what the Antients call'd *Atoms*; and differ both from the Elementary and Hypostatical Parts of the Chymists, and the *Materia Subtilis* of the *Cartesians*. See ATOM, PRINCIPLE, SUBTLE, MATTER, &c.

Sir *Isaac Newton* shews a Method of determining the Sizes of the *Corpuscles* whereof the Particles that compose Natural Bodies consist, from their Colours. See COLOUR.

CORPUSCULAR or *Atomical Philosophy*, the Scheme or System of Physicks, wherein the Phænomena are accounted for, from the Motion, Rest, Position, Arrangment, &c. of the minute *Corpuscles*, or Atoms, whereof Bodies are compos'd.

The *Corpuscular Philosophy*, which now flourishes under the Title of the *Mechanical Philosophy*, is exceedingly antient. *Leucippus* and *Democritus* were the first who taught it in *Greece*; from them *Epicurus* receiv'd it and improv'd it, insomuch that it came at length to be denominated from him, and was call'd the *Epicurean Philosophy*. See EPICUREAN.

Leucippus, again, is said to have receiv'd it from *Mochus* a *Phenician* Physiologist and Physician, before the Time of the *Trojan* War, and the first who philosophiz'd about Atoms: Tho *Gale*, who borrows all Profane Philosophy from the Sacred Philosophy in the Books of *Moses*, is of Opinion he might take the Hint from the *Mosaic* History of the Formation of Man out of the Dust of the Earth.

Indeed, *Casaubon* takes Μῶχος, or Μωχος, to be the Name of a *Tyrian*, who among his own Countrymen was called משה *Moshe*, or according to the Method of writing which then obtain'd, *Moses*: whence 'tis conjectur'd that the *Moshe*, or *Moschus* of the *Tyrians*, was, in effect, the *Moses* of the *Hebrews*.

This appears to be the Sentiment of *Selden*, *Arcerius*, &c. But the Opinion of *Bochart* is the more probable, who from *Posidonius* and others, takes *Mochus* for an Inhabitant of *Sidon*, and his Philosophy to be nothing else but a Physiological or Natural History of the Creation.

After *Epicurus*, the *Corpuscular Philosophy* gave way to the *Peripatetic*, which became the popular System. See PERIPATETIC.

Thus, in lieu of Atoms, were introduc'd Specific and Substantial Forms, Qualities, Sympathies, &c. which amus'd the World till *Gassendus*, *Charleton*, *des Cartes*, *Boyle*, *Newton*, and others, retriev'd the old *Corpuscularian* Hypothesis; which is now become the Basis of the Mechanical, and Experimental Philosophy. See MECHANICAL, EXPERIMENTAL, and NEWTONIAN.

Mr. *Boyle* reduces the Principles of the *Corpuscular* Philosophy to the four following Heads:

1st, That there is but one Catholick, or Universal Matter, which is an extended, impenetrable, and divisible Substance, common to all Bodies, and capable of all Forms. See MATTER.

This Sir *I. Newton* finely improves on: 'All Things consider'd, *says that great Author*, it appears probable to me, 'that God, in the Beginning, created Matter in solid, hard, 'impenetrable, moveable Particles; of such Sizes and Figures, and with such other Properties, as most conduced to 'the End for which he form'd 'em: And that these primitive Particles, being Solids, are incomparably harder 'than any of the sensible porous Bodies compounded of 'em; even so hard as never to wear or break in pieces: 'no other Power being able to divide what God made one 'in the first Creation. While these *Corpuscles* remain entire, they may compose Bodies of one and the same Nature and Texture in all Ages: but should they wear away, 'or break in pieces, the Nature of things depending on 'em 'wou'd be chang'd: Water and Earth, compos'd of old 'worn Particles, and Fragments of Particles, wou'd not be 'of the same Nature and Texture now, with Water and 'Earth compos'd of entire Particles at the Beginning. And 'therefore, that Nature may be lasting, the Changes of *Corporeal* Things are to be plac'd only in the various Separations and new Associations of these permanent *Corpuscles*.' *Opticks*.

2d, That this Matter, in order to form the vast Variety of Natural Bodies, must have Motion, in some or all its assignable Parts; and that this Motion was given to Matter by God the Creator of all Things: and has all manner of Directions and Tendencies.

'These *Corpuscles*, *says Sir* I. Newton, have not only a '*Vis Inertiæ*, accompanied with such passive Laws of Motion as naturally result from that Force; but also are 'moved by certain active Principles; such as that of Gravity, and that which causes Fermentation, and the Cohesion 'of Bodies.' See GRAVITY, FERMENTATION, &c.

3d, That Matter must also be actually divided into Parts, and each of these primitive Particles, Fragments, or Atoms of Matter, must have its proper Magnitude, Figure, and Shape.

4th, That these differently siz'd and shap'd Particles, have different Orders, Positions, Situations, and Postures; from whence all the Variety of Compound Bodies arises.

CORRECTION, in Printing, the Retrenching of the Faults in a Work; or the Reading which the Master, or in his Place the Corrector, give the first Proofs, to point out and correct the Faults, to be adjusted, in the Forms, by the Compositor. See PRINTING.

The

The *Corrections* are plac'd on the Margin of each Page, right against the Line where the Faults are found. There are different Characters us'd to express different *Corrections*, *v. g.* *D* or *ϑ dele*, for any thing to be effaced, or left out. When any thing is to be inserted, the Place is mark'd in the Line with a Caret ∧ and the Insertion added in the Margin. When a Word, Syllable, *&c.* is to be alter'd, 'tis eras'd out of the Proof, and that to come in its room written in the Margin; always observing, if there be several in the same Line, that they be separated by little Bars or Strokes, |. If a Space be omitted, its Place is mark'd with a Caret, and the Thing express'd on the Margin with #. If a Letter be inverted, 'tis express'd on the Margin with ϑ. If any thing be transpos'd, 'tis mark'd thus; *The shortest are the Follies best*; for, *The shortest Follies are the best*: and in the Margin is added *tr* in a Circle. If *Roman* Characters are to be chang'd for *Italic*, or *vice versa*, a Line is drawn under them thus, and *Rom.* or *Ital.* added in the Margin. See Composition.

Correction, in Rhetorick, a Figure, whereby a Person in a Passion fearing he has not express'd a thing fully, or strongly enough, calls it back again, as it were, by a stronger Phrase, and *corrects* the Error. See Figure.

Thus *Cicero pro Cælio*; *O stultitia! stultitiam ne dicam an impudentiam singularem. O Folly! Folly do I call it, or rather Impudence.* And in the first *Catilinarian*; *Quanquam, quid loquor: te, ut ulla res frangat; tu, ut unquam te corrigas; tu, ut ullam fugam mediteris.* Thus *Terence*, in the *Heautontimorumenos*: *Filium unicum adolescentulum habeo: Ab! quid dixi, habere me; imo, habui Chreme; nunc habeam necne incertum est.*

Correction, in Pharmacy, the Preparation of a Medicine, in order to moderate and qualify the too great Violence of its Action; as when Glass of Antimony is calcin'd with a little Salt-petre; or, to prevent its giving the Gripes, when Salt of Tartar is dissolv'd in an Infusion of Senna. Hence,

CORRECTORS, in Medicine, such Ingredients in a Composition as guard against, or abate the Force of others.

Thus, the Lixivious Salts prevent the grievous Vellications of Resinous Purges, by dividing their Particles, and preventing their Adhesions to the intestinal Membranes, whereby they sometimes occasion intolerable Gripings: And thus Spices, and carminative Seeds also, assist in the easier Operation of some Cathartics, by dissipating Collections of Wind.

In the making a Medicine, likewise, such Things are called *Correctors*, as destroy or diminish a Quality in it that could not otherwise dispens'd with: Thus, Turpentine may be called the *Corrector* of Quicksilver, by destroying its Fluxility, and making it thereby capable of Mixture: and thus rectified Spirit of Wine breaks off the Points of some Acids, so as to make them become safe and good Remedies, which before were destructive.

CORRELATIVE, something oppos'd to another in any certain Relation. See Relative.

Thus, the Father and the Son are two *Correlatives*; *Pater & Filius sibi mutuo respondent.* Light and Darkness, Motion and Rest, are *correlative*, and opposite Terms.

CORRIDOR, in Fortification, a Road or Way along the Edge of the Ditch, withoutside; incompassing the whole Fortification. See Ditch.

It is also called the *Covert way*; because cover'd with a Glacis, or Esplanade, serving it as a Parapet. See Covert *Way*.

The *Corridor* is ordinarily about 20 Yards broad.

The Word comes from the Italian *Coridore*, or the Spanish *Corridor*.

Corridor is also used in Architecture for a Gallery, or long Isle, around a Building, leading to several Chambers at a distance from each other.

CORRIVAL, a Relative Term, signifying, originally, a Person who drew Water from the same Source or Spring with another; by means of some common Canal, which carried it to both their Lands; and which prov'd the Occasion of frequent Disputes.

Hence the Word came to be used for those who have the same Pretensions; whether to Glory, to Love, or the like: but use has abridg'd the Word; and we now both write and pronounce *Rival*.

CORROBORATIVE, in Medicine, any thing that increases the Strength, or gives a new Force. See Strengthner.

The Word is likewise frequently apply'd to such Medicines as are of use in particular Weaknesses; as the *Fluor Albus*, Gonorrhæas, *&c.* Such are Terebinths, *&c.*

All Cardiacs are *Corroborative*. See Cardiac.

CORROSION, the Action of *corroding*, or gnawing away, by little and little, the Continuity of the Parts of Bodies.

Thus, Acids *corrode* most Natural Bodies; and Arsenic only kills, because it *corrodes* the Bowels with its sharp, pointed Particles. See Arsenic, Poison, *&c.*

Corrosion is used both in Chymistry, Medicine, and Natural Philosophy; where it stands for a particular Species of Dissolution, either by an Acid, or a saline Menstruum. See Dissolution.

What *Corrosion* has peculiar to it, is, that 'tis mostly design'd for the Resolution of Bodies the most strongly compacted, as Bones and Metals; so that the Menstruums imploy'd require an uncommon Moment, or Force.

Now the *Corrosive* Liquors, whether acid or urious, are nothing but Salts dissolv'd in a little Phlegm: Therefore, these being solid, and consequently containing a considerable quantity of Matter, do both attract one another the more, and are also more attracted by the Particles of the Body, which is to be dissolv'd. And as their Attractions at equal Distances are proportional to their Bulks, *cæteris paribus*; so when the more solid Bodies are put into saline Menstruums, the Attraction is stronger than other Solutions; and the Motion, which is always proportional to the Attraction, more violent. See Attraction.

Hence we easily conceive how they should drive those Salts, like so many Darts, into the Pores of the Bodies, and open and loosen the Cohesion of them, tho ever so firm. See Acid.

Again, we know, the more minute the Particles of the Menstruum are, the sooner they penetrate, and with the greater Force: The Motion produc'd by Attraction, being always greatest in the least Corpuscles, next to nothing in the large ones.

Add to this another advantage gain'd by this minuteness of the Particles, *viz.* that they approach nearer the Body to be dissolv'd; without which, the attractive Force wou'd be insensible. Hence, those very Salts, which dissolv'd in Water will hardly touch Metals, if once turn'd into acid Spirits, easily penetrate: For in Distillation, not only a greater Quantity of Water remains, but the saline Bodies are so minutely broken, and divided by the Fire, as to make them more readily capable of being mov'd by an attractive Force; and therefore such a distill'd Menstruum is much more efficacious than any Solution of Salt made with Water. See Menstruum.

CORRUGATOR *Supercilii*, or CORRUGENT *Muscle*, a Muscle arising from the great Canthus of the Orbit of the Eye, and terminating in the Skin about the middle of the Eyebrows. See Eyebrows.

Some reckon this Muscle only a Prolongation of the *Frontales*. Its Name declares its Use; being form'd of *Con* and *Rugo*, to wrinkle up, and knit the Brows.

CORRUGENT *Muscle*, the same as *Corrugator Supercilii*. See Corrugator.

CORRUPTICOLÆ, a Sect of antient Hereticks, who arose out of the *Eutycheans* in *Egypt*, about the Year 531, under their Chief, *Severus*, the pretended Patriarch of *Alexandria*.

Their distinguishing Doctrine, whence they deriv'd their Name, was, that the Body of Jesus Christ was *corruptible*; that the Father had own'd it; and that to deny it was to deny the Truth of our Saviour's Passion.

On the other hand, *Julian* of *Halicarnasseus*, another *Eutychean*, a Refugee as well as *Severus*, in *Alexandria*, maintain'd that the Body of Jesus Christ had been always Incorruptible; that to say it was Corruptible, was to make a Distinction between Jesus Christ and the Word, and by consequence to make two Natures in Jesus Christ.

The People of *Alexandria* were divided between the two Opinions; and the Partisans of *Severus* were called *Corrupticolæ*, q. d. Worshipers of something *Corruptible*: Sometimes they were denominated *Corruptibiles*; and the Adherents of *Julian Incorruptibiles*, or *Phantasiastes*.

The Clergy and Secular Powers favour'd the first; the Monks and the People the latter.

CORRUPTION, the Extinction of any thing; or the Action whereby it ceases to be what it was.

Thus, Wood is said to be *corrupted*, when we don't see it remain Wood any longer, but find Fire in its stead. And thus the Egg is *corrupted*, when it ceases to be an Egg, and we find a Chicken in its room.

Hence that Axiom in Philosophy, *The Corruption of one thing is the Generation of another.*

Corruption, in effect, differs from Generation, as two Contraries differ from each other. See Generation.

It differs from *Alteration* as the Less from a Greater, or a Part from the Whole; a Thing being said to be *alter'd*, when it is not so far chang'd but it may be known, and still keeps its old Name; both which it loses by *Corruption*. See Alteration.

But, as in Generation, nothing of Matter is produced that did not before exist; so in *Corruption*, nothing more is lost, than that particular Modification which was its Form, and made it to be of such a Species. See Form.

Dr. *Drake* accounts for *Corruption* in Animal and Vegetable Bodies, thus; 'The Principle of *Corruption* is, perhaps, the same which in a State of Circulation is the Principle of Life; *viz.* the Air, which is found mix'd in considerable Quantities with all sorts of Fluids; as necessary to Vegetable, as to Animal Life. Now this Air has two Motions, *viz.* an expansive one, from its natural Elasticity, by means whereof it communicates that intestine Motion which all Juices have, and by which the containing Parts are gradually extended and grow; and a circulatory or progressive Motion, which is not essential to it, but is occasion'd by that Resistence of the solid Parts of those Bodies, which obliges it to take that Course which is most free and open, which is thro' the Vessels of Animals and Plants.

'Now, this Course being stop'd, the expansive Motion still remains, and continues to act, till by degrees it has so far overcome the including Bodies, as to bring it self to an equal degree of Expansion with the external Air; which it cannot do without destroying the Texture and Continuity, or specifick degree of Cohesion of those Solids; which is what we call a *State of Corruption*.

'This expansive or destructive Quality of the Air in Bodies, may be promoted two ways; and therefore *Corruption* accelerated in as many, *viz.* either by weakning the Tone or Cohesion of the including Parts, and so facilitating the Work of the Air; as is the Case when Fruit is bruis'd, which is found to *corrupt* much sooner there than in any other Part: or by intending the expansive Force of the Air it self, by Heat, or some other co-operating Circumstance; and so helping it to overcome the Resistance the sooner.' See AIR.

CORRUPTION *of Blood*, in Law, an Infection accruing to a Man's State, attainted of Felony or Treason, and to his Issue. See TREASON, ATTAINTED, *&c.*

For, as he loses all to the Prince, or other Lord of the Fee, so his Issue cannot be Heirs to him, or to any other Ancestor by him: and if he were Noble, or a Gentleman, he and his Heirs are thereby ignobled and ungenteel'd.

The King's Pardon cleanses the *Corruption of Blood* in those Children born after the Pardon, not of those born before it; these latter continuing still incapable of inheriting the Land of their Father, purchas'd before the Time of the Pardon.

But note, there are several Offences now made Treason by Act of Parliament which don't *corrupt* the Blood, nor shall the Criminal forfeit any thing thereby beside what he has for Life.

CORSAIR, a Pirate, or Person who scours the Seas, especially the *Mediterranean*, with a Vessel arm'd for War, without Commission from any Prince or Power; to plunder Merchant Vessels. See PIRATE.

The *Corsair* is distinguish'd from a Privateer in this, that the latter does it under a Commission, and only attacks the Vessels of those at War with the State whence his Commission is deriv'd. See PRIVATEER.

The Punishment of a *Corsair* is to be hang'd, without Remission; whereas Privateers are to be treated as Prisoners of War. All *Corsair* Vessels are good Prizes. See PRIZE.

The Word comes from the Italian *Corsaro*, of *Corsis*, or *à Cursibus*, or *à Caursinis*, or *à Corycæis*. *Menage*, &c.

CORSELET, a little *Cuirasse*, according to some, and according to others, a Coat, or Cover for the whole Trunk, antiently wore by the Pikemen, commonly plac'd in the Front and Flanks of the Battle, for the better Resistance of the Enemy's Assaults, and the surer Guard of the Gunners plac'd behind or within them. See CUIRASSE.

Vaugelas observes, that the Seamen were antiently arm'd with *Corselets*.

CORSEPRESENT, in our antient Authors, denotes a *Mortuary*. See MORTUARY.

The Word is form'd of the *French*, *Corps presente*; and the Reason of the Denomination is probably this: that where a Mortuary after any Man's Death became due, the best or second best Beast was offer'd or *presented* to the Priest, and carried along with the *Corpse*.

CORSNED *Bread*, a superstitious manner of Trial, used among our *Saxon* Ancestors, by a piece of Barley-Bread, first execrated by the Priest, then offer'd the suspected Criminal to be swallow'd, by way of Purgation; from an Opinion that a guilty Person could not swallow a piece of Bread so accurs'd, or if he did, it would choke him.

The Ceremony was accompanied with a Prayer, beseeching God, 'That the Criminal's Jaws might be shut, his Throat so narrow that he might not swallow, and that he might cast it out of his Mouth.'

CORTES, a Term purely *Spanish*, properly signifying the *Court*, *i.e.* the States, or Assembly of the States in *Madrid*.

The Word is used in speaking of the Affairs of *Spain*.

CORTEX, a *Latin* Name, denoting the Bark, or outer Cover of a Plant, or the like. See BARK.

CORTEX *Peruvianus*, call'd also *Quinquina*, *Kinkinna*, *Quinaquina*, *Pulvis Patrum*, and popularly the *Jesuit's Bark*; is the Bark of a Tree growing in the *West-Indies*, called by the *Spaniards Palo de Cassenturas*, q. d. *Fever-Wood*; by reason of its extraordinary Virtue in removing all Kinds of intermitting Fevers and Agues. See FEVER.

The *Indians* commonly call it the *Fuddling Tree*, from the Property it has of intoxicating Fishes, when either its Wood or Bark is beaten, and steep'd in the Water where they are.

The Tree that yields this noble Specific, is only found in *Peru*; in the Province of *San Francesco de Quitto*, or *Quinto*, near the City of *Loxe*: tho some say 'tis also found in that of *Potosi*; and F. *Labat*, in the Island of *Guadeloupa*.

The Bark, while on the Tree, is streak'd, of a whitish yellow withoutside, and a pale tan-colour within.

'Tis about 70 Years since this noble Febrifuge was first known in *England*. It was first introduc'd into use by the Cardinal *de Lugo*; whence, in *France*, it was first called from the Name of that Cardinal. Afterwards it became known by the Name of the *Jesuit's Pouder*, and the *Jesuit's Bark*; because sold by the Jesuits, to whom that Cardinal, who had been of their Society, left great Quantities of it.

When first introduc'd, it is said to have been sold for about eight Shillings Sterl. the Dose; which great Price, with the little Effects found from it, by reason of their Ignorance of the manner of preparing and prescribing it, occasion'd its being disus'd, till about the Year 1706, that Dr. *Talbot*, an *English* Physician, brought it into vogue again, by the great Number of Cures wrought about the Court and City of *Paris*, with this Pouder, prepar'd after his manner; the Secret whereof was soon after made publick by the Munificence of *Louis* XIV. who rewarded *Talbot* for the Communication.

The *Quinquina* is sold either in Bark or in Pouder: those who buy it in the Bark must chuse it very dry and compact; such as has never been moisten'd, and which is not too easily reduc'd into Pouder by breaking. The small, fine, blackish Barks, chagrin'd without and reddish within, of a bitter disagreeable Taste, are the most esteem'd. For the Pouder, it must be well sifted, and care be taken it be bought of Persons that may be trusted; it being very easy to sophisticate it, and difficult to find it out.

The *Cortex* is a Bitter, Absorbent, and Astringent or Styptic: From its bitterness, M. *Reneaume* observes, it becomes fit to soften sour acrimonious Juices; for a sour and a bitter make a sweet. Again, as an Absorbent it blunts the Points of Acids, and prevents their Action; and of consequence keeps up the Fluidity of the Juices, which Acids would coagulate. As a Styptic, it must have earthy Parts to absorb Serosities, by which the Parts before moisten'd and relax'd, will contract themselves: and by this means, the *Cortex* augments the Spring and Tension of the Fibres. As a Bitter it heats; and it facilitates Perspiration, by heating and augmenting the Fluidity of the Juices. On these Properties it is that its Medicinal Uses are ascertain'd.

But its chief use is in curing of Agues, and intermitting Fevers; it being us'd for these Purposes in all Ages, and most Constitutions. Dr. *Cockburn* says, it produces this Effect better than any other Medicine of the same Intention, in the Ratio of 365 to 1. It is usual to give a gentle Emetic of *Ipecacuanha* before the Exhibition of the *Cortex*: by thus preparing the Passages, the *Cortex* has not only more Success, but also is not subject to cause these Indispositions, *viz.* swelling in the Belly, Nausea's, *&c.* which often arise when neglected.

The *Cortex* must never be exhibited in the Paroxysm of an Ague, or intermitting Fever; but given in such a Quantity at times between the Paroxysms, as to prevent a Return of the Fit.

The *Cortex* exhibited in continual Fevers is dangerous; and care must be taken, that the Remission of a continual Fever be not mistaken for its Intermission: When there is a Remission, it usually happens indifferently at any time; whereas an Intermission happens at particular times.

The *Cortex* is given several ways, *viz.* in Pouder, in forms of Electuary, Bolus's, Infusions, Tinctures, *&c.* The *Arcana Taboriana* is about two Ounces of the *Cortex* in Pouder, digested in Sand-heat, with about a Quart of red Wine: After Digestion, the Wine must be pour'd off, and two or three Ounces given every three or four Hours between the Paroxysms, till the Intention is answer'd. If the Bark take downward, Venice Treacle, Diascordium, Conserve of Roses, Terra Japonica, Doses of Laudanum, *&c.* must be added to its Preparations. When there happens to be an Obstruction of the Menses from the Exhibition of the *Cortex*, or to prevent it, it is advisable to add to its Preparations the Black Hellebore, Æthiops Mineral, Cinnabar, *&c.* The *Cortex* is often us'd for young Children in Agues, by way of Clyster; and also applied to the Wrists, and Soles of

the Feet, wrought up into a ſtiff Maſs, with Turpentine, Venice Treacle, &c. which uſually anſwers the Purpoſe.

Dr. *Helvetius*, Phyſician to the King of *France* about 20 Years ago, wrote a Book entirely upon the Subject of curing Agues by giving the *Cortex* clyſterwiſe: In which he pretends, that this is more ſafe, and no leſs certain than the *Cortex* given internally. Dr. *Cockburn*, in his Treatiſe of *Sea Diſeaſes*, aſſerts the contrary; and proves that the *Cortex* given inwardly is as ſafe, and by much more certain and expeditious; and ſhews that we know how to remedy all the Inconveniencies the *Cortex* may occaſion.

Dr. *Sydenham*, and after him M. *Reneaume*, and others, have preſcrib'd it with Succeſs in Melancholic and Hyſteric Affections, commonly call'd *Vapours*.

Cortex *Winteranus*, or *Winteri*, the Bark of a Tree brought from the Streights of *Magellan*, by Captain *Winter*, in his Voyage with Sir *Francis Drake*: *Cluſius* calls the Tree, *Magellanica Aromatica Arbor*.

The Bark is Aromatic, and found of good uſe at Sea againſt the Scurvy: Half a Dram of it, boil'd with other carminative Seeds, ſweats, and relieves ſcorbutic Patients. It has alſo prov'd an Antidote againſt a poiſonous ſort of Seal, call'd a *Sea Lion*, frequent in thoſe Parts.

The Bark ſold in the Shops under the Name of *Cortex Winteranus*, or Wild Cinnamon, Dr. *Sloane* obſerves, is not the true *Cortex Winteranus*; they grow on different Trees, and in different Countries, and their Appearance is very different; yet are they ſo like in Taſte, that he thinks they may be uſed as Succedaneums to each other. See Costus *Indicus*.

Cortex *Caparis*. See Caper.

Cortex *Cerebri*, the *cortical* or cineritious Subſtance of the Brain. See Cortical, and Brain.

CORTICAL *Subſtance of the Brain*, in Anatomy, the exterior Part of the Brain and *Cerebellum*, or that Part immediately under the *Pia Mater*; ſo called, becauſe of its inveſting the inner or medullary Part, as a Bark does a Tree. See Brain.

The ſame is alſo call'd the *Cineritious Subſtance*, from its greyiſh or aſh-colour. See Cineritious.

Archangelo Pitthologmini, a *Ferrareſe*, firſt introduc'd this Diviſion of the Brain into *Cortical* or Cineritious, and Medullary or Fibrous Subſtance. See Medulla.

The *Cortical Subſtance* is more ſoft and moiſt than the Medullary; and follows or attends it thro' all its Prominences and Sinus's. It is form'd, from the minute Branches of the Carotid Arteries, interwove in the Meninges, and thence continued hither in infinitely fine Ramifications. See Menins.

Moſt Anatomiſts, after *Malpighi*, agree in its being glandulous, and that the medullary Parts are only a Continuation thereof; *Ruyſch* alone excepted: who, from his admirable Skill in Injections, and the Diſcoveries he has made thereby, maintains that it has nothing glandular in it. See Brain, Cerebellum, and Medulla *Oblongata*; ſee alſo Gland, Carotid, &c.

CORTIN, in Fortification, ſignifies the Wall, or Diſtance, between the Flanks of two Baſtions.

CORVET, or CURVET, in the Manage, an Air, in which the Horſe's Legs are rais'd higher than in the Demi-volt; being a kind of Leap up, and a little forwards, wherein the Horſe raiſeth both his fore-Legs at once, equally advanced, (when he is going ſtrait forward, and not in a Circle;) and as his fore-Legs are falling, he immediately raiſes his hind-Legs, equally advanc'd, and not one before the other; ſo that all his four Legs are in the Air at once; and as he ſets them down, he marks but twice with them. See Air.

Horſes that are very dull, or very fiery, are improper for *Curvets*; this being the moſt difficult Air they can make, and requiring a great deal of Judgment in the Rider, as well as Patience in the Horſe, to perform it.

CORUSCATION, *Glittering*, a Gleam of Light emitted from any thing.

The Term is chiefly uſed for a flaſh of Lightning nimbly darting down from the Clouds, in time of Thunder. See Thunder, and Lightning.

CORVUS, *Crow*, in Aſtronomy, a Conſtellation of the Southern Hemiſphere. See Constellation.

The Stars in the Conſtellation *Corvus*, in *Ptolemy*'s Catalogue are 7; in *Tycho*'s as many; in the *Britannic Catalogue* 10. The Order, Names, Longitudes, Latitudes, Magnitudes, &c. whereof, are as follow.

Stars in the Conſtellation Corvus.

Names and Situations of the Stars.	Signs.	Longitude ° ′ ″	Latitude. South. ° ′ ″	Magnit.
That in the Beak	♍	7 55 35	21 44 26	4
In the Neck nigh the Head		7 21 58	19 39 41	4
Small one following theſe		8 0 16	20 27 40	
In the preceding Wing		6 25 58	14 29 0	3
In the Breaſt		9 29 58	10 16 48	5
Informis over the Wings		5 54 35	10 21 48	6
		11 16 15	20 23 42	6
Preced. of two in the hind Wing		9 9 13	12 9 47	3
Subſeq.		9 32 0	11 39 31	5
In the Foot, common with *Hydra* 10		13 3 25	18 1 40	3

CORYBANTES, in Antiquity, Prieſts of *Cybele*, who danced and caper'd to the Sound of Flutes, and Drums.

Catullus, in his Poem call'd *Atys*, gives a beautiful Deſcription of 'em; repreſenting them as Madmen. Accordingly, *Maximus Tyrius* ſays, that thoſe poſſeſs'd with the Spirit of *Corybantes*, as ſoon as they heard the Sound of a Flute, were ſeiz'd with an Enthuſiaſm, and loſt the uſe of their Reaſon.

Hence, the *Greeks* uſe the Word κορυβαντιᾶν, *Corybantiſing*, to ſignify a Perſon's being tranſported, or poſſeſs'd with a Devil.

Some ſay, the *Corybantes* were all Eunuchs; and that 'tis on this account that *Catullus*, in his *Atys*, always uſes feminine Epithets and Relatives.

Diodorus Siculus remarks, that *Corybas* Son of *Jaſon* and *Cybele*, paſſing into *Phrygia* with his Uncle *Dardanus*, there inſtituted the Worſhip of the Mother of the Gods, and gave his own Name to the Prieſts. *Strabo* relates it as the Opinion of ſome, that the *Corybantes* are Children of *Jupiter* and *Calliope*, and the ſame with the *Cabires*. Others ſay, the Word had its Origin from this, that the *Corybantes* always walk'd dancing, (if the Expreſſion may be allow'd) *quod* κορυφοῦντες βαίνουσιν. *Voſſius*.

CORYMBIFEROUS *Plants*, are diſtinguiſh'd into ſuch as have a *radiate* Flower, as the *Flos Solis*, *Calendula*, &c. and ſuch as have a *naked* Flower, as the *Abrotanum Feminina*, *Eupatorium*, *Artemiſia*; to which are added the *Corymbiferous Affines*, or thoſe a-kin hereunto; ſuch as *Scabious*, *Dipſacus*, *Carduus*, and the like. See Plant, and Corymbus.

CORYMBUS, in the general, ſignifies the Top, or Summet of any thing; but among the antient Botaniſts was particularly uſed to expreſs the Bunches or Cluſters of Ivy, Berries, &c.

Some alſo call the Top of the Stalk of a Plant, when ſo ſubdivided and adorn'd with Flowers or Fruits, as to make a round ſpherical Figure, by this Name; as the Tops of Leeks, Onions, and the like: and others confound the Word with *Umbella*, which expreſſeth the flowry Tops of ſuch Plants as have their Branches and Flowers ſpread round, into the Form of what the Women now call an *Umberella*.

But among the modern Botaniſts, *Corymbus* is chiefly uſed for a compound diſcous Flower, whoſe Seeds are not Pappous, or do not fly away in Down: Such are the Flowers of Daiſies, common Marigold, &c. See Seed.

Mr. *Ray*, therefore, makes one Genus of Plants to be ſuch as have a compound diſcous Flower, but without any downy Wings to carry off their Seeds; as the *Corymbiferous*. See Corymbiferous.

CORYPHÆUS, in the antient Tragedy, was the Chief or Leader of the Company that compos'd the Chorus. See Chorus.

The *Coryphæus* ſpoke for all the reſt, whenever the Chorus took part in the Action, in quality of a Perſon of the Drama, during the Courſe of the Acts.

Hence, the Term has paſs'd into a general Name for the Chief or Principal of any Company, Corporation, Sect, Opinion, &c.

Thus, *Euſtachius* of *Antioch* is call'd the *Coryphæus* of the Council of *Nice*; and *Cicero* calls *Zeno* the *Coryphæus* of the *Stoicks*.

The Word in the original *Greek* ſignifies *Tip of the Head*.

CORYZA, in Medicine, a *running at the Noſe*; or a Defluxion of ſharp ſerous Humours from the Glands of the Head, ariſing upon a diminution of Perſpiration, or catching of Cold. See Cold.

Proper Evacuations, as Bleeding, Epiſpaſticks, Sternutatories, &c. are uſual in this Caſe.

COSCINOMANCY, or COSKINOMANCY, the Art of Divination by means of a Sieve or Riddle. See Divination.

The Sieve or Riddle being ſuſpended; after rehearſing a *Formula* of Words, 'tis taken between two Fingers only; and the Names of the Parties ſuſpected, repeated: He at whoſe Name the Riddle turns, trembles, or ſhakes, is reputed guilty of the Evil in queſtion.

This muſt be a very antient Practice: *Theocritus*, in his third *Idyllion*, mentions a Woman very ſkilful in it. It was ſometimes alſo practis'd by ſuſpending the Riddle by a Thread, or fixing it to the Points of a Pair of Shears, giving it room to turn, and naming, as before, the Parties ſuſpected: In which laſt manner, *Coſcinomancy* is ſtill practis'd in ſome Parts of *England*.

It appears from *Theocritus*, that it was not only used to find out Persons unknown; but also to discover the Secrets of those that were known.

The Word comes from the *Greek* κόσκινον, *Riddle*; and μαντεία, *Divination*.

CO-SECANT, in Geometry, the Secant of an Arch, which Arch is the Complement of another Arch to 90 Degrees. See SECANT, and COMPLEMENT.

CO-SINE, is the right Sine of an Arch, which is the Complement of another to 90 Degrees. See SINE, and COMPLEMENT.

COSMETIC, a Term in Physick, used for any Medicine, Preparation, or Means used to beautify and embellish the Face, and preserve or improve the Complexion; as Ceruss, and the whole Tribe of Fucus's, Washes, Cold Creams, Lip-Salves, &c.

The *Indians* use the Water of green Cacao-Nuts as a grand *Cosmetic*, which wonderfully improves the Complexion.

COSMICAL, a *Greek* Term, κοσμικὸς, of κόσμος, *World*; denoting something that refers, or has a relation to the World.

Thus, among Astrologers, *Cosmical Aspect*, is the Aspect of a Planet with respect to our Earth.

Cosmical Qualities are used by Mr. *Boyle* in the same Sense with *Systematical* ones. Tho, in considering the Qualities of Natural Bodies, we usually only take in the Powers any particular one has of acting on, or its Capacity of suffering from the Action of, another, wherewith it is observ'd to have some manifest Commerce, by a Communication of Impressions: yet there may be some Attributes belonging to a particular Body, and several Alterations to which it may be liable, not barely on account of those Qualities presum'd to be evidently inherent in it, nor of the Respects it bears to those other particular Bodies whereto it seems manifestly related; but on account of a System constituted as our World is, of such a Fabrick, that there may be many unheeded Agents, which by unperceiv'd means have great Operations on the Body we consider, and work such Changes in it, and enable it to work such Changes on other Bodies, as are rather to be ascrib'd to some unheeded Agents, than to those other Bodies with which the Body propos'd is observ'd to be concern'd. So that if many Bodies that might be nam'd, were plac'd together in some imaginary Space, beyond the Bounds of our System; tho they would retain many of the Qualities they are now endow'd with, yet they could not possess 'em all: but by being restor'd to their former Places in this World, they wou'd regain a Set of Faculties and Dispositions, depending on some unheeded Relations, and Impressions from the determinate Fabrick of the grand System, or World, whereof they are Parts. And these are what Mr. *Boyle* calls *Cosmical* or *Systematical Qualities*.

To account for these *Cosmical Qualities*, the same Author proposes some *Cosmical Suspicions*, as to some unobserv'd Laws and Orders of Nature; and refers 'em principally to the Action of certain Effluvia hitherto unobserv'd. See EFFLUVIA.

COSMICAL is also used in Astronomy, to express one of the Poetical Risings of a Star.

Thus, a Star is said to rise *Cosmically*, when it rises together with the Sun; or with that degree of the Ecliptic wherein the Sun then abides. See RISING.

So, the *Cosmical Setting* is, when a Star sets and goes down in the West, at the same time the Sun rises in the East. See SETTING.

But, according to *Kepler*, to *rise* or *set Cosmically*, is only to ascend above, or descend below the Horizon.

COSMOGRAPHY, the Description of the World; or, the Art which teaches the Construction, Figure, and the Disposition and Relation of all its Parts; with the Manner of representing them on a Plane.

Cosmography consists of two Parts; Astronomy, which shews the Structure of the Heavens and the Disposition of the Stars. See ASTRONOMY.

And Geography, which shews those of the Earth. See GEOGRAPHY.

The Word comes from the *Greek* κόσμος, *Mundus*, World, and γράφω, *scribo*, I describe.

COSMOLABE, an antient Mathematical Instrument, serving to measure Distances, both in the Heavens and on the Earth. See DISTANCE.

The *Cosmolabe* is in great measure the same with the *Astrolabe*. See ASTROLABE.

It is also called *Pantocosm*, or *Universal Instrument*, by *L. Morgard*, in a Treatise expressly thereon, printed in 1612.

COSMOPOLITAN, or COSMOPOLITE, a Term sometimes used to signify a Person who has no fix'd living, or Place of abode; or a Man who is a Stranger no-where.

The Word comes from the *Greek* κόσμος, *Mundus*, and πόλις, *City*.

One of the antient Philosophers being interrogated what Countryman he was; answer'd he was a *Cosmopolitan*, i. e. an Inhabitant or Citizen of the World.

COSTAL, in Anatomy. There are eight *Vertebræ* distinguish'd by the Name of *Costales*, or *Pleurites*; because serving to articulate the Ribs, which are lin'd with the *Pleura*. See VERTEBRA.

These *Vertebræ* are the eight which follow the second, call'd the *Axillary*; and are therefore the third, fourth, fifth, and to the tenth inclusive.

COSTÆ, in Anatomy. See RIBS.

COSTIVENESS, in Medicine, a preternatural Detention of the Excrements, with an unusual Hardness or Dryness thereof; and, thence, a difficulty of discharging 'em. See EXCREMENT.

This is the opposite to a Diarthæa, or Looseness. See DIARRHÆA.

In the *Philosophical Transactions*, we have an uncommon Instance of *Costiveness* by Mr. *Sherman*: the Patient, one *Thomas Philips*, for several Years, never went to Stool in less than 19 or 20 Weeks: He generally eat and drank as well as his Neighbours; and did all the while the Office of a labouring Man: yet was not any of the other Evacuations sensibly greater than in other People. He died of it at 23 Years old.

In *Costiveness* the usual Remedies are gentle Preparations of Senna, lenitive Electuaries, Cream of Tartar, laxative Clysters, &c.

COSTUS *Arabicus*, the Root of a Tree resembling Eldar, brought from *Arabia*; whence its Name.

Its chief use in Medicine, is to enter the Composition of Venice Treacle.

The best is heavy, of a cineritious Colour withoutside, a reddish within, difficult to break, of a strong Smell, and an aromatic Taste.

This Root was formerly call'd *Costus Verus*, and was divided into two Kinds, the *sweet* and the *bitter Costus*; both of which are now uncommon. M. *Charas*, and others, are of Opinion there is but one kind of *Costus*, which proves more or less sweet or bitter, according to the Soil where it is fed.

COSTUS *Indicus*, an *American* Root, called also *Costus Blavo*, *Costus Corticosus*, *Costus Corticus*, *White Cinnamon*, and *Winter's Bark*. The Islands of *Madagascar* in *Africa*, of *Domingo* and *Guadaloupa* in *America*, are the Places where the most and best is found. See CORTEX *Winteranus*.

COTAGE, or COTTAGE, a House without Land belonging to it, Stat. 4 *Edw.* I. By a later Statute, 31 *Eliz.* no Man may build a House without laying four Acres of Land to it: So that, properly, a *Cotage* now is a House without four Acres of Land to it.

CO-TANGENT, is the Tangent of an Arch, which is the Complement of another Arch to 90 Degrees. See TANGENT.

COTHURNUS, *Buskin*, a very high Shoe, or a kind of Patten, rais'd on Soals of Cork; wore by the antient Actors in Tragedy, to make 'em appear the taller, and the more like the Heroes they represented; most of whom were suppos'd to be Giants. See TRAGEDY.

It cover'd the greatest part of the Leg, and was tied beneath the Knee. *Sophocles* is said to have invented the *Cothurnus*. See BUSKIN.

COTICE, or COTISE, in Heraldry, is the fourth Part of the Bend, which, with us, is seldom if ever born but in Couples, with a Bend between them; and whence, probably, the Name: from the French *Coté*, Side; they being born, as it were on the Sides of the Bend.

COTTON, or COTON, a sort of Wool, or rather Flax, encompassing the Seed of a Tree of the same Name.

The Tree which produces this useful Merchandise, grows common in several Places of the *Levant*, and of the *East* and *West-Indies*, especially in the *Antilles*. Its Fruit is of an oval form, about the size of a Nut: As it ripens, it grows black withoutside; and by the heat of the Sun opens in several Places, discovering the *Cotton* thro' the Clefts, which is of an admirable Whiteness. In each Fruit are found several little Beans, which are the Seed of the Tree.

There is another kind of *Cotton* Tree, which creeps along the Ground, as the Vine wou'd do if unsupported; the *Cotton* whereof is the most esteem'd. And the late Relations from the South mention two other Kinds, the one in the *Terra firma* of *Brasil*, the other in the Isle of *S. Catherine*.

The Seed of the *Cotton* being mix'd, in the Fruit, together with the *Cotton* it self, they have invented little Machines, which being play'd by the Motion of a Wheel, the *Cotton* falls on one side, and the Seed on the other; and thus they are separated.

Cotton makes a very considerable Article of Commerce: it is distinguish'd into *Cotton in the Wool*, and *Spun-Cotton*. The first us'd for various Purposes, as to put between two Stuffs, in Quilts, Night-Gowns, &c. but 'tis the latter is more general; furnishing various Cloths, Muslins, Callicoes, Dimitties, and Hangings; besides that 'tis frequently join'd with Silk and Flax, in the Composition of other Stuffs.

The first kind is ordinarily brought from *Cyprus* and *Smyrna*: Near *Smyrna* its Produce is greater than any where else: they sow the Seed in *June*, and gather it in *October*; and the

the Soil is so favourable that they can have three Crops in a Year. There are ordinarily brought from *Smyrna* 10000 Bales of *Cotton per Annum*; and yet there is, at least, as much more spent in the Manufactures of the Country.

For the *Spun Cottons*, they are distinguish'd by various Names, the best are those from *Jerusalem*, call'd *Bazacs*; and those of *Damascus*, call'd *Cottons of the Ounce*: others are *Demi-Bazacs*, *Baladins*, *Payas*, *Cottons Joseph*, *Genegunso*, &c.

Cotton antiently only grew in *Egypt*, and was us'd by the Priests and Sacrificers for a very singular kind of Gowns, wore by them alone.

Cotton, applied to Wounds in lieu of Linen, produces an Inflammation: *Leewenhoeck*, examining into the Reason of this with a Microscope, found its Fibres to have each two flat Sides; whence he concludes, that each of its minute Parts must have two acute Angles, or Edges; which acute Edges being not only thinner and more subtile than the Globules whereof the fleshy Filaments consist, but also more firm and stiff than any of the globulous Flesh; it follows, that upon the Application of *Cotton* to a Wound, its Edges must not only hurt and wound the Globules of the Flesh, but also cut incessantly the new Matter brought to 'em to produce new Flesh; and that with the more ease, as this Matter, not having attain'd the Firmness and Consistence of Flesh, is the less able to resist its Attacks: Whereas the Linen ordinarily used in Wounds, being compos'd of little round Parts, very close to each other, form larger Masses, and are thus incapable of hurting the globous Parts of the Flesh.

Menage derives the Word from the Latin *Cotonea*, the fine Moss growing on Quinces, which resembles *Cotton*: But *Nicod* says, the *Arabs* call it *Cotum* and *Bombastum*; whence our *Cotton*, and *Bombazon*.

COTYLA, a liquid Measure, in use among the Antients. See MEASURE.

Some have computed the *Cotyla* to be equal to a *Roman* Semi-septary. *Savot* adds, that the Roman *Cotyla* contain'd twelve Ounces of any Liquor. Upon which Principle, there must have been as many *Cotylæ* as there were Liquors ordinarily sold; which is nothing strange, since, in several Countries, we still find Measures of different Capacity, call'd by the same Name, when they contain the same Weights, tho under different Bulks.

Fannius says, the *Cotyla* was the same thing with the *Hemina*, which was half a Sextary. See HEMINA.

At Cotylas, *quas, si placeat, dixisse licebit*
Heminas, recipit Geminas sextarius unus.

Chorier observes, that the *Cotyla* was us'd as a dry Measure as well as a liquid one; from the Authority of *Thucydides*, who in one place mentions two *Cotylæ* of Wine, and in another two *Cotylæ* of Bread. The Word comes from the *Greek* κοτυλη.

COTYLA, or COTYLE, or COTYLOIDES, in Anatomy, a Name given the Cavities at the Extremities of large Bones, encompass'd with thick strong Edges, which receive the Heads, or Apophyses of other Bones articulated with them. Such is the Cavity in the *Ischion*, or Hip-Bone, which receives the Head of the Bone of the Thigh.

It is also called *Acetabulum*, *i. e.* Cup. See ACETABULUM.

COTYLEDONES, in Anatomy, little Glands dispers'd throughout the outermost Membrane of the *Fœtus*, call'd *Chorion*, (see CHORION;) and suppos'd to separate a nutritious Juice for the Subsistence of the *Fœtus*. But *Cotyledones*, in this Sense of the Word, are only found in Sheep, Goats, and some other Animals; the *Placenta* in the Womb, supplying the Place thereof in Women. See PLACENTA.

Other Authors use *Cotyledones* for the Apertures of the Veins in the inner Surface of the Womb. See MATRIX.

In *Latin* they are call'd *Acetabula*, from their resemblance of a Cup.

COWARD, in Heraldry. When a Lion is born in any Escutcheon, with his Tail doubled or turn'd in between his Legs, they call it a *Lion Coward*.

COUCH, in Painting, is used for each Lay or Impression of Colour, whether in Oil or Water, wherewith the Painter covers his Canvas, Wall, Wainscot, or other Matter to be painted. See PAINTING.

Thus, we say, A Painting has had its last *Couch*, or Lay; a Ceiling has had two *Couches*. There is a great deal of Art in *couching* the Colours well, one after another.

The Word is also us'd for a Lay or Impression on any thing, to make it more firm and consistent, or to skreen it from the Weather.

Thus, Paintings are cover'd with a *Couch* of Varnish: A Canvas to be painted, must first have two *Couches* of Size ere the Colours be laid. Two or three *Couches* of white Lead, are laid on Wood ere the *Couch* of Gold be applied: The Leather-gilders lay a *Couch* of Water and Whites of Eggs on the Leather, ere they apply the Gold or Silver Leaf.

The Gold Wire-drawers use the Word *Couch* for the Gold or Silver Leaf wherewith they cover the Mass to be gilded or silver'd, before they draw it thro' the Iron that is to give it its proper thickness. See WIRE-DRAWING.

The Gilders use *Couch* for the Quantity of Gold or Silver Leaves applied on the Metals in gilding or silvering. Each *Couch* of Gold is but one Leaf, or two at most, and each of Silver three; to gild: If the Gilding be hach'd, there are requir'd from eight to twelve *Couches*, and only three or four if it be without hacking. To Silver there are requir'd from four to ten *Couches*, according to the Beauty of the Work. See GILDING.

COUCHANT, in Heraldry, is understood of a Lyon or other Beast, when lying down; but with his Head lifted up: which distinguishes the Posture of *Couchant* from *Dormant*, when he is suppos'd quite stretch'd out and asleep.

COUCHE, in Heraldry, denotes any thing laid all along: Thus, *Chevron Couchee*, is a Chevron lying sidewise with the two Ends on one side of the Shield, which should properly rest on the Base.

COUCHING *of Cataracts*. See CATARACT.

COVENANT, the Consent or Agreement of two or more Parties, to do or perform the same thing. See CONVENTION, and CONTRACT.

A *Covenant* seems to be much the same with a *Pactum*, or *Conventum* among the Civilians. See PACT.

Covenant is either *in Law*, or *in Fact*.

Covenant in Law, is that which the Law intends to be made, tho it be not express'd in Terms: As, if the Lessor demise, and grant a Tenement to the Lessee for a certain Term; the Law intends a *Covenant* on the Lessor's Part, that the Lessee shall, during the Term, quietly enjoy the Lease against all lawful Incumbrances.

Covenant in Fact, is that which is expressly agreed between the Parties.

There is also a *Covenant merely Personal*, and a *Covenant Real*. *Fitzherbert* defines a *Covenant Real* to be that whereby a Man ties himself to pass a thing real, as Lands or Tenements, or to levy a Fine on Lands, *&c.*

Covenant merely Personal, is where a Man *covenants* with another by Deed to build him a House, or to serve him, *&c.*

COVERING, in Architecture, one of the principal Parts of a Building. See ROOFING.

CO-VERSED *Sine*, a Term some People use for the remaining Part of the Diameter of a Circle, after the versed Sine is taken from it. See SINE.

COVERT, in Law. *Feme Covert* denotes a Woman to be married, and so *cover'd* by, or under the Protection of, her Husband. See COVERTURE.

COVERT *Way*, in Fortification, a space of Ground level with the Field, on the Edge of the Ditch, ranging quite round the Half-Moons, and other Works on the side of the Country.

It is otherwise call'd *Corridor*, and hath a Parapet rais'd on a Level, together with its *Banquets* and *Glacis*, which form the Height of the Parapet, and ought to follow the Parapet of the Place, till it is insensibly lost in the Field. See PARAPET.

One of the greatest Difficulties in a Siege, is to make a Lodgment on the *Covert-Way*; because, usually, the Besieged pallisade it along the Middle, and undermine it on all Sides. This is sometimes also called the *Counterscarp*, because it is on the Edge of the Scarp. See COUNTERSCARP.

COVERTURE, in Law, is particularly applied to the State and Condition of a married Woman; who, by the Laws of our Realm, is under *Covert-Baron*, or *sub potestate viri*; and therefore disabled to make Bargains with any, to the Prejudice of her self or her Husband, without his Consent and Privity; or at least without his Allowance and Confirmation: And if the Husband alien the Wife's Lands, during the Marriage, she cannot gainsay it during his Life. See FEME.

COUGH, in Medicine, *&c.* See TUSSIS.

COVINE, a deceitful Compact, or Agreement between two or more, to deceive or prejudice a third Person.

As, if a Tenant for Life conspire with another, that this other shall recover the Land which the Tenant holds in prejudice of him in Reversion.

Dr. *Skinner* takes the Word to be a Corruption of the Latin *Conventum*, and therefore writes it *Coven*. See CONSPIRACY.

COVING, in Building. When Houses are built projecting over the Ground-plot, and the turn'd Projecture arch'd with Timber, lath'd and plaster'd; the Work is call'd *Coving*. See ALCOVE.

COVING *Corniche*, is a Corniche with a great Casement, or Hollow therein. See CORNICH.

COUL, or COWL, a Habit wore by the *Bernardins*, and *Benedictins*.

There

There are two Kinds of *Couls*; the one white, very large, wore in Ceremony, and when they assist at the Office: The other black, wore on ordinary Occasions, in the Streets, &c.

F. *Mabillon* maintains the *Coul* to be the same thing with the *Scapulary*. The Author of the Apology of the Emperor *Henry* IV. distinguishes two Forms of *Couls*; the one a Gown reaching to the Feet, having Sleeves and a Capuchin, used in Ceremonies; the other a kind of Hood to work in, called also *Scapulary*; because it only covers the Head and Shoulders. See SCAPULARY.

The Word is form'd from the Latin *Cuculla*, by confounding the two first Syllables into one, as being the same twice repeated. See COWL.

COUNCIL, or COUNSEL, an Assembly, or Meeting of divers considerable Persons, or Officers, to consider and concert Measures touching the Administration of publick Affairs, or for the rendring of Justice.

The *King's Privy-Council*, is the *Primum Mobile* of the Civil Government of *England*; and that from which all the inferior Orbs derive their Motion. See PRIVY-*Council*.

In the *French* Polity *Councils* are very numerous: They have their *Council of State*, *Council of the Finances*, *Council of Dispatches*, *Council of Directions*, *Grand Council*, *Council of the Regency*, *Council of Conscience*, &c.

COUNCIL, in Church-History and Policy, is a *Synod*, or Assembly of Prelates, and Doctors, met for the regulating of Matters relating to the Doctrine or Discipline of the Church. See SYNOD.

A *Provincial Council*, is an Assembly of the Prelates of a Province, under the Metropolitan. See PROVINCE.

A *National Council*, is an Assembly of the Prelates of a Nation, under their Primate or Patriarch. See PRIMATE.

An *Oecumenical or General Council*, is an Assembly of all the Prelates of *Christendom*. See OECUMENICAL.

Indeed, to constitute a *General Council*, 'tis not requir'd that all the Prelates should be actually present; 'tis sufficient that the *Council* be regularly appointed, and that they may be there, or are call'd thereto.

General Councils are frequently call'd by Ecclesiastical Authors *Plenary Councils*.

The *Romanists* reckon 18 *General Councils*; whereof only the four first are admitted by the Reformed. The Number is made out thus: two of *Nice*, four of *Constantinople*, one of *Ephesus*, one of *Chalcedon*, five of the *Lateran*, two of *Lyons*, one of *Vienna*, one of *Florence*, and the last of *Trent*, which held from 1545 to 1563.

The *Council* of *Trent* ordains *Provincial Councils* to be held every three Years; yet the last held in *France* is that of *Bourdeaux*, 100 Years ago.

The Word comes from the Latin *Concilium*, which signifies no more than an Assembly; for we say, *Concilium Deorum*, *Concilium Patrum*, *Concilium Martyrum*, &c.

There have been various Collections of *Councils*, as that of Dr. *Merlin* at *Paris* in 1524; one of F. *Crabe*, a *Franciscan*, in 1536; another of *Surius* in 1567; another at *Venice*, in 1585; another at *Rome* in 1608; one of *Binius* Canon of *Cologne*, in 1606, in 10 Volumes: Another of the *Louvre* in 1644, in 37 Volumes: Another of F. *l'Abbe* and F. *Cossart*, Jesuits, in 1672, in 17 Volumes, more ample than the rest. Lastly, another is shortly expected from F. *Hardouin*, another Jesuit.

COUNCIL *of War*, is an Assembly of the principal Officers of an Army, or Fleet, occasionally call'd by the General or Admiral, to consider of the present State of Things, and concert Measures for their Conduct, with regard to Sieges, Retreats, Engagements, &c.

The same Term is sometimes also used for an Assembly of the Officers of a Regiment, or Ship; met to try Soldiers or Sailors accused of any Crime.

Common COUNCIL, is a Court or Assembly, wherein are made all By-Laws which bind the Citizens of *London*: It consists, like the Parliament, of two Houses; an *upper*, consisting of the Lord Mayor and Aldermen; and a *lower*, of a Number of *Common-Council*-Men, chose by the several Wards, as Representatives of the Body of the Citizens.

COUNT, *Comes*, a Nobleman who possesses a Domain erected into a *County*. See COUNTY.

English Counts we distinguish by the Title of *Earls*, (see EARL;) foreign ones still retain their proper Name.

The Dignity of a *Count*, is a Medium between that of a Duke and a Baron. See NOBILITY.

According to the modern use, most Plenipotentiaries and Embassadors assume the Title of *Counts*; tho they have no County; as the *Count d'Avaux*, &c.

Antiently, all Generals, Councellors, Judges, and Secretaries of the Cities under *Charlemaign* were call'd *Counts*; the distinguishing Character of a Duke and a *Count* being this, that the latter had but one Town under him, but the former several. See DUKE.

A *Count* has a Right to bear on his Arms a Coronet, adorn'd with three precious Stones, and surmounted with three large Pearls, or a row of Pearls, whereof those in the Middle and Extremities of the *Coronet*, advance above the rest. See CORONET.

Counts were originally Lords of the Court, or of the Emperor's Retinue, and had their Name *Comites*, *à Comitando*, or *à Commeando*: Hence; those who were always in the Palace, or at the Emperor's Side, were called *Counts Palatine*, or *Comites à latere*. See PALATINE.

In the Times of the Commonwealth, *Comites*, among the *Romans*, was a general Name for all those who accompany'd the Proconsuls and Propraetors into the Provinces, there to serve the Commonwealth; as the Tribunes, Praefecti, Scribes, &c.

Under the Emperors, *Comites* were the Officers of the Palace. The Origin of what we now call *Counts*, seems owing to *Augustus*, who took several Senators to be his *Comites*, as *Dion* observes, *i.e.* to accompany him in his Voyages and Travels, and to assist him in hearing of Causes; which were here judg'd with the same Authority as in full Senate. *Gallien* seems to have abolish'd this Council, by forbidding the Senators being found in the Armies; and none of his Successors re-establish'd it.

These Counsellors of the Emperor, were really *Counts*; *Comites*, *i.e.* Companions of the Prince; and they sometimes took the Title thereof, but always with the Addition of the Emperor's Name whom they accompany'd: So that it was rather a Mark of their Office, than a Title of Dignity.

Constantius was the first who converted it into a Dignity; and under him it was, that the Name was first given absolutely.

The Name once establish'd, was in a little time indifferently confer'd, not only on those who follow'd the Court, and accompany'd the Emperor, but also to most Kinds of Officers; a long List whereof is given us by *Du Cange*.

Eusebius tells us, that *Constantine* divided the *Counts* into three Classes; the first bore the Title of *Illustres*, the second that of *Clarissimi*, and afterwards *Spectabiles*; the third were called *Perfectissimi*. See PERFECTISSIMATE, &c.

Of the two first Classes was the Senate composed; those of the third had no Place in the Senate, but enjoy'd several other of the Privileges of Senators. See SENATOR.

There were *Counts* who serv'd on Land, others at Sea; some in a Civil, some a Religious, and some in a Legal Capacity; as, *Comes Ærarii*, *Comes Sacrarum Largitionum*, *Comes Sacri Consistorii*, *Comes Curiæ*, *Comes Capellæ*, *Comes Arebiatrorum*, *Comes Commerciorum*, *Comes Vestiarius*, *Comes Horreorum*, *Comes Opsoniorum aut Annonæ*, *Comes Domesticorum*, *Comes Equorum regiorum*, *aut Comes Stabuli*; *Comes Domorum*, *Comes Excubitorum*, *Comes Notariorum*, *Comes Legum*, *seu Professor in Jure*, *Comes Limitum*, *aut Marcarum*; *Comes Maritimæ*; *Comes Portus Romæ*; *Comes Patrimonii*.

The *Francs*, *Germans*, &c. passing into *Gaul* and *Germany*, did not abolish the Form of the *Roman* Government; and as the Governours of Cities and Provinces were called *Counts*, *Comites*, and *Dukes*, *Duces*, they continued to be call'd so. See DUKE.

These Governours commanded in time of War; and in time of Peace administer'd Justice. Thus, in the Time of *Chalemaign*, *Counts* were the ordinary Judges and Governours of the Cities, all under one.

These *Counts* of Cities were beneath the Dukes, and *Counts* who presided over Provinces; the first being constituted in the particular Cities under the Jurisdiction of the latter. The *Counts* of Provinces were in nothing inferior to Dukes, who themselves were only Governours of Provinces.

Under the last of the second Race of Kings, they got their Dignity render'd Hereditary; and even usurp'd the Sovereignty when *Hugh Capet* came to the Crown: His Authority was not sufficient to oppose their Encroachments; and hence it is they date the Privilege of wearing Coronets in their Arms: they assum'd it then, as enjoying the Rights of Sovereigns in their particular Districts, or *Counties*. But, by degrees, the *Counties* became reunited to the Crown.

The Quality of *Count* is now become very different from what it was antiently; being now no more than a Title, which a King grants upon erecting a Territory into a County, with the Reserve of Jurisdiction and Sovereignty to himself.

At first there was no Clause in the Patent of Erection, intimating the Reversion of the County to the Crown in default of Heirs Male; but *Charles* IX. to prevent their being too numerous, ordain'd that Duchies and Counties, in default of Heirs Male, should return to the Crown.

The Point of Precedence between *Counts* and Marquisses, has been formerly much controverted; the Reason was, that there are *Counts* who are Peers of *France*, but no Marquisses: But the Point is now given up, and Marquisses take place; tho antiently, when *Counts* were Governours of Provinces, they were on a Level even with Dukes. See PEER, and MARQUISS.

William the Conqueror, as is observ'd by *Camden*, gave the Dignity of *Counts* in Fee to his Nobles; annexing it to

this or that County, or Province, and allotting for their Maintenance a certain Proportion of Money, arising from the Prince's Profits in the Pleadings and Forfeitures of the Provinces. To this Purpose he quotes an antient Record; thus, *Hen.* II. *Rex Angliæ his verbis* Comitem *creavit*; *sciatis nos fecisse Hugonem Bigot* Comitem *de Norf. &c. de tertio Denario de Norwich & Northfolk sicut aliquis* Comes Angliæ, *&c.* See Earl.

The *Germans* call a *Count*, *Graff*; which, according to a Modern Critick, properly signifies *Judge*; and is deriv'd from *Gravio*, or *Graffio*, of γεραιω. They have several Kinds of these *Counts*, or *Graffs*; as *Landgraves*, *Marchgraves*, *Burgraves*, and *Palsgraves*, or *Counts Palatine*.

These last are of two Kinds; the one are of the Number of Princes, and have the Investiture of a Palatine; the others have only the Title of *Count Palatine*, without the Investiture of any Palatinate. See Palatinate.

Some assert, that by publickly professing the Imperial Laws for 20 Years, the Person acquires the Dignity of a *Count Palatine*; and there are Instances of Professors of Law, who have assum'd the Title accordingly; but there there are others who call the Right in doubt.

Count, in Law, the original Declaration in a Real Action; as the Declaration is in a Personal one: The *Libellus* of the Civilians comprehends both.

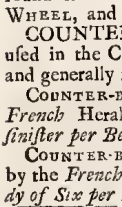
Yet, *Count* and Declaration are sometimes confounded; as, *Count in Debt*, *Count in Appeal*, &c. See Declaration.

Count-*Wheel*, in Clock-work, a Wheel which moves round in 12 Hours; call'd also the *Locking-Wheel*. See Wheel, and Clock.

COUNTER, of the *Latin* Preposition *contra*, against, is used in the Composition of divers Words in our Language; and generally implies the Relation of Opposition.

Counter-barry, or Contre-barre, is used by the *French* Heralds, for what we more ordinarily call *Bendy sinister per Bend counterchang'd*. See Barry.

Counter-bendy, or Contre-bend, in Heraldry, is used by the *French* to express what we more ordinarily call *Bendy of Six per Bend sinister counterchang'd*. See Bendy.



Counter-chang'd, in Heraldry, is when there is a mutual Changing of the Colours of the Field and Charge in an Escutcheon, by means of one or more Lines of Partition.

Thus, in the Coat of the famous *Chaucer*: He beareth, Party per Pale Argent and Gules, a bend *counterchang'd*; that is, that Part of the Bend, which is in that Side of the Escutcheon which is Argent, is Gules; and that Part of it which is on the other, is Argent.

Counter-chevron'd, denotes a Shield *Chevronny*, or parted by some Line of Partition. See Chevron.

Counter-componed, or Contre-compone, or Counter-compony, in Heraldry, is when a Bordure is compounded of two Ranks of Panes; as in the adjoining Figure. When it consists but of one Rank, it is call'd *Componed*; and when of more than two, *Checky*. See Checky, *&c.*

Counter-ermine. See Ermine.

Counter-paled, or Contre-palle, is when the Escutcheon is divided into twelve Pales parted per Fesse, the two Colours being *counter-chang'd*: so that the upper are of one Colour, or Metal, and the lower of another.

Counter-passant, is when two Lions are in a Coat of Arms, and one appears to be passing or walking quite the contrary way from the other. See Passant.

Counter-pointed, by the *French* call'd *Contre-pointe*, is when two Chevrons in one Escutcheon meet in the Points; the one rising, as usual, from the Base; and the other inverted, falling from the Chief: So that they are *counter*, or opposite to one another in the Points.

They may also be *counter-pointed* the other way; that is, when they are founded on the Sides of the Shield, and the Points meet that way; call'd *Counter-pointed in Fesse*.

Counter-potent, or *Potent Counter-potent*, by the *French* Heralds call'd *Contre-potence*, is reckon'd a Fur, as well as Vair and Ermine; but compos'd of such Pieces as represent the Tops of Crutches, call'd in French *Potences*, and in old *English*, *Potents*. See Fur.

Counter-quarter'd, by the *French* call'd *Contre-escartele*, denotes the Escutcheon, after being quarter'd, to have each quarter divided again into two: So that there are eight Quarters, or Divisions. See Quarter.

Counter-salient, is when two Beasts are borne in a Coat of Arms in a Posture of leaping from each other, directly the contrary way. See Saliant.

Counter-tripping, is when two Beasts are borne in a Coat of Arms tripping, *i. e.* in a walking Posture, and the Head of the one to the Tail of the other. See Tripping.

Counter-change, a mutual Exchange between two Parties. See Exchange.

Counter-breast-work, in Fortification, a *False-Braye*. See False Braye.

Counter-Bond, is a Bond given to save a Person harmless, who has given his Bond for another. See Bond.

This is also call'd *Counter-security*.

Counter-Charge, is a reciprocal Recrimination, or Charge, brought against an Accuser. See Charge.

Counter-Deed, a secret Writing, or a private Act, either before a Notary, or under a private Seal; which destroys, changes, annuls or alters some more solemn and publick Act.

Counter-Deeds, are rather tolerated than permitted: in many Cases they are actually prohibited; as being usually no better than Frauds.

The Custom of *Paris* aonuls all *Counter-Deeds*, contrary to the Tenour of a Marriage.

Counter-Plea, in Law, a Replication to a Prayer.

Thus, when a Tenant by Courtesy, in Dower, or other Real Action, prays the View or Aid of the King, or him in the Reversion, for his better defence; or if a Stranger to the Action begun, desire to be admitted, to say what he can for the Safeguard of his Estate: That which the Demandant alledges against this Request, why it should not be admitted, is call'd a *Counter-Plea*.

Counter-signing, the Signing an Order, or Patent of a Superior, in quality of Secretary; to render the Thing more authentick.

Charters, *&c.* are sign'd by the King, and *counter-sign'd* by a Secretary of State or Ld.Chancellor. See Signature.

Counter-charm, a Charm or Spell, contrived to hinder the Effect of another. See Charm, Spell, Ligature, *&c.*

Counter-foil, or Counter-stock, is that Part of a Tally struck in the Exchequer, which is kept by an Officer of the Court. See Tally, and Exchequer.

Counter-Fugue, in Musick, is when the Fugues proceed contrary to one another. See Fugue.

Counter-part, a Part of something opposite to another Part. See Part.

Thus, in Musick, the Bass and Treble are two *Counter-parts*, or opposite Parts.

Counter-point, in Musick, the Art of composing Harmony; or of disposing and concerting several Parts so together, as that they make an agreeable Whole. See Composition, and Harmony.

Counter-point is divided into *simple*, and *figurative*; agreeably to the Division of Harmony, into the Harmony of Concords, and that of Discords. See Concord.

Counter-point took its Name hence, when Musick in Parts was first introduc'd, their Harmony being so simple they us'd no Notes of different Time, and mark'd their Consonances by *Points* set *against* each other. Hence, in regard of the Equality of the Notes of Time, the Parts were made Concord in every Note.

This afterwards became denominated *simple* and *plain Counter-point*; to distinguish it from another Kind, wherein Notes of different Value were us'd, and Discords brought in betwixt the Parts, which they call *figurative Counter-point*.

Simple Counter-point, or the Harmony of Concords, consists of the imperfect, as well as the perfect Concords; and may therefore be denominated *perfect*, or *imperfect*, according as the Concords are, whereof it is compos'd: Thus, the Harmony arising from a Conjunction of any Note with its Fifth and Octave, is perfect; but with its Third and Sixth imperfect.

Now, to dispose the Concords or the Natural Notes and their Octaves in any Key in a simple *Counterpoint*, observe, with regard to the Distinction into perfect and imperfect Harmony, this general Rule, *viz.* to the Key *f*, to the 4th *f*, and to the 5th *f*, a perfect Harmony must be join'd; to the 2d *f*, the 3d *f*, and 7th, an imperfect Harmony is indispensible; to the 6th *f*, either an imperfect or perfect Harmony.

In the Composition of two Parts, observe, that tho a third appears only in the Treble on the Key *f*, the 4th *f*, and the 5th *f*; yet the perfect Harmony of the Fifth, is always suppos'd, and must be supplied in the Accompanyments of the thorow Bass to those fundamental Notes.

More particularly, in the Composition of two Parts, the Rules are, That the Key *f* may either have its Octave, its Third, or its Fifth; the fourth *f* and fifth *f* may have either their respective Thirds or Fifths, and the first may have its Sixth; as, to favour a contrary Motion, the last may have its Octave.

The sixth *f* may have either its 3d, its 5th, or its 6th.

The second *f*, third *f*, and seventh *f*, may have either their respective 3ds or 6ths; and the last, on many occasions, its false 5th. Which Rules hold the same both in flat and sharp Keys.

For the Rules of *Counter-point*, with regard to the Succession of Concords; it must be observ'd, That as much as can be in Parts, may proceed by a contrary Motion, *i. e.* the Bass may ascend when the Treble descends, and *vice versa*. The Parts moving either upwards or downwards the same way; two Octaves or two Fifths never to follow one another immediately. Two Sixths never to succeed each other

other immediately. Whenever the Octave or Fifth is to be made use of, the Parts must proceed by a contrary Motion, except the Treble move into such Octave or Fifth gradually. If in a Sharp Key, the Bass descend gradually from the 5th *f* to the 4th *f*, the last, in that Case, must never have its proper Harmony applied to it; but the Notes that were Harmony in the preceding 5th *f*, must be continu'd on the 4th *f*. Thirds and Fifths may follow one another as often as one has a mind.

Figurative Counter-point is of two Kinds: In the one, Discords are introduc'd occasionally; serving only as Transitions from Concord to Concord: In the other, the Discord bears a chief part in the Harmony. See Discord.

For the *first*; nothing but Concords are ever to be us'd on the accented Parts of the Measure: In the unaccented Parts, Discords may pass transiently, without any Offence to the Ear. This the *French* call *Supposition*; because the transient Discord always supposes a Concord immediately following it: Which is of infinite Service in Musick. See Supposition.

For the *second*, wherein the Discords are used as a solid and substantial Part of the Harmony; the Discords that have Place are the Fifth when join'd with the Sixth, to which it stands in the Relation of a Discord: the Fourth when join'd with the Fifth; the Ninth, which is in effect the Second; the Seventh, and the Second and Fourth.

These Discords are introduc'd into the Harmony with due Preparation; and are to be succeeded by Concords: which is commonly call'd the *Resolution of Discord*.

The Discord is prepar'd by first subsisting in the Harmony in quality of a Concord; *i.e.* the same Note which becomes the Discord is first a Concord to the Bass Note immediately preceding that to which it is a Discord. The Discord is resolv'd by being immediately succeeded by a Concord descending from it by the Distance only of Second *g*, or Second *l*.

As the Discord makes a substantial Part of the Harmony, so it must alwaya possess an accented Part of the Measure. Now to introduce the Discords into Harmony; it must be consider'd what Concords may serve for their Preparation and Resolution: The Fifth, then, may be prepar'd, either by being an Octave, Sixth, or Third. It may be resolv'd either into the Sixth, or Third. The Fourth may be prepar'd in all the Concords, and may be resolv'd into the Sixth, Third, or Octave. The Ninth may be prepar'd in all the Concords except the Octave; and may be resolv'd into the Sixth, Third, or Octave. The Seventh may be prepar'd in all the Concords; and resolv'd into the Third, Sixth, and Fifth. The Second and Fourth are used very differently from the rest; being prepar'd and resolv'd into the Bass. See Harmony, Concord, Discord, Key, Clef, Modulation, *&c.*

Counter-part, in Musick, denotes a Part to be opposite to some other; as the Bass is the *Counter-part* of the Treble. See Part.

Counter-Tenor, is one of the mean or middle Parts of Musick; so call'd, as if it were opposite to the Tenor. See Tenor.

Counter-part, in Law, is the Duplicate, or Copy of any Indenture, or Deed. See Duplicate.

Counter-Plot, a Plot, or Intrigue contrived to thwart and overthrow another. See Plot.

Counter-Roll, a *Counterpart*, or Copy of the Rolls relating to Appeals, Inquests, *&c.* See Roll.

Counter-Round, a Body of Officers going to visit, and inspect the Rounds, or the Sentinels. See Round.

Counter-swallow-tail, an Outwork, in form of a single Tenaille, wider at the Gorge than at the Head. See Swallow-Tail.

Counter-Tally, one of the two Tallies whereon any thing is scored. See Tally.

Counter-Light, or *Counter-jour*, a Window or Light opposite to any thing, which makes it appear to a disadvantage. A single *Counter-light* is sufficient to take away all the Beauty of a fine Painting.

Counter-Drawing, in Painting, *&c.* the copying a Design or Painting, by means of a fine linen Cloth, an oil'd Paper, or other transparent Matter; whereon the Strokes appearing thro', are follow'd and traced with a Pencil, with or without Colour. See Drawing.

Sometimes they *counterdraw* on Glass, and with Frames or Nets divided into Squares, with Silk or with Thread; and also by means of Instruments invented for the Purpose; as the Parallelogram. See Parallelogram.

Counter-Proof, in Rolling-Press Printing, a Print taken off from another fresh printed; which, by being pass'd thro' the Press, gives the Figure of the former, but inverted. See Printing.

To *Counter-prove*, is also to pass a Design in black Lead, or red Chalk thro' the Press, after having moisten'd with a Sponge, both that, and the Paper on which the *Counter-Proof* is to be taken.

Counter-*Approaches*, in Fortification, Lines or Works made by the Besieg'd, when their Trenches meet the Lines of Attack of the Besiegers. See Approaches.

Counter-*Battery*, a Battery on the Side opposite to that of the Enemy; especially that which aims to dismount the Enemy's Cannon. See Battery.

Counter-guard, in Fortification, a triangular Work, in form of a large Parapet, placed beyond the Ditch, before the Point and Faces of the Bastion.

It differs from the Demi-lune, in that it covers the whole Bastion. The Engineers ordinarily call it the *Enveloppe*. See Enveloppe.

'Tis chiefly us'd when the Bastion is on an Eminence; and 'tis by means hereof that Bastions may be doubled and tripled. *Counter-guards* are very fit for covering the weak Parts of a Place.

Counter-March, in War, a Change of the Face, or Wings of a Battalion; whereby the Men who were in the Front, come to be in the Rear.

This is an Expedient they have recourse to when the Enemy attacks their Rear; or when they change their March for a Direction opposite to that wherein they had begun.

The *Counter-March* is either made by Files, or Ranks; by Files, when the Men in the Front of the Battalion go into the Rear: by Ranks, when the Wings or Flanks of the Battalion change Ground with one another.

The Term is also used at Sea, for the like Change of a Squadron.

Counter-Mine, in War, a subterraneous Vault, running the whole length of a Wall, three Foot broad, and six deep, with several Holes and Apertures therein; contriv'd to prevent the Effects of Mines, in case the Enemy should make any to blow up the Wall. See Mine.

This Kind of *Counter-mine* is now little in use. The modern *Counter-mine* is a Well and a Gallery, sunk on purpose till it meet the Enemy's Mine, and prevent its Effect: it being first pretty well known whereabouts it is.

Counter-Mure, or Counter-*Wall*, a little Wall built close to another, to fortify and secure it, that it may not receive any Damages from Buildings made contiguous to it.

By the Custom of *Paris*, If a Stable be erected against a Partition-Wall, there must be a *Counter-Wall* added, eight Inches thick. M. *Bullet* observes, that the *Counter-Wall* ought never to be bound, or connected with the proper Wall.

Counter-scarp, in Fortification, the Slope, or Acclivity of the Ditch, looking towards the Campagne. See Scarp.

The Term sometimes also takes in the Covert-way, and the Glacis.

Counterscarps are sometimes made of Stone, and without any Slope.

To be lodg'd on the Counterscarp, is to be lodg'd on the Covert-way, or the Glacis. See Covert-*Way*.

Counter-Trench, in Fortification, a Trench made against the Besiegers, and which, of consequence, has its Parapet turn'd towards 'em. See Trench.

There are usually a great many Communications between this and the Place, to prevent the Enemy from making any use of it, in case they render themselves Masters thereof.

Counter-vallation, a *Counter*-Line, or Ditch, made around a Place besieg'd; to prevent the Sallies and Excursions of the Garrison, when it is strong.

Along its Edge, on the Side of the Place, runs a Parapet; and it is flank'd from Space to Space.

Counter-working, in the Military Art, the raising of Works, in order to oppose those of the Enemy. See Work.

Counter-oage, in Carpentry, a Method used to measure the Joints, by transferring, *v. g.* the breadth of a Mortoise to the Place in the Timber where the Tenon is to be, in order to make 'em fit each other.

Counter-Mark, a second or third Mark, put on any thing mark'd before.

The Word is us'd in Commerce, for the several Marks put on a Bale of Goods belonging to several Merchants; that it mayn't be open'd but in the Presence of 'em all, or their Agents.

In Goldsmiths Works, *&c.* the *Counter-Mark* is the Mark or Punchion of the Hall, or Company, to shew the Metal is Standard, added to that of the Artificer that made it.

Counter-Mark of a Horse, an Artificial Cavity, which the Jockeys make in the Teeth of Horses that have out-grown the Natural Mark; to disguise their Age, and make 'em appear as if they were not above six Years old. See Mark.

Counter-Mark of a Medal, is a Mark added to a Medal, a long time after its being struck. See Medal.

The *Counter-Marks* appear to be Faults or Flaws in Medals, disfiguring the Ground, sometimes on the Side of the Head, and sometimes on the Reverse; particularly in the large and middle-siz'd Brass: yet are they esteem'd as Beauties among the Curious, who set a particular Value on such Medals,

Medals, in regard they know the ſeveral Changes in Value they have undergone; which are expreſs'd by thoſe *Counter-Marks*.

Antiquaries, however, are not well agreed about the Signification of the Characters they find on 'em. On ſome, N.PROB. on others, N.CAPR. on others CAIR, RM, MT, AUG. SC. Some have for their *Counter-Mark* an Emperor's Head; ſome ſeveral; ſome a Cornucopia.

Care muſt be taken not to confound the Monograms with the *Countermarks*: The Method of diſtinguiſhing them is eaſy. The *Counter-Marks* being ſtruck after the Medal, are dented or ſunk in; whereas the Monograms being ſtruck at the ſame time with the Medals, have rather a little Relievo. See MONOGRAM.

COUNTER-POISON, an Antidote, or Remedy, which prevents the Effect of Poiſon. See ANTIDOTE, and POISON.

Of this Kind are Treacle, Mithridate, and Orvietan. See MITHRIDATE, &c.

Counter-poiſons are either *general*, or *ſpecific*: General *Counter-poiſons* are Angelica, Rice, Carduus Benedictus, the Vincetoxicum, Dittany, Scorzonera, Citrons, Bezoar, Hartſhorn, &c.

The Specificks are thoſe that follow; Citron-Bark, *v. g.* is a *Counter poiſon* to Nux Vomica; Venice-Treacle to the Bite of a Viper; Oil of Scorpion, to the Bite of Scorpions; Oil of Pine-Apples, to Orpiment; Gentian, to the Cicuta, &c.

Vander Linden, in his Treatiſe *de Venenis*, ſays, that in every putrid Indiſpoſition, whether ariſing from the Bite of venomous Beaſts, or from an Alcali form'd by Putrefactinn, Vinegar drank is ſovereign, either ſimple or diſtill'd; either with Honey in form of Oximel, or with Sea-Onion.

COUNTER-POISE, any thing ſerving to weigh againſt another; particularly a piece of Metal, ordinarily Braſs or Iron, making a Part of the *Statera Romana*, or Stilyard. See STATERA.

It is made to ſlide along the Beam; and from the Diviſion in which it keeps the Balance in Equilibrio, the Weight of the Body is determin'd. See BALANCE.

It is alſo call'd the *Pear*, on account of its Figure; and *Maſs*, by reaſon of its Weight.

Rope-Dancers uſe a Pole by way of *Counter-poiſe*, to keep their Bodies in Equilibrio.

COUNTERFORTS, *Buttreſſes*, *Spurs*, are Pillars of Maſonry, ſerving to prop or ſuſtain Walls or Terraſſes, ſubject to bulge, or be thrown down. See BUTTRESS.

Theſe Works are uſually bent into Arches, and placed at a diſtance from each other.

When any thing is built on the Deſcent of a Mountain, it muſt be ſtrengthen'd with *Counterforts* well bound to the Wall, and at the Diſtance of about twelve Yards from each other.

COUNTERMAND, a Revocation of an Order; or an Excuſe for ſetting aſide, or deferring a Conſignment.

A *Countermand* differs from an Eſſoign, firſt, in that in the *Countermand*, the Conſignment is propos'd to be defer'd to a Day certain, which is not in the Eſſoign. 2d, In the Eſſoign, the Cauſe of deferring the Conſignment is expreſs'd and affirm'd to be true, but in a *Countermand* that Affirmation is not requir'd. See ESSOIGN.

COUNTERMAND, is alſo where a thing formerly executed is afterward, by ſome Act or Ceremony, made void by the Party that firſt did it. As, if a Man make his Laſt Will, and deviſe his Land to *T. S.* and afterwards enfeoffs another of the ſame Land; this Feoffment is a *Countermand* of the Will, and the Will void as to the Diſpoſition of the Land.

COUNTING, or COMPTING-HOUSE, in the King's Houſhold, an Office wherein account is daily taken of the Expences, &c. of the Houſhold; Proviſions made for the ſame; as alſo Payments, and Orders for the well-governing of the Servants. See HOUSHOLD.

The principal Officer hereof, is the Lord Steward; under whom are the Treaſurer, Comptroller, Cofferer, Maſter of the Houſhold, Clerks of the Green-Cloth, and Clerks Controllers. See STEWARD, &c.

In the *Compting-Houſe*, is the Board of Green-Cloth, which is a Court of Juſtice. See GREEN-CLOTH.

COUNTY, originally ſignifies the Territory of a *Count*, or Earl. See COUNT.

But now it is uſed in the ſame Senſe with *Shire*; the one Word coming from the *French*, the other from the *Saxon*. See SHIRE.

In this View, a *County* is a Circuit, or Portion of the Realm, into 52 of which, the whole Land, *England* and *Wales*, is divided, for the better Government thereof, and more eaſy Adminiſtration of Juſtice therein.

Theſe *Counties* are ſubdivided into *Rapes*, *Lathes*, *Wapentakes*, *Hundreds*; and theſe again into *Tythings*. See RAPE, WAPENTAKE, HUNDRED, &c.

For the Execution of the Laws in the ſeveral Counties excepting *Cumberland*, *Weſtmorland*, and *Durham*, every *Michaelmas* Term, Officers are appointed, under the Denomination of *Sheriffs*. See SHERIFF.

This Officer has a double Function; firſt, *Miniſterial*, to execute all Proceſſes and Precepts of the Courts of Law directed to him: and ſecondly, *Judicial*; whereby he has Authority to hold two Courts, the one call'd the *Sheriff's-Turn*, the other the *County-Court*. See TURN, and COUNTY-Court.

Other Officers of the ſeveral *Counties*, are, *Lord Lieutenant*, who has the Command of the Militia of the *County*; *Cuſtodes Rotulorum*, *Juſtices of Peace*, *Bailiffs*, *High Conſtable*, and *Coroner*. See *Lord* LIEUTENANT, MILITIA, CUSTOS *Rotulorum*, JUSTICE *of the Peace*, *High* CONSTABLE, BAILIFF, CORONER, &c.

Of the 52 *Counties*, there are four of ſpecial Note, which are therefore term'd *Counties Palatine*; as, *Lancaſter*, *Cheſter*, *Durham*, and *Ely*: *Pembroke* alſo, and *Hexam* were antiently *Counties Palatine*; which laſt belong'd to the Archbiſhop of *York*, and was ſtripp'd of its Privilege in the Reign of Queen *Elizabeth*, and reduc'd to be a Part of the *County* of *Northumberland*. See PALATINE.

The Chief Governours of theſe *Counties Palatine*, heretofore, by a ſpecial Charter from the King, ſent out all Writs in their own Names; and, touching Juſtice, did all Things as abſolutely as the King himſelf in other *Counties*; only acknowledging him their Superior and Governour. But in *Henry* VIII's Time, the ſaid Power was much abridg'd.

COUNTY-*Corporate*, is a Title given to ſeveral Cities, or antient Boroughs, on which the *Engliſh* Monarchs have thought fit to beſtow extraordinary Privileges; annexing to them a particular Territory, Land, or Juriſdiction.

The Chief of theſe is the famous City of *London*; with *York*, *Canterbury*, *Briſtol*, *Cheſter*, *Norwich*; the Town of *Kingſton upon Hull*, *Newcaſtle upon Tine*, *Haverford-Weſt* in *Wales*, &c.

COUNTY-*Court*, is a Court of Juſtice held in each *County* by the Sheriff thereof, every Month. See SHERIFF.

This *County Court* had antiently the Cognizance of Matters of great Moment; but was much abridg'd by *Magna Charta*, and more 1 *Edw.* IV. but has ſtill the Determination of Debts and Treſpaſſes under forty Shillings.

In effect, till the Courts at *Weſtminſter* were erected, the *County-Courts* were the chief Courts of the Kingdom. See COURT.

Among the Laws of K. *Edgar* is this, *viz.* Let there be two *County-Courts* in a Year, and let there be preſent a Biſhop, and an Alderman or Earl; one whereof ſhall judge according to the Common Law, the other according to the Eccleſiaſtical Law. The Conjunction of theſe two Powers to aſſiſt each other, is as antient as the *Engliſh* Government it ſelf.

They were firſt ſeparated by *William* the Conqueror, who brought all the Eccleſiaſtical Buſineſs into a Conſiſtory, erected for that Purpoſe; (ſee CONSISTORY:) and the Law-Buſineſs into the King's-Bench. See KING'S-BENCH.

COUPED, *Coupe*, in Heraldry, expreſſes a Head, Limb, or other Thing in an Eſcutcheon which is borne as if cut, clear and even off, from the Trunk; in oppoſition to its being forcibly torn off, which they call *Eraſed*. See ERASED.

Thus, the Arms of *Ulſter*, which all Baronets carry, is a Dexter-Hand *couped*, or cut off at the Wriſt.

Couped is alſo uſed to denote ſuch Croſſes, Bars, Bends, Chevrons, &c. as do not touch the Sides of the Eſcutcheon, but are as it were cut off from 'em.

COUPEE, a Motion in Dancing, wherein one Leg is a little bent, and ſuſpended from the Ground; and with the other a Motion is made forwards.

The Word, in the original *French*, ſignifies a *Cut*.

COUPLE *Cloſe*, in Heraldry, the fourth Part of a Chevron. Theſe are never born but in Pairs, except a Chevron be between them, ſaith *Guillim*; tho *Bloom* gives an Inſtance to the contrary. See CHEVRON.

COUPLET, a Diviſion of an Hymn, an Ode, Song, &c. wherein, an equal Number, or an equal Meaſure of Verſes are found in each Part.

In Odes, theſe Diviſions are more ordinarily call'd *Strophes*. See STROPHE.

The Word is form'd from the Latin *Copula*.

By an Abuſe, *Couplet* is ſometimes uſed to ſignify a *Couple* of Verſes.

COURANT, a Term uſed to expreſs the preſent Time: Thus, the Year 1726 is the *Courant* Year; the 15th *Courant*, the 15th Day of the Month now running.

With regard to Commerce, the *Price Courant* of any Merchandize, is the known and ordinary Price accuſtom'd to be given for it.

The Word is alſo uſed for any thing that has Courſe, or is receiv'd in Commerce: In which Senſe, we ſay, *Courant* or *Current* Coin, &c. See CURRENT.

COURANT is alſo a Term in Muſick and Dancing; being uſed to expreſs both the Time or Air, and the Dance.

With regard to the firſt, *Courant* or *Currant* is a Piece of Muſick in triple Time: The Air of the *Courant* is ordinarily noted in Triples of Minims; the Parts to be repeated twice.

It

It begins and ends, when he who beats the Measure falls his Hand; in contradistinction from the Saraband, which ordinarily ends when the Hand is rais'd.

With regard to Dancing, the *Courant* is the most common of all the Dances practis'd in *England*: It consists, essentially, of a Time, a Step, a Balance, and a Coupee; tho it also admits of other Motions.

Formerly they leap'd their Steps; in which Point, the *Courant* differ'd from the low Dances and Pavades. There are *simple Courants*, and *figur'd Courants*, all danc'd by two Persons.

The Term is *French*, and properly signifies *running*. See CURRENT.

COURIER, or CURRIER, a Messenger sent Post, or Express, to carry Dispatches. See POST.

Antiquity, too, had its *Couriers*; we meet with three Kinds, *viz.* those who ran on foot, call'd by the *Greeks Hemerodromi*, q. d. *Couriers of a Day*. *Pliny*, *Corn. Nepos*, *Cæsar*, mention some of these, who would run 20, 30, 36, and, in the Circus, even 40 Leagues *per* Day. And *Riding Couriers*, who chang'd Horses, as the modern *Couriers* do.

Xenophon attributes the first *Couriers* to *Cyrus*. *Herodotus* says, they were very ordinary among the *Persians*, and that there was nothing in the World more swift than these kind of Messengers. 'That Prince, *says* Xenophon, exa 'min'd how far a Horse would go in a Day; built Equeries, 'or Stables, at such Distances from each other, where he 'lodg'd Horses, and Persons to take care of 'em; and at 'each Place kept a Person always ready to take the Packet, 'mount a fresh Horse, and forward it to the next Stage: 'and this quite thro' his Empire.

But it does not appear, that either the *Greeks* or *Romans* had any regular fix'd *Couriers*, till the Time of *Augustus*: Under that Prince they travell'd in Cars; tho it appears from *Socrates*, they afterwards went on Horseback.

Under the Western Empire, they were call'd *Viatores*; and under that of *Constantinople*, *Cursores*: whence the modern Name.

COURSE, in Navigation, the Point of the Compass, or Coast of the Horizon, on which a Ship steers. See POINT, and COMPASS.

When a Vessel begins its *Course*, the Wind wherewith it is given makes a certain Angle with the Meridian of the Place; and, as 'tis here supposed, the Vessel follows exactly the Direction of the Wind, it makes the same Angle with the Meridian which the Wind makes. See WIND.

The Wind is further supposed always the same; and because each Point or Instant of a *Course* may be regarded as the first; every Moment of the *Course* it makes the same Angle with the Wind.

Now a Wind that is North-East, *v. g.* here, (and by consequence makes an Angle of 45 Degrees with our Meridian) is North-East wherever it blows, and makes the same Angle of 45 Degrees with all the Meridians it meets.

The *Course* of a Vessel therefore, driven by the same Wind, makes the same Angle with all the Meridians on the Surface of the Globe.

If the Vessel run North and South, it makes an Angle infinitely small with the Meridian, *i. e.* is parallel to it, or never goes from it: If it run East and West, it cuts all the Meridians at right Angles. In the first Case it describes a great Circle; in the second, either a great Circle, which is the Equator, or a Parallel. But if the Course be between the two, it does not then describe a Circle; because a Circle drawn in such a manner, would cut all the Meridians at unequal Angles. It describes, therefore, a Spiral or Curve, the essential Condition whereof, is to cut all the Meridians under the same Angle; call'd the *Loxodromic Curve*, or *Loxodromy*, popularly Rhumb. See RHUMB.

The Ship's *Course*, therefore, except in the two first Cases, is always a Loxodromic Curve; and the Hypothenuse of a Rectangle-Triangle; the two other Sides whereof, are the Ship's Way in Latitude and Longitude.

The Latitude is usually had by Observation. See LATITUDE.

The Rhumb, or Angle of the *Course*, is had by the Compass, together with the one or other of the two Sides; and what remains to be calculated in Sailing, is the Quantity of the Longitude, and of the Rhumb, or *Course*. See SAILING; see also CHART.

COURSE *of a River*. See RIVER.

COURSE, in Architecture, a continued Range of Stones, level, or of the same height, throughout the whole length of the Building; without being interrupted by any Aperture. See BUILDING, WALL, MASONRY, &c.

A *Course of Plinths*, is the Continuity of a Plinth of Stone, or Plaister, in the Face of a Building; to mark the Separation of the Stones. See PLINTH.

COURSE, is also us'd for a Collection, or Body of Laws, Canons, or the like. The *Civil Course*, is the Collection of the *Roman* Laws, compiled by Order of *Justinian*. See CIVIL *Law*.

The *Canonical Course*, is the Collection of the Canon Law, made by *Gratian*. See CANON.

COURSE, again, is used for the Time ordinarily spent in learning the Principles of a Science, or the usual Points and Questions therein.

Thus, a Student is said to have *finish'd his Course* in the Humanities, in Philosophy, &c.

Hence, *Course* is also us'd for the Elements of an Art exhibited and explain'd, either in Writing, or by actual Experiment: Hence our *Courses* of Philosophy, Anatomy, Chymistry, Mathematicks, &c. probably so call'd, as going throughout, or running the whole Length or *Course* of the Art, &c.

COURT, an Appendage to a House, or Habitation; consisting of a piece of Ground inclos'd with Walls, but open upwards. See HOUSE.

That before the House is properly call'd the *Avant-Court*; that behind, the *Arriere-Court*: That where Country-Affairs, &c. are manag'd, *i. e.* where Cattel, &c. come, the *Base-Court*.

Nicod derives the Word from the Latin *Cohors*; *Menage* from *Cortis*. See COHORT.

COURT is also used for the *Palace*, or the Place where a King or Sovereign Prince resides; in which Sense, the Jesuit *Gratian* derives the Word from *Cortis*, or *Curtis*, of κόρτη, *Tent*; whence *Courtesy*, in the Sense of Civility. See PALACE.

In the Laws of the *Germans*, there is one Article, *de eo qui in* curte *Regis furtum commiserit*; and another, *de eo qui in* curte *ducis hominem occiderit*. Others derive it from the *Gaulish Cors*, form'd of *Cohors*, and *Cohors* from χορός.

COURT, *Curia*, in a Law Sense, is the Place where the Judges distribute Justice, or exercise their Jurisdiction; as also, the Assembly of Judges, Jury, &c. in that Place.

In this Sense, *Courts* are divided into *Sovereign*, or *Superior*, and *Subaltern*, or *Inferior*: And, again, into *Courts of Record*, and *Base Courts*.

Crompton describes 32 *Courts* in *England*, most of 'em *Courts of Record*. See RECORD.

Again, *Courts* are either such as are held in the *King's Name*; as all the ordinary *Courts*: or those held by his Authority, where the Precepts are issu'd in the *Judge's Name*, *Virtute Magistratus sui*; as the Admiral's *Court*.

In *England* we have four principal *Courts* subsisting; all establish'd by antient Custom of the Realm, rather than by any Statute; tho their Establishments have been from time to time since confirm'd by Acts of Parliament. These are, the *Courts of King's-Bench*, the *Common-Bench* or *Pleas*, the *Exchequer*, and the *Court of Chancery*. See each in its Place, *King's*-BENCH, COMMON-*Pleas*, EXCHEQUER, and CHANCERY.

COURT *of Admiralty*, is a Court for the Decision of Maritime Controversies. See ADMIRALTY *Court*.

COURT *of Arches*. See ARCHES *Court*.

COURTS-*Baron*, are *Courts* that all Lords of Manors, who were antiently call'd *Barons*, have within their respective Precincts. See BARON.

This *Court* is twofold; as, if a Man having a Manor in a Town, grants the Inheritance of the Copyholds thereto belonging to another; this Grantee may keep a *Court* for the Customary Tenants, and accept Surrenders to the Use of others, and make both Admittances and Grants.

The other *Court* is of Freeholders, which is properly call'd a *Court-Baron*, wherein the Free-holders are Judges: whereas of the other, the Lord or his Steward is Judge. See PEER, FREEHOLDER, STEWARD, &c.

COURT *of Chivalry*, or the *Marshal's Court*; a *Court* whereof the Judges are the Lord High Constable, and the Earl Marshal of *England*. See CONSTABLE, and MARSHAL.

This *Court* is the Fountain of Martial Law; and the Earl Marshal is not only one of the Judges, but also to see Execution done. See CHIVALRY, MARTIAL, &c.

COURT *of Delegates*, is a *Court* where Delegates or Commissioners are appointed by the King's Commission, upon an Appeal to him, to sit in the *Court* of Chancery, or elsewhere. It is granted in three Cases; first, when a Sentence is given in an Ecclesiastical Cause, by the Archbishop, or his Official: Secondly, when a Sentence is given in an Ecclesiastical Cause, in Places exempt: Thirdly, when Sentence is given in the Admiralty Court, in Suits Civil or Marine, by Order of the Civil Law. See DELEGATES.

COURT *of Peculiars*, is a Spiritual *Court*, held in such Parishes as are exempt from the Jurisdiction of the Bishops, and are peculiarly belonging to the Archbishop of *Canterbury*. See PECULIARS.

COURT *of Pye-pouders*. See PYE-POUDERS.

COURT *of Prerogatives*. See PREROGATIVE *Court*.

COURT *of Requests*, was a Court of Equity, of the same Nature with the *Court* of Chancery, but inferior to it; being principally instituted for the Help of such Petitioners, as in conscionable Cases, deal by Supplication to his Majesty.

Of this *Court* the Lord Privy-Seal was chief Judge; assisted by the Masters of Requests. It had its Beginning about

9 *Hen.* VII. according to Sir *Julius Cæsar*'s Tract on this Subject. *Mich.* 40 and 41 *Eliz.* in a *Court* of Common Pleas, it was adjudg'd, upon solemn Argument, that this *Court of Requests*, or the *White-Hall*, was no *Court* that had the Power of Judicature, *&c.* *Coke Inst.* fol. 97.

It had assum'd so great Power to it self, that it grew burdensome and grievous, and was therefore taken away, with some others, by a Statute made 16 and 17 *Car.* I. cap. 10.

Court *of the Legate*, was a *Court* obtain'd by Cardinal *Wolsey* of Pope *Leo* X. in the ninth Year of *Henry* VIII. wherein he, as Legate of the Pope, had power to prove Wills, and dispence with Offences against the Spiritual Laws, *&c.* It was but of short continuance. See Legate.

Court-*Leet*, a *Court* belonging to a Lord of a Manor, in which all Offences under High Treason are inquir'd into. See Leet.

Court-*Days*, are Days when the *Courts* of Judicature are open, and Pleas held. See Day, Fastus, Nefastus, *&c.*

Court-*Lands*, such as the Lord of the Manor keeps in his own Hands, for the Use of his Family, and for Hospitality. See Manor.

Court-*Roll*, a Roll which contains an account of the Number, *&c.* of Lands, depending on the Lord of the Manor; with the Names of the Tenants, *&c.* See Roll.

Tenants holding by Copy of this Roll, are denominated Copy-holders. See Copy-holder.

COURTESY, or CURTESY *of England*, a Tenure, whereby a Man marrying an Inheritrix, a Woman seiz'd of Lands of Fee-simple, or Fee-tail general; or seized as Heir of the Tail-special, and getteth a Child by her, who cometh alive into the World, tho both Wife and Child die forthwith; yet, if she were in Possession, he shall keep the Land during his Life, and be called Tenant, by the *Courtesy* of *England*; this Privilege being not allow'd in any other Country, except *Scotland*, where it is call'd *Curialitas Scotiæ*.

This Tenure was introduc'd by the Conqueror, and borrow'd by him from his own Country, *Normandy*, where it obtain'd before, under the Name of *Veuvetè*.

COURTIN, or COURTAIN, in Fortification, the Front of the Wall, or Rampart, lying between two Bastions. See Curtin.

COURTISAN, a Term of Infamy, given to Women who sell their Persons, and make a Trade of Prostitution. See Stews.

Lais, the famous *Theban Courtisan*, stands on record for requiring no less than ten thousand Crowns for a single Night. Of all Places in the World, *Venice* is that where *Courtisans* abound the most: 'Tis now 250 Years since the Senate, which had expell'd 'em, was oblig'd to recall 'em; to provide for the Security of Women of Honour, and to keep the Nobles employ'd, lest they should turn their Heads to make Innovations in the State.

COUSIN, a Term of Relation and Kinship, applied to those who are issu'd from two Brothers, or two Sisters.

In the first Generation they are call'd *Cousin Germans*, *i. e.* next *Cousins*. See German.

In the second, Issues of Germans, or second *Cousins*; in the third and fourth, *Cousins* in the third and fourth Degrees.

In the Primitive Times, it was allow'd *Cousin*-Germans to marry, to prevent their making Alliances in Heathen Families; but *Theodosius* the Great prohibited it under Pain of Death; on pretence that they were, in some sort, Brothers and Sisters, with regard to each other.

The Word is ordinarily derived from *Consanguineus*; tho *Menage* brings it from *Congenius*, or *Congeneus*, q. d. *ex eodem genere*.

Paternal Cousins, are those issu'd from Relations on the Father's side; *Maternal*, those on the Mother's.

Cousin is also a Title of Honour, which Kings bestow on Peers or Nobles, foreign Princes of the Blood, Cardinals, and the principal Persons of their State; particularly Dukes.

COUSSINET, *Cushion*, in Architecture, the Stone that crowns a Piedroit, or Peer; or that lies immediately over the Capital of the Impost, and under the Sweep. See Impost, Piedroit, *&c.*

Its Bed, below, is level, and above, curved; receiving the first Rise or Spring of the Arch, or Vault. See Arch, *&c.*

Coussinet is also used for the Ornament in the *Ionic* Capital between the Abacus, and Echinus, or Quarter-Round; and which serves to form the Volutes. See Capital.

It is thus denominated from its representing a Pillow or Cushion, press'd by the Weight over it, and bound with the Strap or Girdle, call'd by *Vitruvius*, *Baltheus*.

COUSU, in Heraldry, is used in the same Sense as *Remply*, *viz.* for a Piece of another Colour or Metal, placed on the Ordinary, as if it were sew'd on; which the Word in the *French* Language naturally implies.

This is generally of Colour on Colour, or Metal on Metal, contrary to the general Rule of Heraldry: Whence the Word denotes, that the Piece is not properly on the Field, but in the Nature of a thing sew'd on.

COUTHUTLAUGH, from the Saxon *Couth*, *Sciens*, Knowing; and *Utlaugh*, *exlex*, Outlaw; is he that wittingly receives a Man outlaw'd, and cherishes or conceals him. See Outlaw.

In which Case he was, in antient Time, subject to the same Punishment with the Outlaw himself. *Bracton*, l. 3.

COUVERT, in Heraldry, denotes something like a Piece of Hanging, or a Pavilion falling over the Top of a Chief, or other Ordinary; so as not to hide, but only be a Covering thereto.

COWARD, in Heraldry, a Lion borne in an Escutcheon, with his Tail doubled or turn'd in between his Legs, is called a *Lion Coward*.

COWL, or COUL, *Cuculla*, a sort of Hood, wore by certain Monks. See Coul.

COWRING, in Falconry, the quivering of young Hawks, which shake their Wings, in Sigo of Obedience to the old ones.

COXÆ, or COCCIGIS *Os*, in Anatomy, a Bone join'd to the lower Bone of the *Os Sacrum*; consisting of three or four little Bones and two Cartilages. See Sacrum.

In form it resembles a little Tail, the lowest Bone growing gradually less and less than the upper, till it end in a cartilaginous Point, which is turn'd upwards for the Convenience of sitting.

These two Bones are but loosty fix'd; especially in Women; in whom, at the Time of Parturition, they easily give way.

The Use of this Bone is to sustain the *Intestinum Rectum*: It has Muscles in common with the *Anus*, to draw it upwards, or inwards. See Coccigis *Musculi*.

Coxæ, or Coxendicis *Ossa*, call'd also *Ossa Innominata*, and in *English* the *Hip-Bones*, are two large Bones, situate on either side the *Os Sacrum*.

In Infants, each of these consists of three distinct Bones, separated by Cartilages; which, in Adults, grow up, and constitute one firm, solid Bone; whose Parts, however, retain three distinct Names, according to their former Division, *viz.* the *Os Ilium*, *Os Ischium*, by some peculiarly call'd *Os Coxendicis*, and *Os Pubis*; which see in their proper Places Ilium, Ischium, and Pubis.

Coxæ *Musculus*, according to Dr. *Drake*, a Pair of Muscles arising fleshy from the *Os Ischium*, between the *Musculi Marsupialis*, and *Pyriformis*, and descending obliquely, terminate on each side the *Os Coccygis*, and adjoining Part of the *Os Sacrum*, serving to draw the *Os Coccygis* upwards and inwards; as Antagonists to two Ligaments, springing from the back Part of the *Os Sacrum*, and terminating in the external Surface of the *Os Coccygis*.

CRABS-EYES, *Oculi Cancrorum*, or *Lapides Cancrorum*, in Natural History and Medicine, are little, white, round Stones, ordinarily flat; so call'd, because taken out of the Craw-fish, or River Lobster: and tho bearing no great resemblance to Eyes, yet resembling them more than any other Part. They are much used in Medicine, as a powerful Alcali, or Absorbent. See Absorbent, Alcali, *&c.*

The most able Naturalists imagine 'em form'd in the Brain of the Animal. *Vanhelmont* first found 'em in the Region of the Stomach: M. *Geoffroy* the younger has observ'd the manner of their Formation much more accurately.

According to him, we may lay down one Class of Animals, which have their Bones without side; whereas the rest have 'em withinside: Of the first Kind are the Fishes we are speaking of. See Shell.

Those of the Rivers divest themselves every Year in *June* of the Bones wherewith they are cover'd and arm'd; a Membrane wherewith the Inside of those Scales is lin'd, takes their Place, and hardens, by degrees, into a new Scale.

Indeed, 'tis much less wonder an Animal should cast its Skin, or Covering; than that it should discharge it self of its Stomach, as the Craw-fish does; and even, as M. *Geoffroy* thinks, of its Intestines too: The exterior Membranes of those *Viscera* taking their place.

There is room to believe, that as they putrify and dissolve, they serve for Food to the Animal; during the Time of the Reformation, the old Stomach is the first Food the new one digests.

'Tis only in this time that the Stones are found, called *Crabs-Eyes*: They begin to be form'd when the antient Stomach is destroy'd; and are afterwards wrap'd up in the new one, where they decrease by degrees till they disappear entirely. See Testaceous *Pouder*.

CRAFT, a Sea Term, signifying all manner of Lines, Nets, Hooks, which serve for fishing.

Hence, as those that use the Fishing Trade, use small Vessels, such as Ketches, Hoys, Smacks, *&c.* they call such little Vessels *small Craft*.

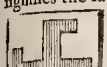
CRAMP, a kind of Numbness, or Convulsion, occasion'd by a thick viscid Vapour, entering the Membranes of the Muscles which contracts or extends the Neck, Arms, Legs, *&c.* with a violent, but transitory Pain; being usually driven off with Friction alone. See Convulsion.

The

The Word comes from the German *Krampff*.

Cramp-Iron, a Piece of Iron, bent at each Extreme, serving to bind together Pieces of Wood, Stones, or other Things.

Thus, we say, These Stones are bound together by *Cramp-Irons* fasten'd in Lead, *&c.* Some derive the Word, by Corruption, from *Agrapon*, or the Italian *Rampone*, which signifies the same thing.



CRAMPONNEE, in Heraldry. A *Cross Cramponee*, is that which at each End has a *Cramp*, or square Piece coming from it; as in the Figure adjoining. See Cross.

CRAMPOONS, CRAMPONS, pieces of Iron, hooked at the Ends; for the drawing or pulling up of Timber, Stones, *&c.*

CRANAGE, a Liberty to use a *Crane*, for drawing up Wares out of a Ship, or Hoy, *&c.* at a Wharf; and to make Profit thereof.

The Word also signifies the Money taken, or paid for that Grant.

CRANE, a Machine used in Building, for the raising large Stones and other Weights.

M. *Perrault*, in his *Notes on* Vitruvius, makes the *Crane* the same with the *Corvus*, *Crow* of the Antients. See Corvus.

The modern *Crane* consists of several Members, or Pieces, the principal whereof is a strong perpendicular Beam, or Arbor, firmly fix'd in the Ground, and sustain'd by eight Arms, coming from the Extremities of four Pieces of Wood laid across, thro' the Middle whereof the Foot of the Beam passes. About the middle of the Arbor the Arms meet, and are mortais'd into it: its Top ends in an Iron Pivot, whereon is bore a transverse Piece, advancing out to a good distance in manner of a *Crane*'s Neck; whence the Name.

The Middle and Extremity of this is again sustain'd by Arms from the middle of the Arbor; and over it comes a Rope, or Cable, to one end whereof the Weight is fix'd; the other is wound round the Spindle of a Wheel, which turn'd, draws the Rope, and that heaves up the Weight; to be afterwards applied to any Side or Quarter, by the mobility of the transverse Piece on the Pivot.

Crane is also a popular Name for a Syphon. See Syphon.

Crane-*Lines*, in a Ship, are Lines going from the upper End of the Sprit-sail-top-mast, to the Middle of the Fore-stays.

CRANIUM, in Anatomy, an Assemblage of several Bones, which cover and enclose the Brain and *Cerebellum*; popularly call'd the *Skull*. See Brain, *&c.*

It is divided into two Tables, or *Laminæ*, laid or applied over each other; between which is a thin spongious Substance, made of bony Fibres detach'd from each *Lamina*, and full of little Cells of different Bignesses, call'd *Diploe*, or *Meditullium*. See Diploe.

The Tables are hard and solid, the Fibres being close to one another; the *Diploe* is soft, in regard of the bony Fibres being at a greater Distance: A Contrivance whereby the Skull is not only made lighter, but less liable to Fractures.

The external *Lamina* is smooth, and cover'd with the *Pericranium*; the internal is likewise smooth, abating the Furrows made by the Pulsation of the Arteries of the *Dura Mater*, ere the *Cranium* be arriv'd at its Consistence.

It has several Holes, thro' which it gives passage to the Spinal Marrow, Nerves, Arteries, and Veins, for the Conveyance and Re-conveyance of the Blood, *&c.* between the Heart and the Brain.

Its Figure is round, which is an advantage to its Capacity; but a little depress'd, and longish; advancing out behind, and flatted on the two Sides, which form the Temples; which contribute to the Enlargement of the Sight and Hearing.

It is composed of eight Bones, six whereof are *proper*, and two *common*: The *proper* are, the Bone of the Forehead, *Os Frontis*, that of the back of the Head, *Os Occipitis*, the two *Ossa Parietalia*, and the two of the Temples, *Ossa Temporum*. See each in its Place, Frontis, Occipitis, Temporis, *&c.*

In the Eminences of the Bones of the Temples, is contain'd the Organ of Hearing, with the four little Bones belonging thereto, *viz.* the *Malleolus*, *Incus*, *Stapes*, and *Os Orbiculare*. See Hearing.

The *common* Bones are the *Os Sphenoides*, and *Ethmoides*. See Sphenoides, *&c.*

The *Cranium* has three *common* Sutures, which divide it from the Jaw: It has others *proper*, whereof there are three genuine, the *Coronalis*, *Sagittalis*, and *Lambdoides*; the rest spurious, call'd *Squammosæ*, or *Temporales*. See Suture, *&c.*

This Division of the *Cranium* into Pieces by Sutures, is of good use, as it makes it less liable to break, gives passage to the Membranes which sustain the *Pericranium*, and affords Vent to the Matter of insensible Perspiration. See Fracture, *&c.*

The Word comes from the *Greek* κρανος, *Galea*, Helmet; in regard it serves to defend the Brain, like a Head-piece. *Pezron*, again, derives κρανιον from the Celtic *Cren*, from its roundness.

CRANK, a Contrivance in Machines, in manner of an Elbow, only of a square form; projecting out from an Axis, or Spindle; and serving by its Rotation, to raise and fall the Pistons of Engines for raising Water, *&c.*

Crank, in the Sea Language. A Ship is said to be *Crank*, when she cannot bear her Sail, or can bear but a small Part, for fear of oversetting. She is also said to be *Crank by the Ground*, when her Floor is so narrow, that she cannot be brought on ground without danger.

CRAPE, a light transparent Stuff, in manner of Gauze; made of raw Silk, gumm'd and twisted on the Mill; wove without crossing, and much used in Mourning.

Crapes are either *crap'd*, i. e. *crisp'd*, or *smooth*: the first *double*, expressing a closer Mourning; the latter *single*, used for that more remote. Note, white is reserv'd for young People, or those devoted to Virginity.

The Silk destin'd for the first is more twisted than that for the second; it being the greater or less degree of twisting, especially of the Warp, which produces the Crispage, given it when taken out of the Loom, steep'd in clear Water, and rubb'd with a piece of Wax for the Purpose.

They are all died raw. The Invention of *Crapes* comes from *Boulogne*: But the chief Manufacture hereof is at *Lyons*.

History tells us, that S. *Bathilda*, Queen of *France*, made a fine *Crape*, *Crepam*, of Gold and Silver, to lay over the Body of S. *Eloy*. The *Bollandists* own they can't find what this *Crepa* was. *Binet* says it was a Frame to cover the Body of the Saint withal: But others, with reason, take it to be a transparent Stuff, thro' which the Body might be seen; and that this was the *Crepa* whence our *Crape* is form'd.

CRAPULA, a Surfeit by over-eating and drinking. See Surfeit, and Plenitude.

CRASIS, in the Animal Oeconomy, a due Temperament or Constitution of the Blood; wherein the several Principles, *viz.* Salt and Oil, whereof it is composed, are found in their just Proportion and Purity: in contradistinction to a *Discrasy*, which consists in an improper Union of the Principles, or in an unnatural State of some thereof. The chief Discrasies the Blood is susceptible of, whence flow most of the Diseases of the Body, are *Coagulation*, *Dissolution*, an Excess of Oil, or of Salt. See Blood; see also Coagulation, *&c.*

The Word is *Greek*, κρασις, signifying *Mixture*, *Temperament*.

Crasis, in Grammar, a Figure, whereby we join two Syllables into one; call'd also *Syncræsis*. See Syneræsis.

Thus, in *Virgil*'s fourth *Eclogue*,

Orphei Calliopea lino formosus Apollo.

there is a *Crasis* in the Word *Orphei*, which here only consists of two Syllables.

CRASSAMENTUM, a Term used by some Anatomists, for the Cruor of the Blood; or that Part which, upon standing to cool and separate, forms the *Coagulum*: In opposition to the Serum, or Whey, wherein it swims. See Cruor.

Some Authors have supposed the *Crassamentum* to be specifically lighter than the Serum; but Dr. *Jurin* shews the contrary from repeated Experiments. See Blood.

CRATER, *Cup*, in Astronomy, a Constellation of the Southern Hemisphere. See Constellation.

The Stars in the Constellation *Crater*, in *Ptolemy*'s Catalogue are 7; in *Tycho*'s 8; in the *Britannic Catalogue* 11. The Order, Names, Longitudes, Latitudes, *&c.* whereof, are as follow.

Stars in the Constellation Crater.

Names and Situations of the Stars.	Signs.	Longitude. °	′	″	Latitude. °	′	″	Magnit.
That in the Basis	♍	19	26	3	22	42	47	4 3
Preced. of 3 in the Middle of the Cup		22	23	50	17	35	20	4
South. in the Middle of the Cup		25	5	50	20	47	43	4
Preced. in the North Part of the Circumference of the Mouth		21	55	59	13	28	28	4
Middle of 3 in the Middle of the Cup 5		24	56	16	19	39	22	4
Subs. in North Circumf. of the Mouth		23	9	20	14	35	16	6
In the North Handle		24	16	26	11	18	33	4
In the Middle of the Mouth		26	8	52	14	13	32	5
In the South Circumf. of the Mouth		29	45	50	18	17	29	4
In the South Handle 10		1	47	42	16	4	46	4
	♎	3	58	41	17	52	59	5 6

Crater, in Falconry, any Line on which Hawks are fasten'd when reclaimed. See Reclaim.

CRAVEN, or CRAVENT, in our antient Customs, a Trial by Battle, upon a Writ of Right. See Combat.

The

The Law was, that the Victory ſhould be proclaim'd, and the Vanquiſh'd acknowledge his Fault in the Audience of the People; or pronounce the Word *Cravent* in the Name of *Recreantice*, or Cowardice, &c. and, preſently, Judgment to be given; and the Recreant, *amittere Legem terræ*, *i. e.* become infamous.

Coke obſerves, that if the Appellant join Battle, and cry *Craven*, he is to loſe, *liberam Legem*. If the Appellee cry *Craven*, he is to be hang'd.

CRAYON, a general Name for all colour'd Stones, Earths, or other Minerals; uſed in Deſigning, or Painting in Paſtel; whether they have been beaten and reduced to a Paſte, or are us'd in their Conſiſtence of a Stone, after ſawing or cutting them into long narrow Slips.

In this laſt manner are red *Crayons* made, of Blood-ſtone, or red Chalk; black ones, of Charcoal and black Lead. *Crayons* of all other Colours are Compoſitions of Earths reduc'd into Paſte.

CREAM, the thickeſt and fatteſt Part of Milk; being that whereof Butter is made. See MILK.

The Word is deriv'd from the Latin *Cremor*, which ſignifies the ſame thing; tho in the lower *Latin* we find *Crema lactis*.

CREAM *of Tartar*, in Pharmacy, a Preparation of Tartar, otherwiſe called *Cryſtal of Tartar:*

It is made by boiling Tartar in Water till it be diſſolved, and paſſing the Diſſolution thro' a Straining-Bag: Half the Liquor being evaporated, the Remainder is ſet in a cool Place; where it ſhoots into Cryſtals, Part of it ſwimming a-top, in form of *Cream*.

This latter is properly the *Cream of Tartar*, the reſt *Cryſtal of Tartar*, both of the ſame Nature and Uſe.

It is reputed a great Sweetner of the Blood; for which ſome take it in Whey or Water gruel in the Spring-time, to the Quantity of Half an Ounce every Morning, for three or four Weeks.

Its Operation is by Stool; and, by its ſaline Particles, pretty much alſo by Urine. It's generally mix'd with lenitive Electuaries, and other gentle Catharticks, in Nephritic and Antivenereal Caſes, where it often proves ſerviceable.

CREDENTIALS, Letters of Credit and Recommendation; eſpecially ſuch as are given to Embaſſadors, Plenipotentiaries, &c. ſent to foreign Courts. See EMBASSADOR, &c.

CREDIBILITY. See PROBABILITY, VERISIMILITUDE, EVIDENCE, OPINION, &c.

In the *Philoſophical Tranſactions*, we have a Mathematical Computation of the *Credibility* of Human Teſtimony. See TESTIMONY.

CREDIT, in Commerce, a mutual Loan, of Merchandizes or Silver, on the Reputation of the Probity and Solvability of a Negotiant. See LOAN.

Letters of CREDIT, are thoſe given to Perſons in whom a Merchant, &c. can truſt, to take Money of his Correſpondent abroad, in caſe he happens to need it. See LETTER.

Credit is alſo uſed for the Courſe which Papers, or Bills, &c. of Commerce, have in the Publick, and among Dealers.

In this Senſe, *Credit* is ſaid to *riſe*, when in negotiating the Actions of a Company, they are receiv'd and ſold at Prices above *Par*, or the Standard of their firſt Creation.

Diſcredit is oppos'd to *Credit*, and is uſed where Money, Bills, &c. fall below *Par*. See PAR.

CREDIT was alſo antiently a Right which Lords had over their Vaſſals; conſiſting in this, that during a certain time they might oblige 'em to lend them Money.

In this Senſe, the Duke of *Brittany* had *Credit* during fifteen Days on his own Subjects, and thoſe of the Biſhop of *Nants*; and the Biſhop had the ſame *Credit* or Right among his Subjects, and thoſe of that Prince.

CREDITOR, a Perſon to whom any Sum of Money is due, either by Obligation, Promiſe, or otherwiſe. See DEBT, and DEBTOR.

The Laws of the Twelve Tables, which were the Foundation of the *Roman* Juriſprudence, allow'd the *Creditor* to tear or cut his Debtor to pieces, in caſe he prov'd inſolvable.

CREDITOR, in Book-keeping. See BOOK-KEEPING.

CREED, CREDO, *Symbol*, a ſhort, or ſummary Account of the chief Articles of the Chriſtian Faith; thus called from the firſt Word thereof in Latin, *Credo*, I believe. See SYMBOL.

CREEK, Part of a Haven, where any thing is landed from the Sea. See HARBOUR.

So many Landing-Places as there are in a Harbour or Port, ſo many *Creeks* there are. *Crompt.*

CREMASTERS, in Anatomy, an Epithet given two Muſcles, otherwiſe called *Suſpenſores*; ſerving to keep the Teſticles ſuſpended. See SUSPENSORES.

The Word comes from the *Greek* κρεμαειν, *ſuſpendere*, to ſuſpend, hang.

CRENATED *Leaves*, a Term uſed by Botaniſts, for ſuch Leaves of Plants as are jagg'd, or notch'd. See LEAVES.

CRENELLE, or *Imbattled*, in Heraldry, is when any honourable Ordinary is dented, in reſemblance of the Battlements of a Wall. See BATTLEMENT.

The Uſe hereof is, doubtleſs, taken from the Figures of ſuch Walls being given, either for having been the firſt at mounting, or the chief in defending them.

The *French* Word comes from *Cren*, a Notch or Interval; the *Engliſh*, from its being a Place of Fighting, or Battle.

Upton in *Latin* calls this *Imbatallatum*, a Word forg'd from the *Engliſh*; but moſt others term it *Pinnatum*, from *Pinna*, a Battlement.

CREPITATION, that Noiſe which ſome Salts make over the Fire in Calcination; call'd alſo *Detonation*. See DETONATION.

CREPITUS *Lupi*, in Natural Hiſtory, a kind of *Fungus*, popularly call'd *Puff-ball*.

Mr. *Derham* obſerves, that upon examining the Pouder thereof with a Microſcope, he found the Seeds to be ſo many exceeding ſmall Puff-balls, with round Heads, and long, ſharp-pointed Stalks; as if made on purpoſe to prick into the Ground.

The Seeds are intermix'd with much duſty Matter, and become hurtful to the Eyes; probably by their ſharp Stalks pricking and wounding it.

CREPUSCULUM, in Aſtronomy, *Twilight*; or the Time from the firſt Dawn or Appearance of the Morning, to the riſing of the Sun; and, again, between the ſetting of the Sun, and the laſt Remains of Day. See DAY, RISING, SETTING, &c.

The *Crepuſculum* is uſually computed to begin and end when the Sun is about 18 Degrees below the Horizon.

The *Crepuſcula* are longer in the Solſtices than in the Equinoxes, longer in an oblique, than in a right Sphere.

Papias derives the Word from *Creperus*; which, he ſays antiently ſignify'd *uncertain*, *doubtful*, q. d. a *dubious Light*.

The *Crepuſcula* are occaſion'd by the Suns Rays refracted in our Atmoſphere, and reflected from the Particles thereof, to the Eye.

Demonſt. For ſuppoſe an Obſerver in O, (Tab. *Aſtronomy*, Fig. 41.) the ſenſible Horizon A B, and the Sun under the Horizon in H K; and let the Ray S E fall in the Atmoſphere below the Horizon. Since it paſſes out of a rarer into a thicker Medium, it will be refracted, (ſee REFRACTION;) and that towards the Perpendicular, *i. e.* towards the Semidiameter C E. It will not, therefore, proceed in T, but touching the Earth in D, will fall upon A, the Eaſtern Part of the ſenſible Horizon: Nor can any other Ray beſides A D, of all thoſe reflected from E, arrive at A. But now, ſince the Particles of the Atmoſphere reflect the Sun's Rays, (ſee REFLECTION;) and ſince the Angle DAC is equal to C A O; the Rays reflected in A will be carried to O, the Place of the Spectator; who will therefore ſee the Particle A ſhining in the ſenſible Horizon, and conſequently the beginning of the Morning *Crepuſculum*.

And in the ſame manner might be ſhewn the Refraction and Reflection of the Sun's Rays in the Atmoſphere, in the Evening *Crepuſculum*.

Kepler, indeed, aſſigns another Cauſe of the *Crepuſculum*, *viz.* the luminous Matter around the Sun; which ariſing near the Horizon, in a circular Figure, exhibits the *Crepuſculum*; in no wiſe, as he would ſhew, owing to the Refraction of the Atmoſphere.

The Depth of the Sun below the Horizon, at the Beginning of the Morning Crepuſculum, *or End of the Evening one*, is determin'd in the ſame manner as the Arch of Viſion; *viz.* by obſerving the Moment wherein the Air firſt begins to ſhine in the Morning *Crepuſculum*, and that wherein it ceaſes in the Evening; and finding the Sun's Place for that Moment.

Albazan found it 19 Degrees; *Tycho* 17°; *Rothmannus* 24°; *Stevinus* 18°; *Caſſini* 15°; *Riccolus*, in the Equinoxes in the Morning, 16°, in the Evening 20° 30′; in the Summer Solſtice in the Morning, 21° 25′; in the Winter Solſtice in the Morning 17° 25′.

Nor need we wonder at this Difference among Aſtronomers; the Cauſe of the *Crepuſculum* being inconſtant: For, if the Exhalations in the Atmoſphere be either more copious, or higher than ordinary; the Morning *Crepuſculum* will begin ſooner, and the Evening hold longer than ordinary: For the more copious the Exhalations are, the more Rays will they reflect, conſequently the more will they ſhine; and the higher they are, the ſooner they will be illumin'd by the Sun. To this it may be added, that in a denſer Air, the Refraction is greater; and that not only the Brightneſs of the Atmoſphere is variable, but alſo its Height from the Earth.

Hence, when the Difference between the Sun's Declination and the Depth of the Equator is leſs than 18°, and does not, in effect, exceed 15°; the *Crepuſculum* will continue the whole Night.

The Elevation of the Pole P R, (Fig. 42.) *and the Sum of Declination being given, to find the Beginning of the Morning*

ing Crepuſculum, *or End of the Evening.* Since in the Triangle PSZ the ſeveral Sides are given, *viz.* PZ the Elevation of the Pole, PR and PS the Complement of the Declination, OS and SZ the Aggregate; from the Quadrant ZD, and the Sun's Depth DS, find the Angle ZPS, whoſe Meaſure is the Arch AO. See TRIANGLE.

Convert AO into Solar Time: thus have you the Time elaps'd from the Beginning of the Morning *Crepuſculum*, to the Period of the Evening one. See TIME.

To find the Crepuſculum *by the Artificial Globe.* See GLOBE.

CRESCENT, the *New-Moon*, which, as it begins to recede from the Sun, ſhews a little Rim of Light, terminating in Points, or Horns, which are ſtill increaſing, till it become full, and round in the Oppoſition. See MOON.

The Term is alſo uſed for the ſame Figure of the Moon in its Wane, or Decreaſe; but improperly: in regard the Points or Horns are then turn'd towards the Weſt, whereas they look to the Eaſt in the juſt *Creſcent*.

The *Creſcent* is the *Turkiſh* Symbol; or rather, 'tis that of the City of *Byzantium*, which bore this Device from all Antiquity; as appears from Medals, ſtruck in honour of *Auguſtus*, *Trajan*, &c.

The Word comes from the Latin *Creſcere*, to increaſe.

CRESCENT is alſo a Military Order, inſtituted by *Renatus* of *Anjou*, King of *Sicily*, &c. in 1448; ſo call'd from the Badge, or Symbol thereof, a *Creſcent* of Gold enamell'd.

What gave occaſion to this Eſtabliſhment, was, that *Renatus* took for his Device a *Creſcent*, with the Word *Loz*, *Praiſe*; which, in the Stile of *Rebus*, makes *Loz in Creſcent*, q. d. *by advancing in Virtue, one merits Praiſe.*

CRESCENT, in Heraldry, is a Bearing in form of a Half-Moon.

The *Creſcent* is ſometimes *Montant*, *i. e.* its Points look towards the Top of the Chief, which is its moſt ordinary Repreſentation: whence ſome contend, that the *Creſcent*, abſolutely ſo call'd, implies that Situation; tho, ſome Authors blazon it *Montant*, when the Horns are towards the Dexter-ſide of the Eſcutcheon, when others call it *Incroiſſant*.

The *Ottomans* bear Sinople, a *Creſcent Montant*, Argent.

Creſcents are ſaid to be *adoſs'd*, when their Backs or thickeſt Parts, are turn'd towards each other; their Points looking to the Side of the Shield.

The Inverted Creſcent, is that whoſe Points look towards the bottom: *Turn'd Creſcents* are plac'd like thoſe *adoſs'd*; the difference is, that all their Points look to the Dexter-ſide of the Shield: The *Conturn'd*, on the contrary, look to the Siniſter-ſide. The *affronted or appointed Creſcents*, are contrary to the *adoſs'd*, the Points looking towards each other.

The *Creſcent* is frequently us'd as a Difference in a Coat-Armour, to diſtinguiſh it for that of a ſecond Brother, or ſecond Family. See DIFFERENCE.

CREST, in Armoury, the uppermoſt Part of the defenſive Armour of the Head; riſing over the reſt, in manner of the Comb or Tuft of a Cock; to ſuſtain the Effort of very keen Scimitars, &c.

It has its Name from *Criſta*, Cock's Comb. Hence,

CREST, in Heraldry, the uppermoſt Part of an Armoury; or that Part over the Caſk, or Helmet. See CASK.

Next to the Mantle, ſays *Guillim*, the *Creſt* or *Cognizance* claims the higheſt Place, being ſeated on the moſt eminent Part of the Helmet; yet ſo, as to admit an Interpoſition of ſome Eſcrol, Wreath, Chapeau, Crown, &c. See COGNIZANCE.

The *Creſt* of the Arms of *England*, is a Lion Paſſant Gardant, crown'd with the like; that of *France*, a Flower-de-Lys ſquated.

In the antient Tournaments, the Cavaliers had Plumes of Feathers, eſpecially thoſe of Oſtriches and Herons, for their *Creſts*; theſe Tufts of Feathers they called *Plumarts*; and were placed in Tubes, on the Tops of high Caps, or Bonnets. Some had their *Creſts* of Leather; others of Parchment, Paſtboard, &c. painted or varniſh'd, to keep out the Weather; others of Steel, Wood, &c. on which were ſometimes repreſented a Member or Ordinary of the Coat; as, an Eagle, Flower-de-Lys, &c. but never any of thoſe called Honourable Ordinaries, as Pale, Feſſe, &c.

The *Creſts* were changeable at pleaſure; being reputed no other than as an arbitrary Device, or Ornament. See DEVICE.

Herodotus attributes the Riſe of *Creſts* to the *Carians*, who firſt bore Feathers on their Caſks, and painted Figures on their Bucklers; whence the *Perſians* call'd 'em *Cocks*.

The antienteſt of the Heathen Gods wore *Creſts*, even before Arms were made of Iron and Steel: *Jupiter Ammon* bore a Ram's Head for his *Creſt*; *Mars* that of a Lion, or a Tyger, caſting out Fire at his Mouth and Noſtrils. *Alexander* the Great wore for his *Creſt* a Ram's Head, to inculcate that he was the Son of *Jupiter Ammon*; *Julius Cæſar* ſometimes bore a Star, to denote that he was deſcended from *Venus*; and ſometimes the Head of a Bull, or an Elephant with his Trunk; and ſometimes the Wolf that ſuckled *Romulus* and *Remus*. The Chriſtians, in their firſt Religious Wars, were wont to wear a Croſs darting forth Rays, for their *Creſts*, as well as on their Shields and Banners, as *Prudentius* informs us;

——Clypeorum inſignia Chriſtus
Scripſerat, ardebat ſummis crux addita Criſtis.

The antient Warriors bore *Creſts* to ſtrike Terror in their Enemies, at the Sight of the Spoils of Animals they had kill'd; or to give 'em the more formidable Mien, by making them appear taller, &c.

Plutarch obſerves, that the *Creſt* of *Pyrrhus* was a Bunch of Feathers, with a Stag's Horns; and *Diodorus Siculus*, that of the Kings of *Egypt*, Lion's Heads, Bulls, or Dragons.

The *Creſts* have given riſe to ſeveral Fables: The Antients, *v. g.* give *Serapis* the Head of a Sparrow Hawk; this being the *Creſt* of that Cavalier. *Geryon* they made a Monſter with three Heads, becauſe he bore a triple *Creſt*; and feign'd, that *Proteus* chang'd his form every Moment, becauſe, being King of *Egypt*, he frequently chang'd his *Creſt*; ſometimes bearing that of a Lion, ſometimes of a Dragon, &c.

The *Creſt* is eſteem'd a greater Mark of Nobility, than the Armoury, as being bore at Tournaments; to which none were admitted, till they had given Proof of their Nobility. Sometimes it ſerves to diſtinguiſh the ſeveral Branches of a Family. It has ſerv'd, on occaſion, as the diſtinguiſhing Badge of Factions.

Sometimes the *Creſt* is taken from the Device; but more uſually is form'd of ſome Piece of the Arms: Thus, the Emperor's *Creſt* is an Eagle; that of *Caſtile* a Caſtle, &c.

Families that exchange Arms, as have done the Houſes of *Brunſwic* and *Coligne*, do not change their *Creſts*; the firſt ſtill retain the Horſe, and the latter the Mermaid.

CREST, among Carvers, an Imagery, or carved Work, to adorn the Head, or Top of any thing; like our modern Corniſh. See CORNICHE.

CREST-FALLEN, of a Horſe, is when the upper Part of the Neck, on which the Mane grows, does not ſtand upright, but hangs either to one Side, or the other.

CREUX, a Term in Sculpture, much us'd by the *French*; tho not yet, that we know of, naturaliz'd among us: But the want of a Word of equal import in *Engliſh*, as it has frequently put us under a neceſſity of uſing this in the Courſe of the preſent Work; ſo it pleads ſtrongly for its Admiſſion into our Language.

The Word originally ſignifies a *Hollow*, *Cavity*, or *Pit*, out of which ſomething has been ſcoop'd, or dug: The Term is uſed particularly for that kind of Sculpture and Graving; where the Lines and Figures are cut, and form'd within the Face, or Plan of the Plate or Matter engraven: In which Senſe, it ſtands in oppoſition to *Relievo*; where the Lines and Figures are imboſs'd, and riſe prominent above the Face of the Matter. See ENGRAVING, and SCULPTURE.

CRIBRATION, in Pharmacy, a Separation of the finer Parts of a Medicine, whether dry, or humid, from the groſſer; the latter by means of a Pulping Sieve, the former by a fine Searce.

CRIBROSUM *Os*, or *Os* CRIBRIFORME, in Anatomy, a little Bone at the Top of the Noſe, pierced like a Sieve, to let paſs ſeveral little Fibres, ariſing from the Mamillary Productions, and terminating in the Membrane that lines the Cavity of the Noſtrils; call'd alſo *Os Ethmoides*. See ETHMOIDES.

CRICOARYTÆNOIDES, in Anatomy, a Name given two Pair of Muſcles, ſerving to open the Larynx. See LARYNX.

The *Cricoarytænoides* are either *Poſterior*, or *Lateral*: The firſt are the firſt Pair of Openers of the Larynx; the latter, the ſecond Pair.

The *Lateral* have their Origin in the Edge of the Lateral, and Superior of the Cartilage *Cricoides*, and are inſerted into the Lateral and Superior Part of the *Arytænoides*.

The *Poſterior* have their Origin in the poſterior and lower Part of the *Cricoides*: and hence the Reaſon and Etymology of the Name is evident.

CRICOIDES, in Anatomy, a Cartilage of the Larynx; ſo called, *q. d.* annular, as being round, like a Ring, and incompaſſing the whole Larynx. See LARYNX.

The *Cricoides* is the ſecond Cartilage of the Larynx: 'tis narrow before, thick behind; and ſerves as a Baſe to all the other Cartilages; and is, as it were, let into the *Tircides*.

'Tis by means of this that the other Cartilages are join'd to the *Trachea*; on which account it is immoveable.

The Word is form'd from κρίκος, uſed by Tranſpoſition for κίρκος, *Circle*, and εἶδος, *Form*.

CRICOTHYROIDÆUS, in Anatomy, a Name given to the firſt Pair of Muſcles proper to the Larynx. See LARYNX.

Their Name is derived hence, that they have their Origin in the lateral and anterior Part of the *Cricodes*; and are inserted into the inferior Part of the *Ala Thyroides*.

Their Use is to dilate the Scutiform Cartilage. See Scutiform.

CRIME, a *Breach*, or *Transgression* of a Law; or, an Action contrary to the Tenor of a Law, either Natural or Divine, Civil, or Ecclesiastick; to which a Penalty is annex'd. See Law.

The *Romans* distinguish'd two Kinds of *Crimes*, *viz. Private Crimes*, which only affected particular Persons; the Prosecution whereof was not allowed by the Laws to any but those interested therein; as *Adultery*, &c. And *Publick Crimes*; the Pursuit whereof was permitted to all Persons, tho in no wise immediately interested.

With us, *Crimes* are distinguish'd into *Capital*, as *Treasons*, *Murders*, *Robberies*, &c. and *Common*, as *Perjuries*, &c.

They are again divided into *Crimes* cognizable by the King's Judges; as those abovemention'd; and such as are only cognizable in the Spiritual Courts, as Simple *Fornication*, &c.

The Term *Crime* includes in it the Idea of a Determination, and a Design form'd to do an Injury. It is deriv'd from the Latin *Crimen*, of the *Greek* κρινω, *judico*.

CRIMSON, one of the seven red Colours of the Dyers. See Red.

The Stuffs to be dy'd in *Crimson*, after they have been clear'd of their Soap, and strongly allum'd, are put in a Bath of Cochineal, each according to its Colour. See Purple.

The Word comes from the *Arabic Kermisi*, of *Kermes*, or *Hermes*, red. The *Bollandists* insinuate, that *Crimson* comes from *Cremona*, and is used for *Cremonois*. See Kermes, Cochineal, &c.

CRINONES, in Medicine, a sort of Worms, sometimes found under the Skin, in Children; resembling short thick Hairs, or Bristles. See Worms, and Vermes.

They are also called *Comedones*, from the Latin *Comedere*, to eat; by reason they prey on the Substance of the Child, or consume its Nourishment.

CRISIS, in Medicine, a Change, or Turn in acute Diseases; wherein the Morbifick Matter is so alter'd, as determines the Patient either for Recovery or Death. See Critical.

The Cause of such Change is owing to the remaining vital Force's being irritated by the Matter of the Disease so or so condition'd; *i. e.* fit either to be evacuated, or translated, or to kill. See Disease.

If the Matter be dispos'd for Evacuation or Translation, but is oot Salubrious, it produces a Change call'd a *Critical Perturbation*, or *Imperfect Crisis*.

If the Change become sensible, they are call'd *Critical Symptoms*, or *Signs of a Crisis*, either future or present.

The Symptoms of the *Crisis* are frequently confounded with those arising from the Causes of the Disease, the Disease it self, or the Matter of the Disease; whence the most unhappy Consequences. See Symptom.

The Differences between these critical Symptoms and morbifick ones, are, that the first proceed from the vital Powers prevailing over the Force of the Disease; but the latter from the Disease's prevailing over the vital Faculty: that the first are preceded by a manifest Concoction, but the latter are form'd even in Crudities: that the former happen about the *critical Times*, but the latter at all Times of the Disease, chiefly during its Increase.

The principal Symptoms of an approaching Crisis, are, after Digestion, and about the critical Time, a sudden Stupor, Drousiness, Waking, Delirium, Anxiety, Dyspnœa, Grief, Redness, Tirillation, Pricking, Heaviness, Darkness, Light, spontaneous Tears, Nausea, Heat, Thirst, trembling of the lower Lip, &c.

The Symptoms and Effects of a present Crisis, are, after the preceding ones, a Vomiting, Salivation, Loosenes, thick Sediment in the Urine, bleeding at the Nose, Hemorrhoids, Sweat, Abscesses, Pustules, Tumors, Bubos, Parulis, Apthæ, &c.

CRISTA *Galli*, in Anatomy, an Eminence in the middle of the *Os Ethmoides*, advancing within the Cavity of the *Cranium*; and to which is fasten'd that Part of the *Dura Mater* which divides the Brain, called *Falx*. See Brain.

It has its Name from its Figure, which resembles that of a Cock's Comb.

In Adults, this Process appears of a piece with the *Septum Narium*. See Nose, and Nostrils.

Cristæ is also a Term used by Anatomists for certain Excrescences arising about the Fundament, resembling Cocks Combs.

These, M. *Dionis* says, are taken off either by Ligature, by Cauterisation, or Amputation. When these Excrescences have other Figures, they have other Names.

Crista is also used for a crook'd, twisted, spital Eminence, in the middle of the Spine of the *Omoplate*. See Omoplate.

CRITERIUM, or CRITERION, a Judgment made of the Truth, or Falshood of a Proposition, or the Nature and Qualities of any Effect. See Truth.

The Doctrine of *Criteria*, and the Characters and Rules thereof, make the first Part of the *Epicurean* Philosophy. See Epicurean.

CRITHOMANCY, a kind of Divination, perform'd by considering the Dough, or Matter of the Cakes offer'd in Sacrifice; and the Meal strew'd over the Victims to be kill'd.

Hence, in regard they ordinarily us'd Barley-Meal in these Ceremonies, this Kind of Divination was call'd *Crithomancy*; from κριθη, *Barley*, and μαντεια, *Divination*.

CRITICAL *Days*, *Symptoms*, &c. are certain Days, and Symptoms, usually arising in the Course of acute Diseases, as Fevers, Small Pox, &c. which indicate the Patient's State, and determine him either to recover or grow worse. See Crisis.

The Crises have been frequently observ'd to happen on the 7th, 14th, or 20th Day; whence those have been denominated *Critical Days*.

The Word comes from the *Greek* κρινω, *judico*, I judge.

For the Theory of Crises, it may be observ'd, that the Concoction of any morbifick Matter, and the Humour to be secern'd, is nothing else but a Change thereof into such a due Magnitude, or Smallness, as it may be carried by the circulating Blood along the Canals, and excern'd by Vessels destin'd for that Purpose. But if the morbifick Matter cannot be reduc'd to such a Magnitude or Smallness as may correspond to the Orifices of the Secretory Vessels; then either an Abscess or a Hemorrhage will follow, if a Crisis be begun; for which Reason, Abscesses, &c. are accounted less perfect Crises. But, that the morbifick Matter may be reduc'd to a due Magnitude, or Smallness, and its wish'd-for Discharge, there is requir'd a considerable Time, if the Quantity of Matter is large; that is, if the Distemper be great and severe: And since there are a great many Causes, and those very constant, which may occasion the Blood, and offending Humours therein, to be of a different Fluidity in the Inhabitants of different Climates; it is impossible but that different Spaces of Time should be requir'd for the finishing Concoction: which makes it impossible to determine the *critical* Days in one Climate, from what they are found to be in another.

The Causes of real *Critical* Days, that is, such on which happens the last Concoction of the morbifick Matter, which is always attended with its Expulsion, are all those Things which occasion the Humours to become of such a certain Magnitude or Minuteness, and of a greater or lesser Cohesion; but with any given Power, Bodies unequally large, or unequally cohering, cannot be concocted in an equal Time: Wherefore, it is to be found by the Observations made by all Nations among themselves, which are the usual Causes and Conditions of those Diseases, which require a certain Number of Days to finish such a Concoction in.

CRITICISM, the Art of Judging. See Crisis, and Criterion.

Some define the Term more at large, thus; *Criticism* is the Art of judging of the Facts of a History, or of a Work of Genius, with the various Incidents there met with, their Stile and their Authors: So that M. *le Clerc* may seem to have given a defective Idea of *Criticism*, when he defines it simply the Art of entering into the Meaning of antient Authors, and of making a just Discernment of their genuine Works.

We may distinguish divers Sorts, or Branches of this Art: As, *Philosophical Criticism*, or the Art of judging of Opinions and Hypotheses in Philosophy: *Theological Criticism*, the Art of judging of the Explication of *Dogmata*, or Doctrines of Faith, &c. *Political Criticism*, the Art of judging of the Means of governing, acquiring, and preserving States.

But the ordinary use of the Word is restrain'd to *Literary Criticism*; which, however, is of great extent, as it takes in the Art of judging of Facts: a Branch of *Criticism*, which regards not only History, but also the Discernment of the real Works of an Author, the real Author of a Work, the genuine Reading of a Text; and the Art of discovering Suppositious Monuments, Charters, interpolated Passages, &c.

The other Parts of *Literary Criticism*, are, the Art of judging of Works of Genius, their Excellencies and Defects.

We have also *Grammatical Criticism*, or the Art of interpreting and discovering the Words and Meanings of an Author; *Criticism of Antiquities*, which consists in distinguishing genuine Medals, and the different Taste and Spirit found among 'em, according to the different People, the different Country, and the different Times wherein they were struck; the distinguishing between what is cast and what struck; what has been retouch'd, and repair'd or added, from what is really antique; the genuine from the spurious, &c. and to decypher and explain 'em, &c.

Sacred Criticism, in general, is that employ'd in Ecclesiastick Matters, the History of the Church, the Works of the Fathers, Councils, Lives of the Saints, &c. but more particularly

particularly what concerns the Books of the Holy Scriptures, and the Canon thereof.

Aristotle, if we believe *Halicarnassæus*, is the first Inventor of the Art of *Criticism*. *Aristarchus*, *Halicarnassæus* himself, *Varro* and *Longinus*, distinguish'd themselves therein in their Days. Among the Christians, *Dionysius Alexandrinus*, *Hesychius*, *Eusebius*, *Tichonius*, S. *Jerom*, and *Theodoret*, were the greatest Masters in this Art. The Decree of Pope *Gelasius* about the Apocryphal Books, requir'd a good share of *Criticism*.

But the Art fell with the other Arts; and lay unknown till the Time of *Charlemaign*, when it was re-establish'd under him and his Sons.

The Care which the Religious *Cistercians* took to correct the Manuscripts of the Bible, shew that the Rules of *Criticism* were not entirely unknown in the XIth Century. The Works of *Johannes Sarisburiensis*, *Eustathius*, and *Tzetzes*, make it evident, it was cultivated in the XIIth. The Manuscripts of the Bible corrected by the *Dominicans* of *Paris*, and the Doctors of the *Sorbonne* in the XIIIth, shew it was subsisting then. In the following Ages it was still cultivated with more Earnestness; especially in the XVIth and XVIIth Centuries, when all the World made it their Study.

From the Whole, it follows, that *Criticism*, does, indeed, suppose an uncommon Stock of Knowledge of the Subject whereon it is employ'd: but *Criticism*, it self, is nothing else but good Sense perfected by Logick.

CROCHES, among Hunters, the little Buds about the Top of a Deer's Horns.

CROCI, among Botanists, the Apices, or small Knobs on the Tops of Flowers. See APICES.

CROCIA, a Bishop's or Abbot's *Crosier*, or Pastoral Staff. See CROSIER.

CROCODILE, in Rhetorick, a captious and sophistical Kind of Argumentation; dispos'd to seduce the Unwary, and draw 'em speciously into a Snare. See SOPHISM.

It has its Name, *Crocodile*, from the following Occasion, invented by the Poets.

A poor Woman begging a *Crocodile* that had caught her Son walking by the River-side, to spare and restore him; was answer'd, that he wou'd restore, provided she'd give a true Answer to a Question he shou'd propose: The Question was, *Will I restore thy Son or not?* To this the poor Woman, suspecting a Deceit, sorrowfully answer'd, *Thou wilt not*: and demanded to have him restor'd, because she had answer'd truly. Thou liest, says the *Crocodile*, for if I restore him thou hast not answer'd truly: I can't therefore restore him, without making thy Answer false. See DILEMMA.

Under this Head may be reduc'd the Propositions call'd *Mentientes*, or *Insolubiles*; which destroy themselves. Such is that of the *Cretan* Poet; *Omnes ad unum Cretenses semper mentiuntur*: All the *Cretans*, to a Man, always lie. Either, then, the Poet lies, when he asserts that the *Cretans* all lie; or the *Cretans* don't all lie.

CROCOMAGMA, in Pharmacy, Troches compos'd of Saffron, Myrrh, red Roses, Starch, and Gum-Arabic: Thus call'd from the *Greek* κρόκος, *Saffron*, and μάγμα, a *Mark* impress'd on any thing.

CROCUS, a Term us'd for Saffron. See SAFFRON.

CROCUS, in Chymistry, is a Name given to several different Preparations; from their red, or saffron Colour.

Crocus Martis, is a Preparation of Iron; and is of two Kinds, *viz. Crocus Martis aperiens*, and *Crocus Martis astringens*. See SAFFRON *of Mars*.

Crocus Martis aperiens, opening Saffron of Mars, is a Preparation of Iron Plates, made by first washing them, then exposing 'em to the Dew, till they have contracted a Rust; which Rust is scrap'd off, and the Plates expos'd for more. See MARS.

Others prepare it by calcining Iron Filings, with an equal Weight of Sulphur. Others by clapping a Bar of Iron, red, or rather white hot, between two Rolls of Brimstone; in which Case, the Iron melts, and runs down into a Vessel of Water below: which some call *Mars cum Sulphure præparatus*. Others have other Preparations.

M. *Lemery* endeavours to shew, that Iron taken in Substance, is much more salutary and efficacious than when thus prepar'd; the Process tending to strip it of its oily Part, wherein its chief Virtue resides; leaving nothing behind but the more ferruginous Part. See CHALYBEAT.

Crocus Martis astringens, binding Saffron of Iron, is a Preparation of Iron Filings; wherein they are depriv'd of their more saline Parts, by washing them five or six times in strong Vinegar, and calcining them five or six Hours.

Crocus Metallorum, a Kind of impure, opake, Glass of Antimony, of a liver Colour; hence frequently call'd *Liver of Antimony*; made by firing equal Parts of Ponder of Antimony and Salt-petre, well mix'd in an Iron Mortar, cover'd with a Tile. See ANTIMONY.

This is kindled by dropping in a Coal of Fire, upon which a great Detonation ensues; and the Mortar is struck, to make the Matter fall to the bottom. The shining Part is the *Crocus*, or Liver, which is to be separated from the Dross, and reserv'd for use.

Its chief use is in making the *Vinum Emeticum*, or *Benedictum*, by infusing an Ounce or two of the *Crocus* ponder'd, in a Quart of Wine for 24 Hours.

CROFT, *Crofta*, a little Close, or Pittle enclosed, near a Dwelling-house, either for Pasture or Tillage.—*Possunt etiam dicti Monachi de eisdem mariscis versus occidentem jacentibus pro se & hominibus suis, includere* Croftos, *sive pratum juxta pontem specialiter quantum illis placuerit.* Ingulf.

In some antient Deeds, *Crufta* occurs as the *Latin* Word for a *Croft*; but *cum Toftis & Croftis* is most frequent.

Croft is translated by *Abba Floriacensis*, *in prædium*, a *Farm*.

CROISADE, or CRUZADE, or CRUZADO, a *Holy War*, or an Expedition against Infidels and Hereticks; particularly against the *Turks*, for the Recovery of *Palestine*.

People antiently flock'd on these *Crusades* out of Devotion; the Pope's Bulls, and the Preaching of the Priests of those Days, making it appear a Point of Conscience. Hence several Orders of Knighthood took their rise. See TEMPLARS, &c.

Those who meant to go on this Errand, distinguish'd themselves by Crosses of different Colours, wore on their Clothes; and were thence call'd *Croises*: The *English* wore 'em white; the *French*, red; the *Flemmish*, green; the *Germans*, black; and the *Italians* yellow. See CROISE.

They reckon eight *Croisades* for the Conquest of the Holy Land: The first undertook in 1095, at the Council of *Clermont*; the second in 1144, under *Louis* VII. the third in 1188, by *Henry* II. of *England*, and *Philip Augustus* of *France*; the fourth in 1195, by Pope *Celestin* III. and the Emperor *Henry* VI. the fifth publish'd in 1198, by Order of *Innocent* III. wherein the *French*, *Germans*, and *Venetians* eogag'd; the sixth under the same Pope, began tumultuarily, in 1213, and ended in the Rout of the Christians; the seventh resolv'd at the Council of *Lyons* in 1245, undertaken by S. *Louis*; the eighth, which was the second of S. *Louis*, and the last of all, in 1268.

'Tis said, it was the *Cistercian* Monks who first projected the *Croisades*; *Philip Augustus* sollicited the Execution thereof with the Holy See; and *Innocent* III. rais'd the first Standard of the Cross.

It was the Council of *Clermont* who order'd that they should bear the Cross in their Banner; and that those who enter'd themselves into the Service, should also wear it on their Clothes.

The Abbot *Justiniani* makes an Order of Knighthood of the *Croizes*, who serv'd in the *Croizades*.

Towards the middle of the XIIth Century, there was also a *Croizade* of the *Saxons* against the Pagans of the North; wherein the Archbishop of *Magdeburg*, the Bishops of *Halberstadt*, *Munster*, *Mersburgh*, *Brandenburgh*, &c. with several Lay-Lords embark'd. And towards the Beginning of the same Century, under the Pontificate of *Innocent*, there was also a *Croisade* undertaken against the *Albigenses*; who were become powerful in *Languedoc*, &c. See ALBIGENSES.

CROISES, in our antient Customs, Pilgrims bound for the Holy Land, or who had already been there; so called from a Badge which they wore on their Garments, representing a Cross.

The Word *Croises* is also extended to the Knights of S. *John of Jerusalem*; created for the Defence and Protection of Pilgrims; and all those of the Nobility, Gentry, &c. who in the Reigns of King *Henry* II. *Richard* I. *Henry* III. and *Edward* I. were *Cruce Signati*, *i. e.* dedicated themselves to the Wars, for the Recovery of the Holy Land. See CROISADE.

CROISIERS, *Corte-croix*, or *Crucigeri*, were a Religious Order, or a Congregation of Regular Canons, so call'd.

There are three Orders which have, or do still bear this Name: one of *Italy*; another in the *Low Countries*; and a third in *Bohemia*.

The first pretend to be deriv'd from S. *Clot*; and add, that S. *Quiriacus* the *Jew*, who shew'd S. *Helena* the Place of the true Cross, and was afterwards converted, reform'd them. All we know for certain, is, that they subsisted in *Italy* before *Alexander* III. mounted the Chair; for that Pontiff, flying from *Frederick Barberossa*, found an Asylum in the Monasteries of the *Croisiers*, which he afterwards, in 1169, took under his Protection, giving 'em the Rule of S. *Augustin*, &c.

They were confirm'd by *Pius* V. but the Discipline being much relax'd, they were suppress'd in 1656, by *Alexander* VII.

Matt. Paris says, that the *Croisiers*, bearing Staffs with Crosses at the End, came into *England* in 1244, and presented themselves to a Synod held by the Bishop of *Rochester* to be admitted.

Dodsworth

Dodsworth and *Dugdale* mention two Monasteries of this Order in *England*, the one at *London*, the other at *Rygate*; the first founded in 1245, the latter in 1298: some add a third at *Oxford*, where they were receiv'd in 1349. M. *Allemand* says, there were fourteen Monasteries of *Croisiers* in *England*; adding, that they came from *Italy*; those of the *Low Countries* disowning 'em.

The *Croisiers* of the *Low-Countries* and *France*, were founded in 1211, by *Theodore de Celles* Son of *Boson*, who having serv'd in a *Croisade* in *Palestine*, in 1188, and there found some of the *Croisiers* instituted by S. *Clot*, conceiv'd a Design of instituting another Congregation in his own Country. This is certain, that *Theodore*, in his return from *Palestine*, engag'd himself in the Ecclesiastick State; and went in quality of Missionary to the *Croisade* against the *Albigenses*: and that at his return in 1211, the Bishop of *Liege* gave him the Church of S. *Thebault* near *Huy*; where, with four Companions, he laid the Foundation of his Order; which was confirm'd by *Innocent* III. and *Honorius* III. *Theodore* sent his Religious to *Tholouse*, to join those of S. *Dominic*, and combat the *Albigenses*; and the Congregation multiply'd in *France*. The Popes have endeavour'd to bring the *Croisiers* of *Italy* under those of *Flanders*.

The *Croisiers*, or *Port-croix with a Star*, in *Bohemia*, derive their Origin from S. *Quiriacus*, and say they came from *Palestine* into *Europe*, where they embrac'd the Rule of S. *Augustine*, and built Monasteries. They add, that S. *Agnes* of *Bohemia*, to distinguish 'em from other *Croisiers*, obtain'd of *Innocent* IV. to add a Star to their Habit. But the Story of S. *Quiriacus* has no Foundation; and it was *Agnes* herself, Daughter of *Primislas* King of *Bohemia*, who instituted the Order at *Prague*, in 1234. They are very numerous; and have, now, two Generals.

CROISSANTEE, in Heraldry, *la Croix Croissante* is a Cross crescented; that is, having a Crescent, or Half-Moon, fix'd on each end thereof. See Cross.

CROSETTE, in Architecture, the Returns in the Corners of Chambranles, or Door-Cases, or Window-Frames; call'd also *Ears*, *Elbows*, *Ancones*, *Prothyrides*.

Crosette of a Luthern, the Plaister or covering near a Luthern.

CROSIER, or CROZIER, a *Shepherd's Crook*; a Symbol of Pastoral Authority, consisting of a Gold or Silver Staff, crook'd a-top, carried occasionally before Bishops and Abbots, and held in the Hand when they give solemn Benedictions. See Bishop, and Abbot.

At one End 'tis crook'd, at the other pointed; express'd in the Verse;

Curva trahit mites, pars pungit acuta Rebelles.

The Custom of bearing a Pastoral Staff before Bishops is very antient, as appears from the Life of S. *Cæsarea* of *Arles*, who lived about the Year 500. Among the *Greeks*, none but the Patriarchs had a Right to the *Crosier*. See Patriarch.

The *Crosiers* were at first no more than simple wooden Staves, in form of a T, used to rest and bear upon; by degrees they were made longer; and at length arrived at the form we now see them.

Regular Abbots are allow'd to officiate with a Mitre and a *Crosier*. See Abbot, and Mitre.

Du Cange observes, that it was antiently call'd *Cambuca*, and *Cambuta*; and the Person who bore it, *Cambucarius*. *Papias* derives the Word *à similitudine Crucis*. Others fetch it from the old Saxon *Camoc*, Crook.

Crosier, in Astronomy, four Stars, in form of a Cross; by help whereof, those who sail in the Southern Hemisphere find the Antarrick Pole. See Star, and Constellation.

CROSS, *Crux*, a piece of Carpentry, compos'd of two Pieces of Wood, traversing and cutting each other, ordinarily at right Angles.

It was used among the Antients, as a Punishment for Malefactors and Slaves; and was planted at several Places, *in terrorem*, as our Gallows, *&c.*

Sozomen observes, that it was *Constantine* who by Law first abolish'd the Punishment of the *Cross*; which had obtain'd among the *Romans* till his Time.

Pezron derives the Word *Crux*, from the Celtic *Croug*, and *Croas*; tho, perhaps, *Croug* and *Croas* might with as much Justice be deriv'd from *Crux*.

As to Crucifixion, or the manner wherein the Punishment of the *Cross* was effected, the Criticks, both antient and modern, are exceedingly divided: The Points in dispute, are, Whether the Criminal was fasten'd with three Nails, or with four; whether the Feet were immediately fasten'd to the *Cross*, or whether they rested on a little piece of Wood, in manner of a Step or Rest, πηγια; whether the *Cross* wa planted in the Earth before the Patient was nail'd on, fastening him afterwards by means of a Scaffold rais'd the height of the Place where the Feet were to be nail'd; or whether he was nail'd ere the *Cross* was rais'd or planted, as the Painters represent it: or lastly, whether the Patient was fasten'd quite naked, or cover'd: Questions that have all been occasion'd by the *Crucifixion* of Jesus Christ.

Invention of the Cross, *Inventio Crucis*, is an antient Feast, solemniz'd on the third of *May*, in Memory of S. *Helena*'s (the Mother of *Constantine*) finding the true *Cross* of Jesus Christ deep in the Ground, on Mount *Calvary*; where she erected a Church for the Preservation of part of it: the rest being brought to *Rome*, and reposited in the Church of the *Holy Cross* of *Jerusalem*. See Feast.

Theodoret mentions the finding of three *Crosses*, that of Jesus Christ, and those of the two Thieves; and that they distinguish'd between 'em by means of a sick Woman, who was immediately heal'd by touching the true *Cross*.

The Place is said to have been indicated to her by S. *Quiriacus*, then a *Jew*, afterwards converted and canoniz'd. See on the *Invention of the Cross*, *Theodoret*, *Ruffin*, *Socrates*, *Sozom.* S. *Ambrose*, S. *Cyril*, &c.

Exaltation of the Cross, an antient Feast, held on the 14th of *September*, in Memory of this, that *Heraclius* restor'd to Mount *Calvary* the true *Cross*, which had been carried off 14 Years before, by *Cosroes* King of *Persia*; upon his taking *Jerusalem* from the Emperor *Phocas*.

Cross-*Bearer*, *Porte-croix*, *Cruciger*, in the *Romish* Church, the Almoner of an Archbishop, or a Primate; who bears a *Cross* before him on solemn Occasions.

The Pope has the *Cross* bore before him every where; a Patriarch any where out of *Rome*; Primates, Metropolitans, and those who have a Right to the *Pallium*, throughout their respective Jurisdictions.

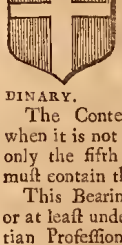
Gregory XI. forbad all Patriarchs and Prelates to have it bore in Presence of Cardinals. A Prelate bears a *single Cross*, a Patriarch a *double Cross*, and the Pope a *triple* one on their Arms.

Order of the Cross, or Croisade, an Order of Ladies, instituted in 1668, by the Empress *Eleonora de Gonzagua*, Wife of the Emperor *Leopold*; on occasion of the miraculous Recovery of a little golden *Cross*, wherein were inclos'd two Pieces of the *true Cross*; out of the Ashes of part of the Palace.

It seems, the Fire had burnt the Case wherein it was inclos'd, and melted the Crystal; yet the Wood remain'd untouch'd.

Cross, in Botany, is used to express the Arrangment of the *Petala* of certain Flowers; call'd *Plantæ flore Cruciformi*. See Plant, and Flower.

The Flowers are not to have either more or less than four *Petala*; and their Calix only to consist of four Pieces. The Pistil generally becomes a Fruit, call'd *Siliqua*. See Siliqua.



Cross, in Heraldry, is defin'd by *Guillim*, an Ordinary compos'd of four-fold Lines; whereof two are perpendicular, and the other two transverse; for so we must conceive of them, tho they be not drawn throughout, but meet by Couples, in four right Angles, near the Fess Point of the Escutcheon. See Ordinary.

The Content of a *Cross* is not the same always: For when it is not Charg'd, Canton'd, nor Accompany'd, it has only the fifth Part of the Field; but if it be charg'd, it must contain the third Part thereof.

This Bearing was first bestow'd on such as had perform'd, or at least undertaken, some Service for Christ, and the Christian Profession; and is held, by some, the most honourable Charge in all Heraldry. What brought it into such frequent use, was the antient Expeditions into the Holy Land; and the Holy War Pilgrims, after their Pilgrimage, taking the *Cross* for their Cognizance; and the Ensign of that War being the *Cross*. See Croisade.

In those Wars, says *Mackenzy*, the *Scots* carry'd St. *Andrew*'s *Cross*; the *French* a *Cross* Argent; the *English* a *Cross* Or; the *Germans* Sable, the *Italians* Azure, the *Spaniards* Gules.

St. *George*'s *Cross*, or *the Red Cross*, in a Field Argent, is now the Standard in *England*; that Saint being the reputed Patron of this Nation.

Guillim enumerates 39 different sorts of *Crosses* us'd in Heraldry, the several Names whereof here follow; the Descriptions are to be look'd for under proper Articles.

A' *Cross voided*, a *Cross wavy-voided*, a *Cross patee fimbriated*, a *Cross patee fitched on the Foot*, a *Cross patee on three Parts and fitched on the fourth*, a *Cross engrailed*, a *Cross patonce*, a *Cross flory*, a *Cross patonce voided*, a *Cross avelane*, a *Cross patee lambeaux*, a *Cross furchee*, a *Cross crosslet*, a *Cross crosslet fitchee at the Point*, a *Cross bottone*, a *Cross pomel*, a *Cross urdee*, a *Cross degraded fitchee*, a *Cross potent*, a *Cross potent fitched*, a *Cross calvary*, a *Cross crosslet set in Degrees*, a *Cross patriarchal*, a *Cross anchor'd*, a *Cross moline*, a *Cross clechee*, a *Cross flury*, or *fleury delisee*, a *Cross double fitchee*, a *Cross a saize Points*, a *Cross mitrine*, a *Cross raguled*, a *Cross pointed voided*, a *Cross pall*, a *Tau*, or *S.* Anthony's *Cross*, a *Cross voided*

and couped, a *Croſs couped pierced*, a *Croſs moline pierced Lozenge-ways*, a *Croſs moline quarter-pierced*, a *Saltire, or S.* Andrew's *Croſs*, which muſt be diſtinctly ſpoken of under that Denomination; and ſo all the others may be found more particularly deſcrib'd under the Names of their ſeveral Difference.

Colombiere makes 72 diſtinct ſorts of *Croſſes*, of which we ſhall only mention thoſe that differ from ſuch as have been mention'd above; as, *La Croix remply*, which is only one *Croſs* charged with another: A *Croſs party*, that is, one half of one Colour, and the other of another: A *Croſs quarter'd*, that is, the oppoſite Quarters of ſeveral Colours: A *Croſs of five Pieces*, that is, of ſo many Colours; a *Croſs mouſſue*, and *abaiſee*; a *Croſs barbee*; a *Croſs croiſſantee*, or *creſcented*, that is, having a Creſcent at each End: A *Croſs forked of three Points*; a *Croſs pommetee of three Pieces*; a *Croſs reſſerceelee*; a *Croſs pointed*; a *Croſs anker'd, and ſuranker'd*; a *Croſs anker'd with Snakes Heads*; a *Croſs orled*; a *high Croſs*; a *Croſs rayonnant*, or *caſting out Rays of Glory*; a *Croſs of* Malta; a *Croſs of the Holy Ghoſt*; a *Croſs forked*, like the antient Reſts for Muſkets; a *Croſs with eight Points*; a *Croſs bourdonnee*; a *Croſs cramponnee and tournee*; a *Croſs cablee*; a *Croſs inclining*; a *Croſs pater noſtree*, that is, made of Beads; a *Croſs treſle*; a *Croſs fleuronnee*; a *Croſs vuidee, clechee, and pommetee*; a *Croſs crenellee and baſtilee*; a *Croſs with four Steps to every Arm*; a *Croſs rounded*; a *Croſs and an half*; a *Croſs eſtoilee*, or *ſtar-ways*; a *Croſs corded*; a *Croſs doubled*, of ſix Pieces ſet together; a *double Croſs ſplit in Pale*; a *long Croſs cut in pieces and diſmember'd*; a *Croſs couped*, or cut thro' in Feſſe of the two contrary Colours to the Field; a *Chevron ſurmounted by an half Croſs*: Four Tails of Ermin in a *Croſs*, the Tops of the Ermins oppoſite to each other in the middle: Four Pieces of Vair plac'd *croſs-ways*, and counterpointing in the Centre: The *Croſs* or Sword of S. *James*: *Potence cramponnee* on the dexter upper Arm, and a *Potence* about the middle of the Shaft.

Theſe are the various *Croſſes* we find in the aforeſaid Authors; which ſome may think too many, as not being all uſed in *England*: but Heraldry extends to all Countries; and all Terms us'd deſerve to be explain'd, that they may be underſtood. Nor is it only in *Croſſes* that the Variety is ſo great, it will appear in many other Bearings, and particularly in Lions, and the Parts of them; whereof the ſame *Colombiere* gives us no leſs than 96 diſtinct Varieties. *Leigh* mentions but 46 ſeveral *Croſſes*; *Sylvanus Morgan*, 26; *Upton*, 30; *Johannes de Bado Aureo*, 12; and ſo others, whom it is needleſs to mention. The aforeſaid *Upton* owns he dares not preſume to aſcertain all the various *Croſſes* uſed in Arms, for that they are at preſent almoſt innumerable: and therefore he only takes notice of ſuch as he had ſeen uſed in his own time.

Cross, in Surveying; or, the *Surveying-Croſs*, is an Inſtrument us'd in Surveying; conſiſting of a braſs Circle, divided into four equal Parts, by two Lines cutting each other in the Centre: At each Extremity of either Line is fix'd a Sight, perpendicularly over the Lines; with Holes below each Slit, for the better Diſcovery of diſtant Objects.

The *Croſs* is mounted on a Staff, or Stand, for uſe. Sometimes, inſtead of four Sights there are eight.

The *Surveying Croſs* is but little known or us'd among us; abroad it is of more account: The manner of applying it is as follows.

Suppoſe the Field ABCDE, (Tab. *Surveying*, Fig. 24.) to be ſurvey'd: Plant Poles at all the Angles; meaſure the Line AC, and the Perpendiculars let fall from the Angles to the Line: Take down the Dimenſions of each. Now, to find the Point F, plant Poles at pleaſure in the Line AC, and the Foot of the Inſtrument in the ſame Line, in ſuch manner, as that thro' two of the oppoſite Sights you may obſerve two of the Staffs; and thro' the other two, the Staff E. If in this Station E ben't thus viſible, remove the Inſtrument backwards or forwards, till the Lines AF, EF make a right Angle in F; by which means, the Plot of the Triangle AFE will be had. After the ſame manner is the Point H found, where the Perpendicular DH falls; whoſe length, together with that of GF, is meaſur'd, to have the Plot of the Trapezium EFHD.

Again, meaſure HC, making a tight Angle with HD, and the Plot of the Triangle DHC will be had. All that now remains, is to find the Point G, where the perpendicular BG falls: Which being found after the ſame manner as the reſt, we have the Plot of the whole Field A,B,C,D,E. The Area whereof, is had by adding the Triangles and Trapeziums together. See Area; ſee alſo Surveying, Chain, Plain-*Table*, &c.

Cross *Multiplication*, the Method of multiplying Feet and Inches, by Feet and Inches, or the like; ſo call'd, becauſe the Numbers are multiply'd *croſs-wiſe*. *See the Method under* Multiplication.

Cross, in Dialling. See Dial.

Cross-staff, a Mathematical Inſtrument, otherwiſe call'd the *Foreſtaff*. *See its Deſcription and Uſe under* Forestaff.

CROSSELET, *little Croſs*, a Diminutive of *Croſs*, uſed in Heraldry, where we frequently ſee the Shield cover'd with *Croſſelets*; Feſſes, or other honourable Pieces, charg'd or accompany'd with *Croſſelets*. Croſſes themſelves frequently terminate in *Croſſelets*, as in the Figure adjoining. See Cross.

CROSS-GRAIN'D *Stuff*, in Joinery. Wood is ſaid to be *croſs grain'd*, when a Bough or Branch has ſhot out of it: for, the Grain of the Branch ſhooting forward, runs athwart that of the Trunk. In Wood well grown this Defect is ſcarce perceivable, except in working; but in Deal-Boards theſe Boughs make Knots. If the Bough grew up with the young Trunk, inſtead of a Knot is found a *curling in the Stuff*; very ſenſible under the Plane.

CROTALUM, a kind of *Caſtagnetta*, or Muſical Inſtrument found on Medals, in the Hands of the Prieſts of *Cybele*. See Corybantes.

The *Crotalum* differ'd from the *Siſtrum*; tho Authors frequently confound the two. It conſiſted of two little braſs Plates, or Rods, which were ſhook in the Hand, and in ſtriking againſt each other made a Noiſe.

It was ſometimes alſo made of a Reed ſplit lengthwiſe; one Part whereof they ſtruck againſt the other: and as this made a Noiſe ſomewhat like that of a Crane's Bill, they call'd that Bird *Crotaliſtria*, *Player on Crotala*.

An Antient, in *Pauſanias*, ſays, that *Hercules* did not kill the Birds of the Lake *Stymphala*, but that he drove them away by playing on *Crotala*. On this footing, the *Crotala* muſt be exceedingly antient.

Clemens Alexandrinus attributes the Invention to the *Sicilians*; and forbid's the Uſe thereof to the Chriſtians, becauſe of the indecent Motions and Geſtures that accompany it.

CROTAPHYTES, a Muſcle of the lower Jaw.

Its Fibres ſpring ſeverally from the Bones of the Forehead, the *Sinciput*, *Sphenoides*, and *Temporale*; which meeting, and as it were centering under the *Os Jugale*, whence alſo this Muſcle receives ſome Fibres, they proceed to the *Proceſſus Corone*, into which they are inſerted, and draw the lower Jaw upwards. See Maxilla.

CROTCHET, in Muſick, one of the Notes, or Characters of Time, mark'd thus ♩ equal to half a Minim, and double a Quaver. See Note, and Character.

'Tis not eaſy to conceive how this Character comes by the Name *Crotchet*: The Word is apparently borrow'd from the French *Crotchet*, of *Croc*, a Crook or Hook, uſed by them for what we call the *Quaver*, or *half Crotchet*; by reaſon of the additional Stroke at bottom, which gives it an Appearance of a Crook. See Quaver.

A Dot added to the *Crotchet*, thus ♩. increaſes its Time by half; that is, makes it equal to a *Crotchet* and an half, or to three Quavers. See Time.

Crotchet, in Printing, a Term uſed for certain Strokes or Lines, ſometimes ſtrait, ſometimes waved, but always turn'd up at each Extreme; ſerving to hind or link together ſeveral Articles, that are to be read together, ere you proceed to the Subdiviſions, placed aſide of 'em with ſimilar or ſmaller *Crotchets*; much us'd in Genealogies, Analytical Tables, &c. for facilitating the Diviſion and Subdiviſion of any thing.

Crotchet is alſo uſed for two oppoſite Characters, ſerving to incloſe what we call a *Parentheſis*, or any other Part of a Diſcourſe, to be diſtinguiſh'd from the reſt of the Work; ſometimes in this form [ ] and ſometimes in this ( ). See Character.

CROW, in the Sea Language, a Machine with an Iron Hook, for the faſtning hold, and grappling with the Enemies Veſſel, in an Engagement.

The Name *Crow*, *Corvus*, was antiently given to ſeveral Machines of War, uſed in the Defence of Places: one invented by *Diades*; another by the *Tyrians*, mention'd by *Q. Curtius*; another by *Cn. Ovellius*.

Vitruvius calls the firſt the *Demoliſhing Crow*, *Corvus demolitor*, and alſo *deprædator*: others call it the Crane.

Polybius deſcribes another invented by *C. Duillius* uſed againſt the *Carthaginian* Fleet.

They were all a kind of Grappling-Hooks; ſerving to drag Things towards the Ingineer. That deſcrib'd by *Qu. Curtius* was thrown out of a Baliſta.

Crows-*Bill*, an Inſtrument us'd by Chirurgeons, in their Operations; eſpecially for the drawing Bullets and other foreign Bodies out of Wounds.

It has its Name from its Figure.

Crows-feet, in the Military Art, are Irons with four Points, of three or four Inches long; so that which way soever they fall, one Point will be uppermost.

Crows-feet, in a Ship, are small Ropes, divided by the Hole of a little Block or Pully, called *the dead Man's Eye*, into six, ten, or more Parts.

CROWN, *Corona*, a Mark of Regal Dignity; or an Ornament wore on the Head by Kings and Sovereigns, as a Symbol of their Authority. See King, &c.

In the remotest Antiquity, the *Crown* was only given to Gods: *Pliny* says, that *Bacchus* was the first who us'd it: *Pherecydes*, cited by *Tertullian de Corona*, says *Saturn*: *Diodorus* ascribes it to *Jupiter*, after his Victory over the *Titans*: *Q. Fabius Pictor*. ascribes the Invention to *Janus*; adding, that it was an Ornament he us'd in Sacrificing: *Leo* the *Egyptian* says, it was *Isis* who first wore a *Crown*; and that it consisted of Ears of Corn, the Use whereof she first taught Men.

In this, most Authors agree, that the *Crown*, originally, was rather a Religious than a Civil Ornament; rather one of the *Pontificalia*, than the *Regalia*: that it only became common to Kings, as the antient Kings were Priests as well as Princes; and that the modern Princes are entitled to it, in their Ecclesiastical Capacity rather than their Temporal.

The first *Crowns* were no more than a *Bandelette*, or Headband, drawn round the Head, and tied behind; as we still see it in *Jupiter's* Heads on Medals, as also in the *Ptolemies*, and the Kings of *Syria*.

Afterwards they consisted of two *Bandelette's*; by degrees they took Branches of different Trees; at length they added Flowers; insomuch that *Tertullian de Corona*, assures us, (from *Claudius Saturninus*, who had wrote expresly on the Subject) there was not any Plant whereof *Crowns* had not been made.

The Woods and Groves were search'd, to find several *Crowns* for the several Deities: Thus, on Medals, we find *Jupiter's Crown* of Flowers, more frequently of Laurel; *Juno's* of the Vine; that of *Bacchus*, Vine with Grapes, Vine-Leaves, and Branches of Ivy, with Flowers and Berries: Those of *Castor*, *Pollux*, and the River-Gods, of Bulrushes: That of *Apollo*, sometimes of Laurel, sometimes of Rushes; that of *Saturn*, new Figs; that of *Hercules*, Poplar; that of *Pan*, Pine or Aldar; that of *Lucina*, Dictamnus; that of *the Horæ*, the Fruits proper to each Season; that of *the Graces*, Olive-Branches, as well as that of *Minerva*: That of *Venus*, Roses: of *Ceres*, Ears of Corn, as well as that of *Isis*: That of *the Lares*, Myrtle or Rosemary, &c.

Crowns were not only us'd for the Statues and Images of the Gods, for the Priests in Sacrificing, and for Kings and Emperors; but also for Altars, Temples, Doors of Houses, sacred Vessels, Victims, Ships, &c.

The Poets *crown'd* those who were Victors in the Solemn Games, Warriors, &c. See Olympic, &c.

From some Passages in *Eusebius Cæsariensis*, some Authors conclude, that Bishops had antiently their *Crowns*.

The *Roman* Emperors had four Kinds of *Crowns*, still seen on Medals; *viz.* a *Crown* of Laurel, a Radiating *Crown*, a *Crown* adorn'd with Pearls and Precious Stones; the fourth a kind of Bonnet, or Cap, something like the Mortier.

The first was that ordinarily used from the Time of *Julius Cæsar*: The Right of bearing it was granted him by the Senate; some say, on account of his Baldness; and afterwards continued to his Successors. *Justinian* was the first who took that of the Bonnet-kind.

The *Papal Crown*, is compos'd of a Tiara, and a triple *Crown* incompassing the Tiara; having two Pendants, like the Bishops Mitres: These three *Crowns* represent the pretended triple Capacity of the Pope, *viz.* as High Priest, Supreme Judge, and sole Legislator of the Christians. See Pope.

The *Imperial Crown* is a Bonnet, or Tiara, with a Semicircle of Gold, supporting a Globe with a Cross a-top.

The *English Crown* is adorn'd with four Crosses, in the manner of those of *Malta*; between which are Flower-de-Lys's. It is cover'd with four Diadems, which meet at a little Globe supporting a Cross.

The *French Crown* is a Circle of eight Flower-de-Lys's, incompass'd with six Diadems; bearing a-top a double Flower-de-Lys, which is the Crest of *France*.

The *Spanish Crown* is adorn'd with large indented Leaves, cover'd with Diadems, bordering on a Globe, surmounted with a Cross. See Coronet.

Among the *Romans*, there were various Kinds of *Crowns*, distributed as Rewards of Military Atchievements: The *Oval Crown* was the first, made of Myrtle; and was bestow'd on Generals who had been victorious over Slaves, unworthy of the *Roman* Valour, and who were entitled to the Honours of the lesser Triumph, call'd *Ovation*. See Ovation.

The second was the *Naval* or *Rostral Crown*, consisting of a Circle of Gold, rais'd with Prows and Poops of Ships; given to the Captain who first grappled, or the Soldier who first jump'd aboard, an Enemy's Ship. See Rostral.

The third call'd *Vallaris*, or *Castrensis*, was also a Circle of Gold, rais'd with Piles or Pallisades; given him who first leap'd into the Enemies Camp, or forced the Pallisades. See Castrensis.

The fourth, call'd *Mural Crown*, was a Circle of Gold, indented or embattel'd; given him who first mounted the Wall of a Place besieg'd, and there lodg'd a Standard: This *Crown* we also find given, on Medals, to the particular *Genii* and Guardians of Provinces and Places. See Mural.

The fifth the *Civic Crown*; made of a Branch of green Oak: given a Citizen who had sav'd the Life of another Citizen in a Battel or Assault. See Civic.

The sixth was the *Triumphal Crown*, made of Branches of Laurel, given a General who had gain'd a Battle, or conquer'd a Province. This was afterwards given of Gold. See Triumph.

The seventh the *Corona Obsidionalis*, or *Graminea*, made of Grass or Herbs, found on the Ground; given to Generals who had deliver'd a *Roman* Army besieg'd by the Enemy, and oblig'd him to decamp. See Obsidional.

The eighth was also a *Crown* of Laurel, given by the *Greeks* to their *Athletæ*; and by the *Romans*, to those who had negotiated, or confirm'd a Peace with an Enemy: This was the least esteem'd.

Besides these, in Antiquity, we meet with *Radial Crowns*, given to Princes at their Translation among the Gods; whether before or after their Death.

Casaubon says, this *Crown* was peculiar to Deities; yet, 'tis certain *Nero* took it in his Life-time.

Athletic Crowns, were destin'd to crown Victors at the Publick Games.

There are also *Sacerdotal Crowns* for the Priests.

In an Ecclesiastical Sense, *Crown* is also used for the Clerical Tonsure; which is the Mark, or Character of the *Romish* Ecclesiasticks. See Tonsure.

This is a little Circle of Hair, shav'd off from the *Crown* of the Head; more or less broad, according to the Quality of the Orders receiv'd. See Order.

That of a mere Clerk is the smallest; that of Priests and Monks the largest.

The *Clerical Crown*, was antiently a round List of Hair, shav'd off around the Head, representing a real *Crown*: This is easily observ'd in several antient Statues, &c. The Religious of S. *Dominic* and S. *Francis* still use it.

Father *Daniel* says, that S. *Louis* ransom'd the *Crown of Thorns* of our Saviour, which had been pawn'd by *Baldwin* Emperor of *Constantinople*, for an immense Sum of Money; and transported it, with great Ceremony, to *France*: where 'tis still kept in the Holy Chapel. The Author of the History of S. *Louis*, adds, that the Thorns were still green in his Days. Some Writers, from *Clemens Alexandrinus*, hold that it was made of Bramble, *ex Rubo*; others of Black-Thorn, *ex Rhamno*; others of White-Thorn. Those who see it in the Chapel, take it to be the *Juncus Marinus*.

Galiot derives the Word *Corona*, whence *Crown*, from the Latin *Cornu*, Horn; because the antient *Crowns* were pointed in manner of Horns; which were antiently, both by *Jews* and *Gentiles*, esteem'd as Marks of Power, Strength, Authority, and Empire.

Hence, in the Holy Scripture, Horns are us'd for the Regal Dignity: and accordingly, *Horn* and *Crown*, in the *Hebrew*, are express'd by the same Word.

Ch. Paschal has wrote expresly *de Coronis*: *Baudelot* has made a good Number of curious Observations on the same Subject, that had escap'd *Paschal*. *Du Cange* gives us a curious Dissertation of *Crowns*; and *Schmeizell*, a *German*, a Treatise of *Royal Crowns*, both antient and modern.

Crown, in Commerce, is a general Name for Coins, both Foreign or Domestick, of, or near, the Value of five Shillings Sterling. See Money, and Coin.

In its limited Sense, *Crown* is only applicable to that popular *English* Coin which bears that Name, and which is equivalent to 60 *English* Pence, or five Shillings; or to 13 Livres 15 Sols *French* Money: But, in its extensive Sense, it takes in several others; as the *French Ecu*, which we call the *French Crown*, struck in 1641 for 60 Sols, but now risen to 5 Livres; the Patagon, Dollar, Ducatoon, Rixdollar, and Piastre or Piece of Eight. See Ecu, Dollar, Ducatoon, Rixdollar, Piastre, &c.

Crown, in Architecture, the uppermost Member of the Cornice; call'd also *Corona* and *Larmier*. See Corona, and Larmier.

Crown, in Astronomy, one of the Northern Constellations. See Corona.

Crown, or Coronet, in Heraldry, is us'd for the Representation of that Ornament, in the Mantling of an Armoury; to express the Dignity of the Person who bears it.

The *Crown* here is of more Antiquity even than the Helmet; and was us'd as a Symbol of Victory and Triumph.

Radiated, or *Pointed Crowns*, are those of the antient Emperors, which had 12 Points; representing, as some will have it, the twelve Months of the Year.

Pearl'd,

Pearl'd, or *Flower'd Crowns*, those with Pearls, or Leaves of Smallage, Parsley, &c. such as were antiently almost all *Crowns*, even those of Sovereign Princes: Tho they were not us'd in their Armouries, till about 200 Years ago.

CROWN, in Geometry, a Plane included between two parallel or concentric Perimeters, of unequal Circles; generated by the Motion of some Part of a Right Line round a Centre, the moving Part not being contiguous to the Centre.

The Area of this is had, by multiplying its Breadth by the middle Perimeter; for a Series of Terms in Arithmetick Progression being $n \times \frac{a+\omega}{2}$; that is, the Sum of the first and last multiply'd by half the Number of Terms, the middle Element must be $\frac{a+\omega}{2}$; wherefore, that multiply'd by the Breadth or Sum of all, the two Terms will give the *Crown*.

CROWN-*Office*, a Court or Office so called, because the *Crown* is more immediately concern'd in what is therein transacted. See CROWN.

Tho none of the Officers under the Lord Chief Justice are employ'd in summoning a Parliament; yet, many of them have Business in other Matters, during the sitting of the Parliament: As, in Cases of Error, &c. but more especially on Trials of Peers; wherein the Clerk of the *Crown* is chief Manager.

He hath likewise, out of Parliament, all Indictments in the *Crown*, Informations, Recognizances; and a multitude of other Business runs thro' his Hands, as the writing of all Pleadings, Declarations, and other Proceedings upon Records: but the executive Part is left to his Secondary or Deputy.

CROWN-GLASS, the finest sort of Window-Glass. See GLASS.

CROWN-POST, in Architecture, a Post which in some Buildings stands upright in the middle, between two principal Rafters. See POST.

CROWN-WHEEL *of a Watch*, is the upper Part next the Balance, that drives it by its Motion. See WATCH.

CROWN-WORK, or CROWNING, in Fortification, Outworks running in the *Campagne*, to keep off the Enemy, to gain some Hill, or advantageous Post, and to cover the other Works of the Place. See OUTWORK.

It consists of two Demi-Bastions at the Extremes, and an entire Bastion in the middle, with Courtines.

CROWNED *Horn-work*, is a Horn-work with a *Crown*-work before it. See HORN-WORK.

CROWNING, is understood, in the general, of any thing that terminates, or finishes a Decoration of Architecture: Thus, a Cornice, a Pediment, Acroteria, &c. are call'd *Crownings*. See ACROTER, &c.

Thus, also, the Abacus is said to *crown* the Capital; and thus any Member or Moulding is said to be *crown'd*, when it has a Fillet over; and a Niche is *crown'd*, when it is cover'd with a Capital. See MOULDING, NICHE, &c.

CROUPADE, or *Groupade*, in the Manage, a Leap, higher than the Corvet, wherein the fore and hind Part of a Horse keep an equal height; his Legs being truss'd under his Belly, without stretching 'em out, or shewing his Shoes.

CROUPER, or CRUPPER, the hind Part of a Horse; comprehended between the Place of the Saddle, and the Tail.

The Word is form'd from the German *Grub*, thick, fat: *Du Cange* derives it from the Italian *Groppa*, Buttock.

CRUCIAL *Incision*, in Chirurgery, an Incision, or Cut into some fleshy Parts, in form of a Cross.

CRUCIBLE, a little Vessel, ordinarily of Earth, sometimes Iron, without any Handle; us'd by Chymists, Coiners, Goldsmiths, Glasiers, and other Artificers; to melt and calcine Gold, Silver, or other Metals whereon they work. See FUSION, CALCINATION, &c.

Earthen *Crucibles* are made of glaz'd Earth, with Stone Potsherds pounded and sifted: They are of various Sizes, but generally of the same Form, which resembles that of an inverted Cone, or Pyramid.

'Tis these are chiefly us'd in Coinage, as being the only ones in which Gold will melt without irritating. Iron *Crucibles* are in form of little Pails without Handles, made of Iron well forg'd and beaten: In these they melt Silver, Copper, &c.

There are Earthen *Crucibles* that hold from 100 to 3 or 400 Marks; but those ordinarily us'd are but of 100. The Iron ones are larger; some holding 12 or 1500 Marks: These are not taken off the Furnaces when the Plates are to be run, but the Metal is laden out with an Iron Ladle. 'Tis a Rule never to put as much Metal in the *Crucible* as it will hold. See COINAGE.

The *Crucibles* used by Goldsmiths and Founders are like those used in the Coinage: Those of Chymists, &c. are of all Sizes, according to the Quantity and Quality of the Metal to be put in 'em.

The Word comes from the Hebrew *Keres*, *testa*, *fictile*: *Du Cange* derives it from *Crusellinum*; which, in the lower *Latin* signifies a little drinking Vessel.

CRUCIFIX, a Cross, whereon the Body of Jesus Christ is fasten'd in Effigy; much us'd by the *Romanists* in their Churches, and other Places, to recognize the Passion of Jesus Christ, and to serve them to direct their Prayers to. See CROSS.

There are some Chapters wherein Jesus Christ is the first Canon, and the Fruits of the Prebend go to the Subsistence of the *Crucifix*.

CRUCIFIXION, an antient Form of Execution; by fastening the Criminal to an erected Cross. See CROSS.

CRUDE, something that has not pass'd the Fire, or has not had the degree of *Coction*, *i. e.* of Heat, requisite to prepare it for eating, or some other Purpose. See COCTION.

Crude or Raw Silk, is that which has not been put in boiling Water, to unwind it from off the Cod; nor boil'd in Water and Soap, to fit it for dying. See SILK.

In Chymistry, they call *Crude Antimony* that which comes immediately from the Mines, without any Preparation. See ANTIMONY.

In Medicine, *Crude Humours* are those which want of that Preparation and Elaboration which they ordinarily receive from Digestion. See CRUDITY.

The Retainers to the Doctrine of Trituration, hold that the *Crudity* of the Humours only consists in this; that they are not broke and comminuted so much as they should be by the ordinary Action of the Stomach. See TRITURATION.

CRUDITY, in Medicine, the State of a Disease, wherein the morbifick Matter is of such Bulk, Figure, Cohesion, Mobility, or Inactivity, as denominates it *crude*, *i. e.* as creates or increases the Disease. See DISEASE.

A *Crudity* is discover'd, 1st, from the Disease's continuing its degree of Strength, or increasing. 2d, From a continual Increase of Symptoms. 3d, From a disorderly Exercise of the Functions. 4th, But chiefly from a Fault in the Quantity or Quality of the Humours; both those still circulating, and those secreted, and evacuated: as of Sweat, Tears, Mucus of the Nose, Saliva, Sputum, the Bile, Urine, Ichor, Pus, Blood, Menses, Loches, Milk, Aphthæ, &c.

That State of the Disease, wherein the *crude* Matter is changed, and render'd less peccant, and laudable, is call'd Digestion, Concoction, or Maturation. See DIGESTION, CONCOCTION, &c.

CRUISE, from the German *Kruis*, a-cross, signified to cross to and fro, to sail up an down for guard of the Seas, &c.

CRUOR, a Term used by Anatomists for the red Globules of the Blood; in contradistinction to the limpid or serous Part. See BLOOD.

Some Authors, Dr. *Keill* and Dr. *Woodward* for instance, suppose these Globules replete with an elastick Aura, or Air; and on this Principle account for some of the Phænomena of the Animal Oeconomy; particularly Muscular Motion, &c. But Dr. *Jurin* has overturn'd that Supposition. See MUSCULAR *Motion*.

Vanhelmont uses the Word *Cruor* for the Blood in the Veins; in contradistinction to the Blood in the Arteries, which he calls *sanguis*. See VEIN, and ARTERY.

CRURA *Clitoridis*, in Anatomy. Between the *Corpora Nervosa* of the *Clitoris*, runs a *Septum*, or membranous Partition, from the Glans to its Divarication at the *Os Pubis*; dividing the *Clitoris* into two Parts, call'd the *Crura of the Clitoris*.

These are three times as long as the ordinary Trunk of the *Clitoris* it self. See CLITORIS.

CRURA *of the Medulla Oblongata*, are two of the four Roots whence the *Medulla Oblongata* springs, in the Brain.

The *Crura* are the larger Roots; the two smaller are call'd *Pedunculi*. See MEDULLA *Oblongata*.

CRURAL, in Anatomy, an Epithet given to the large Artery and Vein of the Thigh. See THIGH.

The *Crural Artery* arises from the Iliac Artery; or rather, 'tis the Iliac it self, under another Name; being call'd *Crural*, from the Place of its Entrance into the Thigh. See ILIAC.

It conveys Blood thro' all the Part, by means of a great Number of Branches disseminated thro' its Substance.

The *Crural Vein* is form'd of six other Veins, *viz.* the *great* and *little Sciatica*, the *Muscula*, the *Poplitea*, the *Sural*, and the *Saphena*. See SCIATICA, &c.

CRURÆUS, in Anatomy, a Muscle arising from the fore Part of the Thigh-Bone, between the lesser and greater Trochanter, and lying close upon the Bone, joins its Tendon with three others, which altogether make one broad Tendon, that passes over the *Patella*, and is inserted into the little Tuberosity on the upper and fore Part of the *Tibia*.

'Tis call'd *Cruræus*, as being fasten'd in the Thigh-Bone in the same manner as the *Brachiæus* to the Arm. Its use is to extend the Leg.

CRUS, among Anatomists, is all that Part of the Body which reacheth from the Buttocks to the Toes; and is divided into *Thigh*, *Leg*, and *Foot*. See each in its Place, THIGH, &c.

CRUSCA, an *Italian* Term, signifying *Bran*, or what remains of Meal after the Flower has been sifted out.

It is only in use among us for that celebrated Academy call'd *Della Crusca*, establish'd at *Florence*, for the Purity and Perfection of the *Tuscan* Language. See ACADEMY.

The Academy took its Name from its Office, and the End propos'd by it; which is, to purify the Language, and as it were to separate it from the Bran. Accordingly, its Device is a Sieve, and its Motto, *Il piu bel fior ne coglie*; that is, *It gathers the finest Flower thereof.*

In the Hall or Apartment where the Academy meets, M. *Monconis* informs us, every thing bears an Allusion to the Name and Device: the Seats are in form of a Baker's Basket; their Backs like a Shovel for moving of Corn: The Cushions of gray Sattin in form of Sacks, or Wallets; and the Branches where the Lights are dispos'd, likewise resemble Sacks.

The Dictionary *Della Crusca* is an excellent *Italian* Dictionary, compos'd by this Academy.

CRUSTA *Villosa*, in Anatomy, the fourth Tunic, or Coat, of the Stomach. See STOMACH.

On the inner Surface of this Coat, are seen innumerable *Villi* or *Fibrillæ*, rising every where perpendicularly from it; which some will have to serve for nothing but a Defensative to the Stomach, to preserve it from acrimonious Humours: but Dr. *Drake* rather takes 'em to be excretory Ducts to the subjacent Glands; which some Authors would have to be that now exploded thing a *Parenchyma*; but which are, indeed, the Organs by which most of that Humour which is discharg'd upon the Stomach, is separated; and these *Villi* the immediate Channels thro' which it is convey'd. See STOMACH.

CRUSTACEOUS *Fishes*, in Natural History, are those cover'd with Shells, consisting of several Pieces, or Scales; as those of Crabs, Lobsters, &c. See FISHES.

These are usually softer than those of the Testaceous kind, which consist of a single piece, usually much thicker and stronger than the former; such as those of the Oyster, Scallop, Cockle, &c. See SHELL.

Dr. *Woodward* observes, in his Natural History, that of all the Shells and Nautili found in Beds of all the different Matters dug out of the Earth, there are scarce any of the *Crustaceous* Kind: The Reason he gives for it is, that these being much lighter than the rest, must have floated on the Surface at the time of the Deluge, when all the Strata were form'd; and there have corrupted and perish'd. See DELUGE.

CRUZADO, in Commerce, is a *Portugueze* Coin, struck under *Alphonsus* V. about the Year 1457, at the Time when Pope *Calixtus* sent thither the Bull of a *Croisade*, against the Infidels. See COIN.

It had its Name from a Cross, which it bears on one side; the Arms of *Portugal* being on the other. A *Cruzade* is of the Value of 40 Sols. See SOL.

CRUZADO, or CROISADE, an Expedition to the Holy Land. See CROISADE.

CRYPTA, a subterraneous Place, or a Vault; especially under a Church, for the Interment of particular Families, or Persons. See TOMB.

S. *Ciampini*, describing the Outside of the *Vatican*, speaks of the *Cryptæ* of St. *Andrew*, St. *Paul*, &c. See CATACOMB.

Vitruvius uses the Word for a Part of a Building, answering nearly to our Cellar; *Juvenal*, for a *Cloaca*.

Hence, *Crypto-Portico*, a subterraneous Place, arch'd, or vaulted; us'd as an Underwork, or Passage in old Walls. The same is also us'd for the Decoration at the Entry of a Grotto. See GROTTO.

CRYPTA, is also used by some of our antient Writers, for a Chapel, or Oratory under ground: *Egresso toto conventu, accepta absconsa si nox est vadit per* cryptam. *Du Cange.*

The Word is form'd of the *Greek* κρύπτω, *abscondo*, I hide; whence κρυπτη, *Crypte*.

CRYPTOGRAPHY, the Art of *Secret Writing*, or writing in *Cipher*. See CIPHER, and DECIPHERING.

The Word is compounded of κρυπτω, *I hide*, and γραφω, *I describe*.

CRYSTAL, in Natural History, a Kind of Mineral; or rather, a transparent Stone, white, like a Diamond, but much inferior thereto in Lustre and Hardness; used for Vases, Urns, Mirrors, &c.

The Antients were but little acquainted with the Nature of *Crystal*: *Pliny* speaks of it as harden'd, petrified Water, which was the popular Opinion of those Days; but Experience has shewn us the contrary: for by a Chymical Analysis, instead of resolving into Water, it yields nothing but a Calx, Earth, and Salts.

For the Places where 'tis found, *Pliny* adds, that he has seen it dug from off the highest and roughest Rocks of the *Alps*; whence, doubtless, its Name of *Rock-Crystal*. 'Tis sometimes also found in Brooks and Rivers, but not form'd there; only wash'd down thither from off the Mountains by the violent Rains.

Several Mountains of *Europe*, and some of *Asia*, produce *Rock-Crystal*: If we may believe the *French* Relation of *Madagascar*, that Island yields more than all the World besides.

Its Perfection consists in its Lustre and Transparency; that with Straws, Dust, Clouds, &c. is little valued. It is frequently found Hexagonal; the Edges inimitably fine and accurate.

'Tis cut or engrav'd in the same manner, with the same Instruments, and by the same Workmen as Diamonds. See DIAMOND, and ENGRAVING.

Crystal is of some use in Medicine, being an Astringent; and as such used in Diarrhæas and Dysenteries: 'Tis also used to increase the Milk of Nurses; and, further, is esteem'd a good Antidote against Arsenic.

The Word comes from the *Greek* κρυσταλλος, *Glacies*; form'd of κρυος, *frigus*, and στελλομαι, *concresco*, because of its resembling Ice.

The Formation of CRYSTAL, is deliver'd by F. *Francisco Lana* in the *Philosophical Transactions*, to this Effect:

'In the *Val Sabbia* I observ'd a spacious round of a Meadow, some Parts whereof were bare of all Herbs; wherein, and no where else thereabout, *Crystals* are generated; all Sexangular; both Points terminating in a pyramidal Figure, likewise Sexangular. The Country-People told me, They were produc'd from the Dews; because, forsooth, being gather'd over night, there would others arise, only in a serene and dewy Sky. But having observ'd that there was no mark of any Mine thereabout, I concluded it might be a plenty of Nitrous Steams; which at the same time might hinder the Vegetation on those Places, and coagulate the Dew falling thereon: For Nitre is not only the natural Coagulum of Water, as is manifest in artificial Glaciations, but ever retains the abovesaid Sexangular Figure; which, by the way, may be the Cause of the Sexangular Figure of Snow.

——'Since *Crystals* are only found in those narrow Places, 'tis probable, thence are rais'd the Exhalations that concrete the Dew; after the same manner as the Vapour or Exhalation of Lead coagulates Quicksilver.'

Rohault shews, that *Crystal*, Diamond, &c. must have been originally liquid, from their Figure, which is such as Drops of Water of the same Size must necessarily have; and such as Globules of Meal or Flower, heap'd up and compress'd by their own weight, might have: For as each *Crystal* is encompass'd and closed round with six others; so it becomes model'd into a hexangular Body, consisting of equal and square Sides.

Boerhaave takes *Crystal* to be the proper Matter, or Basis of all Gems or Precious Stones, which assume this or that Colour, &c. from the different Admixture of Mineral and Metalline Fumes, with the primitive *Crystalline* Matter. See STONE, GEM, &c.

CRYSTAL is also used for a factitious Body, cast in the Glass-Houses; called also *Crystal-Glass*. See GLASS.

It is, in effect, a Glass; but carried, in the Melting, and in the Matter whereof it is compos'd, to a degree of Perfection far beyond the common Glass; tho it comes far short of the Whiteness and Vivacity of the Natural *Crystal*.

The best Artificial *Crystals* are those made at *Mouran* near *Venice*; call'd *Venice Crystals*.

CRYSTALS, in Chymistry, express Salts, or other Matters, shot, or congeal'd in manner of *Crystal*. See CRYSTALLIZATION. Thus,

CRYSTAL *of Allum*, is Allum purified, and reduced into *Crystals*, in the same manner as Tartar. In like manner are Vitriol, Nitre, and other Salts *crystallizd*.

Crystals of Allum are quadrangular, and brilliant like Diamonds; those of Nitre, white, and oblong; those of Vitriol, green, quadrangular, and shining. See SALT.

CRYSTAL, or *Cream of Tartar*, is that Drug purify'd and dissolv'd, and again coagulated in form of *Crystals*. See TARTAR.

To prepare it, they boil Tartar in Water, skim it, and strain it; when cool, there are form'd little white, shining *Crystals* at the Edges, as also a Pellicle, or Cream swimming a-top.

The Cream and *Crystals* were antiently suppos'd to be different; but are now found the same Thing. See CREAM.

Crystal of Tartar is esteem'd Purgative, and Aperitive; proper in Hydropical and Asthmatical Cases, and Intermitting Fevers.

CRYSTAL *of Tartar chalybeated*, is when 'tis impregnated with the most dissoluble Parts of Iron. See CHALYBEAT.

CRYSTAL *of Tartar emetic*, is when 'tis charg'd with the sulphureous Parts of Antimony, to render it vomitive. See EMETIC.

Crystal *Mineral*, call'd also *Mineral Anodyne*, and *Sal Prunella*, is Salt-petre prepar'd with Sulphur; thus: Put half a Pound of Salt-petre in a Crucible, and set that in a Furnace; and when the Salt-petre is in Fusion, add, at several times, two Drachms of Flower of Sulphur. After the Flame is over, invert the Crucible in a flat Pewter Basson, that the Salt may shoot.

This is esteem'd good against the Squinancy, whence its Name of *Sal Prunella*; *Pruna*, or *Prunella*, expressing that Disease. See Prunella.

Crystals *of Silver*, or *of Luna*, is Silver, penetrated and reduced into the form of Salts, by the pointed Acids of Spirit of Nitre. See Silver.

'Tis used for making Eschars, by applying it to any Part: 'tis also of use internally, in Dropsies, and Diseases of the Brain.

Crystals *of Mars*, call'd also *Salt*, or *Vitriol of Mars*; is Iron reduced into Salts by an acid Liquor; used in Diseases arising from Obstructions. See Mars.

Crystals *of Venus*, call'd also *Vitriol of Venus*; is Copper reduced into the form of Vitriol by the Spirit of Nitre; very caustick, and used to cut off proud Flesh. See Vitriol.

Island Crystal, is a transparent fissile Stone, brought from *Island*; soft, as Talc; clear, as Rock-*Crystal*, and without Colour; famous among optic Writers for its unusual Refractions. See Refraction.

It bears a red heat without losing its Transparency; and, in a very intense heat, calcines without Fusion: Steep'd a day or two in Water, it loses its natural polish; rubb'd on Cloth it attracts Straws, *&c.* like Amber. In effect, it appears a kind of Talc; and is found in form of oblique Parallelopipeds with six parallelogram Sides, and eight solid Angles. See Talc.

The Phænomena of this Stone are very remarkable, and have been examin'd with great accuracy by M. *Huygens* and Sir *I. Newton*: For, first, whereas in other pellucid Bodies there is only one Refraction, in this there are two; so that Objects view'd thro' it appear double.

2dly, Whereas in other transparent Bodies, a Ray falling perpendicularly on the Surface, passes strait thro', without suffering any Refraction; and an oblique Ray is always divided: In *Island Crystal*, every Ray, whether perpendicular or oblique, becomes divided into two, by means of the double Refraction. One of these Refractions is, according to the ordinary Rule, the Sine of Incidence out of Air into *Crystal*, being to the Sine of Refraction as five to three; but the other is perfectly new. The like double Refraction is also observ'd in *Crystal of the Rock*, tho much less sensibly.

When an incident Ray is thus divided, and each Moiety arrives at the further Surface; that, refracted in the first Surface after the usual manner, is refracted entirely after the usual manner at the second; and that refracted in the unusual manner in the first, is entirely refracted after the like manner in the second: So that each emerges out of the second Surface, parallel to the first incident Ray.

Again, if two pieces of this *Crystal* be plac'd over each other, so as the Surfaces of the one be parallel to the corresponding ones of the other; the Rays refracted in the usual manner in the first Surface of the first, are refracted after the usual manner in all the other Surfaces: And the same Uniformity appears in the Rays refracted after the unusual manner; and this in any Inclination of the Surfaces; provided their Planes of perpendicular Refraction be parallel.

From these Phænomena, Sir *I. Newton* gathers, That there is an original Difference in the Rays of Light; by means whereof some are, here, constantly refracted after the usual manner; and others in the unusual manner. See Ray, and Light.

Were not the difference original, and did it arise from any new Modifications impress'd on the Rays at their first Refraction, it would be alter'd by new Modifications in the three following ones; whereas, in fact, it suffers no Alteration at all.

Again, he hence takes occasion to suspect, that the Rays of Light have several Sides, endu'd with several original Properties: For, it appears from the Circumstances, that there are not two sorts of Rays differing in their Nature from each other, one constantly, and in all Positions, refracted in the usual, and the other in the unusual manner; the difference in the Experiment mention'd, being only in the Positions of the Sides of the Rays, to the Planes of perpendicular Refraction. For one and the same Ray is refracted sometimes after the usual, and sometimes after the unusual manner, according to the Position of its Sides to the *Crystal*: the Refraction being alike in both, when the Sides of the Rays are posited the same way to both, but different when different.

Every Ray, therefore, may be consider'd as having four Sides, or Quarters; two of which, opposite to each other, dispose the Ray to be refracted after the unusual manner; and the other two in the usual. These Dispositions, being in the Rays before their Incidence on the second, third, and fourth Surfaces; and suffering no Alterations, for what appears, in their passage thro' 'em; must be original and connate: See Ray, and Light; see also Refraction.

CRYSTALLI, among Physicians, are Pustules dispers'd all over the Body; white, and of the bigness of a Lupine.

CRYSTALLINE *Humour*, is a thick, compact Humour of the Eye, in manner of a flattish convex Lens, situate in the middle of the Eye; serving to make that Refraction of the Rays of Light, necessary to have 'em meet in the *Retina*, and form an Image thereon, whereby Vision may be perform'd. See Eye, Humour, Refraction, Vision, Retina, *&c.*

'Tis the Configuration of the *Crystalline* that occasions Persons to be either *Myopes*, or *Presbytæ*, *i. e.* to be either long or short-sighted. See Myopes, and Presbytæ.

The *Crystalline* being of two Consistences; outwardly, like a Gelly; but toward the Centre as hard as Salt: Hence, some Authors think that its Figure may be varied; which Variation they suppose to be effected by the *Ligamentum Ciliare*. Hence Dr. *Grew*, and others, ascribe to the Ciliary Ligament a Power of making the *Crystalline* more convex, as well as of moving it to or from the *Retina*: Accordingly, by the Laws of Opticks, something of this Kind is absolutely necessary to distinct Vision: For, as the Rays from distant Objects diverge less than those from nigh ones; either the *Crystalline Humour* must be capable of being made more convex, or more flat; or else there must be an Elongation of the Eye, or of the Distance between that and the *Retina*. See *Ligamentum* Ciliare, and Sight.

The *Crystalline Humour*, when dried, appears to consist of a vast Number of thin, spherical *Laminæ*, or Scales, lying over one another: *Leewenhoeck* reckons there may be 2000 of 'em in one *Crystalline*; each of these, he says, he has discover'd to consist of a single Fibre, or fine Thread wound up in a stupendous manner, this way and that; so as to run several Courses, and meet in as many Centres: and yet not interfere nor cross in any Place. *Philos. Transact.* N° 165, and 293.

Crystalline *Heavens*, in the old Astronomy, two Orbs imagined between the *Primum Mobile* and the Firmament, in the *Ptolemaic* System, where the Heavens were suppos'd solid, and only susceptible of a single Motion. See Heaven.

King *Alphonsus* of *Arragon* is said to have introduc'd the *Crystallines*, to explain what they call'd the *Motion of Trepidation*, or *Titubation*. See *Ptolemaic* System.

The first *Crystalline*, according to *Regiomontanus*, &c. serves to account for the slow Motion of the fix'd Stars; which makes 'em advance a Degree in 70 Years, according to the Order of the Signs, *viz.* to the East; which occasions the Precession of the Equinox. See Precession.

The second serves to account for the Motion of Libration, or Trepidation; whereby the Celestial Sphere is carried from one Pole towards another, occasioning a difference in the Sun's greatest Declination. See Trepidation.

But the Moderns account for these Motions, in a much more natural and easy manner. See Libration, *&c.*

CRYSTALLIZATION, in Chymistry, a Kind of Congelation, befalling Salts, both *essential*, *fix'd*, and *volatile*; when, being set free from the greatest Part of their Humidity, they are left to harden, dry, and shoot into *Crystals*. See Salt.

The ordinary Method of *Crystallization*, is perform'd by dissolving the saline Body in Water, filtering it, and letting it evaporate, till a Film appears at the top; and lastly, letting it stand to shoot. See Dissolution, and Evaporation.

This Shooting is accounted for, on Sir *I. Newton*'s Principles, from that attractive Force which is in all Bodies, and particularly in Salt, by reason of its Solidity; whereby, when the Menstruum or Fluid in which such Particles float, is sated enough, or evaporated, (which brings it to the same) so that the saline Particles are within each other's attractive Powers, and can draw one another more than they are drawn by the Fluid, they will run into *Crystals*. See Attraction.

This is peculiar to Salts, that let them be ever so much divided, and reduc'd into minute Particles; yet, when they are form'd into *Crystals*, they each of them reassume their proper Shapes: so that one might as easily divest and deprive 'em of their Saltness, as their Figure.

This being an immutable and perpetual Law, by knowing the Figure of the *Crystals*, we may understand what the Texture of the Particles ought to be, which can form those *Crystals*: and, on the other hand, by knowing the Texture of the Particles, may be determin'd the Figures of the *Crystals*.

For, since the Figures of the most simple Parts remain always the same, it is evident that the Figures they run into, when compounded and united, must be uniform, and constant: and since the Force of Attraction may be stronger on one side of a Particle than on another; there will constantly be a greater Accretion of Salts upon those Sides which attract more strongly: From which it may easily be demon-

demonſtrated, that the Figure of the leaſt Particles, is entirely different from that which appears in the *Cryſtal*. See PARTICLE.

CRYSTALOIDES, the *Cryſtalline* Coat of the Eye; a Coat, or Tunic, immediately encompaſſing, and containing the *Cryſtalline* Humour; and ſuppoſed to ſerve, by conſtringing or dilating that Humour, to vary the Place of its Focus. See CRYSTALLINE.

Anatomiſts are divided about the Reality of ſuch Tunic, which is alſo, from its fine Texture, called *Aranea Tunica*, or *Arachnoides*. See ARACHNOIDES.

CRYSTALOMANCY, the Art of divining, or foretelling future Events, by means of a Mirror; wherein the Things requir'd are repreſented. See MIRROR.

It is alſo call'd *Catoptromancy*: The firſt from κρύσταλλος, *congeal'd Water*, or *Cryſtal*; and the ſecond from κατόπτρον, *Mirror*, and μαντεία, *Divination*.

CUBATURE, or CUBATION, the *Cubing* of a Solid; or the meaſuring of the Space comprehended in a Solid; as in a *Cone*, *Pyramid*, *Cylinder*, &c. See CONE, PYRAMID, CYLINDER, *&c.*

The *Cubature* regards the Content of a Solid, as the Quadrature does the Superficies of a Figure; ſo that the *Cubature* of the Sphere turns on the ſame thing as the Quadrature of the Circle. See SOLIDITY, and QUADRATURE.

CUBE, in Geometry, a regular or ſolid Body, conſiſting of ſix ſquare and equal Faces, or Sides; and its Angles all right, and therefore equal. See SOLID, and REGULAR *Body*.

The *Cube* is alſo call'd *Hexaedron*, becauſe of its ſix Sides. The Word comes from the *Greek* κύβος, *Teſſara*, Die.

The *Cube* is ſuppos'd to be generated by the Motion of a ſquare Plane, along a Line equal to one of its Sides, and at right Angles thereto: whence it follows, that the Planes of all Sections parallel to the Baſe, are Squares equal thereto, and conſequently to one another.

To deſcribe a Rete, or Net, whence any given Cube *may be conſtructed, or wherewith it may be cover'd.* On the right Line A B, (Tab. *Geometry*, Fig. 49.) ſet off the Side of the *Cube*, four times; on A erect a Perpendicular, A C, equal to the Side of the *Cube* A I, and compleat the Parallelogram A C B D. With the Interval of the Side of the *Cube*, in the Line C D; determine the Points K, M and O: Laſtly, draw the right Lines I K, L M, N O, and B D; produce I K and L M, each way to E and F, and to G and H; till E L = I K = K F, and G L = L M = M H, and draw the right Lines E G, F H.

To determine the Surface and Solidity of a Cube: As the Surface of a *Cube* conſiſts of ſix equal Squares, a Side multiply'd by it ſelf, and the Product by ſix, will give the Superficies; and the ſame Product, again, multiply'd by the Side, the Solidity. See SURFACE, and SOLIDITY.

Coroll. Hence, If the Side of a *Cube* be 10, the Solidity will be 1000; if that be 12, this will be 1728: Wherefore, the Geometrical Perch being 10 Foot, and the Geometrical Foot 10 Digits, *&c.* the *Cubic* Perch is 1000 *Cubic* Feet, and a *Cubic* Foot 1000 *Cubic* Digits, *&c.*

Hence, alſo, *Cubes* are in a triplicate Ratio of their Sides; and are equal, if their Sides be ſo.

CUBE, or CUBIC *Number*, in Arithmetick, is a Number ariſing from the Multiplication of a ſquare Number by its Root. See NUMBER.

Thus, if the ſquare Number 4, be multiplied by its Root, 2, the *Factum* 8 is a *Cube* or *Cubic Number*; and the Number 2, with reſpect thereto, a *Cube*-Root. See ROOT.

Hence, ſince, as Unity is to the Root, ſo is the Root to the Square; and as Unity is to the Root, ſo is the Square to the *Cube*; the Root will, alſo, be to the Square as the Square to the *Cube*: that is, Unity, the Root, the Square, and the *Cube*, are in continual Proportion; and the *Cube*-Root is the firſt of two Numbers that are Mean Proportionals between Unity and the *Cube*. See POWER.

For the Compoſition of CUBIC *Numbers.* Every *Cubic* Number of a Binominal Root, is compos'd of the *Cubic* Numbers of the two Parts, of the *Factum* of thrice the Square of the firſt Part into the ſecond, and of the *Factum* of thrice the Square of the ſecond Part into the firſt.

Demonſt. For a *Cubic* Number is produced by multiplying the Square by the Root: But the Square of a Binomial Root, is compos'd of the Squares of the Parts, and the double *Factum* of one Part into the other. See SQUARE.

Wherefore, the *Cube* is compos'd of the *Cube* of the firſt Part, of the triple *Factum* of the Square of the firſt Part into the ſecond, and of the triple *Factum* of the Square of the ſecond Part into the firſt, and of the *Cube* of the ſecond Part. See ROOT.

An ocular Demonſtration of this we have in the following Example, where Multiplication alone is uſed. Suppoſe, *v.g.* the Root 24, or 20 + 4. Here,

$$
\begin{array}{rl}
24^2 = & 20^2 + 2.\ 4.\ 20 + 4^2 \\
 & \quad\quad\quad\quad\quad\quad 20 + 4^2 \\
\hline
 & \quad + 4.\ 20^2 + 2.\ 4^2.\ 20 + 4^3 \\
 & 20^3 + 2.\ 4.\ 20^2 + \quad 4^2.\ 20 \\
\hline
24^3 = & 20^3 + 3.\ 20^2.\ 4 + 3.\ 4^2\ 20 + 4^3 \\
 & 20^3 = 8000 \\
 & 3.\ 20^2\ 4 = 4800 \\
 & 3.\ 4^2\ 20 = 960 \\
 & 4^3 = 64 \\
\hline
 & 24^3 = 13824
\end{array}
$$

Coroll. Hence, as the Part on the right Hand is placed among Units, and that on the left among Tens; the *Cubic* Number of the right hand Part muſt be put in the right Place; the *Factum* of its triple Square into the left, in the ſecond Place; and the *Factum* of the triple Square of the left into the right, in the third: laſtly, the *Cube* of the left-hand Part falls in the fourth Place.

If the Root be a Multinomial, two or more Characters on the right muſt be eſteem'd as one; that it may have the form of a Binomial.

'Tis obvious, that any *Cube* is compos'd of the *Cubes* of the ſeveral Parts of the Root, and of the *Factums* of the triple Square of any of the left-hand Characters into the next on the right; and alſo of the *Factums* of the triple Square of the right-hand Characters into all the left. Suppoſe, *v. g.* the Root 243: Take 240 for one Part of the Root, 3 will be the other Part; Conſequently,

$$
\begin{array}{rr}
240^3 = & 13824000 \\
3.\ 240^2.\ 3 = & 518400 \\
3.\ 240.\ 3^2 = & 6480 \\
3^3 = & 27. \\
\hline
243^3 = & 14348907
\end{array}
$$

The Places of the ſeveral *Factums*, are determin'd from what was obſerv'd above: for regard muſt here, too, be had to the Ciphers to be added to the Numbers multiplied by each other, if they be placed alone.

This Compoſition of *Cubic Numbers* once well conceiv'd, the Extraction of *Cubic* Roots will be eaſy. See EXTRACTION.

CUBE *Root*, or CUBIC *Root*, the Origin of a *Cube* Number; or a Number by whoſe Multiplication into it ſelf, and again into the Product, any given Number is form'd. See CUBE *Number*.

The *Extraction of the Cube Root*, is the ſame thing as the finding any Number, *v. g.* 2; by whoſe Multiplication into it ſelf three times, a given Number, *v. g.* 8, is produced: The Proceſs whereof, ſee under the Article EXTRACTION.

CUBEBS, in Pharmacy, a Fruit brought from the Iſland of *Java*, in Grains reſembling Pepper, both in form and ſize; whence ſome call it *Wild Pepper*.

'Tis ſaid, the Natives of the Place boil it ere they allow it to be exported, to prevent its being ſown in other Countries.

Cubebs fortify the Stomach, Brain, and other *Viſcera*; and enter as an Ingredient in ſeveral Officinal Compoſitions.

CUBIC *Equation*, is an Equation wherein the unknown Quantity is of three Dimenſions, as $x^3 = a^3 - b^3$, *&c.* See EQUATION.

For the Conſtruction of Cubic Equations, ſee CONSTRUCTION. *For their Reſolution*, ſee RESOLUTION. *For its Root*, ſee ROOT.

CUBICAL *Parabolois*, a Term us'd by ſome Writers for a Parabola of the higher Kind, *v.g.* where $a^2\ x = y^3$, *&c.* See CURVE; ſee alſo PARABOLA.

CUBIT, a long Meaſure, us'd by the Antients, eſpecially the *Hebrews*; taken from the ordinary length of a Man's Arm, from the Elbow to the Tip of the Hand. See MEASURE, ARM, and HAND.

In the Scripture, we find *Cubits* of two lengths, the one equal, according to Dr. *Arbuthnot*, to 1 Foot, 9 Inches, $\frac{888}{1000}$ of an Inch, our Meaſure; being the fourth Part of a Fathom, double the Span, and triple the Palm: The other equal to $1.\frac{824}{1000}$ Foot, or the four hundredth Part of a Stadium.

The *Romans*, too, had a *Cubit*, equal to 1 Foot, 5 Inches, $\frac{406}{1000}$ of an Inch.

F. *Merſenne* makes the *Hebrew Cubit* 1 Foot, 4 Digits, and 5 Lines, with regard to the Foot of the Capitol. According to *Hero*, the Geometrical *Cubit* is 24 Digits; and according to *Vitruvius*, the Foot is $\frac{2}{3}$ of the *Roman Cubit*, *i. e.* 16 Digits. See FOOT, DIGIT, *&c.*

CUBITÆUS *Externus*, or *Ulnaris*, in Anatomy, the firſt of the Extenſor Muſcles of the Fingers.

It has its Name, as being placed along the *Cubitus*, externally. It riſes from the external Extuberance of the *Humerus*, and paſſing its Tendon under the *Ligamentum Annulare*, is inſerted into the fourth Bone of the *Metacarpus*, that ſuſtains the little Finger.

CUBITÆUS *Internus*, the first of the *Flexores*, placed along the *Cubitus*, withinside the Arm. It rises from the internal Extuberance of the *Humerus*, and part of the *Ulna*; upon which it runs all along till passes under the *Ligamentum Annulare*, and is inserted by a strong and short Tendon into the fourth of the first Order of the *Carpus*.

CUBITUS, in Anatomy, a Bone of the Arm, reaching from the Elbow to the Wrist; otherwise called *Ulna*, or the *greater Focile*. See ULNA.

Some use the Word for all that Part of the Arm between the Elbow and the Wrist; including the *Ulna*, or *Cubitus*, properly so call'd, and the *Radius*. See ARM, and RADIUS; see also FOCIL.

CUBO-CUBO-CUBUS. See CUBUS-CUBI.

CUBO-CUBUS, the Term whereby *Diophantus*, *Vieta*, &c. distinguish the sixth Power; which the *Arabs* call *Quadratum-cubi*. See POWER.

CUBOIDES, or *Os* CUBIFORME, in Anatomy, the seventh Bone of the Foot; so called, from its being in form of a *Cube*, or Die. See FOOT.

Some also call it *Multiforme*: It is situate in the fore-Part of the *Calcaneum*, in the same Rank with the *Ossa Cuneiformia*.

Behind, it is articulated to the *Os Calcis*; before, to the two outer Bones of the *Metatarsus*; and within, it is join'd to the third *Os Cuneiforme*. See BONE.

CUBUS-CUBI, a Name whereby the *Arab* Writers, and those who follow 'em, denominate the ninth Power, or a Number multiplied eight times by it self; which *Diophantes*, and after him *Vieta*, *Oughtred*, &c. call *Cubo-cubo-cubus*. See POWER.

CUCKING-STOOL, or COKESTOOL, antiently call'd *Tumbrel*, and *Trebuchet*; an Engine for the Punishment of Scolds and unquiet Women, by ducking them in the Water.

Kitchen says, 'Every one having View of Frank-Pledge, 'ought to have a Pillory and a Tumbrel.' This Machine was much in use, even among our *Saxon* Ancestors, who call'd it *Scealding-stole*.

This Punishment was antiently inflicted on Brewers and Bakers, transgressing the Law; who were thereupon, in such a Stool or Chair, to be ducked *in Stercore*, some muddy or stinking Pond. This was antiently written *Gagingstole*: In *Domesday* it is called *Cathedra Stercoris*.

CUCULLARIS, in Anatomy, a Muscle, so called from the resemblance it is suppos'd to bear to a Monk's Cowl; and *Trapezius*, from its resemblance to a geometrical Figure, call'd a *Trapezium*. See TRAPEZIUS.

The Fibres of this Muscle have various Originations and Actions: whence Dr. *Drake* thinks it may be more properly call'd three, than one Muscle.

The upper Order of Fibres or Muscles, springs from the *Os Occipitis*; the second from the Spine of the *Vertebræ* of the Neck; and the third from the Spines of the eight upper *Vertebræ* of the Thorax, or Back: and are inserted into the Spine, *Acromium*, and Basis of the *Scapula*, and part of the *Claviculæ*.

From the different Dispositions of these Fibres, the *Scapula* is drawn different ways; the first pulling obliquely upwards, the last obliquely downwards, and the middle backwards: When they act all three together, they are said to draw backwards only; *i. e.* the two Extremes antagonizing, the middle one alone is at liberty to act.

CUCULLATE *Flowers*, among Botanists, are such as resemble a *Cucullus*, or Monk's Hood, or Helmet. See FLOWER.

CUCULLUS, was antiently a kind of Traveller's Cap; call'd also *Cowl*, *Goul*, or *Gula*: whence the Name pass'd to the Monks, among whom it signify'd their Frock, and Cap. See COWL.

The Word arose hence, that antiently they wore their Clothes turn'd up at the Neck and Sleeves, with a kind of Skin call'd *Gulæ*, or *Gules*, *Caules*, and *Cuscules*; from *Cusculum*, Grain of Scarlet.

CUCUPHA, an antient Form of Medicine; being a Cap, or Cover for the Head, with Cephalic Spices quilted therein; wore in many nervous Distempers, and particularly such as more immediately affect the Head: as against Catarrhs, Defluxions, &c. It is now almost out of use.

CUCURBITACEOUS *Plants*, a Kind of Plants, so called from their resemblance to the Gourd, call'd by the Latins *Cucurbita*, which is the Head of this Family. See PLANT.

Plants of the *Cucurbitaceous* Kind, send out their Branches every way; which are soft, and generally set with *Urillæ*, by means whereof they cling to the Bodies that are near 'em.

Their Flowers are either Sterile, or Fertile: The last knit, and yield fleshy Fruits of various Figures; containing within 'em several flat Seed placed in three or four Lodges, or even a greater Number.

These Seeds have usually a white sweetish Kernel; the greatest part of 'em being of those call'd *Frigidæ Majores*, or greater Cold Seeds.

The Pumpion, Mushroom, Melon, &c. are of the *Cucurbitaceous* Kind.

CUCURBIT, in Chymistry, an Earthen, or Glass Vessel, call'd also *Body*; wherein are put the Matters to be distill'd. See DISTILLATION.

It is sometimes also made of Tin, and sometimes of Brass, tinn'd. When a Distillation is to be made, they fit on to it a glass Head, with an Aperture, and a Neck proportional. See RETORT.

CUCURBITULA, in Chirurgery, a Cupping-Glass, or Instrument used in the Operation of Cupping. See CUPPING-*Glass*.

CUDDY, in a First Rate Man of War, is a Place lying between the Captain's and the Lieutenant's Cabins, and the Poop; and divided into Partitions, for the Master and Secretary's Officers.

CUE, an Item, or Innuendo, given to the Actors on the Stage, what, or when to speak.

CUERPO. *To walk in Cuerpo*, is a *Spanish* Phrase, for going without a Cloke; or without all the Formalities of a full Dress.

CUI *ante Divortium*, a Writ, which a Woman divorc'd from her Husband, hath, to recover Lands or Tenements from him to whom her Husband did alienate them during Marriage; because, during the Marriage, she could not gainsay it.

CUI *in Vita*, is a Writ of Entry, which a Widow hath against him to whom her Husband alienated her Lands or Tenements in his Life-time; specifying, that, during his Life, she could not withstand it.

CUIRASSE, a piece of defensive Armour, made of an Iron Plate well hammer'd; serving to cover the Body, from the Neck to the Girdle, both before and behind.

Hence, *Cuirassiers*, the Cavaliers arm'd with *Cuirasses*.

The *Cuirasse* was not brought into use till about the Year 1300. The *French* have still a Regiment of *Cuirassiers*; and a good Part of the *German* Cavalry, are *cuiras'd*.

In the *Roman* Calendar, we find the Name of S. *Dominic the cuiras'd*; a Title given a Saint of the XIth Century, from his constant wearing of an Iron *Cuirasse*, by way of Penance.

Some derive the Word, by Corruption, from *Cucurasse*; because it covers the Body: Others from the French *Cuir*, or the Latin *Corium*, Leather; whence *Coriaceus*: by reason defensive Arms were originally made of Leather.

CULINARY, an Epithet frequently added to Fire; determining it to be a common Fire, excited in Wood, Coals, or other ordinary Fuel: In contradistinction to Solar Fire, or that rais'd by the Action of a Burning-Glass; to Central Fire; to Animal Fire, &c. See FIRE.

Culinary Fire, according to *Boerhaave*, consists of a Portion of pure Elementary, or Solar Fire, attracted by the oily, or sulphureous Parts of the Fuel, with such Velocity, as that it moves the same, agitates and whirls 'em violently about, and by degrees breaks and attenuates them; renders 'em volatile, and disperses 'em in Air. See FUEL.

The Effect of Air upon this Fire, is to make, as it were, a Vault around it, and by that means, restrain and keep it in, determine it upon the Sulphur, and thus prevent its too hasty Dissipation. See AIR.

The Word is form'd from the Latin *Culina*, Kitchen; this being the chief place of such Fires.

CUL *de Lamp*, a *French* Term, properly signifying the bottom of a Lamp, used in Architecture for several Decorations, both of Masonry and Joinery, found in Vaults and Ceilings, to finish the bottom of Works, and wreath'd somewhat in manner of a *Testudo*; particularly a kind of Pendentive in *Gothic* Vaults.

CUL *de Four*, a sort of low, spherical Vault, Oven-like. See VAULT.

Cul de Four of a Niche, the arch'd Roof of a Niche, on a circular Plan. See NICHE.

CULLIAGE, or CULLAGE, a Right usurp'd by the antient Lords, and establish'd by a foolish Custom, which gave 'em the first Night with their Vassals Brides.

'Tis said this Right was establish'd by *Ewen* King of *Scotland*; and finally abolish'd by *Malcolm* III. a Compensation being settled in its stead; as occasioning frequent Revolts of the Vassals against their Lords.

The Word is form'd from the French *Cul*, Breech.

CULMIFEROUS, in Botany, a Term applied to such Plants as have a smooth-jointed Stalk, usually hollow; the Stalk wrap'd about, at each Joint, with single, narrow, sharp-pointed Leaves; and the Seeds contain'd in chaffy Husks. See CULMUS, and PLANT.

Culmiferous Plants are divided into two Kinds; those with a *greater*, and those with a *smaller* Seed.

Those with a larger Seed are called *Frumentaceous*, or *Cereales*; and are again divided into *Spicatæ*, as Wheat, Rye, Spelt, Barley, Rice, Pease, &c. and *Paniculatæ* or *Jubatæ*, as Oats, Scordium, Milium, and Maise. See FRUMENTACEOUS, &c.

CULMINATION, in Astronomy, the Transit of a Star or Planet over the Meridian; or that Point of its Orbit wherein it is at its greatest Altitude. See STAR, ALTITUDE, ORBIT, &c.

Hence, a Star is said to *culminate*, when it passes the Meridian. See MERIDIAN, and MID-HAVEN.

To find the Culmination *of a Star, or the Time wherein it passes the Meridian.* On a Meridian-Line A B, (Tab. *Astronomy*, Fig.48) stretch a Thread, D C, perpendicularly; and from D to E another, D E, cutting the Meridian obliquely, at any Angle: The triangular Thread, therefore, DCE, will cut the Plane of the Horizon in the Meridian-Line, at right Angles; and consequently will be in the Plane of the Meridian.

The Eye, therefore, being so placed as that the Thread D E may cover the Thread D C; wait till the Star be bisfected by the Triangle D C E; for then the Eye and the Star will, together with the Triangle D C E, be in the same Plane: Consequently the Star is in the Meridian. See MERIDIAN.

To find the Culmination *of a Star by the Globe.* See GLOBE.

To find the Time when a Star culminates, *from a given right Ascension of the Meridian, the Sun, and the Star.* Subtract the right Ascension of the Sun from that of the Star; if that of the latter be the less, add 360° to it, and subtract the former from the Sum; convert the Remainder into Solar Time: (see TIME.) Thus will you have the Time pass'd since the Star's *Culmination.*

Hence, also, we have the Hour of the Night. See HOUR.

CULMUS, is properly the Stem or Stalk of Corn, or Grass; which in other Plants is call'd *Caulis.* See STEM, and STALK.

Hence, *Culmiferous Plants*, are such as have a smooth-jointed Stalk, and usually hollow; and at each Joint the Stalk is wrap'd about with single, narrow, long, sharp-pointed Leaves, and their Seeds are contain'd in chaffy Husks. See CULMIFEROUS.

CUL-PRIT, a Term us'd by the Clerk of the Arraignments, when a Person is indicted for a criminal Matter. See INDICTMENT.

After the Indictment is read in Court (which is the Crown's Charge) against the Prisoner at the Bar; he is ask'd if Guilty, or Not Guilty?

If he answers *Not Guilty*, there is next a Replication from the Crown, by continuing the Charge of Guilt upon him; which is express'd by pronouncing the Word *Cul-prit*; *Cul* being an Abbreviation of the *Latin* Word *Culpabilis*, Guilty, and *prit* (now *pret*) the old *French* Word for *ready.*

From these two Assertions, therefore, of the Clerk of the Arraignments, the Prisoner is deem'd guilty of the Crime charg'd on him; and that the Crown is ready to prove it upon him.

That this is the true Explanation of the Term, is evident from the Form of the Entry of the Record of the Trial, when drawn at large.

CULTELLATION, a Term some Authors use for the measuring of Heights, and Distances, by Piecemeal; that is, by Instruments which give us such Heights and Distances by Parts, and not all at one Operation. See MEASURING, ALTIMETRY, DISTANCE, &c.

CULVERIN, a Piece of Ordnance or Artillery, serving to carry a great distance. See ORDNANCE.

Of these there are three Kinds, *viz.* the *Culverin extraordinary*, the *ordinary*, and the *least size'd.*

The *Culverin extraordinary* has $5\frac{1}{2}$ Inches bore; its length 32 Calibers, or 13 Foot; weighs 4800 Pound; its Load above 12 Pound; carries a Shot 5 Inches $\frac{1}{4}$ Diameter, weighing 20 Pound weight.

The *Ordinary Culverin* is 12 Foot long; carries a Ball of 17 Pound 5 Ounces; Caliber $5\frac{1}{2}$ Inches; its weight 4500 Pound.

The *Culverin* of the *least size*, has its Diameter 5 Inches; is 12 Foot long; weighing about 4000 Pounds; carries a Shot 3 Inches $\frac{1}{4}$ Diameter, weighing 14 Pounds 9 Ounces. See DEMI-*Culverin.*

Menage derives the Word from the Latin *Colubrina*; others from *Coluber*, Snake; either from the Length of the Piece, or the Ravages it makes.

CUMMIN, the Grain of a Plant of the same Name, much like that of Fennel; growing abundantly in the Isle of *Malta*, where 'tis sown and cultivated after the manner of Corn.

The *French* frequently call it *Anis aigre*, sharp or sour Anis.

'Tis us'd with Success in the Vertigo, Wind-Colics, Tympanies, &c. 'Tis esteem'd excellent to retrieve the Natural Heat in Horses, Bulls, &c. The Pidgeons are exceedingly fond of it; whence some make use of it to people their Dove-houses, incorporating it with an Earth naturally saline, or some other Earth that has imbib'd Urine.

This Seed, as well as the common Anis, yields, by Expression, a kind of Oil, esteem'd sovereign in Rheumatisms; provided it be us'd with Precaution, and in small Quantities.

CUNETTE, in Fortification, a deep Trench, about three or four Fathom wide, sunk along the middle of a dry Moat, to lade out the Water; or to make the Passage more difficult to the Enemy. See TRENCH.

CUNEUS, one of the Mechanical Powers; more usually, by *English* Writers, call'd the *Wedge.* See WEDGE.

CUNEIFORME *Os*, in Anatomy. See SPHÆNOIDES.

CUNEIFORMIA *Ossa*, the fourth, fifth, and sixth Bones of the Foot; thus called from their wedge-like Shape, being large above, and narrow below.

They lie all three a-side of one another, and are of different Sizes; their upper Side convex, and their under hollow: by which means, the Muscles and Tendons in the bottom of the Foot are not hurt in walking.

At one End they have each a *Sinus*, which receives the *Os Naviculare*; and at the other End are join'd each to one of the three inner Bones of the *Metatarsus.*

CUP, *Calyx*, a Vessel so call'd, of various Forms and Uses. See CHALICE.

In the *Ephem. German.* we have a Description of a *Cup* made of a common Pepper-Corn, by *Oswald Nerlinger*; which holds 1200 other Ivory *Cups*, each having its several Handle; all gilt on the Edges, with room for 400 more.

CUPS, among Herbalists, are those short Husks in which Flowers grow; some being pointed into two, three, four, five, or six Leaves. See CALYX.

CUPOLA, in Architecture, a spherical Vault; or the round Top of the Dome of a Church, in form of a *Cup* inverted. See DOME.

Some call it a *Lanthorn.* See LANTHORN.

The Word is *Italian*, form'd of the barbarous Latin *Cuppala*; otherwise call'd *Thola*, and *Fornix.*

CUPPEL, CUPEL, or COUPEL, among Chymists, a Vessel or Utensil, used in the trying and purifying of Gold and Silver; call'd also *Test.* See COUPEL, TEST, PURIFYING, and REFINING; see also ESSAY.

CUPPING, an Operation in Chirurgery, for the Discharge of Blood and other Humours by the Skin.

It is perform'd by collecting the Humours into a Tumor under the Cutis; and letting 'em out thence, by Scarification; *i. e.* by several Incisions made with a Scarificator. See SCARIFICATION.

The Instruments used herein, are the *Cucurbitulæ*, or *Cupping-Glasses*, and *Scarificator*: The Description of each whereof see under their proper Head.

Cupping is perform'd either *with* or *without* Fire.

Cupping with Fire, is the more usual Process; and is commonly, among us, thus effected: The Air in the Cavity of the *Cucurbitula* is heated, and so rarefy'd, by the Application of the Flame of a Lamp, or the like; and the Vessel immediately apply'd to the Part to be *cupp'd.*

Others, especially the *French*, proceed thus: A piece of Card is cut round, and a Lamp, or four little Wax Candles affix'd to it: This is placed after the manner of a Candlestick to the Part whereon the Operation is to be perform'd, and cover'd with a *Cucurbitula*, or Cupping-Glass.

After the included Air has been well heated and rarefy'd with the Flames of the Candles, it is clap'd close to the Skin; which it has no sooner touch'd but the Candles are extinguish'd, and the Tumor rais'd.

In *Cupping without Fire*, instead of rarefying the Air included in the *Cupping*-Glass by heat; 'tis done by a Syringe applied to the Neck of the *Cupping* Glass, fitted with a brass Collar, Cap, and Valve: The *Cupping*-Glass being applied to the Skin, and the Syringe wrought, part of the Air is pump'd out of the *Cucurbitula*; and thus the Tumor rises, as in the former Case. See SYRINGE.

The Reason of the Phænomenon is this: The Air included in the *Cupping*-Glass being rarefied, a great Part of the Load which before press'd it and kept it down, and which still continues to press the rest of the Body, is taken off; upon which the Air, known to be contain'd in the Vessels of the Body, and mix'd with the Blood and Juices, expands itself; and raises a Tumor, carrying with it the Fluids wherewith it is mingled.

The Operation is perform'd on the Breasts and Thighs, to stop or promote the Menses; on the Navel for the Cholick.

Cupping is also us'd for Defluxions on the Eyes, for venomous Wounds, and Buboes; on the Head, for Apoplexies, &c.

CUPPING GLASS, *Cucurbitula*, in Chirurgery, a Glass Vessel, applied to certain Parts of the Body, to draw the Blood and other Humours from within outwards; to be afterwards discharg'd, thro' several Incisions made with a Scarificator. See CUPPING.

The Vessel is of various Dimensions: Sometimes, instead of Glass, 'tis made of Wood, Horn, Brass, Silver, &c.

When the *Cupping* is to be perform'd with Fire; the Vessel is heated with Candles, Tow, a Torch, Lamp, or the like; and in this State applied close to the Part: The Air in

in its Cavity being by this means rarefy'd, and brought near to the Condition of a Vacuum; that Part of the Body cover'd by it being less press'd by the Air than the rest, its Juices are forc'd up with the Cutis, and raise a Bunch in the Cavity of the Vessel: to which the Scarificator being apply'd, and ten or twelve Incisions made at the same time, a plentiful Evacuation is effected.

To Cup without Fire, the Vessel is fitted with a brass Neck; to which a Syringe being apply'd, a Rarefaction is produc'd, by working it to and fro: (see SYRINGE.) The rest as in the former Case.

CURATE, is properly a Parson, or Vicar of a Parish, who hath the Charge or *Cure* of the Parishioners Souls. See CURE, PARSON, &c.

Curate is now more generally used for a Deputy or Substitute; or one who officiates in the Place of the Incumbent, or Beneficiary.

CURATIVE *Indication*, among Physicians, a Sign which has relation to the Disease to be cured. See SYMPTOM, and INDICATION.

CURATOR, in the Civil Law, a *Trustee*, or Person elected or nominated to take care of the Affairs and Interests of a Person emancipated, or interdicted. See EMANCIPATION.

In Countries where the *Roman* Law prevails, between the Age of 14 and 24 Years, Minors have *Curators* assign'd 'em: Till 14, they have Tutors. See MINOR, and TUTOR.

CURATOR *of an Academy*, in the United Provinces, is an elective Office, to which belongs the Direction of the Affairs of the Academy; as, the Administration of the Revenues, the Inspection of the Professors, &c. The *Curators* are chose by the States of each Province: The Academy of *Leyden* has three; the Bourgemaisters of the City have a fourth.

CURDLING, the *coagulating*, or fixing of any fluid Body; particularly Milk. See COAGULATION.

Pausanias says, *Aristæus* Son of *Apollo*, and *Cyrene* Daughter of the River *Peneus*, were the first who found the Secret of *curdling* Milk. See MILK.

At *Florence*, they *curdle* their Milk for the making of Cheese with Artichoke Flowers; in lieu of the Rennet us'd for the same Purpose among us. See CHEESE.

The *Bisaltes*, a People of *Macedonia*, *Rochfort* observes, live wholly of *curdled* Milk, *i. e.* of Curds. He adds, that Curds is the whole Food of the People of the upper *Auvergne* in *France*, and Whey their only drink.

Women newly deliver'd are subject to have their Milk *curdled*, or converted into little *Grumæ* in their Breasts, which occasions violent Pains, with a shivering in the back.

'Tis occasion'd by the want of being suck'd, whence the Method of remedying and preventing it is apparent.

CURE *of Souls*, a Benefice, the Incumbent whereof has the Charge and Guidance of the Souls of the People within a certain extent of Ground, call'd a *Parish*. See BENEFICE, PARISH, &c.

Such is a Vicar, a Rector, &c. in contradistinction to a Prebend, a Dean, a Chantor, &c. See VICARAGE, &c.

CURE, in Falconry, a Remedy which the Falconers give their Birds, in form of little Balls or Pellets, of Hemp, Cotton, or Feathers, to imbibe and dry up their Phlegm.

The best *Cure* is that made of Feathers, or of little Bones of Birds, bruis'd; or of Hares, or Rabbets Feet. That of Cotton burns and consumes the Lungs; especially when given without washing.

From the Condition of the *Cure*, when evacuated, they Judge of the State of the Bird. See CASTING.

CURETES, in Antiquity, a sort of People of the Isle of *Crete*; call'd also *Corybantes*. See CORYBANTES.

The *Curetes* are said to have been originally of Mount *Ida*, in *Phrygia*; for which reason they were also call'd *Idæi Dactyli*. See DACTYLI.

The Name *Curetes*, according to *Strabo*, was given 'em by reason of their cutting off the Hair before, to prevent the Enemy's taking hold thereof: the Word being *Greek*, κουῖτες, of κουρά, the Act of cutting off the Hair; of κείρω, *tondo*. Others derive it from κουροτροφία, the feeding or educating of a Child; by reason they are said to have educated *Jupiter*.

Ovid says, they arose from a huge Shower of Rain: *Lucian* and *Diodorus Siculus* represent them as very expert in casting of Darts; tho other Authors give 'em no Weapons but Bucklers and Pikes: But all agree in furnishing 'em with Tabours, and Castanetta's; and relate that they used to dance much to the Noise and clashing thereof.

Some Authors, however, give a different Account of the *Curetes*: According to *Pezron*, and others, the *Curetes* were, in the Times of *Saturn*, &c. and in the Countries of *Crete* and *Phrygia*, what the Druids and Bards were afterwards among the *Gauls*, &c. *i. e.* they were Priests, and Sacrificers, who took care of what related to Religion, and the Worship of the Gods. See DRUIDS.

Hence, as in those Days it was suppos'd there was no Communication with the Gods but by Divinations and Auguries, and the Operations of Magick; the *Curetes* pass'd for Magicians and Enchanters: To these they added the Study of the Stars, of Nature, and Poesy; and so were Philosophers, Astronomers, &c.

Such were the *Curetes*, and after them the Druids; with this difference, that the *Curetes*, in the Time of the Flames, went to the Wars; for which reason they were arm'd, and were wonderfully dextrous in dancing, Cap-a-pe, shaking their Bucklers and Javelins: From which Action, *Pezron* conjectures, they took their Name, *Curetes*; *Curo*, in the *Celtic*, being the same with the κείω, of the *Greek*.

According to *Kircher*, the *Curetes* were what the *Spirits* are among the *Cabalists*, the *Powers* in *Dionysius*, the *Demons* among the *Platonists*, and the *Genii* among the *Egyptians*. See DÆMON, &c.

Vossius distinguishes three Kinds of *Curetes*, those of *Etolia*, those of *Phrygia*, and those of *Crete*, which were originally derived from the *Phrygians*.

The first, he says, took their Name from κουρά, *tonsure*; in regard, from the Time of a Combat wherein the Enemy seiz'd their long Hair, they always kept it cut: Those of *Phrygia* and *Crete*, he supposes were so call'd from κοῦρος, *young Man*; in regard they were young; or because they nurs'd *Jupiter* when he was young. *De Idololat.*

CURFEW, or COURFEU, q. d. *Couvre-feu*, a Signal of Retreat, given in Cities taken in War, &c. to advertise the Inhabitants to go to bed, and not to stir out any more.

The *Curfeu-Bell*, wherewith the Signal was given, was sometimes hung up as a Punishment of Sedition. *Pasquier* says, it was call'd *Carfeu*, and *Garefeu*; as being intended to advertise the People to secure themselves from the Robbers and Debauchees of the Night.

The most antient *Curfeu*, was that establish'd in *England*, by *William* the Conqueror; who appointed, under severe Penalties, that at the ringing of a Bell, at eight a Clock in the Evening, every one should put out their Lights, *cover*, or rake up their Fires, and go to bed.

Whence, to this Day, where a Bell is accustom'd to be rung about Bed-time, 'tis call'd *Curfeu-Bell*.

CURIA, in our antient Customs. It was usual for the Kings of *England* to assemble the Bishops, Peers, and great Men of the Kingdom, to some particular Place, at the chief Festivals in the Year; and this Assembly is call'd, by our Historians, *Curia*; because there they consulted about the weighty Affairs of the Nation: whence it was sometimes also call'd, *Solennis Curia*, *Generalis Curia*, *Augustalis Curia*, and *Curia Publica*, &c. See COURT.

CURIA *advisare vult*, in Law, is a Deliberation, which the Court sometimes takes, before they give Judgment in a Cause wherein there seems to be any Point of difficulty.

CURIA *Baronum*. See COURT-*Baron*.

CURIA *Claudenda*, is a Writ that lies against him who should fence and enclose Ground, but refuses or defers to do it.

CURIALITAS *Angliæ*. See COURTESY *of England*.

CURIA *Militum*, a Court so called; antiently held at *Carisbrook* Castle, in the Isle of *Wight*. *Et idem Dominus Willielmus de insula facere debet sectam ad Curiam Domini castri de Crasbroe, de tribus septimanis in tres septimanas, in Curia quæ vocatur* Curia Militum.

CURIA, among the *Romans*, a Portion or Division of a Tribe. See TRIBE.

In the Time of *Romulus*, a Tribe consisted of ten *Curiæ*, or a thousand Men; each *Curia* being one hundred: That Legislator made the first Division of his People into thirty *Curiæ*.

Afterwards, the Word *Curia*, *Curies*, or *Domus Curialis*, became used for the Place where each *Curia* held its Assemblies: Hence, *Curia* pass'd to the Senate-house; and 'tis hence the Moderns come to use the Word *Curia*, Court, for a Place of Justice, and for the Judges, &c. there assembled. See COURT.

Some derive the Word *Curia* from *Cruor*; for what Reason we see not. *Varro* brings it from *Cura*, Care, *q. d.* an Assembly of People, charg'd with the Care of Publick Affairs. Others will have the Word come from the *Greeks*; maintaining, that at *Athens* they call'd κυρία the Place where the Magistrate held his Assizes, and the People used to assemble: κυρία, again, may come from κῦρος, *Authority*, *Power*; in regard, it was here the Laws were made. Hence also,

CURIO, the Chief, and Priest of a *Curia*.

Romulus, upon dividing the People into *Curiæ*, gave each Division a Chief, who was to be Priest of that *Curia*, under the Title of *Curio*, *Curion*, and *Flamen Curialis*.

His Business was to provide and officiate at the Sacrifices of the *Curia*, which were call'd *Curionia*; the *Curia* furnishing him with a Sum of Money on that Consideration: which Pension or Appointment was call'd *Curionium*.

Each Division had the Election of its *Curio*; but all these particular *Curio's*, were under the Direction of a Superior, or General, call'd *Curio Maximus*; who was the Head of the Body; and elected by all the *Curio's*, assembled in the *Comitia Curiata*.

All these Institutions were set a-foot by *Romulus*, and confirm'd by *Numa*, as *Halicarnassæus* relates it. *Goodwin* will have two *Curio's* in each *Curia*.

CURIOSUS, *Curious*, an Officer of the *Roman* Empire, during the Emperors of the middle Age.

The *Curiosi* were Persons appointed to have an Eye that there were no Frauds, and Malversations committed; particularly no Abuses in what related to the Posts, the Roads, &c. and to give Intelligence to the Court of what pass'd in the Provinces.

This made them People of Importance; and put 'em in a Condition of doing more harm than they prevented: on which account, *Honorius* cashier'd 'em, at least in some Parts of the Empire, *Anno* 415.

The *Curiosi* came pretty near to what we call Controllers: They had their Name from *Cura*, Care; *Quod Curis agendis & erectionibus cursus publici inspiciendis operam darent.*

CURLING *Stuff*, in Joinery. See CROSS-GRAIN'D *Stuff*.

CURNOCK, a Measure of Corn, containing four Bushels. See MEASURE, and BUSHEL.

CURRANTS, a Kind of little Raisins, or dried Grapes, of different Colours; black, white, or red; of the size of ordinary Gooseberries, brought from several Places of the *Archipelago*, and among others, from the Isthmus of *Corinth*; whence their Name.

They must be chosen new, small, and in large Masses; and care be taken that the little *Spanish Currants* ben't foisted in their room. When made up in Bales, they may keep two or three Years, without stirring, or giving 'em Air.

Their use is in seasoning several Viands, and in some medicinal Compositions; where they serve in lieu of Raisins.

Sir *George Wheeler*'s account of these Fruit, and the manner of preparing 'em is very curious.

The Island of *Zant*, he observes, is the chief Place whence the *Currants* are brought: the *Morea*, or the *Isthmus* of *Corinth*, which was antiently the principal Plantation, and whence the *Latins* denominate 'em *Uvæ Corinthiacæ*, now, produces no more; as having been much neglected: the Jealousy of the *Turks* not allowing large Vessels to enter the Gulf, to take 'em off their Hands.

They don't grow on Bushes, like our Gooseberries, tho that be the common Opinion; but on Vines, like other Grapes; except that the Leaves are somewhat thicker, and the Grapes somewhat smaller: They have no Stone; and, in this Country, are all red, or rather black.

They gather 'em in *August*, dispose 'em in Beds on the Ground till they be dry, clean 'em, and lay 'em up in Magazines, which the Natives call *Seraglio's*; pouring them in at a Hole, till the Magazine be full. They cling so fast together by their own weight, that they are forc'd to be dug out with Iron Instruments.

To barrel 'em for sending abroad, they have People who grease their Feet and Legs, and tread 'em close, that they may keep the better. They are sold for about 12 Crowns the thousand Weight; and pay as much Custom to the State of *Venice*.

Zant produces enough yearly to load five or six Vessels; *Cephalonia* three or four; and the other Islands one. The *English* have a Factory at *Zant*; the *Dutch* two or three Merchants, and the *French* one: the *English* consuming more than six times the Quantity that both *France* and *Holland* do together.

Those of *Zant* know but little of the use we make of 'em; being persuaded they only serve in dying of Cloth; and being entirely ignorant of the Luxury of Christmas Pyes, Puddings, &c.

CURRANT, or COURANT *Money*, good Money, or that which passes in Commerce from one to another. See COURANT.

CURRANT, *Curranto*, a sort of running *French* Dance: Also a Musical Air in triple Time. See COURANT.

CURRENT, in Hydrography, a Stream, or Flux of Water in any certain Direction. See RIVER, and WAVE.

Currents, in the Sea, are either *Natural* and *General*, as arising from the diurnal Rotation of the Earth on its Axis; or *Accidental*, and *Particular*, caus'd by the Waters being driven against Promontories, or into Gulphs and Straights; where, wanting room to spread, they are driven back, and thus disturb the ordinary Flux of the Sea. See SEA, FLUX, &c.

The *Currents* are so violent under the Equator, where the Motion of the Earth is the greatest, that they carry Vessels very speedily from *Africa* to *America*; but absolutely prevent their return the same way: so that Ships are forc'd to run as far as the 40th Degree of Latitude, to find a Passage into *Europe*.

In the Straights of *Gibraltar*, the *Currents* almost constantly drive to the Eastward, and carry Ships into the *Mediterranean*: They are usually, too, found to drive the same way in St. *George's Channel*. The great Violence and dangerousness of the Sea in the Straights of *Magellan*, is attributed to two contrary *Currents* setting in, one from the South, and the other from the North Sea.

CURRENTS, with respect to Navigation, may be defin'd, certain progressive Motions of the Water of the Sea, in several Places, either quite down to the Bottom, or to a certain determinate depth; by which a Ship may happen to be carry'd forward more swiftly, or retarded in her Course, according to the Direction or Setting of the *Current*, in, with, or against the Course or Way of the Ship. See NAVIGATION.

The Business of *Currents* making a considerable Article in Navigation; the way they set, together with their Strength, is to be carefully observ'd: this some do by the Ripplings of the Water, and by the driving of the Froth along the Shore, when in sight of it: But the more usual, as well as more accurate way, is thus:

They first fix their Boat, by throwing out a triangular piece of Wood, with a piece of Lead fasten'd to it and to the Stem of the Boat with a Cord; and letting it sink 60 Fathom, or more; or, sometimes, by a Kettle ty'd by the Bowl, and sunk, as the other.

By either of these means, the Boat is brought to ride as at Anchor; which done, the Log is cast over, the Glass turn'd, and as the Log-line veers out, the Drift of the Log is set with the Compass. See LOG-LINE.

This shews whether there be any *Current*, or none; and if any, which way it sets, and at what rate it drives: observing, however, to add something to the Drift, for the Boat's Drift; for tho she appear to stand still, yet, in reality, she is found to move. This Addition Experience has thus determin'd; if the Line she ride by be 60 Fathom, a third Part of the Drift to be added; if 80 Fathom, a fourth; if 100, a fifth.

If a Ship sail along the Direction of a *Current*, 'tis evident the Velocity of the *Current* must be added to that of the Vessel: If her Course be directly against the *Current*, it must be subtracted; if she sail athwart the *Current*, her Motion will be compounded with that of the *Current*; and her Velocity augmented or retarded, according to the Angle of her Direction, with that of the Direction of the *Current*; *i. e.* she will proceed in the Diagonal of the two Lines of Direction, and will describe or pass thro' that Diagonal in the same Time wherein she would have describ'd either of the Sides, by the separate Forces. See COMPOSITION of *Motion*.

To determine a Ship's Course and Distance, sailing obliquely with, or against a Current. Suppose, *v. g.* she sails N.E. 110 Miles, in a *Current* which sets S.W. 30 Miles in the same Time: To solve the Problem geometrically; set off 4 Points from N towards E, (Tab. *Navigation*, Fig. 15.) and draw A C equal to 110 Miles; from C draw C B, parallel to the Line N N E, and equal to 30 Miles: Lastly, draw A B, which will be the Ship's true Course and Distance.

To find which Trigonometrically. In the Triangle A B C, there are given A C 110, B C 30, and the Angle C, 22°30′; then, $AC + : AC - BC :: t, \frac{1}{2}A + B : t, \frac{1}{2}B - A$. That is, as the Sum of A C and B C, *viz.* 140, is to their Difference 80 :: so is the Tangent of 78° 45′ to the Tangent of 70° 49′. Hence her true Course appears to be N.E. 7°, 56′ Easterly. For her Distance; as the Sine of the Angle A, 7° 56′, is to the Drift of the *Current* B C, 30, so is the Sine of the Angle at C 22° 30′, to the Distance run, 83, two Miles. See COURSE.

Under-CURRENTS. Dr. *Halley* makes it highly probable, that in the *Downs*, in the Straights of *Gibraltar*, &c. there is an *Under-Current*, whereby as much Water is carried out, as is brought in by the *upper Current*.

This he argues from the Offing between the North and South Foreland, where it runs Tide and Half-Tide, *i. e.* it is either Ebb or Flood in that Part of the *Downs*, three Hours ere it is so off at Sea: A certain Sign, that tho the Tide of Flood runs aloft, yet the Tide of Ebb runs under-foot, *i. e.* close by the Ground; and so at the Tide of Ebb it will flow under-foot.

This he confirms by an Experiment in the *Baltic* Sound, which he receiv'd from an able Seaman present at the making it: Being there, then, with one of the King's Frigates, they went with their Pinnace into the Mid-Stream, and were carried violently by the *Current*. Soon after that they sunk a Basket with a large Cannon-Bullet, to a certain depth of Water, which gave check to the Boat's Motion; and sinking it still lower and lower, the Boat was driven a-head to the Windward, against the *upper Current*: the *Current* aloft, not being above four or five Fathom deep. He added, that the lower the Basket was let down, the stronger the *Under-Current* was found.

From this Principle, 'tis easy to account for that vast Draught of Water continually pouring in with the *Current* out of the *Atlantic* into the *Mediterranean*, thro' the Straights of *Gibraltar*; a Passage about 20 Miles broad: yet,

yet without any ſenſible riſing of the Water along the Coaſts of *Barbary*, &c. or any overflowing of the Lands, which there lie very low.

CURRICULUS, in our antient Writers, the *Year*, or Courſe of a Year. See YEAR.

Actum eſt hoc annorum Dominicæ incarnationis quatuor quinquagenis & quinquies, quinis luſtris & tribus curriculis, *i. e.* In the Year 1028; for four times fifty makes two hundred, and five times two hundred makes one thouſand; five *Luſtra* are twenty five Years, and three *Curriculi* are three Years.

CURRYING, or COURRYING, a Method of preparing Leather, with Oil or Tallow; which raiſes on the Hair, or Wool-ſide, a kind of Grain, not unlike that of *Morocco*, or *Maroquin*. Tho there is alſo a Kind of *curried* Leather without Grain. See LEATHER.

Currying is the laſt Preparation, and puts the Leather in a Condition to be us'd for Shoes, Saddles, Harneſs, &c. It is equally practis'd on Sheep, Calf, and Cows-Skins.

The Colours given in *Currying*, are, black, white, red, yellow, and green: The other Colours are given by the Skinners; who differ from the *Curriers* in this, That they apply their Colours on the Fleſh-ſide; the *Curriers* on the Hair-ſide.

Manner of currying *in black, with the Grain.*

Of Blacks there are four Caſes: Either the Skins are put in Tallow on both Sides; or Oil is us'd, in lieu of Tallow, on the Fleſh-ſide; or Tallow is us'd alone on the Hair-ſide, and nothing on the other; or Tallow is us'd on both Sides, but no Grain rais'd.

The two firſt are us'd for Cows and Calves Leather; the ſecond is the only way uſed for Sheep; and the two laſt are uſed occaſionally for Cow and Bullock: For Calf and Sheep, they uſe Sumac on the Fleſh-ſide, which gives an Orange-caſt.

For *Neats-Skin* in black; The Skin, coming from the Tanner, is wet ſeveral times with a Broom, roll'd and trod under-foot to make it tractable, drain'd, and as much of the remaining Fleſh as poſſible taken off with the Knife; hung in the Air till half dry, then wet and trampled again, and again.

This done, 'tis rub'd over with a Pummel, or Call, having Niches in manner of Teeth, to render it ſtill more pliant; and ſing'd with Straw, to prepare it to receive the Tallow; which is applied, boiling hot, on both Sides.

The Skin is then ſing'd a ſecond time, laid four Hours in a Veſſel of freſh Water, trampled, and work'd a ſecond time with the Pummel on each ſide, and ſtoutly drain'd; ſmear'd over with its firſt black, made of Galls and Ferailles, boil'd in Beer-agre, or ſour Beer; half dry'd, ſtretch'd on a Table, and the Grain beat down with a flat Iron Inſtrument, drawn over it from place to place.

It now receives its ſecond black, made of Galls, Copperas, and Gum Arabic; when dry, and ſtretch'd on a Table, 'tis ſmear'd over with Beer-agre; then folded from Corner to Corner, and the Pummel drawn over it to cut the Grain, firſt on the Hair-ſide, then on the Fleſh-ſide; the laſt with a Pummel of Cork: The Beer hanging in it is taken out with a Hair Torch, boil'd in Hatter's Lie; and the Skin faſten'd to the Table, and clean'd with the Iron Inſtrument abovemention'd, and again wip'd with a piece of worſted Stocking. The Skin is now brighten'd, on the Hair-ſide, by a Luſtre of Barberries, to prepare it to receive its laſt Grain.

The Grain, we already obſerv'd, is begun, by folding the Skin, the Hair-ſide inwards, ſeveral ways: to finiſh it, 'tis again folded, after its firſt Luſtre, two ways; firſt from Corner to Corner, a little ſlanting; then a-croſs, *i. e.* firſt directly, or from Eye to Eye, then from Head to Tail.

The Grain thus effected, the laſt Luſtre, which makes its laſt Preparation, is given; compos'd of Gum Arabic, Garlick, Beer Vinegar, and *Flanders* Size, boil'd together, and applied cold. See LUSTRE.

Calf-Skin, in black, is prepared much after the ſame manner; tho begun differently. After wetting, taking off as much of the Fleſh remaining as poſſible, and drying; they pounce the Fleſh-ſide with a hard rough Pounce-Stone, which makes it more ſmooth and gentle; then give the Grain with the Pummel, put in the Tallow: the reſt as before.

Sheep-Skins, in black. What theſe have peculiar in their Preparation, is, that they are firſt ſtretch'd on a Table to get off the Bourre, or Tan wherewith they are loaden; then wet, trod under-foot, and Tallow added on the Hair-ſide: they are again wet, again trod, ſtretch'd on the Table, and the Water ſqueez'd out with the Pummel; then black'd, repaſs'd under the Pummel on each ſide, dried, and all the Roughneſs and Inequality par'd off with a flat, round, cutting Inſtrument: the reſt as before.

Sleek Leather, or that without any Grain, made of Cows or Bullocks Leather, differs a little in its Preparation from the former. The Skins being wet, trod, and paſs'd under the Pummel, the Fleſh is taken off; the reſt as in the firſt Article: Obſerving, that the Tallow be applied on both Sides as thick as poſſible: being now ſteep'd in Water, trod, frized, and black'd the firſt time; the ſecond black is laid on, till the Hair-ſide be quite ſmooth. After receiving their two Luſtres, they are preſs'd between two Tables; without having plaited or folded 'em in any manner during the whole Preparation.

CURSITOR, an Officer or Clerk belonging to the Court of Chancery, who maketh out original Writs. See CHANCERY, and WRIT.

Theſe are alſo called *Clerks of the Courſe*; and are 24 in Number: making a Corporation of themſelves. To each of 'em are allotted ſeveral Shires; in which Shires they make out ſuch original Writs as are by the Subject requir'd.

CURSOR, a Piece, little Ruler, or Label of Braſs, divided like a Line of Sines, and ſliding in a Groove, or Notch, along the middle of another Label, or Ruler, repreſenting the Horizon, and always at right Angles to it.

It is uſed in the *Analemma*. See ANALEMMA.

CURSOR is alſo uſed for a Point ſcrew'd on the Beam-Compaſs; and which may be moved, or ſlidden along the Beam thereof, for the ſtriking of greater or leſs Circles. See *Beam*-COMPASS.

CURTAILING, in the Manage, the *Docking*, or cutting off a Horſe's Tail. See DOCKING.

The Practice of *Curtailing* is no where in vogue ſo much as in *England*; it being a popular Opinion, that the cutting off the Tail renders the Horſe's Chine or Back the ſtronger, and more able to bear Burdens: which ſeems warranted by Experience.

The Amputation is uſually made between the fourth and fifth Joints of the Tail; a Ligature being firſt ty'd tight about the Place, to prevent the Flux of Blood; and the raw Stump afterwards ſear'd up with a hot Iron, till the Extremities of the Veſſels be all ſtop'd.

CURTAIN, or COURTINE, in Fortification, that Part of a Wall, or Rampart, which is between two Baſtions; or which joins the Flanks thereof. See RAMPART, and BASTION.

It is uſually border'd with a Parapet five Foot high; behind which the Soldiers ſtand to fire upon the Covert Way, and into the Moat.

Beſiegers ſeldom carry on their Attacks againſt the *Curtain*; becauſe it is the beſt flanked of any Part. See FLANK.

Du Cange derives the Word *Curtain* from the Latin *Cortina, quaſi minor Cortis*, a little Country Court, inclos'd with Walls: He ſays, it was in Imitation hereof, that they gave this Name to the Walls and Parapets of Cities, which incloſe 'em like *Courts*: He adds, that the *Curtains* of Beds take their Name from the ſame Origin; that *Cortis* was the Name of the General's, or Prince's Tent; and that thoſe who guarded it were call'd *Cortinarii* and *Curtiſani*.

CURTATE *Diſtance*, in Aſtronomy, the Diſtance of a Planet's Place from the Sun, reduced to the Ecliptick; or, the Interval between the Sun, and that Point where a Perpendicular let fall from the Planet, meets with the Ecliptic. See PLACE, and DISTANCE.

CURTATION, the Interval between a Planet's Diſtance from the Sun, and the *Curtate* Diſtance. See PLANET.

From the preceding Article, 'tis eaſy to find the *Curtate Diſtance*; whence the manner of conſtructing Tables of *Curtations* is obvious.

The Quantity of Inclination, Reduction, and *Curtation* of a Planet, depending on the Argument of the Latitude; *Kepler*, in his *Rhudolphin Tables*, reduces the Tables of 'em all into one, under the Title of *Tabulæ Latitudinariæ*.

CURTESY. See COURTESY.

CURTICONE, in Geometry, a Cone whoſe top is cut off by a Plane parallel to its Baſis; call'd alſo *Truncated Cone*. See TRUNCATED.

CURVATURE *of a Line*, is its Bending, or Flexure; whereby it becomes a Curve, of ſuch peculiar Properties. See LINE, and CURVE.

Thus, the *Curvature* of the Circle is ſuch, as that all Points of the Periphery are equally diſtant from one Point within, called the Centre.

The *Curvatures* of different Circles, are to one another reciprocally as their Radii. See CIRCLE.

CURVE, in Geometry, a Line, wherein the ſeveral Points it conſiſts of tend ſeveral ways, or are poſited towards different Quarters. See LINE.

In this Senſe, the Word is uſed in oppoſition to a *ſtrait* Line; whoſe ſeveral Points are poſited towards the ſame Quarter.

Hence, Figures terminated with Lines of the firſt Property, are called *Curvilinear* Figures; in oppoſition to thoſe terminated with the latter, call'd *Rectilinear* Figure. See RECTILINEAR, and FIGURE.

The Doctrine of *Curves*, and of the Figures and Solids generated from them, conſtitute what we call the *Higher Geometry*. See GEOMETRY.

In a *Curve*, the Line AD, (Tab. *Geometry*, Fig. 51.) biſſecting the parallel Lines MM, is call'd the *Diameter*:

If the Lines be equidistant, and it cut 'em at right Angles, it is call'd the *Axis*; and the Point A, whence the Diameter is drawn, is call'd the *Vertex*. See DIAMETER, AXIS, and VERTEX.

The equidistant Lines M M are call'd *Ordinates*, or *Applicates*; and their Halves, P M, *Semiordinates*. See ORDINATE, and SEMIORDINATE.

The Portion of the Diameter A P, between the Vertex, or other fix'd Point, and an Ordinate, is call'd the *Abscisse*. See ABSCISSE.

And the Concourse of all the Diameters, the *Centre*. See CENTRE.

Curves are distinguish'd into *Algebraic*, frequently with *Des Cartes* call'd *Geometrical*; and *Transcendental*, called by the same *Cartes*, &c. *Mechanical Curves*.

Algebraical CURVES, are those wherein the Relation of the Abscisses A P, A P, AP, to the Semiordinates M P, M P, M P, may be express'd by an Algebraical Equation. See EQUATION.

Suppose, *v. g.* in a Circle, (Fig. 52.) $AB=a$, $AP=x$, $PM=y$; then will $PB=a-x$; consequently, as $PM^2=AP$, $PB\ y^2=ax-x^2$. Or, suppose $PC=x$, $AC=a$, $PM=y$; then will $MC^2=PC^2=PM^2$; that is, $a^2-x^2=y^2$.

Note, Those are also call'd *Algebraic Curves*, which are of a determinate Order; so, as that the Equation always continues the same in the several Points of the *Curve*.

Most Authors, after *Des Cartes*, call Algebraic *Curves*, *Geometrical* ones; as admitting none else into the Construction of Problems; nor, consequently, into Geometry. But *Wolfius*, from Sir *I. Newton*, and M. *Leibnitz*, is of another Opinion; and thinks, that in the Construction of a Problem, one *Curve* is not to be preferr'd to another, for its being defin'd by a more simple Equation, but for its being more easily describ'd. See PROBLEM.

A Transcendental CURVE, is that which can't be defin'd by an Algebraic Equation.

These *Curves*, *Des Cartes*, &c. call *Mechanical* ones; and under that Notion exclude 'em out of Geometry: But *Newton* and *Leibnitz*, for the Reason abovemention'd, are of another Opinion. Indeed, *Leibnitz* has found a new Kind of Equations, which he calls *Transcendental Equations*; whereby even *Transcendental Curves*, and those which are not of any determinate Order, *i. e.* which don't continue the same in all the Points of the *Curve*, may be defin'd. *Act. Erudit. Leip.* A. 1684. p. 234.

Algebraic CURVES *of the same Kind or Order*, are those whose Equations rise to the same Dimension. See ORDER.

Geometrical Lines being defined by the Relation between the Ordinates and Abscisses, or (which is the same, by the Number of Points wherein they may be cut by a right Line) are well distinguish'd into *two Kinds* or *Orders*: In which view, Lines of the first Order will be right Lines; and those of the second or quadratic Order will be *Curves*, viz. *Conic Sections*.

Now, a *Curve* of the first Kind is the same with a Line of the second, (a right Line not being number'd among *Curves*) and a *Curve* of the second Kind, the same with a Line of the third. Thus, *Curves* of the first Kind, are those whose Equation rise to two Dimensions; if they rise to three, *the Curves are of the second Kind*; if to four, of the third, &c.

Thus, *e. g.* the Equation for a Circle is, $y^2=ax-x^2$, or $a^2-x^2=y^2$. A Circle, therefore, is a *Curve* of the first Kind.

Again, *a Curve of the first Kind*, is that defined by the Equation $ax=y^2$; and a *Curve of the second Kind*, that defined by the Equation $a^2x=y^3$. See CIRCLE.

For the various Curves *of the first Kind, and their Properties*, see CONIC *Sections*.

For Curves of the second Kind, Sir *I. Newton* has a distinct Treatise, under the Title of *Enumeratio linearum tertii ordinis*.

Curves of the second and other higher Kinds, he observes, have Parts, and Properties similar to those of the first: Thus, as the *Conic* Sections have Diameters and Axes; the Lines cut or bissected by these, are call'd *Ordinates*; and the Intersection of the *Curve* and Diameter, the *Vertex*: So, in *Curves of the second Kind*, any two parallel right Lines being drawn so as to meet the *Curve* in three Points; a right Line cutting these Parallels, so, as that the Sum of the two Parts between the Secant and the *Curve* on one side, is equal to the third Part terminated by the *Curve* on the other side, will cut, in the same manner, all other right Lines parallel to these, and that meet the *Curve* in three Points, *i. e.* so, as that the Sum of the two Parts on one side, will be still equal to the third Part on the other side.

These three Parts, therefore, thus equal, may be call'd *Ordinates*, or *Applicates*; the Secant the *Diameter*; and where it cuts the Ordinates at right Angles, the *Axis*: The Intersection of the Diameter and the *Curve*, the *Vertex*; and the Concourse of the two Diameters, the *Centre*; and the Concourse of all the Diameters, the *General Centre*.

Again, as a Hyperbola of the first Kind has two Asymptotes; that of the second has three, that of the third four, &c. and as the Parts of any right Line between the Conic Hyperbola and its two Asymptotes are equal on either side; so, in Hyperbolas of the second Kind, any right Line cutting the *Curve* and its three Asymptotes in three Points; the Sum of the two Parts of that right Line, extended from any two Asymptotes the same way to two Points of the *Curve*, is equal to the third Part, extended from the third Asymptote, the contrary way to the third Point of the *Curve*. See ASYMPTOTE, HYPERBOLA, &c.

Again, as in other Conic Sections, not parabolical, the Square of the Ordinate, *i. e.* the Rectangle of the Ordinates, drawn to contrary Parts of the Diameter, is to the Rectangle of the Parts of the Diameter terminated at the Vertices of an Ellipsis or Hyperbola, as a given Line, call'd the *Latus Rectum*, is to that Part of the Diameter which lies between the Vertices, and is call'd the *Latus Transversum*: So, in *Curves of the second Kind*, not parabolical, the Parallelopiped under the three Ordinates, is to the Parallelopiped under the Parts of the Diameter cut off at the Ordinates and the three Vertices of the Figure, in a given Ratio: wherein, if there be taken three right Lines at the three Parts of the Diameter plac'd between the Vertices of the Figure, each to each; then those three right Lines may be call'd the *Latera Recta* of the Figure, and the Parts of the Diameter between the Vertices, the *Latera Transversa*.

And, as in a Conic Parabola, which has only one Vertex to one and the same Diameter, the Rectangle under the Ordinates, is equal to the Rectangle under the Part of the Diameter cut off at the Ordinates and Vertex, and a given right Line call'd the *Latus Rectum*: So, in *Curves of the second Kind*, which have only two Vertices to the same Diameter; the Parallelopiped under three Ordinates, is equal to the Parallelopiped under two Parts of the Diameter cut off at the Ordinates and the two Vertices, and a given right Line, which may therefore be call'd the *Latus Transversum*. See LATUS; see also PARABOLA.

Further, as in the Conic Sections, where two Parallels terminated on each side by a *Curve*, are cut by two Parallels, terminated on each side by a *Curve*; the first by the third, and the second by the fourth: the Rectangle of the Parts of the first, is to the Rectangle of the Parts of the second, as that of the second is to that of the fourth: So, when four such right Lines occur in a *Curve* of the second Kind, each in three Points; the Parallelopiped of the Parts of the first, will be to that of the Parts of the second, as that of the second to the Parts of the fourth. See SECTION.

Lastly, the Legs of *Curves*, both of the *first*, *second*, and *higher Kinds*, are either of the Parabolic or Hyperbolic Kind: an Hyperbolic Leg, being that which approaches infinitely towards some Asymptote; a Parabolic, that which has no Asymptote. See ASYMPTOTE.

These Legs are best distinguish'd by their Tangents; for, if the Point of Contact go off to an infinite Distance, the Tangent of the Hyperbolic Leg, will coincide with the Asymptote; and that of the Parabolic Leg, recede infinitely, and vanish. The Asymptote, therefore, of any Leg, is found by seeking the Tangent of that Leg to a Point infinitely distant; and the Bearing of an infinite Leg, is found by seeking the Position of a right Line parallel to the Tangent, when the Point of Contact is infinitely remote: for this Line tends the same way towards which the infinite Leg is directed.

Reduction of CURVES *of the second Kind.*

Sir *I. Newton* reduces all *Curves* of the *second Kind* to four Cases of Equation: In the first, the Relation between the Ordinate and Abscisse, making the Abscisse x, and the Ordinate y, assumes this form $xyy+ey=ax^3+bxx+cx+d$. In the second Case, the Equation assumes this form $xy=ax^3+bx^2+cx+d$. In the third Case, the Equation is $yy=ax^3+bx^2+cx+d$. In the fourth, the Equation is of this form, $y=ax^3+bx^2+cx+d$.

Enumeration of the CURVES *of the second Kind.*

Under these four Cases, the same Author brings a vast Number of different Forms of *Curves*, to which he gives different Names.

A Hyperbola lying wholly in the Angle of the Asymptotes, like a Conic Hyperbola, he calls an *Inscribed Hyperbola*; that which cuts the Asymptotes, and contains the Parts cut off within its own Periphery, a *Circumscrib'd Hyperbola*; that, one of whose infinite Legs is inscrib'd, the other circumscrib'd, he calls *Ambiginal*; that whose Legs look towards each other, and are directed the same way, *Converging*; that where they look contrary ways, *Diverging*; that where they are convex different ways, *Cross-leg'd*; that applied to its Asymptote, with a concave Vertex, and diverging Legs, *Conchoidal*; that which cuts its Asymptote with contrary Flexures, and is produced each way into contrary Legs, *Anguineous*, or *Snake-like*; that which cuts its Conjugate

Conjugate a-cross, *Cruciform*; that which returning around cuts it self, *Nodated*; that whose two Parts concur in the Angle of Contact, and there terminate, *Cuspidated*; that whose Conjugate is oval, and infinitely small, *i. e.* a Point, *Pointed*; and that which from the Impossibility of its two Roots, is without either Oval, Node, Cusp, or Point *pure*: And in the same manner he denominates a Parabola, to be *converging*, *diverging*, *cruciform*, &c. Where the Number of Hyperbolic Legs, exceeds that of the Conic Hyperbola; he denominates the *Hyperbola redundant*.

Now, the various *Curves* which he enumerates under these four Cases, are in Number 72; whereof nine are *redundant* Hyperbolas, without Diameters, having three Asymptotes including a Triangle.

The first consisting of three Hyperbolas, one *inscribed*, another *circumscribed*, another *ambigonal*, with an *Oval*; the second *Nodated*; the third *Cuspidated*; the fourth *Pointed*; the fifth and sixth *Pure*; the seventh and eighth *Cruciform*; the last *Anguineal*.

There are 12 *redundant* Hyperbolas, having only one Diameter: The first *Oval*, the second *Nodated*, the third *Cuspidated*, the fourth *Pointed*, the fifth, sixth, seventh, and eighth, *Pure*; the ninth and tenth *Cruciform*; the eleventh and twelfth *Conchoidal*.

Two are *redundant* Hyperbolas with three Diameters.

Nine are *redundant* Hyperbolas, with three Asymptotes converging to a common Point; the first form'd of the fifth and sixth redundant Parabolas, whose Asymptotes include a Triangle; the second, of the seventh and eighth; the third and fourth, of the ninth; the fifth is form'd of the fifth and seventh of the redundant Hyperbolas, with one Diameter; the sixth, of the sixth and seventh; the seventh, of the eighth and ninth; the eighth, of the tenth and eleventh; the ninth, of the twelfth and thirteenth: All which Conversions are effected, by distinguishing the Triangle comprehended between the Asymptotes, till it vanish into a Point.

Six are defective Parabolas, having no Diameters: The first *Oval*, the second *Nodated*, the third *Cuspidated*, the fourth *Pointed*, the fifth *Pure*.

Seven are defective Hyperbolas, having Diameters: The first and second *Conchoidal*, with an *Oval*; the third *Nodated*, the fourth *Cuspidated*, which is the Cissoid of the Antients; the fifth and sixth, *Pointed*; the seventh *Pure*.

Seven are Parabolic Hyperbolas, having Diameters: The first *Oval*, the second *Nodated*, the third *Cuspidated*, the fourth *Pointed*, the fifth *Pure*, the sixth *Cruciform*, the seventh *Anguineous*.

Four are Parabolic Hyperbolas. Four are Hyperbolisms of the Hyperbola. Three Hyperbolas of the Ellipsis. Two Hyperbolisms of the Parabola.

Five are diverging Parabolas: one, a *Trident*; the second *Oval*, the third *Nodated*, the fourth *Pointed*, the fifth *Cuspidated*; (this is *Neal's Parabola*, usually called the *Semicubic Parabola*:) the sixth, *Pure*.

Lastly, one commonly call'd the *Cubic Parabola*.

Organical Description of these CURVES.

1st, If two Angles given in Magnitude, PAD, PBD, (Tab. *Analysis*, Fig. 53.) revolve round Poles given in position, A and B; and their Legs, AP, BP, with their Point of Concourse, P, pass over another right Line: The other two Legs AD, BD, with their Point of Concourse D, will describe a Conic Section passing thro' the Poles A B: Unless that Line happen to pass thro' either of the Poles A or B; or unless the Angles BAD and ABD vanish together: in which Cases, the Point will describe a right Line.

2dly, Now, if the Legs, AP, BP, by their Point of Concourse, P, thus describe a Conic Section passing thro' one of the Poles, A; the other two, AD, BD, with their Point of Concourse D, will describe a *Curve of the second Kind*, passing thro' the other Pole B, and having a double Point in the first Pole A: Unless the Angle BAD, ABD, vanish together; in which Case, the Point D will describe another Conic Section, passing thro' the Pole A.

3dly, If the Conic Section describ'd by the Point P, pass thro' neither of the Poles A B; the Point D will describe a *Curve of the second or third Kind*, having a double Point: which double Point will be found in the Concourse of the describing Legs AD, BD: When the two Angles BAP, ABP, vanish together, the *Curve* described will be of the *second Kind*, when the Angles BAD, ABD, vanish together; otherwise of the *third Kind*, having two other double Points in the Poles A and B.

With regard to *double Points of Curves*: We have observ'd that *Curves* of the second Kind may be cut by a right Line in those Points: Now two of these sometimes coincide, *v.g.* when the right Line passes thro' an infinitely small Oval; or thro' the Concourse of two Parts of a *Curve*, mutually cutting each other, and uniting in a Cusp. Sometimes the right Line, even, only cuts the *Curve* in one Point; as in Ordinates of the *Cartesian* and *Cubic Parabola*, &c. In which Case, we must conceive the right Lines passing thro' two other Points of a *Curve*, placed, as it were, at an infinite distance: Now these coincident Intersections, whether at a finite or infinite Distance, make what we call *double* Point.

Genesis of CURVES *of the* second Order *by Shadows*.

If the Shadows of Figures be projected on an infinite Plane, illumin'd by a lucid Point; the Shadows of Conic Sections will still be Conic Sections; those of *Curves* of the second Kind, will be *Curves* of the second Kind; those of the third Kind, *Curves* of the third Kind, &c.

And as a *Curve*, in projecting a Shadow, generates all the Conic Sections; so, the five diverging Parabolas, with their Shadows, generate and exhibit all other *Curves* of the second Kind.

And in this manner may a Train of the *simple Curves* of other Kinds be found, which shall form all the other *Curves* of the same Kind, by their Shadows projected from a lucid Point, upon a Plane.

Description of CURVES *of the* second Order, *having double Points*.

These are all describ'd from seven given Points, whereof one is the double Point it self: Thus, let there be given any seven Points of the *Curve* to be described; as, *v.g.* A, B, C, D, E, F, G, (Tab. *Analysis*, Fig. 54.) whereof A is the double Point: join the Point A, and any other two Points, *v.g.* B and C; and let the Angle CAB of the Triangle ABC, revolve about its Vertex A; and another of the Angles ABC, about its Vertex B. And when the Point of Concourse C, of the Legs AC, BC, is successively applied to the four other Points D, E, F, G, let the Concourse of the remaining Legs AB and BA, fall on the four Points P, Q, R, S.

Thro' those four Points, and the fifth A, describe a Conic Section; and let the foremention'd Angles CAB, CBA, so revolve, as that the Point of Concourse of the Legs AB, BA, may pass over that Conic Section; and the Concourse of the other Legs AC, BC, will describe the proposed *Curve*.

Use of these CURVES *in the Construction of Equations*:

The use of *Curves* in Geometry, is by means of the Intersections thereof, to solve Problems. See CONSTRUCTION.

Suppose, *v.g.* an Equation to be constructed of nine Dimensions, as $x^9 + bx^7 + cx^6 + dx^5 + ex^4 + fx^3 + gx^2 + hx + r = 0$; where b, e, d, &c. signify any given Quantities affected with the Signs + and —: assume an Equation to a Cubic Parabola $x^3 = y$; and the first Equation, writing y for x^3 will come out $y^3 + bxy^2 + cy^2 + dx^2y + exy + my + fx^3 + gx^2 + hx + k = 0$; an Equation to another *Curve* of the second Kind, where m or f may be assum'd or annulled. And by the Descriptions and Intersections of these *Curves* will be given the Roots of the Equation to be constructed. 'Tis sufficient to describe the Cubical Parabola once.

If the Equation to be constructed, by omitting the two last Terms hx and k, be reduced to seven Dimensions; the other *Curve*, by expunging m, will have the double Point in the beginning of the Abscisse, and may be easily describ'd as above: If it be reduced to six Dimensions, by omitting the three last, taking $gx^2 + hx + k$; the other *Curve*, by expunging f, will become a Conic Section: and if, by omitting the three last Terms, the Equation be reduced to three Dimensions, we shall fall on Dr. *Wallis's* Construction by the Cubic Parabola and right Line.

Rectification of a CURVE, is the finding of a right Line equal to a *Curve*. *For the Praxis hereof*, see RECTIFICATION *of Curves*.

Quadrature of a CURVE, the finding of the Area, or Space included by a *Curve*; or the assigning of a Square equal to a *Curvilinear Space*. See QUADRATURE.

Family of CURVES, is an Assemblage of several *Curves* of different Kinds, all defined by the same Equation of an indeterminate Degree; but differently, according to the Diversity of Kind.

E. g. Suppose an Equation of an indeterminate Degree, $a^{m-1}x = y^m$. If $m = 2$, then will $ax = y^2$; if $m = 3$, then will $a^2x = y^3$; if $m = 4$, then $a^3x = y^4$, &c. All which *Curves* are said to be of the same *Family*, or *Tribe*.

The Equations whereby the Families of Curves are defined, are not to be confounded with the Transcendental ones: For tho, with regard to the whole Family, they be of an indeterminate degree, yet, with respect to each several *Curve* out of the Family, they are determinate; whereas transcendent Equations are of an indefinite Degree, with respect to the same *Curve*.

All Algebraic *Curves*, therefore, compose a certain Family, consisting of innumerable others; each whereof comprehends infinite Kinds. For since the Equations whereby the *Curves* are defined enter the *Facta*, either of the Powers

of the Abscisses and Semiordinates into the given Coefficients, or of the Powers of the Abscisses into the Powers of the Semiordinates, or of the mere given Quantities; and all Equations may be equal to nothing, (*v.g.* if $ax = y^2$, then $ax - y^2 = 0$); the Equation for all Algebraical *Curves* will be $a\,y^m + b\,x^n + c\,y\,x^s + d\,f = 0$.

Exponential Curve, is that defined by an Exponential Equation; that is, by an Equation wherein is an Exponential Quantity, *v. g.* x^x, a^x. See Exponential.

The Symptoms, Properties, Geneses, &c. *of particular* Curves, v. g. *Cycloid, Logarithmic Curves, Conchoid*, &c. *see under their proper Heads*, Cycloid, Logarithmic, Conchoid, *&c.*

CURVET, in the Manage. See Courvet.

CURVILINEAL *Figures*, in Geometry, are Spaces bounded by crooked Lines; as the Circle, Ellipsis, Spherical Triangle, *&c.* See Curve, and Figure.

CURULE *Chair, Sella Curulis*, in Antiquity, an Ivory Seat, whereon certain of the *Roman* Magistrates had a Right to sit.

The *Curule* Magistrates were the Ediles, Prætors, Censors, and Consuls. See Edile, *&c.*

The Senators who had bore these Charges, were carried to the Senate on *Curule Chairs*; as also those who triumph'd: the Chair being fitted into a kind of Chariot, *Currus*; whence *Curules*. See Triumph.

The *Curule Chair* is used on Medals, to express a *Curule* Magistracy: When travers'd by a Hasta, 'tis the Symbol of *Juno*, and serves to express the Conservation of Princesses.

CUSP, *Cuspis*, properly denotes the Point of a Spear.

It is particularly us'd in Astronomy, to express the Points or Horns of the Moon, or other Luminary. See Moon, Crescent, Eclipse, *&c.*

In Astrology, *Cusp* is used for the first Point of the twelve Houses, in a Figure or Scheme of the Heavens.

CUSPIDATED, in Botany, is when the Leaves of a Flower end in a *Cusp*, or Point, resembling that of a Spear.

CUSPIDATED *Hyperbola*, &c. See Hyperbola.

CUSTODE *Admittendo*, and CUSTODE *Amovendo*, are Writs for the admitting, or removing of Guardians. See Guardian.

Custodes *Libertatis Angliæ, authoritate Parliamenti*, was the Style or Title in which Writs, and other Judicial Proceedings, did run in the Rump Time; that is, from the Death of King *Charles* I. till *Oliver* was declared Protector, *&c.*

CUSTOM, the Manners, Ceremonies, or Ways of living of a People, which in time have turn'd into Habitude, and by Usage, obtain'd the Force of Laws. See Law.

In this Sense, *Custom* implies Things that were at first voluntary, but are become necessary by use: Thus, the Presents made by Officers at their admission into Posts, are only due because they have pass'd into *Custom*. See Fee.

The Word further signifies the doing or not doing certain Things, introduc'd by the greatest Part of the People of a Country, or Province: If there be nothing evil in such *Custom*, it obliges, till it be either abrogated by a contrary *Custom*, or a Law.

For a *Custom* thus establish'd to have the Force of a Law, 'tis necessary, ordinarily, that it be founded on some natural Equity, or some considerable Good; and that it have subsisted *ultra tritavum*: but, as this is hard to prove, 'tis sufficient if two or more Witnesses depose they heard their Fathers say the same of their Time.

If it be Matter of Record, the Continuance of 100 Years is sufficient. See Record.

The Effect of a *Custom* thus circumstantiated, is, that it has the same Force and Authority as a Law; making what we call *Lex non scripta*; and that in popular States and limited Monarchies, it serves to interpret the written Laws: for in absolute Monarchies, 'tis the King alone has the Power of interpreting Laws.

Hence, the Word *Custom* is still retain'd, and serves to express the particular Rights and Municipal Laws establish'd by Usage in particular Provinces, *&c.* after they are reduced into written Laws.

In this Sense, most of the Common Law of *England* is *Lex non scripta*; being originally no more than the *Customs* of our Forefathers. See Common *Law*.

Lex non scripta, in this Sense, is used in opposition to *Statutes* or *Acts of Parliament*; which commence Laws at once. See Statute.

Cowel distinguishes *Custom* from Prescription, in that the former is more general, and relates to several Persons; whereas the latter is usually confin'd to this or that Man. Five Years time, too, are sufficient for Prescription; whereas for *Custom* there are requir'd 100. See Prescription.

Customs are real Things, and are included within their Limits or Territories: They are either *Local, i. e.* restrain'd to this or that Place, or *General*.

The *Custom of Paris*, serves as a Rule for all the other Places of *France*; where they have no Provisions contrary thereto.

The *Romans* were govern'd by *Customs*, or unwritten Laws, after the Expulsion of their Kings. See Civil *Law*.

Cæsar observes, that the *Gauls* had their *Customs*, which they constantly retain'd; and that it was impossible for the *Romans* to govern 'em by any other Laws: So that it was only the Provinces bordering on *Italy* that receiv'd the *Roman* Laws.

Customs, in Commerce, the Dues, Duties, or Tolls, paid by Merchants to the King, for carrying out, and bringing in of Merchandizes. See Exportation, and Importation.

The *Customs* of Goods exported and imported, throughout *England*, amount yearly to 1300000 Pounds; whereof those of the Port of *London* make a third part. See Commerce.

The *Customs* in *England* are very numerous, and very high; beyond what any other trading Nation knows: The principal are Duties of *Tunnage* and *Poundage*, which are very antient, being the only ones in use before the Time of King *Charles* II. But that Prince, and his Successors, have introduc'd divers others: At present, the *Customs* on Liquors are, *Tunnage*, the *Additional* Duty, the Duty of *Excise*, *Coinage*, Duty of the *old Imposition*, Duty of the *additional Imposition*, Duty of *Orphans Money*, Duty on *French Wines*, *New Subsidy*, $\frac{1}{3}$ and $\frac{2}{3}$ of *Subsidies*.

For other Merchandizes, the Duties are, *Poundage*, the *additional* Duty on Silks and Linens, *Excise* of the same Year, on *foreign* Species, *new Imposition* of Poundage, another of $\frac{4}{3}$; a Duty of 25 *per Cent.* on *French* Commodities; the *new Subsidy* of Poundage, in 1697; an *additional Subsidy* of $\frac{2}{3}$ of Poundage, in 1703; a third in 1704; a Duty on *Fish Oils*, another on *Leather*, another on *Paper*, *Soap*, &c. *See these describ'd more at large under the Article* Duty.

Custom-*House*, an Office establish'd on the Frontiers of a State, or in some chief City, for the Receit of the *Customs* and Duties of Importation and Exportation; imposed on Merchandizes, by the Authority of the Prince, and regulated by Tariffs, or Books of Rates. See Customs, and Duties.

There are several *Custom-houses* in the several Ports of *England*: The most considerable is that of *London*.

It is under the Direction of seven Commissioners appointed by Patent; who have the Charge and Management of all the *Customs* (the Petty-Farms alone excepted) in all the Ports of *England*. See Commissioner.

Other Officers are, a *Secretary*, *Sollicitor*, *Receiver-General*, *Comptroller* of the Issues and Payments of the Receiver-General; *Comptroller-General*; *Inspector* of the Out-Port Collectors Accompts; *Inspector-General* of the Exports and Imports; *Register-General* of all Ships of *Great-Britain*; *Surveyor-General*; *Surveyor* of the Out-Ports, and *Register* of the Seizures; all holding their Places by Patents: with other inferior Officers, appointed by Warrant from the Lord High Treasurer.

CUSTOMARY *Tenants*, *Custumarii*, *vel Tenentes per consuetudinem*; are such Tenants as hold by the *Custom* of the Manor as their special Evidence. See Manor.

These were antiently Bondmen, or those that held *Tenura Bondagii.—Et omnes illi qui tenuerint in Bondagii tenura, solebant vocari* Custumarii. *MS. de Consuetud. Man. de* Sutton Colfield, *de anno* 3 Edw. II.

CUSTOS *Brevium*, a Clerk, belonging to the Court of Common Pleas; whose Office is to receive, and keep all the Writs, and put 'em upon Files; every Return by it self; and at the End of every Term to receive of the Prothonotaries all the Records of the *Nisi prius*, call'd the *Postea*. See Writ, and Postea.

The Writs are first brought in by the *Clerks of Assize* of every County to the Prothonotary who enter'd the Issue in that Matter, to enter Judgment. Four Days after the Return, the Prothonotary enters the Verdict, and Judgment thereupon, into the Rolls of the Court; and then delivers them over to the *Custos Brevium*.

He also makes Entry of the Writs of Covenant, and the Concord upon every Fine; and makes Copies and Exemplifications of all Writs and Records in his Office, and of all Fines levied: The Fines, when engrossed, are divided between the *Custos Brevium* and *Chirographer*; the former keeping the Writ of Covenant and the Note, the latter the Concord, and Foot of the Fine. See Chirographer.

In the Court of the King's-Bench, there is likewise a *Custos Brevium & Rotulorum*, who fileth such Writs as are there used to be filed, and all Warrants of Attorney; and transcribes or makes out Records of *Nisi prius*, &c.

Custos *Placitorum Coronæ*, in *Bracton*, seems to be the same with him now call'd *Custos Rotulorum*. See Custos *Rotulorum*.

Custos *Rotulorum*, is he that hath the Custody of the Rolls, or Records of the Sessions of Peace; and some say, of the Commissions of Peace it self. See Peace.

He

He is always a Justice of Peace, and *Quorum*, in the County where he hath his Office; and by his Office is rather a Minister than a Judge. Because the Commission of the Peace, by express Words, lays this special Charge upon him, *Quod ad dies & loca prædicta, brevia, præcepta, processus, & judicamenta prædicta coram te & dictis sociis tuis venire facias.*

Custos *Spiritualium*, is he who exercises Spiritual or Ecclesiastical Jurisdiction in any Diocese, during the Vacancy of the See. See Diocese.

This, by the Canon Law, belongs to the Dean and Chapter; but in *England*, to the Archbishop of the Province, by Prescription: Tho, divers Deans and Chapters do challenge it by antient Charters, from Kings of this Land.

Custos *Temporalium*, is the Person to whose Custody a vacant See was committed by the King, as supreme Lord; who, as a Steward of the Goods and Profits, was to give an account to the Escheator, and he into the Exchequer.

His Trust continued till the Vacancy was supply'd by a Successor, who obtained the King's Writ *de Restitutione Temporalium*; which was commonly after *Consecration*, but sometimes before.

In the Canon Law, we meet with a *Custodi nos*, *i. e.* a Confidentiary, or Incumbent of a Benefice, who borrows his Name of some other, to collect the Fruits thereof, and is to make a Resignation whenever demanded.

CUT *a Feather*, in the Sea Language, is when a well-bow'd Ship so swiftly presses the Water, that it seems before her.——To *Cut the Sail*, is to unfurl it, and let it fall down.

Cut-*Water*, the Sharpness of a Ship, which is under the Beak-head.

CUTANEOUS, something that concerns the Skin; whether in the way of Distemper, or Remedy. See Cutis.

Thus, we say, *Cutaneous* Eruptions; the Itch is a *Cutaneous* Disease.

The Word is form'd of the Latin *Cutis*, Skin.

CUTICULA, *Cuticle*, in Anatomy, a thin pellucid Membrane, void of Sense; serving as a Cover to the *Cutis* or Skin. See Cutis.

The *Cuticula* is that first and outermost Covering of the Body, call'd also *Epidermis*, but more commonly the *Scarf-Skin*; or that soft Tegument which rises in a Blister upon a Burn, or the Application of a Cautery.

It sticks close to the Surface of the Cutis, or true Skin, to which it is also tied by the Vessels that nourish it; tho these are so small as not to be seen.

When examin'd by a Microscope, it appears to consist of several Lays of exceeding small Scales, which cover one another, more or less, according to its different thickness, in the several Parts of the Body; and in the Lips, where the Scales appear plainest because the Skin is thinnest, they do little more than barely touch.

These Scales are either the excretory Ducts of the Glands of the Cutis; as is the Case apparently in Fishes: or else the Glands have their Tubes, opening between the Scales. See Milliary *Gland*.

Leewenhoeck reckons, that in one *cuticular* Scale there may be 500 excretory Ducts; and that a Grain of Sand will cover 250 Scales: so that one Grain of Sand will cover 102500 Pores or Orifices, thro' which we daily perspire. See Perspiration, and Pore.

Yet, notwithstanding the exceeding Porosity of the *Cuticula*, it obstructs a great Part of the serous Humours which would otherwise be evacuated by the Glands of the *Cutis*; as is evident from that plentiful Discharge consequent on the Application of a Blister, or other Accident, whereby the *Cuticula* is remov'd, and the Cutis bared. See Vesicatory.

The Scales are often glu'd together by the grosser Parts of our insensible Transpiration hardening upon 'em by the heat of the Body, which carries off the more volatile Particles; and in this consists that Indisposition we popularly call a *Cold*.

The Humour which is thenceforward separated by the Glands of the Skin, being pent in between the Scales, causeth frequent itching; and where the Matter has been long pent up, small Pimples, and other Foulnesses: for removing of which, Nature directs to those wholesom Remedies of frequent rubbing, washing, or bathing. See Leprosy.

Some imagine the *Cuticle* form'd from the grosser Parts of the excrementitious serous Humour, eliminated thro' the Pores of the Cutis, and condens'd on the Surface; like the Pellicle which appears upon Evaporation on the Surface of the Serum of the Blood: But *Leewenhoeck*, with more probability, takes it to be from an Expansion of the Excretory Ducts of the Glands of the Skin.

Its use is to defend the Nerves of the *Cutis*, which are the Origin of the Sense of Feeling, from the Injuries of rough and hard Bodies, as well as the Air: for either of those would make too exquisite and painful an Impression on the naked Nerves; or the Air would dry them, so as that they would be less susceptible of the nicer Touches of Pleasure. See Feeling.

Riolanus, and several others, maintain that the *Cuticula* of Women has no Pores: *Molinette* argues the contrary from their Sweating; but maintains, withal, that this is true of Dogs and Cats, which never sweat, how much soever fatigued. See Sweat.

CUTIS, in Anatomy, *the Skin*; a Reticular Plexus, or Body of Vessels, immediately under the *Cuticle*, or Scarf-Skin. See Skin, and Cuticula.

The Vesicles of the *Cutis* contain a mucous Liquor; from the Tincture of which, *Malpighi*, and others, take the Colour of the Skin to be derived; founded on this, that the *Cutis*, as well as *Cuticle* of Blacks is white, and the Blood red, *&c.* and that the only thing they have peculiar in this Part, is the Colour of this Liquor. See Negro.

The *Cutis* consists of Fibres of its own; or, according to *Steno*, is form'd out of the Productions of the Tendons of the subjacent Parts: which terminate in an infinite Number of pyramidal *Papillæ*, interwoven with innumerable nervous Fibres, and other Vesicles, forming what we call a *Parenchyma*. See Parenchyma.

'Tis by means hereof that the *Cutis* becomes the Organ of Feeling. See Pyramidales *Papillæ*.

The *Cutis* is generally connected to the subjacent Parts by the *Membrana Adiposa*, and its proper Vessels, the Veins, Arteries, Nerves, *&c.* Its Use, is to wrap up and cover the whole Body; to be a general Emunctory for the Matter of Perspiration; and to be the Organ of Feeling. See Perspiration, Feeling, *&c.*

The Diseases of the *Cuticula* and *Cutis*, are the *Itch*, *Leprosy*, *Small-Pox*, *Measles*, *Scarlet Fever*, and *Erysipelatous Inflammations*. See Itch, Pox, Leprosy, *&c.*

CUTTER *of the Tallies*, an Officer of the Exchequer, who provides Wood for the Tallies, and cuts the Sum paid upon them. See Tally.

CUTTING, a Term us'd in various Senses, and various Arts; in the general, it implies a Division or Separation.

Cutting is us'd in Heraldry, where the Shield is divided into two equal Parts, from right to left, parallel to the Horizon, or in the Fesse-way. See Coupee.

The Word is also applied to the Honourable Ordinaries, and even to Animals, and Moveables, when they are divided equally the same way; so, however, as that one Moiety is Colour, the other Metal. The Ordinaries are also said to be *cut*, *couped*, when they come full to the Extremities of the Shield.

Cutting, *Lithotomy*, in Chirurgery, the Operation of extracting the Stone out of the Bladder. See Stone.

It appears, that *Cutting* was in use for the Stone, even in the Time of *Hippocrates*; tho we are perfectly in the dark as to the manner in which they perform'd it: It was, however, wholly disus'd in the after-Ages; insomuch, that in the beginning of the XVIth Century, there was no body durst practise it. The Faculty of Medicine at *Paris* were oblig'd to address themselves to the Parliament, to obtain Leave to make a Trial on a Criminal condemn'd to Death, who had the Stone in the Bladder: the Operation succeeding, the Practice became popular.

There are three principal Ways of performing the Operation; the *Apparatus minor*, *Apparatus major*, and *Apparatus altus*; or the *low*, *lateral*, and *high Operations*. *The Method of performing each, see under the Article* Lithotomy.

Cutting-*Glass*, in Chirurgery. See Cupping-*Glass*.

Cutting, in Coinage. When the *Laminæ*, or Plates of the Metal, be it Gold, Silver, or Copper, are brought to the thickness of the Species to be coin'd, pieces are *cut* out, of the Thickness, and nearly of the Weight of the intended Coin; which are now call'd *Planchets*, till the King's Image have been stamp'd on 'em. See Coining.

The Instrument wherewith they *cut*, consists of two pieces of Steel, very sharp, and placed over one another; the lower a little hollow, representing a Mortar; the other a Pestel.

The Metal being put between the two, is *cut* out in the manner describ'd.

Note, Medallions, where the Relievo is to be great, are not *cut*, but cast, or moulded. See Medal.

Cutting, in the Manage, is when the Horse's Feet *interfere*; or when with the Shoe of one Foot he beats off the Skin from the pastern Joint of another Foot. See Interfering.

This is more frequent in the hind Feet than the fore: The Causes are either Weariness, Weakness in the Reins, not knowing how to go, or ill shoeing.

Cutting, in Painting, the laying one strong lively Colour over another, without any Shade or Softening. See Colouring.

The *Cutting* of Colours has always a disagreeable Effect.

Cutting *in Wood*, a particular Kind of Sculpture, or Engraving; denominated from the Matter wherein it is employ'd. See Engraving.

It is us'd for various Purposes; as for initial or figured Letters, Head and Tail-pieces of Books; and even for

Schemes and other Figures; to save the Expences of engraving on Copper: and for Prints, and Stamps, for Paper, Callicoes, Linens, &c. See PRINTING.

The Invention of *Cutting in Wood*, as well as that in Copper, is ascribed to a Goldsmith of *Florence*; but 'tis to *Albert Durer*, and *Lucas*, they are both owing for their Perfection.

One *Hugo de Carpi* invented a manner of *Cutting* in Wood, by means whereof, the Prints appear'd as if painted in Clair-Obscure: In order to this, he made three Kinds of Stamps for the same Design; which were drawn, after one another, thro' the Press for the same Print: They were so conducted, as that one serv'd for the grand Lights, a second for the Demi-Teints, and a third for the Outlines, and the deep Shadows.

The Art of *Cutting in Wood*, was certainly carried to a very great Pitch about 150 Years ago; and might even vie, for Beauty and Justness, with that of engraving in Copper: At present 'tis in a low Condition, as having been long neglected, and the Application of Artists wholly employ'd on Copper, as the more easy and promising Province: Not but that wooden *Cuts* have the Advantage of those in Copper on many Accounts; chiefly for Figures and Devices in Books; as being printed at the same Time, and in the same Press as the Letters; whereas, for the other, there is requir'd a particular Impression.

The *Cutters in Wood* begin with preparing a Plank or Block, of the size and thickness requir'd, and ever even and smooth on the Side to be *cut*: for this, they usually take Pear-Tree, or Box; tho the latter is the best, as being the closest, and least liable to be worm-eaten.

On this Block they make their Design with a Pen, or Pencil, just as they would have it printed. Those who can't make their own Design, as many there are cannot, make use of a Design furnish'd 'em by another; fastening it upon the Block with Paste of Flower and Water, with a little Vinegar; the Strokes or Lines turn'd towards the Wood.

When the Paper is dry, they wash it gently over with a Sponge dip'd in Water; which done, they take off the Paper by little and little, still rubbing it a little first, with the Tip of the Finger; till at length there be nothing left on the Block, but the Strokes of Ink that form the Design, which mark out so much of the Block as is to be spared, or left standing.

The rest they *cut* off, and take away very curiously with the Points of fine sharp Knives, or little Chissels, or Gravers, according to the Bigness or Delicacy of the Work; for they need no other Instruments.

CUTTINGS, or *Slips*, in Gardening, the Branches or Sprigs of Trees, or Plants, *cut* or slipp'd off to set again; which is done in any moist, fine Earth. See PLANTING.

The best Season is from *August* to *April*; but Care is to be taken, when 'tis done, the Sap be not too much in the Top, lest it die ere that Part in the Earth have Root enough to support it: nor yet must it be too dry, or scanty; the Sap in the Branches assisting it to take Root.

In providing the *Cuttings*, such Branches as have Joints, Knots, or Burrs, are to be *cut* off two or three Branches beneath them, and the Leaves to be strip'd off so far as they are set in the Earth. Small Top-Branches, of two or three Years growth, are fittest for the Operation. See MANURING, GARDENING.

CYCLE, in Chronology, *Circle*; a certain Period, or Series of Numbers, proceeding orderly from first to last, and recurring again from last to first; successively, and without interruption. See PERIOD.

The Origin of *Cycles* was thus: The apparent Revolution of the Sun round the Earth, has been divided, arbitrarily, into 24 Hours; the Basis or Foundation of all our Mensuration of Time. Civil Use knows none but Hours; or rather, Multiples of Hours, as Days, and Years. But neither the annual Motion of the Sun, nor that of the other Heavenly Bodies, can be measur'd exactly, and without any Remainder, by Hours, or their multiples. That of the Sun, *v.g.* is 365 Days, 5 Hours, 49 Minutes, nearly; that of the Moon 29 Days, 12 Hours, 44 Minutes.

Hence, to swallow up these Fractions in whole Numbers, and yet in Numbers which only express Days, and Years; *Cycles* have been invented: which comprehending several Revolutions of the same Body, replace it, after a certain Number of Years, in the same Points of the Heaven, whence it first departed; or, which is the same thing, in the same Place of the Civil Calendar. See CALENDAR.

Such is the famous *Cycle of 19 Years*, call'd also the

CYCLE *of the Moon*, or *Lunar* CYCLE, a Period of 19 Lunar Years, and seven Intercalary Months; equivalent to 19 Solar Years: in which Time, the New and Full Moons are supposed to return to the same Day of the *Julian* Year. See MOON.

This is also called the *Metonic Period*, from its Inventor *Meton*, the *Athenian*; and the *Golden Number*: tho, properly, the Golden Number is the particular Number which shews the Year of the Lunar *Cycle*, any given Year is in.

This *Cycle* of the Moon only holds true for 312 Years: For, tho the New Moons do return to the same Day after 19 Years; yet not to the same time of the Day, but near an Hour and a half sooner: which Error, in 312 Years, amounts to an entire Day.

Yet, those employ'd in reforming the Calendar, went on a Supposition of the Lunations returning precisely from 19 Years to 19 Years, for ever. See GREGORIAN.

The Use of this *Cycle* in the antient Calendar, is to shew the New Moon of each Year, and the Time of Easter. See EASTER.

In the new one, it only serves to find the Epacts; which shew, in either Calendar, that the New Moons fall 11 Days too late. See EPACT.

As the Orientals began the Use of this *Cycle* at the Time of the Council of *Nice*; they assumed, for the first Year of the *Cycle*, the Paschal New Moon to fall on the 13th of *March*: On which foot, the Lunar *Cycle* 3, fell on the 1st of *January*, in the third Year.

The Occidentals, on the contrary, put the Number 1 to the 1st of *January*, which occasion'd a considerable Difference in the Time of *Easter*: Hence, *Dionysius Exiguus*, upon framing a new Calendar, persuaded the Christians of the *West* to salve the Difference, and come into the Practice of the Church of *Alexandria*.

To find the Year of the Lunar CYCLE, is to find the *Golden Number*. See GOLDEN *Number*.

CYCLE *of Indictions*, is a Series of 15 Years, returning constantly around, like the other *Cycles*; and commencing from the third Year before Christ. See INDICTION.

When this *Cycle* of Indictions was first set on foot among the *Romans*, and for what End; is much controverted among Chronologers. *Petavius* leaves it as a thing not to be ascertain'd. The most probable Opinion is, that it was receiv'd about the Year 312, after the Time of *Constantine*.

To find the Cycle *of Indiction for any given Year*; add 3 to the given Year, and divide the Sum by 15, the Remainder is the *Cycle of Indiction*.

If there be no Remainder the *Cycle* is 15.

CYCLE *of the Sun*, or *Solar* CYCLE, a Revolution of 28 Years; beginning with 1, and ending with 28; which elapsed, the Dominical or Sunday-Letters, and those that express the other Feasts, &c. return into their former Place, and proceed in the same Order as before. See DOMINICAL, &c.

'Tis called *Solar Cycle*, not with regard to the Sun's Course, which has nothing to do herein; but from Sunday, antiently call'd *Dies Solis*, *the Day of the Sun*: in regard, 'tis the Dominical Letter is principally sought for from this Revolution; the Dominical Letters, which are the first in the Alphabet, having been substituted in lieu of the Nundinal Letters of the *Romans*.

The Reformation of the Calendar under Pope *Gregory*, occasion'd a considerable Alteration of the *Cycle*: In the *Gregorian* Calendar, the *Solar Cycle* is not constant and perpetual; in regard, every fourth Secular Year is Common; whereas, in the *Julian* 'tis Bissextile. The Epocha, or Beginning of the *Solar Cycle*, both *Julian* and *Gregorian*, is the 9th Year before Christ.

To find the Cycle *of the Sun for any given Year*; add 9 to the Number given, and divide the Sum by 28; the Number remaining will be the Number of the *Cycle*, and the Quotient the Number of Revolutions since Christ.

If there be no Remainder, it will be the 28th, or last Year of the *Cycle*.

CYCLE *of the Sun in the* Julian *Year*.

1	G	F	5	B	A	9	D	C	13	F	E	17	A	G	21	C	B	25	E	D
2		E	6		G	10		B	14		D	18		F	22		A	26		C
3		D	7		F	11		A	15		C	19		E	23		G	27		B
4		C	8		E	12		G	16		B	20		D	24		F	28		A

CYCLE *of the Sun from the* Gregorian *Year* 1700, *to the Year* 1800.

1	D	C	5	F	E	9	A	G	12	C	B	17	E	D	21	G	F	25	B	A
2		B	6		D	10		F	14		A	18		C	22		E	26		G
3		A	7		C	11		E	15		G	19		B	23		D	27		F
4		G	8		B	12		D	16		F	20		A	24		C	28		E

CYCLE, it may be observ'd, is not only us'd in the general, for all the Numbers that compose the Series; but for each Number in particular: Thus, we compute, that the ordinary Epocha from the Birth of Jesus Christ, had the *Solar Cycle* 10; the *Lunar Cycle*, or the Golden Number 2; the Dominical Letter B, and the *Cycle of Indiction* 4.

CYCLISCUS, from κύκλος, *Circulus*; an Instrument in form of an Half-Moon; used by the Surgeons to scrape away Rottenness.

CYCLOID,

CYCLOID, in Geometry, one of the Mechanical, or, as others term 'em, the Transcendental Curves; called also the *Trochoid*. See CURVE, and TROCHOID.

It is describ'd by the Motion of a Point A, (Tab. *Analysis*, Fig. 55.) in the Periphery of a Circle; while the Circle makes a Revolution along the right Line A P.

Hence, *the Properties of this Curve, viz.* that the right Line A E is equal to the Periphery of the Circle A B C D; and A C to the Semi-periphery; and in any Situation of the generating Circle, the right Line A *d* is equal to the Arch D *d*.——Again, *a d* being parallel to A *c*; A *d* is equal to the Arch of the generating Circle *d* F.——Further, the whole length of the *Cycloid* is four times that of the Diameter of the generating Circle; and the *Cycloidal* Space comprehended between the Curve and the Subtense A E, triple the Area of the generating Circle.——Lastly, any Part estimated from the Vertex, as F I, is every where double the Chord of the Circle F *b*; and the Tangent thereof G I, perpetually parallel to the same Chord F *b*.

The Genesis of the CYCLOID, may be conceiv'd by imagining a Nail in the Circumference of a Wheel; the Line which the Nail describes in the Area, while the Wheel revolves in a right Line, is the *Cycloid*.

The *Cycloid* is reputed a modern Cutve, and its Invention ascrib'd by some to *Mersenne*; by others to *Galileo*: but Dr. *Wallis* shews it of an older standing, and to have been known to *Bovillus*, about the Year 1500; and even consider'd by Cardinal *Cusanus* much earlier, *viz.* before the Year 1451.

M. *Huygens* has demonstrated, that from whatever Point, or Height, a heavy Body, oscillating on a fix'd Centre, (*v.g.* a Pendulum) begins to descend; while it continues to move in a *Cycloid*, the Times of its Falls, or Oscillations, will be equal to each other.

This Property M. *Fontenelle* states thus: The Nature of the *Cycloid* is such, that, if a Body which describes it, fall from a greater height, and by that means acquire a certain Augmentation of Velocity, as in *Galileo*'s Theory; the greater *Cycloidal* Arch which it describes, takes up precisely that Excess of Velocity. So that the Body does not describe it, either sooner for its being accelerated, or later for having a greater Space to move: And hence arises an Equality in Time, notwithstanding the Inequality of Arches.

On this Foundation it is, that the Pendulum-Clock is built: on the Subject whereof, the same M. *Huygens* has wrote a large Volume, under the Title of *Horologium Oscillatorium*. See PENDULUM; see also OSCILLATION.

CYCLOIDAL *Space*, the Space contained between the *Cycloid*, and the Subtense thereof. See CYCLOID.

CYCLOMETRY, the Art of measuring Cycles, or Circles. See CYCLE, and CIRCLE.

CYCLOPÆDIA, the Circle, or Compass of Arts and Sciences; more ordinarily call'd *Encyclopædia*. See ENCYCLOPÆDIA.

CYGNUS, *the Swan*, in Astronomy, a Constellation of the Northern Hemisphere. See CONSTELLATION.

Stars in the Constellation *Cygnus*, in *Ptolemy*'s Catalogue are 17; in *Tycho*'s 19; in the *Britannic Catalogue* 107. The Order, Names, Longitudes, Latitudes, Magnitudes, &c. whereof, are as follow.

Stars in the Constellation CYGNUS.

Names and Situations of the Stars.	Signs.	Longitude. °	′	″	Latitude. °	′	″	Magn.
Preced. of two towards the Harp	♍	20	54	46	66	13	6	5
Subseq. and more North.		25	41	28	68	49	57	6
In the Extremity of the North Wing	♒	10	38	18	73	50	11	4
That preced. the Bill towards the So.	♍	23	47	46	47	44	20	5
Preced. the Bill towards the South		25	18	47	50	57	30	5
5								
		24	16	45	46	25	40	6
That below the Bill		28	51	20	57	20	44	6
		25	12	34	45	54	20	4
In the Bill		25	16	24	45	59	22	6
10		26	55	37	49	0	31	3 4
	♒	13	40	9	72	10	51	6
Middle of 3 in the North Wing	♒	29	55	52	55	14	20	6
	♍	13	42	43	71	28	38	4
In the Head.		2	38	16	57	23	36	6
15		0	36	19	50	39	38	5
South of 3 in the North Wing		14	22	42	69	37	56	4
		7	54	44	62	42	5	6
		0	18	38	46	10	32	6
Preced. in the Inside of the No. Wing		5	50	43	57	15	9	6
20		17	1	8	69	30	50	6
Preced. in the Neck	♒	4	36	37	53	42	33	5
In the Angle of the North Wing		11	57	17	64	27	14	3 4
		1	28	49	42	41	50	4 5
		8	53	22	58	7	12	6
25		2	43	29	43	58	26	4 5
North of the middle Stars in the Wing		24	13	58	70	53	46	5 6
In the middle of the Neck		8	37	28	54	18	48	4
		10	31	20	57	31	43	6
		4	7	19	42	40	56	5
		25	11	36	74	10	15	6 7
30								
South of the middle Stars in the Wing		25	9	41	69	59	55	5
		6	31	37	47	1	45	4 5
		10	58	10	55	54	29	6
		5	39	1	44	15	50	5
Last of those in the North Wing		23	44	12	67	33	40	6
35								
Preced. in the Rise of the Neck		6	36	40	42	41	12	4 5
		12	30	29	54	28	16	5
Middle of 3 in the Rise of the Neck		9	3	51	45	34	54	6 5
		13	57	43	55	1	40	5
		9	24	14	45	24	28	6
40								
		9	19	24	45	4	48	5 6
		10	59	28	47	2	8	5 6
Subseq. in the Rise of the Neck		9	7	46	42	0	27	5
		15	34	43	54	36	33	6
		11	3	12	46	5	20	4 5
45								
Preced. in the Foot, which is double		9	58	47	43	1	53	5
Subseq. in the same Foot		23	46	19	63	43	29	5
A new one of the Breast, *Anno* 1600		23	47	55	63	38	3	4
		25	31	58	64	18	53	5 6
50		17	29	12	55	29	20	6
South of two under the new one								
North of the same		15	44	13	52	36	15	6
		17	2	13	54	33	16	6
In the Breast (of the N. Wing		11	26	23	42	26	36	6
Middle of 3 *Informes* preced. the Angle		20	32	51	57	9	20	3
55		15	42	22	49	36	33	4
South of the same		20	51	58	55	4	46	6
		16	24	20	47	28	53	4
		20	0	57	53	7	6	4
	♓	1	22	17	64	41	46	5 6
60	♒	20	57	9	53	23	53	6
Middle and brighter agst. the No. Knee	♓	1	46	7	64	3	51	5
Subseq. at the Knee		2	31	4	64	10	7	5 6
North of those preced. the Angle	♒	20	37	18	51	38	16	5
(gle near the Tropic		16	10	4	42	45	11	6
Preced. of the *Informes* in the Trian-		16	42	41	43	13	32	5 6
65								
South. in that Triangle		19	28	14	47	57	16	6
		16	2	55	40	54	36	5 6
		14	56	59	38	7	7	5
Bright Star in the Tail		20	54	55	48	21	13	6
70	♓	1	1	32	59	56	37	2
Subseq. of the said Triangle	♒	18	22	34	41	30	54	6
	♓	7	17	32	64	4	18	6 7
Inform. under the Angle of the S. Wing	♒	21	21	29	46	30	26	5
In the Angle or Elbow of the So. Wing		23	22	52	49	26	21	3
In the middle of the same Wing		25	26	47	51	38	37	4
75								
South of those preced. the Extreme	♓	4	8	54	49	57	10	5
of the 2 *Informes* of the S. Wing	♒	21	18	12	42	37	9	6
(Wing	♓	2	22	56	58	5	31	6 5
North of those prec. the Extrem. of the	♓	3	39	19	58	5	13	6
80	♒	22	45	37	43	13	58	5
	♒	20	45	4	37	39	42	6
In the South Foot (Tail	♓	1	51	21	54	56	25	4
Foremost of 3 in the North Part of the		8	49	9	60	6	19	5 6
South of the same		7	42	10	58	50	19	6 7
		1	57	3	51	50	35	5
85								
Against the South Knee		6	32	3	56	36	5	4
Subseq. in the North Part of the Knee		10	50	42	59	33	35	6 5
	♒	24	51	36	37	59	50	6
In the Extrem. of the South Wing		28	44	36	43	43	13	3
Middle of those in the South Wing	♓	4	16	38	50	32	40	4
90								
South of 3 in the Wing		2	57	29	47	29	10	5
North of the same		6	3	49	51	30	45	4
A small one following the South Knee		10	14	21	55	20	9	6
		6	1	38	48	25	8	6
That under the Extrem. of the S. Wing		1	14	9	40	0	20	6 5
95								
North of 2 in the Extrem. of the Tail		7	1	15	48	34	55	6
		15	39	47	56	25	37	6
South in the Extremity of the Tail		9	59	28	49	7	0	6
		15	53	18	55	12	21	4 5
100		12	1	23	50	32	2	6
		15	15	52	52	39	30	6
		13	31	55	50	25	21	6
		13	56	49	50	34	26	6
Under the South Wing, towards		6	8	0	39	32	16	3 4
the Foot of *Pegasus*		12	3	43	48	3	34	6
105								
N. of the *Informes* following the Tail		24	1	45	58	52	37	4 5
South of those following the Tail	♓	23	17	18	57	12	6	5

CYLINDER, in Geometry, (from the *Greek* κύλινδρος, a *round long Stone*;) a ſolid Body, contain'd under three Surfaces; ſuppos'd to be generated by the Rotation of a Parallelogram, as C B E F, (Tab. *Geometry*, Fig. 56.) about one of its Sides, C F. See SOLID.

If the generating Parallelogram be Rectangular, as C B E F, the *Cylinder* it produces will be a *right Cylinder*, *i. e.* a *Cylinder* whoſe Axis is perpendicular to its Baſe.

If the Parallelogram be a *Rhombus*, or *Rhomboides*, the *Cylinder* will be *oblique*, or *ſcalenous*.

The Surface of a *right Cylinder*, excluſive of its Baſes, is demonſtrated to be equal to a Rectangle contain'd under the Periphery, and the Altitude of the *Cylinder*.

The Periphery, therefore, of the Baſe, and thence the Baſe it ſelf, being found, and multiply'd by two, and the Product added to the Rectangle of the Height, and Periphery of the *Cylinder*; the Sum will be the Area or Superficies of the *Cylinder*: multiply this by the Area of the Baſe; and the Product will be the Solidity of the *Cylinder*.

For it is demonſtrated, that a Circle is equal to a Triangle, whoſe Baſe is equal to the Periphery, and Height, to the Radius; and alſo, that a *Cylinder* is equal to a Triangular Priſm, having the ſame Baſe and Altitude with it ſelf: Its Solidity, therefore, muſt be had by multiplying the Superficies into the Baſe. See PRISM.

Again, ſince a Cone may be eſteem'd an infinite-angular Pyramid; and a *Cylinder* an infinite-angular Priſm: a Cone is one third Part of a *Cylinder*, upon an equal Baſe, and of the ſame height. See CONE.

Further, a *Cylinder* is to a Sphere of the ſame Baſe and Altitude as 3 to 2. See SPHERE.

Laſtly, It being demonſtrated in Mechanicks, that every Figure, whether Superficial or Solid, generated, either by the Motion of a Line, or of a Figure; is equal to the *Factum* of the generative Magnitude into the Way of its Centre of Gravity, or the Line its Centre of Gravity deſcribes: Hence, if the Rectangle A B C D, (Tab. *Mechanicks*, Fig. 43.) revolve about its Axis A D, it will deſcribe a *Cylinder*, and its Side B C the Surface of the *Cylinder*. But the Centre of Gravity of the right Line B C, is in the Middle F; and the Centre of Gravity of the generating Plane in the Middle G, of the right Line E F. The Way of this, therefore, is the Periphery of a Circle deſcrib'd by the Radius E G; and of that, the Periphery of a Circle deſcrib'd by E F. The Superficies, therefore, of the *Cylinder*, is the *Factum* of the Altitude B C, into the Periphery of the Circle deſcrib'd by the Radius E F, *i. e.* into the Baſe: But the Solidity of the *Cylinder*, is the *Factum* of the generating Rectangle A B C D, into the Periphery of the Circle deſcrib'd by the Radius E G; which is Subduple of E F, or the Semidiameter of the *Cylinder*.

Suppoſe, *v. g.* the Altitude of the deſcribing Plane, and therefore of the *Cylinder*, $BC = a$, the Semidiameter of the Baſe $DC = r$; then will $EG = \frac{1}{2} r$; and ſuppoſing the Ratio of the Semidiameter to the Periphery, $= 1 : m$; the Periphery deſcrib'd by the Radius, $\frac{1}{2} r$ will be equal to mr. Therefore, multiplying $\frac{1}{2} mr$ into the Area of the Rectangle $AC = ar$; the Solidity of the *Cylinder* $= \frac{1}{2} mar^2$: But $\frac{1}{2} mar^2 = \frac{1}{2} r.mr.a$, and $\frac{1}{2} r.mr$, the Area of the Circle deſcrib'd by the Radius D G. The Solidity of the *Cylinder*, therefore, is equal to the *Factum* of the Baſe, and the Altitude.

For the Ratio of CYLINDERS; as the *Radii* of all *Cylinders*, Cones, &c. are in a Ratio compos'd of their Baſes, and Altitudes: Hence, if their Baſes be equal, they will be in the Ratio of their Heights; if their Altitudes be equal, in the Ratio of their Baſes.

Hence, alſo, the Baſes of *Cylinders* and Cones being Circles; and Circles being in a duplicate Ratio of their Diameters; all *Cylinders* and Cones are in a Ratio compounded of the direct Ratio of the Altitudes, and the duplicate one of their Diameters: and, if they be equally high, as the Squares of the Diameters.

Hence, again, if in *Cylinders* the Altitude be equal to the Diameter of the Baſes, they will be in a triplicate Ratio of the Diameters of the Baſe. All *Cylinders*, Cones, &c. are in a triplicate Ratio of their homologous Sides; as alſo of their Altitudes.

Again, equal *Cylinders*, Cones, &c. reciprocate their Baſes and Altitudes.

Laſtly, a *Cylinder* whoſe Altitude is equal to the Diameter of the Baſe, is to the Cube of its Diameter, as 785 to 1000.

To find a Circle equal to the Surface of a given CYLINDER, we have this Theorem: The Surface of a *Cylinder* is equal to a Circle, whoſe Radius is a Mean Proportional between the Diameter and Height of the *Cylinder*. See SUPERFICIES.

The Diameter of a Sphere, and Altitude of a CYLINDER *equal thereto, being given; to find the Diameter of the* Cylinder: The Theorem is; The Square of the Diameter of the Sphere, is to the Square of the Diameter of the *Cylinder*, equal to it, nearly, as triple the Altitude of the *Cylinder*, to duple the Diameter of the Sphere. See SPHERE.

To find a Rete, *or Net, whence a* Cylinder *may be form'd, or wherewith any* Cylinder *may be cover'd.* With the Diameter of the Baſe, deſcribe two Circles; find their Peripheries: and upon a Line equal to the Altitude of the *Cylinder*, form a Rectangle, whoſe other Dimenſion is equal to the found Periphery. Thus may the *Cylinder* requir'd be form'd, or cover'd.

CYLINDER *charged*, in Gunnery, is the Chamber of a great Gun. See ORDNANCE.

CYLINDER *concave*, in Gunnery, is all the *Chace*, or hollow length of a Piece of Ordnance. See ORDNANCE.

CYLINDER *vacant*, in Gunnery, is that Part of the Hollow that remains empty, after the Gun is charg'd. See CANON.

CYLINDROID, in Geometry, a ſolid Body, approaching the Figure of a *Cylinder*; having, *v. g.* its Baſes elliptical, parallel, and equal.

The Word comes from the *Greek* κύλινδρος, *Cylinder*, and εἶδος, *Form*.

CYMA, in Botany, a Term ſignifying the Top of any Plant, or Herb.

CYMA, in Architecture. See CIMA, SIMA, and CYMATIUM.

CYMATIUM, CIMATIUM, or CIMA, in Architecture, (from the *Greek* κυμάτιον, *undula*;) a Member, or Moulding of the Cornice, whoſe Profile is waved, *i. e.* concave a-top, and convex at bottom; frequently alſo call'd *Doucine*, *Gorge*, or *Gula Recta*; eſpecially by the *French*: by the Italians *Goletta*, i. e. *parva Gula*; but more uſually, *Cymatium*, among us; as being the laſt, or uppermoſt Member, *q. d.* the *Cyma*, or Summet of the Corniche. See CORNICHE.

Some write it *Simaiſe*, from *Simus*, *Canus*, flat-nos'd; but this Etymology is unlucky: the Beauty of the Moulding conſiſting in its having its Projecture equal to its Height.

M. *Felibien*, indeed, will not allow this Etymology; contending, that the Moulding is not ſo denominated from its being the uppermoſt Member of the Corniche; but, according to the Sentiment of *Vitruvius*, from its being waved.

This is certain, that *Vitruvius* ſometimes uſes the Word *Unda* for *Cymatium*, and ſometimes *Lyſis*, i. e. *Solution*, *Separation*; in regard, Corniches, where the *Cymaiſes* are found, ſeparate one piece of Architecture from another; as the Pedeſtal from the Column, and the Frieze from the Corniche.

But, withal, it muſt be obſerved, that he does not confine *Cymatium* to the Corniche; but uſes it indifferently for any ſimilar Moulding, wheree'er he meets with it: in which he differs from the moſt accurate among the Moderns.

Felibien makes two Kinds of *Cymatiums*; the one *right*, the other *inverted*: In the firſt, that Part which projects the furtheſt is concave, and is otherwiſe call'd alſo *Gula Recta*, and *Doucine*. See DOUCINE.

In the other, the Part that projects furtheſt is convex, called *Gula Inverſa*, or *Talon*. See TALON.

Our Architects don't uſe to give the Name *Cymatium* to theſe Mouldings, except when found on the Tops of Cornices; but the Workmen apply the Name indifferently, wherever they find 'em.

Palladio diſtinguiſhes the *Cymatium* of the Corniche by the Name *Intavolatum*.

Tuſcan CYMATIUM, conſiſts of an Ovolo, or Quarter-Round. *Philander* makes two *Doric Cymatiums*, whereof this is one: *Baldus* calls this the *Lesbian Aſtragal*.

Doric CYMATIUM, is a Cavetto, or a Cavity leſs than a Semicircle, having its Projecture ſubduple its Height.

Lesbian CYMATIUM, according to *Vitruvius*, is what we otherwiſe call *Talon*, *viz.* a concavo-convex Member, having its Projecture ſubduple its Height. See TALON.

CYMBAL, a Muſical Inſtrument, uſed among the Antients; call'd by the *Greeks* κύμβαλον, and by the Latins *Cymbalum*.

It was of Braſs, like our Kettle-Drums; and ſome think in their Form, but ſmaller, and its Uſe different.

Caſſiodorus, and *Iſidore*, call it *Acetabulum*, the Name of a Cup or Cavity of a Bone wherein another is articulated; and *Xenophon* compares it to a Horſe's Hoof: whence it muſt have been hollow; which appears, too, from the Figure of ſeveral other Things, denominated from it, as a Baſon, Caldron, Goblet, Caſque; and even a Shoe, ſuch as thoſe of *Empedocles*, which were of Braſs.

In effect, the antient *Cymbals* appear to have been very different from our Kettle-Drums, and their Uſe of another Kind: To their exterior Cavity was faſten'd a Handle; whence *Pliny* takes occaſion to compare 'em to the upper Part of the Thigh, *Coxendicibus*; and *Rabban* to Phiols.

They were ſtruck againſt one another, in Cadence, and made a very acute Sound. Their Invention was attributed to *Cybele*; whence their uſe in Feaſts and Sacrifices: Setting

ting aside this Occasion, they were seldom used but by dissolute and effeminate People.

Mr. *Lampe*, who has wrote expressly on the Subject, attributes the Invention to the *Curetes*, or Inhabitants of Mount *Ida* in *Crete*: 'Tis certain, these, as well as the *Corybantes*, or Guards of the Kings of *Crete*; and those of *Rhodes*, and *Samothracia*, were reputed to excel in the Musick of the *Cymbal*. See CORYBANTES.

Sylburgius derives the Word κύμβαλον from three several *Greek* Roots, *viz.* from κυφος, *crooked*; from κυπελον, *Cup*; and from φωνὴ, *Voice*. *Isidore* derives it from *cum*, and *ballematica*, an immodest Dance, used to accompany this Instrument. The real Etymology appears to be from κύμβος, *Cavity*.

The *Jews*, too, had their *Cymbals*, which they called צלצלים, or מצלתים; or at least, Instruments that the *Greek*, *Latin*, and *English* Translators render *Cymbals*; for as to their Matter, Form, &c. the Criticks are wholly in the dark.

The Modern *Cymbal* is a paltry Instrument, chiefly in use among Vagrants, Gypsies, &c. It consists of steel Wire, in a triangular Form, whereon are pass'd five Rings, which are touch'd and shifted along the Triangle with an Iron Rod held in the left Hand, while 'tis supported in the right by a Ring, to give it the freer Motion.

Durandus says, that the Monks us'd the Word *Cymbal* for the Bell hung in the Cloister, used to call 'em to the Refectory.

CYMBIFORME *Os*, in Anatomy. See NAVICULARE *Os*.

CYNEGETICS, *Cygnetica*, Books treating of the Art of Hunting. *Gratius Falisous* has wrote *Cynegetica* with Applause.

CYNICS, a Sect of antient Philosophers, who valu'd themselves on their Contempt of every thing, especially Riches and State, Arts and Sciences; all excepting Morality.

The Founder of this Sect is said to have been *Antisthenes*, a Disciple of *Socrates*; who, after his Master's Death, quitting the *Pyreum*, retir'd to *Cynosarges*, a kind of Academy not far from the Gates of *Athens*.

Hence, some will have it, came the Name κυνικὸς, *Cynicus*, *viz.* from *Cynosarge*. But others, with more probability, derive it from κύων, *Canis*, because of their Severity and Importunity in reprehending Vice.

Thus, *Aristotle* observes, οἱ δὲ κυνικοὶ ὥσπερ ἐκαλοῦντο διὰ τὸ παῤῥησιαστικὸν, &c. Cynicks *were so called, from their free way of rebuking*, &c.

Hence, *Diogenes* the *Cynic* said of himself, κυνῶπις δάκνων, *I bite the Evil*; and *Antisthenes* himself was called ἀπλωκύων, *an ingenious and sincere Dog*: It being the distinguishing Character of the *Cynics*, to attack and bark at the Ill, and to defend and fawn on the Good.

Arrian praises the *cynical* Genius to the Skies: 'A *Cynic*, *says he*, is a Messenger sent from *Jupiter*, to over-'look human Affairs;——a publick Doctor, and Tutor of 'Mankind; instructs, and chastises at the same time:—— 'An *Æsculapius*; a Lord and King, adorn'd with a Scep-'ter and Diadem,——who governs the People; and this 'voluntarily, without trembling, without Guards, &c. but 'by a good Conscience.

The Ground of this Encomium, may be owing, in some measure, to that affinity between the *Stoicks* and *Cynicks*: the chief difference between 'em was, that the former were more modest and reserv'd than the latter; who were said to have banish'd all Shame, and were able to practise any Obscenity without blushing.

Hence, *Laertius* observes of *Diogenes*, that he did every thing openly, whether it belong'd to *Ceres* or to *Venus*: Tho, the same *Laertius* adds, that he did it in imitation of the *Choridideascali*, *i. e.* he only ran to an Excess of Impudence, to put others out of conceit with it.

Spasmus CYNICUS, a sort of Spasm, or Convulsion; whereby the Patient is brought to imitate the Gestures, Snarlings, Howlings, &c. of a Dog. See SPASMUS.

Dr. *Freind*, in the *Philosophical Transactions*, gives us an Account of a very extraordinary *Spasmus* of this Kind, wherewith two Families, at *Blackthorn* in *Oxfordshire*, were seiz'd.

The Novelty of the Thing drew abundance of Visitors to the Village, and among the rest Dr. *Willis*; who, a good while ere he reach'd the Place, heard a terrible Noise of barking and howling: upon his entering the House, he was strait saluted with five Girls, bawling, and answering each other by turns, with violent Motions of the Head. In their Face there was no Convulsion seen, beside *Cynic* Distortions, and Oscillations of the Mouth: Their Pulse was pretty regular; their Noise was rather like that of the howling, than of the barking of Dogs; only that its Returns were more frequent, with deep Sighings between.

The *Spasmus* had seiz'd 'em all equally; whereof the youngest was but six, and the eldest fifteen Years of Age: At Intervals they had their Reason and Senses entire; but not long, ere one of 'em returning to her yelling, set on the rest: till at length, all fainting, they fell like Epilepticks on a Bed laid in the middle of the Room to receive 'em.

A little while they would lie quietly and decently together; but upon a new Orgasm of the Spirits, they began to beat and bruise each other. Two of the youngest awak'd while the Doctor staid, and left their Sisters on the Bed: but the *Spasmus* soon had hold on 'em again.

In *July*, 1700, Dr. *Freind* himself visited another Family, in the same Village; where one Boy and three Girls had been seiz'd ten Weeks, without any apparent preceding Cause. A Girl had it first; and the rest, as the Mother inform'd him, were so struck with their Sister's Disorder, that they too were seiz'd.

At his Arrival, they were all at play, very briskly and unconcernedly, before the Doors; at length the eldest Girl, about fourteen Years of Age, was seiz'd as usual.

The only Symptom of its approach, was a Swelling of the Stomach; which rising gradually up the Throat, set the Muscles of the Larynx and the Head upon their usual Convulsions: This Rising was a certain Symptom of an approaching Paroxysm in 'em all; and if they endeavour'd to stop it, it burst out with the greater Violence, and held the longer.

The Noise they made was incessant, and disagreeable; yet not so much like the barking or howling of Dogs, as had been given out, as a quaint kind of a Song, consisting of three Notes, or Tones, repeated twice over; and closed by deep Sighs, &c. accompany'd with extraordinary Gestures and Nutations of the Head.

This Disease the Doctor takes to be natural; and to arise from the common Cause of all Convulsions, *viz.* from the Animal Spirits growing unruly in the Nerves, and driving the Muscles into various Contractions, according to the Circumstances of the Indisposition. See CONVULSION.

CYNODESMUS, among Anatomists, the Band, or Ligament, which ties the Prepuce of the Yard to the Nut, or Glans. See PREPUCE, and GLANS.

CYNOREXY, an immoderate Appetite; to the Degree of a Disease; called also *Fames Canina*, and *Bulimy*. See BULIMY.

CYNOSURA, in Astronomy, a Name the *Greeks* have given to *Ursa Minor*, or the little Bear. See URSA.

This is the Constellation next our Pole, consisting of seven Stars; four whereof are dispos'd like the four Wheels of a Chariot; and three lengthwise, representing the Beam: whence some give it the Name of the *Chariot*, or *Charles's Wain*.

From these seven Stars it is the Pole takes its Name, *Septentrionalis*; and the rest of the Hemisphere, as far as the Line, *Septem Triones*. See POLE, NORTH, &c.

The Word *Cynostura* is form'd of κυνοσουρὰ, q. d. *the Dog's-Tail*.

CYON, or CION, a Graft, Sprig, or Sucker. See CION, GRAFT, &c.

CYPHER. See CIPHER.

CYPHI, a Term in the *Arabian* Pharmacy, signifying a kind of strengthning Perfume. See PERFUME.

Mithridates gives the Appellation *Cyphi* to the Troches wherewith the *Egyptian* Priests us'd to sweeten their Gods, to make 'em grant what they requested. He used the same in the Composition of Mithridate, on account of their efficacy against Poisons, Defluxions, &c. See MITHRIDATE.

The *Cyphi* are compos'd of Raisins, or dry'd Grapes, Turpentine, Myrrh, Bdellium, Spica Nardi, Cassia Lignea, Aspalathum, Saffron, &c. temper'd into a Mass with Honey and a little Wine.

CYPHONISM, CYPHONISMUS, a Kind of Torture, or Punishment, in use among the Antients.

The Learned are at a loss to determine what it was: Some will have it to be that mention'd by S. *Jerom*, in his Life of *Paul the Hermit*, Ch. II. which consisted in smearing the Body over with Honey, and thus exposing the Party, with his Hands ty'd, to the warm Sun, to invite the Flies and other Vermin to persecute him.

CYPRESS, *Cupressus*, in Natural History, a precious sort of Wood, the Produce of a Tree of the same Name; frequent in the Island of *Cyprus*.

It is very compact, and heavy; and its Smell as agreeable as that of Santal. It scarce ever rots, decays, or is worm-eaten, no more than Cedar, or Ebony: For which Reason, the Antients used it to make the Statues of their Gods.

In *Candia*, and particularly about Mount *Ida*, the Plant is said to rise spontaneously, wherever the Earth is a little dug; but is exceeding difficult to raise by Art.

The Fruit of this Tree, call'd *Cones*, is us'd in astringent Decoctions, for Hernia's, Hemorrhages, &c.

CYPRUS, an Order of Knights, call'd also Knights of *Silence*, and Knights of *the Sword*; instituted by *Guy de Lusignan*, King of *Cyprus*, in 1192.

The

The Design of the Institution was, to oppose the Descents and Irruptions of the Infidels in this Island: Accordingly, their Motto was *Securitas Regni*. See SWORD.

CYRENAICI, a Sect of antient Philosophers; so called from their Chief, *Aristippus* of *Cyrene*, a Disciple of *Socrates*.

Their leading Tenet was, that Man was born for Pleasure; and that Vertue is only so far laudable, as it conduces thereto.

By Pleasure, they meant, not only a Privation from Pain, and a Tranquillity of Mind like what *Epicurus* preach'd up; but an Assemblage of all the positive Pleasures both of the Mind and the Senses; especially the last.

Cicero makes frequent mention of *Aristippus*'s School; and speaks of it as if it yielded Debauchees.

Three Disciples of *Aristippus*, after his Death, divided the Sect into three Branches; under which Division it languish'd and sunk: the first call'd the *Hegesiac* School; the second the *Annicerian*, and the third the *Theodorian*; from the Names of their Authors.

CYRTOMA, a Tumor in any Part of the Body. See TUMOR.

CYST-HEPATIC *Duct*, a Canal, by which the *Porus Bilarius* discharges part of its Bile into the Gall-Bladder. It was first describ'd by Dr. *Glisson*, and long afterwards pretended to be discover'd by M. *Perrault*.

Verhayen, from the Course of the Bile, inverts the Name, and more properly calls it *Hepaticysticus*. See HEPATICYSTICUS.

CYSTIC, an Epithet given to two Arteries and two Veins in the Gall-Bladder. See GALL-*Bladder*.

The *Cystic* Arteries, or *Cysticæ Gemellæ*, are two Branches from the *Cœliac*, bestow'd on the Gall-Bladder, and bringing Blood into the same: The *Cystic Veins* return the Remains of this Blood into the *Vena Porta*. See PORTA.

CYSTICS, are Medicines against Distempers in the Bladder. See LITHONTRIPTICS.

CYSTICUS *Meatus*, a Bilary Duct, about the bigness of a Goose's Quill; join'd to the *Meatus Hepaticus*, at about two Inches distance from the Gall-Bladder; the two together forming the *Ductus Communis*. See DUCTUS *Communis*.

CYSTIS, the same with *Vesica*, or *Bladder*. See VESICA, and BLADDER.

The Word is *Greek*, κύστις.

CYSTIS *Choledocha*, the same with *Folliculus Fellis*. See FOLLICULUS.

CYTHARA, an antient Musical Instrument, by some supposed the same with the *Lyra*; at least, a particular Species of the *Lyra*; by others different: Tho its precise Structure does not appear. See LYRE.

The Antients describe it as triangular, in form of a *Greek Delta*, Δ: The Poets ascribe the Invention to *Apollo*.

CYZICENES, *Cyzicena*, among the antient *Greeks*, were a sort of magnificent Banquetting-Houses, always expos'd to the North, and usually opening upon Gardens.

They had their Name from *Cyzicus*, a City very considerable for the Grandeur of its Buildings; situate in an Island of the *Propontis* of the same Name.

These *Cyzicenes* were among the *Greeks*, what the *Triclinia* and *Cœnacula* were among the *Romans*.

CZAR, a Title of Hooour, assum'd by the Grand-Dukes, or, as they are now styl'd, Emperors, of *Russia*.

The Natives pronounce it *Tzar*, or *Zaar*; and this, by Corruption, from *Cesar*, Emperor: they pretending to be descended from *Augustus*; and accordingly bearing the Eagle as a Symbol of their Empire. See CESAR.

The first who bore the Title of *Czar*, was *Basil*, Son of *Basilides*, who freed his Country from its Subjection to the *Tartars*, and first set it on its present Footing, about the Year 1470.

M. *Sperlingius*, in his Dissertation on the Majesty of the Name *Konning*, observes, that the *Russian* Princes never bore the Name of *Czar*, till their People had embrac'd the *Greek* Faith: before that Time, he says, they were called *Konger*, King.

3

D.

D, The 4th Letter of the Alphabet, and the 3d Consonant. Grammarians generally rank it among the Lingual Letters, as supposing the Tongue to have the principal Share in the Pronunciation thereof: Tho' the Abbot *de Dangeau* seems to have Reason in making it a palatal Letter.

The Letter D is the 4th in the *Hebrew*, *Chaldee*, *Samaritan*, *Syriac*, *Greek* and *Latin* Alphabets; in the five first of which Languages it has the same Name, tho' somewhat differently spoke, *e. gr.* in *Hebrew* and Chaldee *Daleth*, in Syriac *Dolath*, and in Greek *Delta*. The *Arabians* have three D's in their Language, the 1st call'd *Dal*, which is the 8th of their 28 Letters; the 2d, call'd *Dhsal*, is only distinguish'd from the former by having a Point added over it; tho' its Sound is confounded with that of the Z: The 3d, which is their 17th Letter, is call'd *Da*, and pronounced like our D, tho' in Form it resembles the Arabic *Ta*, all it differs in, being a Point added a-top.

The Form of our D, is the same with that of the *Latins*; as appears from all the ancient Medals and Inscriptions. And the *Latin* D, is no other than the *Greek* Δ, rounded a little, by making it quicker, and at two Strokes. The Δ of the *Greeks*, again, is borrow'd from the ancient Character of the Hebrew *Daleth*; which Form it still retains on the *Samaritan* Medals, as is shewn by the Jesuite *Souciet* in his Dissertation on the *Samaritan* Medals. All the Alteration the *Greeks* have made in it, is the making it stoop a little, and taking away a little Line. Nor wou'd it be difficult to shew, that the Syriac *Dolath*, and the Arabic *Dal*, are both borrow'd from the ancient *Hebrew*, as well as the ד *Daleth* of the Modern or *Chaldee Hebrew*.

Some indeed will have it, that the *Greek* Δ *Delta* is borrow'd from the *Egyptians*, who made their D of three Stars dispos'd in a Triangle; which was a Hieroglyphic that among them denoted God, the soveraign Being, as if they had had some Notion of a Trinity: But this is but poorly supported.

D is also a Numeral Letter, signifying *Five Hundred*; which arises hence, that in the *Gothic* Characters the D is half the M, which signifies a thousand — Hence the Verse

Littera D *velut* A *Quingentos significabit.*

A *Dash* added a-top, D̄, denotes it to stand for *Five Thousand*.

DABITIS, in Logic, one of the Modes of Syllogism. See Mode and Syllogism.

DACROIDES, in Medicine, a Term applied to Ulcers, which are continually yielding any putrid Matter. The Word is form'd from δάκρυον, Tear, and εἶδος, Form; denoting the Ulcers to weep or shed somewhat like Tears.

DACTYLI, in Antiquity, a Name attributed to the first Priests of the Goddess *Cybele*; who were particularly call'd *Dactyli Idæi*, on Account of the Goddess herself, who was call'd *Cybele Idæa*, because principally honour'd on Mount *Ida* in *Phrygia*. The Name *Dactyli* is suppos'd to have been given them on this Occasion; That to prevent *Saturn* from hearing the Cries of *Jupiter*, whom *Cybele* had committed to their Custody, they used to sing I know not what Verses of their own Invention, which by their unequal Measures seem'd to resemble the Foot call'd *Dactylos*. This is the Account of the Grammarian *Diomedes*. One *Sophocles*, quoted by *Strabo*, Lib. X. speaks differently. They were call'd *Dactyli*, says he, from the *Greek* Word δάκτυλος, Finger, by Reason their Number was at first equal to that of the Fingers of the Hand, *viz.* Ten; five of them Boys, and as many Girls.— He adds, that 'tis to them we owe the Invention of Iron, and the Manner of Working it, with divers other useful Things. Others make their Number more, and others less than Ten. Some, again, make them Natives of *Phrygia* near the Foot of Mount *Ida*; and others bring them from elsewhere.

However, all the Authors *Strabo* had seen, agreed, That they were the first who wrought in Iron near Mount *Ida*; that they were Impostors; that they had been Ministers of the Mother of the Gods, or *Cybele*; that they dwelt at the Foot of Mount *Ida*. 'Tis a Conjecture among them too, not that the *Curetes* and *Corybantes* were the same with the *Dactyli Idæi*, but that the *Curetes* and *Corybantes* were their Posterity; That a hundred Men, born in *Creta*, were first call'd *Dactyli*; that each of these had nine Children, who were the *Curetes*; and that each of the *Curetes* had Ten Children, who were also call'd *Dactyli Idæi*. *Strabo* only gives us the Names of four of them, which are *Salaminus*, *Damnanæus*, *Hercules*, and *Acmon*. See Corybantes.

DACTYL, *Dactylus*, a Foot in the Latin Verse, consisting of a long Syllable, follow'd by two short ones, as *Carmine* &c. Hexameter Verses usually end with a *Dactyl* and Spondee. The *Dactyl* is said to have been the Invention of *Dionysius* or *Bacchus*, who deliver'd Oracles in this Measure at *Delphos*, before *Apollo*. The *Dactyl* and Spondee are the most considerable of the Poetical Feet; as being the Measures us'd in Heroic Verse, by *Homer*, *Virgil*, &c. These two are of equal Time, but not equal Motion. The Spondee has an even strong and steady Pace like a Trot: But the *Dactyl* resembles the nimbler Strokes of a Gallop. See Quantity, Measure, &c.

Dactyl was also a Sort of Dance among the ancient *Greeks*, chiefly perform'd, as *Hesychius* observes, by the *Athletæ*.

Dactyls are also the Fruits of the Tree, more usually call'd *Dates*. See Date.

DACTYLIC, Something belonging, or that has a Relation to *Dactyls*: Anciently there were *Dactylic*, as well as Spondaic Flutes, *Tibiæ Dactylicæ*. The *Dactylic* Flutes consisted of unequal Intervals, as the *Dactylic* Foot does of unequal Measures.—*Dactylic Verses* are Hexameter Verses, ending in a *Dactyl*, instead of a Spondee; As Spondaic Verses are those, which have a Spondee in the 5th Foot instead of a *Dactyl*. An Instance of a *Dactyl* Verse we have in *Virgil*, *Eneid* I. VII. 33.

Bis Patriæ cecidere Manus: Quin Protinus omnia
Perlegerent Oculis. —

DACTYLIOMANCY, *Dactyliomantia*, a Sort of Divination perform'd by means of a Ring. *Dactyliomancy* consisted principally in holding a Ring, suspended by a fine Thread, over a round Table, on the Edge whereof were made divers Marks with the 24 Letters of the Alphabet. The Ring in shaking, or vibrating over the Table, stop'd over certain of the Letters, which being joyn'd together, compos'd the Answer required. But the Operation was preceded and accompanied by several Superstitious Ceremonies: For first the Ring was to be consecrated with a World of Mystery; the Person who held it was to be clad in linnen Garments, to the very Shoes; his Head was to be shaved all around; and in his Hand he was to hold Vervain. Ere he proceeded on any Thing, the Gods were first to be appeas'd by a Formulary of Prayers, &c. compiled for the Purpose. *Ammianus Marcellinus* gives the Process at large in his XXIXth Book. The Word is compos'd of the *Greek* δακτύλιος, Ring; of δάκτυλος, Finger, and μαντεία, Divination.

DACTYLOMANCY. See Dactyliomancy.

DACTYLONOMY, The Art of Accounting, or Numbering by the Fingers. The Rule is this: The left Thumb is reckond 1, the Index 2, and so on to the right Thumb, which is the tenth, and of Consequence denoted by the Cypher 0.

DADO, in Architecture, is by some Writers used for the *Dye*; which is the Part in the Middle of the Pedestal of a Column, between its Base and Cornice: It is of a Cubick Form, whence the Name of Dye. See Dye.

DADUCHI, in Antiquity, Priests of *Ceres*. That Goddess having lost her Daughter *Proserpine*, say the Fables, began to make Search for her at the Beginning of the Night. In Order to do this in the Dark, she lighted a Torch, and thus set forth on her Travels throughout the World: For which Reason it is, that she is always seen represented with a lighted Torch in her Hand. On this Account, and in Commemoration of this pretended Exploit, it became a Custom for the Priests, at the Feasts and Sacrifices of this Goddess, to run about, in the Temple, with Torches after this Manner: One of them took a lighted Torch from off the Altar, and holding it in his Hand, run with it to a certain Part of the Temple; where he gave it to another, saying to him, *Tibi trado:* This second run after the like Manner to another Place of the Temple, and gave it to the third; and so of the rest.

From this Ceremony, the Priests became denominated *Daduchi*, q. d. Torch-bearers; from δᾶς, an unctuous, and resinous Wood, as Pine, fir, &c. whereof the Ancients made Torches; and ἔχω, I have, I hold.

DAILY, in Astronomy, &c. See Diurnal.

DAMAGE is generally taken to signify any Hurt or Hindrance, that a Man takes in his Estate; but particularly a Part of what the Jurors are to inquire of, in passing Verdict for the Plaintiff, or Defendant in a Civil Action, be it Personal or Real: for after Verdict given of the principal Cause, they are ask'd their Consciences touching Costs (which are the Charges of Suit, call'd by the Civilians *Expensæ Litis*) and *Damages*, which contain the Hindrances that the Plaintiff or Demandant hath suffered by means of the wrong done him by the Defendant or Tenant. But the Word has two several Significations; the one properly and generally, the other strictly and relatively: Properly, as it is in Cases, where Damages are founded on the Statute of 2. *H.* 4. Cap. 1. and 8. *H.* 6. Cap. 9. where

Costs are included within this Word *Damages*; for Damage, in its proper Signification, is said a *Demendo*, when, by Diminution, a Thing becomes worse; and in this Sense Costs of Suits are *Damages*, to the Plaintiff, for by it, his Substance is diminished: But when the Plaintiff declares the Wrong done him to the *Damage* of such a Sum, this is to be taken relatively, for the Wrong which passed, before the Writ brought, and is assess'd by Reason of the Trespass aforesaid; and cannot extend to the Costs of Suit, which are future, and of another Nature.

DAMAGE *Feasant*, or *Faisant*, i. e. doing hurt, or *Damage*: As when a Stranger's Beasts are doing hurt or spoiling the Grass, Corn, Woods, &c. of another Man, without his Leave or License. In which Case, the Party whom they *damage* may distrain, and impound them, both by Night and by Day; tho' in other Cases, as for Rent, Services, &c. none may distrain in the Night.

DAMASK, a Sort of Silk Stuff, having some Parts rais'd above the Ground, representing Flowers, or other Figures. *Damask* is properly a Sort of Mohair and Satin intermix'd; in such Manner as that what is not Satin on one Side, is on the other. The Elevation which the Satin makes on one Side, is the Ground on the other. The Flowers have a Satin Grain; and the Ground, a Grain of Taffetas. It has its Name from its being originally brought from *Damascus* in *Syria*.

DAMASKEENING, or *Damask-Work*, a kind of Mosaic Work; and accordingly, by the *Italians*, call'd by the same Name, *Tausia*, as Mosaic.

DAMASKEENING, is properly the Art, or Act of adorning Iron, Steel, &c. by making Incisions thereio, and filling them up with Gold or Silver Wiar. It is chiefly us'd in Enriching Sword-blades, Guards and Gripes, Locks of Pistols, &c. Its Name shews the Place of its Origin; or, at least, the Place where it has been practised in the greatest Perfection, *viz.* the City of *Damascus* in *Syria*. Tho' Monsr. *Felibien* attributes the Perfection of the Art to his Countryman *Cursinet*, who wrought under the Reign of King *Henry* IV.

DAMASKEENING, is partly Mosaic Work, partly Engraving, and partly Carving: As Mosaic Work, it consists of Pieces *de Rapport*; as Engraving, the Metal is indented, or cut in *creux*; and as Carving, Gold and Silver are wrought therein, in *Relievo*.

There are two Manners of *Damaskeening*: In the first, which is the most beautiful, the Artist cuts into the Metal with a Graver, and other Tools proper for Engraving on Steel; and afterwards fills up the Incisions, or Notches with a pretty thick Silver, or Gold Wiar. In the other, which is only superficial, they content themselves to make Hatches, or Strokes a-cross the Iron, &c. with a cutting Knife, such as is used in making of small Files.

For the first, 'tis necessary the Gravings, or Incisions be made in the dovetail Form; that the Gold or Silver Wiar, which is thrust forcibly into them, may adhere the more strongly.

For the second, which is the more usual, the Method is thus: Having heated the Steel till it changes to a Violet, or blue Colour; they hatch it over, and a-cross with the Knife; then draw the Design, or Ornament intended, on this hatching, with a fine Brass Point, or Bodkin. This done, they take fine Gold Wiar, and conducting or chasing it according to the Figures already design'd, they sink it carefully into the Hatches of the Metal with a Copper Tool.

DAMASCUS-*Steel*, a very fine kind of Steel, made in some Parts of the *Levant*, and particularly at *Damascus*, remarkable for its excellent Temper; and used chiefly in the making of Sword-Blades. See STEEL.

Some Authors assure us it comes from the Kingdom of *Golconda*, in the *East-Indies*; Where the Method of tempering with Alum, which the *Europeans* have never been able to imitate, was first invented.

DAMIANISTS, a Branch of the Ancients *Acephali Severitæ*. They agreed with the Catholics in admitting the IVth Council; but disown'd any Distinction of Persons in the Godhead, and profess'd one single Nature incapable of any Difference. And yet they call'd God, the Father, Son, and Ghost. On which Account the *Severitæ Petritæ*, another Branch of *Acephali*, used to call them *Sabellianists*, and sometimes *Tetraditcs*. Thus much we learn from *Nicephorus Callistes*, L. XVIII. C. 49. They took their Name from *Damianus* a Bishop, who was their Leader.

DAMNATA *Terra*, in Chymistry, is the same with *Caput Mortuum*, that is, all the Earthy Part, or Mass, remaining at the Bottom of the Retort, &c. after all the other Principles have been drawn out of the Body by Fire.

DAMPS, in Natural History, are noxious Steams, or Exhalations, frequently found in close, subterraneous Places, particularly Mines, Pitts, Cellars, &c. For the Rationale of the Effects of *Damps*, See POISONS and MEPHITES.

The *Damps* in Mines are of 4 Kinds: The first, which withal is the most ordinary, the Workmen apprehend in its Approach, by the Flame of the Candle's becoming orbicular, and lessening by degrees, till it goes quiet out; as also by their Shortness or Difficulty of breathing: Those who escape swooning, seldom suffer any great harm by it; but such as swoon away, tho' they are not downright suffocated, yet on their first Recovery are tormented with very violent Convulsions: Their way of Cure is to lay the Person down on the Earth in a prone Posture, with a Hole dug in the Ground under his Mouth; if this fail, they fill him full of good Ale; and if that will not do, they conclude him desperate. The second is the *Pease-Bloom-Damp*, which is called so from its Smell. This *Damp* always comes in the Summer-time, and hath not been known to be mortal: The Miners in the Peak of *Derby* fancy it arises there from the Multitude of red Trefoil-Flowers, called by them Honey-Suckles, with which the Lime-Stone Meadows of the Peake much abound; perhaps the Smell of this gives timely Notice to get out of the Way: The third is the most pestilential, and most strange of all, if what is said of it be true: They, who pretend to have seen it, (for they say it is visible) do thus describe it: In the highest Part of the Roof of those Passages in a Mine, which branch out from the main Grove, they see a round Thing hanging, about as big as a Foot-Ball, covered with a Skin of the Thickness and Colour of a Cob-web: If this Bag, by a Splinter, or any other Accident, become broken, the *Damp* immediately flies out, and suffocates all the Company: The Workmen, by Help of a Stick, and long Rope, have a way of breaking this at a Distance; and when they have done it, they purify the Place well with Fire: And they will have it, that it gathers from the Steam of their Bodies, and Candles, ascends up into the highest Part of the Vault, and there condenseth, and in Time has a Film grown over it, and then corrupts, and becomes Pestilential. The fourth, is the Fulminating, or *Fire-Damp*, whose Vapour being touch'd by the Flame of the Candles, presently takes Fire, and has all the Effects of Lightning, or fired Gun-powder. These are found frequently in the Coal-Mines, and sometimes, tho' rarely, in the Lead ones. How Mineral Steams may prove poisonous, may be understood from Doctor *Mead's* Essay on Poisons.

Naturalists furnish us with very surprizing Instances of the Effects of *Damps*. In the *Hist. de l'Academie des Sciences An.* 1701; We read of a Well in the City of *Rennes*, into which a Mason, at Work near its Brink, letting fall his Hammer, a Labourer, who was sent down to recover it, e're he reach'd the Water, was strangled. A second sent to fetch up the Corps, met with with the same Fate, and so a third: At last a fourth, half drunk, was let down, with Charge to call out assoon as he felt any Thing incommode him. He call'd accordingly, as soon as he came near the Water; and was instantly drawn out: yet he died 3 Days afterwards. The Information he brought them was, that he felt a Heat, which scorch'd up his Entrails. A Dog being let down, cried about the same Place; and died assoon as he came to Air; But throwing Water on him, he recover'd; as happens to those thrown into the *Grotto del Cani* near *Naples*. See GROTTO. The three Carcasses being drawn up with Hooks, and open'd; there appear'd not any Cause of their Death. Now, what renders the Relation the more considerable, is, that the Water of this Well had been drawn and drunk several Years, without the least ill Consequence.

In the same History, *An.* 1710. a Baker of *Chartres*, having carried 7 or 8 Bushels of Brands out of his Oven into a Cellar 36 Stairs deep; his Son, a robust young Fellow, going with more, his Candle went out on the Middle of the Stairs. Having lighted it a-fresh, he was no sooner got into the Cellar, than he cried out for Help; and they heard no more of him: His Brother, an able Youth, run immediately after him; cried out, he was dead; and was heard no more. He was follow'd by his Wife; and she by a Maid, and still 'twas the same. Such an Accident struck the whole Nighbourhood with a Panic; and no body was forward to venture any further: till a Fellow more hardy and zealous than the rest, perswaded the four People were not dead, would go down to give them Help: He cried too, and was seen no more. Upon this, a 6th Man requiring a Hook to draw some of them forth without going to the Bottom; drew up the Maid: who, having taken the Air, fetch'd a Sigh and dyed. Next Day, the Baker's Friend, undertaking to get up all the Carcasses with a Hook, was let down with Ropes on a wooden Horse, to be drawn up whenever he should call. He soon call'd, but the Rope breaking, he fell back again; And tho' the Rope was soon piec'd again, he was drawn forth dead. Upon opening him, his Meninges were found extravagantly stretched; his Lungs spotted with black, his Intestines swell'd

swell'd as big as one's Arm, inflamed and red as Blood; and what was most extraordinary, all the Muscles of his Arms, Thighs and Legs, torn and separated from their Parts. The Magistrate, at length, taking Cognizance of the Case, and the Physicians, being consulted; they gave their Opinion, that the Brands had been but ill extinguish'd: the Consequence of which must be, that as all the Cellars in *Chartres* abound with Saltpetre, the unusual Heat in this, had rais'd a malignant Vapour, which had done the Mischief: and that a good Quantity of Water must be thrown in to put out the Fire, and lay the Vapour. This perform'd, a Dog, and a lighted Candle were let down without Injury to either: An infallible Sign the Danger was over.

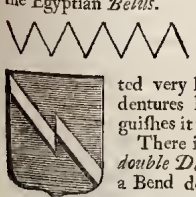
A third History we shall add from Doctor *Connor*, in his *Dissert. Med. Phys.* Some People digging in a Cellar at *Paris*, for supposed hidden Treasure; after a few Hours working, the Maid going down to call her Master, found them all in their digging Postures: but stark dead. The Person who managed the Spade, and his Attendant who shovel'd off the Earth, were both on Foot, and seemingly intent on their several Offices: The Wife of one of them, as if a-weary, was sat down on the Side of a Hopper, very thoughtful, and leaning her Head on her Arm: And a Boy, with his Breeches down, was evacuating on the Edge of the Pit; his Eyes fix'd on the Ground: All of them, in fine, in their natural Postures and Actions, with open Eyes, and Mouths that seem'd yet to breath; but stiff as Statues, and cold as Clay.

DAMSEL, from the French *Damoisel*, or *Damoiseau*, an Apellation anciently given to all young People of Genteel, or Noble Extraction of either Sex; As to the Sons and Daughters of Knights, Barons, and even Kings. Thus, in History, we read of *Damsel Pepin*, *Damsel Louis le Gros*, *Damsel Richard*, Prince of *Wales*. *Pasquier* will have the the Word a Diminutive of *Dam*, an ancient Word for Lord; as in some Authors we read *Dam Dieu* for Lord God; *Dam* Chevalier, &c. Tho' in its feminine Sense he takes it to come from *Dame*. Others derive the Word from *Domicellus*, or *Domnicellus*, a Diminutive of *Domnus*, *quasi parvus Dominus*. Accordingly, *du Cange* observes, that it has been sometimes wrote *Domenger*. — They who hold the Signory of *Commercy*, M. *de la Roque* tells us, anciently held it under the Title of *Damoiseau*: And M. *de Marca* assures us, that the Noblesse of *Bearn* is still divided into three Bodies or Classes; The Barons, the Cavers, and the *Damsels*, Domicellos, call'd in that Country *Domengers*. The Kings of *Denmark* and *Sweden* have here the same Title, as appears from *Pontanus's Hist. of Denmark*, L. VII. and VIII. and *Henry of Upsals Hist. of Sweden*, L. III. From the Sons of Kings, the Apellation pass'd to those of Great Lords and Barons; and at length, to those of Gentlemen who were not yet Knights.

At present *Damsel* is applied to all Maids, or Girls not yet married; provided they be not of the lowest Class of People.

Damsel is sometimes also applied to a kind of Utensil put in Beds, to warm old Mens Feet withal. It consists of a hot Iron inclosed in a hollow Cylinder, which is wrap'd round with linnen Cloth, and keeps its Warmth a long Time. Some call it a *Nun*.

DANAIDES, in the Ancient *Mythology*, the Daughters of *Danais*, or *Danaus*, IXth King of *Argos*, and Brother of *Egyptus*. They were 50 in Number, and were espous'd to the 50 Sons of their Unckle *Egyptus*. *Danaus* fearing the Accomplishment of an Oracle, which had foretold that he should be expell'd his Kingdom by a Son in Law, perswaded his Daughters to murther, each of them, her Husband, the first Night; which they perform'd, all but *Hypermnestre*, who spared her Husband *Lynceus*. In Vengeance for this Crime of the 49 *Danaides*, the Poets have condemn'd them to Hell, to be continually employ'd in filling a Cask perforated at Bottom. The *Danaides* are sometimes also call'd *Belides*, from their Father, who was the Son of the Egyptian *Belus*.



DANCETTE, in Heraldry, is when the Out-line of any Bordure, or ordinary, is indented very largely; the Largeness of the Indentures being the only Thing that distinguishes it from *Indented*. See Indented.

There is also a bearing of a Bend, called *double Dancette*; thus, He beareth Azure, a Bend double *Dancette* Argent.

DANCHE', in Heraldry, the same with *Indented*; or, as others will have it, with *Dancette*. See Indented and Dancette.

DANCE, an agreeable Motion of the Body, adjusted by Art to the Measures or Tune of a Violin, or Voice. Some distinguish the *high Dance*, consisting of Capers, Gambades, &c. from the *low Dance*, which is *Terra a Terra*, or close to the Ground. In the *Carrousel* of King *Louis* XIII. there were *Dances* of Horses. The Invention of such *Dances* is attributed to the *Sybarites*. The Word is French, *Dance*, form'd of the German *Dantz*, which signifies the same Thing. *Bochart* derives it from the Arabic *Tanza*, and *Guichart* from the *Hebrew* דין *doubts*, which have all the same Signification. *Menage*, after *Salmasius*, derives the French *Danser* to *dance*, from the Latin *densare* to *condense* and *full*; as holding it a Practice among the ancient Fullers, to leap and *dance* as they full'd their Clothes.

Dancing has always been in Use among all Nations, both civilized and barbarous: Tho' held in Esteem among some; and in Contempt among others. *Dancing*, of it self, no doubt, is harmless. There is a Time, says the Preacher, to *dance*: And sometimes it is even made an Act of Religion. Thus David *danced* before the Ark, to honour God, and express his Excess of Joy for its Return into the City of *Sion*. *Socrates* learnt to *dance* of *Aspasia*. And the People of *Crete* and *Sparta* went to the Attack, *dancing*. On the other hand, *Cicero* reproaches *Gabinius*, a Consular Man, with having *danced*. *Tiberius* expelled the *Dancers* out of *Rome*. And *Domitian* excluded several Members from the Senate, for having *danced*. *Castor* and *Pollux* are said to be the first who taught the Art of *Dancing*; and that to the *Carcians*: Tho' others attribute the Invention to *Minerva*; who *danced* for Joy after the Defeat of the Giants.

The Ancients had three kinds of *Dances*: The first Grave, call'd *Emmelia*, answering to our *low Dances* and *Pavanes*. The second Gay, call'd *Cordax*; answering to our *Courants*, *Galliards*, *Gavots* and *Vaults*. The third, call'd *Siccinnis*, was a Mixture of Gravity and Gayety. *Neoptolemus*, Son of *Achilles*, taught the *Cretans* a new Sort of *Dance*, call'd *Pyrrichia*, or the *Armed Dance*, to be used in going to War. But according to the Fable, the *Curetes* first invented this *Dance*, to amuse and divert the little *Jupiter* with the Noise, and Clash of their Swords, beating against their Bucklers. *Diodorus Siculus* in the IVth of his *Bibliotheca* assures us, that *Cybele*, Daughter of *Menon*, King of *Phrygia*, and *Dindymena* his Wife, invented divers Things, and among others the Flageolot of several Pipes, *Dancing*, the Tabour and the Cymbal. *Numa*, 'tis certain, instituted a Sort of *Dance* for the *Salii*, Priests of *Mars*, who made Use of Weapons therein. From these *Dances* was composed another, call'd *Saltatio Mimicorum*, or the *Buffoons Dance*; Wherein the *Dancers* were dress'd in little Corslets, with Gilt Morions, Bells on their Legs, and Swords and Bucklers in their Hands. *Lucian* has an express Treatise, and *Julius Pollux*, a Chapter on this Head; *Athenæus*, *Cælius Rhodiginus*, and *Scaliger*, also make mention of this *Dance*.

'Tis not many Years ago, since *Thoinot Arbeau*, a *Dancing*-Master of *Paris*, gave an *Orchesography*, wherein all the Steps and Motions of a *Dance* are writ, or noted down; as the Sounds of a Song are scored in Music. Tho' the famous *Beauchamp* has some Pretensions to be the Inventor of this Secret, and accordingly procured an *Arret* in his Favour.

Dancing is usually an Effect, and Indication of Joy among most Nations: Tho' Mr. *Palleprat* assures us, that there are People in *South-America*, who *dance* to show their Sorrow.

Rope-Dancer, *Schoenobates*. A Professor of Philosophy at *Dantzic*, publish'd a Dissertation on *Rope-dancers*, de Funambulis; full of Learning, and an uncommon Knowledge of Antiquity. He defines a *Rope-dancer*, a Person who walks on a thick Rope fasten'd to two opposite Posts; which is precisely, what is express'd by the *Latin* Word *Funambulus*, being a Compound of *Funis*, Rope, and *Ambulo*, I walk. But our *Rope-dancers* do more, for they not only walk, but *dance* and leap upon the Rope. The Ancients, 'tis certain, had their *Rope-dancers* as well as we. Witness the *Greek* Words *Neurobates*, *Schoenobates*, and the Latin *Funambulus*, which every where occur. They had likewise their *Cremnobates* and *Oribates*, that is, People who walk'd on the Brinks of Precipices. Nay more, *Suetonius in Galba* C. 6. *Seneca* in his 85th Epistle, and *Pliny* Lib. VIII. Cap. 2. make mention of Elephants that were taught to walk on the Rope. *Acron*, an ancient Grammarian and Commentator on *Horace*, takes Occasion to observe on the Xth Satire of the first Book, that *Messala Corvinus* was the first, who used the Word *Funambulus*; and that *Terence* had it from him. But Mr. *Groddeck*, the learned Professor above mentioned, shews that he is mistaken, and that *Messala* liv'd after *Terence*. The Business is, *Acron* confounds *Valerius Messala*, who got the Sir-name *Corvinus* in the War against the Gauls about 200 Years before *Terence*, with one of his Descendants, who was a famous Orator in the Time of *Horace*.

Mr.

Mr. *Groddeck* coming from the Historical to the Moral Consideration, maintains that the Profession of a *Rope-dancer* is not allowable; that the Professors are infamous, and their Art of no Use to Society; that they expose their Bodies to very great Dangers; and that they ought not to be tolerated in a well regulated State. But coming afterwards to temper the Severity of his Morals, he allows that there are sometimes Reasons for admitting them. That the People must have Shews; that one of the Secrets of Government is to furnish them therewith, &c.

The ancient *Rope-dancers* had four several Ways of Exercising their Art; The first vaulted or turn'd round the Rope, like a Wheel round its Axis, and there hung by the Heels, or the Neck. The second flew or slid from above, downwards, resting on their Stomachs with the Arms and Legs extended. The third run along a Rope stretch'd in a right Line, or up and down. Lastly, the fourth not only walk'd on a Rope, but made surprizing Leaps and Turns thereon. See SCHOENOBATES.

DANEGELT, or DANEGELD (*Gelt* in *Dutch* signifying Money) was an ancient Tribute or Contribution, which the *Danes* imposed on the *English*, as the Arbitrary Terms of Peace and Departure. It was first imposed as a standing yearly Tax on the whole Nation under King *Ethelred*, *A.D.*991. That Prince, says *Camden*, *Britan.* 142. much distress'd by the continual Invasion of the *Danes*; to procure his Peace, was compell'd to charge his People with heavy Payments, call'd *Danegelt*. At first he pay'd 10000 *lib.* then 16000 *l.* then 24000 *l.* after that 36000 *lib.* and lastly 48000 *lib.* St. *Eduard* the Confessor released the Nation from the *Danegelt*. *William* the I. and II. reassumed it. *Henry* the I. and after him King *Stephen*, released them finally.

DANEGELT was also an annual Tax laid on our Ancestors, first of 1 Sh. afterwards 2 Sh. for every Hide of Land through the Realm, for clearing the Seas of *Danish* Pyrates, which heretofore greatly annoy'd our Coasts. *Eduard* the Confessor remitted this Tax. *William* I. and II. reassum'd it occasionally. In the Reign of *Henry* I. it was accounted among the King's standing Revenues; But King *Stephen*, on his Coronation Day, abrogated it for ever.

DANTELLE' in Heraldry, the same with *Dancké*, or rather with *Dancette*, viz. a large, open Indenture. See DANCETTE.

DAPIFER, the Dignity, or Office of the Grand Master of the Emperor's and other Prince's Houshold. The Word is pure *Latin*, compounded of *daps*, *dapis*, a Dish of Meat serv'd on the Table, and *Fero*, I bear: So that *Dapifer* literally signifies a Dish-carrier, or an Officer who serves the Meats upon the Table. The Title of *Dapifer* was given by the Emperor of *Constantinople* to the Czar of *Russia*, as a Testimony of Favour. In *France*, the like Office was instituted by *Charlemain*, under the Title of *Dapiferat*, and *Senechaussée*; to which was affix'd the Superintendance over all the Officers of the Houshold. In *England*, the Office of *Dapifer*, was less Eminent; being found in several of our ancient Charters named one of the Last of the Officers of the Houshold. The Dignity of *Dapifer*, is still subsisting in *Germany*. Till the Year 1623. the Elector Palatin was *Dapifer* of the *Empire*: Since that Time the Elector of *Bavaria* has assumed the Title of Arch-*Dapifer* of the Empire. His Office is, at the Coronation of an Emperor, to carry the first Dish of Meat to Table on Horse-back. The several Functions of a *Dapifer* occasion'd the Ancients to give him divers Names. Ἐπιλέκτορος, and *Eleator*, *Dipnocletor*, *Convocator*, *Trapezopæus*, *Architritinus*, *Progeustla*, *Prægustator*, *Domesticus*, *Megadomesticus*, *Oeconomus*, *Majordomus*, *Senescallus*, *Schalcus*, *Gastaldus*, *Assessor*, *Præfectus*, or *Præpositus Mensæ*, *Princeps Coquorum* & *Magyrus*.

DARAPTI, in Logic, one of the Modes of Syllogisms. See MODE and SYLLOGISM.

DARDANARIUS, Usurer, Monopolist, a Name anciently attributed to such as caus'd a Scarcity and Dearness of Provisions, particularly Corns, by buying and hoarding them up, to raise their Value, and sell them again at an extravagant Rate. The Name *Dardanarius* was given them from one *Dardanus*, who made a Practice of spoiling and destroying the Fruits of the Earth by a Sort of Sorcery. The same People are also call'd *Æruscatores*, *Directarii*, *Sitocapeli*, *Annonæ Flagellatores*, and *Seplasiarii*.

DARII, in Logic, one of the Modes of Syllogisms. See MODE and SYLLOGISM.

DARK-*Chamber*, See CAMERA OBSCURA.

DARK-*Tent*, a portable *Camera obscura*, made not unlike a Desk, and fitted with Optic Glasses; to take Prospects of Landships, Buildings, Fortifications, &c. See CAMERA OBSCURA.

DARREIN, in Law, a Corruption of the French *dernier* last, and used in the like Sense, as — *Darrein Continuance*. See CONTINUANCE. — *Darrein* presentment. See ASSIZE of *Darrein presentment*.

DART, in Geometry, Astronomy, &c. See SAGITTA.

DARTOS, or DARTUS, in Anatomy, the inner Coat of the *Scrotum*, composed of a great Number of Muscular, or Fleshy Fibres; whence some call it a Cutaneous Muscle. 'Tis by means hereof that the *Scrotum* is contracted; which is esteem'd a Sign of Health. The *Dartos* was anciently taken to be a Continuation of the *Panniculus Carnosus*; but mistakenly. It has several Veins and Arteries. It invests the Testicles, and shooting it self between them, separates them from each other. The Word is pure *Greek*, δαρτὸς, *Excoriatus pelle*, *Nudatus*, of δέρω, *excorio*, probably by Reason this Muscle is close under the Skin. See SCROTUM.

DATA, *Things given*, a Term used in Mathematicks, Philosophy, &c. implying certain Things, or Quantities supposed to be given, or known, in Order, from them, to find out other Things or Quantities, which are unknown, or sought for. A Problem or Question generally consists of two Parts; *Data* and *Quæsita*. See PROBLEM, &c.

Euclid has an express Treatise of *Data*; Wherein he uses the Word for such Spaces, Lines and Angles as are given in Magnitude; or to which we can assign others equal. See GIVEN.

From the primary Use of the Word *Data* in Mathematicks, it has been transplanted into other Arts; as Philosophy, Medicine, &c. where it expresses any Quantity, which, for the Sake of a present Calculation, is taken for granted to be such, without requiring an immediate Proof for its Certainty; called also the *given* Quantity, Number, or Power: and such Things as are known; from whence either in Natural Philosophy, the animal Mechanism, or the Operation of Medicines, we come to the Knowledge of Things before unknown, are now frequently in Physical Writers call'd *Data*.

DATE, an Addition, or Appendage in Writings, Acts, Instruments, Letters, &c. expressing the Day and Month of the Year when the Act, or Letter, was pass'd or sign'd; together with the Place where the same was done. In Writings of Importance the *Date* should be wrote in Words at length, *Dated* or given *at London* this twenty sixth Day of *March* in the Year of our Lord one thousand seven hundred twenty and five. In Letters, the *Date* is usually in Figures. *London*, March the 26th 1725.— The Word is form'd from the Latin *Datum*, given, the Participle of *do*, I give. The *Latins* usually say *dabam*, I gave.

An *Antidate* is a false *Date*, prior to the real Time when the Instrument was pass'd or sign'd: A *Post-date* is the posterior to the real Time, &c.

Our ancient Deeds had no *Dates*, but only the Month and Year; to signify that they were not made in Hast, or in the Space of a Day, but upon longer and more mature Deliberation. The Kings Grants began with the Words, *Præsentibus & futuris*, &c. but the Grants of private Persons with, *Omnibus præsentes Literas inspecturis*.—

DATE, *Dactyl*, the Fruit of the Palm-Tree. This Fruit is gather'd in Autumn, ere ripe; and bears a near resemblance to our Bullace; being of a green Colour, very sharp and astringent. When ripe, it becomes ruddy, having a hard, longish Stone, cloven at Bottom, encompass'd with a thin white Pellicle or Skin. The Bark or Covering of the *Date*, call'd by the Ancients *Elate* or *Spata*, when the Fruit is in its Flower, is various; having as many Changes of Colour as the Fig has: Some black, some white, some brown, some again are round like Apples, and very big. Ordinarily they are oblong, fleshy, yellow, somewhat bigger than the Thumbs End, and very agreeable to the Taste. Some are no bigger than a Chich-Pea, and others as big as a Pomegranate. The best are those, call'd *Royal-Dates*. There is also another Sort, call'd *Carjotes*, which are very good. Some of them have Stones, and others none. *Dates* are principally used in Medicine: Their Qualities are, to soften the Asperities of the Gullet, to strengthen the Child in the Womb, to assuage all immoderate Fluxes of the Belly, and to ease Disorders of the Reins and Bladder. Their bad Property is, that they digest difficultly, cause Pains in the Head, and produce a thick melancholic Blood.— These Effects arise from the Principles they contain, which are a moderate Share of Oil, and a deal of Phlegm, and Essential Salt. The Oil and Phlegm render them moistening and nutritious, good against Acrimonies of the Breast, to assuage Coughs, &c. And the Phlegm and Salt render them detersive and astringent, and good against Diseases of the Throat. For the rest; they are an heavy Food, full of an Earthy Juice, and occasion Obstructions in the *Viscera*; for which Reason, People who live of *Dates* become Scorbutic, and lose their Teeth betimes.

Our

Our *Dates* are brought us from *Egypt*, *Syria*, *Africa*, and the *Indies*. They never come to full Maturity in *Italy*, or the most Southern Parts of *Spain*. And yet there are tolerable *Dates* in *Provence*; only they don't keep, but breed Worms. Those from *Persia* exceed all others in Largeness, Colour, and Taste. The Word is form'd of *Dacte*, and that of *Dactylus*, Finger; as being round and oblong, resembling a Finger's End.

DATISI, in Logic, one of the Modes of Syllogisms. See MODE and SYLLOGISM.

DATIVE, in Grammar, the third Case in the Declension of Nouns; expressing the State, or Relation of a Thing, to whose Profit or Loss some other Thing is referr'd. See CASE.

'Tis call'd *Dative*, because usually govern'd by a Verb, implying something to be *given* to some Person. As, *Commodare* Socrati, To lend to *Socrates*; *Utilis Republicæ*, Useful to the Common-wealth; *Perniciosus Ecclesiæ*, Pernicious to the Church; *Promittere Amico*, To promise a Friend; *Visum est* Platoni, It seem'd good to *Plato*, &c.

In *English*, where we have properly no Cases, this Relation is express'd by the Sign *to*, or *for*; which are usually either express'd, or understood.

DAVIDISTS, or *Davidici*, a Sect of Hereticks, the Adherents of *David George* a Glazier, or, as others say, a Painter of *Ghant*; who in 1525. began to preach a new Doctrine. He publish'd himself to be the true *Messiah*, and that he was sent hither to fill Heaven, which was quite empty for Want of People to deserve it. He rejected Marriage, with the *Adamites*; denied the Resurrection, with the *Sadducees*; held with *Manes*, that the Soul was not defiled by Sin; and laugh'd at the Self-Denial so much recommended by Jesus Christ. Such were his principal Errors. He made his Escape from *Ghant*, and retired first into *Friseland*, and then to *Basil*, where he changed his Name, assuming that of *John Bruck*, and died in 1556. He left some Disciples behind him, to whom he promis'd that he would rise again at the End of three Years. Nor was he altogether a false Prophet herein, for the Magistrates of that City, being inform'd at the three Years End of what he had taught, had him dug up, and burnt, together with his Writings, by the common Hangman. There are still some Remains of this ridiculous Sect in *Holstein*, particularly about *Friderickstadt*, where they are intermix'd with the *Armenians*.

DAVIS'S-*Quadrant*. See BACK-STAFF.

DAUGHTER. See FEMALE. The Sons and Daughters of the King of *England* are call'd the *Sons* and *Daughters* of *England*; because all the Subjects of *England* have a special Interest in them. See PRINCES *of the Blood*.

DAUPHIN, *Dolphin*, in Astronomy. See DELPHIN.

DAUPHIN, a Title given the eldest Son of *France*, and presumptive Heir of the Crown; On Account of the Province of *Dauphine*, which in 1343. was given to *Philip de Valois* on this Condition, by *Humbert*, *Dauphin* of the *Viennois*. *M.* the *Dauphin*, in his Letters Patents styles himself, "By the Grace of God, "Eldest Son of *France*, and *Dauphin* of *Viennois*.

DAUPHIN was anciently the Title of the Prince of *Viennois* in *France*. Most Authors, who have fought the Origin of the Name *Dauphin*, and *Dauphine*, seem to have given too much loose to their Imagination. Some will have it deriv'd from the *Auffinates*, an ancient People mentioned by *Ptolomy* and *Pliny*; But those Authors place the *Auffinates* on t'other Side of the *Alpes* in the *Gallia Cisalpina*. Others write that the *Allobroges* brought the Name from *Delphos*; Others, that King *Boson*'s Shield was distinguish'd by the Figure of a *Dolphin*, which he bore thereon. Others, that the Princes who reign'd in the *Viennois* after *Boson*, pitch'd on these Arms as a Symbol of their Mildness and Humanity. Others, that it was given by an Emperor, who made War in *Italy*, but whom they do not name, to a Governour of this Province, who sent him a powerful Supply with such Expedition, that it deserv'd to be compar'd with the Swiftness of a *Dolphin*. *Thabock* fancies the Word to be *Gothic*; as well as the Names, *Bress*, *Savoy*, *Beaujeu*, &c. *Claud de Grange* believes the Word to be form'd of *Viennois*, the ancient Name of this Province. A Person of this Province, says he, being ask'd what Countryman he was, answer'd, *do Viene*, and the Prince of the Province call'd himself the Prince *do Viene*, and afterwards, changing the *V*, after the common Custom, into *F*, *do Fiene*; and at Length retrenching the two *ee*'s, *Dofin*: The common Opinion that the Word was form'd from *Delphinus*, occasion'd them to write *Dauphin*. But this appears to *Chorier* no better than an ingenious Anagram, or ridiculous Subtilty. Others will have it that *Guy* the *Fat*, having a Daughter that he was very fond of, he used to call her *Dauphine*; and to immortalize her when dead, gave her Name to his Country. Others are of Opinion, that the last Count *d'Albon*, whose Estate became incorporated with that of the Counts *de Gresivaudan*, by the Marriage of his only Daughter with the first *Guy*, was really named *Dauphin*; and that his eldest Grandson, being oblig'd to take his Name, was call'd *Dauphin*, and bore the Figure of a *Dolphin* for his Arms. *Du Chesne* is likewise of Opinion, that it was the Grandson of *Guy* the *Fat*, who first bore the Name of *Dauphin*; tho' not for the Reason just alledg'd, but that it was given him at his Baptism; and added to that of *Guy*.

Chorier wont allow any Thing probable in any of these Opinions. He observes then, that *William*, Canon of *Notre Dame* at *Grenoble*, who has wrote the Life of *Margaret*, Daughter of *Stephen*, Earl of *Burgundy*, married with *Guy*, Son of *Guy* the *Fat*, calls the latter simply *Guy* the *Old*, and the former always Count *Dauphin*. And adds, that no Title, no Monument, ever attributes the Title of *Dauphin* to *Guy* the *Fat*, or any of his Predecessors; So that it must necessarily have taken its Rise in his Son, all whose Successors have so constantly assum'd it, that it is become the proper Name of the Family. He died in 1142. in the Flower of his Youth; So that it must be about the Year 1120, that that Title commenced; and without doubt, he adds, on some illustrious Occasion. He observes further, that this Prince was of a military Disposition, and delighted in nothing but War; And again, that it was the Custom of the Cavaliers to charge their Casks, Coats of Arms, and the Housing of their Horses, with some Figure or Device peculiar to themselves, whereby they were distinguish'd from all others engag'd in the same Combat or Tournament. From all these Circumstances he conjectures that this *Guy* chose the *Dolphin* for his Signature; that this was the Crest of his Helmet; and that he bore it on his Coat in some notable Tournament or Battel wherein he distinguish'd himself. And this, *Chorier* makes no doubt, is the real Origin of the Appellation.

Monsr. *le Président de Valbonnet* speaks more justly on the Subject. *Guigues*, or *Guy* the *Fat*, Son of *Guy* the *Old*, married *Mathilda*, who has been supposed to be of the same Royal Family, as being call'd *Regina* in several ancient Charters. This Couple had a Son, who, in an Act pass'd between him and *Hugh*, Bishop of *Grenoble*, in 1140, is call'd *Delphinus*; *Guigo Comes, qui vocatur Delphinus*. This has occasion'd some Historians to think to discover the Origin of the Name *Dauphin*. There was no Necessity for having Recourse to Voyages beyond the Sea, where the Counts *de Gresivaudan* might take the *Dolphin* for their Arms, or Badge of Distinction. In Effect, that Conjecture does not stand on any Proof; Nor is it true, that the first and second Race of those Princes bore the *Dolphin* for their Arms; There being scarce any Signs thereof before *Humbert* I. who first bore it on his Shield. 'Tis more probable, that the Sirname *Dauphin*, which *Guy* first assumed, pleas'd his Successors so much, that they added it to their own Name, and erected it into a Title, which has been retained ever since. Nothing is more common in those Times, than to find proper Names become the Names of Families, or Dignities. Witness the *Ademars*, *Arthauds*, *Aynards*, *Atlemans*, *Berengers*, and infinite others, who all owe their Names to some one of their Ancestors, from whom it has been transmitted throughout the Family.

The Seigneurs or Lords of *Auvergne* have likewise bore the Appellation of *Dauphin*; But the *Dauphins* of *Auvergne* had it not till a good while after those of the *Viennois*, and even receiv'd it from them. The Manner was this: *Guy* the VIIIth *Dauphin* of the *Viennois*, had by his Wife *Margaret*, Daughter of *Stephen*, Earl of *Burgundy*, a Son and two Daughters. The Son was *Guy* the IXth, his Successor. *Beatrix*, one of the Daughters, was married to the Count *d'Auvergne*, who, according to *Blondel*, was *William* the Vth, or rather, as *Chorier* and others hold, *Robert* the VIth, Father of *William* the Vth. This Prince

loſt the greateſt Part of the County *d'Auvergne*, which was taken from him by his Uncle *William*, aſſiſted by *Louis* the *Young*; and was only left Maſter of the little Canton whereof *Vodable* is the Capital. He had a Son whom he call'd *Dauphin*, on Account of *Guy*, or *Guigues*, his Uncle by the Mother's Side. From his Time his Succeſſors holding the ſame petty Canton of *Auvergne*, qualified themſelves *Dauphins* of *Auvergne*, and bore a *Dolphin* for their Arms.

DAY, a Diviſion of Time, drawn from the Appearance, and Diſappearance of the Sun. See SUN.

The *Day* is of two Kinds, *Artificial*; and *Natural*, or *Civil*.

Artificial DAY, which ſeems to be that primarily meant by the Word *Day*, is the Time of Light; determin'd by the Sun's Riſing and Setting. This is properly defined the Stay of the Sun above the Horizon: In Oppoſition to which, the Time of Darkneſs, or, the Sun's Stay below the Horizon from Setting to Riſing again, is call'd *Night*. See NIGHT.

Natural DAY, call'd alſo *Civil Day*, is the Space of Time wherein the Sun performs one Revolution round the Earth: Or, more juſtly, the Time wherein the Earth makes a Rotation on its Axis. Which the *Greeks* more properly expreſs by νυχθήμερον, *Nychthymeron*, q. d. Night-Day.

The *Epocha*, or *Beginning of the Civil Day*, is the Term from which one *Day* begins, and in which the preceeding *Day* concludes. The Fixing of this Term is of ſome Importance. 'Tis certain that for the more commodious diſtinguiſhing of *Days*, it ought to be fix'd in ſome Moment of Time wherein the Sun is in ſome diſcernible Part of the Heavens. The moſt eligible therefore ſhou'd be the Moments wherein the Sun paſſes either the Horizon or the Meridian. In Effect, as there is no Moment can be more accurately determined by Obſervation than that when the Sun paſſes through the upper Meridian: if Regard be had to the Exactneſs of the Meaſure, the Noon Tyde, has the beſt Pretenſions; the Riſing and Setting of the Sun being diſturb'd by the Refraction; beſide that, the Horizon is ſeldom clear of Clouds. But yet, as the *Artificial Day* does begin with the Sun's Riſe, and ends with the Setting; and beſides, the Sun's Paſſing the Horizon is a Thing eaſily obſerved, the Riſing or Setting of the Sun ſhou'd appear the moſt commodious *Epoch* or Beginning of the *Civil-Day*.

As then there are not wanting Reaſons for Beginning the *Natural Day*, both from the Sun's Paſſing the Meridian, and the Eaſtern, and Weſtern Side of the Horizon; 'tis no Wonder that different Nations ſhou'd begin their *Day* differently.

Accordingly, Firſt, The ancient *Babylonians*, *Perſians*, *Syrians*, and moſt other Eaſtern Nations, with the preſent Inhabitants of the *Balearick* Iſlands, the *Greeks*, &c. begin their *Day* with the Sun's Riſing. Secondly, The ancient *Athenians* and *Jews*, with the *Auſtrians*, *Bohemians*, *Marcomanni*, *Sileſians*, with the modern *Italians* and *Chineſes*, reckon it from the Sun's Setting. Thirdly, The ancient *Umbri* and *Arabians*, with the modern Aſtronomers, at Noon. And fourthly, The *Egyptians* and *Romans*, with the modern *Engliſh*, *French*, *Dutch*, *Germans*, *Spaniards*, and *Portugueſes*, at Midnight.

The *Day* is divided into *Hours*; and the Week, Month, &c. into *Days*. See HOUR, MONTH, WEEK.

For the different Lengths of the *Day* in different Climates. See CLIMATE, and GLOBE.

It has been a Matter of ſome Controverſy among Aſtronomers, whether or no the *Natural Days* are all equally long throughout the Year; and if not, what is their Difference. *M....* Profeſſor of Mathematicks at *Sevil*, in *a Memoir in the Philoſophical Tranſact.* aſſerts, from a continued Series of Obſervations for three Years, that they are all equal. Mr. *Flamſteed*, in the ſame *Tranſactions*, refutes the Opinion; and ſhews, that one Day, when the Sun is in the Equinoctial, is ſhorter than when he is in the Tropicks, by 40 Seconds; and that 14 Tropical *Days* longer than ſo many Equinoctial ones, by $\frac{1}{6}$ of an Hour, or 10 Minutes. The Inequality of the Days flows from two ſeveral Principles: The one, the Excentricity of the Earth's Orbit; the other, the Obliquity of the Ecliptic with Regard to the Equator, which is the Meaſure of Time. As theſe two Cauſes happen to be combin'd, the Length of the *Day* is varied. See EXCENTRICITY and OBLIQUITY.

DAY, in Law, is frequently uſed for the *Day* of Appearance in Court, either originally, or upon Aſſignation; as, *He had a* Day *by the Rolls*, i.e. *He had a* Day *of Appearance aſſign'd him*. Sometimes, for the Returns of Writs; e. g. *Days in Bank* are *Days* ſet down by State or Order of the Court when Writs ſhall be returned, or when the Party ſhall appear on the Writ ſerved. To be diſmiſs'd *without* Day, *ſine Die*, is to be finally diſcharged the Court. *Days of Preſixion* in the Exchequer. See REMEMBRANCER.

DAYS *of Grace*, in Commerce, are a Number of *Days* allow'd by Cuſtom for the Payment of a Bill of Exchange, after the ſame becomes due, *i.e.* after the Time it was accepted for is expired. In *England*, 3 *Days of Grace* are allowed; So that a Bill accepted in Order to be pay'd, *e.gr.* 10 *Days* after Sight, is not to be pay'd till 13 *Days*. Throughout *France*, they allow 10 *Days of Grace*; as many at *Dantzic*; 8 at *Naples*; 6 at *Venice*, *Rotterdam*, and *Antwerp*; 4 at *Francfort*, and 3 at *Leipſic*.

Dog-DAYS, or *Dies Caniculares*. See DOG-*Days*.

Critical DAYS, *Dies Critici*. See CRITICAL *Days*.

Intercalary, or *Additional* DAYS. See INTERCALARY *Days*.

DEACON, *Diaconus*, a Perſon in the loweſt Degree of holy Orders, whoſe Buſineſs is to baptize, read in the Church, and aſſiſt at the Celebration of the Euchariſt. The Word is form'd from the Latin *Diaconus*, of the *Greek* διάκονος, Miniſter. See ORDERS and ORDINATION.

DEACONS were inſtituted ſeven in Number by the Apoſtles, *Acts* C. VI. which Number was retain'd a long Time in ſeveral Churches. Their Office was to ſerve in the *Agapæa*, and to diſtribute the Bread and Wine to the Communicants, and to diſpenſe the Alms. By the ancient Canons, Marriage was not incompatible with the State and Miniſtry of a *Deacon*. But 'tis now a long Time that the Romiſh Church has prohibited their Marrying; and the Pope only grants them Diſpenſations for very important Cauſes; and after Diſpenſation, they loſe the Rank and Functions of their Order, and return to a Lay State. The *Deacons* were formerly prohibited ſitting with the Prieſts. The Canons of Councils forbid *Deacons* to conſecrate; that being a ſacerdotal Office. They alſo prohibit a *Deacon* being ordain'd, unleſs he have a Title, or Call, and be at leaſt 25 Years of Age. The Emperor *Juſtinian*, in *Novel* 123. aſſigns the ſame Age of 25 Years for a *Deacon*. But this was the Cuſtom when Prieſts were not ordained at leſs than 30 Years of Age. At preſent 23 Years of Age ſufficies for a *Deacon*.

At *Rome*, under Pope *Sylveſter*, they had only one *Deacon*; then ſeven were appointed; then 14, and at laſt eighteen, who were call'd *Cardinal Deacons*, to diſtinguiſh them from thoſe of other Churches. See CARDINAL.

Their Office was to take Care of the Temporalities of the Church, look to the Rents and Charities, to provide for the Neceſſities of the Eccleſiaſticks, and even of the Pope. The Collecting of the Rents, Alms, &c. belong'd to the *Sub-Deacons*; the *Deacons* were the Depoſitaries and Diſtributers. Having thus the Management of the Revenues of the Church in their Hands; their Authority grew a-pace, as the Riches of the Church increaſed. Thoſe of *Rome*, as being Miniſters of the firſt Church, preceeded all others, and even at length took Place of the Prieſts themſelves. Doubtleſs, it was the Avarice of the Prieſts that made them give Place to the *Deacons*, who had the Diſpoſal of the Money. St. *Jerom* exclaims againſt this Attempt, and proves that a *Deacon* is inferior to a Prieſt.

The Council in *Trullo*, which is the IIId of *Conſtantinople*, *Ariſtinus* in his *Synopſis* of the Canons of that Council, *Zonaras* on the ſame Council, *Simeon Logothetes*, and *Oecumenius*, diſtinguiſh *Deacons* deſtin'd for Service at the Altar, from thoſe who had the Care of the Diſtribution of the Alms of the Faithful. Thus, the Cuſtom of conſtituting *Deacons*, without any other Office but to attend the Prieſt at the Altar, being once introduced, thoſe ſimple *Deacons* durſt no longer pretend to a Superiority over the Prieſts. As to the other *Deacons*, who had got the Adminiſtration of the Revenues, they would ſtill retain the Superiority; and for Diſtinction ſake, where there were ſeveral, the firſt took the Appellation of *Arch-Deacon*. See ARCH-*Deacon*.

The *Deacons* rehearſed certain Prayers at the holy Office, which were thence denominated *Diaconics*. See DIACONIC.

They took Care that the People at Church behaved themſelves with due Modeſty and Reſpect. They were not allowed to teach publickly; at leaſt

not in the Presence of a Bishop or Priest. They only instructed the *Catecumens*, and prepared them for Baptism. The Doors of the Church were likewise in their Custody: Tho', in after Times, that Charge was committed to the *Sub-Deacons*.

Among the *Maronites* of Mount *Libanon*, are two *Deacons*, who are mere Administrators of the Temporalities. *Fa. Dandini*, who calls them *li Signori Diaconi*, assures us, they are Secular Lords, who govern the People, sit in Judgment on all their Differences, and treat with the *Turks* as to what concerns the Taxes and other Affairs. In this, the Patriarch of the *Maronites* seems to have aim'd to imitate the Apostles, who discharged all the temporal Concerns of the Church on the *Deacons*; *'Tis not well done*, say they, *to leave the Word of God, and serve at Tables*. And, in Effect, 'twas this gave Occasion to their first Establishment.

DEACONESS, an Office in Use in the Primitive Church, tho', now laid aside. St. *Paul* makes mention thereof in his Epistle to the *Romans*: And the younger *Pliny*, in a Letter to *Trajan*, tells that Prince, he had order'd two *Deaconesses*, whom he calls *Ministræ*, to be tortured. The Name *Deaconess* was affected to certain devout Women, who consecrated themselves to the Service of the Church, and rendred those Offices to the Women, which Men could not decently do; as, in Baptism, for Instance, which was conferr'd by Immersion, on Women as well as Men. They were likewise to look to the Doors on the Side the Women were on, who were separated from the Men, according to the Custom of those Times. They had the Care and Inspection of the Poor, Sick, *&c.* And in Times of Persecution, when a *Deacon* could not be sent to the Women, to exhort and fortify them, a *Deaconess* was sent. See *Balsamon on the 11th Canon of the Council of Laodicæa*; And the *Apostolical Constitutions*, L. II. C. 57. To say nothing of the Epistle of *Ignatius* to the People of *Antioch*; where, what is said of *Deaconesses*, is said to have been interpolated.

In the Commentaries on the Councils of *Christ. Lupus*, it is said that they were ordain'd by the Imposition of Hands: And the Council in *Trullo* uses the Term χειροτονεῖν, *to impose Hands*, to express the Consecration of *Deaconesses*. *Baronius*, however, denies that Hands were laid on the *Deaconesses*; or that there was any Ceremony of Consecration. Founding his Opinion on the 19th Canon of the Council of *Nice*, which places them in the Rank of Layety, and says expressly, they have had no Imposition of Hands. And yet the Council of *Chalcedon* decrees they should not be ordain'd till 40 Years of Age; whereas till then they had not been ordained before 60; as is prescribed in the first Epistle to *Timothy*, C. V. v. 9. And as is seen in the *Nomocanon* of *John* of *Antioch*, in *Balsamon*, the *Nomocanon* of *Photius*, the *Theodosian Code*, *Tertullian de Veland. Virgin.* &c. The same Author, *ad Uxorem*, L. I. C. 7. speaks of Women who had receiv'd Ordination in the Church, and who, on that Account, were deprived of the Liberty of Marrying. For the *Deaconesses* were Widows, and might not remarry. Nor were they capable of being admitted to that Order, if they had been marry'd more than once. Tho' in After-times Virgins were also made *Deaconesses*, at least if we may credit St. *Epiphanius*, *Zonaras*, *Balsamon* and *Ignatius*. The Council of *Nice* ranks *Deaconesses* among the Clergy. Tho' some hold that their Ordination was not Sacramental, but a mere Ecclesiastical Ceremony. However, it gave them a Preeminence above their Sex; for which Reason the Council of *Laodicæa* forbad the Ordaining of any more for the future. The first Council of *Orange*, held in 441, likewise forbids the Ordaining of *Deaconesses*, and enjoyns such as had been ordained to receive the Benediction with the mere Layety.

'Tis hard to say when the Order of *Deaconesses* expired; by Reason they did not all cease together. The 11th Canon of the Council of *Laodicæa*, 'tis true, seems to abrogate them; but 'tis certain they subsisted in divers Places long afterwards. For the 26th Canon of the first Council of *Orange*, and the 21st of that of *Epaona*, held in 515, forbid the Ordination of *Deaconesses*; yet there were some at the Time of the Council in *Trullo*. *Atton* of *Verceil* in his VIIIth Letter gives the Reason of their being abolish'd. He observes that in the first Ages the Ministry of Women was necessary, in Order to the more easy Instructing of other Women, and Recovering them from Paganism; and that they likewise served for the more decent Administration of Baptism to the same: But that it was not then necessary, by Reason none but Children were baptized; And it might now be added, by Reason Baptism is only conferr'd by Sprinkling. The Number of *Deaconesses* does not seem to have been fixed. The Emperor *Heraclius*, in his Letter to *Sergius*, Patriarch of *Constantinople*, orders that in the great Church of *Constantinople* there be forty *Deaconesses*, whereas there were only six in that of the Mother of God, in the Quarter of the *Blachernes*.

DEACONRY, *Diaconate*, the Order or Ministry of a Deacon, or Deaconess. See DEACON and DEACONESS.

DEACONRY, *Diaconia*, is also a Name still reserved to the Chappels, and Oratories in *Rome*, under the Direction of the several Deacons, in their respective Regions or Quarters. See REGION.

To the *Deaconries* were annex'd a Sort of Hospitals, or Boards, for the Distribution of Alms, govern'd by the Regionary Deacons, call'd Cardinal Deacons, of whom there were seven, answering to the seven Regions, their Chief being call'd the Arch-Deacon. See CARDINAL. The Hospital adjoyning to the Church of the *Deaconry*, had an Administrator for the temporal Concerns, call'd the Father of the *Deaconry*, who was sometimes a Priest, and sometimes a Lay-man. At present there are 14 of these *Deaconries* or Hospitals at *Rome*, which are affected to the Cardinals. *Du Cange* gives us their Names: As, the *Deaconry* of St. *Maria* in the broad Way; The *Deaconry* of St. *Eustachio* near the *Pantheon*, &c.

DEADLY *Feud*, in our Law-Books, a Profession of irreconcilable Enmity till we are revenged by the Death of our Enemy. The Word *Feud*, is derived from the German *Feed*, which, as *Hortoman* observes, signifies, *Modo bellum, modo capitales inimicitias*. Such Enmity and Revenge was allowed by our ancient Laws in the Time of the *Saxons*. viz. If any Man was kill'd, and a pecuniary Satisfaction were not made to the Kindred, it was lawful for them to take up Arms, and revenge themselves on the Murtherer: which was call'd *Deadly Feud*. And this, probably, was the Original of an Appeal. See APPEAL.

DEAD-*Pledge*. See MORTGAGE.

DEAD-*Reckoning*, at Sea, is that Estimation, Judgment or Conjecture, which the Sea-men make of the Place where a Ship is, by keeping an Account of her Way by the Log, by knowing the Course they have steer'd by the Compass, and by Rectifying all, with Allowance, for Drift, Lee Way, *&c.* according to the Ship's Trim; so that this *Reckoning* is without any Observation of the Sun, Moon and Stars, and is to be rectified as often as any good Observation can be had. See LOG, and LOG-*Line*.

DEAD-*Water*, is the Eddy-Water just behind the Stern of a Ship; and if a Ship hath a great Eddy follows her Stern, they say, she makes much *Dead-Water*: This is so call'd, because it doth not pass away so swiftly, as the Water running by her Sides doth.

DEAFFORESTED, in our Law-Books, the being discharged from being Forest; or freed and exempted from Forest-Laws. See FOREST.

Johannes Dei Gratia, &c. Archiepiscopis, Episcopis, &c. sciatis nos omnino Deafforestasse *Forestam de Brewood de omnibus quæ ad Forestam & Forestarios pertinent. Quare volumus & firmiter præcipimus, quod prædicta Foresta & homines in illa manentes, & hæredes eorum, sint* Deafforestati *in perpetuum*.

DEAFNESS, the State of a Person who wants the Sense of Hearing: Or a Disease of the Ear, which prevents its due Reception of Sounds. See HEARING and EAR.

DEAFNESS generally arises either from an Obstruction, or a Compression of the auditory Nerve; or from some Collection of Matter in the Cavities of the inner Ear; or from the auditory Passage being stopp'd up by some harden'd Excrement; or, lastly, from some Excrescence; a swelling of the Glands, or some foreign Body introduced within it. Those born *Deaf* are also dumb, as not being able to learn any Language; at least in the common Way. However, as the Eyes, in some Measure, serve them for Ears, they may understand what is said by observing the Motion of the Lips, Tongue, *&c.* of the Speaker; and even accustom themselves to move their own, as they see other People do; and by this means learn to speak. Thus it was that Dr. *Wallis* taught two young Gentlemen, born *deaf*, to hear what was said to them, and to return pertinent Answers. *Digby* gives us another Instance of the same, within his own Knowledge. And there was a *Swiss* Physician lately living at *Amsterdam*, one *Joh. Conrad Arman*, who effected the same in several Children born *deaf*, with far-

surprizing Success. He has reduced the Thing to a fix'd Art or Method, which he has publish'd in his *Surdus Loquens*, Amstelod. 1692. and *de Loquela*, ibid. 1700.

In the *Phil. Transact.* N. 312. we have an Account by Mr. *Waller*, R. S. Secr. of a Man and his Sister, each about 50 Years old, born in the same Town with Mr. *Waller*, who had neither of them the least Sense of Hearing; yet both of them knew, by the Motion of the Lips only, whatever was said to them, and would answer pertinently to the Question proposed. It seems they could both hear and speak when Children; but lost their Sense afterwards; whence they retain'd their Speech, which, tho' uncouth, was yet intelligible.

Such another Instance is that of Mr. *Goddy*'s Daughter, Minister of St. *Gervais* in *Geneva*, related by Bishop *Burnet*. At two Years old they perceiv'd she had lost her Hearing; and ever since, tho' she hears great Noises, yet hears nothing of what is said to her. But by observing the Motions of the Mouth and Lips of others, she has acquired so many Words, that out of these she has form'd a Sort of Jargon, in which she can hold Conversation whole Days with those that can speak her Language. She knows nothing that is said to her, unless she see the Motion of their Mouths that speak to her; So that in the Night, they are oblig'd to light Candles to speak to her. One Thing will appear the strangest Part of the whole Narration: She has a Sister, with whom she has practised her Language more than with any body else; and in the Night, by laying her Hand on her Sister's Mouth, she can perceive by that what she saith, and so can discourse with her in the Dark. *Burnet*'s *Let.* 4. p. 248.

'Tis observ'd by several Authors, that *deaf* Persons, and those thick of Hearing, hear better and more easily if a loud Noise be raised at the Time when you speak to them. Which is owing, no doubt, to the greater Tension of the Ear-Drum, on that Occasion. Dr. *Willis* mentions a *deaf* Woman, who, if a Drum were beat in the Room, could hear any Thing very clearly; so that her Husband hired a Drummer for a Servant, that by his Means he might hold Conversation with his Wife. The same Author mentions another, who, living near a Steeple, could always hear very well, if there was a Ringing of 3 or 4 Bells: But never else. See DRUM.

DEAN, a prime Dignitary in most Cathedral, and Collegiate Churches; being usually the President of the Chapter. See CHAPTER.

He is call'd DEAN, *Decanus*, of the *Greek* δεκα, Ten, as being supposed to preside over *ten* Canons or Prebendaries, at least. See PREBENDARY, &c.

We distinguish between *Deans* of *Cathedral*, and those of *Collegiate Churches*. The first, with their Chapter, are regularly subject to the Jurisdiction of the Bishop. As to *Deans* of Collegiate Churches, they have usually the contentious Jurisdiction in themselves, that is, they exercise Jurisdiction over their Canons in all Civil or Criminal Matters; tho' sometimes this belongs to them in common with the Chapter. See COLLEGIATE and CATHEDRAL.

The Word is form'd from the Latin *Decanus*, which was applied among the *Romans* to a Person who had the Command over ten Soldiers; and to a petty Judge of a Decury. In Imitation whereof, the Prelates establish'd Judges to inspect certain Parts of their Dioceses, under the Denomination of *Archipresbyteri*, &c. who were succeeded by *Decani*, or *Deans*. See *Rural* DEAN.

In *England*, as there are two Foundations of Cathedral and Collegiate Churches, the *Old* and the *New*, (the latter being those founded by *Henry* the VIIIth, on the Suppression of the Abbots and Priors, when their Convents were turned into *Dean* and Chapter;) so there are two Ways of Creating the *Deans*; Those of the old Foundation, are brought to their Dignity much like a Bishop. The Prince first sending out his *Conge d'Eslire* to the Chapter; the Chapter there chusing, the King yielding his Royal Assent, and the Bishop confirming him, and giving his Mandate to instal him. Those of the new Foundation are install'd by a shorter Course; only by the King's Letters Patents, without either Election or Confirmation.

Constantine, we are told, erected an Office of 950 Persons at *Constantinople*, taken out of divers Trades and Professions, whom he exempted from all Impositions, and bestowed them on the Cathedral Church, to render the Offices of Burial *gratis* to the Defunct, particularly to the Poor. These he call'd *Decani* and *Lecticarii*, probably by Reason they were divided by Tens; Each whereof had a Bier or Litter to carry the Bodies in: 'Tis supposed to be these, who under *Constans* began to be call'd *Copiates*, i. e. Clerks destined for Labour. For they are usually rank'd among the Clerks, and even before the Chantors. By a Law of the Year 357, it appears that there were of these *Copiates* at *Rome*. See LECTICARII.

The Word *Dean* is also applied among us to divers that are the Chief of some peculiar Churches, or Chappels; as, the *Dean* of the King's Chappel, of *Paul*'s, of the *Arches*, of *Battel*, of *Boking*, &c.

Rural DEAN, or *Urban* DEAN, was formerly an Ecclesiastical Person, who had a District of ten Churches or Parishes, either in the Country or City, within which he exercised Jurisdiction. These *Rural* DEANS were sometimes call'd *Archipresbyteri*, and at first were both in Order, and Authority, above the Arch-Deacons. They were elected by the Clergy, and by their Votes deposed; but afterwards they were appointed, and removed, at the Discretion of the Bishop: And hence they were call'd *Decani Temporarii*, to distinguish them from the Cathedral *Deans*, who were call'd *Decani Perpetui*. See RURAL *Dean*.

We meet with *Rural* DEANS as early as the IXth Century. *Hincmar*, in his Capitular to his Arch-Deacons, reserves the Right of Electing them to himself; and only allows it to the Arch-Deacons, in Case he be absent, and by Provision only. Some take the *Rural Deans* to hold the Rank and Place of the *Chorepiscopi*. Be this as it will; 'tis certain they are very ancient in *France*, *Germany*, and *England*; tho' till the End of the XVIth Century they were unknown in *Italy*, in Regard the Bishopricks being there exceeding small, they were not needed. S. *Charles Borromeo* first introduced them there. See CHOREPISCOPUS.

DEAN, in the ancient Monasteries, was a Superior established under the Abbot, to ease him in taking Care of *ten* Monks; whence he was call'd *Decanus*, in Imitation of those Officers among the *Romans*, who had ten Soldiers under them. Till the Time of St. *Benedict*, there were usually in each Monastery a Provost, *Præpositus*, and several *Deans*, *Decani*, under the Abbot. In some Abbies, there was but one *Dean*, and he, bless'd by the Bishop, as well as the Abbot himself. This Privilege gave him Occasion to think himself in some Measure the Abbot's equal; and to scruple Obedience to him. St. *Benedict* was sensible of this Inconvenience, and to prevent it in his Order, appointed that the Monasteries should be govern'd under the Abbot by several *Deans*, whose Authority being thus shared, they would be the less dangerous.

The Office of the *Deans*, we have observed, was to have the Inspection of ten Monks, to look to their Working, and all their Exercises. They were not chose by Seniority, but Merit; and might be deposed after three Admonitions. The Monasteries being now less numerous than they were in ancient Times, the Abbot, or Prior, don't stand in so much need of being eas'd; So that *Deans* are set a-side.

DEAN *and Chapter*; Anciently, Bishops did not ordinarily transact Matters of Moment *sine Concilio Presbyterorum principalium*, who were then call'd *Senatores Ecclesiæ*, and Collegues of the Bishops; represented in some Measure by our Cathedrals, whereof the *Dean* and some of the Prebends are, upon the Bishop's Summons, to assist him in Ordinations, Deprivations, Condemnations, Excommunications, and other weighty Concerns of the Church. See CHAPTER.

DEARTICULATION, in Anatomy. See DIARTHROSIS.

DEATH, *Mors*, is generally consider'd as the Separation of the Soul from the Body; in which Sense it stands opposed to *Life*, which consists in the Union thereof. See LIFE.

The Physicians generally define *Death* by a total Stoppage of the Circulation of the Blood; and a Cessation of the animal, vital, &c. Functions consequent thereon; As, Respiration, Sensation, &c.

An animal Body, by the Actions inseparable from Life, undergoes a continual Change. Its smallest Fibres become rigid, its Minute Vessels grow into solid Fibres no longer pervious to the Fluids, its greater Vessels grow hard and narrow, and every Thing becomes contracted, closed and bound up; whence the Dryness, Immobility, and Extenuation observed in old Age. By such Means the Offices of the minuter Vessels

fels are destroy'd, the Humors stagnate, harden, and at length coalesce with the Solids. Thus are the subtilest Fluids in the Body intercepted and lost, the Concoction weaken'd, and the Reparation prevented; only the coarser Juices continue to run slowly thro' the greater Vessels, to the Preservation of Life, after the animal Functions are destroy'd. At length, in the Process of these Changes, *Death* it self becomes inevitable, as the necessary Consequence of Life.

But 'tis rare, that Life is thus long protracted, or that *Death* succeeds merely from the Decays and Impairments of old Age. Diseases, a long and horrid Train, cut the Work short. See DISEASE.

DEATH-*Watch*, in Natural History, a little Insect famous for a ticking Noise, like the Beat of a Watch, which the Populace have long took for a Presage of Death, in the Family where 'tis heard; Whence it is also call'd *Pediculus Fatidicus*, *Mortisaga*, *Pulsatorius*, &c.

There are two Kinds of *Death-Watches*: Of the first we have a good Account in the *Philosoph. Transact.* by Mr. *Allen*. It is a small Beetle $\frac{1}{16}$ of an Inch long, of a dark brown Colour, spotted; pellucid Wings under the *Vaginæ*, a large Cap or Helmet on the Head, and two *Antennæ* proceeding from beneath the Eyes, and doing the Office of Proboscides. The Part it beats withal, he observed, was the extream Edge of the Face, which he chuses to call the upper Lip, the Mouth being protracted by this bony Part, and lying underneath, out of View. Its Figure, as it appears in a Microscope, see represented in *Tab. Natural History Fig.* 1.

This Account is confirm'd by Mr. *Derham*, with this Difference, that instead of ticking with the upper Lip, he observ'd the Insect to draw back its Mouth, and beat with its Fore-head. He had two, a Male and a Female, which he kept alive in a Box, several Months, and could bring one of them to beat whenever he pleas'd, by Imitating its Beating. By his ticking Noise he could frequently invite the Male to get up upon the other in the Way of Coition. When the Male found he got up in vain, he would get off again, bear very eagerly, and then up again: Whence the ingenious Author concludes, those Pulsations to be the Way whereby these Insects woo one another; and find out, and invite each other to Copulation.

The second Kind of *Death-Watch* is an Insect in Appearance quite different from the first. The former only beats 7 or 8 Strokes at a Time, and quicker; The latter will beat some Hours together, without Intermission, and his Strokes are more leisurely, and like the Beat of a Watch. This latter is a small greyish Insect, much like a Louse when viewed with the naked Eye. Its Figure, as magnified, is seen in *Tab. Natur. Hist. Fig.* 2. It is very common in all Parts of the House in the Summer-Months: Is very nimble in running to Shelter; and slie of Beating when disturb'd. But will beat very freely before you, and also answer the Beating, if you can view it without giving it Disturbance, or shaking the Place where it lies, *&c.* He cannot say, whether they beat in any other Thing, but never heard their Noise except in or near Paper. As to their Noise, the same Author is in doubt whether it be made by their Heads, or rather Snouts against the Paper; Or, whether it be not made after some such Manner, as Grasshoppers and Crickets make their Noise. He inclines to the former Opinion: The Reason of his Doubt is, that he observed the Animal's Body to shake and give a Jirk at every Beat, but could scarce perceive any Part of its Body to touch the Paper. But its Body is so small, and near the Paper, and its Motion in Ticking so quick, that he thinks it might be, yet he not perceive it.

The Ticking, as in the other, he judges to be a Wooing-Act; as having observed another, after much Beating, come and make Offers to the beating Insect, who, after some Offers, left off Beating, and got upon the Back of the other. When they were joyn'd, he got off again, and they continued some Hours joyn'd Tail to Tail, like Dog and Bitch in Coition.

Whether this Insect change its Shape, and become another Animal, or not, he cannot say; tho' he has some Cause to suspect that it becomes a Sort of Fly. 'Tis at first a minute white Egg, much smaller than the Nits of Lice; tho' the Insect is near as big as a Louse. In *March* it is hatch'd, and creeps about with its Shell on. When it first leaves its Shell, 'tis even smaller than its Egg; tho' that be scarce discernible without a Microscope. In this State 'tis perfectly like the Mites in Cheese; From the Mite State they grow gradually to their mature or perfect State. When they become like the old Ones, they are at first very small; but run about much more swiftly than before.

DEBENTURE, a Kind of Writing, in the Nature of a Bond, first given in 1649, to charge the Common-wealth to secure the Soldier-Creditor, or his Assigns, the Sum due, upon Auditing the Accounts of his Arrears.

The Word is also used in the Exchequer, and in the King's House, were *Debentures* are usually given to the Servants for the Payment of their Wages, Board-Wages, and the like.

The Word is mention'd in the Act of Oblivion, 12. *Car.* II. *Cap.* II. and since the late Revolution, has been used in many Acts of Parliament, especially in that which relates to the forfeited Estates in *Ireland*, out of which the Soldiers *Debentures* are appointed to be satisfied, 11. *W.* III.

DE *benè esse*, a *Latin* Phrase used in our Law-Books: Doing, or to do a Thing, *De bene esse*, is to accept or allow it as well done for the present; But when it comes to be more fully examin'd, or tried, to stand or fall, to be allowed or disallowed, according to the Merit, or Well-being of the Thing in its own Nature; or, as we say, *Valeat quantum valere potest.*

Thus, in Chancery, upon Motion to have one of the less principal Defendants in a Cause examin'd as a Witness, the Court (not then thoroughly examining the Justice of it, or not hearing what may be objected on the other Side) often orders such a Defendant to be examin'd *De bene esse*, i. e. that his Deposition shall be allowed or suppressed at the Hearing of the Cause upon a full Debate of the Matter, as the Court shall think fit; But for the present they have a Well-being or conditional Allowance.

DEBILITY, in a Medicinal Sense, is a Relaxation of the Solids, which induces Weakness and Fainting.

DEBRUIZED, or DEBRUS'D, in Heraldry, is when we would imitate the grievous Restraint of any Animal, which is debarr'd its natural Freedom by any of the Ordinaries being laid over it.

Thus when a Pale, *&c.* is born upon a Beast in an Escutcheon, the Beast is said to be *debruised* of the Pale.

DEBT, a Thing due, whether it consist of Money, or Goods, or other Præstations.

By our Law, *Debts* due to the King are to be satisfied in the first Place in all Cases of Executorship, and Administratorship; and till the King's *Debt* be satisfied, he may protect the Debtor from the Arrest of any other Creditor.

There are divers Kinds of *Debts*: *Active Debts*, are those whereof a Person is Creditor: *Passive Debts*, those whereof he is Debtor. There are also *Real Debts*, *Personal*, or *Mobiliary Debts*, and *Mixed Debts*.

Chorographary Debt, is that due by Virtue of Note, or Writing under one's Hand, and not proved in Judicature. *Hypothecary Debt*, is that due in Virtue of some Contract, or Condemnation. *Predicatory Debt*, is that arising from an Alienation of Lands, *&c.* the whole Purchase whereof has not been paid. *Privileged Debt*, is that which must be satisfied before all others; As, the King's Tax, *&c.*

DEBTOR, a Person who owes something to another: In Opposition to Creditor, which is he to whom it is own. See CREDITOR.

DECAGON is a plain Figure in Geometry, having ten Sides and Angles.

If they be all equal to one another, it is then call'd a Regular *Decagon*, and may be inscrib'd in a Circle.

Concerning this Figure, the chief Property is, that the Sides of a Regular *Decagon* are, in Power and Length, equal to the greatest Segment of an Hexagon, inscribed in the same Circle, and cut according to extream and mean Proportion. A Fortification also consisting of ten Bastions, is sometimes call'd a *Decagon*.

DECALOGUE, the ten Commandments of God, engraven on two Tables of Stone, and given to *Moses*.

The Word is *Greek*, compos'd of δέκα, Ten, and λόγος, Word, *q. d.* Ten Words. Accordingly, the *Jews* call them עשרת הדברים *the Ten Words*, which Appellation is very ancient. Tho' the *Samaritans*, both in their *Hebrew* Text, and their Version, add after the 17th Verse of the XXth Chapter of *Exodus*; and after the 21st Verse of the Vth Chapter of *Deuteronomy*,

nomy, an eleventh Commandment, to build an Altar on Mount *Gerizim*, &c. But 'tis apparently an Interpolation, to authorize their having a Temple and an Altar on that Mountain, and to discredit, if possible, the Temple at *Jerusalem*, and the Worship there perform'd. It must be added, however, that, tho' all, both Jews and Christians, agree in the Number of ten Commandments; there is some Difference as to the Manner of dividing them.

The *Thalmudists*, and *Postellus* after them, in his Treatise, *de Phœnicum Literis*, say, that the *Decalogue*, or Ten Commandments, were engraven quite through the Tables which God gave to *Moses*; and that notwithstanding the Middle of the ם *Mem* final, and of the ס *Samech*, remain'd miraculously suspended without adhering to any Thing. See the *Dissertation on the Samaritan Medals*, printed at *Paris* in 1715. They add, that the *Decalogue* was wrote in Letters of Light, *i. e.* in Luminous, Shining Letters.

DECAMERIS, a Term signifying a tenth Part; us'd by Mr. *Sauveur*, and some other Authors, to mark and measure the Intervals of Sounds. The Word is form'd of δέκα, Ten, and μερὶς, Part.

DECAMERON, a Work containing the Actions, or Conversations of ten Days. *Boccaces Decameron* consists of one hundred Novels related in ten Days.

DECAMP; when an Army raises its Camp, and departs from the Place where it lay before, they say, it is *decamped*.

DECANUS, among the *Romans*, an Officer who had ten other Officers, or Persons, under his Charge; Whence our *English* Dean. See DEAN.

DECANTATION, in Chymistry, &c. the Act of pouring out a Liquor from off the *Fæces*, &c. by gently inclining the Lip or *Canthus* of the Vessel; whence the Word is derived. See CANTHUS.

DECAPITE', in Heraldry. See DEFFAIT.

DECAPROTI, among the Ancients, were Officers who gather'd the Tributes or Taxes. The *Decaproti* were oblig'd to pay for the Dead; or, to answer to the Emperor for the *Quota* Parts of such as died, out of their own Estates. *Cicero* in his Oration for *Roscius*, calls them *Decemprimi*.

The Word comes from δέκα, Ten, and πρῶτος, first; probably by Reason the ten first, or principal Persons of each Community, were chose to make the Levies.

DECASTYLE, in the ancient Architecture, a Building with an Ordonnance of ten Columns in Front. The Temple of *Jupiter Olympius* was *Decastyle*. The Word is form'd of δέκα, Ten, and στύλος, Column.

DECEMBER, the last Month of the Year, wherein the Sun enters the Tropic of Capricorn, and makes the Winter-Solstice. See MONTH.

In *Romulus*'s Year *December* was the 10th Month, whence the Name, *viz.* from *Decem*, Ten: For the *Romans* began their Year in *March*. The Month of *December* was under the Protection of *Vesta*. *Romulus* assign'd it 30 Days; *Numa* reduced it to 29, and *Julius Cæsar* to 31.

Under the Reign of *Commodus*, this Month was call'd out of Flattery *Amazonius*, in Honour of a Courtezan, whom that Prince passionately loved, and had got painted like an *Amazon*; but it kept that Name but during that Emperor's Life. At the latter End of the Month, they had the *Juveniles ludi*, and the Country-People kept the Feast of the Goddess *Vacuna* in the Field, having then gotten in their Fruits, and sown their Corn; whence seems to be derived the Festival we make after Harvest is in.

DECEMPEDA, an Instrument used by the Ancients in Measuring. The *Decempeda* was a Rule, or Rod divided into ten Feet; whence its Name from *Decem*, Ten, and *Pes pedis*, Foot. The Foot was subdivided into 12 Inches; and each Inch into 10 Digits. See FOOT. The *Greeks* call'd it δεκάπους.

It was greatly used both in Measuring of Land, like the Chain among us; and by Architects, to give the proper Dimensions and Proportions to the Parts of their Building, which Use it still retains. *Horace*, Lib. II. *Od.* 15. lamenting the Magnificence and Delicacy of the Buildings of his Time, observes, that it was otherwise in the Times of *Romulus* and *Cato*, that in the Houses of private Persons there were not then known any Portico's measur'd out with the *Decempeda*, nor turn'd to the *North*, to take the cool Air.

DECEMVIRI, Magistrates among the *Romans*, created with a soveraign Power, to draw up and make Laws for the People; Thus call'd by Reason the Power was committed to ten Persons together.

To the *Decemviri* was given all the Legislative Authority ever held by the Kings, and after them by the Consuls. One among them had all the Ensigns and Honours of the Function; and the rest had the like in their Turn, during the Year of the *Decemvirat*. 'Twas the *Decemvirs* drew up the Law of the Twelve Tables, call'd thence the *Leges Decemvirales*, which for a considerable Time were the whole of the *Roman* Law. In the Year 302, the Consuls *Appius Claudius Crassinius*, and *T. Genucius Augurinus*, were oblig'd to abdicate; upon which the first *Decemviri* were created. The Year following ten new ones were appointed to succeed them, and in the Year 304 another Set were to have been chosen; but that the People rose, made them lay down, and resumed the Consuls. The excessive Debauchery of *Appius Claudius Crassinius*, one of the Consuls, who was first oblig'd to abdicate, and who had been chosen first *Decemvir* three times, was the principal Cause. *Cicero de Finib.* Lib. I. *Livy*, Lib. III. *Halicarnassæus*, Lib. X. and *Florus*, Lib. C. 24. give the History.

The *Decemviral* Administration, however, it is to be observed, had not its first Rise at the Time when the Authority of the Consuls was devolved into the Hands of the *Decemvirs*: For, during the *Interregnum* that ensued after the Death of *Romulus*, the Management of Affairs, which the Senate then took upon them, is call'd by *Halicarnassæus*, Lib. II. *Decemviral*, by Reason the Senators, divided into Tens, commanded each in their Turn: That is, one of each Ten, for 5 Days successively, having the *Fasces*, *Lictors*, &c. like the Kings.

There were also military *Decemvirs*; and on divers Emergencies *Decemvirs* were created to manage and regulate certain Affairs, after the same Manner as Boards of Commissioners are now appointed. Thus, there were *Decemvirs* for Conducting Colonies; *Decemvirs* to prepare and preside at Feasts, in Honour of the Gods; *Decemvirs* to take Care of the Sacrifices; *Decemvirs* to keep the *Sybils* Books. Sometimes, in lieu of *Decemvirs*, they only created *Septemvirs*, or *Triumvirs*, or *Duumvirs*, &c. See QUINDECEMVIR, &c.

DECENNALIA, in Antiquity, Feasts which the *Roman* Emperors held every tenth Year of their Reign, with Sacrifices, Games, Largesses to the People, &c. *Augustus* was the Author of this Custom, which was afterwards imitated by his Successors. At the same Time they likewise offer'd Vows for the Emperor, and the Perpetuity of his Empire, call'd *Vota Decennalia*. From the Time of *Antoninus Pius*, we find these Ceremonies mark'd on Medals. PRIMI DECENNALES. SECVNDI DECENNALES. VOTA SOL. DECEN. II. VOTA SVSCEP. DECEN. III. These Vows must have been made at the Beginning of every 10th Year; for on the Medal of *Pertinax*, who scarce reign'd 4 Months, we find VOTA DECENN. & VOTIS DECENNALIBVS.

Struvius in his *Antiq. Roman. Syntagma*, Cap. IV. is of Opinion, that these Vows took Place of those which the Censor used to make in the Times of the Republic for the Prosperity and Preservation thereof. In Effect, they were not only made for the Prince, but also for the State, as may be observ'd from *Dion*. Lib. VIII. and *Pliny* the Younger, *Lib.* X. *Ep.* 101.

Augustus's Aim in Establishing this Feast, was to preserve the Empire, and the soveraign Power without Offence, or Restraint to the People. For during the Celebration of this Feast, that Prince used to surrender up all his Authority into the Hands of the People, who, fill'd with Joy, and charm'd with the Goodness of *Augustus*, immediately deliver'd it him back again.

DECIDUOUS, in the general, expresses something apt and ready to *fall*: Thus Bothanists say, in some Plants the *Perianthium* or *Calyx* is *deciduous* with the Flower, that is, falls off from the Plant with it; in others not. See CALIX.

DECIES *Tantum*, a Writ that lies against a Juror, who hath taken Money for giving his Verdict; so call'd from its Effect, which is to recover ten times as much as he took. It lies also against Embracers that procure such an Enquest.

DECIL, in Astronomy, an Aspect or Position of two Planets, when they are distant from each other a tenth Part of the *Zodiac*. See ASPECT.

DECIMAL *Arithmetic*, the Art of Computing by *Decimal Fractions*, first invented by *Joh. Regiomontanus*, and used by him in the Construction of his *Tables of Sines*, &c. See ARITHMETIC, and DECIMAL FRACTION.

DECIMAL *Fractions* are those whose Denominator is one, with one or more Cyphers; as, 10, 100, 1000, 10000, &c. Thus $\frac{5}{10}$ $\frac{6}{100}$ $\frac{7}{1000}$ &c. are *Decimal Fractions*. See FRACTION.

In

In the Writing of *Decimal Fractions* we usually omit the Denominator, as only consisting of Unity with Cyphers annex'd: And in lieu thereof, a Point, or Comma, is prefix'd to the Numerator. Thus, $\frac{5}{10}$ is wrote .5; $\frac{46}{100}$,465 and .125 expresses an Hundred Twenty-Five Parts of any Thing, supposed to be divided into 1000 Parts.

In *Decimals* it is chiefly to be noted, that as Cyphers on the right Hand of Integers, do increase their Value *decimally*; as, 2, 20, 200, *&c.* so when set on the left Hand of Fractions, they decrease the Value *decimally*; as, 5., 05., 005., *&c.* but set on the left Hand of Integers, or on the right Hand of Fractions, they signify nothing; but only to fill up Places; thus, ,5000, or 0005. is but five Units.

To *reduce any Vulgar Fraction*, of suppose $\frac{5}{8}$ to a *Decimal Fraction* of the same Value, whose Denominator shall be 1000; say by the Rule of three, as 8 the Denominator of the Vulgar Fraction, is to 5 its Numerator: So will 1000, the Denominator assign'd, be to a 4th Term, which by Working will be found to be ,625. and therefore, $\frac{625}{1000}$, or, 625. is a *Decimal* of the same Value with the former Fraction $\frac{5}{8}$.

The common Operations in *Decimals* are perform'd as in the Vulgar Rules, regard being had only to the particular Notation, to distinguish the Integral from the Fractional Part of a Sum.

In *Addition, and Substraction of Decimals*; The Points being all plac'd under each other, the Figures are to be added, and substracted as in common Aritbmetic: And when the Operation is done, so many Figures of the Sum, or the Remainder, are to be noted for *Decimals*, as there are the most Places of *Decimals* in any of the given Numbers. An Example will make this clear.

Addition of *Decimals*.		Substraction.
343791	59 ,271	From 67 ,9
792	15 ,040	Take 29 ,8754
6124	3 ,791	Rem. 38 ,0246
053	12 ,009	
10	7 ,5	From 25 ,1462
2	97 ,692	Take 13 ,07
2319531		Rem. 12 ,0762

For *Multiplication of Decimals*, observe to cut off just so many *Decimal* Parts from the Product as there are *Decimals* in both Factors: The Work is the same as in Integers. Thus,

Multiplication of *Decimals*:

,1472	,365	3, 6 50	*Note*, In the second Example, the Product only amounts to five Places; for which Reason a Cypher is prefix'd, to make up 6 *Decimal* Places; there being so many in the two Factors.
,175	,122	6,21	
7360	730	3,650	
10304	730	7300	
1472	.265	21900	
,257560	,044530	22933,650	

In *Division of Decimals*, proceed in all Respects as in Dividing of Integers; and when the Operation is done, mark as many Places in the Quotient for *Decimals*, as, with the Number of *Decimals* in the Divisor are equal to the *Decimal* Places of the Dividend:

```
,22) ,8030 (3,65        22) 8,030 (,365
     66                     66
     143                    143
     132                    132
     .110                    110
      110                    110
      ..0                    ..0

22) ,8030 (,365         73,2) 8321,9 (1,13
    66                        732
    143                       1002
    132                        732
     110                       2729
     110                       2196
     ...                        233
```

But there are certain Cases in Division of *Decimals*, which require some further Management: As, first, where the Divisor is a *Decimal Fraction*, and the Dividend an Integer; add, or annex at least as many Cyphers to the Dividend, as there are Places in the Divisor: Thus ,365) 22,0000 (60,2. For there being three Places of *Decimals* in the Divisor, and four in the Dividend, there will be but one in the Quotient: Secondly, Where the Divisor is a mixt Number, and the Dividend a whole Number, add as many Cyphers to the Dividend, as there are Places in the Divisor. Thus, 3,65) 22,0000 (6,02. Thirdly, Wherever the Divisor is bigger than the Dividend, annex Cyphers to the latter. Thus, ,365) 22,0000 (,602.

Decimal *Scales*, in the general, are any Scales divided *decimally*; But, particularly, certain Scales of Money, Weights, and Measures, made from Tables, so call'd, to expedite *Decimal* Arithmetic, by Shewing by Inspection the *Decimal Fraction* of any Part of Money, Weight, or Measure.

DECIMATION, a Punishment which the *Romans* us'd to inflict on the Soldiers who had quitted their Post, or raised a Mutiny in the Camp, or behaved themselves cowardly in the Fight; which was practised thus: The General assembled the whole Camp, then the Tribune brought to him those that were guilty, and impeach'd, and reproach'd them; with their cowardly Actions and Basenes in the Presence of the whole Army: Then, putting their Names into an Urn, or Head-Piece, he drew five, ten, or twenty of them, according to their Number; and the Fifth, the Tenth, or the Twentieth, were put to the Sword, and the others saved. This was call'd *Decimare*, a Word of the ancient *Roman* Militia, who, to punish whole Legions, when they had failed in their Duty, made every tenth Soldier draw Lots, and put him to Death for an Example to the others.

DECINERS, or DECENNIERS, or DOZINERS, in the ancient Monuments of our Law, are such as were wont to have the Oversight, and Check of the Friburghs, for Maintenance of the King's Peace; The Limits of whose Jurisdiction was call'd *Decenna*, and *Dozein*.

They seem to have had very large Authority in the *Saxon* Times; taking Cognizance of Causes within their Circuit, and redressing Wrongs by Way of Judgment. Thus *Briton*, "We will that all those "who are fourteen Years old, shall make Oath, that "they will be sufficient and Loyal to us; and neither "be Felons, nor assenting to Felons; and we will, that "all profess themselves of this or that *Dozein*, and "make or offer Surety of their Behaviour by those or "those *Doziners*, except Religious Persons, Clerks, "Knights eldest Sons, and Women."

A *Dozein* now seems only to extend so far as a Leet: For in Leets only this Oath is administred by the Steward, and taken by such as are twelve Years old and upwards. See Leet.

DECK *of a Ship*, a Kind of planked Floor, whereon the Guns are laid, and the Men walk to and fro, serving as a Ceiling to separate the Stories of the Ship, or other Vessel.

Hence, a Ship is said to have two or three *Decks*, when it contains 2 or 3 Stories in its Cavity. The Middling Sort of Vessels have two *Decks*; the biggest three, distant from each other about 5 Feet. The Bottom-*Deck* is call'd the *first Deck*: The second *Deck*, answering to the second Story from the Ground in Houses, to the Place of the second Battery, contains an equal Number of Guns with the first, abating that there is none over the Stern, which is the Captain's Apartment: Before this *Deck* are the Kitchin-Offices, *&c.* In large Vessels there is a third *Deck*, and a third Battery. Some Vessels have likewise a *Half-Deck*, which reaches from the Main-Mast to the Stern of the Ship: As also a *Quarter-Deck*, which is from the Steerage a-loft to the Master's Round-House. Sometimes there is a *Spare-Deck*, which is the uppermost of all, being between the Main-Mast and the Missen, call'd also the *Orlope*. A *Rope-Deck* is that made of Cordages interwove, and stretch'd over a Vessel that has no *Deck*, through which 'tis easy to annoy the Enemy who comes to board her; and has leap'd thereon. These are little used but in Merchant-Vessels, to defend them from the Corsairs: See Ship, and Navy.

DECLAMATION, a feign'd Discourse; or Speech made in public, and in the Tone and Manner of an Oration.

Among the Greeks, *Declamation* was become the Art of Speaking indifferently on all Subjects and all Sides of a Question; of making a Thing appear just that was unjust, and triumphing over the best and soundest Reasons. Such Sort of *Declamations* M. *de St. Evremond* observes, were very fit to corrupt the Mind by Accustuming it, to cultivate the Imagination rather than to form the Judgment, and to seek for Verisimilitudes to impose upon, rather than solid Reasons to convince.

Among us, *Declamation* is restrain'd to certain Exercises, which Scholars perform, to teach them to speak in public. A *Declamation* against *Hannibal*, against *Pyrrhus*, the *Declamations* of *Quintilian*, &c. In the Colleges of the Jesuites *Declamations* are little Theatrical or Drama-

tic

tic Performances, consisting of a few Scenes not divided into Acts, rehears'd by the Students by Way of Exercise, and to form them for Speaking in public. Such *Declamations* are the most useful Exercises perform'd in the Colleges.

DECLARATION, in Law, a Shewing in Writing the Grief and Complaint of the Demandant, or Plaintiff, against the Defendant, or Tenant, wherein he is supposed to have receiv'd some wrong. This ought to be plain and certain, both because it impeacheth the Defendant, and also compels him to answer thereto.

DECLARATION is also us'd for a Confession which the Quakers, who scruple taking the Oaths of Supremacy, &c. are oblig'd to make and subscribe in lieu thereof. Its Tenor is a solemn Promise before God and the World, to be true to King *George*, with a Detestation and Horror of that damnable Position, that Princes, excommunicated by the Pope, or any other Power, may be deposed or murther'd; and a Declaration, that no foreign Prince, or Power, has any Right, Jurisdiction, or Authority in this Kingdom.

DECLENSION, in Grammar, an Inflexion of Nouns, according to their divers Cases; as *Nominative*, *Genitive*, &c. See CASE, NOMINATIVE, &c.

The *Declension* of Nouns is a different Thing in the modern Languages, which have not properly any Cases; from what it is in the ancient *Greek* and *Latin*, which have.

Declension, with Respect to Languages, wherein the Nouns admit of Changes, whether in the Beginning, the Middle, or the Ending, is properly the Expression of all those Changes in a certain Order, and by certain Degrees, call'd *Cases*: With Regard to Languages, wherein the Nouns do not admit of Changes in the same Number, *Declension* is the Expression of the different States, or Habitudes a Noun is in, and the different Relations it has; which Difference of Relations is mark'd by Particles, call'd Articles; as, *a*, *the*, *of*, *to*, *from*, &c.

DECLENSION of a Disease, is when it is past its Height, and the Symptoms abate. See ACME.

DECLINATION, in Astronomy, the Distance of the Sun, a Star, Planet, or other Point of the Sphere of the World, from the Equator, either Northward, or Southward. See EQUATOR.

Declination is either *real* or *apparent*, according as the real or apparent Place of the Point is consider'd. See PLACE.

Hence the *Declination* is an Arch of a great Circle, as GS, (*Tab. Astronomy Fig.* 4.) intercepted between a given Point, as S, and the Equator AQ, and perpendicular to the same. Consequently, the Circle, by whose Arch the *Declination* GS is measured, passes through the Poles of the World. See CIRCLE of *Declination*.

The *Declination* of a Star, &c. is found by first observing the Altitude of the Pole as PR, (*Tab. Astronomy Fig.* 5.) This substracted from 90°. gives the Height of the Equator AH. Then, the Meridian Altitude of the Star, HD, being observed, if it be greater than the Altitude of the Equator, AH, the latter substracted from the former leaves the *Declination* Northward AD: Or, if the Altitude of the Star HT be less than that of the Equator HA, the former substracted from the latter leaves the *Declination* Southward TA. e. g. *Tycho* at *Vranisbourg* observ'd the Meridian Altitude of the *Cauda Leonis*

	HD	50°	59′	0″
Altitude of Equat.	HA	34	5	20
Declinat. therefore,	AD	16	53	40

If the Star be in the Quadrant ZR, then the least Altitude MR substracted from the Altitude of the Pole PR, leaves the Distance from the Pole PM; which substracted again from the Quadrant PQ, leave the *Declination* MQ. e. g. *M. Couplet* observed PM 2° 18′ 50″ which substracted from 90° leaves MQ 87° 41′ 10″. And by this Method are constructed the Tables of *Declinations* of the fix'd Stars given us by *Riccioius* and *Dechales*.

By comparing the ancient Observations with the modern, it appears, that the *Declination* of the fix'd Stars is variable; and that, differently, in different Stars. For in some it increases, and in others decreases, and that in different Quantities. The greatest Increase or Decrease doth not exceed three Minutes and a half in 10 Years Time.

It has been greatly disputed among the latter Mathematicians, whether or no the *Declination* and Obliquity of the Ecliptic be variable; but the Point seems now decided in Favour of the Immutability. See OBLIQUITY, and ECLIPTICK.

Circle of DECLINATION is a great Circle of the Sphere, passing through the Poles of the World: Such is PGDK, passing through the Poles T and K.

Parallax of the DECLINATION is an Arch of the Circle of *Declination*, whereby the Parallax of the Altitude increases or diminishes the *Declination* of the Star. See PARALLAX.

Refraction of the DECLINATION, an Arch of the Circle of the *Declination*, whereby the *Declination* of a Star is increased, or diminished, by means of the Refraction. See REFRACTION.

DECLINATION *of the Needle*, or Compass, is the Variation from the true Meridian. See VARIATION *of the Needle*.

DECLINATION *of a Plane*, or Wall, in Dialling, is an Arch of the Horizoo, comprehended either between the Plane, and the Prime Vertical Circle, if you account it from East to West; or between the Meridian, and the Plane, if you account it from the North, or South. See DECLINER.

There are many Ways given by Authors for finding the *Declination* of Planes: The most handy and practical Way is by a *Declinator*. See DECLINATOR.

DECLINATOR, an Instrument in Dialling, whereby the Declination, Inclination, and Reclination of Planes is determined. Its Structure is as follows: On a square wooden Board ABCD, (*Tab. Dialling Fig.* 1.) describe a Semi-Circle AED, and divide the two Quadrants thereof AE and ED into 90 Degrees, each beginning from E, as in the Figure. Then, having fix'd a Pin in the Center F, fit a wooden Ruler HI upon the same, moveable thereon, with a Box and Needle K, as shewn under COMPASS.

Now, to apply this, in taking the Declination of a Plane, applying the Side AD of the Instrument to the Plane purposed, as MN *Fig.* 2. and move the Ruler FG, with the Compass G this Way and that, and about the Center F, till the Needle rest upon the Line of the Magnetical Meridian of the Place. Now if the Ruler in this Situation cut the Quadrant in E, the Plane is either Northern or Southern: But if it cut between D and E, the Plane declines to the West; or, if between AE, to the East by the Quantity of the Angle GFE.

The same Instrument will serve to take the Inclinations and Reclinations of Planes. To this End, instead of the Ruler and Needle, a Thread with a Plummet is fitted on a Pin in the Center E: Then the Side BC of the Declinator ABCD, being applied to the proposed Plane, as IL *Fig.* 3. If the Plumb-Line FG cut the Semi-Circle AED in the Point E, the Plane is Horizontal; Or if it cut the Quadrant EL in any Point as G, then will EFG be the Angle of Inclination: Lastly, if applying the Side AB to the Plane, the Plummet cut E, the Plane is Vertical.

Hence, if the Quantity of the Angle of Inclination be compared with the Elevation of the Pole, and Equator; it is easily known, whether the Plane be inclined, or reclined. See INCLINATION, and RECLINATION.

DECLINERS, or *Declining Dials*, are those which cut either the Plane of the prime Vertical Circle, or the Plane of the Horizon obliquely. See DIAL.

If we conceive the Plane of the prime Vertical Circle to revolve a little upon a right Line drawn from *Zenith* to *Nadir*; The Plane will become *declining*; nor will it be any longer cut at right Angles by the Meridian, but by some Vertical Circle passing through the intermediate Points. After the like Manner a Horizontal Plane will be brought to *decline*, if revolving on the Meridian Line, one Part of it be raised a little towards the *Zenith*, and the other depress'd towards the *Nadir*.

The Use of *Declining* Vertical Dials is very frequent, in Regard the Walls of Houses, whereon Dials are commonly drawn, do generally decline from the Cardinal Points. Incliners and Recliners, and especially Deincliners, are very rare. See DIAL.

DECLINING, { Erect, Inclining, Reclining } *Dials*. See DIAL.

DECLIVIS, in Anatomy, a Muscle of the Abdomen, call'd also *Obliquus Descendens*. See OBLIQUUS *Descendens*.

DECLIVITY. See ACLIVITY.

DECOCTION, the Act of Boiling one, or more Plants, or other Drugs, to extract the Juice out of the same for some medicinal Purpose.

Decoctions of Guaiac, and Sarsaparilla, are the common Drink in certain Diseases. See APOZEM, and INFUSION.

Monst-

Monsr. *Boulduc* assures us from his own Experience, that the Infusions of Vegetable Purgatives act better, and produce better Effects, than their *Decoctions*; which he attributes to this, that the purest and most active Principles of those Bodies are dissipated and evaporated by Heat. *Memoires de l'Academie Royale des Sciences*, An. 1710.

DECOLLATION, *Beheading*, a Term seldom used, but in the Phrase, *the* Decollation *of St.* John *Baptist*, signifying a Painting, wherein is represented the Baptist's Head, struck off from his Trunk; Or, the Feast held in Honour of that Martyr.

A *French* Embassador at *Constantinople*, shewing the Grand Seignior a *Decollation* of St. *John*, admirably represented, except that the Painter had not observed, that when a Man is beheaded, the Skin shrinks back a little; The Emperor immediately spied the Fault in that exquisite Performance; and to convince the Embassador thereof, sent Orders for a Man to be immediately beheaded, and his Head to be brought for a Proof. *Catherinot Traite de la Peinture.*

DECOMPOSITION, in Chymistry and Pharmacy, the same Thing with *Analysis*, or Resolution, *viz.* the Reduction of a Body into the Principles, or component Parts it consists of. See ANALYSIS, and RESOLUTION.

Decomposition, is sometimes taken for any Sort of Resolution, or Separation of Parts: In Propriety, however, *Decomposition* is a Process of an Artist, in order to a Separation of the Heterogeneities, or Impurities from any Matter.

Tradition, founded on repeated Experiments, is a much surer Way of arriving at the Knowledge of the Properties of a Plant, than any chymical *Analysis*, or *Decomposition* of its Principles. See MEDICINE.

DECORATION, in Architecture, an Ornament in a Church, or other public Place: Or, what adorns, and enriches a Building, Triumphal Arch, *&c.* either without Side, or within. See ORNAMENT.

The Orders of Architecture contribute a great deal to the *Decoration*; but then the several Parts of those Orders must have their just Proportions, Characters, and Ornaments; Otherwise the finest Order will bring Confusion, rather than Richness. See ORDER.

Decorations in Churches, are Paintings, Vases, Festoons, *&c.* occasionally applied to the Walls; and with so much Conduct and Discretion, as not to take off any Thing from the Form of the Architecture: As is much practised in *Italy*, at the solemn Feasts.

DECORATION is particularly applied to the *Scenes* of Theatres. See SCENE.

In Opera's, and other Theatrical Performances, the *Decorations* must be frequently changed, in Conformity to the Subject. The Ancients had two Kinds of *Decorations* for their Theatres: The first, call'd *Versatilis*, having three Sides, or Faces which were turned successively to the Spectators: The other, call'd *Ductilis*, shewing a new *Decoration* by drawing, or sliding another before it. This latter Sort of *Decoration* is still used, and apparently with much greater Success than among the Ancients, who were oblig'd to draw a Curtain whenever they made a Change in the *Decoration*; whereas on our Stage the Change is made in a Moment, and almost without being perceiv'd. See THEATRE.

DECORTICATION, the Peeling, or Unhusking of Roots, Seeds, Fruits, Branches, *&c.* or the Freeing, of them from their Barks, Rinds, Husks, or Shells. See BARK.

DECORUM, DECOR, *Decency*, is particularly used in Architecture, for the Suitableness of a Building, and the several Parts, and Ornaments thereof, to the Station, and Occasion. *Vitruvius* is very severe in this Point; and gives express Rules for the Appropriating, or Suiting the several Orders to their natural Characters. So, *e.g.* as a *Corinthian* Column should not be set at the Entrance of a Prison, or Gate-House; Nor a *Tuscan*, in the Portico of a Church; As some have done among us, in breach of *Decorum*. Even in the Disposition of the Offices of our ordinary Houses, we find grievous Offences against *Decorum*: The Kitchin being often where the Parlour should be; and that in the first and best Story, which should have been damned to the lowest and worst.

DECOUPLE, in Heraldry, the same as *Uncoupled*, i. e. parted, or sever'd; Thus, a Chevron *Decouple*, is a Chevron wanting so much towards the Point, that the two Ends stand at a Distance from each other, or are parted, or uncoupled.

DECOURS, DECRESSANT, } in Heraldry. See DECREMENT.

DECOY, a Place made fit for Catching of wild Fowl: Hence, a *Decoy*-Duck is one that flies abroad, and lights into Company of wild ones, and being become acquainted with them, by her Allurement draws them into the *Decoy*-Place, where they become a Prey.

DECREE, a Resolve made by a Superior Power, for the Regulating of an Inferior.

The Commerce between Soul and Body, *Fa. Malebranch* observes, has no other *Vinculum*, or Connexion, but the Efficacy of the divine *Decrees*. Second Causes only execute the *Decrees* of Providence. The Doctrine of the *Calvinists* infers, that God enters into Sin by a positive *Decree*; in that if Crimes were not ordain'd by an antecedent *Decree*, God could not foresee the Events.

The *Decrees* of Councils, are the Laws made by them, to regulate the Doctrine and Policy of the Church. See CANON.

Decree was originally used by the Lawyers for any Thing ordain'd by the Prince, upon Cognizance of the Cause: But the Canonists now restrain the Word *Decree* to the Ordinances of Popes; as the Name *Canon* is to what is ordain'd by Councils.

The *Decrees* in Chancery, are the Determinations, or Sentences of the Lord Chancellor, upon full Hearing, and Weighing the Merits of the Cause. See CHANCERY.

DECREMENT, or DECRESSANT, in Heraldry, by the *French* Heralds usually call'd *Decours*, or, *en Decours*, is the Wane, or Decrease of the Moon, when she is receding from the Full towards the New.

In this State she is call'd in Blazon, a *Moon-Decressant*, or, *en Decours*; Since to call it a *Crescent*, would be improper, as that Term denotes an Increase. The Moon looking to the left Side of the Escutcheon, is always supposed to be *decressant*: When she faces the right, she is *Crescent*, or in the *Increment*.

DECREPITATION, in Chymistry, a Drying, and Calcining of Salt over the Fire, continued till such Time as it ceases to crackle. See SALT.

The Term is also applied to the Noise, or Crackling of the Salt during the Operation. The Design of this Operation is to free the Salt of its superfluous Moisture. But the Salt is hereby rendred porous, and apt to imbate Moisture, that unless it be kept very close, it soon moistens again.

DECRETAL, a Rescript, or Letter of a Pope, whereby some Point, or Question in the Ecclesiastical Law is solved, or determined.

The *Decretals*, *Litteræ Decretales*, compose the second Part of the Canon-Law. See CANON *Law*.

Decretals, are *Instituta proprie Papæ*, *Præcepta vero Regum*. They were first compiled into a Body by *Regino*, *Burchard*, *Anselm*, and *Ivo*: Afterwards by *Gratian*, who lived in the Pontificate of *Eugenius* III; which latter, as being generally approv'd, is call'd, *The first Collection of the* Decretals. Twelve Years after, a second Collection was made by *Gilbertus*, and *Alanus*, under the Name of *Volateranus*; which, beside the *Decretals* of the former, contain'd those of *Celestine* the IIId. The third Collection was begun by *James Major*, Arch-Deacon of *Compostella*, and collected out of the Registers of *Innocent* the IIId. It was call'd, *Romana Compilatio*; But, containing many Things not generally receiv'd, that Pope was persuaded to employ some Person, to make a Collection by his Authority. Accordingly, *Petrus Beneventanus*, a Notary, or, as others say, *F. Raimond*, a Dominican, was appointed for that Work; Which is the only Collection authorized by the holy See to be read in the Schools. *Boniface* the VIIIth, in 1297, made a new Collection, under the Name of *Sextus*, containing 5 Books. *Clement* the IIId made a third, under the Title of *Clementines*; And *John* the XXIIth, under that of *Extravagantes*. See CLEMENTINES, and EXTRAVAGANTES.

All the *Decretals* attributed to the Popes before *Siricius*, in 318, are evidently suppositious. All the World allow them an Imposture; and even such as are most favourable to the Court of *Rome*, are oblig'd to abandon them: Tho' they have been one great means of Establishing the Grandeur of *Rome*, and ruining the ancient Discipline, particularly as to Ecclesiastical Judgments, and the Rights of Bishops. They are supposed by some, the spurious Off-spring of *Isidore*, Arch-Bishop of *Seville*, by Reason the Collection thereof bears the Name of *Isidore Peccator*, or *Mercator*. They were first publish'd by *Riculph* Bishop of *Mentz*, in the IXth Century.

DECUPLE, in Arithmetic, a Term of Relation, or Proportion, implying a Thing to be *ten* times as much as another. See RATIO.

DECURIO, the Chief, or Commander of a *Decury*, both in the *Roman* Army, and in the College, or Assembly of the People. See DECURY.

DECURIO *Municipalis*, was a Name given to the Senators of the *Roman* Colonies. See MUNICIPAL.

They were call'd *Decuriones*, by Reason their Court, or Company, consisted of *ten* Persons. By means here-of the Cities of *Italy*, at least such as had Colonies, had a Share, under *Augustus*, in the Election of the *Roman* Magistrates; The *Decuriones*, or Senators of those Cities, having Suffrages therein, which they sent, seal'd up to *Rome*, a little before the Election.

DECURIO was also a Name given to certain Priests intended, as it should seem, for some particular Sacrifices, or other religious Ceremonies; or for the Sacrifices of private Families and Houses, as *Struvius* conjectures, who thence derives their Name. But be the Origin of the Name what it will, we have an Inscription in *Gruter*, which confirms what we have said of their Function. ANCHIALVS. CVB. AED. Q. TER. IN. AEDE. DECVRIO. ADLECTVS. EX. CONSENSV. DECVRIONVM. FAMILIAE. VOLVNTATE. Where we have a *Decurio* in the House of a private Person, *Q. Terentius*.

DECURY, ten Persons rang'd under one Chief, or Commander, call'd *Decurio*. See DECURIO.

The *Roman* Cavalry was divided into *Decuries*.

Romulus divided the whole *Roman* People into three *Tribes*; over each of which he appointed a Tribune: Each Tribe he subdivided into ten *Centuries*, with Centurions at their Heads: And each *Century* he subdivided further into ten *Decuries*, over each of which a Decurio commanded.

DECUSSATION, in Geometry, Opticks, Anatomy, *&c.* The Point wherein two Lines, Rays, or Nerves, *&c.* cross, or intersect each other: Or the Action it self, of Crossing.

The Optic Nerves of both Eyes are commonly supposed to *decussate* e're they reach the Brain; to which *Decussation*, many Authors attribute it, that we see single with two Eyes: Others deny any *Decussation*. See OPTIC *Nerve*, VISION, *&c.*

The Rays of Light *decussate* in the *Crystalline*, e're they reach the *Retina*. See CRYSTALLINE.

There are divers Muscles, Membranes, *&c.* that *decussate*; their Fibres running over each other under greater or less Angles; and by that means giving both Strength and Conveniency of Motion different Ways.

DECUSSORIUM, is a Surgeon's Instrument, wherewith the *dura Mater* is pressed down in the Operation of Trepanning, to save it from Damage.

DECYPHERING, the Art, or Act of finding the Alphabet of a Cypher, or of Explaining a Letter wrote in Cypher. See CYPHER.

Every Language has peculiar Rules of *Decyphering*. *Jaques Gesvry* has published the Principles of *Decyphering* the *French*; wherein the Rules proper to that Language are laid down. The principal, we shall here add as a Specimen in this Kind. As, first, that when a Character is found alone, it must either be an *A*, *Y*, or an *O*, these being the only Letters in the Alphabet that make Words singly. Secondly, the Character that occurs the oftenest in a Writing to be *decypher'd* is ordinarily an *E*; this being the most common Letter in that Language. Thirdly, To know the *U*, you must take the Character that is always preceeded by one certain other, which will be the *Q*. Fourthly, The *I* is also known by means of the *Q*, for since *QUE*, and *QUI*, are the only Syllables in the *French* Tongue that begin with *Q*; whenever you find a Word of three Characters, whereof the first is a *Q*, and the last is not an *E*, it must be an *I*. Fifthly, In all Words of two Letters, one of them is a Vowel. Sixthly, Of the three first Characters of a Word, one of them is a Vowel. Seventhly, The Vowels being once *decypher'd*; the Consonants are readily found by the Connexion certain Consonants usually have with certain Vowels.

DEDI, in Law, a Warranty given to the Feoffee and his Heirs. See WARRANTY.

DEDICATION, the Act of Consecrating a Temple, Altar, Statue, Place, *&c.* to the Honour of some Deity. See TEMPLE, ALTAR, CHURCH, *&c.*

The Use of *Dedications* is very ancient both among the Worshippers of the true God, and among the Heathens. The *Hebrews* call it חנכה *hhanucha*, Initiation, which the *Greek* Translators render Ἐγκαίνια, and Ἐγκαινισμὸς, *Renewing*. In the Scripture we meet with *Dedications* of the Tabernacle, of Altars, of the first and second Temple, and even of the Houses of private Persons. *Numb.* VIII. 10, 11, 84, 88. *Deut.* XX. 5, 80, 88. 2d of *Kings* V. 63. 2d *Chronic.* VII. 5, 9. 1st *Esdr.* VI. 16, 17. 2d *Esdr.* XII. 27. *Psalm.* XXIX. 1. *Hebr.* IX. 18. There are also *Dedications* of Vessels and Garments of the Priests, and Levites, and even of the Men themselves.

Under the Christian Dispensation, we call those Ceremonies *Consecrations*, *Benedictions*, *Ordinations*, &c. and not *Dedications*, which is only applied to Places. See therefore, CONSECRATION, BENEDICTION, and ORDINATION.

The *Feast of the* DEDICATION, or rather the Feast-Day of the Saint, and Patron of a Church, call'd in our Law-Books, &c. *Dedicare*, was celebrated not only by the Inhabitants of the Place, but by those of all the neighbouring Villages, who usually resorted thither. And such Assemblies were authorized by the King. *Ad* Dedicationes, *ad Synodos*, *&c. venientes sit summa Pax.*

The Custom is still retain'd in divers Places, under the Name of *Wakes*, or *Vigils*. See WAKE.

The Heathens had also *Dedications* of Temples, Altars, and Statues of their Gods, *&c.* *Nebuchodonosar* had a *Dedication* of his Statue, *Daniel* III. 2. *Pilate dedicated* gilt Bucklets at *Jerusalem* to *Tiberius*, *Philo de Legat.* *Petronius* would have *dedicated* a Statue to the Emperor in the same City. *ibid.* p. 791. *Lycophron* speaks of the *Dedication* of the Temple of *Parthenope*. *Tacitus Hist.* Lib. IV. C. 53. mentions the *Dedication* of the Capitol, upon Rebuilding it by *Vespasian*, &c. These *Dedications* were perform'd with Sacrifices proper to the Deity they were offer'd to; but were never practised without Permission. Among the *Greeks*, it does not appear who gave the Permission: But among the *Romans*, it was the Magistrate.

The Jews celebrated the *Dedication* of their Temple every Year for eight Days. This was first enjoyn'd by *Judas Maccabeus*, and the whole Synagogue, in the Year of the *Syromacedonian Æra* 148. *i.e.* 164. Years before Christ.

The Heathens had the like Anniversaries, as that of the *Dedication* of the Temple of *Parthenope*, mention'd by *Lycophron*.

Under Christianity, *Dedication* is only applied to a Church; and is properly the Consecration thereof, perform'd by a Bishop, with a Number of Ceremonies prescrib'd by the Church. The Christians finding themselves at Liberty under *Constantine*, in lieu of their ruinous Churches, built new Ones in every Place; and *dedicated* them with a deal of Solemnity. The *Dedication* was usually perform'd in a Synod; at least they assembled a Number of Bishops, to assist at the Service. We have the Description of those of the Churches at *Jerusalem*, and *Tyre*, in *Eusebius*, and many others in later Writers. In the Sacramentary of *Gelasus*, the *Dedication* of the Baptistery, is deliver'd separately from that of the Church, which was perform'd with less Ceremony than at present.

DEDIMUS *Potestatem*, in Law, a Writ whereby Commission is given to one, or more private Persons for the Expedition of some Act belonging to a Judge. The Civilians call it *Delegatio*. It is granted most commonly upon Suggestion, that the Party, who is to do something before a Judge, or in a Court, is so weak he cannot travel. Its Use is various; as, to take a personal Answer to a Bill in Chancery; to examine Witnesses, levy a-fine, *&c.*

DEDUCTION, in Commerce, a substracting, or retrenching a little Sum payd from a greater remaining to pay. See SUBSTRACTION.

When you have made a Deduction of 300 l. which I sent you, from the 500, which you lent me, there will only remain 200 due.

DEED, *Factum*, in Law, an Instrument written on Paper, or Parchment, consisting of three Things: *viz. Writing*, *Sealing*, and *Delivery*; and comprehending a Contract, or Bargain between Party and Party.

Of these there are two Sorts: *Deeds indented*, and *Deeds poll*; which Denominations arise from the Form and Fashion thereof; the one being cut in, and out in the Top, or Side, call'd *Indented*; and the other *plain*.

A *Deed Indented*, or *Indenture*, consists of two Parts, or more, (for there are *tripartite*, *quadripartite*, *septempartite*, &c. *Deeds*) wherein it is express'd, that the Parties thereto have to every Part thereof interchangeably set their several Seals. The Cause of their Indenting is, that, whereas the several Parties have each of them one, the *Indenture* may make it appear, that they belong to one and the same Contract, by their tallying. See INDENTURE.

A *Deed poll, or polled*, antiently call'd *Charta decima Parte*, or *Charta simplex*, is a plain *Deed*, without Indenting used, when the Vendor, for Example, only seals, and there is no need for the Vendee's Sealing a Conter-Part, by Reason the Nature of the Contract is such, that it requires no Covenant from the Vendee. See POLL.

DEEMSTERS, or DEMSTERS. All Controversies in the Isle of *Man* are decided, without Process-Writings, or any Charges, by certain Judges chose from among themselves, call'd *Deemsters*. *Cambd. Britan.* The Word is form'd from the Saxon *Dema*, Judge, or Umpire.

DEEP-*Sea Line*, in the Sea-Language, a small Sea-Line to sound withal when a Ship is in very *deep* Water at Sea. At the End of this Line is a Piece of Lead, call'd the *deep Sea Lead*, at the Bottom of which is a Coat of white Tallow, to bring up Stones, Gravel, Shells, or the like, from the Bottom, in order to learn the Differences of the Ground; which being enter'd from Time to Time in their Books, by comparing of Observations, they guess by their Soundings, *&c.* what Coasts they are on, tho' they cannot see Land. See SOUNDING.

DE *Expensis Militum*, a Writ commanding the Sheriff to levy 4 Shillings *per* Day, to defray the Expences of a Knight of the Shire attending in Parliament. And there is a like Writ *de Expensis Civum, & Burgensium*, to levy 2 Shill. *per* Day for every Burgess in Parliament. See REPRESENTATIVE.

DE *facto*, something actually done, or done indeed: In Contradistinction to *de Jure*, where a Thing is only so in Justice, or Equity, but not in Fact.

After the Revolution, the Retainers to the abdicated King talk'd much of the Difference between a King *de Jure*, and *de Facto*, a Prince in actual, but not legal Possession of the Crown; and another who had the Right, but not the Possession. The Non-Jurors still hold the Chevalier for King *de Jure*; and only allow King *George* for King *de Facto*.

DEFAULT, in Law, an Offence, in omitting what a Person ought to do, particularly before a Court of Justice, at a Day assign'd, for which Judgment may be given against the *Defaulter*.

DEFECATE, a Term applied to some body that is purged, and clear'd of Feces, or Impurities. See FÆCES.

Distillations, and other Chymical Operations, are intended to separate the most pure, and subtile Parts from the Feces, or Lees. See DISTILLATION.

Spirit of Wine well *defecate*, easily evaporates. See SPIRIT.

DEFECTION, the Act of Abandoning, or relinquishing of a Party, or Interest a Person had been engag'd in. The Word is form'd of the Latin *deficio*, to fail of.

DEFECTIVE, or DEFICIENT *Nouns*, in Grammar, are such as want either a Number, a particular Case, or are indeclinable. See NOUN.

The Term *defective* is also applied to a Verb that has not all its Moods and Tenses. See VERB, MOOD, *&c.*

DEFEISANCE, or DEFEIZANCE, in Law, a Condition relating to a Deed, as to an Obligation, Recognizance, or Statute, which being perform'd by the Obligor, or Recognizor, the Act is disabled, or annulled, as if it had never been done.

The Difference between a *Proviso*, or Condition in Deed, and a *Defeisance*, is this, that a *Proviso*, or Condition is annexed, or inserted in the Deed of Grant, whereas a *Defeisance* is usually a Deed by it self.

DEFENCE, in War, is used for any Thing that serves to preserve, or screen the Soldiers, or the Place. The Parapets, Flanks, Casemates, Ravelins, and Out-Works that cover the Place, are call'd the *Defences*, or Covers of the Place. See PARAPET, *&c.*

And when the Canon has beat down, or ruin'd these Works, so that the Men cannot fight under Covert, the *Defences* of the City are said to be demolish'd.

Line of DEFENCE, is that which flanks a Bastion, being drawn from the Flank opposite thereto. The *Line of Defence* should not exceed a Musket Shot, *i. e.* 120 Fathoms, or 720 Foot, or 60 *Rhinland* Perches. Indeed *Melder* allows 65; *Scheiter* 70; the Counts *de Pagan* and *Vauban* 75. There are greater *Lines of Defence*, and lesser; call'd also *Rasant*, and *Fichant*.

Line of DEFENCE *greater*, or *fichant*, is a right Line, as EC, (*Tab. Fortification Fig.*3.) drawn from the Point, or Vertex of the Bastion C to the Concourse E of the opposite Flank LE, with the Courtine EA.

Line of DEFENCE *lesser*, call'd also *Rasant*, and *Flanquant*, is the Face of the Bastion continued to the Courtine, as CI.

DEFENDING is ordinarily synonimous with *Flanking*. Thus, we say, the Flank *defends* the Courtine, and the opposite Face of the Bastion. This Demi-Lune Flank, or *defends* the Horn- or Crown-Work. The ancient Fortifications are easily taken, there being nothing to *defend*, to flank them. When we say, Flank *defends* the Courtine, we mean, not only that it is a-side of the Courtine, but also, that it prevents the Approaches; that is, such as are posted on the Flank of a Bastion, can see any that come to attack the Courtine, and can shoot them, or prevent their approaching it.

Inner DEFENDING-*Angle*, is the Angle CIE, made by the lesser Line of Defence with the Courtine.

Outer DEFENDING-*Angle*, is the Angle COF, form'd by the two lesser Lines of Defence CO, and FO.

The Lines, or Sides of the Rampart, or Wall, are *defended* by Muskets, or Carbines, as more easy, cheap, and commodious than Canons.

To estimate how far the Fire-Arms plac'd in any Post will *defend*; From the Extremes of a Line, as AB (*Fig.*4.) draw Lines AC, and BD along, which the Fire-Arms are to be directed; then the Quantity of *Defence* is measur'd by a Perpendicular AE, intercepted between the Parallels: As is demonstrated by Mathematicians.

Hence, first, If from the given Angle ABE, and right Line AB, you seek AE, by Trigonometry, and by Experience determine the Number of Feet answering to one Fire-Lock, or Soldier; the Quantity of *Defence* will be had. Secondly, The Quantities of the Lines of *Defence* are as their Lengths; provided the Lines of Direction be perpendicular thereto.

DEFENCE, in our Law-Books, is us'd for a *Prohibition*: as, in *Rot. Parl.* 21. *Edu.* III. *Cries and Defence was made throughout* England. i. e. Proclamation and Prohibition. *Salmones ponantur in* Defenso. *Stat. West.* 2. c. 47. Salmons are by that Act prohibited to be taken at certain Times. *Usurarios* defendit *Rex* Eduardus *ne remanerent in Regno IL.* Edu. *Confess.* In the Statutes of *Eduard* I. we have one, entitled, *Statutum de* Defensione *portandi Arma*, &c. And 'tis *defended* by Law, to distrain on the High-Way.

The DEFENCE-*Month* is more usually call'd *Fence-Month*. See FENCE-*Month*.

DEFENCES, in Heraldry, are the Weapons of any Beast; as, the Horns of a Stag, the Tusks of a wild Boar, *&c.*

DEFENDANT, is a Term in Law, signifying him, who is sued in an Action Personal; as Tenant is he, who is sued in an Action Real. See PLAINTIFF.

DEFENDEMUS, in Law, a Term us'd in Feoffments, and Donations, having this Force, that it binds the Donor, and his Heirs, to *defend* the Donee, if any Man go about to lay any Servitude on the Thing given, other than is contained in the Donation. See WARRANTY.

DEFENDERS, were anciently notable Dignitaries both in the Church and State; whose Business was to look to the Preservation of the public Weal, and to protect the Poor and Helpless, and maintain the Interests, and Causes of Churches.

About the Year 420 each Patriarchal Church began to have its *Defender*; which Custom was afterwards introduced into other Churches, and continued to later Days under other Names, as those of *Advocate*, and *Advouee*. See ADVOCATE, *&c.*

In the Year 407, we find the Council of *Carthage* asking the Emperor for *Defenders* of the Number of *Scholastici*, i. e. Advocates who were in Office; and that it might be allowed them to enter, and search the Cabinets and Papers of the Judges, and other Civil Magistrates, whenever it should be found necessary for the Interest of the Church.

The Emperor still retains the Quality of *Advocate of the Church*: And the Kings of *Great Britain* preserve the Title of *Defender of the Faith*, granted to King *Henry* VIII. by Pope *Leo* X. on Occasion of that Prince's Writing against *Luther*, and afterwards confirmed by *Clement* VII.

The Council of *Chalcedon*, *Can.* 2. calls the *Defender* of a Church Ἔκδικος. *Codin de Officiis Aulæ Const.* makes mention of *Defenders of the Palace*. So does *Bollandus*, *Act. S. Janu.* T. 1. p. 501. There was also a *Defender of the Kingdom*; Defensor Regni; *Defenders of Cities*, Defensores Civitatis; *Defenders of the People*; Defensores Plebis; *Of the Poor, Fatherless, Widows*, &c.

DEFENDER *of the Faith*, a Title, or Quality attributed to the Kings of *England*, as that of *Catholicus* to the Kings of *Spain*, *Christianissimus* to the Kings of *France*, and *Advocatus Ecclesiæ*, to the Emperor. See TITLE, QUALITY, KING, *&c.*

It was first granted by Pope *Leo* X. to King *Henry* VIII. on Account of his Writing against *Martin Luther*, in Defence of the Church of *Rome*: And the Bull for the same bears Date *quinto Idus Octobris* 1521. See TITLE.

DEFENSITIVE, in Medicine, and Chirurgery, a Bandage, Plaster, or the like, used in the Cure of a Wound,

Wound, to moderate the Violence of the Pain, the Flux of Blood, and the Access, and Impression of the external Air.

The Cauterization perform'd, the Wound is cover'd with Lint ..... and the Eye with a *Defensitive*, and a Triangular Compress. *Dionis*.

For the first dressing of the Entorse, Mr. *Dionis* used a little *Defensitive* made of the White of an Egg, *Oleum Rosatum*, and Alumn-Powder.

DEFERENS, *Deferentia*, in Anatomy, is applied to certain Vessels of the Body, appointed for the Conveyance of Humours from one Place to another.

The *Vasa* DEFERENTIA, are the Vessels that convey the Seed as fast as it is secreted, and prepar'd in the Testicles, *&c.* into the *Vesiculæ seminales*, there to be deposited, till an Emission is requir'd. See SEED.

Some call them the *Ejaculatory Vessels*. They are white, nervous, and round, situate partly in the *Scrotum*, and partly in the Abdomen. See GENERATION.

DEFERENT, or *Deferens*, in the ancient Astronomy, a Circle invented to account for the Excentricity, Perigee, and Apogee of the Planets.

As the Planets are found differently distant from the Earth at different Times, it was supposed, that their proper Motion was perform'd in a Circle, or Ellipsis, which is not concentric with the Earth; And this excentric Circle, or Ellipsis, they call'd the *Deferens*, because passing through the Center of the Planet, it seem'd to support, or sustain it in its Orbit.

The *Deferens* is supposed differently inclin'd to the Ecliptic, but in none more than 8 Degrees, excepting that of the Sun, which is in the Plane of the Equator it self, and is cut differently by the *Deferents* of the other Planets in two Places, call'd *Nodes*.

In the *Ptolomaic* System, the same *Deferent* is also call'd the *Deferent of the Epicycle*, because it traverses the Centre of the Epicycle, and seems to sustain it. See EPICYCLE, PTOLEMAIC, &c.

DEFICIENT *Numbers*, are such whose Parts added together make less than the Integer, whose Parts they are. *E. gr.* 8, whose Quota-Parts are 1, 2, and 4, which together only make 7. See ABUNDANT *Number*.

DEFICIENT *Hyperbola*, is a Curve of that Denomination, having only one Asymptote, and two Hyperbolic Legs, running out infinitely towards the Side of the Asymptote, but contrary Ways. See CURVE.

DEFFAIT, or *Decapité*, a Term used by the *French* Heralds, to denote a Beast, whose Head is cut off smooth; in which it differs from *Erased*, where it is, as it were, torn off, and the Neck left ragged. See ERASED.

DEFILE, in Fortification, is a streight narrow Lane, or Passage, through which a Company of Horse, or Foot, can pass only in File, by making a small Front, so that the Enemy may take an Opportunity to stop their March, and to charge them with so much the more Advantage, in Regard that the Front and Rear cannot reciprocally come to the Relief of one another.

Hence, to go off File by File, is call'd *Defiling*. The Army began to *defile* on the left, and was forc'd to *defile* at each End of the Field, by Reason of the Morasses, and the Woods. The Word is form'd from the French *deffiler*, to unthread, or unstring.

DEFINITE, in Grammar, is applied to an Article, or a Tense of a Verb, that has a precise, determinate Signification. See ARTICLE, TENSE, *&c.*

Such are, the Article *the* in English, *le* and *la* in French, *&c.* which fix, and ascertain the Noun they belong to, to some particular; as, *the* King, *le* Roy; whereas in the Quality, *of* King, *de* Roy, the Articles *of*, *de*, mark nothing precise, and are therefore call'd *Indefinite*. *I have loved*, is a *Preter-Perfect Definite*. See VERB.

DEFINITION, in Philosophy, Logic, *&c.* an Enumeration of the chief simple Idea's, whereof a compound Idea consists; in order to ascertain, or explain its Nature, and Character. See IDEA.

The Schoolmen give very imperfect Notions of *Definition*. Some define it the first Notion, or Conception, that arises of a Thing, whereby it is distinguish'd from every other, and from which, all the other Things that we conceive of it, are deduced. But the usual Doctrine is, *Oratio explicans quod res est*, A Discourse explaining what a Thing is: That is, as they further explain it, A Discourse conveying those Attributes which circumscribe, and determine the Nature of a Thing. For to explain, is only to propose the Parts separately, and expressly, which were before propos'd conjunctly, and implicitly; so that every Explication has regard to some Whole.

Hence, according to the divers Kinds of Parts in any Thing, *viz.* Physical Parts, Metaphysical Parts, *&c.* arise so many divers Kinds of *Definitions* of the same Thing; Thus, *Man* is either *defined* an *Animal, consisting of Soul and Body*; Or, *a reasonable Animal*, &c.

Definitions are of two Kinds; The one *Nominal*, or, *of the Name*: The other *Real*, or, *of the Thing*.

DEFINITION *of the Name*, or *Nominal Definition*, is that which explains the Sense, or Signification affected to a Word: Or, as *Wolfius* more accurately considers it, an Enumeration of certain Marks, or Characters, sufficient to distinguish the Thing *defined* from any other Thing; so to leave it out of doubt, what the Subject is intended, or denoted by the Name. Such is the *Definition* of a Square, when it is said to be a quadrilateral, equilateral, rectangular Figure.

By *Definition of the Name*, is either meant a Declaration of the Idea's, and Characters affected to the Word in the common Usage of the Language; or the peculiar Idea's, *&c.* which the Speaker thinks fit to denote by that Word; *i. e.* the special Sense wherein he proposes to use it, in his future Discourse. For it may be observed, that the Significancy of any Word depends intirely on our Will; and we may affix what Idea we please to a Sound, which it self signifies nothing at all. The *Definition* of the Name therefore, in the second Sense, is merely arbitrary; and ought never to be call'd in Question; Only 'tis to be minded, that we keep inviolably to the same Signification. Hence, a *Definition* comes to stand, or to be made Use of, as an undoubted, or self-evident Maxim, as it frequently does, and particularly among Geometricians, who, above all other People, make Use of such *Definitions*.

Not that we mean, that after having *defined* a Thing so and so, there is nothing in our Idea affix'd to the *defined* Term, but must be granted to the Thing it self: Thus, If any one should define *Heat* to be a Quality in certain Bodies, like that which we feel upon the Application of Fire, or hot Bodies; no Man could find Fault with the *Definition*, as far as it expresses what he means by the Word *Heat*; but this does not hinder us from denying, that there is any Thing in the Body that warm us, like what we feel in our selves.

DEFINITION *of a Thing*, or *Real Definition*, is properly an Enumeration of the principal Attributes of a Thing, in order to convey, or explain its Nature. Thus a *Circle* is *defined* a *Figure, whose Circumference is every where equidistant from its Centre.*

A good Author, *Wolfius*, defines a *Real Definition* to be a distinct Notion explaining the *Genesis* of a Thing, that is, the Manner wherein the Thing is made, or done: Such is that of a Circle, whereby 'tis said *to be form'd by the Motion of a right Line round a fix'd Point*. On which footing, what was before instanc'd as a *Real Definition* of a Circle, amounts to no more than a nominal one.

This Notion of a *Real Definition* is very strict and just; and affords a sufficient Distinction between a *real*, and a *nominal* one. But, tho' it has the Advantages of Analogy, Distinctness, and Conveniency on its Side; yet, being only it self a *Nominal Definition*, i. e. a *Definition* of the Term *Real Definition*, we must consider it in that Light, that is, as an Idea affix'd arbitrarily to that Word, and which the Author always denotes by that Word in the Course of his Book. But, in Effect, 'tis not the usual Sense, or Acceptation of the Term; which is much less convenient and distinct. And 'tis to that usual Acceptation we are here chiefly to have regard.

A *Definition* is usually divided into *accurate*, and *inaccurate*; The first is what we strictly call a *Definition*; The second, we distinguish under the Name of *Description*. See DESCRIPTION.

Of the Parts enumerated in a *Definition*, some are common to other Things beside the Thing *defined*; Others peculiar thereto: The first are call'd the *Genus*, or *Kind*; and the second, the *Difference*. Thus, in the former *Definition* of a Circle, by a Figure whose Circumference is every where equidistant from its Centre: The Word *Figure* is the *Kind*, as being a Name common to all other Figures, as well as the Circle: The rest are the *Difference*, which specify, or distinguish the Circle from every other Figure.

And hence arises that Recipe of *Fa. de Colonia*, for the making of a *Definition*. Take, says he, something that is common to the Thing *defined* with other Things, and add to it something that is proper, or peculiar to the Thing; and you will have a *Definition*. Thus, *e. gr.* Rhetoric is defin'd *the Art of Speaking well*; For that it is an *Art*, is common to it with several other Things; but that it is the Art of *Speaking well*, is peculiar to it alone.

There are three common Rules of a good *Definition*. First, That it be *clear*, and more easy and obvious than the Thing *defined*. Secondly, That it be *universal*, or adequate to the Thing *defined*; That is, that it agree to

to all the Things contain'd in the Species *defined*. And Thirdly, That it be proper to the Thing *defined*. The two ordinary Defects of *Definitions*, are, not to agree either to the *whole Thing*, or the *sole Thing* defined: *Neque omni, neque soli*; than which nothing is more common, even among the best and justest Authors.

My Lord *Bacon* observes of *Aristotle's Definitions* in the general, that they are very much like that, whereby Man should be *defined* an *Animal that tills the Ground*. Nor was his Master *Plato* less acceptionable. The Joke put upon him on that Account is famous: *Plato*, it seems, had *defined* Man, *Animal Bipes, & Implume*, A two-footed Animal without Feathers. Upon which, *Diogenes* the *Cynic*, a great Derider of the Academicks, threw a Cock strip'd of his Feathers, and quite naked, into the Middle of *Plato's* School; crying, *Here is* Plato's *Man*.

Definition, it must be observed, has not place every where: It has only to do with compound Ideas; as being no more than an Enumeration of the chief simple Ideas they are compounded of. Simple Ideas cannot be *defined*, as not allowing of an Enumeration. He who knows not what it is one calls *Heat*, will only learn it by Experience, or some synonymous Word, or some Word of an other Language, or by Circumlocution, wherehy a Thing is shewn, not *defined*; As if we should say, it was a *Sensation which we find when we sit by the Fire, or in the Sun*, which shews nothing of the Nature of the Thing; nor would a Person that had never felt the Sensation, understand any more what is meant thereby, than a Man born blind would know what a green Colour was, by telling him it was the Sensation we have when we behold the Grass in the Field.

Our *Definitions* of Substances, it must be added, are very defective. And as for Individuals, we have no *Definitions* at all. The Ideas of Substances are compounded of the various simple Ideas joyntly impress'd when they presented themselves; And all we can do to *define* them, is only to enumerate those several sensible Ideas, as Colour, Density, Malleability, Weight, &c. Thus, Gold is *defined* by such a peculiar Colour, Gravity, &c. Yet such *Definitions* may raise an Idea clear enough of that Substance in the Mind of one who has separately receiv'd, by his Senses, all the simple Ideas that are in the Composition of the Complexion *defined*; Tho' the intimate Nature and Essence of Substance is unknown, and consequently cannot be *defined*. Thus, 'tis only the Modes, or Attributes that can be explain'd by what we properly call a *Definition*. See SUBSTANCE, MODE, &c.

DEFINITION, in Rhetoric, is defined by *Tully*, a short, comprehensive Explanation of a Thing.

The *Definitions* of the Orator, it must be observ'd, differ much from those of the Logician, and Philosopher: These latter *define* a Thing closely and driely by *Genus*, and Difference, e. gr. *Man is a reasonable Animal*, &c. The Orators take a larger Compass, and *define* Things more ornamentally from the Places of Rhetoric; Thus: *Man is a curious Work of an Almighty Creator, fram'd after his own Image, endued with Reason, and born to Immortality*. But this Rhetorical *Definition*, in Strictness, comes nearer to the Nature of a Description, than an accurate *Definition*.

There are divers Kinds thereof; As, first, That drawn from the Parts whereof a Thing consists: Thus, *Oratory is an Art consisting of Invention, Disposition, Elocution, and Pronunciation*. Secondly, From the Effects; As, *Sin is the Plague of the Soul, the Sting of Conscience, the Scandal of Nature, the Ruin of the World, the Hatred of God*, &c. Thirdly, From Affirmation, and Negation, as when we first say what a Thing is not, that it may be the better conceiv'd what it is. Thus *Cicero*, by *Defining* the Consulate, and shewing, that it does not consist in Ensigns, Lictors, &c. but in Virtue, proves that *Piso* was not Consul. Fourthly, From the Adjuncts, as when Chymistry is *defined*, An *Art without Sense, whose Beginning is Deceit; its Middle, Labour; and its End, Beggary*. And lastly, From Similies, and Metaphors; as when Death is *defined*, A *Leap in the Dark*, &c.

To this last Class of Metaphorical *Definitions*, are reducible those five not unelegant *Definitions of a Man* which we shall here subjoyn. The Poets feign, that the Sciences were once called together by *Minerva's* Command, to form a *Definition* of Man. The first, *viz.* Logic, *defined* him, A *short Enthymeme*; his Birth the Antecedent, and his Death the Consequent. Astronomy *defined* him, A *changeable Moon*; which never continues in the same State. Geometry *defined* him, A *Spherical Figure*; which ends in the same Point where it begun. Lastly, Rhetoric *defined* Man, An *Oration*; whose Exordium was to be born; Narration, *Trouble*; and Peroration, *Death*; the Figures of the Oration being Sighs, Tears, or Joy, worse than Tears.

DEFINITOR, a Term used in several Religious Orders, for an Assessor, or Counsellor of a General, or Superior. See GENERAL.

In most Orders of Religious, the *Definitor* takes Place after the Superior of the Convent he lives in, when in the Convent itself; but out of the Convent, the *Definitor's* Place is before his own Superior.

Definitors are also subject, in the Convent they reside in, to the immediate Superior of the Convent, as to Things relating to the Monastic Discipline; but in nothing else.

DEFINITIVE, is applied to somewhat that terminates or decides a Question, or Process.

The House of Lords have pass'd a Definitive *Sentence on such a Cause. The Church has given a* Definitive *Judgment on such an Article of Faith*. The Word is used in Opposition to *Provisional*, and *Interlocutory*. See PROVISIONAL, &c.

DEFLAGRATION, in Chymistry, the Inkindling, or setting Fire to a Salt, a Mineral, or other Matter, mix'd for that Purpose with a sulphureous one, in order to purify it; As is done in the Preparing of *Æthiops* Mineral, *Sal Prunellæ*, &c.

The Word is form'd of the Latin *de*, and *flagrare*, to burn.

DEFLECTION, is the turning any Thing a-side from its former Course, by some adventitious Cause; and is often apply'd to the Tendency of a Ship from her true Course, by the Reason of Currents, &c. which divert her, and turn her out of her right Way.

DEFLECTION *of the Rays* of Light, is a Property which Dr. *Hook* observed 1675, and read an Account of before the Royal Society, *March* 18. the same Year. He says, he found it different both from Reflection, and Refraction; and that it was made towards the Surface of the opacous Body perpendicularly.

This is the same Property which Sir *Isaac Newton* calls *Inflection*. See INFLECTION.

DEFLORATION, or *Deflowering*, the Act of taking away a Woman's Virginity. Death, or Marriage, are decreed by the Civil Law in Case of *Defloration*. Many Anatomists make the *Hymen* a real Proof of Virginity, persuaded that where it is not found, the Girl must have been *deflowered*. See HYMEN, and VIRGINITY.

The Ancients had so much Respect for Virgins, that they would not put them to Death, till they had first procured them to be *deflower'd*. The Natives of the Coast of *Malabar* pay Strangers to come and *deflower* their Brides.

Among the *Scots*, and the Northern Parts of *England*, it was a Privilege of the Lords of the Manour, granted them by King *Evenus*, that they should have the first Nights Lodging with their Tenants Wives. King *Malcolm* allowed the Tenants to redeem this Service at a certain Rate, call'd *Marchetta*, consisting of a certain Number of Cows. *Buchanan* says, it was redeem'd with half a Mark of Silver. The same Custom had Place in *Flanders, Friseland*, and some Parts of *Germany*.

By the Custom of *Anjou*, and *Maine*, a Maid after 25 Years of Age, may suffer herself to be *deflowered* without being disinherited for it by her Father. *Du Cange* quotes an Arret of the 19th of *March* 1409, obtain'd by the Inhabitants of *Abbeville* against the Bishop of *Amiens*, for taking Money to dispense with an Injunction he had made, not to suffer them to get their Wives Maiden-Heads the three first Nights; The Injunction being founded on a Canon of the IVth Council of *Carthage*, which decrees the same, out of Reverence to the Matrimonial Benediction.

DEFLUXION, a Falling, or Flowing of a Humour on any Part of the Body; as of Rheum on the Trachea, and Oesophagus in a Catarrh. See FLUXION, HUMOUR, &c.

DEFLUXIONS *on the Lungs* are very dangerous. See PHTHISIS.

DEFLUXIONS *on the Eyes* produce a Weakness of Sight, and frequently Blindness. See EYE.

The Word is form'd from the Latin *Defluo*, I flow down, the Humors falling upon some Part, where they are gather'd together.

DEFORCEMENT, in Law, a Withholding Lands, or Tenements, by Force, from the right Owner. See DEFORCEOR.

DEFORCEOR, or DEFORCIANT, one that overcomes, and casts out another from his Lands, &c. by mere *Force*.

A *Deforceor* differs from *Disseisor*, first, in this, that a Man may disseise without Force. Secondly, in that a Man may *deforce* another that never was in Possession,

as where several Persons have a Right to Lands, as common Heirs, and one entring first, keeps out the rest. See DISSEISOR.

Again, a *Deforceor* differs from *Intruder*, in that a Man becomes *Intruder* by a wrongful Entry only into Lands void of a Possessor; whereas a *Deforceor* holds out the rightful Heir. See INTRUSION.

DEFORMITY, a displeasing, or painful Idea excited in the Mind on Occasion of some Object, which wants of that Uniformity, that constitutes *Beauty*. See BEAUTY.

'Tis an Inquiry of some Delicacy, and Importance, whether there be any such Thing as *absolute Deformity*. Our Perception of the Idea's of *Beauty*, and Harmony is justly reckon'd a *Sense*; From its Affinity to the other Senses, in this, that the Pleasure does not arise from any Knowledge of Principles, Proportions, Causes, Uses, &c. but strikes at first View; as also in this, that the Ideas of Beauty, like other sensible Ideas, are necessarily pleasant to us, as well as immediately. See SENSE.

But, as the other Senses, which give us Pleasure, do also give us Pain; does this Sense of Beauty make any Objects disagreeable to us, and the Occasion of Pain?

That many Objects give no Pleasure to our Sense, is obvious; many are certainly void of Beauty: But then, says a late excellent Author, there is no Form which seems necessarily disagreeable of it self, when we dread no other Evil from it, and compare it with nothing better of the Kind. Many Objects are naturally displeasing, and distasteful to our external Senses, as well as others pleasing, and agreeable; as Smells, Tastes, and some separate Sounds: But for our Sense of Beauty, no Composition of Objects, which give not unpleasant simple Ideas, seems positively unpleasant, or painful of it self, had we never observ'd any Thing better of the Kind.

Deformity, then, is only the Absence of Beauty, or a Deficiency in the Beauty expected in any Species: Thus bad Music pleases Rusticks, who never heard any better; and the finest Ear is not offended with tuning of Instruments, if it be not too tedious, where no Harmony is expected: And yet much smaller Dissonancy shall offend amidst the Performance, where Harmony is expected. A rude Heap of Stones is no way offensive to one who shall be displeased with Irregularity in Architecture, where Beauty was expected. And had there been a Species of the Form, which we now denominate *ugly*, or *deformed*, and had we never seen, or expected greater Beauty, we should have receiv'd no Disgust from it. Tho' the Pleasure would not have been so great in this Form as in those we now admire. Our Sense of Beauty seems design'd to give us positive Pleasure; but not positive Pain, or Disgust, any further than what arises from Disappointment.

There are indeed many Faces which at first View are apt to raise Dislike. But this is generally not from any positive *Deformity*, which of it self is positively displeasing, but either from Want of expected Beauty, or from the carrying some natural Indications of morally bad Dispositions, which we all acquire a Faculty of discerning in Countenances, Airs, and Gestures. That this is not occasion'd by any Form positively disgusting, appears hence, that if upon long Acquaintance we are sure of finding Sweetness of Temper, Humanity, and Cheerfulness, tho' the bodily Form continues, it shall give us no Disgust. There are Horrors rais'd by some Objects, which are only the Effect of Fear for our selves, or Compassion towards others, when either Reason, or some foolish Association of Ideas makes us apprehend Danger, and not the Effect of any Thing in the Form it self. For we find, that most of those Objects, which excite Horror at first, when Experience, or Reason has removed the Fear, may become the Occasion of Pleasure; as in ravenous Beasts, a tempestuous Sea, a craggy Precipice, a dark shady Valley, &c.

This Association of Ideas makes many Objects beautiful and pleasant. The Beauty of Trees, their cool Shades, and their Aptness to conceal from Observation, have made Groves, and Woods, the usual Retreat of those who love Solitude, especially the Religious, the Pensive, the Melancholy, and the Amorous: And do not we find, that we have so joyn'd the Ideas of those Dispositions of Mind, with those external Objects, that they always occur to us along with them? And according as the Habits, or Passions contracted, or gratified therein give us Pleasure, or Pain, Remembrance is pleasurable, or painful. The Dim Light in *Gothic* Buildings has had an Association of a very foreign Idea, which *Milton* expresses in his Epithet, *A dim religious Light*. After the like Manner, the casual Conjunction of Ideas give us Disgusts where there is nothing disagreeable in the Form it self. And this, in Effect, is the Cause of most of our fantastic Aversions to the Figures of divers Animals, &c. Thus Serpents of all Kinds, and many Insects, really beautiful enough, are beheld with Aversion by many People, who have got some accidental Ideas associated to them. See ASSOCIATION *of Ideas*.

DEFTARDAR, or DEFTERDER, the Treasurer of the Revenues of the *Turkish*, and *Persian* Empire. See TREASURER.

Meninski calls him *Supremus Thesaurarius*, High Treasurer; and *Præses Cameræ*, President of the Exchequer; And *Castellus* makes him the Keeper, and Comptroller of the Books of Receipt, and Payment.

The *Deftardar*, or as *Vigenere* calls him, the *Dephterder*, has in his Charge the Rolls, and Accounts of the Militia, and the Treasury; He receives all the Grand Seignior's Revenues, pays his Forces, and furnishes the Expences of all public Affairs: In which, his Office differs from that of the *Chaznadar*, who is Treasurer of the *Seraglio*, or Court, as the *Deftardar* is of the State.

Ricaut makes a *Deftardar* in each *Beglierbic*, or Government. *Vigenere* assures us, there are but two, the one for *Europe*, and the other for *Asia*; The first resides at *Constantinople*, and has under him two General Commissioners, or Deputies, one for *Hungary*, *Transylvania*, *Walachia*, *Croatia*, *Servia*, *Bulgaria*, *Bosnia*, &c. The other for *Greece*, and the *Morea*, with the Islands of the *Archipelago*.

Each of these has under him as many Sub-Commissioners, or Agents, as there are Saniaquats in his Province; which Sub-Commissioners have as many Clerks as there are Sabassi's in their Saniaquat, to keep the Account of the Timariots in their Districts. The *Dephterder* of *Asia* has two General Commissioners, the one for *Anotolia*, the other for *Syria*, *Arabia*, and *Egypt*; who have likewise their Sub-Commissioners, Clerks, &c. as those of *Europe*.

The Word is compounded, first, of רפתר *defter*, a *Turkish* Name for a Book, Register, Memoir, &c. which *Meninski* derives from the *Greek* διφθέρα, Skin, Parchment: The second Word, whereof *Deftardar* is compounded, is דאר *dar*, a *Turkish*, and *Persian* Word, signifying keeping, or holding, *q. d.* Book-keeper of the Monies receiv'd, and expended.

DEGENERATION, the Act of failing, or declining from a more perfect, or valuable Kind, or Condition, to a less.

'Tis a great Dispute among Naturalists, whether or no Animals, Plants, &c. be capable of *degenerating* into other Species. The Affirmative being urged by many as a strong Objection against the Plant, &c. being contain'd in the Seed; and the Doctrine of Generation, wherein that is supposed.

Fortun. Licetus, Lib. IV. *de Spont. vivent. ort.* expressly contends, that the Forms of Animals *degenerate* into other more imperfect ones: Thus, says he, the Soul of a Calf, after its Death, *degenerates* into the Souls of the Worms, Bees, &c. arising out of his Carcass; But the other School-Men laugh at the Notion.

Others hold, that in the same Matter there are divers Forms; and that *Degeneration* is only the putting off one Form, and calling forth another latent one: But it is impossible, the Form of a Worm, and that of a Calf, should be actually existing together in the same Piece of Matter. See FORM.

Others hold, that the *Degeneration* only obtains in Vegetables, and define it the Change of a Plant of one Kind into that of another viler Kind. Thus, say they, Wheat *degenerates* into Tares; Oats into *Avena*, or wild Oats; *Ocymum* into *Serpyllus*; *Sisymbrium* into Mint; *Caulis* into *Rapa*, &c.

The Plantule, or *Stamen* of the future Vegetable, they hold to exist in the Seed; so as that to produce such a *Plexus*, or Organism, a Matter so and so prepar'd is requir'd: And add, that the Matter in the Soil where the Seed is lodged being such as is incapable of producing the said *Plexus*, it must necessarily change into another of a different Nature from that of the Seed requir'd, tho' in some Respects alike, and approaching thereto: Thus, Tares and Wheat, in many Respects agree; so also *Serpyllus* and *Ocymum*, &c. They allow, however, that there is no *Degeneration* in the Root, but only in the Seed: In as much as the Root already supposes a perfect Organization.

But our latest and best Naturalists maintain such a *Degeneration*, or Transmutation, to be a *Chimera*: Not but they allow, that a Plant, by being transplanted to an improper Soil, or Sun, may be depraved; so as a Florid *Caulis*, e. g. may produce only a *Brassica Capitata*; and a *Dutch Rose* of an hundred Leaves, another Rose far short thereof in Number of Leaves, Colour, Smell, &c. such a Depravation is possible, and frequently happens, but

but a specific Transformation seems out of the Power of Nature; a new Form ever supposing a new Generation, which again supposes a Corruption of the former Kind. See TRANSFORMATION, and SEED.

DEGLUTITION, in Medicine, the Act of swallowing the Food. See FOOD.

Deglutition is perform'd, in the first place, by means of the Tongue, driving the Aliment into the *Oesophagus*, or Gullet; and then, by the Contraction of the Sphincter, and the fleshy Fibres of the same *Oesophagus*, which lessening the Bore, or Aperture thereof, protrude the Contents downwards into the Stomach. See OESOPHAGUS, PHARYNX, DIGESTION, *&c.*

Deglutition succeeds *Mastication*, and is followed by Concoction. See MASTICATION, and CONCOCTION.

DEGRADATION, in our Law-Books call'd DISGRADATION, and DEPOSITION, the Act of depriving, or stripping a Person for ever of a Dignity, or Degree of Honour, and taking away the Title, Badge, and Rights thereof. See DEPOSITION.

The *Degradation* of a Peer, a Priest, a Knight, a Gentleman, an Officer, *&c.* is perform'd with divers Ceremonies. That anciently observ'd in *degrading* a Person from his Nobility, is very curious, and deserves to be rehearsed here, after *Geliot*, and *la Colombiere*. It was practis'd in the Time of *Francis* I. upon Captain *Fangel*, who had cowardly given up *Fontarabia*, whereof he was Governor.

On this Occasion, twenty or thirty Cavaliers, without Imputation, or Reproach, were assembled, before whom the Gentleman was accused of Treason, and Breach of Faith, by a King at Arms. Two Scaffolds were erected, the one for the Judges, Heralds, and Pursuevants, and the other for the condemn'd Cavalier, who was arm'd at all Points, and his Shield placed on a Stake before him, reversed with the Point upwards. On one Side assisted twelve Priests, in Surplices, who sung the Vigils of the Dead. At the Close of each Psalm they made a Pause, during which the Officers of Arms stripp'd the Condemn'd of some Piece of his Armour, beginning with the Helm, and proceeding thus, till he was quite disarm'd: Which done, they broke his Shield in three Pieces with a Hammer. Then the King at Arms turn'd a Bason of hot Water on the Criminal's Head; and the Judges, putting on Mourning Habits, went to the Church. This done, the *Degraded* was drawn from off the Scaffold, with a Rope tied under his Arm-Pits, laid on a Biere, and cover'd with Mortuary-Cloaths, the Priest singing some of the Prayers for the Dead; And then he was deliver'd to the Civil-Judge, and the Executioner of Justice.

Take a more Domestic Instance: Sir *Andrew Harcla*, Earl of *Carlisle*, being convicted, *degraded*, and attainted of Treason, 18°. *Edu.* II. *coram Rege*; after Judgment was pronounc'd on him, his Sword was broke over his Head, and his Spurs hewn off his Heels; Sir *Anthony Lucy*, the Judge, saying to him, *Andrew, now art thou no Knight, but a Knave*. And by *Stat.* 13. *Caroli* II. *William*, Lord *Manson*, Sir *Henry Mildmay*, and others, were *degraded* from all Titles of Honour, Dignities, and Preeminences, and none of them to bear, or use the Title of Lord, Knight, Esquier, or Gentleman, or any Coat of Arms, for ever afterwards.

As to Ecclesiasticks, we have an Instance of *Degradation* before Condemnation to Death, in the VIIIth Century, at *Constantinople*. It is in the Person of the Patriarch *Constantin*, whom *Constantin Copronymus* caused to be executed. He was made to ascend the *Ambo*; the Patriarch *Nicetas* sent some of his Bishops to strip him of the *Pallium*, and anathematized him. Then they made him go out of the Church backwards. But we have a much later Instance in our own History. When *Cranmer*, Arch-Bishop of *Canterbury*, was *degraded* by Order of Queen *Mary*; They dress'd him in Episcopal Robes, made only of Canvas, put the Mitre on his Head, and the Pastoral Staff in his Hand: And in this Attire shew'd him to the People. Which done, they stripp'd him Piece by Piece.

At present, they don't stand so much on the Ceremony of *Degradation*, in order to the putting a Priest to Death; by Reason of the Delays, and Difficulties that it would occasion. Pope *Boniface* pronounced, that six Bishops were requir'd to *degrade* a Priest: But the Difficulty of assembling so many Bishops, rendred the Punishment frequently impracticable. With us, a Priest, after having been deliver'd to his Ordinary, if he cannot purge himself of the Crime laid at his Door; his Gown, and other Robes are stripp'd over his Ears by the common Hangman, by which he is declar'd divested of his Orders. It is decided, however, that *Degradation* does not efface the Priestly Character.

Degradation only seems to differ from *Deposition* in a few ignominious Ceremonies, which Custom has added thereto. Accordingly, in the Business of *Arnoul*, Arch-Bishop of *Rheims*, sentenced in the Council of *Orleans*, in 991, it was deliberated, what Form they should follow in the Deposition, whether that of the Canons, that is, simple Deposition; or that of Custom, viz. *Degradation*. And it was declared, that he should surrender the Ring, Pastoral Staff, and Pallium; but that his Robes should not be tore off him. In Effect, the Canons prescribe no more than a mere reading of the Sentence. 'Tis the rest, therefore, added hereto by Custom, *viz.* the Stripping off the Ornaments, and the tearing the Pontifical Vestments, that properly constitutes *Degradation*.

DEGRADATION, in Painting, expresses the lessening, and rendring dim and confused, the Appearance of distant Objects in a Landskip; so as they shall appear there, as they would do to an Eye placed at that Distance from them.

DEGRADED, in Heraldry. A *Cross degraded*, is a Cross mark'd, or divided into Steps at each End; diminishing as they ascend towards the Middle, or Centre: by the *French* call'd *Perronnée*. See CROSS.

DEJECTION, in Medicine, properly signifies the Act of *Ejecting*, or Evacuating the Excrements, by means of the Peristaltic Motion of the Guts; In which Sense it comes nearly to the Signification of *Excretion*. See EXCRETION.

But the Term is also, and that more ordinarily, applied to the Excrements themselves, thus evacuated; in which Sense it is of the same import with *Stool*. See STOOL, and EXCREMENT.

Viscid, glutinous, or, as they call them, *unguinous Dejections*, frequent in Scorbutic Diseases, indicate a Colliquation of the Solids of the Body. See UNGUINOUS.

DEJECTION, *Fall*, in Astrology, is applied to the Planets, when in their Detriment, *i. e.* when they have lost of their Force, or Influence, by reason of their being in Opposition to some others, which check, and counteract them. Or it is used when a Planet is in a Sign opposite to that wherein it has its greatest Effect, or Influence, which is call'd its *Exaltation*. Thus, the Sign *Aries* being the Exaltation of the Sun, the Sign *Libra* is its *Dejection*. See EXALTATION.

DEICIDE, *Deicida*, a Term only us'd in speaking of the Condemnation, and Execution of the Saviour of the World, by *Pontius Pilate*, and the Jews; which was an horrible *Deicide*.

The Jews, an ingenious Author observes, were never more remote from Idolatry than at present; Never more inviolably attach'd to the Law of *Moses*, than at present: Whence then that Load of Evils and Misfortunes they have so many Ages groan'd under, Evils incomparably greater and more lasting than all the Chastisements wherewith God anciently avenged their most heinous Idolatries? Whence do they arise, but from the *Deicide* they committed in the Person of Jesus Christ.

DEIFICATION, in the *Pagan* Theology, the Act, or Ceremony of *deifying* their Emperors, *i. e.* of placing them among the Gods, and decreeing divine Honours to be rendred them. See GOD.

The *Deification* is the same with *Apotheosis*. See APOTHEOSIS.

DEINCLINERS, or DEINCLINING *Dials*, are such as both decline; and incline, or recline at the same Time. See DIAL.

Suppose, for Instance, a Plane to cut the prime Vertical Circle at an Angle of 30 Degrees; and the Horizontal Plane under an Angle of 24 Degrees; the Elevation of the Pole being 52 Degrees; a Dial drawn on this Plane, is call'd a *Deincliner*. See DECLINER.

DEISM, the Doctrine, or Belief of such as hold the Existence of a God, as the whole of their Religion. The Word is form'd from *Deus*, God. See DEISTS.

DEISTS, a Class of People, known also under the Denomination of *Free-thinkers*, whose Character is, not to profess any particular Form, or System of Religion; but only to acknowledge the Existence of a God, without rendring him any external Worship, or Service.

The *Deists* hold, that, considering the Multiplicity of Religions, the numerous Pretences to Revelation, and the obscure, precarious Arguments advanced in Proof thereof; the best and surest Way is, to return to the Simplicity of Nature, and the Belief of one God, which is the only Truth agreed to by all Nations.

They complain, that the Liberty of thinking, and reasoning, is oppress'd under the Yoke of Religion, and that the Minds of Men are ridden, and tyranniz'd over by the Necessity impos'd on them of believing inconceivable Mysteries; And contend, that nothing should be requir'd to be assented to, or believed, but what their Reason clearly conceive.

The Appellation *Deist* is more particularly given to such as are not altogether without Religion, but reject all Revelation as an Imposition, and believe no more than what natural Light discovers to them; as that there is a God, a Providence, a future State, with Rewards and Punish-

ments for the Good and the Bad; That God must be honour'd; and his Will, so far as we can learn it, perform'd; but that each Person is to do this after his own Manner, and as his own Conscience suggests.

The Number of *Deists* is daily increasing. In *England*, a great Part of the Men of Speculation, and Letters, are pretended to incline that Way. And the like is observ'd in some of our Neighbour Nations, where Freedom of Speaking, Writing, and Thinking are indulged. See REVELATION.

DEITY, a common Appellation given by the Poets to the Heathen Gods, and Goddesses. See GOD.

DEIVIRILE, a Term in the School-Theology, signifying something divine and human at the same Time.

The *Eutychians* held, that the same Jesus Christ, and the same Son, produces both divine and human Operations at once, by one single Theandric, or *Deivirile* Operation: So that all the Distinction depends on our manner of Understanding. See THEANDRIC, *&c.*

The Word is a Compound of *Deus*, God, and *Virilis*, of *Vir*, Man. It was first invented by the *Monophysites*, to express their Error by: For as they taught, that there were not two distinct Natures in Jesus Christ, but that the human and the divine Nature were, by the Hypostatical Union, confounded together, and render'd one Nature, which was neither the one nor the other, but a Compound of both; It follow'd, that the Operations of this third Nature, *i. e.* of Jesus Christ, were neither purely divine, nor purely human; and that there were not two Sorts, the one divine, and the other human, but that they were all of one Sort, *viz.* Theandric, or *Deivirile*.

DELEGATES, a Number of Commissioners, *delegated*, or appointed by the King's Commission, under the great Seal, to sit upon an Appeal to the King, in the Court of Chancery, in three Cases: First, Upon a Sentence given in any Ecclesiastical Cause, by the Arch-Bishop, or his Official. Secondly, Upon a Sentence given in an Ecclesiastical Cause in Places exempt. Thirdly, Upon a Sentence given in the Admiral Court in Suits Civil and Marine, by Order of the Civil Law.

Court of DELEGATES: This is the highest Court for Civil Affairs, concerning the Church; For the Jurisdiction whereof it was provided 25 *H.* 8. That it shall be lawful for the Subject, in Case of Defect of Justice in the Ecclesiastical Courts, to appeal to the Sovereign in his Courts of Chancery, whence a Commission is directed under the great Seal to particular Persons therein mentioned, for Redress of Judgment; so that from the highest Ecclesiastical Court there lies no Appeal, but to the Court of *Delegates*, and beyond this to no other, except to the House of Lords. But the King, of his Free-will, may grant a Commission of Review under the great Seal. The Citations run all under the King's Name.

DELEGATION, a Commission extraordinary, given a Judge to take Cognizance of, and determine some Cause which ordinarily did not come before him. See DELEGATES.

Sovereign Courts have frequently Inferior Judges to sit in Judgment on certain Affairs.

In the Civil Law, *Delegation* is also a Sort of Surrender, whereby a Person substitutes another Debtor in his Place. See *Ulpian.* l. 11. ff. *de Novationibus*, & *Delegationibus*.

Delegation differs from Transferring, or *Translation*, in that three Persons intervene in a *Delegation*; viz. the Creditor, the Debtor, and a third, who himself is indebted to the Debtor, and on whom the Debtor transfers the Obligation he was under to pay the Creditor, *delegating* him, as it were, for that Purpose. But in a simple Transfer, 'tis enough the Transferrer and the Transferree be present.

DELETERIOUS, probably from δηλέω, *noceo*, to hurt, a Term sometimes us'd among Naturalists for such Things as are of a pernicious, and poisonous Nature. See POISON.

DELF, is a Quarry, or Mine, where Stone, or Coal is digged: from the *Saxon* Word *Delfvan*, *to delf*, or dig; *Delf of Coal*, is Coal lying in Veins under-ground, before it is dug up; and a *Delve of Coals* is a certain Quantity dug out of the Mine, or Pit. See COAL.

DELF, is also us'd in Heraldry for one of the Abatements of Honour; being a Square in the Middle of the Escutcheon. See ABATEMENT.

A *Delf* Tenne is due to him that revokes from his own Challenge, or any way recedes from his Parole, or Word. If there be two, or more *Delfs* in an Escutcheon, it is then no longer an Abatement: So also, if it be of Metal, or charged upon it, then becomes it a Charge of perfect bearing.

DELIA, in Antiquity, Feasts celebrated by the *Athenians*, in Honour of *Apollo*, whom they surnamed *Delius*. The principal Ceremony in this Feast, was an Embassy, or rather a Pilgrimage to *Apollo* of *Delos*, perform'd every five Year, by a certain Number of Citizens deputed for that Purpose, and call'd *Deliastæ*, Δηλιάδαι, or *Theoræ*, Θεωραὶ, *q. d.* the Seers; and the first Person of the Embassy, or Deputation, *Architheorus*, Αρχιθέωρος. To him were added four more of the Family of the *Ceryci* Priests, descended from *Mercury*, who resided all the Year at *Delos*, to assist in the Temple. The whole Deputation set out on five Vessels, carrying with them every Thing necessary for the Feast, and the Sacrifices.

The Vessel that carried the *Deliasts*, or *Theores*, was call'd Δηλιας, *Delias*; the four others were the *Paralie*, *Antigonid*, *Ptolomaid*, and *Ammonid*. Tho' this is a Circumstance there is some Dispute about.

The *Deliasts*, who went a-board, were crown'd with Laurel. At their Arrival, they immediately offer'd a Sacrifice to *Apollo*: And after the Sacrifice, a Number of young Maids danced round the Altar, a Dance call'd in *Greek* Γέρανον; wherein, by their various Motions, and Directions, they represented the Turnings and Windings of a Labyrinth. When the *Deliasts* returned to *Athens*, the People went out to meet them, and received them with all the Joy and Acclamation imaginable. They never laid a-side their Crown till their Commission was fully completed; and then they consecrated it to some God in his Temple.

The whole Time of their going and returning, with all the Ceremonies thereof, was call'd the *Delia*; during which Time no Criminal might be executed; which was a peculiar Privilege of this Feast, not allowed to any other, not even those of *Jupiter*. Thus, *Plutarch* observes, it was a Day consecrated to *Jupiter* when *Phocian* was made to take the Poison he was condemn'd to; whereas they waited thirty Days to give it to *Socrates*, by Reason of the *Delia*.

According to *Thucidides*, the *Delia* were first instituted in the 6th Year of the *Peloponesian* War, after the *Athenians* had expiated the Isle of *Delos*, removed all the Tombs out of it, and ordain'd, that no body should either be born, or die in it; but that all their sick People should be removed into a little Island, call'd *Rhenia*. Tho' the *Ionians*, and the neighbouring Islanders of *Ionia*, had long before that Time held a Sort of *Delia*, that is, Feasts, and Games, like those the *Athenians* celebrated afterwards.

DELIAC, or *Deliacus*, among the Ancients, was a Poulterer, or a Merchant who sold Fowls, fatted Capons, *&c.*

The Traders in this Way were call'd *Deliaci*, by reason it was the People of the Isle of *Delos* who first berbought themselves thereof. They also sold Eggs; as appears from *Cicero* in his Academic Questions, Lib. IV. *Pliny* Lib. X. C. 30. and *Columella*, Lib. VIII. C. 8. likewise mention the *Deliaci*.

DELIACAL *Problem*, *Problema Deliacum*, a famous Problem among the Ancients, about the Duplication of the Cube. See DUPLICATION.

DELIBERATIVE, is applied to that Kind of Rhetoric employ'd in proving a Thing; or convincing an Assembly thereof; in order to oblige them to put it in Execution. See RHETORIC.

The *Deliverative* Kind was much in Vogue among the *Greeks* and *Romans*, when the Orators harangued the People. To have *deliberative Voice* in an Assembly, is when a Person has a Right to give his Advice, and his Vote therein. In Councils, the Bishops have *deliberative Voices*; Those beneath them have only consultative Voices.

DELINEATING. See DESIGNING.

DELINQUENT, a Person who has committed some Fault. It is the Business of a Magistrate to be severe in punishing *Delinquents*.

DELIQUIUM, in Medicine, or *Deliquium Animi*, a swooning, or fainting away; call'd also SYNCOPE, LIPOTHYMIA, LIPOPSYCHIA, ECTHLIPSIS, and ASPHYXEA, which see.

DELIQUIUM, in Chymistry, is a Dissolution, or melting of a Salt, or *Calx*, by suspending it in a moist Cellar. Thus Salt of *Tartar*, or any fix'd *Alcali*, in a Cellar, or other cool moist Place, and an open Vessel, resolves, or runs into a Kind of Water, call'd by the Chymists, Oil of Tartar *per Deliquium*.

DELIQUIUM, is also used in some Authors for a Distillation by Force of Fire. See DISTILLATION.

DELIRIUM, *Doating*, in Medicine, a Symptom, frequently befalling in Fevers, caused by internal Inflammations, Wounds, *&c.* whereby the Mind is disorder'd to a Degree of Folly, or Phrenzy.

Deliriums also frequently arise from immoderate Losses of Blood, whereby the Brain is too much weaken'd; from

from the Stings of venomous Beasts; from the Seed, or Menses retain'd in the Womb; from the Rotting of a gangreen'd Member, &c.

A Disorder in the Diaphragm commonly produces a *Delirium*.

Some derive the Word from *De* and *Lira*, which among the Ancients signified, Furrows drawn in right Lines; Whence, *delirare, a recto aberrare*.

There are various Species and Degrees of *Deliriums*. In some, the Patient is fierce, and outrageous; In others, more mild, and easy, offering no Violence to any body, but only indulging idle, ridiculous Discourse; Some laugh and sing; others cry, and are sullen, &c. See MELANCHOLY, and MANIA.

DELIVERY, *Parturition*, or Birth, in Medicine, the bringing forth of a perfect *Fætus*, or Child out of its Mother's Womb, whether it be living, or dead. See FÆTUS, BIRTH, &c.

To a *Natural Delivery*, according to the Physicians, are required three Conditions: First, That both the Mother and the Child strive alike, the one to *deliver*, and the other to be *deliver'd*: The second, That it come into the World head-fore-most, which is its natural Posture: And the third, That it be quick, and easy, without Accidents.

When the Child presents its Feet foremost, or comes a-cross, or double, 'tis no natural *Delivery*; And the *Latins* call such Children *Agrippæ*, q.d. *Ægre Parti*.

A *Legitimate Delivery*, is that which happens at the just Term, *i. e.* in the 10th Lunar Month. And an *Illegitimate*, that which comes either sooner, or later, as in the 8th Month.

Women are *deliver'd* at 7, 8, 9, 10, and 11 Months, and not later. Tho' there are some Physicians, who hold, that a *Delivery* may be *legitimate* in the 14th Month.

It has been observ'd, that *Deliveries* are more happy in the 7th Month, than in the 8th, *i.e.* that the Child is easier saved, and more frequently lives, when it comes in the 7th, than when in the 8th Month.

Monsr. *Peyssonnel*, a Physician of *Lyons*, has a *Latin* Treatise expressly on the Term of *Delivery*; wherein he undertakes to reconcile all the apparent Contradictions of *Hippocrates*, with Respect thereto. He holds, that the shortest Term of a *legitimate* Birth, according to *Hippocrates*, is 182 Days, or six compleat Months, and the longest 280 Days, or nine Months and 10 Days. And that Children, who come earlier, or later, than those Terms, do not live, or are not *legitimate*.

Bartholine has composed a Book, *de insolitis partus Viis*, on the extraordinary Passages of the *Fætus*; where he gives divers Instances of very extraordinary *Deliveries*. There have some come out by the Mouth; and others by the *Anus*. See *Salmuth. Obs.* 94. *Cent.* 3. In the Year 1686, at *Leckerkerck*, 8 or 10 Leagues from the *Hague*, the Wife of one *Christian Claes*, was deliver'd of 5 Children. The first was a Boy, who liv'd 2 Months; 17 Hours afterwards, came a second Son, which was dead; 24 Hours after a third Son was born, who liv'd about two Hours. In 24 Hours more she had a 4th, dead. Lastly, she died in bringing forth the 5th; which died in the Birth.

DELIVERY, in Law. See REPLEGIARE.

DELPHINUS, the *Dolphin*, in Astronomy, a Constellation of the Northern Hemisphere. See CONSTELLATION.

The Number of Stars in this Constellation, according to *Ptolomy*, are 10; according to *Tycho* 10; and according to Mr. *Flamsteed* 18.

The Longitudes, Latitudes, Magnitudes, &c. whereof are as follows.

Stars in the Constellation DELPHINUS.

Names and Situations of the Stars.	Sign.	Longit. ° ′ ″	Latitude. North. ° ′ ″	Magnit.
	♒	8 49 50	28 54 38	6
First of three in the Tail.		9 44 27	29 06 21	3
Betw. the Tail & the prec. Rho.		10 30 06	30 42 06	6
That immediat. preced. the Tail.		11 27 04	32 10 27	5
North of the follow. in the Tail.		11 00 18	28 51 03	3
5				
Preced. South. in the Rhombus.		12 01 14	31 56 52	3
South. of the follow. in the Tail.		10 54 06	27 31 40	6
Betw. the Tail and the hind Rho.		11 54 05	30 38 14	6
North. of preced. in the Rhomb.		13 03 24	33 02 58	3
		13 02 25	31 39 48	7
10				
South. in the hind Rhombus.		13 48 07	31 58 12	3 4
North. of the following.		15 03 41	33 44 32	3
		11 54 12	23 00 05	5
Informes following the *Dolphin*		13 00 33	24 37 30	6
(towards *Equuleus*.		14 28 25	29 07 05	6
15				
		16 07 40	28 40 19	6
		16 31 05	29 46 35	6
	♓	16 15 57	26 48 35	6

DELTOIDES, in Anatomy, a triangular Muscle, thus call'd from the Greek *Delta* Δ, and εἶδος, *Forma*. See MUSCLE.

It arises exactly opposite to the *Trapezius*, from one third Part of the *Clavicula*, from the *Acromium*, and Spine of the *Scapula*, and is inserted tendinous into the Middle of the *Os Humeri*, which Bone it lifts up directly; and it assists with the *supra Spinatus*, and *Coracobrachialis*, in all the Actions of the *Humerus*, except the Depression; it being convenient, that the Arm should be raised, and sustained, in order to its moving on any Side.

DELUGE, *Cataclysmus*, *Diluvium*, in Natural History, a Flood, or Inundation of Water, covering the Earth either in whole, or in Part. See INUNDATION.

We meet with divers of these *Deluges* in ancient History, both sacred and profane. That which happen'd in *Greece*, in the Time of *Deucalion*, call'd the *Diluvium Deucalidoneum*, is famous. This *Deluge* only overflowed *Thessaly*; Its Date is fix'd to the Year before Christ 1529; being the third Year before the *Israelites* coming out of *Egypt*, according to the Computation of *Petavius*, *Rat. Temp.* P. I. L. I. C. 7. P. II. C. 9.

The *Deluge* of *Ogyges* happen'd near 300 Years before that of *Deucalion*, 1020 Years before the first *Olympiad*, and 1796 before Jesus Christ, according to the same Author, *Rat. Temp.* P. I. L. I. C. 4. P. II. L. II. C. 5. This only ravaged *Attica*. These two are frequently mention'd in ancient *Greek* Authors, under the Denomination of *Cataclysmus prior*, and *posterior*.

Of the like Kind were those Inundations in the *Netherlands*, which in 1277 overwhelmed, and cover'd with Sea all that Part, now call'd the *Gulph Dollart* in the united *Netherlands*; and in 1421, all that Part between *Brabant* and *Holland*.

But the most memorable *Deluge* is that which we particularly, and by way of Eminence, call the *Deluge*, or the *Universal Deluge*, or *Noah's Flood*; being a general Inundation sent by God, to punish the Corruption of the then World, by destroying every living Thing, (*Noah*, and his Family, and what was shut up with him in the Ark, only excepted) from off the Face of the Earth.

This *Flood* makes one of the most considerable Events in all History; and one of the greatest Epocha's in Chronology. Its History is given us by *Moses*, *Gen.* C. VI. and VII. Its Time is fix'd by the best Chronologers to the Year from the Creation 1656, answering to the Year before Christ 2293. From this *Flood*, the State of the World is divided into *Diluvian*, and *Antediluvian*.

The *Deluge* has been, and remains a mighty Subject of Inquiry, and Dispute among the Naturalists, Criticks, &c. The Points chiefly controverted, may be reduced to three: First, Its Extent, *viz.* whether *General*, or *Partial*. Secondly, Its *natural Cause*. And thirdly, Its *Effects*.

I. The immense Quantity of Water requisite to furnish an *Universal Deluge*, has occasion'd several Authors to suspect it only *Partial*. An *Universal Deluge*, they think, had been unnecessary, considering the End for which it was brought, *viz.* to extirpate the wicked Inhabitants. The World was then but new, and the People not very many; the Holy Scriptures only making 8 Generations from *Adam* to *Noah*. 'Twas but a small Part of the Earth that could be yet inhabited: The Country about the *Euphrates*, which is supposed to have been the Scene of the first Antediluvian Inhabitants, was sufficient to bear them all. Now, Providence, say they, which ever acts wisely, and frugally, would never have disproportion'd the Means to the End so far as to overflow the whole Globe, only to drown a little Corner of it. They add, that, in the Scripture Language, the *whole Earth*, expresses no more than *all the Inhabitants*. And on this Principle advance, that an Overflowing of the *Euphrates*, and *Tigris*, with a vehement Rain, &c. might answer the *Phænomena* of the *Deluge*.

But the *Deluge* was *universal*. God declared to *Noah*, *Gen.* VI. 17. that he was resolved to destroy every Thing that had Breath under Heaven, or had Life on the Earth, by a Flood of Waters. Such was the Menace: See the Execution. The Waters, *Moses* assures us, cover'd the whole Earth, buried all the Mountains, and were no less than 15 Cubits above the highest of them: Every Thing perish'd therein, Birds, Beasts, Men, and all that had Life, excepting *Noah*, and those with him in the Ark, *Gen.* VII. 19. Can an *Universal Deluge* be more clearly express'd? If the *Deluge* had only been *Partial*, there had been no Necessity to spend 100 Years in the Building of an Ark, and shutting up all the Sorts of Animals therein, in order to re-stock the World; they had been easily, and readily brought from those Parts of the World not overflown, into those that had been. At

least, all the Birds would never have been destroy'd; as *Moses* says they were; so long as they had Wings to bear them to those Parts where the *Flood* did not reach. If the Waters had only overflowed the Neighbourhood of the *Euphrates* and *Tigris*, they could not be fifteen Cubits above the highest Mountains; There was no Rising to that Height, but they must spread themselves, by the Laws of Gravity, over the rest of the Earth: Unless, perhaps, they had been retain'd there by a Miracle; And in that Case, *Moses*, no doubt, would have related the Miracle, as he did that of the Waters of the *Red-Sea*, and the River *Jordan*, which were sustain'd in a Heap, to give Passage to the *Israelites*. *Exod.* XIV. 22. and *Jos.* III. 16. Add, that in Regions far remote from the *Euphrates*, and *Tigris*, viz. in *Italy*, *France*, *Switzerland*, *Germany*, *England*, &c. there are frequently found in Places, many scores of Leagues from any Sea, and even in the Tops of high Mountains, whole Trees sunk deep under Ground, as also Teeth, and Bones of Animals, Fishes entire, Sea-Shells, Ears of Corn, &c. petrified; Which, the best Naturalists are agreed, could never have come there but by the *Deluge*.

II. The *Deluge* allowed *Universal*, the Philosophers are sollicitous to find Water to effect it.

Moses brings it from two Funds: *The Fountains of the great Deep were broken up; and the Windows of Heaven were open'd.*

Dr. *Burnet*, in his *Telluris Theoria Sacra*, shews, that all the Waters in the Ocean were not near enough to cover the Earth 15 Cubits above the Tops of the highest Mountains. According to his Computation, no less than 8 Oceans were required. Now, supposing the Sea, therefore, drain'd quite dry, and all the Clouds of the Atmosphere dissolv'd into Rain, we should still want much the greatest Part of the Water of a *Deluge*.

To get clear of this Embarrass, many of our best Naturalists, as *Steno*, *Burnet*, *Woodward*, *Scheuchzer*, &c. adopt *des Cartes*'s System of the Formation of the Earth. That Philosopher will have the primitive World to have been perfectly round and equal, without Mountains, or Vales; And accounts for its Formation on Mechanical Principles, by supposing it at first in the Condition of a thick turbid Fluid, replete with divers Heterogeneous Matters, which subsiding by slow Degrees, form'd themselves into different concentric *Strata*, or Beds, by the Laws of Gravity: And thus, at length, left a dry, solid Earth.

Dr. *Burnet* improves on this Theory: He supposes the primitive Earth to have been no more than an Orbicular Crust, investing the Face of the Abyss, or Deep, which grew chinky, clave, burst, and fell down into the Water, and so drown'd its Inhabitants.

The same Theorist adds, That by this Catastrophe, the Globe of the Earth was not only shook, and broke in a thousand Places, but that the Violence of the Shock it then underwent shifted its Situation, so that the Earth, which before was placed directly under the Zodiac, became thenceforth oblique to the same. Whence arose the Difference of Seasons, which the Antediluvian Earth was not exposed to.

But how all this consists with the sacred Text above cited, which expressly mentions Mountains as the Standard of the Height of the Water; Or, with that other Passage, *Gen.* VIII. 22. where God, promising not to bring any more *Deluges*, but that every Thing should be restor'd on its ancient footing, says, that *Seed-Time and Harvest, and Cold and Heat, and Summer and Winter, and Day and Night shall cease no more*; we do not see.

Other Authors, supposing a sufficient Fund of Water in the Abyss, or Sea, are only concern'd for an Expedient to bring it forth; Accordingly, some have Recourse to a Shifting of the Earth's Centre, which, drawing after it the Water out of its Channel, overwhelm'd the several Parts of the Earth successively.

The very learned Mr. *Whiston*, in his *New Theory of the Earth*, has a very ingenious *Hypothesis*, perfectly new. He shews from several remarkable Co-incidences, that a Comet descending in the Plane of the Ecliptic towards its *Perihelion*, pass'd just before the Earth on the first Day of the *Deluge*; The Consequences whereof would be, First, That this Comet, when it came below the Moon, would raise a prodigious, vast, and strong Tide, both in the small Seas, which, according to his *Hypothesis*, were in the Antidiluvian Earth, for he allows no great Ocean there, as in ours; and also in the Abyss, which was under the upper Crust of the Earth. And this Tide would rise, and increase all the Time of the Approach of the Comet towards the Earth; and would be at its greatest Height when the Comet was at its least Distance from it. By the Force of which Tide, as also by the Attraction of the Comet, he judges, that the Abyss must put on an Eliptic Figure, whose Surface being considerably larger than the former Spherical one; the outward Crust of the Earth, incumbent on the Abyss, must accommodate it self to the Figure, which it could not do while it held solid, and conjoyned together. He concludes, therefore, that it must of Necessity be extended, and at last broke by the Violence of the said Tides, and Attraction; out of which, the included Water issuing, was a great Means of the *Deluge*: This answering to what *Moses* speaks of the *Fountains of the great Deep being broke up*.

Again, the same Comet, he shews, In its Descent towards the Sun, passed so close by the Body of the Earth, as to involve it in its Atmosphere, and Tail, for a considerable Time; and of Consequence, left a vast Quantity of its Vapours, both expanded and condensed on its Surface; a great Part of which being afterwards rarified by the solar Heat, would be drawn up again into the Atmosphere, and afterwards return again in violent Rains; And this he takes to be what *Moses* intimates *by the Windows of Heaven being open'd*; and particularly by the *fourty Days Rain*. For as to the following Rain, which with this made the whole Time of Raining 150 Days; Mr. *Whiston* attributes it to the Earth coming a second Time within the Atmosphere of the Comet, as the Comet was on its Return from the Sun. Lastly, to remove this vast Orb of Waters again, he supposes a mighty Wind to have arose, which dried up some, and forced the rest into the Abyss again through the Clefts by which it came up: Only a good Quantity remain'd in the *Alveus* of the great Ocean, now first made, and in lesser Seas, Lakes, &c.

To the Credit of this Theory, it must be observed, that it was at first only proposed Hypothetically: That is, the Author only supposed such a Comet, merely, as it would account well, and Philosophically for the *Phænomena* of the *Deluge*: without any Assurance, that there really was any Comet so near the Earth at that Time: And the *Hypothesis* pleas'd even under such Circumstances: But, upon further Consideration, he has since proved, that there actually was a Comet near the Earth at that Time; *viz.* the same great Comet, which appear'd again in 1688. The Author no longer, therefore, looks upon it as an *Hypothesis*, but has republish'd it in a particular Tract, entituled, *The Cause of the Deluge demonstrated*.

III. But the great Difficulty is yet behind. The orderly *Strata*, or Layers of the Earth, with the *Exuviæ*, or Remains of Fishes, as their Teeth, Bones, Shells, &c. both Marine, and Fluviatile, found in the Bodies, even of the most solid *Strata*, as those of Flints, Marbles, &c. are not yet dispatch'd. Those who adhere to *Des Cartes*'s System, as *Steno*, &c. take the finding of the Parts of Terrestrial, and Aquatic Animals, Branches of Trees, Leaves, &c. in the Beds, or *Strata* of Stone, to be a direct Proof of the primitive Fluidity of the Earth. But then they are oblig'd to have Recourse to a second Formation of *Strata*, much later than the first; by Reason at the Time of the first there was neither Plant nor Animal. *Steno*, therefore, holds for second Formations, occasion'd at different Times by extraordinary Inundations, Earth-quakes, Volcano's, &c. But *Burnet*, *Woodward*, *Scheuchzer*, &c. chuse rather to attribute a second general Formation to the *Deluge*; without Excluding, however, the particular ones of *Steno*. But the great Objection against this System of Fluidity, is Mountains; For the whole Globe being liquid, whence should such Inequalities arise? Mr. *Scheuchzer*, rather than part with a System, which looks so promising, gives into the Opinion of those, who hold, that, after the *Deluge*, God, to remit the Waters into their subterranean Reservoirs, broke, and displaced, with his own Almighty Hand, a great Number of *Strata*, that were before horizontal, and raised them above the Surface of the Earth; whence it is, that the *Strata* in Mountains, tho' concentrical, are never horizontal. See MOUNTAIN, &c.

Dr. *Woodward*, taking the several *Strata* for the Sediments of a *Deluge*; and considering the Circumstances of those Fishes, Shells, and other *Exuviæ*, draws several Inferences, which very much illustrate the Effects of the *Deluge*. As first, That these Marine Bodies, and other Spoils of fresh Water Fishes, were born forth of the Sea, by the *universal Deluge*; and on Return of the Water back again, were left behind at Land. Secondly, That while the Flood cover'd the Globe, all the solid Matters, as Stones, Metals, Minerals, and Fossils, were totally dissolved, and the Cohesion of their Corpuscles destroyed; and that these Corpuscles, with those of the less solid Bodies, as Earth, Flesh of Animals, and Vegetables, were sustain'd promiscuously in the Water, and made one common Mass. Thirdly, That all the Mass thus sustain'd, was at length precipitated to the Bottom; and that, according to the Laws of Gravity, the heaviest Settling first,

first, and the rest in order. And that the Matters thus subsiding, constituted the several *Strata* of Stone, Earth, Coal, *&c.* Fourthly, That these *Strata* were originally all parallel, even, and regular; and rendred the Surface of the Earth perfectly Spherical; and that the whole Mass of Water lay upon them, and constituted a fluid Sphere encompassing the Globe. Fifthly, That after some Time, by the Force of an Agent seated within the Earth, these *Strata* were broken on all Sides the Globe, and their Situation varied; being elevated in some Places, and repress'd in others; whence Mountains, Valleys, Grotto's, *&c.* with the Channel of the Sea-Islands, *&c.* In one Word, the whole Terraqueous Globe was put, by this Disruption, and Dislocation of the *Strata*, into the Condition we now behold it in. Sixthly, That upon the Disruption of the *Strata*, and the Depression of some, and Elevation of other Parts, which happen'd towards the End of the *Deluge*; the Mass of Water fell back again into the depress'd, and lowest Parts of the Earth, into Lakes, and other Cavities, and the Channel of the Ocean; and through the Fissures, whereby this communicates with the Abyss, which it fill'd till it came to an *Equilibrium* with the Ocean. *Nat. Hist. of Earth*, P. I. and II. See FOSSILE.

But of all the Systems yet advanced, there seems none better calculated to solve the *Phænomena* of those petrified *Exuviæ*, than that of Mr. *de la Pryme*. The Antediluvian World, according to this ingenious Author, had an external Sea, as well as Land, with Mountains, Rivers, *&c.* and the *Deluge* was effected by breaking the subterraneous Caverns, and Pillars thereof, with dreadful Earthquakes, and causing the same to be for the most Part, if not wholly, absorbed and swallowed up, and cover'd by the Seas that we now have. Lastly, this Earth of ours arose out of the Bottom of the Antediluvian Sea, and in its Room; just as many Islands are swallowed up, and others thrust up in their stead. From this System, which is very agreeable to Scripture, the great Difficulties that clog all the other Systems, are easily solved. It is no longer a Wonder, that Shells, and Shell-Fish, and the Bones of Fishes, and four-footed Creatures, with Fruits, *&c.* should be found in Beds, and Quarries, in Mountains, and Valleys, and the very Bowels of the Earth: For here they bred in the Antediluvian Sea, thither they were elevated with the Hills and Mountains, in the Time of the *Deluge*; there they fell into, were absorbed, and buried in Chasms, and Holes, and Clefts, that would necessarily happen in the Extrasion of the Earth. *Lowth. Abridg. Philosoph. Transact.* V. III. p. 428.

DEMAIN, or DEMEAN, or DEMEASN, or DEMESNE, in the Popular Sense of the Word, is the Lord's Manour Place, with the Lands thereto belonging; which he, and his Ancestors have from Time to Time kept in their own Manual Occupation. See MANOUR.

DEMAIN, or DEMESNE, in a Law-Sense, otherwise written *Domain*, signifies, according to *Hottoman*, *Patrimonium Domini*, the Lord's Patrimony, call'd also by the Civilians, *Dominicum*; The same Author proves those Lands to be *Demain*, which a Man holdeth originally of himself, and those to be *Feodum*, which he holdeth of a superior Lord.

In *England*, no common Person has any *Demain*, simply understood, for all depends either mediately, or immediately on the Crown; For when a Man in Pleading, would signify his Land to be his own, he saith, That he is, or was seiz'd thereof in his *Demain*, as of Fee; whereby he means, that, although his Land be to him, and his Heirs for ever, yet it is no true *Demain*, but depends upon a superior Lord, and he holdeth by Service, or Rent, in lieu of Service, or by both Service and Rent.

The Word is sometimes also taken more largely for Lands, and Tenements, held for Life, *&c.* and sometimes more strictly, for such only as are generally held in Fee.

It is sometimes again used for a Distinction between those Lands that the Lord of a Manour has in his own Hands, or in the Hands of his Lessee, demised upon a Rent, for Term of Years, or Life; and such other Lands, pertaining to the said Manour, which belongs to the Free, or Copy-holders. And the Reason why the Copy-hold is accounted *Demain*, is, that because they, who are Tenants to it, are judged in Law to have no other Right, but at the Will of the Lord; so that it is reputed still, after a Sort, to be in the Lord's Hands: And yet in common Speech that is ordinarily call'd *Demain*, that is, neither Fee, nor Copy.

DEMAIN, again, is us'd in a more special Significaion, in Opposition to *Frank Fee*: Thus, Those Lands, which were in the Possession of *Eduard the Confessor*, are call'd, *Ancient Demain*, and others are call'd, *Frank-Fee*; and the Tenants, which hold any of those Lands, are call'd, *Tenants in ancient Demain*, and the others, *Tenants in Frank-Fee*, and also, *Tenants of the Common-Law*; the Reason is, because *Tenants in Ancient Demain* cannot be sued out of the Lord's Court.

DEMAND, in its Popular Sense, is a calling for, or requiring one's due. But it has also a special Signification in Law, as contra-distinguish'd from *Plaint*: For all Civil Actions are pursued, either by *Demands*, or *Plaints*; according to which the Pursuer is call'd either *Demandant*, or *Plaintiff*; *viz.* in Real Actions, *Demandant*: and in Personal Actions, *Plaintiff*. Add, that where the Party pursuing is call'd *Demandant*, the Party pursued is call'd *Tenant*; and where *Plaintiff*, *Defendant*.

There are two Kinds of *Demands*, the one in *Deed*, *de Facto*, as in every Precipe; The other in *Law*, *de Jure*; such is Entry in Land, Distress for Rent, *&c.*

If a Man release another *from all Demands*, it is the best Release the Releasee can have, and shall redound most to his Advantage. A Release of Facts is more large, than of Quarrels, or Actions; and a Release of *Demands*, more large, and beneficial than either: By a Release of all *Demands* to the Disseisor, the Right of Entry into the Land, and all contain'd therein, is released: And he that releaseth all *Demands*, excludes himself from all Actions, Entries, and Seizures. But it is no Bar in a Writ of Error to release an Outlawry.

DEMANDANT, *Petens*, is he who is Actor, or Plaintiff in a real Action; Thus call'd, because he *demands* Lands, *&c.* See DEMAND.

DEMARCHUS, a Magistrate, or Chief of a People, that is, of a Region, or District in the Country.

The *Athenians* divided their Country into certain Regions, or Districts, which they call'd Δημοὶ, *Demi*, i. e. People; and establish'd a Magistrate at the Head of each, under the Denomination of Δήμαρχος, *Demarchos*, of δῆμος, and ἀρχὴ.

DEMEMBREE, in Heraldry, is when an Animal is dismember'd, *i. e.* the Limbs cut off its Body. See DISMEMBER'D.

DEMI, a Word of the same Use and Effect in the *French* Language, with *Semi*, in the *Latin* and *English*; being form'd from *dimidium*, and used in Composition with other Words, to signifie *half*.

In Words borrowed from the *Latins*, we use *Semi*, and in those from the *French*, we retain their *Demi*. See SEMI.

DEMI, or DEMY, in Heraldry, signifies the *half* of any Thing; as, a *Demy-Lion*, &c. *Colombiere* has what he calls *Croix & demy*, a Cross and an half; being a Shaft cross'd in the upper Part like the *Calvary* Cross, and having but one Arm at the lower Part. See CROSS.

DEMI-*Air*, or *Demi-Volt*, in Horsemanship, is one of the seven artificial Motions of an Horse, being an Air, in which its Fore-parts are more raised than in *Terra a Terra*, but the Motion of the Horses Legs is more quick in the latter, than in the *Demi-Volt*.

DEMI-*Bastion*, is a Kind of Fortification, that has only one Face, and one Flank. See BASTION.

DEMI-*Canon*, a Piece of Ordnance, usually about 6 Inches bore, and 5400 Pound Weight; 10 or 11 Foot long, and carrying a Shot of 30 Pound Weight. See CANON, and ORDNANCE.

It carries Point blank 150 Paces; its Charge of Powder is 14 Pound Weight.

There are also two Sizes of *Demi-Canon* above this, which are something larger, as the ordinary *Demi-Canon*, which is 6 Inches $\frac{1}{6}$ bore, 12 Foot long, weighs 5600 Pound; its Charge of Powder is 17 Pound 8 Ounces, carries a Shot 6 Inches and a half Diameter, and whose Weight is 32 Pound, and this Piece shoots blank 162 Paces.

Demi-Canon of the largest Size, is 6 Inches $\frac{6}{8}$ bore, 12 Foot long, of 6000 Pound Weight; its Charge is 18 Pound of Powder, and it carries 180 Paces.

DEMI-*Culvering*, is a Piece of Ordnance, commonly $4\frac{1}{2}$ Inches bore, 10 Foot long, of 2700 Pound Weight; its Charge is 7 Pound 4 Ounces of Powder; and it carries a Shot of 10 Pound, 11 Ounces; and shoots Point blank 175 Paces: *Demi-Culvering* of the least Size, is $4\frac{1}{4}$ Inches bore, 10 Foot long, of 2000 Pound Weight; it carries a Ball of 4 Inches Diameter, its Charge is 6 Pound 4 Ounces of Powder, and its level Range is 174 Paces. *Demi-Culvering* of the elder Sort, is 4 Inches $\frac{3}{8}$ bore, 10 Foot long, its Charge of Powder is 8 Pound, and 8 Ounces, the Ball is $4\frac{1}{2}$ Inches Diameter, weighs 12 Pound 11 Ounces, and the Point blank shoots 178 Paces. See ORDNANCE, and CULVERING.

DEMI-*God*, &c. See SEMI-*God*.

DEMI-*Gorge*, in Fortification, is half the Gorge, or Entrance into the Bastion; not taken directly from Angle to Angle, where the Bastion joins to the Courtine, but from the Angle of the Flank, to the Centre of the Bastion, or

or the Angle the two Courtins would make, were they thus protracted to meet in the Bastion. See GORGE.

DEMI-*Lune*, *Half-Moon*, in Fortification, an Outwork, as EFGHK (*Tab. Fortific. Fig.*5.) consisting of Faces, and Flanks; frequently built before the Angle of a Bastion, and sometimes also before the Courtine, tho' now much disused. See OUTWORK.

DEMI-*Quaver*, is a Note in Musick; two of which are equal to the Quaver. See QUAVER, and NOTE.

DEMISE, in Law, is applied to an Estate, either in Fee-simple, Fee-tail, or for Term of Life, and so it is commonly taken in many Writs: The King's Death is in Law termed, *The Demise of the King*.

DEMOCRACY, a Form of Government, wherein the Soveraignty, or supreme Authority, is lodged in the People, who exercise the same by Persons of their own Order, deputed for that Purpose. This is the most ancient Form of Government.

The most flourishing *Democracies* were those of *Rome* and *Athens*. The modern Republicks, as *Venice*, and the *United Provinces*, are rather *Aristocracies* than *Democracies*. The Government of *Basil*, however, is a *Democracy*; so are some of the free Cities in *Germany*.

The Word is form'd of the *Greek* δημος, *People*, and κρατεῖν, *command*.

DEMON, or DÆMON, a Name the Ancients gave to certain Spirits, or *Genii*, which appeared to Men, either to do them Service, or to hurt them. See GENIUS.

The first Notion of *Demons* was brought from *Chaldæa*; Whence it spread it self among the *Persians*, *Egyptians*, and *Greeks*. *Pythagoras* and *Thales* were the first, who introduced *Demons* into *Greece*. *Plato* fell in with the Notion, and explain'd it more distinctly, and fully, than any of the former Philosophers had done. By *Demons*, he understood Spirits inferior to Gods, and yet superior to Men; which inhabiting the middle Region of the Air, kept up the Communication between Gods and Men, carrying the Offerings and Prayers of Men to the Gods, and bringing the Will of the Gods to Men. But he allowed of none but good, and beneficent Ones. Tho' his Disciples, afterwards, finding themselves unable to give the Reason of Evil, adopted another Sort of *Demons*, who were Enemies to Men.

There is nothing more common in the Heathen Theology, than these good, and evil *Genii*. And the same superstitious Notion got footing among the *Israelites*, by their Commerce with the *Chaldæans*. But by *Demons*, they did not mean the Devil, or a wicked Spirit: They never took the Word *Demon* in that Sense, nor was it ever used in such a Signification, but by the Evangelists, and some modern Jews. The Word is *Greek*, δαίμων.

Gale endeavours to shew, that the Origin, and Institution of *Demons*, was an Imitation of the *Messiah*. The *Phænicians* call'd them בעלים *Baalim*. For they had one supreme Being, whom they call'd *Baal* and *Moloch*, and various inferior Deities, call'd *Baalim*, whereof we find frequent mention in the Old Testament. The first *Demon* of the *Egyptians* was *Mercury*, or *Theut*. The same Author finds some Resemblance between the several Offices ascribed to the *Demons*, and those of the *Messiah*.

DEMONIAC, or DÆMONIAC, is applied to a Person possess'd with a Spirit, or *Demon*.

In the *Romish* Church, there is a particular Office for the Exorcism of *Demoniacs*. See EXORCISM.

DEMONIACS, are also a Party, or Branch of the *Anabaptists*, whose distinguishing Tenet it is, that the Devils shall be saved at the End of the World.

DEMONSTRABLE, a Term chiefly used in the Schools, signifying somewhat that may be clearly and evidently proved. It is *demonstrable*, that the Side of a Square is incommensurable with the Diagonal. The Problem of the Motion, or Rest of the Earth, is not *demonstrable*, by reason the same Appearances result from either Supposition.

DEMONSTRATION, in Philosophy, a Syllogism in Form, containing a clear and invincible Proof of a Proposition: Or, a convincing Argument, the two first Propositions whereof are certain, clear, and evident; whence of Necessity arises an infallible Conclusion. See SYLLOGISM.

A *Demonstration* usually consists of 3 Parts: The *Explication*, *Preparation*, and *Conclusion*. The *Explication* is the laying down the Things supposed to be given, or granted; from which the Demonstration is to be made. The *Preparation* is a Supposition to be made, according to the Nature of the Demonstration intended. The *Conclusion* is a Proposition that concludes the Thing to be *demonstrated*, fully persuading, and convincing the Mind. See CONCLUSION.

The Method of *demonstrating* Things in Mathematicks, is the same with that of drawing Conclusions from Principles in Logicks. In Effect, the *Demonstrations* of Mathematicians, are no other than a *Series* of *Enthymemes*; so that every Thing is concluded by Force of Syllogism, only omitting the Premisses, which either occur of their own Accord, or are recollected by means of Quotations. To have the *Demonstration* perfect, the Premisses of the Syllogisms should be proved by new Syllogisms, till at length you arrive at a Syllogism wherein the Premisses are either Definitions, or Identic Propositions.

Indeed it might be demonstrated, that there cannot be a genuine *Demonstration*, i.e. such a one as shall give full Conviction, unless the Thoughts be directed therein according to the Rules of Syllogism. *Clavius*, 'tis known to every body, resolved the *Demonstration* of the first Proposition of *Euclid* into Syllogism: *Herlinus*, and *Dasipodius*, demonstrated the whole six first Books of *Euclid*, and *Henischius*, all Arithmetic, in the Syllogistic Form.

Yet People, and even Mathematicians, usually imagined, that Mathematical *Demonstrations* are concluded in a Manner far remote from the Laws of Syllogism; so far are they from allowing, that those derive all their Force and Conviction from these. But we have Men of the first Rank on our Side the Question. Mr. *Leibnitz*, for Instance, declares that *Demonstration* to be firm and valid, which retains that Form prescribed by Logic. And Dr. *Wallis* confesses, that what is proposed to be proved in Mathematicks, is deduced by means of one, or more Syllogisms. The great *Huygens* too observes, that Paralogisms frequently happen in Mathematicks, through Want of observing the Syllogistic Form. See SYLLOGISM.

Problems consist of three Parts: A *Proposition*, *Resolution*, and *Demonstration*.

In the *Proposition* is indicated the Thing to be done. See PROPOSITION.

In the *Resolution*, the several Steps are orderly rehearsed, whereby the Thing proposed is perform'd. See RESOLUTION.

Lastly, in the *Demonstration* it is shewed, that the Things injoyned by the *Resolution* being done, that required in the Proposition is effected. As often, therefore, as a Problem is to be demonstrated, it is converted into a *Theorem*, the *Resolution* being the *Hypothesis*, and the *Proposition* the *Thesis*: For the general Tenor of all Problems to be demonstrated is this, that the Thing prescrib'd in the *Resolution* being perform'd, the Thing required is done. See PROBLEM.

The School-Men make two Kinds of *Demonstration*: The one διοτι, or, *propter quod*; wherein an Effect is proved by the next Cause: As when it is prov'd, that the Moon is eclypsed, *by reason the Earth is then between the Sun and Moon*. The second ὅτι, or, *quia*; wherein the Cause is proved from a remote Effect: As when it is proved, *that Fire is hot*, because *it burns*; Or, *that Plants don't breath*, because *they are not Animals*.

Affirmative DEMONSTRATION, is that, which proceeding by affirmative and evident Proposition, dependent on each other, ends in the Thing to be demonstrated.

A *Negative* DEMONSTRATION, is that, whereby we shew a Thing to be such from some Absurdity that would follow if it were otherwise. This we also call a *Demonstration ab impossibili*.

A *Geometrical* DEMONSTRATION, is that, framed of Reasoning drawn from the Elements of *Euclid*.

A *Mechanical* DEMONSTRATION, is that, the Reasonings whereof are drawn from the Rules of Mechanicks.

A DEMONSTRATION *A priori*, is that, whereby an Effect is proved from a Cause, either a next, or remote one; or a Conclusion proved by something previous, whether it be a Cause, or only an Antecedent.

A DEMONSTRATION *A posteriori*, is that, whereby either a Cause is proved from an Effect; or a Conclusion is proved by something posterior, whether it be an Effect, or only a Consequent.

DEMONSTRATIVE, in Rhetoric, one of the *Genera*, or Kinds of Eloquence; being that used in the Composing of Panegyricks, Invectives, &c. See PANEGYRIC.

Rhetoric is divided into three Parts; Deliberative, *Demonstrative*, and Judiciary. See RHETORIC.

DEMONSTRATIVE, in Grammar, is applied to Pronouns that serve to shew, point out, or indicate a Thing; As, *This here*, *That there*, *Those yonder*, &c. See PRONOUN.

DEMURRAGE, in Traffick, is an Allowance to the Master of a Ship, by the Merchants, for staying in a Port longer than the Time first appointed for his Departure.

DEMURRER, in Law, from the French *Demeurer*, to stay, or dwell, is a Kind of Pause, or Stop, put to the Proceeding of any Action, upon some difficult Point, which must be determin'd by the Court, 'ere any further Proceedings can be had therein.

In every Action, the Controversy is either as to Fact, or to Law: The first, decided by the Jury; the second, by the Judge. Now if any Thing turn up in the Cause so rare and difficult, that the Judge cannot pronounce upon it, a *Demurrer*, or Stop is made, and a Time taken, either for the Court to consider, and agree of it among themselves; or otherwise for the Judges, to meet in the Exchequer-Chamber, there, after hearing Council on both Sides, to determine what is Law. This *Demurrer* is express'd in our Records by *Moratur in Lege*. See MORATUR *in Lege*.

In Common Law, the Defendant sometimes *demurreth* to the Plaintiff's Count, or Declaration; And sometimes the Plaintiff *demurreth* to the Defendant's Plea, by averring, that it is not a sufficient Plea in Law, *&c.*

In Chancery, the Defendant *demurreth* to the Plaintiff's Bill, averring it to be defective in such and such a Point; and demands the Judgment of the Court thereupon, whether he shall be compell'd to make any farther, or other Answer thereunto.

DENARIATUS *Terræ*, in our ancient Law-Books, as much Land as is worth a Penny by the Year. *Sibylla Bartholot tenet unam Acram, & 5 Denariatos Terræ in eodem Tenemento.* Du Cange.

DENARIUS, in Antiquity, the *Roman Penny*; a Silver Coin, equivalent to, from six to seven Pence Half-Penny Sterling. See COIN, MONEY, PENNY, *&c.*

The *Romans* having for a long Time used Brass Money, which they call *As*, quasi *Æs*; or *Libra* and *Pondo*, because it was a Pound Weight, began in the Year of *Rome* 585 to coin Silver; and coin'd first the *Denarius*, which was mark'd with the Letter X, because it was worth Ten *Asses*, and divided into two *Quinarii*, mark'd with V, which was subdivided into two *Sestertia*, mark'd with these three Letters, IIS.

The first, or *Consular Denarius*, was worth more than the after, or *Imperial*. The first weigh'd a just Drachm, or an 8th Part of an Ounce, and was worth about 7 Pence half Penny of our Money. The second was only the 7th Part of an Ounce, and worth 6 Pence, or 6 Pence half Penny.

Mr. *Tillemont* observes, that the *Denarius* was held sufficient to keep a Person handsomely for a Day; and upon the whole seems to intimate, that it was equal to 12 *French Sous*, or 11 *English* Pence. But this is to over-rate it. *Budæus* shews, that the *Denarius* current in our Saviour's Time, was only worth about 3 Pence half Penny Sterling. *Jesus Christ* was sold for thirty *Denarii*, which were afterwards spent in purchasing a Field.

The Impression on the first *Denarius* was on one Side a Figure of *Janus*; and on the other, the Vessel that brought him to *Italy*. Afterwards, the Reverse was a *Castor* and *Pollux*, and sometimes a Victory, driving a Chariot with two or 4 Horses; whence the *Denarii* were call'd *Bigati*, or *Quadrigati*, or *Ratiti*.

DENARIUS is also used in our Law-Books for an *English* Penny. See PENNY.

Denarius Angliæ, qui nominatur Sterlingus *rotundus, sine Tonsura, ponderabit* 32 *Grana Frumenti in medio Spicæ*; & 20 Denarii *facient* Unciam; & 12 *Unciæ facient* Libram. Stat. Edu. I. de Mensuris. See MEASURE, POUND, *&c.*

DENARIUS *Dei*, *Earnest Money*, call'd also *Argentum Dei*, and by the French *Deniers de Dieu*, and in some Parts of our Country, *Arles*, or *Earls*. *Ita quod neuter Mercatorum ab illo Contractu posse discedere, vel resilire postquam* Denarius Dei *inter Personas contrahentes datus fuerit & receptus.* Charta Eduardi I.

DENATES, in Antiquity, Domestic Gods, call'd also *Penates*. See PENATES.

Dionysius Halicarnassæus, Lib. I. speaking of the *Dii Penates*, tells us, that the Historian *Timæus* has wrote, that the Figure, Statue, or Effigy of the *Denates*, or *Penates*, was nothing but a crooked Iron, or Copper Rod, and a *Trojan* Vessel of Potters Ware: And that this was all *Æneas* brought from *Troy*. But, for himself, he assures us, he had seen a Temple at *Rome*, near the *Forum*, where those Gods were represented sitting, under the Form of two young Men, having each of them a Dart in his Hand: He adds, that the Inscription was DENATES, for that the Ancients, before the Invention of the Letter P, used a D instead thereof. But *Dionysius* might be mistaken: For the Bottom of the P is frequently so very small on Medals, that there is no sensible Difference between a P, and a D; which might be the Case in the Inscription that Author mentions; For that the ancient Inhabitants of *Italy* had no P, is a Mistake sufficiently refuted by many proper Names still remaining of the most early Ages, *e.gr. Capys, Capetus, Picus, Pallas.* Nor were the *Trojans* without the same, witness *Palinurus, Paris, Priamus*, &c.

DENCHEE, or DENCHED, or ENDENCHEE, in Heraldry, is applied to the Ordinaries in a Shield, when they are edg'd with Teeth, or indented.

They make this Difference between what is *denched*, and what is engrail'd, that in the former, the Points, or Teeth, are pretty large, and cut straight, like the Teeth of a Saw; whereas in the latter, the Teeth are small, and the Intervals hollow, and a little rounded. See ENGRAILED.

DENDRITES, in natural History, a Sort of whitish, or ash-colour'd Stones, whereon are seen Trees, Shrubs, and other rustic Figures, represented in Miniature in blackish, or yellowish Figures. See FIGURED *Stone*.

Some rank the *Dendrites* in the Class of Stone-Plants: But against this it is urged; First, That the Branches of Trees, *&c.* painted in Miniature on the *Dendrites*, are never confounded together, nor shoot a-cross each other, as those of Stone-Plants usually are. Secondly, That the Fire strips the *Dendrites* of all its Figures, without destroying the Stone, and reducing it to Ashes; which does not hold of any Stone-Plant. From hence it appears, that the Figures of the *Dendrites* are external, and the Effect of a Colour applied on the Stone not Artificially, but by Nature. Two polish'd Marbles being applied on each other with Oil between; upon parting them again, the Oil running into certain Tracks, its Impression exhibits divers Figures like those on the *Dendrites*; the Ramification always beginning on the Side the Marbles are begun to be separated of. So that it appears, the Figures of the *Dendrites* are form'd by some bituminous Liquor insinuating between the Beds, or *Strata* of the Stones; and accordingly, we actually find, that the *Dendrites* being exposed to the Fire, yields a bituminous Smell. This same Liquor ouzes out of the Stone itself, filtrating through its Pores, as, in all Probability, it is the Cold, and Pressure of the upper Beds, that brings it forth.

In some *Dendrites*, the Figures penetrate quite through, in others they go but to the Middle, and in others not so deep.

DENDROPHORIA, in Antiquity, a Heathen Ceremony, consisting in the carrying of one or more Trees through a City, in certain Sacrifices, and in Honour of certain Deities.

The *Dendrophoria* was perform'd in the Sacrifices of *Bacchus, Cybele*, and the God *Sylvanus*. *Arnobius*, Lib. V. makes mention of that perform'd in the Sacrifices of the Mother of the Gods. It consisted in carrying a Pine in Procession through the City; which Pine was afterwards planted in Memory of that, where under *Atys*, the Favourite of the Goddess, mutilated himself. The Branches of this Tree they crown'd, in Memory of *Cybele*'s doing the same; and they cover'd its Trunk with Wool, by reason the Goddess cover'd *Atys*'s Breast with the same.

The Persons who perform'd the Office of Carrying the Tree, were call'd *Dendrophori*.

In the *Roman* History we find mention made of a Company, or College of *Dendrophori*, who attended the Army: And the Criticks have been in great Pain to assign their Office. Some hold, that they hew'd, and form'd the Wood for the Tents: Others, that they provided the Wood necessary for the Military Works, Machines of War, *&c.* *Salmasius* in his Notes on the Life of *Caracalla* by *Spartian*, owns this the general Opinion of all the Learned Men of his Time; but assures with his usual Modesty, that they were all mistaken, and that the *Dendrophori* of the Army were the same with those of the Sacrifices.

The Word is form'd of δένδρον, Tree, and φέρω, I bear.

DENEB, in Astronomy, a fix'd Star, call'd also *Cauda Lucida*, or the *Lion's Tail*; Its Longitude, Latitude, *&c.* see under LEO.

DENELAGE, or DANELAGE, the Law made by the *Danes* in *England*. See MERCHENLAGE.

DENIER, the *French* Penny; a small Copper Coin, 12 whereof make a *Sol*, or *French* Shilling. See SOL, SHILLING, PENNY, COIN, *&c.*

The French *Denier* is about $\frac{1}{12}$th Part of the *English* Penny. It is subdivided into two *Mailles*, and the *Maille* into two *Oboles*.

Anciently, *Denier* was a general Name for all Sorts of Monies in *France*; as *Nummus* was for those in *Rome*. Thus, a Piece of Gold Money, was call'd *Denier d'Or*; Silver Money, *Denier d'Argent*: After the same Manner as the *Romans* said, *Nummus Aureus*, and *Nummus Argenteus*. There were two Kinds of *Deniers*, the one *Tournois*, the other *Parisis*; whereof the latter was worth a fourth Part more than the former, and was call'd *Monnoye Royale*, or *Forte Monnoye*, and sometimes *Denier d'Or*, and *Denier a Valeur d'Or*.

DENIZEN, in Law, (from the French *Donaison*, i.e. Donation) an Alien that is Enfranchised here in *England* by the King's Charter, and Donation; and thereby enabled, in many Respects, to do as the King's Native Subjects do, namely, to purchase, and possess Lands, to hold any Office, or Dignity, *&c.* Yet is *Denizenship* short of *Naturalization* by Parliament. For a Stranger naturalized, may inherit Lands by Descent; which a *Denizen* cannot. Besides that, in the Charter, whereby a Person is made a *Denizen*,

there is usually some Clause, or other, which abridges him of that full Benefit, which natural Subjects enjoy.

When a Man is thus Enfranchised, he is said to be, *Ad Fidem Regis Angliæ*, or, *under the King's Protection*; till such Time his Goods may be seiz'd to the King's Use.

DENOMINATION, that whereby one Thing takes a Name, from the Name of another, on Account of some Relation between the two: or, more strictly, it is a Name whereby something is call'd, in Consequence of some Form, or Property thereof. See NAME.

Hence, as the Form is of two Kinds, *viz. Internal*, and *External*; *Denomination* becomes two-fold.

Internal DENOMINATION, is that founded on the inner Form, or arising from the Intrinsic Form; thus *Peter* is denominated *Learned*, on Account of his Learning, which is something Intrinsic.

External DENOMINATION, is that founded, or arising from the external Form. Thus, a Wall is said to be *seen*, and *known* from the Vision, and Cognition employ'd upon it; and thus *Peter* is denominated, *honoured*, by reason of Honour, which is not in the Person honoured, but in him that honours.

DENOMINATOR, in Arithmetic, a Term only used in speaking of Fractions, or broken Numbers. See FRACTION.

The *Denominator of a Fraction* is the lower Number; or that below the Line; shewing into how many Parts the Integer is supposed to be divided by the Fraction. Thus in the Fraction $\frac{7}{12}$, *seven twelfths*, the Number 12 is the *Denominator*; and shews, that the Integer is here divided into 12 Parts. The *Denominator* always represents an Integer.

The Number above the Line 7, is call'd the *Numerator*. See NUMERATOR.

DENOMINATOR *of a Ratio*, is the Quotient arising from the Division of the greater Term by the less. Thus 6 is the *Denominator* of the Proportion 30 : 5. because 5) 30 (6. The *Denominator* is what we otherwise call the *Exponent of the Ratio*. See EXPONENT.

DENSITY, that Property, or Habitude of Bodies, whereby they contain such a Quantity of Matter, under such a Bulk. Accordingly, a Body that contains more Matter than another, under the same Bulk, is said to be *denser* than the other. *Density* stands in Opposition to *Rarity*. See RARITY, and CONDENSATION.

Hence, since the Mass is proportional to the Gravity, a *denser* Body is specifically heavier than a *rarer*; and a specifically heavier is *denser* than a specifically lighter. See WEIGHT, and GRAVITY.

The *Densities*, and Bulks of Bodies, are the two great Points, whereon all Mechanicks, or Laws of Motion turn: 'tis an Axiom, that Bodies of the same *Density* contain equal Masses, under equal Bulks. If the Bulks of two Bodies be equal, their *Densities* are as their Masses: Consequently, the *Densities* of equal Bodies, are as their Gravities. If two Bodies have the same *Density*, their Masses are as their Bulks: And hence, the Gravities of Bodies of the same *Density*, are in the *Ratio* of their Bulks. The Masses of two Bodies are in a *Ratio* compounded of their *Densities*, and Bulks; consequently, their Gravities are in the same *Ratio*: And if their Masses, or Gravities be equal, their *Densities* are reciprocally as their Bulks. The *Densities* of any two Bodies are in a *Ratio* compounded of the direct *Ratio* of their Masses, and the reciprocal one of their Bulks.

The Peripateticks define *Density*, a secondary Quality, whereby a Body is full of it self; its Parts cohering without any Interstice. So that the Form of *Density* consists in the immediate Coherence of Parts. Hence *Porphyry* in his Predicaments defines a *dense* Body, that whose Parts are placed so near each other, that no other Body can come between them; as Gold. The efficient Cause of *Density* they usually attribute to cold: *Scaliger*, and some others, attribute it to Moisture. Many of the Moderns take the Smalness of the Parts of Bodies, to contribute much to their *Density*; as by this means the Pores are left the smaller. Tho' 'tis added, that the *Density* of Bodies does not only depend on the Smalness of the Pores, but also on their Fewness; Far are we from having any Body absolutely *dense*, in the Sense of the Ancients: Gold it self, the *densest*, and heaviest of all natural Bodies, Sir *Is. Newton* observes, does contain a great deal more Pore, or Vacuity, than Substance. See PORE.

When the Pressures of two Liquids are equal, the Quantities of Matter in Columns which have equal Bases, do not differ; wherefore the Bulks, that is, the Heights of the Columns are inversely as the *Densities*; whence may be deduced the Method of comparing them together: After this Manner: pour Mercury into a curb Tube A, so as to fill the lower Part of the Tube from B to C; (*Tab. Hydrostaticks Fig.* 1.) pour in Water in one Leg from B to E; in the other Leg pour in Oil of Turpentine, till both the Surfaces of the Mercury B C, be in the same Horizontal Line, and the Height of the Oil be CD: These Heights will be as 87 to 100, which is the inverse *Ratio*, that the *Density* of Water has to the *Density* of Oil of Turpentine; and therefore those *Densities* are to each other as 100 to 87. The Mercury is poured in, lest the Liquids should be mixed in the Bottom of the Tube.

The *Densities* of Liquids are also compared together by immerging a Solid into them; for if a Solid lighter than the Liquids to be compared together, be immersed successively into different Liquids, the immersed Parts will be inversely as the *Densities* of the Liquids; for, because the same Solid is made Use of, the Portions of the different Liquors, which in every Case would fill the Space taken up by the immersed Parts, are of the same Weight; therefore the Bulks of those Portions, that is the immersed Parts themselves are inversely as the *Densities*. See further under SOLIDS *immersed in Liquids*.

The DENSITY *of the Air*, is a Property that has much imploy'd the later Philosophers, since the Discovery of the Torricellian Experiment, and the Air-pump. See RAREFACTION, and CONDENSATION.

'Tis demonstrated, that in the same Vessel, or even in Vessels communicating with each other, at the same Distance from the Centre, the Air has every where the same *Density*. The *Density of the Air* always increases in Proportion to the Compression, or the compressing Powers. See PRESSURE.

And hence, the lower Air is always *denser* than the upper: Yet the *Density* of the lower Air is not proportional to the Weight of the Atmosphere, by reason of Heat and Cold, which make notable Alterations as to Rarity, and *Density*. If the Air be rendred *denser*, the Weight of Bodies therein is diminish'd; and if rarer, increased; by reason Bodies lose more in heavier than in lighter *Medium's*. See SPECIFIC GRAVITY.

And hence, if the *Density of the Air* be sensibly alter'd, Bodies equally heavy in a lighter Air, if their specific Gravities be considerably different, will have their *Equilibrium* taken away in a *denser* Air, and the specifically heavier will preponderate; which is the Foundation of the *Manoscope*, an Instrument for measuring the Alterations in the *Density* of the Air. See MANOSCOPE.

DENTAL, *Dentalis*, is applied to Letters, in the Pronunciation whereof the Teeth have a principal Share. See LETTER.

Grammarians, and especially the *Hebrew* ones, distinguish the Letters into *Dental*, *Labial*, *Guttural*, *Lingual*, *Palatal*, &c. See GUTTURAL, *&c.*

DENTALIS *Lapis*, or *Dentalium*, is a Kind of Shell, which the Apothecaries pulverize, and use in several Medicaments, as an excellent *Alcali*. The genuine *Dentalis*, described by Mr. *Tournefort*, is of a tubular, or Conical Form, about 3 Inches long; of a shining, greenish white; hollow; light, and divided lengthwise by Parallel Lines, running from Top to Bottom. It is about the Thickness of a Feather, and bears some Resemblance to a Dog's Tooth. 'Tis very scarce; and therefore in lieu of it, they usually substitute a Shell of divers Colours found among the Sand when the Sea is withdrawn; but not channel'd, or fluted like the *Dentalis*.

D. *Lister*, in the *Philosoph. Transact.* makes mention of two Species of *Dentalia*; the first commonly enough found about the Island of *Guernsey*, &c. being a long, slender, round Pipe, a little bending, and tapering, and hollow at both Ends; whence it is also call'd, *the Dog-like-tooth*: The other properly call'd *Entalium*, longer, and thicker than the former; and besides, streak'd with Ridges; whence the *Italian* Term *Intaglia*. See ENTALIUM.

DENTED, *Indented*, Tooth'd. See INDENTED.

DENTED *Verge*, among Botanists, is applied to such Leaves of Plants as are notched, or jagged about the Edge, or Brim; whereof some are *fine dented*; others *large*, or *deep dented*, i. e. cut into the Leaf. See LEAF.

DENTED *Wheel*, *Rota Dentata*. See WHEEL.

DENTES, in Anatomy. See TEETH.

DENTICLES, or DENTILS, in Architecture, an Ornament in Corniches, bearing some Resemblance to Teeth; particularly affected in the *Ionic*, and *Corinthian* Orders.

They are cut on a little square Member, properly call'd *Denticulus*; and the Notches, or Ornaments themselves, *Dentes*, from *Dens*; as having the Appearance of a Set of Teeth.

Anciently, *Dentils* were never used but in the *Ionic* Cornich: Yet we find them in the Remains of the Theatre of *Marcellus*; which is an Argument with some, that *Vitruvius* had not the Direction of that Building. *Vitruvius* prescribes the Breadth of each *Dentil*, or Tooth, to be half its Height; and the Indenture, or Interval between each two, he orders to be $\frac{2}{3}$ of the Breadth of the *Dentil*.

The same Author, *C.* 2. of his IVth Book, observes, that the *Greeks* never used *Dentils* underneath Modillions; by reason Modillions represent Forces; and *Dentils* represent Ends of Rafters, which can never be plac'd underneath Forces. See MODILLION.

The

The *Romans* were not so scrupulous as to this *Decorum*; excepting in the *Pantheon*, where there are no *Dentils* under the Modillions, neither in the *Portico*, nor in the Inside of the Building. The *Italians* call them *Dentelli*, and *Denticoli*.

DENTIFORMIS *Processus*, the same as *Pyrenoides*. See PYRENOIDES.

DENTIFRICE, in Medicine, Tooth-Powder; a Remedy to rub the Teeth withal, in order to cleanse, or fasten them. See TOOTH.

There are *Dentifrices* of divers Kinds, and Forms: Some in Form of a Powder, composed of Corals, Pumice-Stone, Salt, Alumn, Egg-Shells, Lobsters, Harts-Horn, Cuttle-Bone, Tartar vitriolated, *&c.* Others in Form of an Electuary, or Opiate, consisting of the same Powders, mix'd up with Honey.

There are others, prepar'd with Roots boil'd with Alum, and dried in the Oven. Others in Form of a Liquor, drawn by Distillation from drying Herbs, and astringent Medicines. The *Dutch* hold Butter the best *Dentifrice*, to keep the Teeth white and sound; And the *Spaniards*, Urine.

DENTITION, the Act of breeding, or cutting the Teeth. The Time of *Dentition*, is usually from about 7 Months old, to 17. The *Incisores* come first; then the *Maxillares*; and lastly the *Canini*, or Eye-Teeth. See TEETH.

Dentition, *Hippocrates* observes, is usually proceeded with an Itching of the Gums, Convulsions, Fevers, and Looseness; especially when the Canine-Teeth are cut.

The like Symptoms, Dr. *Lister*, on this Passage of *Hippocrates*, observes, happen to Birds upon Moulting, or Casting their Feathers, on which Occasion they become mute, and sullen. See MOULTING.

The Germen, or Seed of the Tooth, says *Dolæus*, is a slender, mucous Matter, like the White of an Egg, contain'd in the Cells, or *Alveoli* of the Jaw-bone, which grows harder and bigger every Day, till it be fit to break through the Gum. In this Rupture the poor Child is afflicted with terrible Symptoms, Inflammations of the Jaws, Gripes, Waking, Inquietude, Terrours, Dejections, Vomiting, Salivation, Epilepsy, Abscesses, and frequently Death.

There are two Terms, or Periods of *Dentition*; The one, when the Tooth makes its first Endeavour to get out of the Maxillary Bone, and wherein the outer, and upper Part of the Gum uses to be incompassed with a whitish Circle. The other, when the Tooth, considerably enlarged in Bulk, renders the Gum tumid, and strives with all its Force to break its Way through the same. The Remedies against the Symptoms of *Dentition* are Absorbents, and gentle Purgatives.

DENUNCIATION, a solemn Publication, or Promulgation of any Thing.

All Vessels are lawful Prize after *Denunciation*, or Proclamation of War. See PRIZE.

The *Denunciation* of excommunicated Persons, is, that the Sentence may be the more fully executed, that the Persons may be known, the Entrance into the Church refused them, and that other People may be warned, not to have any Communication with them. See EXCOMMUNICATION.

DEOBSTRUENTS are such Medicines as open Obstructions. See OBSTRUCTION, and DETERGENT.

It must be observ'd, however, that there is something further intimated by *Deobstruent*, than by *Detergent*: For a Medicine may be *deobstruent*, that is not in the strictest Sense *detergent*; as, in Effect, are most made of metalline Substances; such as Steel, and Mercury; which obtain this Appellation from their Acting by their natural Weight, whereby they increase the *Momentum* of their circulating Fluid, and make it strike against the secretory Outlet with greater Force; because the *Momenta*, or *Vis Percussionis* of all Projectils, of which Kind is a circulating Fluid, is as their Solidities, supposing their Velocities equal. The more therefore the Animal Fluids are saturated with dense, and solid Particles, with the greater Force they distend the Vessels, and more easily break through, where the Structure favours their Escape; and upon that Account are Medicines, which add to these Qualities in the Fluids, call'd *Deobstruents*.

DEODAND, in our Customs, a Thing given, or forfeited, as it were, to God, for the Pacification of his Wrath in a Case of Misadventure, whereby a Christian Soul comes to a violent End, without the Fault of any reasonable Creature: As if a Horse strike his Keeper, and kill him; If a Man, in driving a Cart, falls so as the Cart-Wheel runs over him, and presses him to death; If one be felling a Tree, and gives Warning to the Standers by, to look to themselves; yet a Man is kill'd by the Fall thereof: In the first Place the Horse; in the second, the Cart-Wheel, Cart, and Horses; and in the third, the Tree, is, *Deo dandus*, q. d. *to be given to God*, that is, to the King, to be distributed to the Poor by his Almoner, for Expiation of this dreadful Event; tho' effected by unreasonable, nay senseless, and dead Creatures.

Omnia quæ movent ad Mortem sunt Deodanda.
What moves to Death; or kills him dead,
Is *Deodand*, and forfeited.

This Law seems to be an Imitation of that in *Exodus*, Chap. XXI. *If an Ox gore a Man, or a Woman, with his Horn, so as they die; the Ox shall be ston'd to Death; and his Flesh not be eat; So shall his Owner be innocent.*

Fleta says, the *Deodand* is to be sold, and the Price distributed to the Poor, for the Soul of the King, his Ancestors, and all faithful People departed this Life.

DEOPPILATIVE, a Remedy proper to soften, resolve, and remove Obstructions. See OBSTRUCTION.

Deoppilatives are the same with what we otherwise call *Deobstruents*. See DEOBSTRUENT.

DEPART, a Method of refining, or purifying Gold by means of *Aqua fortis*. See GOLD.

There are three Ways of refining Gold; The first by *Antimony*: The second by *Sublimate*: and the third, which is the most usual, by *Aqua fortis*. The two former, see under the Article REFINING.

For the Operation of the *Depart*, they take at the Rate of 1 Pound of impure Gold, and 2 of Silver; these they fuse together in a Crucible, and when fused, cast them into cold Water, where they become divided into Grains of the Bigness of Peas. These Grains taken out, and dried by the Fire, are put in a *departing* Vessel, which is a Stone Matrass, and to the Metal is added 4 Pounds of *Aqua fortis*. Then taking the Vessel, they set it on the Coals, and in about an Hours Space, the refining is done. For upon opening the Vessel, they find nothing therein but the *Aqua fortis*, and the Gold reduced into a *Calx*, or Sand: The Silver being all dissolv'd, and imbibed by the Water.

To raise the Gold to its due Fineness, they usually give it the *Aqua fortis* again, and again; using for the first Time, half a Pound; and for the second, a Quarter of a Pound of the Water, to 8 Ounces of Metal. If the third Water be found good, and clear, the Operation is ended: And the *Calx* of the Gold being wash'd in repeated Water, is melted down again in a Crucible, first by a gentle, and afterwards a vehement Fire, to be cast into Ingots, or Wedges.

It must be added, that the Silver, with the Impurities of the Gold, are so throughly incorporated with the Water, that to the Eye there does not appear any Thing beside the pure Liquid; yet is not this Silver lost. To recover it again out of the *Menstruum*, they divide their Stock of *Aqua fortis* into several Stone Vessels, which they fill up with Spring Water, observing to put 7 or 8 times as much of this, as that. This done, in each Vessel they put a Quantity of Copper; and leaving the whole for 24 Hours, at the End thereof they find the Spirits of the *Aqua fortis* have quitted the Silver, and are incorporated with the Copper, leaving the former in Form of a *Calx*, or Ashes at Bottom. This *Calx* being dried, is melted into an Ingot, with a little Salt-petre.

To husband the *Aquæ fortes*, and make them serve again for a second Operation; they distil them in an Earthen, or Glass Alembic; and when the Distillation is about a third over, change the Recipient. The Water of the first Recipient, serves for the first Operation of *Depart*, and the rest for the subsequent ones.

If the *Aqua fortis*, having quitted the Silver, and being united with the Copper, be then filtrated, it is call'd, *Aqua secunda*; In which if you steep an Iron-Plate some Hours, you will have another *Depart*. For the *Menstruum* will let go the Copper, and prey on the Iron, leaving the Copper in Powder on the Iron-Plate. And filtrating this *Dissolution*, you may get the Iron out of it by laying in it a Piece of *Lapis Calaminaris*; for the Iron in that Case will *depart* to the Bottom, and the *Lapis* be dissolv'd. And if you again filtrate this Water, and pour on it the Liquor of fix'd Nitre, you will have another *Depart*; the *Lapis* precipitating to the Bottom. And lastly, filtrating this Water, as before, and evaporating Part of it, you will have Crystals of Salt-petre.

DEPARTURE, or DEPARTER, in Law, a Term properly applied to a Person, who first pleading one Thing in Bar of an Action, that being replied to, he waves it, and insists on something different from his first Plea. Or it may be applied to a Plaintiff, who in his Replication shews a new Matter from his Declaration. So if a Man plead a general Agreement in Bar; and in his Rejoynder alledge a special one; it shall be adjudged a *Departure* in Pleading. *The Defendant hereupon demurred, because it was a* Departure *from the Declaration.* Coke II. Part, fol. 147.

DEPARTURE *in Despight of the Court*, is when the Tenant, or Defendant appears to the Action brought against him, and has a Day over in the same Term; he not appearing, but making a Default, it is a *Departure in Despight of the Court*, and therefore he shall be condemn'd. The *Departure* is always on the Part of the Tenant, or Defendant; and its Entry is, *quod prædictus A, licet solemniter Exactus, non revenit, sed* in contemptum Curiæ recessit.

DE-

DEPARTURE, in Navigation, is the Easting, or Westing of a Ship, with respect to the Meridian it *departed*, or sail'd from. See MERIDIAN.

Or 'tis the Difference of Longitude, either East or West, between the present Meridian the Ship is under, and that where the last Reckoning, or Observation was made. See LONGITUDE.

This *Departure* any where, but under the Equator, must be accounted according to the Number of Miles in a Degree proper to the Parallel the Ship is under. See *Mercators*-SAILING.

DEPHLEGMATED, in Chymistry, an Epithet applied to Spirits that are well clear'd of Water, or Phlegm. See SPIRIT, and PHLEGM.

To effect which, they *rectify* them, *i.e.* distil them over and over, till they be left quite pure. See DISTILLATION, and RECTIFICATION.

DEPHLEGMATION, in Chymistry, is the Act of purifying, or clearing a Fluid of its Phlegm, or Water.

This is perform'd by distilling the Spirit, or other Fluid over and over; by which means, the spirituous Part all rises, and leaves the Phlegm, or Water behind. When the Spirit is thus disengag'd of all its Phlegm, or, at least, as much as it can be, it's call'd, a *dephlegmated Spirit*. See PHLEGM.

DEPILATORY, or DEPILATIVE, in Medicine, a Plaster, or Medicine, applied on any hairy Place, in order to bring off the Hair. See HAIR.

Depilatories are principally composed of Orpiment, which is a very caustic, and even a dangerous Mineral. For Hairs growing on the Fore-head of a young Girl, I prescribed the following *Dropax*, or *Depilative Liniment*, *Degori*.

The Word is form'd of the Particle *De*, and *Pilus*, Hair.

DEPONENT, in the *Latin* Grammar, a Term applied to Verbs, which have Active Significations, but Passive Terminations, or Conjugations, and want one of their Participles Passive: As, *Minor*, I threaten, which has for Participles, *Minans*, *Minaturus*, and *Minatus*, but no *Minandus*, which should be the Participle Passive. See VERB.

They are call'd *Deponents*, as having *deposited*, or laid a-side their Passive Signification.

DEPOPULATION, a Wasting, Pilling, Destroying, Desolating, or *Unpeopling* any Place. *Cokes Instit. Part* III. *fol.* 204.

Hence; *Depopulatores Agrorum. Stat.* 4. *Henr.* IV.

DEPORTATION, a Sort of Banishment in Use among the *Romans*, whereby some Island, or other Place was allotted a Criminal for the Place of his Abode, with a Prohibition not to stir out of the same on Pain of Death. See BANISHMENT.

Ulpian makes this Difference between *Deportation*, and Relegation, that the former confined the Party to one certain Place for ever; whereas Relegation was frequently revoked, and allowed a little more Liberty. By *Deportation* that Person lost the Rights of a *Roman* Citizen. See RELEGATION.

DEPOSITION, in Law, a Testimony given in Court by a Witness upon Oath. In Chancery, *Deposition* is a Testimony set down in Writing, by Way of Answer to the Interrogatories exhibited in Chancery, where such Witness is call'd *Deponent*. When such Witness is examin'd in open Court, he is said to be examin'd *viva Voce*.

DEPOSITION is also used for the sequestring, or depriving a Person of his Dignity, and Office.

Deposition only differs from Abdication, in that the latter is supposed voluntary, and the Act of the Dignitary, or Officer himself; and the former of Compulsion, being the Act of a superior Power, whose Authority extends thereto.

Some say the *Deposition*, and some the Abdication of King *James* II. See ABDICATION.

The Pope pretends to a Power of *deposing* Kings. *Gregory* VII. we are assured by *Onuphrius Pavinius*, and *Otho de Frisinga*, was the first, who ever attempted the *Deposition* of Kings.

Deposition does not differ from Deprivation: We say indifferently a *deposed*, or deprived Bishop, Official, *&c.* See DEPRIVATION.

Deposition differs from Suspension, in that it absolutely and for ever strips, or divests a Priest, *&c.* of all Dignity, Office, *&c.* whereas Suspension only exhibits, or restrains the Exercise thereof. See SUSPENSION.

Deposition only differs from Degradation, that the latter is more formal, and attended with a few more Circumstances than the former: But in Effect and Substance they are the same; those additional Circumstances being only Matter of Shew, first set on foot out of Zeal, and Indignation, and kept up by Custom, but not warranted by the Laws, or Canons. See DEGRADATION.

DEPOSITORY, in Law, a Person entrusted as Keeper, or Guardian of any Thing. See DEPOST.

Ordinary Depositories are not to warrant the Thing left with them, in Case it be lost, or stolen. They are only to answer for a Fraud, or Breach of Faith, not for Negligence. But a *Necessary Depository*, as an Inn-keeper, is accountable for a Theft, or Robbery, if there have been any Negligence in the Case.

DEPOST, *Depositum*, a Thing put in the Hands of another to be kept *gratis*. See DEPOSITORY.

The Civilians divide a *Depositum* into Simple, and Judiciary.

Judiciary, is that contested between several Persons, and *deposited* in the Hands of some third Person, by Decree of a Judge.

Simple is either Voluntary, or Necessary. *Necessary* is that done in Case of Hostility, Shipwrack, Fire, *&c.*

Inn-holders are responsable for the Baggage brought to them, as being a *Necessary Depost*.

DEPRECATION, in Rhetoric, a Figure whereby the Orator invokes the Aid, or Assistance of some one; or prays for some great Evil, or Punishment to befal him who speaks falsely; either himself, or his Adversary.

DEPRECATIVE, in Theology, a Term only used in the Phrase, *Deprecative Form*, which is applied with regard to the Manner of performing some Ceremonies in the Form of Prayer.

Among the *Greeks*, the Form of Absolution is *deprecative*, being conceiv'd in these Terms, *May God absolve you*; Whereas in the *Latin*, and even some of the Reformed Churches, it is in the declarative Form, *I absolve you*.

DEPRESSION *of Equation*. See EQUATION.

DEPRESSION *of the Pole*: So many Degrees as you sail, or travel towards the Zenith; so many you are said to *depress* the Pole, because it becomes, respectively, so much lower, or nearer to the Horizon. See ELEVATION *of the Pole*.

DEPRESSOR, in Anatomy, a Name common to divers Muscles, from their Office in Lowering, or bringing down the Parts they are fasten'd to. See MUSCLE.

DEPRESSOR *Labii superioris*, in Anatomy, a Muscle call'd also *Constrictor Alæ Nasi*. See CONSTRICTOR *Alæ Nasi*.

DEPRESSOR *Labii inferioris proprius*, a Muscle placed between the *Depressores Labiorum communes*, on the Part call'd the *Chin*. It appears to be but one Muscle, ascending with a twofold Order of fleshy Fibres, and terminating in the lower Lip. Its Office is shewn by its Name; To let fall the lower Lip.

DEPRESSOR *Labiorum communis*, by some call'd *Depressor Labii superioris*, is common to both Lips. It arises with a broad Origin from the lower Margin of the under Jaw, by the Side of the Chin, and is inserted with a narrow Tail into each Lip near their Coalition; serving to draw them obliquely down.

DEPRESSOR *Maxillæ inferioris*. See DIGASTRICUS.

DEPRESSOR *Oculi*, a Pair of Muscles springing from each Corner of the Eye, and answered by another of like Figure and Structure in the lower Eye-lid. These are often consider'd together by Anatomists as one Orbicular Muscle; the Fibres invironing the Eye-lids, and inserted into them, not unlike the Sphincters of other Parts.

DEPRIMENS, in Anatomy. See DEPRESSOR.

DEPRIVATION, in the Canon Law, the Act of bereaving, divesting, or taking away a spiritual Promotion, or Dignity: As when a Bishop, Vicar, Prebend, or the like, is deposed, or deprived of his Preferment for some Matter, or Fault in Fact, or in Law.

Deprivation is of two Kinds; *A Beneficio, & ab Officio.*

DEPRIVATION *a Beneficio*, is when for some great Crime, a Minister is wholly, and for ever *deprived* of his Living, or Preferment: which differs from Suspension, in that the latter is only a temporary *Deprivation*. See SUSPENSION.

DEPRIVATION *ab Officio*, is when a Minister is for ever *deprived* of his Orders; Which is the same in Reality, with what we otherwise call *Deposition*, and *Degradation*; and is usually for some heinous Crime, deserving Death, and perform'd by the Bishop, in a solemn Manner. See DEGRADATION.

DEPTH, in Geometry, *&c.* See ALTITUDE, HEIGHT, *&c.*

DEPTH *of a Squadron*, or Battallion, is the Number of Men in a File; which in a Squadron is three, and in a Battallion generally six. See SQUADRON, FILE, *&c.*

The Enemies Horse were drawn up 5 *deep*.

DEPURATION, in Pharmacy, the same as *Clarification*, or *Purification*, viz. the purging a Body of all the Lees, Fæces, and other crass, coarse, and excrementitious Parts adhering therein. See CLARIFICATION, PURIFICATION, *&c.*

Fermentation serves to *depurate* Liquors: Syrups, Juices, *&c.* are *depurated* by passing them through the *Manica Hippocratis*, or Straining-Bag. See FILTER, *&c.*

DE-

DEPUTATION, a Miſſion of certain ſelect Perſons out of a Company, or Body, to a Prince, or Aſſembly, to treat of Matters in their Name; or to proſecute ſome Affair therein. See DEPUTY.

Deputations are more or leſs ſolemn, according to the Quality of thoſe who ſend them, and the Buſineſs they are ſent upon.

Deputation is not properly applied where a ſingle Perſon ſends another with ſuch Commiſſion; but only where a Body are concern'd. The Parliament *deputed* the Speaker, and 6 Members, to preſent their Addreſs to his Majeſty. The Chapter *deputed* two Canons, to ſollicit their Affair in Council.

DEPUTY, a Perſon ſent, or *deputed* by ſome Community, in their Name, and Behalf. See DEPUTATION.

The ſeveral Provinces of the *French* Dominions ſend *Deputies* to the King every Year, to preſent him the *Cayer des Etats*: There are always three *Deputies*, one from each Order. 'Tis the *Deputy* of the firſt Order, that makes the Compliment to the King.

In the Cities of *Turky*, there are always *Deputies*, to treat with the Grand Seignior's Officers, as to Taxes, and other Concerns. Theſe *Deputies* are three or four of the richeſt, and moſt conſiderable among the Burgeſſes.

DEPUTY, is alſo frequently uſed among us, for an Office, or Employ; not a Dignity; and ſtands indifferently for a Vice, or Lieutenant. See LIEUTENANT, and VICE.

Among the Ancients, *Deputatus* was applied, Firſt, to Armorers, or Workmen employ'd in the making of Armour in the Forges, &c. And ſecondly, to a Sort of buſie People, who followed the Army, and in Engagements were charged to bring off, and take Care of the Wounded.

DEPUTATUS, Δεπουτάτος, was alſo an inferior Officer in the Church of *Conſtantinople*, whoſe Buſineſs was to call Perſons of Condition the Patriarch had a Mind to ſpeak withal, and to keep off the Crowd where the Prelate walk'd. This *Deputy* appears to have been a Sort of *Uſher*, or Tip-Staff. But he had likewiſe the Care of the ſacred Veſtments; in which he approach'd the Office of a Sacriſtan.

DERELICTS, in the Civil-Law, are ſuch Goods as are wilfully thrown away, or relinquiſh'd by the Owner. The Term is alſo uſed for ſuch Lands, as the Sea receding from leaves dry, and fit for Cultivation.

DERIVATION, in Grammar, the Connexion, or Affinity one Word has with another, by having been originally form'd from it. See ETYMOLOGY.

DERIVATION, in Medicine, the diverting a Humour, which flows on ſome noble Part, and drawing it to ſome other neighbouring Part, where it is leſs dangerous. See HUMOUR.

Thus, in Defluxions upon the Eyes, or Teeth, they apply a Bliſter behind the Neck to draw the Matter thither: And in a Squinancy, they preſcribe Bleeding in the *Ranulæ*, or Veins under the Tongue, to divert the Humour from falling on the Throat. See DEFLUXION, and FLUXION.

DERIVATIVE, in Grammar, a Word, or Diction, which takes its Origin from another Word, call'd its *Primitive*. See PRIMITIVE.

Such is the Word *Derivative*, which takes its Origin from the Primitive *Rivus*, a Rivulet, or Channel, out of which leſſer Streams are drawn; and thus *Manhood*, *Deity*, *Lawyer*, &c. are *derived* from *Man*, *Deus*, *Law*, &c.

DERMA, in Anatomy, the *Cutis*, or Skin of an Animal; or the Tegument inveſting the whole Body immediately under the Cuticle, or Scarf-Skin. See CUTIS.

The *Derma* conſiſts of two Parts, the *Corpus reticulare*, and the *Papillæ pyramidales*. See SKIN, RETICULARE, and PAPILLÆ.

The Word comes from the *Greek* Δερεῖν, *to flea*, or *excoriate*.

DERNIER *Reſſort*. See RESSORT.

Whatever Power is committed by the King to any other, the *Dernier Reſſort* is ſtill remaining in himſelf; ſo that he may ſit in Court, and take Cognizance of Cauſes; except in Felonies, Treaſons, and other Caſes, where he himſelf is a Party.

DEROGATION, an Act contrary to a preceeding one, and that annuls, deſtroys, and revokes it.

Derogations, in general Terms, are not regarded in Judicature; they muſt be in ſpecific, and in formal Terms.

A new Law imports a *Derogation* of a former one: A ſecond Teſtament is a *Derogation* of a firſt.

DEROGATORY, a Clauſe importing *Derogation*. If a Perſon own himſelf indebted in a certain Sum; notwithſtanding any Quittance he has obtain'd for the ſame, the Act is *derogatory*.

DERVIS, or DERVICHES, a Sort of Monks among the *Turks*, who lead a very auſtere Life, and profeſs extream Poverty; tho' allowed to marry.

The *Dervis*, call'd alſo *Mevelavites*, are a *Mahometan* Order of Religious; the Chief, or Founder whereof was one *Mevelava*. They are now very numerous. Their firſt Monaſtery is that near *Cogni* in *Natolia*; where the General makes his Reſidence; and where all the Aſſemblies of the Order are held: the other Houſes being all dependent of this; which Privilege *Ottoman* I. granted this Monaſtery.

The *Dervis* effect a World of Modeſty, Patience, Humility, and Charity. They always go bare-legged, and open-breaſted, and frequently burn themſelves with hot Iron, to enure themſelves to Patience. They always faſt on Wednesdays, eating nothing on thoſe Days till after Sun-ſet. Tuesdays and Fridays they hold Meetings, at which the Superior of the Houſe preſides. One of them plays all the while on a Flute, and the reſt dance, turning their Bodies round and round with the greateſt Swifneſs imaginable. Long Cuſtom to this Exerciſe from their Youth, has brought them to ſuch paſs, that it does not maze, or diſcompoſe them at all. This Practice they obſerve with great Strictneſs, in Memory of *Mevelava* their Patriarch's turning miraculously round, for the Space of four Days, without any Food, or Refreſhment; his Companion *Hamſa* playing all the while on the Flute; after which he fell into an Extaſy, and therein receiv'd wonderful Revelations for the Eſtabliſhment of his Order. They believe the Flute an Inſtrument conſecrated by *Jacob*, and the Shepherds of the Old Teſtament; by reaſon they ſang the Praiſes of God thereon. They profeſs Poverty, Chaſtity, and Obedience, and really keep it while they remain *Dervises*; But if they chuſe to go out; and marry, they are always allowed.

The Generality of *Dervises* are Charletans: Some apply themſelves to Legerdemain, Poſtures, &c. to amuſe the People; Others give into Sorcery, and Magic: But all of them, contrary to *Mahomet's* Precept, drink Wine, Brandy, and other ſuddling Liquors, to give them the Degree of Gayety their Order requires.

Beſide their great Saint *Mevelava*; there are particular Saints honour'd in ſome particular Monaſteries: As *Kederle*, greatly rever'd in the Monaſteries of *Egypt*, and held by ſome to be St. *George*, and by others, with more Probability, the Prophet *Elias*. The *Dervises* are great Travellers; And under Pretence of preaching, and propagating their Faith, are continually paſſing from one Place to another: On which Account they have been frequently uſed as Spies.

There are alſo *Derviches* in *Perſia*, call'd in that Country *Abdals*, q. d. *Servants of God*. They lead a very penurious, auſtere Life, and preach the Alcoran in the Streets, Coffee-Houſes, and wherever they can meet with Auditors. The Perſian *Derviches* retail little but Fables to the People, and are in the laſt Contempt among the Men of Wit, and Letters.

The Word is originally *Perſian* דרויש, ſignifying a *Beggar*, or Perſon who has nothing. And by reaſon the Religious, and particularly the Followers of *Mevelava*, profeſs not to poſſeſs any Thing; they call both the Religious in general, and the *Mevelavites* in particular, *Dervis*, or *Derviches*.

DESCANT, in Muſic, the Art of Compoſing in ſeveral Parts. See COMPOSITION.

Deſcant is three-fold; viz. *Plain*, *Figurate*, and *Double*.

Plain DESCANT, is the Ground-work, or Foundation of Muſical Compoſition, and conſiſts altogether in the orderly Placing of many Concords; anſwering to *ſimple Counter-point*.

Figurate, or *Florid* DESCANT, is that wherein Diſcords are concern'd as well, tho' not ſo much, as Concords. This may be well term'd, the Ornamental, or Rhetorical Part of Muſick; in Regard that in this are introduced all the Varieties of Points, Figures, Syncopes, Diverſities of Meaſures, and whatſoever elſe is capable of adorning the Compoſition.

Double DESCANT, is when the Parts are ſo contrived, that the Treble may be made the Baſs; and on the contrary, the Baſs the Treble. See HARMONY, COUNTER-POINT, &c.

DESCENDANT, in Genealogy, a Term relative to *Aſcendant*, and applied to a Perſon, who is born, or iſſued from ſome other here referr'd to. See ASCENDANT.

Adam infected all his *Deſcendants* with Original Sin. See ORIGINAL *Sin*.

The *Deſcendants* from the Brothers of the Maid of *Orleans*, are confirm'd in their Exemption from all Taxes, and Impoſts, by a Regulation of the Year 1634.

DESCENDING, ſomething that falls, or moves from above, downwards. There are *Aſcending*, and *Deſcending Stars*: *Aſcending*, and *Deſcending Degrees*. See ASCENDING, &c.

DESCENDING *Latitude*, is the Latitude of a Planet in its Return from the *Nodes* to the *Equator*. See LATITUDE.

There are *Aſcending*, and *Deſcending* Veins, ſpringing out of the *Cava*: *Aſcending*, and *Deſcending* Arteries, riſing out of the *Aorta*. See CAVA, and AORTA.

DESCENSION, in Aſtronomy, is either *Right*, or *Oblique*.

Right DESCENSION *of a Star*, or *Sign*, is a Point, or Arch of the Equator, which *deſcends* with the Star, or Sign below the Horizon, in a right Sphere. See *Right* SPHERE.

Oblique DESCENSION, is a Point, or Arch of the Equator, which descends at the same Time with a Star, or Sign below the Horizon, in an oblique Sphere. See *oblique* SPHERE.

Descensions, both *Right*, and *Oblique*, are accounted from the first Point of *Aries*, or the Vernal Intersection; according to the Order of the Signs; that is, from West to East. And as they are unequal, when it happens that they answer to equal Arches of the Ecliptick, as *e.gr.* to the 12 Signs of the Zodiack, it follows, that sometimes a greater Part of the Equator rises, or *descends* with a Sign, in which Case the Sign is said to ascend, or *descend rightly*: And sometimes again a less Part of the Equator rises, or sets with the same Sign; in which Case it is said to ascend, and *descend* obliquely. See ASCENSION.

Refraction of the DESCENSION, *&c.* See REFRACTION.

DESCENSIONAL *Difference*, is the Difference between the *Right*, and *Oblique Descension* of the same Star, *&c.* See DIFFERENCE.

DESCENT, or DISCENT, in Law, an Order, or Manner wherein Lands and Tenements are derived to any Man from his Ancestors.

Thus, to *make his Descent* from his Ancestors, is to shew how, and by what particular Degrees, the Land in Question came to him from his Ancestors.

Descent is either *Lineal*, or *Collateral*.

Lineal DESCENT, is that convey'd down in a right Line from the Grand-Father to the Father, and from the Father to the Son, from the Son to the Grand-Son, *&c.*

Collateral DESCENT, is that springing out of the Side of the Line, or Blood, as from a Man to his Brother, Nephew, or the like. See COLLATERAL, and DEGREE.

If one dies seised of Land, wherein another has Right to enter, and it *descends* to his Heir, such *Descent* shall take away the other's Right of Entry, and put him to his Action for Recovery thereof. *Stat.* 32. *Hen.* VIII.

DESCENT, in Genealogy, and Heraldry, the Order, or Succession of *Descendants* in a Line, or Family. See DESCENDANT.

One *Descent*, two *Descents*, &c. A Gentleman is of perfect Blood, who has four *Descents* of Gentility, both by his Father, and Mother's Side, *i.e.* whose Great-Grand-Father, Grand-Father, and Father, on both Sides, were all Gentlemen. See GENTLEMAN.

DESCENT, is also used in Heraldry, to express the coming down of any Thing from above.

Thus a *Lyon en Descent*, is a Lion with his Head to one of the base Points, and his Heels towards one of the Corners of the Chief; as if he were leaping from some high Place.

DESCENT, *Fall*, in Mechanicks, *&c.* is the Motion, or Tendency of a Body towards the Center of the Earth, either directly, or obliquely. See CENTER, and MOTION.

It is to be here observ'd, First, That a Body cannot *descend*, unless it can divide, and separate the *Medium*; which it cannot do, unless it be specifically heavier than the *Medium*. For since Bodies cannot penetrate each other, one must give Way 'ere the other can move: And again, Tho' a *Medium*, e. gr. *Water* be divisible, yet if it be specifically heavier than another, e. gr. *Wood*, it is only heavier as it contains more Particles of Matter in the same Bulk; all which have an Impulse downwards, and consequently in Water there is a greater Impulse than in the same Bulk of Wood. See SPECIFIC *Gravity*.

Secondly, The *Descending* Body loses as much of its Weight, as is the Weight of the *Medium*, with the Force of its Cohesion. See MEDIUM.

Thirdly, The less the Bulk of the *Descending* Body is, the more of its Gravity does it lose in the same *Medium*. For tho' the Proportion of the specific Gravity of the one to the other be still the same in a greater, or less Bulk, yet the less the Body, the more the Surface, in Proportion to the Mass; and the more the Surface, the more the Friction, or Resistance. See FRICTION, and RESISTANCE.

The *Cause* of this *Descent*, or Tendency downwards, has been greatly controverted. There are two opposite *Hypotheses* advanced; the one holding it to proceed from an internal, and the other from an external Principle. The first maintained by the Peripateticks, and *Epicureans*, and *Newtonians*; and the latter by the *Cartesians*, and *Gassendists*.

The Peripateticks teach, that heavy Bodies fall by certain motive Powers, flowing from their Forms towards the Centre of the Earth, as their proper Element, or Place in the Universe. These Powers they call *Impetus's*; and will have them to have been impress'd on the several Parts of the Earth, at the Creation; being a Tendency of the Parts to the whole. And they suppose, that it is by means hereof, that the whole is still preserved in its Integral State. Adding, that if there were a perfect Vacuity in any Part of the Air round us, a Stone placed therein would not at all fall, or tend towards the Earth, as being no longer a Part thereof, nor having the natural *Impetus*.

The ancient *Epicureans*, or *Atomists*, with the modern *Newtonian* Philosophers, hold, that all Bodies gravitate, or tend downwards, and that the more strongly, as they contain the more Matter; consequently perfectly solid Bodies, such as they suppose Atoms, or primitive Corpuscles to be, the most of all. See GRAVITY.

The *Cartesians* ascribe the *Cause of Descent* of Bodies to a circular Motion of the *Æther*, which they feign for this very Purpose. According to them, all circular Motion is unnatural; and therefore is continually endeavouring to recede from its Center, and to change into a Recti-linear Motion; consequently such as have the more Motion, recede the more, and in receding, depress, or thrust down such as have less Motion. And thus the Air being moved with the most vehement Velocity, recedes more than solid Bodies, and by that means drives them towards the Center.

The *Gassendists* account for the *Descent* of heavy Bodies, by supposing certain magnetick Rays proceeding out of the Earth, and consisting of contiguous Particles, which by their continual Emission retain the Rigidity of Rods, or stretched Cords. These Rays being diffused every way from the Earth, as a Center, strike, or impinge on what solid Bodies they meet withal in their Progress, and penetrate the same, some directly, and others obliquely, and refractedly, after the Manner of Rays of Light. These Rays, say they, are a Kind of Arms; and the Defections, and Curvatures of their Extreams, as it were Fingers, or Hooks, which pull, or draw Bodies from above towards the Earth. And they add, that these Rays being the more rare, as they are more remote from the Center; their Effect is the more feeble; and the *Descent* of Bodies is the more slow, in Proportion as they are higher.

Laws of the DESCENT *of Bodies.*

I. Heavy Bodies in an unresisting *Medium* fall with an uniformly accelerated Motion. See the *Laws of uniformly accelerated Motion* under the Articles ACCELERATION, and MOTION.

Hence, 1. The Spaces *descended* are in duplicate *Ratio* of the Times, and Velocities; and increase according to the uneven Numbers 1, 3, 5, 7, 9, *&c.* 2. The Times, and Velocities, are in a subduplicate *Ratio* of the Spaces. 3. The Velocities of *descending* Bodies, are proportionate to the Times from the Beginning of their Falls. 4. The Spaces described by a falling Body, are as the Squares of the Times from the Beginning of the Fall.

A Body specifically heavier *descends* in a fluid *Medium*, specifically lighter, (*e.gr.* the Air,) with a Force equal to the Excess of the Weight of the Body above an equal Bulk of the *Medium*. For a Body only descends in a *Medium* with the Force remaining, after a Part has been spent in overcoming the Resistance of the *Medium*. And this Resistance is equal to the Weight of an equal Bulk of the *Medium*: Consequently the Body only falls with the Excess of its Weight above that of an equal Bulk of the *Medium*.

Hence, the Power that sustains a Body in a specifically lighter *Medium*, is equal to the Excess of the absolute Weight of the Body above an equal Bulk of the *Medium*. Thus $47\frac{1}{3}$ Pound of Copper in Water lose $5\frac{1}{3}$ of their Weight. A Power, therefore, of 42 Pounds is able to sustain them.

In supposing heavy Bodies to *descend* in an unresisting *Medium*, we conceive them free of all external Impediments, from what Cause soever. So that we even set a-side that oblique Impulse given to Bodies while in falling, by the Rotation of the Earth, tho' this produce no sensible Irregularity in a little Distance.

Galilæus, who first discover'd the *Law of the Descent* of heavy Bodies by Reasoning, afterwards confirm'd the same by Experiments; the Result of which, repeated an hundred times over, was, that the *Descent* was as the Square of the Times.

Grimaldo and *Ricciolus* made Experiments to the same Effect, tho' in a different Manner, by letting fall a Number of Balls, weighing 8 Ounces a Piece, from the Tops of several Towers, and measuring the Times of falling by a *Pendulum*. These Experiments are exhibited in the following Table.

Vibrations of the *Pendulum*.	Time.		Space at the End of the Time.	Space *descended* each Time.
	″	‴	Rom. Foot.	Rom. Foot.
5	0	50	10	10
10	1	40	40	30
15	2	30	90	50
20	3	20	160	70
25	4	10	250	90
6	1	0	15	15
12	2	0	60	45
18	3	0	135	75
24	4	0	240	105

Since

Since then the Experiments of *Ricciolus*, made in such considerable Distances, agree so well to the Theory, 'tis scarce worth taking Notice of what is urged to the contrary by *Dechales*, in his *Mund. Math.* who writes, that he had found by Experiment, that heavy Bodies in half a Second of Time *descend* $4\frac{3}{4}$ Feet; in two $16\frac{1}{2}$; in three 36; in four 60; in five 90; in six 123. 'Tis sufficient, that he deduces the Irregularity from the Resistance of the Air, which we suppose out of the Question.

II. If a heavy Body *descend* in an unresisting *Medium* through an Interval not over-large, the Space it describes is subdupie of that which it would describe in the same Time with the Velocity acquired at the End of the Fall.

III. The Time wherein a Body falls from a given Height being given, to determine the Spaces it fell in the several Parts of that Time.

Suppose the given Altitude $=a$ the Time $=t$ and the Space it fell in 1 Part of Time x: Then

$$\frac{1 : x = t^2 : a}{\frac{t^2 x = a}{x = a : t^2}}$$

Therefore the Space pass'd over in the first Part of Time is $a : t^2$; Consequently that pass'd over in the second Time $=3^2 : t^2$; That in the third $=5^2 : t^2$ *&c.*

E. gr. In the Experiments of *Ricciolus* above deliver'd; the Ball fell 240 Feet in 4 Seconds. Therefore the Space fell the first second was $=240 : 16 = 15$. The Space in the second was $=15.3 = 45$. That in the third $=15.5 = 75$. And that in the fourth $15.7 = 105$.

IV. The Time wherein a Body falls a given Space, being given; to determine the Time wherein it will fall any other given Space in the same *Medium*.

Since the Spaces are as the Squares of the Times: To the Space which the Body falls in the given Time, the Space in the Question, and the Square of the given Time find a fourth Proportional, which will be the Square of the Time sought. The Square-Root, therefore, being extracted therefrom, the Problem is solved.

For Example, one of *Ricciolus*'s Balls in 4 Minutes Time falling 240 Foot, it is required in what Time it would fall 135 Foot? The Answer will be found $= \sqrt{(135 : 16 : 240)} = \sqrt{(135 : 15)} = \sqrt{9} = 3$.

V. The Space a Body falls in a given Time, being given, to determine the Space it will fall in any other given Time.

To the Square of the Time wherein the Body falls the given Space, the Square of the Time wherein it should fall the Space required, and the given Space, seek a fourth Proportional; This will be the Space required.

For Instance, *Ricciolus*'s Ball falling 60 Foot in 2 Seconds, 'tis ask'd what Space it will fall in 4 Seconds? The Answer is, $16.60 : 4 = 4.60 = 240$.

For the *Laws of the* Descent *of Bodies on inclined Planes*. See *Inclined* PLANE.

For the *Laws of* Descent *in Cycloids*. See CYCLOID, and PENDULUM.

Line of quickest DESCENT, is that which a Body falling by the Action of Gravity describes in the shortest Time; which is prov'd by Geometricians to be the *Cycloid*. See CYCLOID, and also CELERRIMI *Descensus* LINEA.

DESCENTS, in Fortification, signify the Holes, Vaults, and hollow Places, made by undermining the Ground: such as the Counter-scarps, or Covert-way.

A *Descent* into the Moat, or Ditch, is a deep digging into the Earth of the Covert-way, in Form of a Trench; of which the upper Part is cover'd with Madriers, or Clays against Fires, to secure the Passage into the Moat.

DESCRIBENT, is a Term in Geometry, expressing some Line, or Surface, which by its Motion produces a Plane Figure, or a Solid.

DESCRIPTION, a superficial, imperfect, or unaccurate Definition of a Thing; giving a Sort of Knowledge thereof from some Accidents, and Circumstances peculiar to it, which determine it enough to give an Idea that may distinguish it from other Things; but without explaining its Nature, or Essence.

Grammarians content themselves with *Descriptions:* but Philosophers require exact Definitions of Things. See DEFINITION.

DESCRIPTION, in Philosophy, Logic, *&c.* is an Enumeration of divers Attributes of a Thing, most of which are only accidental: As when a Person is *described* by his Deeds, his Sayings, his Writings, his Honours, *&c.* See DEFINITION.

A *Description*, as to its outward Appearance, resembles a *Definition*; and is even convertible with the Thing *described*; but does not explain it. For instead of bringing several Things essential to the Thing *described*, it only brings a Number of Accidents belonging thereto. *E. gr.* Peter *is the tall, young Man who lives on the Green, wears black Clothes, frequents the College, Courts N.... &c.* where it is evident, we do not give any Explication of *Peter*, as not bringing Things that are in *Peter*, but only Circumstances, or Things about him, *Tall, Young, Living, Wearing, Frequenting, Courting*, &c. a *Description*, therefore, is no proper Answer to the Question, *Quid* est, *What* is he? but to that, *Quis* est? *Who* is he?

Descriptions, in Effect, are principally used for Singulars, or Individuals: For Things of the same Species do not differ in Essence, but only as to *Hic*, and *Ille*, which Difference contains nothing very notable, or distinguishable. But Individuals of the same Kind, differ much in Accidents; *E. gr.* George *is King, and* William *a Citizen*; Charles *is a Male, and* Anne *a Female*; Henry *is wise, and* John *a Blockhead*, &c. Thus, a *Description* is an Accumulation of Accidents, whereby Things are notably distinguish'd from each other, tho' they scarce differ at all in Essence.

Some Authors call a *Description* a *Quasi*-Definition; As Body *is a Thing divisible, moveable, solid, extended*, &c. only wanting of a Definition in this, that instead of the Form, or Essence of a Thing, it gives one, or more Properties arising from the Form, or Essence. See DEFINITION, ESSENCE, FORM, *&c.*

DESCRIPTION, in Rhetoric. See DEFINITION.

DESCRIPTION, in Geometry. To *describe* a Circle, Ellipsis, Parabola, *&c.* is to construct, or form those Figures, with Rules, Compasses, *&c.* See CONSTRUCTION, and FIGURE.

DESERT, or DESART, a Wilderness; or wild, uncultivated, uninhabited Place: As the *Deserts* of *Lybia*, of the *Thebaide*.

Geographers use the Word in the general for all Countries little, or not at all inhabited. See WILDERNESS.

In Scripture, we find several Places in the *Holy Land*, or Places adjoyning thereto, call'd *Desarts*. The *Desart*, or Wilderness, simply, is that Part of *Arabia* on the South of the *Holy Land*, wherein the *Israelites* wandred forty Years, from the Time of their Evacuating *Egypt* to their Entry into the promis'd Land. The *Desart* of *Bersabea* was that Part of the *Desart* just mention'd, which border'd on the *Holy Land*, running towards the *Mediterranean*. The *Desart* of *Idumea*, is *Idumea* it self, a barren, mountainous Country. The *Desarts* of *Betharen, Bethsaide, Cadesh, Damascus, Dibla, Engaddi, Ethom, Gibeon, Horeb, Jernel, Juda, Moab, Pharan, Sin, Sinai, Sur, Ziph*, &c. are so many dry, uncultivated, and frequently mountainous Places, like our Downs, *&c.* where there are few, or no Habitations, or Inhabitants; whence the *Hebrews* call'd them by *Antiphrasis* מדבר, which properly signifies *human Word*, or *Speech*, by reason there was none heard there.

DESERTER, in War, a Soldier on the Muster-roll, who quits his Company without Leave; or lists himself under another Officer.

All Soldiers found half a League from a Garrison, or Army, going towards an Enemies Country, or Quarters, without a Pass, are deem'd, and treated as *Deserters*.

The Punishment of *Desertion*, is Death.

The ancient Church excommunicated *Deserters*, as having violated their Oath.

DESHABILLE, a *French* Term, naturalized of late. It properly signifies a Toilette, Night-Gown, and other Necessaries, made use of in dressing, or undressing. Mr. . . . is not to be spoke withal; he is yet in his *Deshabille*, i.e. undress'd, or in his Night-Gown.

The Word is a Compound of the Privative *de*, and *s'habiller*, to dress.

DESHACHEE, in Heraldry, is when a Beast has its Limbs separated from the Body, so as they still remain on the Escutcheon, with only a small Separation from their natural Places.

DESIGN, or *Draught*, with regard to the Arts and Sciences, signifies the Thought, Plan, Geometrical Representation, Distribution, and Construction of a Painting, Poem Book, or Building.

This Painter has shewn the first *Design* of his Piece, in which the Figures are well disposed. The *Design* of that Poem or Book is artfully laid.

Claudian never sees his whole *Design* together: When he composes a Part, he thinks of nothing else; and works up every Member, as if it were separate from all the rest.

In Building, one may use the Term *Ichnography*, when by *Design* is only meant the Plan of a Building, or a flat Figure drawn on Paper. See ICHNOGRAPHY.

Orthography, when some Face, or Side of the Building is rais'd from the Ground. See ORTHOGRAPHY.

And *Scenography*, when both Front and Sides are seen in Perspective. See SCENOGRAPHY.

DESIGN, in the Manufactories, the Figures wherewith the Workman enriches his Stuff, or Silk; and which he copies after some Painter.

In undertaking such Kinds of figured Stuffs, 'tis necessary, that before the first Stroak of the Shuttle, the whole *Design* be represented on the Threads of the Warp; we don't mean

mean in Colours, but with an infinite Number of little Pack-threads, which being disposed so as to raise the Threads of the Warp, let the Painter see from Time to Time what Kind of Silk is to be put in the Eye of the Shuttle, for Woof.

This Method of preparing the Work, is call'd *reading the Design*, or reading the Figure; which is perform'd after the following Manner.

A Paper is provided considerably broader than the Stuff, and of a Length proportionate to what is intended to be represented thereon. This they divide length-wise by as many black Lines as there are intended to be Threads in the Warp; and crofs these Lines, by others drawn breadth-wise; which with the former make little equal Squares. On the Paper thus squared, the Painter *designs* his Figures, and heightens them with Colours as he sees fit. When the *Design* is finish'd, a Workman reads it, while another lays it on the Simblot.

Now, to read the *Design*, is to tell the Person, who manages the Loom, the Number of Squares, or Threads comprized in the Space he is reading; intimating at the same Time, whether it is Ground, or Figure.

To put what is read on the Simblot, is to fasten little Strings to the several Pack-Threads, which are to raise the Threads named. And thus they continue to do, till the whole *Design* is read.

Every Piece being composed of several Repetitions of the same *Design*; when the whole *Design* is drawn, the Drawer, to re-begin, as I may say, the *Design* a-fresh, has nothing to do, but raise the little Strings with Slip-knots to the Top of the Simblot, which he had let down to the Bottom. And this he is to repeat as often as is necessary, till the Whole be manufactured.

The Ribbond-Weavers have likewise a *Design*, but much more simple than that now described. 'Tis drawn on Paper, with Lines, and Squares, representing the Threads of the Warp, and Woof. But in lieu of Lines, whereof the Figures of the former consist, these only consist of Points, or Dotts, placed in certain of the little Squares, form'd by the Intersection of the Lines. These Points mark the Threads of the Warp that are to be raised; and the Spaces left blank, *design* the Threads that are to keep their Situation. The rest is manag'd as in the former.

DESIGN, is particularly used in Painting, for the first Idea of a large Work drawn roughly, and in little; with Intention to be executed, and finish'd in large. See PAINTING.

In this simple Sense, the *Design* is the simple *Contour*, or *Outline* of the Figures, or Things intended to be represented; or the Lines that terminate, and circumscribe them. See CONTOUR, and DESIGNING.

Such *Design* is sometimes drawn in Crayons, or Ink, without any Shadows at all: Sometimes it is *hatch'd*, that is, the Shadows are express'd by sensible Lines, usually drawn a-crofs each other with the Pen, Crayon, or Graver. Sometimes, again, the Shadows are done with the Crayon rub'd, so as there does not appear any Lines: Sometimes, the Grain, or Sttokes of the Crayon appear, as not being rubb'd: Sometimes the *Design* is *wash'd*, that is, the Shadows are done with a Pencil, in *Indian* Ink, or some other Liquor: And sometimes the *Design* is *colour'd*, that is, Colours are laid on, much like those intended for the Grand Work.

The Qualities, or Parts required in a *Design*, are *Correctness*, *Good Taste*, *Elegance*, *Character*, *Diversity*, *Expression*, and *Perspective*.

Correctness depends principally on the Justness of the Proportions, and a Knowledge of Anatomy. *Taste* is an Idea, or Manner of *Designing*, which arises either from the Complexion and natural Disposition, or from Education, the Masters, Studies, &c. *Elegance* gives the Figures a Kind of Delicacy, which strikes People of Judgment, and a certain Agreeableness, which pleases every body. The *Character* is what is peculiar to each Thing; In which there must be a *Diversity*; in as much as every Thing has its particular Character, to distinguish it. The *Expression* is the Representation of an Object according to its Character, and the several Circumstances it is supposed to be in. The *Perspective* is the Representation of the Parts of a Painting, or Figure, according to the Situation they are in, with respect to the Point of Sight.

The *Design*, or *Draught*, is a Part of the greatest Import, and Extent in Painting. 'Tis acquired chiefly by Habit, and Application; Rules being of less Avail here than in any of the other Branches of the Art, as *Colouring*, *Clair-Obscure*, *Expression*, &c.

The principal Rules that regard the Design, are: That Novices accustom themselves to copy good Originals at first Sight: Not to use Squares in drawing; for Fear of stinting and confining their Judgment: To stay till they can *design* well after the Life 'ere they begin the Practice of Perspective Rules: In *Designing* after the Life, to learn to adjust the Bigness of their Figures to the visual Angle, and the Distance of the Eye, from the Model or Object: To mark out all the Parts of their *Design*, before they begin to shadow: To make their Contours in great Pieces, without taking Notice of the little Muscles, and other Breaks: To make themselves Masters of the Rules of Perspective: To observe every Stroak as to its perpendicular Parallel, and Distance; and particularly so to compare, and oppose the Parts that meet upon, and traverse the Perpendicular, so to form a Kind of Square, in the Mind; which is the great, and almost the only Rule of *Designing* justly: To have a regard not only to the Model, but also to the Part already *design'd*; there being no such Thing as *designing* with strict Justness, but by comparing, and proportioning every Part to the first.

The rest relates to *Perspective*: As, that those Objects are seen at one View, whose Rays meet in a Point: That the Eye and Object be always conceiv'd as immoveable: That the Space, or *Medium* between them, be conceiv'd transparent: And that the Eye, Object, and Picture, be at a just Distance; which is usually double the Bigness of the Subject, or Picture. See PERSPECTIVE.

DESIGNING, the Art of Delineating, or Drawing the Appearance of natural Objects, by Lines, on a Plane. See DESIGN.

To *design* according to the Rules of Mathematicks, makes the Subject of perspective. See PERSPECTIVE, and SCENOGRAPHY.

To *design* by the *Camera Obscura*. See CAMERA *Obscura*.

A Mechanical Method of DESIGNING *Objects*.

Provide a square Piece of Glass fitted into a Frame, ABDC, (*Tab. Perspective Fig. 9.*) and wash, or smeer it over with Water, wherein a little Gum has been dissolved. When 'tis well dried again, turn it towards the Object, or Objects to be *design'd*, so as that the Whole thereof may be seen through a *Dioptra*, or Sight GH, fix'd thereto. Then proceed to work; and applying the Eye to the Sight, with a Pen and Ink draw every Thing on the Glass, as you see it appear thereon. Having finish'd the Draught, lay a fair, moist Paper thereon; and pressing it pretty tight down, the whole will be transferr'd from the Glass to the Paper. The Method is very good, easy, and exact; and deserves to be more used by Painters.

DESIGNATION, the Act of marking, or making a Thing known. The *Designation* of such an Estate is made by the Tenants, Butments, and Boundings.

Among the *Romans* there were *Designations* of the Consuls, and other Magistrates, some Time before their Election.

DESIGNATOR, a *Roman* Officer, who assigned, and mark'd each Person his Place, and Rank in publick Ceremonies: Or, a *Master of the Ceremonies*, who regulated the Seats, March, Order, &c.

There were *Designators* at funeral Solemnities, at the Games, Theatres, and Shews, who not only assign'd every body his Place, but also led him to it; as appears from the Prologue to the *Pœnulus* of *Plautus*.

The Word is form'd from the Verb *designare*.

DESPOT, a Title, or Quality given to the Princes of *Walachia*, *Servia*, and some of the neighbouring Countries.

The Word in its first Origin signifies the same with the Latin *Herus*, and the English *Master*. But in Time it underwent the same Fate on Medals, as, among the Latins, *Cæsar* did with regard to *Augustus*; ΒΑΣΙΛΕΥΣ, answering to *Augustus*; and ΔΕΣΠΟΤΗΣ, *Despotes*, to *Cæsar*. Thus, *Nicephorus*, having order'd his Son *Stauracius* to be crown'd; the Son, out of Respect, would only take the Name ΔΕΣΠΟΤΗΣ; leaving to his Father that of ΒΑΣΙΛΕΥΣ. For it is to be noted, that it was just about the Time that the Emperors began to cease to use *Latin* Inscriptions. This Delicacy, however, did not last long; For the following Emperors prefer'd the Quality of ΔΕΣΠΟΤΗΣ to that of ΒΑΣΙΛΕΥΣ, particularly *Constantin*, *Michael Ducas*, *Nicephorus Botoniates*, *Romanus Diogenes*, the *Commenii*, and some others. In Imitation of the Princes, the Princesses likewise assumed the Title of ΔΕΣΠΟΙΝΑ.

'Twas the Emperor *Alexis*, surnamed the *Angel*, that first created the Dignity of *Despot*; and made it the first after that of *Emperor*, above that of *Augustus*, or *Sebastocrator*, and *Cæsar*. The *Despots* were usually the Emperors Sons, or Sons in Law, and their Collegues, or Co-partners in the Empire, as well as their presumptive Heirs. The *Despots* that were Sons of the Emperors, had more Privileges and Authority, than those that were only Sons in Law. *Codin*, p. 38. describes the Habit, and Ornaments of the *Despot*. See the Notes of *Fa. Goar* on that Author.

Under the Successors of *Constantin* the *Great*, the Title, *Despot of Sparta*, was given to the Emperor's Son, or Brother, who had the City of *Sparta*, or *Lacedemon*, by Way of Apannage.

DESPOTISM, or DESPOTIC *Government*, a Form of Government wherein the Prince is absolute and arbitrary, doing whatever he lists, without being check'd by any other

other Power. Such are most of the Eastern Governments, as those of the *Mogol*, *Grand Seignior*, *Sophi*, &c.

DESPOUILLE, in Heraldry, is the whole Case, Skin, or Slough of a Beast, with the Head, Feet, Tail, and all Appurtenances; so as being filled, or stuffed, it looks like the entire Creature.

DESPUMATION, is the *Clarification* of any Liquor, by throwing up its Foulness in a Froth, and taking that off. See FROTH, CLARIFICATION, &c.

DESQUAMATION expresses the cleansing carious bones, which flake off like Scales. See SCALES, SQUAMMÆ, &c.

DESSERT, the last Service brought on the Tables of People of Quality; when the Meats are all taken off. The *Dessert* consists of Fruits, Pastry-Works, Confections, &c.

DESSICATIVE, or DESICCATIVE, in Medicine, Chirurgy, and Pharmacy, a Remedy that has the Virtue of *drying* up superfluous Moisture; used to skin over old Sores, &c. A *Dessicative* Unguent, &c. Pimprenella, &c. is held very detersive, *dessiccative*, and vulnerary. *Lemery*.

DESTILLATION, or *Distillation* in Chymistry. See DISTILLATION.

DESTINY, the Order, Disposition, or Chain of second Causes, appointed by Providence; and importing, or carrying with it a Necessity of the Event. See FATE.

According to many of the Heathen Philosophers, *Destiny* was a secret, and invisible Power, or Virtue, which with incomprehensible Wisdom, conducts what to us appears irregular, and fortuitous: Which amounts to what we call *God*. See GOD,

The *Stoicks* by *Destiny* understood a certain Concatenation of all Things, which from all Eternity follow each other of absolute Necessity; there being no Power able to interrupt their Connexion; which is our Idea of *Providence*. See PROVIDENCE.

But the *Stoicks* made even the Gods themselves subject to the Necessity of this *Destiny*. The Truth is, the *Stoicks* rather define what the Word *Destiny* should signify, than what it did signify in common Language: For they had no distinct Idea of this Power to whom they attributed those Events. They had only a vague, confused Idea of I know not what *Chimera*, or unknown Cause, to which they referr'd that invariable Disposition, and the eternal Concatenation of all Things. There is no real Being that the Name *Destiny* can agree to. The Heathen Philosophers, who had fram'd an Idea thereof, supposed it to exist without knowing precisely what they meant by it. But Men, not daring on the one Side, to impute to Providence the Evils and Misfortunes that befel them, as they imagined undeservedly; and on the other Side, not being willing to allow that it was their own Fault, form'd this Phantom of *Destiny*, to bear the Weight of all the Evil. *Thomassin*.

DESTINIES, in Mythology. See PARCÆ.

DESTRUCTION, passively taken, is the Corruption, or Annihilation of something before Existing. A Thing passes *ab Esse ad Non-esse*; either by *Corruption*, when nothing of the Substance is lost, but only the Accidents, *viz.* Disposition of Parts. See CORRUPTION.

Or, by *Annihilation*, when both Substance and Accidents are lost. See ANNIHILATION.

DESUDATION, expresses a profuse, and inordinate Sweating; from what Cause soever. See SWEAT.

DESULTOR, in Antiquity, a Vaulter, or Leaper; who jumps off one Horse upon another.

Among the *Scythians*, *Indians*, and *Numidians*, the Cavaliers, or Horse-men, who served in the Wars, were very expert *Desultores*; that is, they always carried with them at least two Horses, and when that they were mounted on grew weary, or wanted Breath; they leap'd with great Agility and Address upon the other, which they led in the Hand. The *Greeks* and *Romans* borrow'd the Practice from those barbarous Nations; but they only used it in their Games, Courses, and funeral Solemnities, and never, that we read of, in War. The *Desultores*, therefore, were among the People of *Asia*, and *Africa*, Soldiers; but among the *Romans*, &c. they were no more than Tumblers; and Posture-Masters. *Eustatheus* on *Homer's Iliad*, Lib. IV. assures us, that instead of two, they had sometimes four, or six Horses, all a-breast, and would jump from the first to the fourth, or sixth, which was the Master-piece of their Art.

DETACH'D *Pieces*, in Fortification, are Demi-Lones, Ravelins, Horn- and Crown-Works, and even Bastions, when separated, or at a Distance from the Body of the Place.

In Painting, the Figures are said to be well *detach'd*, or loosen'd, when they stand free, and disengag'd from each other, are no where confounded together, but stand out with a strong *Relievo* from the Ground, and each other.

DETACHMENT, a Military Term, signifying a certain Number of Soldiers, taken out of a greater Body, on Purpose to be employ'd in the Undertaking of some particular Enterprize; as to form a Kind of flying Camp, to relieve a Party already engag'd in Battel, to joyn a separate Army, to assist at the Siege of a Place, or enter into some Garrison, &c.

DETENTION, a Possession, or Holding of an Heritage, or the like, from some other Claimant.

The Word is chiefly used in an ill Sense, for an unjust Holding, &c. The Canons condemn a Person who has intruded into a Benefice, to make Restitution of all the Fruits thereof, during the Time of his *unjust Detention*. See BENEFICE.

DETERIORATION, an Act whereby a Thing is rendred worse.

When the *Deterioration* of a Commodity, seiz'd by an Officer, arises from the Fault of the Keeper, he is answerable for the same. *J. Frideric Mayer*, Professor at *Leipsic*, printed a Treatise of *Deterioration*, in the Year 1695. under the Title of, *Tractatus de Deterioratione*.

DETERGENT, in Medicine, is applied to Remedies that cleanse, mundify, and carry off viscid, and glutinous Humours adhering to Bodies.

The Plant, call'd *Harts-Horn*, *deterges*, and consolidates Wounds. *Rhaponticum* is aperitive, and good against the Gravel and Stone; It also *deterges*, and expels Poyson.

Detergents are not only softening, and adhesive, but also, by a peculiar Activity, or Disposition to Motion, joyn'd with a suitable Configuration of Parts, are apt to abrade, and carry along with them such Particles as they lay hold on in their Passage. All Medicines of this Intention are supposed to cleanse, and heal, that is, incarnate, or fill up with new Flesh all Ulcerations, and Foulnesses, occasioned thereby, whether internal, or external.

To do this, in all internal Cases especially, the Medicine must be supposed to maintain its primary Properties, until it arrives at the Place of Action, and there it does what entitles it to the Appellation of a *Detergent*, and a *Vulnerary*, first by its adhesive Quality, which consists in the comparative Largeness of Surface, and Flexibility of its component Parts: For by this it very readily falls into Contact with, and adheres to the Slough of ulcerous Exudations, which by their loose Situations are easily carried along with the Medicine, and when such Matter is so carried away, which is the cleansing, and *deterging* Part, what was instrumental in this Office, will afterwards stick to, and adhere with the cutaneous Filaments, until by their Addition, and the Protrusion of proper Nourishment *ab interno* to the same Place, the Waste is made up, that is, the Ulcer is healed.

After the same Manner is the Operation of such Substances to be accounted for in external Application. By the Warmth of their Parts they rarify, and by their adhesive Quality, they joyn with, and take off along with them, in every dressing, what is thrown upon the Place to which they are applied, until a more convenient Matter is brought thither by the circulating Juices, which it assists in adhering to, and incarnating the eroded Cavities. Only this may be taken Notice of, that internally, whatsoever of this Kind is mixed with the Animal Fluids, by the known Laws of Circulation, they will be first separated, and left behind. For all those Parts, which are specifically heaviest, will move nearest the Axis of the Canals, because their Moments are the greatest, and will carry them as near as can be in streight Lines; but the lighter Parts will always be jostled in the Sides, where they soonest meet with Outlets to get quite off, or are struck into such Cavities, we are here speaking of, in which they adhere, and make Part of the Substance.

This is understood of the milder Degree of *Detergents*; and it is easy to conceive from hence, how an Increase of those Qualities of Activity and Adhesion conjointly, may make a Medicine arise to the greatest Efficacy in this respect. And it is upon this Foot, that all those Medicines operate, which are given to cleanse Obstructions, or Foulnesses in any of the *Viscera*, or Passages; and which may be increased in Efficacy so far, as to fetch off even the Membranes, and Capillary Vessels.

DETERMINATE, or DETERMINED *Problem*, in Geometry, is that which has but one, or at least but a certain, definite Number of Solutions; in Contra-distinction to an *Indeterminate* Problem, which admits of infinite Solutions.

Such, *e.gr.* is the Problem, *To describe an Isosceles Triangle on a given Line, whose Angles at the Base shall be double that at the Vertix*: which has only one Solution; as that which follows has two, viz. *To find an Isosceles Triangle, whose Area and Perimeter are given*. See PROBLEM.

A *Determinate* Problem may either be *Simple*, or *Linear*, *Plane*, *Solid*, or *Sursolid*. See PLANE, SOLID, &c.

DETERMINATION, in Physicks, the Disposition, or Tendency of a Body towards one Way, rather than another.

Heavy Bodies have a *Determination* towards their Centre. See CENTRE.

DETERMINATION *of Motion*. See MOTION.

DETERMINATION, in Philosophy, the Action whereby a Cause is limited, or restrained to act, or not act, this, or that, and in this, or that Manner.

Hence, we say, by a *Determination*, an Agent indifferent to several Things, is in some Measure actuated.

This, say the School-men, proceeds either from an *Efficient* Cause, in which Case the *Determination* is call'd *Effective*; as when an Artist *determines* an Instrument to a certain Action: Or from the *Form*, as that *determines* the Indifferency of the Matter; And thus our Senses are said to be *Determinations*, to have Ideas upon the Presence of external Objects.

A *Determination* to be pleas'd with certain Forms, or Ideas, a late excellent Author calls, *an Internal Sense*; and a *Determination* to be pleas'd with virtuous Actions, Characters, Manners, *&c. a Moral Sense*: Or, the *Determination* is from the *Matter*, or Subject that receives the Action; And thus, the *Heating* of Fire upon Clay *determines* it to harden, upon Wax to soften, *&c.* Or it is from the *Object*; as when we say, *Colour determines the Visive Power*: Or lastly, it is from the *End*; as *the End* determines *the Desire*.

Determination is either *Moral*, or *Physical*: A *Moral Determination* is that proceeding from a Cause, which operates *Morally*, i. e. by Commanding, Persuading, or Advising some Effect. *Physical Determination*, is an Act whereby God excites, and applies a second Cause to act antecedently to all Operation of the Creature. Such a *Determination*, the *Thomists* and *Dominicans* maintain necessary to all, and singular Action of every Creature. The *Jesuits*, on the contrary, deny that God thus *determines* even second Causes; and hold, that God has no Influence on the second Causes, but only with the second Cause on the Action. And thus they exclude a *Physical Determination* both from natural Causes, as supposing them already *determin'd* by Nature to act; so that there needs no other external *Determination* from God to the several Actions; and from free Causes, as supposing such a *Prædetermination* contrary to our Natural Liberty. See CAUSE, THOMISTS, *&c.*

DETERSIVE, in Medicine, the same with *Detergent*. See DETERGENT.

A Clyster is a *detersive* Medicine, which cleanses the lower Venter. *Detersive* Unguents are usually call'd *Mondificatives*. See MONDIFICATIVE.

The Leaves, and Summets of the Straw-berry are *detersive*, and astringent.

DETINET, in Law. See DEBITO, and DEBET and *Solet*.

DETINUE, a Writ that lies against a Man, who having Goods or Chattels deliver'd to keep, refuses to re-deliver them: answering, in great Measure, to the *Actio Depositi* of the Civilians.

He takes his *Action of Detinue*, to recover the Thing *detain'd*, not the Damages sustain'd by the *Detinue*.

DETONATION, or *Fulmination*, in Chymistry, the Noise which Minerals make when they begin to heat in Crucibles; by the volatile Parts rushing out with Impetuosity, and the Humidity escaping.

Detonation is much the same with *Decrepitation*, only its Action more forcible, and the Noise greater. Thus, *Aurum fulminans* heated, *&c.* goes off with a violent Crack, *i. e.* makes a great *Detonation*.

Detonation takes away the impure, volatile Sulphur from Bodies.

The Word is form'd of *de*, and *tono*, I thunder.

In the Chymical Sense, *Detonation* is the Act, or Operation of expelling the impure, volatile, and sulphureous Parts out of Bodies, and leaving behind the fix'd, and internal Parts. It is perform'd by means of Salt-petre, *&c.*

DETRANCHEE, among the *French* Heralds, signifies a Line bend-wise, which does not come from the very Angle, but either from some Part of the upper Edge, and thence falling a-thwart, or Diagonally; or from Part of the Dexter-Side.

They say, *Tranchee*, *Detranchee*, and *Retranchee*, to denote, that there are two Diagonal Lines, making two Partitions in the Escutcheon, and coming from the Angles, and a third from some of the other Parts abovementioned.

DEVASTAVERUNT *Bona Testatoris*, a Writ lying against Executors, for passing Legacies, and Debts, without Specialties, to the Prejudice of the Creditors that have Specialties before the Debts on the said Specialties are due. In which Case the Executors are as liable to Actions, as if they had notoriously wasted the Goods of the Testator, or converted them to their own Use; and are compellable to pay such Debts by Specialty out of their own Goods.

DEVENERUNT, a Writ anciently directed to the Escheator, after the Death of a Tenant of the King holding in *Capite*; And that, of his Son, and Heir, within Age, and in the King's Custody; commanding the Escheator to enquire, upon the Oaths of good and lawful Men, what Lands and Tenements, by the Death of the Tenant, come to the King.

DEVIATION, in the old Astronomy, a Motion of the Deferent, or Excentric, whereby it advances to, or recedes from the Ecliptic. See DEFERENT.

The greatest *Deviation* of *Mercury* is 16 Minutes: that of *Venus* only ten. See EXCENTRICITY.

DEVIL, *Diabolus*, an evil Angel; and one of those celestial Spirits cast down from Heaven, for pretending to equal himself with God. See DÆMON.

We find no mention of the *Devil* in the Old Testament, but only *Satan*. See SATAN.

Nor do we meet with the Word *Devil* in any Heathen Authors, in the Signification attach'd to it among Christians, that is, as a Creature revolted from God; their Theology went no further than to evil *Genii*, or *Dæmons* who harrassed, and persecuted Mankind. Thus, the *Chaldæans* believed both a good Principle, and an evil Principle, which was an Enemy of Mankind.

The Relations we have of the Religion of the *Americans*, assure us of some idolatrous Nations, who worship the *Devil*: But the Term *Devil* must not here be taken in the Scripture Sense: Those People have an Idea of two Collateral Independent Beings, one whereof is good, and the other evil. And they place the Earth under the Guidance, and Direction of the evil Being; which our Authors, with some Impropriety, call the *Devil*.

The Word is form'd from the Latin *Diabolus*, which comes from the *Greek* Διάβολος, *Accuser*, or *Calumniator*. The *Æthiopians* paint the *Devil* white, to be even with the *Europeans*, who represent him black. *Ludolph*.

DEVISE, in Heraldry, a Name common to all Figures, Cyphers, Characters, Rebus's, Motto's, Sentences, Proverbs, *&c.* which, by Allusion to the Names of Persons, or Families, denote their Nobility, or Qualities. See CYPHER, CHARACTER, BADGE, MOTTO, PROVERB, REBUS, *&c.*

Devise, in this Sense, is of a much older Standing, than Heraldry it self; being that which gave the first Rise to Armories: Thus, the *Eagle* was the *Devise* of the *Roman* Empire: Thus SPQR was the *Devise* of the *Roman* People; and still continues to be what they call the Escutcheon of the City of *Rome*. See ARMS.

The first *Devises* were simple Letters distributed on the Borders of the Liveries, Housings, and Banners, and at length on the Shields. Thus the K. was the *Devise* of the *French* Kings of the Name of *Charles*, from *Charles* V. to *Charles* IX.

There were also *Devises* by Rebus's, Equivocals, or Allusions, both to Names, and Arms. The Dukes of *Guise* took for their *Devise* an A in an O, to signifie *each in his Turn*. And the House of *Senecai*, *In Virtute & Honore Senescs*. Some that had Towers in their Arms, *Turris mea Deus*, &c. See REBUS.

There are also Enigmatical *Devises*: As that of the *Golden Fleece*, with *Autre n'aurai*; Intimating that *Philip the Good*, who instituted that Order, renounced every other Woman, but *Isabella* of *Portugal*, whom he then married. See ENIGMA.

Devises sometimes contain entire Proverbs; As that of *Cæsar Borgia*, *aut Cæsar aut Nihil*. See PROVERB.

The Word *Devise* is form'd from the Latin *dividere*, and was applied to the Things just mentioned, as well as those hereafter mentioned, by reason they served to divide, separate, and distinguish Persons, Parties, *&c.* *Fa. Menetrier* observes, that there as many different Kinds of *Devises*, as there are different Manners of distinguishing one another, or as there are simple Figures, or Words, capable of expressing Qualities, Offices, Virtues, Actions, *&c.* of Persons, and of notifying, or distinguishing them from others.

DEVISE, is now taken in a more restrain'd Sense, for an Emblem; or a Representation of some natural Body, with a Motto, or Sentence applied in a figurative Sense to the Advantage of some Person. See EMBLEM.

In this Sense, the Figure, or Image, is call'd the *Body*, and the Motto the *Soul* of the *Devise*.

A *Devise* is a Sort of Metaphor, representing one Object by another wherewith it has some Resemblance. So that a *Devise* is only true, when it contains a Metaphorical Similitude, and may it self be reduced into a Comparison. Lastly, it is a Metaphor painted, and visible, and that strikes the Eye. All these Circumstances are required to a *Devise*; and without them, a Figure only makes a Hieroglyphic, and the Word, only a Diction, or Sentence. See ALLUSION, METAPHOR, HIEROGLYPHIC, SIMILE, *&c.*

Fa. Bouhours gives a clean and accurate Explication of the Word *Devise*, in an Extract inserted in the *Journal de Trevoux*. A *Devise*, says he, is a Composition, or Assemblage of Figures drawn from Nature and Art, call'd the *Body*; and of a few Words adapted to the Figure, and call'd the *Soul*. Such a Compound, adds he, we make use of to denote our Thought, or Intention by Comparison; for the Essence of the *Devise* consists in a Comparison taken from Nature, or Art, and founded on a Metaphor. This he illustrates in the following Instance: A young Nobleman of great Courage, and Ambition, bore for his *Devise*, in the last Carrousel at the Court of *France*, a Rocket mounted in the Air, with this *Italian* Motto, *Poco duri purche m'inalzi*, I would last little, provided I might rise high; which seems to hold forth the following Discourse: As the

the Rocket rises a great Pitch, tho' it only endures a little while; so it does not concern me to live long, provided I attain to Glory, and Eminence: which is a just Comparison. See COMPARISON.

On this footing, a *Devise*, to define it rightly, is a painted Metaphor; or rather, an Enigma inverted: For, whereas Enigma's represent Nature, or Art, by the Events of History, and the Adventures of Fables, a *Devise* is a Representation of human Qualities by natural, or artificial Bodies. Thus, to express the Character of *Louis* XIV. a Sun was painted, which yet, luminous as it is, has more Virtue than Lustre. And the better to determine the Sense of the Painting to this Signification, the *Castillian* Motto is added, *Mas virtud que Luz.* The personal Merit of *Mary*, Queen of *Scots*, was represented by a Pomegranate, with these Words, *Mon Prix n'est pas de ma Couronne.* And the Talent of an Apostolical Person, who became all Things to all Men, by a Looking-Glass, with those Words of St. *Paul*, *Omnibus Omnia.*

Devises are used on Coins, Counters, Seals, Shields, Triumphal Arches, Artificial Fire-Works, and other Solemnities. They are a Sort of Images, very pertinently, and artfully representing the Enterprizes, and Intrigues of War, Love, Piety, Study, Fortune, &c.

The *French* have distinguish'd themselves in this Way, especially since the Time of Cardinal *Mazarin*, who had a wonderful Fancy for them.

The *Italians* have reduced the Making of *Devises* into an Art, and laid down the Laws, and Rules thereof. Some of the principal are, 1. That there be nothing monstrous, or extravagant in the Figures; nothing contrary to the Nature of Things, or to the common Opinion of Mankind. 2. That Figures be not joyn'd which have no Affinity, or Relation to each other; the Metaphor being to be founded on something real, and not on Hazard, or Imagination; excepting some whimsical Unions establish'd in Fables, which Custom, and the Authority of the Poets have made pass for Natural. 3. That the human Body be never taken into *Devises*; as this would be to compare a Man with himself. 4. That there be a Sort of Unity in the Figures that make the Body: We don't mean, that there must only be a simple Figure; but that, if there be several, they have a Relation, and Subordination to each other: So that there be one principal Figure, whereon all the rest depend. Tho' still the fewer Figures there are in the Body of the *Devise*, and the less they are confused, the more perfect and elegant is the *Devise*. 5. The Motto, which is to animate the Figure, must agree so accurately thereto, as that it could not serve for any other. 6. Nothing to be named that appears to the Eye, and which the bare Inspection may make known. 7. The Motto not to have a compleat Sense of it self; for being to make a Compound with the Figure, it must only be a Part, and consequently must not signify the whole. If the Words alone have a compleat Signification, you have a full, and distinct Notion independently of the Figure; whereas the Signification should result from both. 8. The shorter the Motto, the more beautiful: and a Suspension of the Sense, which leaves somewhat to guess, is one of the principal Graces of the *Devise*. Lastly, it is accounted a Happiness, where the Words of a Poet are applied in a Sense which he never dream'd of, and yet so pertinently, that it should seem they had been intended for the same.

DEVISE, or DIVISE, in common Law, the Act whereby a Testator gives, or bequeaths his Lands, or Goods, by his last Will in Writing: He who makes the *Devise* being call'd the *Devisor*, and he, to whom it is made, the *Devisee*.

The Words of a *Will*, the Law interprets in a larger, and more favourable Sense, than those of a *Deed*: For if Land be *devised* to a Man to have to him for ever, or to have to him, and his Assigns; In those Cases the *Devisee* shall have a Fee simple. Yet if given in the same Manner by Feoffment, he has but an Estate for Life. So, if one *devise* Land to an Infant in his Mother's Belly; it is a good and valid *Devise*; tho' 'tis otherwise by Feoffment, Grant, or Gift: for in those Cases there ought to be one of Ability, to receive presently, otherwise it is void. See WILL, and DEED.

DEUNX, a Division of the Roman *Libra*, or Pound; containing 11 Ounces; or eleven *Twelfths* of any Thing. See As, and LIBRA.

DEVOLVED, something acquired by Right of *Devolution*. See DEVOLUTION.

Such a Right is devolved *to the Crown. Such a Succession* devolved *to N.... by the Death of N....*

The Word is also used for a Right acquired by a Superior of conferring a Benefice, when the Inferior, and Ordinary Collator, has neglected to confer, or has conferr'd it on an unqualified Person. If a Patron neglects to present to a Benefice in six Months, the Presentation *devolves* upon the Bishop, and from thence to the Primate.

DEVOLUTION, a Right acquired by Succession, from one Degree to another.

Devolution in general, is an Impediment provided by the Customs of several Nations, whereby the Husband who survives his Wife, or the Wife surviving her Husband, is prohibited to alienate the real, and immoveable Effects of the deceased, and obliged to preserve them for the Children issued from that Marriage. So that they succeed thereto in Exclusion of those born of a second Marriage.

DEVOTION, a sincere, ardent Worship of God.

Monsr. *Jurieu* defines *Devotion* a Softening, and Yielding of Heart, with an inward Consolation, which the Soul of the Faithful feels in the Exercises of Piety.

Under the Name of *Devotions*, are usually understood certain Religious Practices, which a Person makes it a Law with him to discharge regularly; and with Reason; this Exactitude be founded on solid Piety; otherwise 'tis Vanity, or Superstition.

Among the *Romans*, *Devotion* was a Sort of Sacrifice, or Ceremony, whereby they consecrated themselves to the Service of some Person. The Ancients had a Notion, that the Life of one might be redeem'd by the Death of another: And hence were those *Devotions* so frequent for the Lives of the Emperors. See VOTA.

The *Devotion* of *Decius*, who, after *devoting* himself to his Country, threw himself into the Hands of his Enemies, and was kill'd, is said to have gain'd the *Romans* the Victory.

But *Devotion* to any particular Person was not known till *Augustus*. The Day after the Title *Augustus* had been given *Octavius*; *Pacuvius*, a Tribune of the People, began to say, he would *devote*, and consecrate himself to him, as was practised among the barbarous Nations, to obey him even at the Expence of Life, if he were commanded. His Example was immediately followed by all the rest; and it came at length to be establish'd into a Custom, never to go to salute the Emperor, without declaring they were *devoted* to him. *Augustus*, tho' seeming to oppose this vile and infamous Flattery, yet rewarded the Author.

DEVOURING, in Heraldry. When Fishes are born in an Escutcheon in a feeding Posture, the Heralds denominate it by *devouring*; by reason Fishes swallow all their Food whole. See FISHES.

DEUTERONONICAL, in the School-Theology, a Term applied to certain Books of Holy Scripture, which were added to the Canon after the rest; either by reason they were not wrote till after the Compilation of the Canon, or by reason of some Dispute as to their Canonicity. See CANON.

The Jews, 'tis certain, acknowledge several Books in their Canon, which were put there later than the rest. They say, that under *Esdras*, a great Assembly of their Doctors, which they call by Way of Eminence, the *Great Synagogue*, made the Collection of the Sacred Books, which we now have in the Old *Hebrew* Testament. And they agree, that they put Books therein which had not been so before the *Babylonish* Captivity; such are those of *Daniel*, *Ezekiel*, *Haggai*, &c. and those of *Esdras*, and *Nehemia*.

And the Church has since added others to the *Canon*, that were not, nor could not be in the *Canon* of the Jews; by reason some of them were not composed till after. Such is the Book of *Ecclesiasticus*; with several of the *Apocryphal* Books, admitted by the *Romanists*, as the *Maccabees*, *Wisdom*, &c. Others were added still later, by reason their Canonicity had not been yet examin'd: And till such Examen, and Judgment they might be set a-side at Pleasure.

But since she has pronounced as to the Canonicity of these Books, there is no more room now to doubt of them, than there was for the Jews to doubt of those of the Canon of *Esdras*. And the *Deuterononical* Books are as Canonical, as the Proto-canonical. The only Difference between them consisting in this, that the Canonicity of the one was not generally known, examin'd, and settled so soon as that of the others.

The *Deuterononical* Books in our Canon, are the Book of *Esther*, either the whole, or at least the seven last Chapters thereof. The Epistle to the *Hebrews*; that of *James*; and that of *Jude*; the second of St. *Peter*; the second, and third of St. *John*; and the *Revelation*. The *Deuterononical* Parts of Books, are, in *Daniel*, the Hymn of the three Children; the Prayer of *Azariah*; the Histories of *Susannah*, of *Bel*, and the *Dragon*; the last Chapter of St. *Mark*; the bloody Sweat, and the Appearance of the Angel, related in St. *Luke* Chapter XXII; and the History of the adulterous Woman in St. *John*, Chapter VIII.

The Word is *Greek*, being compounded of δεύτερος, *Second*, and κανονικὸς, *Canonical*.

DEUTERONOMY, one of the Sacred Books of the Old Testament; being the last of those wrote by *Moses*. See PENTATEUCH.

It does not appear, that *Moses* made any Division of what he wrote into Books; or that he gave different Names and Titles to the different Parts of his Work; nor do the Jews, even at this Day, distinguish them in the Copies they use in the Synagogues; but write them all running as one single Work, without any other Distinction besides

side that of little and great Parasches. 'Tis true, in the other Copies, used by private Persons, they are divided into five Parts, as among us; But they give them no other Name, but the first Word wherewith each Division begins: much as we do in quoting a Decree, or Chapter of the Canon-Law.

Thus, the first Part of *Moses*'s Work they call בראשית *Bereschit*, because beginning with that Diction. The second they call ואלה שמות *Ve Elleh Schemot*: The third, ויקרא *Vajickrah*; The fourth, וידבר *Vajiedabber*; and the fifth, אלה הדברים *Elleh haddebarim*; which is one of the first Words thereof. This Custom is very ancient among the *Rabbins*, as appears from the ancient Commentaries on those Books, call'd, בראשית רבה *Bereschit Rabba*, ואלה שמות רבה *Veelleh Schemot Rabba*, &c. and from the *Prologus Galeatus* of St. *Jerom*.

It was the *Greeks*, when they first translated the Law, that gave the five Parts, into which it was divided, the Names of *Genesis*, *Exodus*, *Leviticus*, *Numbers*, and *Deuteronomy*. Accordingly the Names are *Greek*; excepting that of *Leviticus*, which is *Hebrew*. And they express what is contain'd in those Books, or at least the most remarkable Things contain'd therein; which is the *Greek* Manner of giving Titles.

The Book of *Deuteronomy* was so call'd, because this last Part of the Work of *Moses* comprehends the Repetition, or Recapitulation, which that Legislator made to the *Israelites* before his Death, of the Law he had before deliver'd them at length. And hence *Deuteronomy* is still call'd by the *Rabbins* משנה *Mischneh*, Repetition, משנה תורה *Repetition of the Law*; *second Law*. They likewise call it ספר תוכחות *the Books of Reprimands*, on Account of the XXVIIIth Chapter, which is full of Blessings promised to such as keep the Law; and of Curses threaten'd such as transgress it.

Deuteronomy was wrote the fortieth Year after the Delivery from *Egypt*, in the Country of the *Moabites* beyond *Jordan*: *Moses* being then in the 120th Year of his Age. It contains in *Hebrew* eleven Parasches, tho' only Ten in the Edition of the *Rabbins* at *Venice*; XX Chapters, and 955 Verses. In the *Greek* and *Latin* Versions it contains XXXIV Chapters. The last is not of *Moses*. Some say it was added by *Joshua* immediately after *Moses*'s Death; which is the most probable Opinion. Others will have it added by *Esdras*.

The Word is *Greek*, compounded of δεύτερος, *Second*, and νόμος, *Law*.

DEW, *Ros*, a thin, light, insensible Mist, or Rain, falling while the Sun is below the Horizon.

Naturalists usually rank *Dews* among the Number of Meteors of the watery Kind. Some define it a Vapour liquified, and let fall in Drops. Others a Vapour having a like Relation to Frost, as Rain has to Snow, &c. Among the Dissertations of Monsr. *Huet* is a Letter, to shew that *Dew* does not fall, but rises.

To us, *Dew* appears only to differ from Rain as more, and less. Its Origin, and Matter, no doubt, is from the Vapour, and Exhalation of the Earth and Water, rais'd, as shewn under the Article VAPOUR. The thin *Vesiculæ*, whereof Vapours consist, being once detach'd from their Bodies, we all know, keep rising in the Atmosphere, till they arrive at such a Stage of the Air, as is of the same specific Gravity with themselves: Then their Rise is stopp'd. Now, as 'tis the Warmth, or Fire, that, dilating the Parts of Water, forms the *Vesiculæ* specifically lighter than Air, and capable of ascending therein; So when that Heat declines, or is lost, as by the Approach, or Contiguity of any colder Body, the *Vesiculæ* condense, become heavier, and descend. In the Day-time, therefore, the Sun warming the Atmosphere by a continual Influx of his Rays, the Vapours once rais'd, continue their Progress, as meeting with nothing to increase their Gravity, till such Time as they are got far out of the Reach of the reflected Warmth of the Earth, in the middle Region of the Atmosphere. Here condensing, they form *Clouds*, from which arise *Rain*, as shewn under CLOUDS, and RAIN.

But when the Sun is below the Horizon, the Case is somewhat different: For the Atmosphere then cooling, the Vapours rais'd by the Warmth of the Earth, and of the Rays of the Sun, lodg'd therein the preceeding Day, begin to condense a-pace, as soon as they are got out of the Air, spending their Stock of Fire and Heat on the cold, moist Air they pass through. Their Ascent, therefore, becomes short; and by that Time they are got a few Fathoms high, being exhausted of their Fire, and restor'd to the natural Dimensions, and Gravity of their constituent Water; they precipitate, and fall back again in little Spherules, or Drops, as shewn of *Rain*.

From these Principles the other Phœnomena of *Dews* are easily accounted for. Hence, *e.gr.* it is, that *Dews* are more copious in the Spring, than in the other Seasons; there being then a greater Stock of Vapour in Readiness, through the small Expence thereof in the Winter's Cold and Frost, than at other Times. Hence, what *Pliny* relates of *Egypt*, that it abounds in *Dews* throughout all the Heats of Summer; For the Air there being too hot to constipate the Vapours in the Day-time, they never gather into Clouds, and hence they have no Rain; But we know, that in Climates where the Days are excessive hot, the Nights are remarkably cold; So that the Vapours raised after Sunset, are readily condensed into *Dews*. Or, perhaps, that notable Coldness is rather the Effect, than the Cause of the Quantity of *Dews*. For a deal of Vapour being raised by the great Heat of the Earth, and the Stock of Fire spent on it in the Day-time, the Influx of such a Quantity of cold Moisture must greatly chill the Air.

May-DEW whitens Linen, and Wax; The *Dew* of Autumn is converted into a white Frost. Out of *Dew* putrified by the Sun, arise divers Insects, which change a-pace out of one Species into another: what remains is converted into a fine, white Salt, with Angles like those of Salt-peter, after a Number of Evaporations, Calcinations, and Fixations.

There is a Spirit drawn from *May-Dew*, which has wonderful Virtues attributed to it. The Method of gathering, and preparing it, is prescribed by *Hanneman*, Physician at *Kiel*. 'Tis to be gather'd in clean linen Cloths exposed to the Sun in close Vials; then distill'd, and the Spirit thrown upon the *Caput Mortuum*; this is to be repeated till the Earth unite with the Spirit, and become liquid; which happens about the 7th, or 8th Cohobation, or Distillation. By such means you gain a very red, odoriferous Spirit. *Stolterfolth*, a Physician of *Lubec*, thinks *May-Dew* may be gather'd in Glass-Plates, especially in still Weather, and before Sun-rise. And *Etmuller* is of the same Sentiment. It might likewise be gather'd with a Glass-Funnel, exposed to the Air, having a crooked Neck to bring the *Dew* into a Vial in a Chamber. See *Philos. Transact.* 1665. *May*. *Hoffmann*, and others. 'Tis apparently from the Preparation of this *Dew*, that the Brothers of the *Rosy-Cross* took their Denomination. See ROSYCRUCIANS.

In the *Philosoph. Transact.* we have an Account of a very extraordinary Kind of *Dew*. For a good Part of the Winter 1695, says the Bishop of *Cloyne*, there fell in many Parts of the Provinces of *Munster*, and *Leimster*; a Kind of thick *Dew*, which the Country-People call'd *Butter*, from its Consistency and Colour; being soft, clammy, and of a dark yellow. It fell always in the Night, and chiefly in low, moorish Places, on the Top of the Grass, and oft on the Thatch of Cabbins. 'Twas seldom observ'd in the same Place twice. It commonly lay on the Earth a fortnight without changing Colour, but then died, and turn'd black. It fell in Lumps; and had a strong Smell like that of Graves. Mr. *R. Vans*, in the same *Transactions*, gives an Account of the like at the same Time, in *Limeric*, and *Tipperary*; adding, that if one rubb'd it with the Hand, it melted; but laying it by the Fire, it dried, and grew hard.

DEXTANS, in Antiquity. See As.

DEXTER, in Heraldry, is applied to the *Right* Side, as *Sinister* is to the *Left*. See ESCUTCHEON.

DEXTER-*Point*. See POINT.

DEXTER-*Base* is the right Side of the Base. See BASE.

DEXTER-*Chief*, the Angle on the right Hand of the Chief. See CHIEF.

The Word is pure *Latin*, signifying *Right-hand*; whence the Word *Dexterity* for Address, and Ability in the performing of any Thing.

DEXTROCHERE, or DESTROCHERE, in Heraldry, is applied to the right Arm, which is painted in a Shield, sometimes naked, sometimes cloath'd, or adorn'd with a Bracelet, and sometimes arm'd, or holding some Moveable, or Member used in the Arms.

The *Dextrochere* is sometimes placed as the Crest.

The Word is form'd from the Latin *Dextrocherium*, which signifies a Bracelet wore on the right Wrist, mention'd in the Acts of the Martyrdom of St. *Agnes*, and the Life of the Emperor *Maximus*.

DIA, the Beginning of divers Terms in Medicine, Chirurgery, Pharmacy, &c.

Where these three Letters begin the Name of a Remedy, Unguent, Plaster, Cataplasm, &c. they signify *Composition*, and *Mixture*; as in *Diaplasm*, *Diachylon*, &c. See DIAPLASM, DIACHYLON, &c.

Dia is likewise the Beginning of many Terms in the other Arts, and even in common Use; As, *Diameter*, *Dialogue*, &c. on all which Occasions, *Dia*, which is an inseparable Particle, or Preposition, is borrowed from the *Greek* διὰ, *ex*, or *cum*; which begins the same Words in the *Greek*.

Indeed we have Words wherein *Dia* is no Preposition borrowed from a foreign Language, tho' 'tis possible, the Words themselves may; as in *Diamant*, *Dial*, *Diana*, &c.

DIABETES, in Medicine, a hasty, and profuse Evacuation of the Drink by the Urinary Passages; accompanied with

with an ardent Thirst; and a Leanness of the whole Body. See URINE.

The Drink thus discharged, is usually a little alter'd from what it was when taken down, and turn'd chilous, and milky; but sometimes not at all. See DRINK.

The *Diabetes* seems owing to a too great Laxity of the Fibres of the Arteries of the Kidneys; or too great Quantity of sharp Salts in the Blood, which dissolve the Mass of Blood, or disunite the Parts thereof; So that the Serosity is easily separated from the same.

According to Dr. *Quincy*, the Evident, and most common Cause of the *Diabetes* is the too great Use of spirituous Liquors, wherewith the *Serum* becomes so impregnated, that it will not attract, and joyn with the *Cruor*, or Globules of the Blood, but runs off through the Kidneys sweet, or insipid.

There is another Kind of *Diabetes*, wherein the Person affected renders a great deal more by Urine, than he drinks, nay, sometimes more than he both eats and drinks. Some Physicians attribute this excessive Quantity of Liquor to the Air he respires, which, they suppose, becomes converted into Water; Or, at least, the Water in the Air respired is here absorbed, and collected. But others, with more Probability, attribute it to a Colliquation of the Blood, fat, and even the solid Parts of the Body.

The Word *Diabetes* is derived from the *Greek* διαβαίνειν, *to pass quick*.

DIABETES, in Hydraulicks, is applied to a Syphon, the two Leggs, or Branches whereof are inclosed in one another; As in the Glass described by *Hero*, which runs it self quite empty, without being inverted, as soon as the Water is arrived at the Height of the upper Branch of the Syphon.

DIABOTANUM, in Pharmacy, and Chirurgery, a Plaster, wherewith Wens, *&c.* are resolved and discuss'd.

The *Diabotanum* is soveraign for the *Hydatides*.

DIABROSIS, in Medicine, a Solution of the Continuity of a Part, caused by sharp, corrosive Humors gnawing, and devouring the same.

The Word is *Greek*, compounded of διά, *per*, through, and βρώσκειν, *to eat*.

DIACALCITEOS, in Chirurgery, and Pharmacy, a Plaster applied after the Amputation of a Cancer.

The *Emplastrum Diacalciteos* is composed of Oil, *Axungia*, and *Chalcitis*; from the last of which Drugs it derives its Name.

DIACARYON, or *Diamucum*, in Pharmacy. See DIANUCUM.

Galen is said to have prepar'd his *Diacaryon* with the Juice of Walnuts, mix'd with as much Honey as sufficed to render it an agreeable Composition.

The Word is form'd from καρύα, *Wal-nut*.

DIACARTAMI, in Pharmacy, an Electuary composed of Turbit, Manna, Scammony, Hermodactyls, and other Purgatives; with the Addition of the Medulla, or Seed of the *Carthamus*, which gives it the Denomination. See CARTHAMI.

Diacartami chiefly purges *pituita*. It is prescribed in Diseases of the Brain; and is frequently mix'd in Medicines along with other Purgatives.

DIACAUSTIC *Curve*, or the *Caustic by Refraction*, is a Species of *Caustic Curves*, thus conceiv'd: Imagine an infinite Number of Rays; as BA, BM, BD, *&c.* (*Tab. Geom. Fig.* 23.) issuing from the same Luminous Point B, to be refracted from, or to the Perpendicular MC, in the Curve AMD; and so, as that CE the Sines of the Angles of Incidence CME be always to CG, the Sines of the refracted Angles CMG, in a given *Ratio*: Then the Curve-Line, which touches all the refracted Rays, is call'd the *Diacaustic*. See CAUSTIC.

DIACHYLON, in Pharmacy, a Name given to divers Plasters, on Account of the Mucilages mix'd therein, which are viscid Juices, call'd by the *Greeks* χυλοὶ; drawn from certain Plants. See MUCILAGE.

White, or *Simple* DIACHYLON, is compounded of common Oil, Litharge of Gold, and Mucilages, drawn from the Root of the *Althæa*, and the Seeds of Line, and Fenigreck. It is proper to soften, digest, ripen, and resolve.

The DIACHYLON, call'd *Direatum*, has for its *Basis* the common *white Diachylon*, with a Pound of which, an Ounce of Powder of *Iris* is mix'd. This Plaster digests, incides, and ripens with more Force than the *simple Diachylon*.

There is also the *Great* DIACHYLON, *Diachylon magnum*, composed of Litharge of Gold, Oils of *Iris*, Camomile, and Anetth, Turpentine, Resin of the Pine, yellow Wax, and Mucilages, of Line, and Fenigreck, with new Figs, Raisins of *Damascus*, *Icthyocolla*, Juices of *Iris*, *Squillæ*, and Hyssop. This *Diachylon* softens Schirrus's, and resolves, and dissipates Tumors. 'Tis call'd, *the Great*, not only on Account of its extraordinary Virtues, but also because compounded of a greater Number of Ingredients, than the rest.

The *Diachylon Gummatum*, is the *great Diachylon*, with the Addition of Gum Ammoniac, *Galbanum*, and *Sagapenum*, dissolv'd with Wine, and boil'd to a Consistence of Honey. This Plaster is the most powerful of all for digesting, ripening, and resolving.

DIACODIUM, in Pharmacy, a Medicine prepared from Poppies Heads.

There are two Kinds: *Simple*, and *Compound*.

Simple DIACODIUM, is a Kind of Opiate, made of the Juice express'd from the Heads of Poppies, both white, and black; and made up with the *Sapa*, or Sugar. It is prescribed to soften sharp, serous Humours, to appease Coughs, and to provoke Sleep. This Preparation was of great Use among the Ancients; but is now laid a-side, since it has been found, that the Syrup of white Poppies, which is what we now call *Diacodium*, produces the same Effect.

Compound DIACODIUM is made of the *simple*, with the Addition of the Troches of Ramich, *Hypocistis*, Myrrh, Saffron, and Balaustes. It is good to stop, and soften Catarrhs, Hemorrhoids, and Fluxes of the Belly.

The Word is form'd from the *Greek* διά, *per*, and κώδεια, *Poppies Head*.

DIACONESSE, and DIACONATE. See DEACON, and DEACONRY.

DIACONI, in Antiquity, was the Name of a Faction at *Athens*.

That City, we read, was divided into two Parties: The one Favourers of an Oligarchy, who would only have a few Persons employ'd in the Government. The other consisted of such as were for a Democratical, or Popular Government, wherein the whole People should have a Share. The first were call'd *Diaconi*, and the latter *Pediaci*; the latter inhabiting the lower, and the former the upper Quarter, or Part of the City.

The Laws of *Solon* imported, that *Pisistratus* should be Chief of the *Diaconi*. Tho' the Scholiast on *Aristophanes's* Comedy, *the Wasps*, affirms, that *Pandion* distributed the Quarter of the *Diaconi* among his Sons, and put *Lycus* at their Head.

DIACONICON, Sacristy, a Place about the ancient Churches, where the sacred Vestments, with the Vessels, and other Ornaments of the Altar were preserv'd.

The first Council of *Laodicea*, in the 21st Canon, forbids the Priests living in the *Diaconicon*, ἐν τῷ διακονικῷ; or touching the holy Utensils. An ancient *Latin* Version of those Canons renders it, *In Secretario*: But the Copy at *Rome*, as well as *Dionysius Exiguus*, retain the Word *Diaconicon* in *Latin*. 'Tis true, *Zonarus* and *Balsamon* understand that Expression in the 21st *Canon* of the Order of a Deacon, and not of a Building, to which Opinion *Leo Allatius* also adheres in his Treatise, *De Templis Græcorum*: But all the other Interpreters are agreed as to its being a Sacristy. Beside the Ornaments of the Priest-hood, and the Altar, there were likewise here deposited the Relicks of the Church.

The Word is *Greek*, and form'd from διακονέω, *I serve*, by reason here were kept every Thing belonging to Divine Service. It was also call'd Ἀσπασόριον, and in Latin *Salutatorium*: because it was here the Bishop received, and saluted Strangers. Sometimes, too, it was call'd Μετατόριον, or Μιτατόριον, *Mensa*, by reason of the Tables therein, for disposing the sacred Ornaments on; or rather from Μιτάτον, an *Inn*.

DIACOOSTICKS, or DIAPHONICKS, is the Consideration of the Properties of Sound refracted in passing through different Mediums; that is, out of a denser into a more subtile, or out of a more subtile into a denser *Medium*. See SOUND, and REFRACTION. See also ACOUSTICKS, and PHONICKS.

The Word is form'd from the *Greek* διά, *per*, through, which intimates a Passage; and ἀκούω, *I hear*, q. d. the Consideration of the Passages of the Sounds we hear.

DIACYDONITES, in Pharmacy, is applied to Things, and Remedies, wherein Quinces are an Ingredient: Thus the Confection *Diacydonites* is a Confection of Quinces, or wherein Quinces have a Share.

The Word comes from διά, and κυδώνιον, *Quince*.

DIADEM, in Antiquity, a Royal Head-band, or Fillet, wore by Kings as a Badge of their Royalty; while the Crown was left to the Gods. See CROWN.

The *Diadem* was a Sort of Ribbon, or Band wove of Silk, Thread, or Wool, more or less broad. It was tied round the Temples, and Fore-head; the two Ends being knotted behind, and let fall on the Neck.

It was usually white, and quite plain, tho' sometimes embroider'd with Gold, and set with Pearls, and precious Stones. In latter Times it likewise came to be twisted round Crowns, Laurels, *&c.* and appears to have been wore in divers Parts of the Body: Thus *Phavorinus* observes, that *Pompey* was suspected of aspiring to the Royalty, because of his wearing a white Garter, which was no other than a

Ligature for an Ulcer he had on his Leg, but which the People construed a *Diadem*.

Pliny Lib. VII. C. 5. observes, that *Bacchus* was the first Inventor of the *Diadem*: *Athenæus* assures us, that it was the Topers, and good Fellows, who first made Use of it, to preserve themselves from the Fumes of Wine, by tying it tight round their Heads; and that it afterwards came to be a Royal Ornament.

The *Diadem* remain'd a long Time the peculiar Badge of Kings; At length it was assumed by the *Roman* Emperors, as the Mark of Empire.

Authors are not agreed about the Time when the *Roman* Emperors first assum'd the *Diadem*. Some refer it to *Caligula*, others to *Aurelian*, and others to *Constantine* the *Great*. The younger *Victor* says positively, that *Aurelian* took the *Diadem*, which no Emperor had dared to do before him. For tho' it should seem from the same Writer, that *Caligula* had done the like, yet *Suetonius* assures us, he had it only in View, and that he never executed it. *Heliogabalus*, indeed, took a *Diadem*, but it was only in the Palace he wore it, and never appear'd with it in publick. *Jornandus* even goes as low as *Diocleſian* for the Introduction of the *Diadem*; But 'tis certain, there is a Medal of *Aurelian*, with a Crown like one of our Ducal Crowns, which is sustain'd by a Border of Pearls, that bears a very great Affinity to a *Diadem*. And the Authors, who have explain'd that Medal, are all agreed it is one. Mr. *Spanheim* also allows *Aurelian* to have taken it: His Successors imitated him therein; And yet the Ornament did not become common till the Time of *Constantine*. After him the Empresses were allowed to wear it: accordingly we find them represented therewith on Medals: Tho' till then, we have no Instance either of Crown, or *Diadem* on a Woman's Head, in all the *Roman* Empire.

An Author of the Vth Century quoted by *Bollandus*, pretends, that *Constantine* first wore the *Diadem*, and that he only took it to bind his Hair, and keep it in Order. But this is not very probable; and 'tis certain, that at least some Emperors had wore it before him, as *Aurelius*, and *Carinus*. *Eusebius* attributes it to *Constantius Chlorus*, when only *Cæsar*; which is confirm'd by one of his Medals, wherein he is represented with a *Diadem*, adorn'd with Rays; Tho' even after *Constantine*, when the *Diadem* was become the usual Ornament of the *Augusti*, it was not always given to the *Cæsars*. Indeed, we see it on some of the Medals of *Julian*, while only *Cæsar*; tho' 'tis pretty certain, he did not wear it till he became *Augustus*. *Du Cange* will not maintain, that *Constantine* first took the *Diadem*; but only, that he first made it into a Kind of Cask, or Close-Crown, as is seen in some of his Medals, and those of his Successors.

The Word comes from the Latin *Diadema*, of the *Greek* διάδημα, *a little Band encompassing the Head*, of the Verb διαδέω, *Alligo*, I tye.

DIADEM, in Heraldry, is applied to certain Circles, or Rims, serving to bind, or inclose the Crowns of Soveraign Princes; and to bear the Globe, and Cross, or the Flower *de Lis* for their Crest.

The Crowns of Soveraigns differ in this, that some are bound with a greater, and some with a less Number of *Diadems*.

Prelates likewise appear to have anciently wore a Sort of *Diadem*: Thus *Baronius* writes, that St. *James* the Apostle wore a gold Plate on his Fore-head, as a Mark of his Episcopal Dignity.

In Blazoning, the Bandage about the Heads of *Moors*, on Shields, is sometimes also call'd *Diadem*.

DIAGLYPHICE, the Art of Engraving, Cutting, or otherwise working hallow, or concave Figures, in Metals; Such as Seals Intaglia's, the Matrices, or Coins for Medals, &c. See ENGRAVING, and SCULPTURE.

DIAGNOSTIC, in Medicine, a Term applied to those Signs, or Symptoms, which indicate, or discover the present State of a Disease, its Nature, and Cause. See SIGN, and INDICATION.

The Physicians have *Diagnostic*, and *Prognostic* Signs; the first with regard to the present State of the Disease, and the Patient; and the second to the future. See PROGNOSTIC.

The Word is compounded of the *Greek* διὰ, *per*, through, or by; and γινώσκω, *I know*.

DIAGONAL, in Geometry, a right Line drawn a-cross a Figure of several Sides, from the Vertex of one Angle to that of another: Such is the Line PN (*Tab. Geometr. Fig.* 24.) drawn from the Angle P, to N. See FIGURE.

Some Authors call it *Diameter*, and others *Diametral* of the Figure. See DIAMETER.

It is demonstrated, 1. That every *Diagonal* divides a Parallelogram into two equal Parts. 2. Two *Diagonals* drawn in any Parallelogram, bisect each other. 3. The *Diagonal* of a Square is incommensurable with one of its Sides. See PARALLELOGRAM, SQUARE, &c.

Add 4. A very noble Theorem, in Elementary Geometry, first demonstrated by Mr. *Lagny*, in the *Memoires de l'Academie Royale des Sciences*, An. 1706. That *the Sum of the Squares of the two Diagonals of every Parallelogram, is equal to the Sum of the Squares of the four Sides.*

'Tis evident, at first Sight, that the famed 47th Proposition of *Euclid*, so richly worth the Hecatomb it cost its Author, is only a particular Case of this Proposition: For if the Parallelogram be rectangled, it follows of Course, that the two *Diagonals* are equal; and, of Consequence, that the Square of a *Diagonal*, or, which is the same Thing, the Square of the Hypothenuse of a right Angle, is equal to the Squares of the two Sides. If a Parallelogram be oblique-angled, and of Consequence, the two *Diagonals* unequal, as is the more usual Case; the Proposition becomes of more extensive Use.

The Demonstration in oblique-angled Parallelograms is thus: Suppose the oblique-angled Parallelogram ABCD, (*Tab. Geometry Fig.* 25.) whereof BD is the greater *Diagonal*, and AC the lesser: From the Point A, of the obtuse Angle DAB, let fall a Perpendicular AE, to the Side CD; and from the Point B another Perpendicular BF to the Side DC. Then are the Triangles ADE, BCF equal, and similar, as AD is equal to BC, and the Angles ADE, BCF, as well as AED, BCF, are also equal; consequently DE is equal to CF. Now, by *Euclid*, Prop. 12. Lib. II. in the obtuse-angled Triangle BDC, the Square of the Side BD is equal to the Sum of the Squares of BC, and CD, and over and above, to double the Rectangle of CF by CD; and by 13th, Lib. II. In the Triangle DAC, the Square of the Side AC is equal to the Sum of the Squares of AD, and CD, abating double the Rectangle of the same CD, by DE, equal to CF. Consequently, the former Excess precisely compensating this Defect; the Sum of the Squares of the two *Diagonals* is equal to the Sum of the Squares of the four Sides QED.

Hence, In every *Rhombus*, or Lozange, knowing one Side, and a *Diagonal*; the other *Diagonal* will likewise be known: For as the four Sides are equal; substracting the Square of the given *Diagonal* from Quadruple the Square of the given Side; the Remainder is the Square of the *Diagonal* required.

The Proposition is likewise of great Use in the Theory of compound Motions: For in an oblique-angled Parallelogram, the greater *Diagonal* being the Subtense of an obtuse; and the lesser, of an acute Angle, which is the Complement of the former; the greater will be the greater, and the less, the less, as the obtuse Angle is the greater: So that if the obtuse Angle be conceiv'd to grow till it be infinitely great with regard to the acute one, or, which amounts to the same Thing, if the two contiguous Sides of the Parallelogram be extended directly, End to End in a right Line; the great *Diagonal* becomes the Sum of the two Sides, and the lesser one, nothing. Now, two contiguous Sides of a Parallelogram being known, together with the Angle they include, 'tis easy to find, the Subtense of that Angle, *i.e.* one of the *Diagonals* of the Parallelogram, in Numbers; which done, Mr. *de Lagny*'s Proposition gives the other. Which second *Diagonal* thus found, is the Line that would be described by a Body impell'd at the same Time by two Forces, which should have the same *Ratio* to each other, as the contiguous Sides have, and act on those two Directions; which *Diagonal*, the Body would describe in the same Time, as it would have described either of the contiguous Sides in, if only impell'd by the Force corresponding thereto. This is one of the great Uses of the Proposition: For the *Ratio* of two Forces, and the Angle they make, being given, it is frequently necessary to determine, in Numbers, the Line a Body impell'd by the two Forces would describe in a certain Time. See *Compound* MOTION.

All the Sides of a recti-linear Figure, as AB, BC, CD, DE, (*Fig.* 26.) excepting one EA, and the Angles O, and I, being given; to find the *Diagonals*.

In the Triangle ABE, the Sides AB, and AE being given, the Angle O is easily found by Trigonometry; and from this, the *Diagonal* BS. And after the like Manner the Triangle BCD is resolved, and the *Diagonal* BD found.

Since Ichnographies, or Plans, are best taken by having all the Sides, and *Diagonals*; The Use of this Problem in Planimetry is of some Importance; especially to such as are willing to have their Work accurate, tho' at the Expence of Calculation. See ICHNOGRAPHY, &c.

DIAGRAM, in the ancient Music, was what we call the *Scale*, or *Gammut* in the modern. See SCALE, and GAMMUT.

The Extent of the *Diagramma*, which they also call'd, *Systema perfectum*, was a *Disdiapason*, or two Octaves in the *Ratio* 1:4. In that Space they had eighteen Chords, tho' these had not all different Sounds. See CHORD.

To explain it, they represent to us eighteen Chords, or Strings of an Instrument, as the Lyre, supposed to be tuned according to the Proportions in any of the *Genera*, viz.

Dia-

TAB. DIALLING.

Fig. 1. Declinator

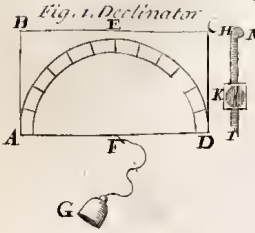


Fig. 2. Declinator

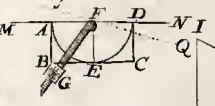


Fig. 3. Declinator

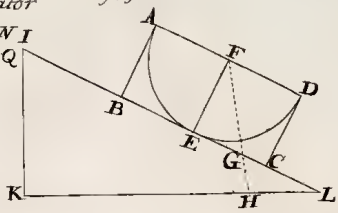


Fig. 4. Equinoctial Dial.

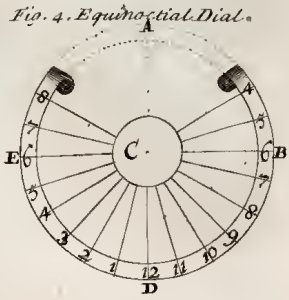


Fig. 5. Equinoctial Dial

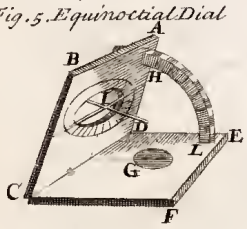


Fig. 6. Horizontal Dial

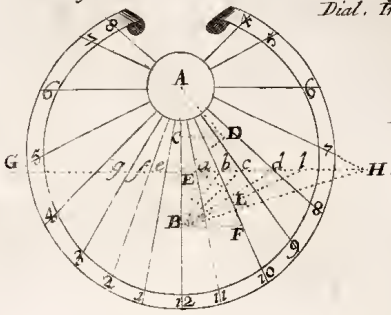


Fig. 7. Horizontal Dial, Trigonometrically

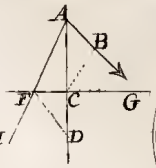


Fig 7 Ring Dial

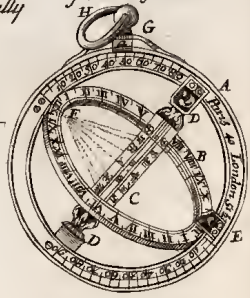


Fig. 8. Vertical Dial

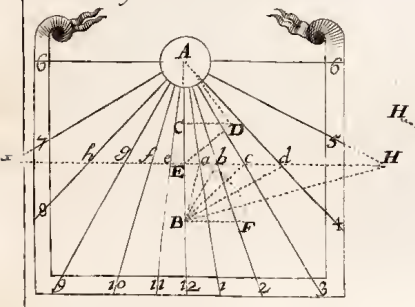


Fig. 9 & 10. Vertical North Dial

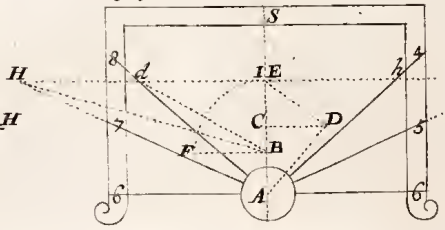


Fig. 11. East Dial

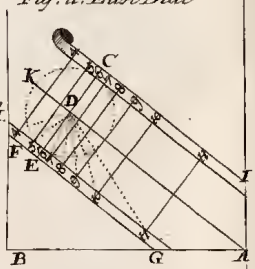


Fig. 12. Polar Dial

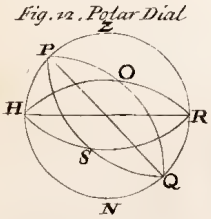


Fig 13. Polar Dial

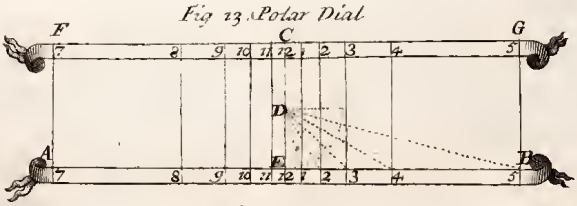


Fig. 14. Dials.

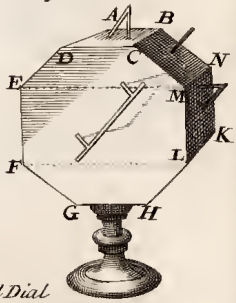


Fig. 15. Vertical Declining Dial, Trigonometrically

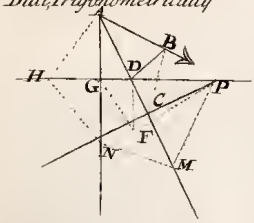


Fig. 16. Vertical Declining Dial, Geometrically.

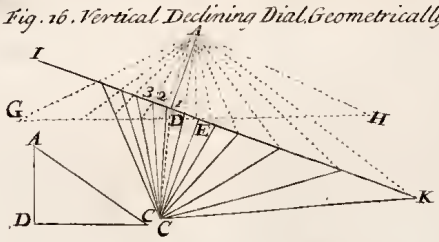


Fig. 17. Inclined Dial

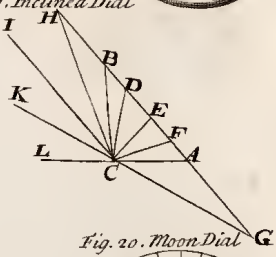


Fig. 18. Universal Mechanical Dial

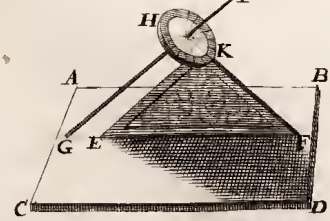


Fig. 19 Moon Dial

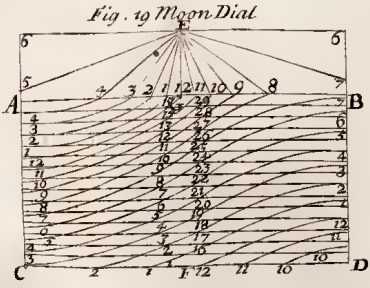
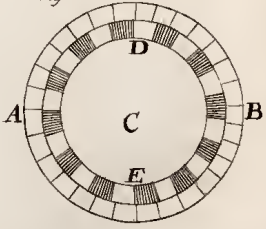


Fig. 20. Moon Dial



Diatonic, Enharmonic, or Chromatic. See GENERA, DIATONIC, &c.

As the Lyre was improv'd, and more Chords added to it; so was the *Diagramma:* By such means it came from 4 Chords to 7, then 8, then 10, then 14, and at last 18. See LYRE.

To each of these Chords, or Sounds, they gave a particular Name, taken from its Situation in the *Diagramma*, or the Lyre. Their Names, and Order, commencing from the lowest, are as follows: *Prostambanomenos, Hypate-Hypaton, Parhypate-Hypaton, Lychanos-Hypaton, Hypate-Meson, Parhypate-Meson, Lychanos-Meson, Mese, Trite-Synem, Trite-Synem menon, Paranete-Synem-menon, Nete-Synem-menon, Para-Mese, Trite-Diezeugmenon, Paranete-diezeugmenon, Nete-Diezeugmenon, Trite-Hyperbolæon, Paranete-Hyperbolæon, Nete-Hyperbolæon.*

Guido Aretine improved this Scale, or *Diagram*, very greatly. Finding it of too small Extent, he added five more Chords, or Notes to it; lay'd them all down on a Staff of 5 Lines; and instead of the long *Greek* Names abovementioned, named all his Notes by *Gregory*'s seven Letters. See NOTE, and GAMMUT.

The first, or lowest Note of his Scale, he marked Γ, and call'd *Gamma*; whence the whole Scale came to be denominated *Gammut*.

DIAGRAM, in Geometry, &c. a Scheme, for the Explanation, or Demonstration of any Figure, or the Properties thereto belonging. See FIGURE.

DIAGRYDIUM, in Pharmacy, is prepar'd Scammony. See SCAMMONY.

The Preparation is ordinarily perform'd by boiling the Scammony in a Quince. Others make it receive the Fumes of lighted Sulphur, whence it is call'd, *Sulphurated, Diagrydium sulphuratum.* Some incorporate it with a Quantity of Spirit of *Vitriol rosat.* sufficient to make a Sort of Liquid past, which is afterwards set to dry in the Sun, or by a gentle Fire. And this Preparation they call *Diagrydium Rosatum.* The End of all these Preparations is to correct the Scammony; But many more are of Opinion, it has nothing that needs Correction, and that it may be used in its natural State. See SCAMMONY.

The Word *Diagrydium* is form'd, by Corruption, from διακρύδιον, *little Tear.*

DIAHEXAPTA, or DIAHEXAPTE, among Farriers, a Drink made for Horses, denominated from the six Ingredients it consists of; *viz.* Birthwort, and Gentian Roots, Juniper Berries, Bayberries, Drops of Myrrh, and Ivory Shavings, mix'd together. It is an excellent Counter-Poison, cures Bites of venomous Beasts, Colds, Consumptions, &c.

DIAL, or *Sun*-DIAL, an Instrument serving to measure Time, by means of the Shadow of the Sun. See TIME, and SHADOW.

The Word is form'd from the Latin *Dies*, Day, because indicating the *Hour of the Day.* See HOUR.

The *Greeks* call it *Sciatericum*, from its doing it by the *Shadow.* See SCIATERICUM.

Dial is more accurately defin'd, a Draught, or Description of certain Lines on a Plane, or Surface of a Body given, so contriv'd, as that the Shadow of a Style, or a *Gnomon*, or a Ray of the Sun pass'd through a Hole therein, shall touch certain Points at certain Hours. See STYLE.

The Diversity of *Sun-Dials* arises from the different Situation of the Planes, and the different Figure of the Surfaces whereon they are described; whence they become denominated *Equinoctial, Horizontal, Vertical, Polar, Direct, Erect, Declining, Inclining, Reclining, Cylindrical*, &c. See DIALLING.

Dials are sometimes distinguish'd into *Primary*, and *Secundary.*

Primary DIALS, are those, either drawn on the Plane of the Horizon, call'd *Horizontal Dials*; or perpendicular thereto, on the Planes either of the Meridian, or Prime Vertical, call'd *Vertical Dials*; to which Number are usually added those drawn on the Polar, and Equinoctial Planes, tho' neither Horizontal, nor Vertical. See PLANE.

Equinoctial DIAL, is that describ'd on the Equinoctial Plane, or a Plane representing that of the Equinoctial. See EQUINOCTIAL.

A Plane oblique to the Horizon, either hangs over towards it, and makes an acute Angle with the Plane of the Horizon; or it falls off backwards from it, and makes an obtuse Angle therewith. This latter is call'd a *Reclining Plane*; which, if it recline back equal to the Complement of the Latitude of the Place, it lies in the Plane of the Equinoctial; and a *Dial* drawn thereon, is denominated an *Equinoctial Dial.*

Equinoctial Dials are usually distinguish'd into *Upper*, which look towards the *Zenith*; and *Lower*, which respect the *Nadir.*

Now, as the Sun only illumines the upper Surface of an Equinoctial Plane, while he is in our *Hemisphere*, or on the Northern Side of the Equator, an *Upper Equinoctial Dial* will only shew the Hour during the Spring, and Summer-Season.

And again, as the Sun only illumines the lower Surface of an Equinoctial Plane, while he is in the Southern *Hemisphere*, or on the other Side the Equator; a *Lower Equinoctial Dial* will only shew the Hour in Autumn, and Winter.

To have an *Equinoctial Dial*, therefore, that shall serve all the Year round, the *Upper* and *Lower* must be joyned together; that is, it must be drawn on each Side of the Plane.

And since the Sun shines on one Side or other of an Equinoctial Plane the whole Day; such a *Dial* will shew all the Hours of an Artificial Day.

To describe an Equinoctial DIAL *Geometrically.*

The *Equinoctial* is the first, easiest, and most natural of all *Dials*: But the Necessity of drawing it double, prevents its being much in Use. However, as its Structure shews the reason of the other Kinds; and as it even furnishes a good Mechanical Method of drawing all the other Kinds of *Dials*, it shall be here laid down.

First, then, *to describe an Upper* Equinoctial DIAL: From a Center C (*Tab. Dialling, Fig.* 4.) describe a Circle ABDE, and by two Diameters AD, and BE, intersecting each other at right Angles, divide it into Quadrants AB, BD, DE, and EB. Subdivide each Quadrant into six equal Parts by their right Lines C 1, C 2, C 3, &c. which Lines will be Hour-Lines. Through the Centre C drive a Style, or Pin, perpendicular to the Plane ABDE.

The *Dial* thus describ'd, being raised so as to be in the Plane of the Equator, the Line C 12, in the Plane of the Meridian, and the Point A looking towards the South; the Shadow of the Style will shew the Hours both of the Fore-noon and After-noon.

For, Horary Circles include Arches of the Equator of fifteen Degrees each. (See HORARY *Circle.*) Consequently the Plane of ABDE being supposed in the Plane of the Equator, the Horary Circle will likewise include Arches of 15 Degrees of the Circle ABDE. Wherefore, since the Angles 12 C 11, 11 C 10, 10 C 9, &c. are each here supposed 15 Degrees, the Line C 12, C 11, C 10, C 9, &c. are Intersections of Horary Circles, with the Plane of the Equinoctial.

Again, since the Style passing through the Centre C, is the Axis of the World; its Distance from the Centre of the Earth being inconsiderable, and it being the common Diameter of the Horary Circles; its Shadow will cover the Hour C 12, when the Sun is in the Meridian, or Circle of 12 a-Clock; C 11, when in the Circle of 11 a-Clock; C 10, when in the Circle of 10 a-Clock, &c.

Secondly, *To describe a Lower* Equinoctial DIAL: The Method is the same as that for the Upper *Dial* already described; except that no Hour-Lines are to be drawn beyond that of 6 a-Clock.

Thirdly, *To describe an Universal* Equinoctial DIAL: Joyn two Metal, or Ivory Planes ABCD, and CDEF, (*Fig.* 5.) so as to be moveable at the Joynt. On the upper Surface of the Plane ABCD, describe an *Upper Equinoctial Dial*, and upon the lower a *Lower*, as already directed; and through the Center I drive a Style. In the Plane DEFC cut a Box, and put a Magnetical Needle G therein; fit on the same Plane a Brass Quadrant nicely graduated, and passing through a Hole cut in the Plane ABCD. Now, since this may be so plac'd, by means of the Needle, as that the Line I 12, shall be in the Plane of the Meridian: And, by means of the Quadrant, may be so raised, as that the Angle BCE shall be equal to the Elevation of the Equator; it will serve as a *Dial* in any Part of the World.

Horizontal DIAL, is that described on a Horizontal Plane, or a Plane Parallel to the Horizon. See HORIZON.

Since the Sun may illumine a Horizontal Plane at all Times of the Year, while he is above the Horizon; a *Horizontal Dial* may shew all the Hours of the Artificial Day, throughout the Year: So that a more perfect *Dial* cannot be requir'd.

To describe an Horizontal DIAL *Geometrically.*

Draw a Meridian Line B, (*Fig.* 6.) on the given immoveable Plane; or assume it, at Pleasure, on a moveable one. See MERIDIAN *Line.*

From a Point taken at Pleasure, as C, erect a Perpendicular CD, and make the Angle CAD equal to the Elevation of the Pole. In D make another Angle CDE equal likewise to the Elevation of the Pole, and draw the right Line DC meeting AB in E. Then make EB equal to ED, and from the Centre B with the *Radius* EB, describe a Quadrant EBF, which divide into 6 equal Parts. Through E draw the right Line GH, cutting AB at right Angles. From the Centre B through the several Divisions of the Quadrant EF draw right Lines B a, B b, Bc, B d, BH, meet-

meeting the Line GH, in the Point a BC d H. From E upon the right Line EG set off the Intervals E a, E b, &c. viz. E a from E to e, E b from E to f, E c from E to g, &c. From the Centre A describe a little Circle, and applying a little Ruler to A, and the several Points of Division a, b, c, d, H and e, f, g, h, G, draw the Lines A 11, A 10, A 9, A 8, A 7, and A 1, A 2, A 3, A 4, A 5. Through A draw a right Line 6, 6 perpendicular to AB. Continue the right Line A 7, beyond the little Circle to 7, A 8 to 8, A 5 to 5, and A 4 to 4. Round the whole Scheme draw a Square, Circle, or Oval Figure. And lastly in A fix an Index, making an Angle DAC with the Meridian AB equal to the Elevation of the Pole: Or in C erect a perpendicular Style equal to CD; or at AE fix a Triangular Plate ADE perpendicular to the Plane of the *Dial*.

Now, the Lines A 11, A 10, A 9, &c. are the Hour-Lines of the Fore-noon; and A 1, A 2, A 3, &c. those of the After-noon: and the Shadow of any of the *Gnomon's*, or Styles above mention'd, at the several Hours, will fall on the respective Hour-Lines.

A Horizontal DIAL, *Trigonometrically.*

In large *Dials*, where the utmost Accuracy is required, Geometrical Lines are best set a-side; and in lieu thereof, the Lines of the *Dial* to be determin'd by Trigonometrical Calculation. Monsr. *Clapies*, in the *Memoires de l'Academie Royale des Sciences*, An. 1707, has done us good Service herein; having render'd the Calculation of the Hour-Lines, which before had been operose enough, exceeding easy and expeditious: His Canons, or Analogies we shall lay down under the respective Kinds of *Dials*.

And, first, For a *Horizontal Dial*: The Elevation of the Pole of the Place being given, to find the Angles, which the Hour-Lines make with the Meridian, in the Centre of the *Dial*.

Analogy, or *Canon*.

As the whole Sine is to the Sine of the Elevation of the Pole of the Place; so is the Tangent of the Sun's Distance from the Meridian, for the Hour required; to the Tangent of the Angle requir'd. That is, As the Side FC (*Fig.* 7.) is to DC: So is the Tangent of FDC; to the Tangent FC of the Angle FAC. See TANGENT, &c.

Vertical DIAL, is that drawn on the Plane of a Vertical Circle. See VERTICAL.

Of these there are several Varieties, according to the Vertical pitcht upon. The Verticals chiefly used are the Prime Vertical, and the Meridian; from which respectively arise *South*, *North*, *East*, and *West Dials*.

Dials, which respect the Cardinal Points of the Horizon, are particularly call'd *Direct Dials*. See DIRECT.

If any other Vertical be chose, the *Dial* is said to *Decline*. See DECLINER.

Further, If the Circle, whose Plane is used, be perpendicular to the Horizon, as is supposed to be the Case in all those now mention'd, the *Dials* are particular denominated *Erect*. E. gr. *Erect South*; *Direct North*, &c. See ERECT, &c.

Otherwise, the Plane being oblique to the Horizon, they are said either to *Incline*, or *Recline*. See INCLINER, RECLINER, &c.

South DIAL, or more particular an *Erect Direct South* DIAL, is that described on the Surface of the Prime Vertical Circle, looking to the South. See SOUTH.

Since the Sun then illumines the Plane of the Prime Vertical, looking to the South, when, in its Progress he passes from the Prime Vertical to the Meridian, or returns back from this to that; in which he is employ'd six Hours before, and six after Noon; A *South Dial* shews the Hours from six in the Morning to six at Night.

To draw a Vertical South DIAL.

On the Plane of the Prime Vertical looking Southwards, draw a Meridian Line AB (*Fig.* 8.) and taking the Interval AC at Pleasure for the Magnitude of the future *Dial*; In C erect a Perpendicular of an indefinite Length CD, and making an Angle CAD equal to the Elevation of the Equator, draw a right Line AD meeting the Perpendicular CD in D. Then in the Point D make the Angle CDE likewise equal to the Elevation of the Equator, and draw the right Line DE cutting the Meridian in E. Through E draw the right Line GH, cutting the Meridian AB at right Angles. Take EB equal to ED, and with this *Radius* describe a Quadrant EF. The rest is perform'd as in a *Horizontal Dial*; except that the Hours of the After-noon are to be wrote on the right Hand, and those of the Fore-noon on the left, as in the Figure. Lastly, in the Point A fix an oblique Style in an Angle equal to the Elevation of the Equator: Or in C erect a perpendicular Style equal to CD: Or, lastly, a Triangular Plate ADE upon AE, so as to be perpendicular to the Plane of the *Dial*.

Then will the Shadow of any of these Indexes touch the several Hour-Lines at their respective Hours.

North DIAL, *or Erect Direct North* DIAL, is that described on the Surface of the Prime Vertical, looking Northward. See NORTH.

Since the Sun only illumines this Surface, while he advances from the East to the Prime Vertical, and proceeds from the same Vertical to the West; and since he is in the Prime Vertical at six a-Clock in the Morning, and six in the Evening; a *North Dial* shews the Hours before six in the Morning, and those after six in the Evening. And hence, as in Autumn, and Winter Time, the Sun does not rise before six, and yet sets before six in the Evening; a *North Dial* is of no Use all that Time. But being joyn'd with a *South Dial*, it supplies the Defects thereof.

To describe a Vertical North DIAL.

Draw a Meridian Line EB (*Fig.* 9.) and from A describe a little Circle at Pleasure. At A make the Angle DAC equal to the Elevation of the Equator, and from the Point C taken at Pleasure, erect a Perpendicular CD meeting AD in D. Make another Angle CDE likewise equal to the Elevation of the Equator, and draw likewise a Line DE meeting AE in E. Then take IB equal to ED. And through I draw GH, cutting SB at right Angles. And from the Centre B with the *Radius* IB describe a Quadrant; which divide into six equal Parts. Through the two extream Divisions draw Lines from the Centre B, *viz.* B d, and BH, meeting GH in little d, and H, and make I h equal to I d, and IG equal to IH. Then applying a Ruler to A and d, and H; and again to A and h, and G, draw the right Lines A 5, A 4, A 7, and A 8. Lastly, in A fix an oblique Index AD, making an Angle DAE with the Meridian Line in the Plane of the Meridian, equal to the Elevation of the Equator: Or a perpendicular Index in C equal to CD: Or, instead of an Index, a Triangular Plate EDA on the Meridian Line EA, perpendicular to the Plane of the *Dial*.

Then will A 4, A 5, A 6, be the Hours of the Fore-noon; and A 6, A 7, A 8, those of the After-noon; and accordingly will be pointed out by the Shadow of the several Indexes.

Or thus: In a *South Dial* (*Fig.* 10.) If the Hour-Lines 4 and 5, as also 7 and 8, be continued beyond the Line 6 A 6; and the Triangle ADE turned about its Pole A till AE fall directly against A 12; it is evident, a *North Dial* is hereby had: only observing what has been said about writing the Hours.

A Vertical North, or *South* DIAL *Trigonometrically.*

These only differ from the *Horizontal Dial*, in that the Angle CAB is equal to the Complement of the Elevation of the Pole of the Place; so that the same Analogy serves as for the Horizontal one: Only making the second Term the Complement of the Elevation of the Pole of the Place.

East DIAL, or *Erect Direct East* DIAL, is that drawn on the Plane of the Meridian, looking to the East. See EAST.

Since the Sun only illumines the Plane of the Meridian, looking Eastward before Noon; an *East Dial* can only shew the Hours till Noon.

To describe an East DIAL.

On the Eastern Side of the Plane of the Meridian draw a right Line AB (*Fig.* 11.) parallel to the Horizon, and to this joyn AK, making with it an Angle KAB, equal to the Elevation of the Equator. Then with the *Radius* DE describe a Circle, and through the Centre D draw AC perpendicular to AK; by which means the Circle will be divided into 4 Quadrants. Each of these Quadrants subdivide into six equal Parts. And from the Centre D thro' the several Divisions draw right Lines, D 4, D 5, D 6, D 7, D 8, D 9, D 10, D 11. Lastly, in D erect a Style equal to the *Radius* DE, perpendicular to the Plane; or, on two little Pieces perpendicular fix'd in EC, and equal to the same *Radius* DE, fit an Iron Rod parallel to AC.

Thus will each Index at the several Hours project a Shadow to the respective Hour-Lines 4, 4 5, 5 6, 6 &c.

West DIAL, or *Erect Direct West*-DIAL, is that described on the Western Side of the Meridian. See WEST.

As the Sun only illumines that Side of the Plane of the Meridian, looking to the West after Noon, a *West-Dial* can only shew the Hours from Noon to Night.

This, therefore, joyn'd with an *East-Dial* shews all Hours of the Day.

To draw a West DIAL.

The Construction is perfectly the same as that of an *East Dial*: Only that its Situation is inverted, and the Hours wrote accordingly.

Polar DIAL, is that described on a Plane passing through the Poles of the World, and the East, and West Points of the Horizon. It is of two Kinds: The first, looking up towards the *Zenith*, and call'd *Upper*; the latter down to the *Nadir*, call'd *Lower*.

The *Polar Dial*, therefore, is inclin'd to the Horizon in an Angle equal to the Elevation of the Pole.

Since

Since the Polar Plane POQS (*Fig.*12.) passes through the East and West Points O and S, a Quadrant of the Equator is intercepted between it, and the Meridian: Consequently the *Upper* Surface is illumined by the Sun from six in the Morning to six at Night; and the *Lower* from the Sun's Rise to six in the Morning, and from six in the Evening to Sun-set. A *Lower Polar Dial*, therefore, shews the Hour of the Morning from Sun-Rise to six a-Clock, and that of the Evening from six to Sun-set; And an *Upper*, the Hours from six in the Morning to six in the Evening.

To draw an Upper Polar DIAL.

Draw a right Line AB (*Fig.*13.) parallel to the Horizon, and if the Plane be immoveable, find the Meridian Line CE. Divide CE into two equal Parts, and through C draw a right Line FG parallel to AB. Then from the Centre D with the Interval DE, describe a Quadrant, which divide into six equal Parts. And from the same Centre D through the several Points of Division draw right Lines D 1, D 2, D 3, D 4, D 5; and the Intervals E 1, E 2, E 3, E 4, E 5, set off the contrary Way from E 11, 10, 9, 8, and 7. From the Points 5, 4, 3, 2, 1, *&c.* raise Perpendiculars meeting the Line FG in the correspondent Points. Lastly, in D erect a perpendicular Style equal to DE; or on two equal Pieces E and C, fix a cross Iron Rod.

Then will 12, 12, 1, 1, 2, 2, 3, 3, *&c.* be Hour-Lines, to be pointed out at the proper times by the Shadow of the Indices.

An *Upper Polar* DIAL only differs in Situation, and the Manner of writing in the Hours, from *East*, and *West Dials* joyn'd together in the Line of six a-Clock.

A *Lower Polar Dial* is had by putting out the Hours of the Fore-noon 9, 10, and 11, and those of the After-noon 1, 2. and 3, with the Noon-hour 12 it self: and only leaving the Hours 7 and 8 of the Morning, and 4 and 5 in the Evening.

To draw all the Primary DIALS *on the same Block, or Post.*

1. Let the Plane ABCD (*Fig.*14.) in the proper Position of the Block be supposed Horizontal; And thereon describe a *Horizontal Dial*. See *Horizontal* DIAL.

2. Draw the right Lines EM, and FL parallel to DC, which accordingly, in the proper Position of the Block, will be parallel to the Horizon. Then let the Plane BNMC make an Angle with EM, equal to the Elevation of the Pole, CME: and thereon describe an *Upper Polar Dial*. See *Polar* DIAL.

3. Let the Opposite Plane ADE make with EM an Angle DEM, equal to the Elevation of the Equator: And on this draw an *Upper Equinoctial Dial*. See *Equinoctial* DIAL.

4. Let the Plane KLHI make with FL an Angle HLF: And on this inscribe a *Lower Equinoctial Dial*. See *Equinoctial* DIAL.

5. Let the opposite Plane FG make with FL an Angle FGL equal to the Elevation of the Pole: And here draw a *Lower Polar Dial*. See *Polar* DIAL.

6. Let the Plane MNKL, and the opposite one EE be perpendicular to FL: And on that draw a *South Dial*, and on this a *North Dial*. See *South North* and DIAL.

7. In the Plane EMLF describe a *West Dial*; and on the opposite Plane an *East Dial*. See *East* and *West* DIALS.

If then the Block be so placed, as that the Plane MNKL looks to the South, and the Plane of the Meridian bisect it by the Line of 12 a-Clock in the Horizontal *Dial* ABCD, and South *Dial* MNKL; They will all tell the Hour of the Day.

Secundary DIALS.

Secundary DIALS are all those drawn on the Planes of other Circles, beside the *Horizont, prime Vertical, Equinoctial*, and *Polar Circles*: Or those, which either *Decline, Incline, Recline*, or *Deincline*.

Declining DIALS are *Erect*, or *Vertical Dials*, which *decline* from any of the Cardinal Points; Or, more strictly, which cut either the Plane of the Prime Vertical, or of the Horizon at oblique Angles.

The Use of *Declining Dials* is very frequent; as the Walls of Houses, whereon *Dials* are usually drawn, commonly deviate from the Cardinal Points. See DECLINER.

Of *Declining Dials* there are several Kinds, denominated from the Cardinal Points, which they seem most to respect, but from which they have a real *Declination*: *Decliners from the South*, and *from the North*, and even *from the Zenith*.

Vertical Declining DIALS, *Trigonometrically.*

Prob. 1. The *Declination* of the Plane, and the Elevation of the Pole of the Plane, being given: To find the Angle form'd in the Centre of the *Dial*, by the Meridian, and Substyle.

Analogy: As the whole Sine is to the Tangent of the Complement of the Height of the Pole of the Place GF; (*Fig.*15.) so is the Sine of the *Declination* of the Plane GFD to the Tangent GD, of the Angle required, GAD.

Prob. 2. The *Declination* of the Plane being given, and the Elevation of the Pole of the Place; to find the Angle form'd in the Centre of a *Vertical Declining Dial*, by the Substyle and Axis.

Analogy: As the whole Sine is to the Sine of the Complement of the Elevation of the Pole GF; so is the Sine of the Complement of the *Declination* of the Plane DGF, to the Side DF, the Sine of the Angle DAB required.

Prob. 3. The *Declination* of the Plane, and the Elevation of the Pole, given; to find the Difference of Longitudes, that is, the Arch of the Equator comprehended between the Meridian of the Place, and the Meridian of the Plane.

Analogy: As the whole Sine is to the Sine of the Height of the Pole; so is the Tangent of the Complement of the *Declination* of the Plane, to the Tangent of the Complement of the Difference of Longitudes.

Prob. 4. The Angle of the Difference of Longitudes, and that of the Axis, with the Substyle, being given; to find the Angles form'd in the Centre of a *Vertical Declining Dial*, between the Substyle and Hour-Lines.

This *Problem* admits of three Cases. For the Hour-Lines, whose Angles are sought, may be, either, 1. Between the Meridian, and Substyle; or, 2. Beyond the Substyle; or, 3. On that Side the Meridian the Substyle is not. In the two first Cases, the Difference is to be taken between the Sun's Distance from the Meridian that Hour, and the Angle of the Difference of Longitudes found by the last *Problem*: And in the third Case, the Sum of those two Angles is to be taken; and the following *Analogy* used.

Analogy: As the whole Sine is to the Sine of the Angle between the Axis and Substyle, CM; so is the Tangent of the Difference of the Sun's Distance from the Meridian, and the Difference of Longitudes, or of the Sum of those two Angles; to the Tangent of the Angle required.

Prob. 5. The Angle form'd by the Substyle, with the Hour-Lines, and that of the Substyle, with the Meridian, given; to find the Angles form'd between the Meridian, and Hour-Lines in the Centre of *Vertical Declining Dials*.

1. The Angles of the Hour-Lines between the Meridian, and Substyle, are found by substracting the Angle form'd by the Substyle, with the Hour-Line, from the Angle form'd by the Substyle, with the Meridian.

2. The Angles beyond the Substyle, and on the Side opposite to that of the Meridian, are found by adding those two Angles.

3. Those on the other Side the Meridian, are found by taking their Difference.

To describe a Vertical DIAL, *declining from the South to the East*, or *West*, Geometrically.

Find the *Declination* of the Plane, as already taught under the Article DECLINATION, and DECLINER.

Then draw upon Paper a *Horizontal Dial*, supposing the Line of Contingency of the Horizontal, with the Equinoctial Plane to be GH, (*Fig.*16.) Through the Point E, wherein the Meridian Line AE cuts the same, draw a right Line IK, making with GH an Angle HEK equal to the *Declination* of the given Plane. Thus, as GH represents the Intersection of the Prime Vertical, with the Horizon; IK will be the Intersection of the Inclining Plane, and the Horizon; Whence we also conceive, that the Part IE must be raised above GE, in Case the given Plane *decline* to the West: Or be depress'd below the same GE, in Case it *decline* to the East. Draw a right Line parallel to the Horizon on the given Plane, or Wall, to answer to IK, and assuming a Point therein, answering to E set off from the right Line IK on the Paper, the several Horary Distances E 1, E 2, E 3, *&c.* Then from the Point E erect a Perpendicular EC, equal to the Distance of the Centre of the *Horizontal Dial*, from its Line of Contingency. Draw Lines thence to the several Points of the Hour-Lines E 1, E 2, E 3, *&c.* let fall a Perpendicular AD from the Centre of the *Horizontal Dial* A to the Line of Contingency IK, and transfer the Distance ED from the Point E upon the Wall; then will CD be the Substylar Line. See SUBSTYLE.

Wherefore, joyning AD and DC at right Angles; the Hypothenuse AC will be an oblique Index to be fasten'd on the Wall in the Point C, according to the Angle DCA.

To draw a Vertical DIAL *declining from the North towards the East, and West.*

Take the *Declination* of the Plane, as already taught: Then, as *North Dials* are only *South Dials* inverted, draw a *Vertical Dial declining from the South*, and invert it in such manner, as that the Centre C look to the Horizon, and the Point E to the *Zenith*; and the Hours on the right

Hand set off towards the Left, and contrarywise; Omitting all Hour-Lines, which in such a Plane cannot be shewn.

For the Practice the best Way is, after drawing a *South Decliner* upon Paper, to prick the several Points thereof through with a Pin; Then applying the Face of the Paper to the Wall, the Back-side thereof will shew you all the Points necessary for the *North Declining Dial*.

Inclined DIALS, are those drawn on Planes not *Erect*, but *Inclining*, or leaning forward towards the South, or Southern Side of the Horizon, in an Angle, either greater or less than the Equinoctial Plane. See INCLINATION.

Such an *Inclined* Plane is conceived by supposing one Part of the Plane of the Equator lifted up toward the *Zenith*, and the other depress'd toward the *Nadir*; and thus to revolve upon a Line drawn from the East to the West Points of the Horizon.

To draw an Inclined DIAL.

1. The *Inclination* of the Plane, as DC (*Fig.* 17.) being found by a *Decliner*, as taught under INCLINATION; If it fall between the Equinoctial Plane CE, and the Vertical one CB, in such manner, as that the Angle of *Inclination* DCA is greater than the Elevation of the Equator ECA: On the Upper Side draw a *North Dial*; and on the Lower a *South Dial* to the Elevation of the Equator, which is equal to the Aggregate of the Elevation of the Equator of the given Place, and the Complement of the *Inclination* to a Quadrant.

2. If the *Inclined* Plane CF fall between the Horizontal one CA, and the Equinoctial CE, so that as the Angle of *Inclination* FCA is less than the Elevation of the Equator ECA: describe an Horizontal *Dial* to an Elevation of the Pole, equal to the Aggregate of the Elevation of the Pole of the given Place, and the *Inclination* of the Plane.

Dials thus *inclined*, are drawn after the same manner as *Primary Dials*, except, that the Index in the former Case must be fitted under the Angle ADC, and in the latter under the Angle DFC: And that the Distance of the Centre of the *Dial* from the Line of Contingency in the former Case is DC, and in the latter FC.

Reclining DIALS, are those drawn on Planes not *Erect*, but *Reclined*, or leaning backwards from the *Zenith* towards the North, in an Angle greater, or less than the Polar Plane.

A *Reclined* Plane is conceived by supposing one Part of the Polar Plane raised toward the *Zenith*, and the other depressed towards the *Nadir*: And thus revolving about a Line drawn from East to West. To find the *Reclination* of a Plane. See RECLINATION.

To draw a Reclining DIAL.

1. If the *Reclined* Plane HC fall between the Vertical Plane BC, and the Polar Plane IC; so as that the Angle of *Reclination* BCH is less than the Distance of the Pole from the *Zenith* BCI: Describe two Vertical *South* and *North Dials* to an Elevation of the Equator, equal to the Difference between the Elevation of the Equator of the given Place, and the Angle of *Reclination*.

2. If the *Reclined* Plane, as KC fall between the Polar Plane IC, and the Horizontal one CL; so as that the Angle of *Reclination* BCK is greater than the Distance of the Pole from the *Zenith* ICB: Describe a Horizontal *Dial* thereon to the Elevation of the Pole, equal to the Difference between the Angle of *Reclination*, and the Elevation of the Equator in the given Place.

Inclining, and Reclining DIALS, *Trigonometrically.*

The *Inclination*, or *Reclination* of the Plane, and the Elevation of the Pole being known; to find the Angles made in the Centre of an *Inclining*, or *Reclining Dial*, by the Meridian, and Hour-Lines.

Such *Dial* is properly a *Horizontal Dial*, for a Latitude equal to the particular Elevation of the Pole on the Plane of the *Dial*. Its Angles, therefore, are found by the Analogy laid down for *Horizontal Dials*.

As to the Elevation of the Pole, on the *Dial* Plane, 'tis thus found: The Plane being *inclined*; Either its *Inclination* is greater than the Elevation of the Pole of the Place; or less; or equal thereto. In the two first Cases, for Upper *South*, or Lower *North Dials*, the particular Elevation of the Pole on the Plane, is had by taking the Difference between the Elevation of the Pole of the Place, and the *Inclination* of the Plane: And in the latter Case, the *Dial* is a *Polar Dial*, wherein the Hour-Lines will be parallel, by reason the Plane being *inclined* on the Axis of the World, neither of the Poles can be represented thereon.

For Upper *North*, and Lower *South Dials*: 1. If the *Inclination* be greater than the Elevation, the Complement of the *Inclination* must be added to the Complement of the Elevation. 2. If it be less, the *Inclination* must be added to the Elevation. 3. If it be equal, the *Dial* will be an *Equinoctial Dial*, wherein the Angles at the Centre will be equal to the Sun's Distance from the Meridian.

Deinclined DIALS, are those which both *decline*, and *incline*, or *recline*. See DEINCLINED.

The Use of *Inclined*, *Reclined*, and especially *Deinclined Dials*, is very rare: The Geometrical, and Trigonometrical Construction of these last, therefore, as being somewhat intricate withal, we here chuse to omit, and refer such as may have a Fancy for such a *Dial*, to an Universal Mechanical Method of drawing all Kinds of *Dials* here subjoyn'd.

An easy Method, to describe a DIAL, *on any Kind of Plane, by means of an* Equinoctial Dial, *or Circle.*

Suppose, *e. gr.* A *Dial* requir'd on a Horizontal Plane: If the Plane be immoveable, as ABDC (*Fig.* 18.) find a Meridian Line GF: Or if moveable, assume the Meridian at Pleasure. Then by means of the Triangle EKF, whose Base is applied on the Meridian Line raise the Equinoctial *Dial* H, till such Time as the Index GI becomes parallel to the Axis of the World, (which is had, if the Angle KEF be equal to the Elevation of the Pole) and the 12 Clock Line on the *Dial* hang over the Meridian Line of the Plane, or the Base of the Triangle. If then in the Night-time a lighted Candle being successively applied to Axis GI, so as the Shadow of the Index, or Style GI fall upon one Hour-Line after another; The same Shadow will mark out the several Hour-Lines on the Plane ABCD.

Noting the Points, therefore, on the Shadow, draw Lines through them to G: Then an Index being fix'd in G, according to the Angle IGF, its Shadow will point out the several Hours by the Light of the Sun.

If a *Dial* were requir'd *on a Vertical Plane*; having raised the Equinoctial Circle, as above directed, push forward the Index GI, till the Tip thereof I, touch the Plane.

If the Plane be *Inclined* to the Horizon, the Elevation of the Pole should be found on the same; and the Angle of the Triangle KEF made equal thereto.

Note, Beside the several Species of *Dials*, abovemention'd, which are said to be *with Centres*, there are others, call'd *Dials without Centres*.

DIALS *without Centres*, are those whose Hour-Lines do really converge, but so slowly that the Centre they converge towards, cannot be express'd on the given Plane.

Horizontal DIALS *without Centres* are to be made for Places the Elevation of whose Pole is very small; or very great.

Vertical DIALS *without Centres* for Places the Elevation of whose Pole is very great.

For the Furniture of Dials. See FURNITURE.

Ring-DIAL.	See	RING *Dial*.
Portable DIAL.		RING *Dial*.
Quadrantal DIAL.		*Horodictic* QUADRANT.
Reflecting DIAL.		REFLECTING *Dial*.

Nocturnal, or *Night*-DIAL, is that which shews the Hours of the Night.

Of this there are two Kinds, *Lunar*, and *Siderial*.

Moon-DIAL, or *Lunar* DIAL, is that which shews the Hour of the Night, by means of the Light, or Shadow of the Moon projected thereon from an Index.

To describe a Moon-DIAL.

Suppose, *e. gr.* A Horizontal *Moon-Dial* required: Draw first a Horizontal *Sun-Dial*: Then erect two Perpendiculars AB, and CD, (*Fig.* 19.) to the Line of 12 a Clock, and dividing the Interval GF into 12 equal Parts; Through the several Points of Division draw Lines parallel thereto. Now, appropriating the first Line CD to the Day of the New Moon, and the second to the Day, when the Moon comes an Hour later to the Meridian than the Sun, their Intersections with the Hour-Lines will give Points, through which to draw a Curve Line 12, 12, for the Meridian Line of the Moon. After the like manner determine the other Hour-Lines 11, 22, 33, &c. which the Shadow of the Moon projected from the Style of the *Dial* intersects at the respective Hours. Blot out the Hour-Lines of the *Sun-Dial*, together with the Perpendiculars, whereby the Lunar-Hours were drawn, and divide the Interval GF, by other Parallel Lines into 15 equal Parts, answering to the 15 Days between New and Full Moon. Lastly, to these Lines write the several Days of the Moon's Ages.

Now, the Moon's Age being learnt from a Calendar; the Intersection of the Lines of the Moon's Age, with the Lunar Hour-Lines, will give the Hour of the Night.

After the same manner may any other *Sun-Dial* be converted into a *Moon-Dial*.

To draw a Portable Moon-DIAL.

On a Plane that may be raised according to the Elevation of the Equator describe a Circle AB (*Fig.* 20.) and divide its Circumference into 29 equal Parts. From the same Centre C describe another moveable Circle DE, which divide into 24 equal Parts, or Hours. In the Centre C erect an Index, as for an Equinoctial *Dial*.

The

This *Dial* being duly plac'd after the manner of an Equinoctial *Dial*, and the 12 a-Clock Line brought to the Day of the Moon's Age: The Shadow of the Index will give the Hour.

To use a Solar, as a Lunar-Dial, i. e. to find the Hour of the Night by a Sun-Dial.

Observe the Hour, which the Shadow of the Index points at by Moon-Light: Find the Moon's Age in the Calendar, and multiply the Number of Day by $\frac{4}{4}$, the Product is the Number of Hours to be added to the Hour shewn by the Shadow, to give the Hour required.

DIALECT, the peculiar Language of some Province, or Part of a Nation, form'd by Corruption of the general, or national Language. See LANGUAGE.

Homer could speak 5 different Languages in one Verse, *i. e.* five *Dialects*, viz. the *Attic*, *Ionic*, *Æolic*, *Doric*, and the common Language of the *Greeks*. See GREEK, ATTIC, IONIC, *&c.*

The *Bolonnese*, *Bergamas*, *Toscan*, &c. are the *Dialects* of the *Italian*. See ITALIAN.

The *Gascon*, and *Piccard*, are the *Dialects* of the *French*. See FRENCH, *&c.*

DIALECTICA, the Art of Logic; or, of Thinking, and Reasoning justly. See LOGIC.

Zeno Eleates was the first who discover'd the natural Series of Principles, and Conclusions, observed in Reasoning, and form'd an Art thereof, in Form of Dialogue, which for this reason was call'd *Dialectica*.

The Word comes from the *Greek* διαλεκτικὴ, of the very διαλέγεσθαι, *differere*, to discourse, reason.

The *Dialectica* of the Ancients is usually divided into several Kinds: The first was the *Eleatica*, that of *Zeno Eleates*; which was threefold: viz. *Consecutionum*, *Colloquutionum*, and *Contentiarum*. The first consisting of Rules for deducing, or drawing Conclusions: The second, the Art of *Dialogue*, which became of such universal Use in Philosophy, that all Reasoning was call'd *Interrogation*. Then, Syllogism being laid a-side, the Philosophers did all by *Dialogue*; it lying on the Respondent, to conclude, and argue from the several Concessions made. See DIALOGUE.

The last Part of *Zeno*'s *Dialecticks*, ἐρεστικὴ, was Contentious, or the Art of Disputing, and Contradicting; tho' some, particularly *Laertius*, ascribe this Part to *Protagoras*, a Disciple of *Zeno*.

The second is the *Dialectica Megarica*, whose Author is *Euclid*, not the Mathematician, but another, of *Megara*. He gave much into the Method of *Zeno*, and *Protagoras*: Tho' there are two Things appropriated to him: The first, that he impugned the Demonstrations of others, not by Assumptions, but Conclusions; continually making Illations, and throwing in *Ergo*, *Ergo*, *Ergo*. The second, that he set a-side all Arguments drawn from Comparison, or Similitude, as invalid.

He was succeeded by *Eubulides*, from whom the Sophistic Way of Reasoning is said to be deriv'd. In his Time the Art is described as manifold: *Mentiens*, *Fallens*, *Electra*, *Obvelata*, *Acervalis*, *Cornuta*, and *Calva*. See SOPHISM.

The third is the *Dialectica* of *Plato*, which he proposes as a Kind of *Analysis*, to direct the human Mind, by dividing, defining, and bringing Things to the first Truth; where being arrived, and stopping there a little, it applies it self to explain sensible Things; but with a View to return to the first Truth, where alone it can rest. Such is the Idea of *Plato*'s Analysis. See ANALYSIS, PLATONISM, ACADEMIC, *&c.*

The fourth is *Aristotle*'s *Dialectica*, containing the Doctrine of simple Words, deliver'd in his Book of *Prædicaments*: The Doctrine of Propositions, in his Book, *de Interpretatione*: That of the several Kinds of Syllogisms, in his Books of Analyticks, Topicks, and Elenchus's. See SYLLOGISM, TOPIC, ELENCHUS, PROPOSITION, *&c.*

The fifth is the *Dialectica* of the *Stoicks*, which they call a Part of Philosophy, and divide into *Rhetoric*, and *Dialectic*: to which some add *Oric*, or Definitive, whereby Things are justly defin'd; comprehending likewise the Canons, or Criterions of Truth. See CRITERION, *&c.*

The *Stoicks*, ere they come to treat of Syllogisms, have two principal Places, the one about the Word signifying; the other about the Thing signified. On Occasion of the first, they consider Abundance of Things belonging to the Grammarians Province, what, and how many Letters, what is a Word, Diction, Speech, *&c.* On Occasion of the latter, they consider Things themselves, not as without the Mind, but as in it, receiv'd in by means of the Senses. Accordingly, they first teach, that, *Nil sit in Intellectu, quod non prius fuerit in Sensu*, Whatever is in the Mind, passes thither by the Senses; and that, *Aut Incursione sui*, as *Plato*, who meets the Sight; *Aut Similitudine*, as *Cæsar* by his Effigy; *Aut Proportione*, either by Enlarging, as a Giant, or by Diminishing, as a Pigmy; *Aut Translatione*, as a Cyclops; *Aut Compositione*, as a Centaur; *Aut Contrario*, as Death; *Aut Privatione*, as a blind Man. See STOICKS.

The sixth is *Epicurus*'s *Dialectic*. For tho' he seems to have despised *Dialectic*, he cultivated it with Vigour: He was only averse to that of the *Stoicks*, who, he thought, attributed too much thereto; as pronouncing him, alone wise, who was well versed in *Dialecticks*. For this Reason *Epicurus* seeming to set a-side the common *Dialecticks*, had recourse to another Way, *viz.* to certain Canons, which he substituted in their stead, the Collection whereof he call'd *Canonica*. And as all Questions in Philosophy are either, *de Re*, or *de Voce*; he gave separate Rules for each. See CANONICA.

DIALECTICAL *Arguments*, in Logick, are such as are barely probable, and do not convince, or determine the Mind to either Side of the Question. See PROBABILITY.

DIALLING, the Art of drawing *Sun*, *Moon*, and *Star-Dials* on any given Plane, or the Surface of any given Body. See DIAL.

The *Greeks* and *Latins* call it *Gnomonica*, and *Sciaterica*, by reason it distinguishes the Hours by the *Shadow* of a *Gnomon*. Some call it *Phoro-sciaterica*, by reason the Hours are sometimes shewn by the Light of the Sun. Lastly, others call it *Horologiography*. See GNOMONICA, SCIATERICA, *&c.*

The Antiquity of *Dials* is beyond doubt: Some attribute their Invention to *Anaxemenes Milesius*; and others to *Thales*. *Vitruvius* mentions one made by the ancient *Chaldee* Historian *Berosus*, on a Reclining Plane; almost parallel to the Equinoctial, call'd *Hemicyclus*. *Aristarchus Samius* invented the Hemisphere Dial. And there were some Spherical ones, with a Needle for a *Gnomon*. The *Discus* of *Aristarchus* was an Horizontal Dial, with its Limb raised up all a-round, to prevent the Shadows stretching too far.

But it was late 'ere the *Romans* became acquainted with Dials. The first Sun Dial at *Rome* was set up by *Papyrius Cursó*, about the Year of the City 447, before which Time, says *Pliny*, there is no mention of any Account of Time but by the Sun's Rising, and Setting: It was set up in the Temple of *Quirinus*, but went ill: About 30 Years after, *M. Valerius Messala* being Consul, brought out off *Sicily* another Dial, which he set up on a Pillar near the *Rostrum*; but for Want of its being made for that Latitude, it could not go true. They made use of it 11 Years; till *Martius Philippus* set up another more exact.

But there seem to have been *Dials* among the *Jews* much earlier than any of these. Witness the *Dial* of *Ahaz*, who liv'd 400 Years before *Alexander*, and within 12 Years of the Building of *Rome*; mentioned by *Isaiah* Chap. XXXVIII. Verse 8.

Dialling is wholly founded on the first Motion of the heavenly Bodies, and chiefly the Sun; or rather on the Diurnal Rotation of the Earth; So that the Elements of Sphericks, and the Spherical Astronomy should be master'd, 'ere a Person advances to the Doctrine of *Dialling*. The Doctrine, or Theory, we say, for as to the Practice, or the Operations themselves, distinct from the Demonstrations, nothing is more easy, and obvious.

The first professs'd Writer on *Dialling*, is *Clavius*; who demonstrates all, both the Theory, and the Operations, after the rigid Manner of the ancient Mathematicians; But so intricately, that no body, we dare say, ever read them all. *Dechales*, and *Ozanam*, give much easier in their *Courses*, and *Wolfius* in his *Elements*. Mr. *Picard* has given a new Method of making large Dials, by calculating the Hour-Lines; And Mr. *de la Hire*, in his *Dialling*, printed in 1683. a Geometrical Method of drawing Hour-Lines from certain Points determin'd by Observation. *Eberhardus Welperus*, in 1625. publish'd his *Dialling*, wherein he lays down a Method of drawing the Primary Dials on a very easy Foundation. The same Foundation is describ'd at length by *Sebastian Munster*, in his *Rudimenta Mathematica*, publish'd in 1551. *Sturmius*, in 1672. publish'd a new Edition of *Welperus*'s *Dialling*, with the Addition of a whole second Part, about Inclining, and Declining Dials, *&c.* In 1708. the same Work, with *Sturmius*'s Additions, was republish'd with the Addition of a fourth Part, containing *Picard*'s, and *de la Hire*'s Methods of drawing large Dials, which makes much the best, and fullest Book on the Subject. *Peterson*, *Michael*, and *Muler*, have each wrote on *Dialling*, in the *German* Tongue; *Coetsius*, in his *Horologiographia plana*, printed in 1689. *Gauppenius*, in his *Gnomonica Mechanica*, and *Bion*, in his *Use of Mathematical Instruments*.

DIALLING-*Globe*, is an Instrument made of Brass, or Wood, with a Plane fitted to the Horizon, and an Index; particularly contrived to draw all Sorts of Dials, and to give a clear Exhibition of the Principles of that Art.

DIAL-

DIALLING-*Sphere*, is an Instrument made of Brass, with several Semi-Circles sliding over one another, on a moving Horizon, to demonstrate the Nature of the Doctrine of Spherical Triangles, and to give the true Idea of drawing Dials on all manner of Planes.

DIALLING-*Lines*, or *Scales*, are graduated Lines, placed on Rules, or the Edges of Quadrants, and other Instruments, to expedite the Construction of Dials. See SCALE.

The principal of these Lines are, 1. A *Scale of six Hours*, which is only a double Tangent, or two Lines of Tangents each of 45 Degrees, joyn'd together in the Middle, and equal to the whole Line of Sines, with the Declination set against the Meridian Altitudes in the Latitude of *London*, suppose, or whatever Place it is made for. The *Radius* of which Line of Sines is equal to the *Dialling-Scale of six Hours*. 2. A *Line of Latitudes*, which is fitted to the Hour-Scale, and is made by this Canon; As *Rad.* to the Chord of 90 Degrees: So are the Tangents of each respective Degree of the Line of Latitudes to the Tangents of other Arcs. And then the natural Sines of those Arcs are the Numbers, which taken from a Diagonal Scale of equal Parts, shall graduate the Divisions of the Line of Latitudes to any *Radius*. The Line of Hours, and Latitudes is general for pricking down all Dials with Centres.

DIALLING, in a Mine, call'd also *Plumming*, is the using of a Compass, (which they call *Dial*) and a long Line, to know which Way the Load, or Vein of Oar inclines, or where to shift an Air-Shaft, or bring an Adit to a desir'd Place. See MINE.

The Manner thereof, See under the Article TIN.

DIALIA, in Antiquity, Sacrifices perform'd by the *Flamen Dialis*. See DIALIS.

'Twas not, however, of such absolute Necessity, that the *Dialia* were perform'd by the *Flamen Dialis*; but that others might officiate. We find in *Tacitus Annal.* Lib. III. Cap. 58. that if he were sick, or detain'd by any other public Employ, the Pontifices took his Place.

DIALIS, in Antiquity, a *Latin* Term, signifying somewhat that belongs to *Jupiter*, to Ζεὺς Διός.

The *Flamen Dialis*, then, was a Priest of *Jupiter*. He was never permitted to swear. See FLAMEN.

DIALOGUE, a Conversation of two or more Persons, either by Word of Mouth, or in Writing.

The Word is form'd from the Latin *Dialogus*, of the *Greek* Διάλογος, which signifies the same Thing.

Dialogue, is the most ancient Form of Writing. See DIALECTIC.

The first Authors wrote most of their Treatises therein. The Arch-Bishop of *Cambray* gives an admirable Painting of the Advantages of *Dialogue*, at the Head of his Pastoral Instruction. See the Word DRAMATIC.

The Holy Spirit himself has not disdain'd to teach us in *Dialogue*, viz. Patience, in the Book of *Job*, and Love of God, in the *Canticles*. *Justin Martyr* open'd this Way, in his Controversy against the Jews; and *Minutius Felix* follow'd it in his against the Idolaters. 'Tis in this Form, that *Origen* jug'd he could best refute the Error of *Marcion*. The great *Athanasius* thought it no Diminution to the Majesty of Mysteries of Faith, to maintain them by the Familiarity of *Dialogue*. This Way of Writing St. *Basil* chose as the most proper to convey those Rules, which have since illumined all the East. The Arts of *Dialogue* were admirably put in Practice by *Gregory Nazianzen*, and his Brother *Cæsarius*, for conveying the sublimest Truths. *Sulpitius Severus* could not do better, than publish the Wonders of Solitude in a Kind of Conversations. A Volume of St. *Cyril* of *Alexandria*, is almost fill'd with *Dialogues*, wherein he explains the most Dogmatical Truths, relating to the Incarnation. The Mystery of *Jesus Christ* is treated of in the same manner, by the Learned *Theodoret*. St. *Chrysostom* found no Method more promising to express the Eminence, and Danger of the Priesthood. Who is not acquainted with the beautiful *Dialogue* of St. *Jerom*, wherein he refutes the *Luciferians*? Who does not admire St. *Augustine*'s *Dialogues*, and especially those on free Will, where he goes back to the Origin of Sin; against the *Manichees*? The Tradition of the Solitaries in the Desert, is finely illustrated in the Conferences of *Cassian*, which have spread the same Light through the West, that the East receiv'd from St. *Basil*. *Gregory* the *Great* deem'd *Dialogue* worthy the Gravity of the Apostolic See. The *Dialogues* of St. *Maximus*, on the Subject of the Trinity, are famous throughout all the Church. St. *Anselm* shew'd the Force of his *Genius* in his *Dialogues* on the Fundamentals of Religion. Profane Antiquity likewise made Use of the *Art of Dialogue*, and that, not only on humourous, and comical Subjects, as *Lucian* did, but also on the most serious, and abstract; Such are the *Dialogues* of *Plato*, and those of *Cicero*, which turn altogether on Subjects of Philosophy, or Politick. Among the Moderns, the principal *Dialogists*, are Monsr. *de Fenelon*, Arch-Bishop of *Cambray*; Mr. *Pascal*, in his *Provincial Letters*; *F. Bouhours*, in his *Entretiens d'Ariste, & Eugene*; Monsr. *Fontenelle*, in his *Dialogues* on the Dead, and Plurality of Words, *&c.*

DIALOGUE, in Music, is a Composition for at least two Voices, or two Instruments, which answer each other; and which frequently uniting make a *Trio* with the Thoro'-Bass.

There are Abundance of *Dialogues* in the *Italian* Opera's.

DIALTHÆA, in Pharmacy, an Unguent thus call'd from its *Basis*, which is the Root of the *Althæa*.

It consists of Mucilages drawn from that Root, and from the Seeds of Line, *Squillæ*, and Fennigreek. The other Ingredients are common Oil, yellow Wax, Resin, Turpentine, *Galbanum*; and Ivy-Gum.

It is esteem'd proper to soften, and resolve; assuages Pains of the Side, softens Callus's, and strengthens the Nerves. 'Tis applied, by rubbing it on the Parts affected.

DIALYSIS, in Grammar, a Character consisting of two Points .. placed over two Vowels of a Word, which would otherwise make a Diphthong; but are here parted into two Syllables. See VOWEL, and DIPHTHONG.

DIAMARGARITON, in Pharmacy, a Medicine denominated from Pearls, call'd in Latin *Margaritæ*; which are a principal Ingredient therein. See PEARL.

There are two Kinds: The *Hot*, and the *Cold*.

The *Hot Diamargariton*, is a Powder composed of Pearls, Pellitory, Ginger, Nutmeg, Cinnamon, and divers other hot Ingredients. It is reputed Hysteric, strengthens the Womb, promotes the *Menses*, and assists in Digestion.

Cold Diamargariton, is a solid Electuary, composed of Pearls ground-fine, and white Sugar dissolved in Rose-Water, or Buglos, and boil'd to a Consistence. It strengthens the Stomach, moderates the too abundant Acids, stops the spitting of Blood, and Looseness of the Belly.

Compound Cold Diamargariton, is a Powder made of Pearls, red Roses, Flowers of Nenuphar, and Violet, *Lignum Aloes*, red and Citron Santal, Tormentle Root, Seeds of Melon, Endive, *&c.* It is applied to give Vigour, facilitate Respiration, and resist the Malignity of Humours.

DIAMASTIGOSIS, in Antiquity. It was a Custom among the *Lacedemonians*, for the Children of the most distinguish'd Families, to flash and tear each others Bodies with Rods before the Altars of the Gods: The Fathers, and Mothers, who were present at the Spectacle, animating and exciting them all the while, not to give the least Sign of Pain, or Concern.

This they call'd *Diamastigosis*, a *Greek* Term, derived from Διαμαστιγοῦν, *to whip, cudgel.*

The Design hereof, apparently, was no other than to harden their Youth, and enure them betimes to Blows, Wounds, *&c.* that they might despise them when they came to War.

DIAMETER, in Geometry, a right Line passing thro' the Centre of a Circle, and terminating on each Side by the Circumference thereof. See CIRCLE.

Or, the *Diameter* may be defined a Chord passing thro' the Centre of a Circle: Such is the Line A E (*Tab. Geometry Fig.* 27.) passing through the Centre C. See CHORD.

Half a *Diameter*, as CD, drawn from the Centre C to the Circumference, is call'd the *Semi-Diameter*, or *Radius*. See RADIUS, *&c.*

The Properties of the DIAMETER.

1. The *Diameter* divides the Circumference into equal Parts. And hence we have a Method of Describing a Semi-Circle upon any Line; assuming a Point therein for the Centre. See SEMICIRCLE.

2. The *Diameter* is the greatest of all the Chords.

3. *To find the Ratio of the* Diameter *to the Circumference.*

This *Ratio* has been greatly sought for by the Mathematicians: And no wonder: in as much as if this were justly given, the Quadrature of the Circle where atchiev'd. See QUADRATURE.

Archimedes first proposed a Method of finding it by Regular Polygons, inscrib'd in a Circle; till arriving at a Side subtending an exceeding small Arch, and then seeking the Side of a Similar Polygon circumscrib'd: Each of these being multiplied by the Number of Sides of the Polygon, gave the Perimeter of the Polygon both inscrib'd, and circumscrib'd. In which Case the *Ratio* of the *Diameter* to the Circumference of the Circle was greater than that of the same *Diameter* to the Perimeter of the circumscrib'd Polygon, but less than that of the *Diameter* to the Perimeter of the Polygon inscrib'd. The Difference between both gives the *Ratio* of the *Diameter* to the Circumference in Numbers nearly true.

That Divine Author, as already observed, by Polygons of 96 Sides, found the *Ratio* of the *Diameter* to the Circumference to be as 7 to 22. *viz.* Supposing the *Diameter* 1, the

the Perimeter of the inscribed Polygon is found $3\frac{10}{71}$, and that of the circumscribed $3\frac{1}{7}$.

After his Example, later Authors have found out *Ratio's* nearer Truth; but none spent so much Time on it as *Van Ceulen*, who, after immense Pains, found, that supposing the *Diameter* 1, the Circumference is less than 3. 14159265358979323846264338387950, and yet greater than the same Number with the last Figure 0 changed into 1. But as such prolix Numbers are too unweildy for Practice, many of our present practical Geometricians assume the *Diameter* to be to the Circumference as 100 to 314; or in greater Circles as 10000 to 31415, in which Proportion *Ptolomy*, *Vieta*, and *Huygens* agree with *Van Ceulen*.

Ad. Metius gives us the *Ratio* 113 to 355, which is the most accurate of all those express'd in small Numbers; as not erring 3 in 100000000.

4. The *Diameter* of a Circle given, to find the Circumference, and *Area*; and the Circumference given, to find the *Diameter*.

The *Ratio* of the *Diameter* to the Circumference being had, as in the last Article, that of the Circumference to the *Diameter* is had likewise. Then the Circumference being multiplied into the fourth Part of the *Diameter*, gives the *Area* of the Circle. Thus, if the *Diameter* be 100, the Circumference will be 314, and the *Area* of the Circle 7850. But the Square of the *Diameter* is 10000: Therefore, this is to the *Area* of the Circle as 10000 to 7850, that as 1000 to 785 nearly.

5. The *Area* of a Circle being given, to find the *Diameter*. To 785, 1000, and the given *Area* of the Circle 246176 find a fourth Proportional, *viz.* 3113 6000, which is the Square of the *Diameter*. Out of this extract the Square-Root, and it is the *Diameter* it self.

Diameter *of a Curve*, or *Conick Section*, is a right Line, as AD, (*Tab. Conicks Fig.* 5.) bissecting all the Ordinates MM, *&c.* in P, *&c.* This, when it cuts the said Lines at right Angles, is particularly call'd the *Axis of the Curve*, or *Section*.

A *Transverse* Diameter, is a right Line, as AB (*Tab. Conicks Fig.* 6.) which being continued each Way between two Curves, bissects parallel right Lines between the same, as MM. See Transverse.

Conjugate Diameter, is a right Line, bissecting Lines drawn parallel to the *Transverse Diameter*. See Conjugate.

Diameter *of a Sphere*, is the *Diameter* of the Semi-Circle, by whose Rotation the Sphere is generated; call'd also *Axis of the Sphere*. See Sphere.

Diameter *of Gravity*, is a right Line passing through the Centre of Gravity. See Centre *of Gravity*.

Diameter, in Astronomy. The *Diameters* of the heavenly Bodies, are either *Apparent*, i. e. such as they appear to the Eye; or *Real*, i. e. such as they are in themselves.

The *Apparent Diameters* measur'd with a Micrometer, are found different, in different Circumstances and Parts of their Orbits.

	Greatest		Mean.		Least.	
	′	″	′	″	′	″
Appar. Diam. *of the* Sun *accord. to Ptolomy.*	33	20	32	18	31	20
to Tycho	32	0	31	0	30	0
Kepler	31	4	30	30	30	0
Ricciolus	32	8	31	40	31	0
Cassini	32	10	31	40	31	8
de la Hire	32	43	32	10	31	38
of the Moon *accord. to Ptolemy*	35	20	—		31	20
Tycho in the Conjunct.	28	48	—		25	36
in the Oppos.	36	0	—		32	0
Kepler	32	44	—		30	0
de la Hire	30	33	—		29	30
of Jupiter *according to Tycho*	2	12	1	50	1	34
Hevelius	0	19	0	16	0	14
Huygens	—		—		30	0
of Saturn *according to Tycho*	3	59	2	45	2	14
Hevelius	0	24	0	18	0	14
Huygens	—		—		1	14
of Mars *according to Tycho*	6	46	1	40	0	57
Hevelius	0	20	0	5	0	2
Huygens	—		—		30	0
of Venus *according to Tycho*	4	40	3	15	1	52
Hevelius	1	5	0	16	0	9
Huygens	—		—		1	25
of Mercury *accord. to Tycho*	3	57	2	10	1	29
Hevelius	0	11	0	6	0	4

That notable Difference between *Tycho*, and the other two Astronomers, is owing to this, that *Tycho*, in Imitation of the Ancients, measured the *Diameters* as they appear to the naked Eye; whereas *Hevelius* and *Huygens* used Telescopes, whereby a deal of spurious Lustre, which otherwise makes them appear bigger than they are, is shaven off.

For the true *Diameters* of the Sun, and Planets, and their Proportion to each other. See Semidiameter.

Diameter *of a Column*, is that taken just above the Bases. From this the Module is taken, which measures all the other Parts of the Column. See Module.

Diameter *of the Swelling*, is that taken at the Height of one Third from the Base.

Diameter *of the Diminution*, is that taken from the Top of the Shafts. See Diminution.

DIAMOND, in Natural History, by the Ancients call'd *Adamant*, a pretious Stone, the first in Rank, Value, Hardness, and Lustre, of all Gems. See Precious *Stone*.

The Goodness of *Diamonds* consists in their Water or Colour, Lustre, and Weight: The most perfect Colour is the White. Their Defects are Veins, Flaws, Specks of red or black Sand, and a bluish, or yellowish Cast. In *Europe*, the Lapidaries examine the Goodness of their rough *Diamonds*, their Water, Points, *&c.* by Day-Light: In the *Indies*, they do it by Night; In order to which, a Hole is made in a Wall, a foot-square, and therein a Lamp placed, with a thick Wick, by the Light whereof they judge of the Stone, holding it in their Fingers. The Water, call'd *Cælestis*, is the worst of all, and yet is somewhat difficult to discover in a rough *Diamond*. The only infallible Way is to examine it in the Shade of some tufted Tree.

As to the Distinguishing *Diamonds* from other Stones, Dr. *Wall*, in our *Philosophical Transactions*, seems to have found an infallible Method: A *Diamond*, with an easy, slight Friction in the Dark, with any soft, animal Substance, as the Finger, Woollen, Silk, *&c.* appears luminous in its whole Body: Nay, if you keep rubbing for some Time, and then expose it to the Eye, 'twill remain so for some Time. If the Sun be 18 Degrees below the Horizon; holding up a Piece of Bays, or Flannel stretch'd right between both Hands, at some Distance from the Eye; and another rubbing the other Side of the Bays, or Flannel, pretty briskly with a *Diamond*; the Light is much more vivid and pleasant than any other Way. But what he judges most surprizing is, that a *Diamond* being exposed to the open Air, in View of the Sky, gives almost the same Light of it self, without rubbing, as if rubb'd in a dark Room: But, if in the open Air, you put the Hand, or any Thing a little over it, to prevent its immediate Communication with the Sky; it gives no Light; which is a distinguishing Criterion of a *Diamond*.

A *Rough* Diamond, is that not yet cut, but just as it comes out of the Mine.

A *Facet* Diamond, is that cut in Faces both a-top, and Bottom, and whose Table, or principal Face a-top is flat.

A *Rose* Diamond, is that quite flat underneath, but its upper Part cut in divers little Faces, usually Triangles, the uppermost whereof terminate in a Point.

A *Table* Diamond, is that which has a large square Face a-top, encompass'd with four lesser.

Diamonds are only found in the *East-Indies*, and that only in the Kingdoms of *Golconda*, *Visapour*, *Bengale*, and the Island of *Borneo*. There are four Mines, or rather two Mines, and two Rivers, whence *Diamonds* are drawn. The Mines are, 1. That of *Raolconda*, in the Province of *Carnatica*, five Days Journey from *Golconda*, and 8 from *Visapour*. It has been discover'd about 200 Years. 2. That of *Gani*, or *Coulour*, 7 Days Journey from *Golconda*, Eastwardly. It was discover'd 120 Years ago by a Peasant, who digging in the Ground found a natural Fragment of 25 Carats. 3. That of *Soumelpour*, a large Town in the Kingdom of *Bengale*, near the *Diamond-Mine*. This is the most ancient of them all. It should rather be call'd that of *Goual*, which is the Name of the River, in the Sand whereof these Stones are found. Lastly, the 4th Mine, or rather the second River, is that of *Succudan*, in the Isle of *Borneo*.

Diamond-*Mine of* Raolconda.

In the Neighbourhood of this Mine, the Earth is sandy, and full of Rocks, and Copse. In these Rocks are found several little Veins, of half, and sometimes a whole Inch broad, out of which the Miners, with a Kind of hooked Irons, draw the Sand, or Earth, wherein the *Diamonds* are; breaking the Rocks, when the Vein terminates, that the Track may be found again, and continued. When a sufficient Quantity of Earth, or Sand is drawn forth, they wash it two or three times, to separate the Stones therefrom. The Miners work quite naked, except for a thin linnen Cloth before them, and besides this Precaution, have likewise Inspectors, to prevent their Concealing of Stones: which, however, maugre all this Care, they frequently find means to do; by watching Opportunities when they are not observed, and swallowing them down.

Diamond-*Mine of* Gani, *or* Coulour.

In this Mine are found a great Number of Stones from 10 to 40 Carats, and even more; And it was here that famous *Diamond* of *Aureng-Zeb*, the *Great Mogul*, which before it was cut, weighed 780 Carats, was found.

The Stones of this Mine are not very clear, and their Water is usually tinged with the Quality of the Soil, being black where that its Marshy, red where it partakes of red, and sometimes green, and yellow, if the Ground happen to be of those Colours. Another Defect of some Consequence is a Kind of fat Appearing on the *Diamond*, when cut, which takes off Part of its Lustre. There are usually no less than 60000 Persons, Men, Women, and Children at Work in this Mine. When the Miners have found a Place where they intend to dig, they level another somewhat bigger in the Neighbourhood thereof, and inclose it with Walls about 2 Foot high, only leaving Apertures from Space to Space, to give Passage to the Water. After a few superstitious Ceremonies, and a Kind of Feast, which the Master of the Mine makes the Workmen, to encourage them, every one goes to his Business, the Men digging the Earth in the Place first discover'd, and the Women and Children carrying it off into the Wall round. They dig 12, or 14 Foot deep, and till such Time as they find Water. Then they cease digging, and the Water thus found serves to wash the Earth two or three times, after which it is let out at the Aperture reserv'd for that End. This Earth being well wash'd, and well dryed, they sift it in a Kind of open Sieve, or Riddle, much as we do Corn in *Europe*; then thrash it, and sift it a-fresh; And lastly search it well with the Hands to find the *Diamonds*. They work naked as in the Mine of *Raolconda*, and are watch'd after the like manner by Inspectors.

DIAMOND-*Mine of* Soumelpour, *or River of* Goual.

Soumelpour is a large Town built all of Earth, and cover'd with Branches of Cacao-Trees, and the River of *Goual* runs by the Foot thereof, in its passing from the high Mountains towards the South to the *Ganges*, where it loses its Name. 'Tis from this River are brought all our fine *Diamond* Points, or Sparks, call'd *Natural Sparks*. They never begin to seek for *Diamonds* in this River till after the great Rains are over, that is, after the Month of *December*; And they usually even wait till the Water is grown clear, which is not before *January*. The Season at hand, 8, or 10000 Persons of all Ages, and Sexes, come out of *Soumelpour*, and the neighbouring Villages. The most Experienced among them search, and examine the Sand of the River, going up it from *Soumelpour* to the very Mountains whence it springs. A great Sign that there are *Diamonds* in it, is, the Finding of those Stones which we *Europeans* call *Thunder-Stones*. When all the Sand of the River, which at that Time is very low, has been well examin'd, they proceed to take up that wherein they judge *Diamonds* likely to be found; which is done after the following manner: They dam the Place round with Stones, Earth, and Fascines, and lading out the Water, dig about 2 Foot deep: the Sand thus got is carried into a Place wall'd round on the Bank of the River. The rest is perform'd after the same manner as at *Coulour*, and the Workmen watch'd with equal Strictness.

DIAMOND-*Mine in the Island of* Borneo, *or River of* Succudan.

We are but little acquainted with this Mine; The Queen who reigns in that Part of the Island not allowing Strangers to have any Commerce in these Stones: Tho' there are very fine Ones to be bought at *Batavia*, brought thither by Stealth. They were anciently imagin'd to be softer than those of the other Mines, but Experience shews, they are in no respect inferior to them. Beside these four *Diamond-Mines*, there have been two others discover'd; one of them between *Coulour* and *Raolconda*, and the other in the Province of *Carnatica*; but they were both closed up almost as soon as discover'd: That of *Carnatica*, by reason the Water of the *Diamonds* was always either black, or yellow; and the other, on Account of their cracking, and flying in Pieces when cut, and ground.

The *Diamond*, we have already observ'd, is the hardest of all precious Stones. It can only be cut, and ground by it self, and its own Substance. To bring it to that Perfection, which augments its Price so considerably, they begin by rubbing several against each other, while rough; after having first glued them to the Ends of two Sticks, or Blocks, thick enough to be held in the Hand. 'Tis this Powder thus rubb'd off the Stones, and receiv'd in a little Box for the Purpose, that serves to grind, and polish the Stones.

Diamonds are cut, and polish'd by means of a Mill, which turns a Wheel of soft Iron sprinkled over with *Diamond* Dust mixt with Oil of Olives. The same Dust well ground, and diluted with Water and Vinegar, is used in the sawing of *Diamonds*; which is perform'd with an Iron, or Brass Wiar, as fine as a Hair. Sometimes in lieu of sawing the *Diamonds* they cleave them, especially if there be any large Shivers therein. But the *Europeans* are not daring, or expert enough to run the Risque of cleaving, for fear of breaking.

A *Rough* DIAMOND must be chosen uniform, of a good Shape, transparent, not quite white, and free of Flaws, and Shivers. Black, rugged, dirty, flawing, veiny Stones, and all such as are not fit for cutting, they use to pound in a Steel Mortar made for that Purpose; and when pulverized, they serve to saw, cut, and polish the rest. Shivers are occasion'd in *Diamonds* by this, that the Miners, to get them more easy out of the Vein; which winds between two Rocks; break the Rocks with huge Iron Leavers, which shakes, and fills the Stone with Shivers.

The Ancients had two mistaken Notions with regard to the *Diamond*: The first, That it became soft, by steeping it in hot Goat's Blood. And the second, That it is malleable, and bears the Hammer. Experience shews us the contrary; there being nothing capable of mollifying the Hardness of this Stone; tho' its Hardness be not such, that it will endure being struck at Pleasure with the Hammer.

The finest *Diamonds* now in the World are that of the *Great Mogul*, weighing 279 Carats; that of the Great Duke of *Toscany*, weighing 139 Carats; and that known in *France* under the Name of *Grand Sancy*, which is one of the Crown Jewels, weighing 106 Carats, whence its Name *Sancy*, which is a Corruption of *Cent six*, that is 106. *Tavernier*, by a Rule which he had made for Estimating the Value of *Diamonds*, computes that of the *Great Mogul* at a 110000072328 *French* Livres, equivalent to 879244 Pound Sterling; and that of the Duke of *Toscany*, at 2618335 Livres, or 195374 Pound Sterling.

The following is a Rate, or Manner of Estimating the Value of *Diamonds*, drawn up by a Person exceedingly well versed in such Matters, and which, for its Curiosity, as well as the Use it may be of, to Persons who deal in precious Stones, we judge, will be highly acceptable.

DIAMONDS *cut Facet- or Table-wise.*

Dutch Cut.

A *Diamond* weighing 1. Grain, is worth from	Lib.	Sh.		Lib.	Sh. Sterl.
	1.	0	to	1.	1.
1½. - - - - - -	1.	16.	to	1.	17.
2. - - - - - - -	2.	15.	to	3.	0
2½. - - - - - - -	3.	12.	to	3.	15.
3. - - - - - - -	4.	15.	to	5.	0
4. - - - - - - -	7.	17.	to	8.	0
5. - - - - - - -	15.	0	to	15.	15.
6. - - - - - - -	22.	0	to	25.	0
7. - - - - - - -	30.	0	to	34.	0
8. - - - - - - -	42.	0	to	45.	0
9. - - - - - - -	60.	0	--	--	-
10. - - - - - - -	75.	0	--	--	-
12. - - - - - - -	112.	0	to	120.	0
15. - - - - - - -	187.	0	to	220.	0
19. - - - - - - -	330.	0	to	380.	0
24. - - - - - - -	450.	0	--	---	-
30. - - - - - - -	700.	0	to	735.	0
40. - - - - - - -	1500.	0	to	1800.	0
50. - - - - - - -	3500.	0	to	4500.	0
60. - - - - - - -	4500.	0	to	5620.	0

Antwerp Cut.

A *Diamond* weighing 1. Grain, is worth from	Lib.	Sh.		Lib.	Sh. Sterl.
	0*	15.	to	0	18.
1½. - - - - - - -	1.	6.	to	1.	10.
2. - - - - - - -	2.	2.	to	2.	5.
3. - - - - - - -	3.	12.	to	3.	15.
4. - - - - - - -	6.	0	to	6.	7.
5. - - - - - - -	10.	10.	to	11.	5.
6. - - - - - - -	13.	10.	to	15.	0
7. - - - - - - -	18.	15.	to	22.	10.
8. - - - - - - -	24.	0	to	26.	0
9. - - - - - - -	33.	15.	--	--	-
10. - - - - - - -	37.	0	to	40.	0
12. - - - - - - -	55.	0	to	58.	0
15. - - - - - - -	112.	0	to	130.	0
18. - - - - - - -	247.	0	--	---	0
24. - - - - - - -	315.	0	--	---	0
40. - - - - - - -	900.	0	to	970.	0
50. - - - - - - -	2200.	0	to	2300.	0
60. - - - - - - -	3500.	0	to	4500.	0

It must be observ'd, however, that Defects in the Water, or Shape; red, or black Spots; Shivers, and other Failings, frequently found in these Stones, reduce the Price by one third, and sometimes more.

As to *Brillant*, or *Rose*-DIAMONDS, the Price is always less by one third, than that of *Table-Diamonds*; tho' the Weights be the same; the reason is, that the latter shew themselves a great deal more when set in their Collets, than the former.

Attempts have been made to produce *Artificial Diamonds*, but with no great Success.

The

The *Factitious* DIAMONDS made in *France*, call'd *Temple Diamonds*, on Account of the *Temple* at *Paris*, where the best of them are made, are vastly short of the genuine Ones; accordingly they are but little valued, tho' the Consumption thereof is pretty considerable for the Habits of the Actors on the Stage, &c.

DIAMOND. The *Diamond* is of considerable Use in the Glass-Manufacture, for squaring the large Plates, or Pieces; and among Glaziers, for cutting their Glass.

These *Diamonds* are differently fitted up. That used for Looking-Glasses, and other large Pieces, is set in an Iron Ferril two Inches long, and a Quarter of an Inch Diameter. The rest of the Cavity of the Ferril is filled with melted Lead, which keeps the *Diamond* firm in its Place.

The Glaziers have a Handle of Box, or Ebony, fitted into the Ferril to hold it by. In the former there is a little Piece of Box crossing the Ferril, in Form of a little Plane, cover'd at Bottom with a thin Copper-Plate.

DIAMOND, in Heraldry, is used to express the black Colour in the Atchievements of Noblemen. *Gwillim* dislikes the Way of Blazoning the Coats of Peers by precious Stones, instead of Metals, or Colour. But Practice allows it. See COLOUR.

DIAMOND *Glass*. } See { GLASS.
DIAMOND *Pavement*. } { PAVEMENT.

DIAMORUM, a Composition in Pharmacy, either *Simple*, or *Compound*.

Simple DIAMORUM, is the common Syrup of Mulberries, made of Mulberry-Juice, and Sugar. It is good against Diseases of the Throat, and to stop Dyssenteries. There is also a Sort of *Simple Diamorum* made of Mulberry Juice and Honey, call'd also *Mulberry Rob*.

Compound DIAMORUM is made with Mulberry Juice, Sapa, Verjuice, Myrrh, and Saffron. It is used to deterge Phlegm from the Stomach, and Breast, and ease Respiration.

The Word is form'd from *Morus*, Mulberry.

DIANA'S *Tree*, *Arbor Dianæ*, a very curious Phænomenon in Chymistry, being the just Figure of a Tree, with Branches, Leaves, Fruit, &c. shooting up in a Dissolution of Silver in an Acid Spirit.

There are divers Manners of procuring *Diana's Tree*; but most of them exceeding tedious, except the following one of Monst. *Homberg*, which may be done in a Quarter of an Hours time. Take four Drachms of Filings of fine Silver, with which make an *Amalgama*, without Heat, with two Drams of Quicksilver. Dissolve the *Amalgama* in 4 Ounces of *Aqua fortis*; and pour the Solution into 3 Gallons of common Water; stir it about a while to mingle it well together; and then keep it in a Glass Vessel well stopp'd.

When you would make the Experiment, take about an Ounce of it, and put it in a small Viol, wherein likewise put the Quantity of a small Pea of the ordinary *Amalgama* of Gold, or Silver; which should be as soft as Butter; and set the Viol at rest for 2 or 3 Minutes. Immediately after this you will see several small Threads, or Filaments, arising perpendicularly from the little Bulb of the newly put in *Amalgama*, which will sensibly grow, and thrust out, on the Sides, small Branches in Form of a Tree. The Bulb, or Ball of the *Amalgama* will grow hard, and be like a Pellet of white Earth; and the little Tree of the Colour of bright Silver.

The Form of this Metalline Tree may be varied almost at Pleasure. The stronger you make the first described Water, the thicker will the little Tree be in Branches, and the sooner form'd. The same Author shews, how divers other Kinds of Trees may be produced by Crystallization, and Digestion. See MARTIS *Arbor*.

DIANUCUM, in Pharmacy, a Kind of Rob, made of the Juice of green Walnuts, and Sugar, boil'd together by a moderate Fire, to the Consistence of Honey.

It is good to strengthen the Stomach, promote Sweat, and resist Poison.

The Word is form'd from *Nux*, *Nucis*; Nut.

DIAPALMA, in Pharmacy, a Deficcative, or drying Plaster, denominated from the Wood of the Palm-Tree, whereof the *Spatula* is made, that is to stir it while boiling.

It is composed of common Oil, Hogs-fat, and Litharge of Gold.

It is good to dry, resolve, deterge, and cicatrize: And is the Plaster most used for Wounds, and Ulcers.

DIAPASMA, a common Name for all Perfumes applied on the Body, of what Form soever they be, whether Powders, Essences, Pomatum's, or the like.

The Word comes from the *Greek* διαπάσσειν, *to water*.

DIAPASON, in Music, a Musical Interval, by which most Authors, who have wrote on the Theory of Music, use to express the Octave of the *Greeks*; as they use *Diapente*, *Diatessaron*, *Hexachord*, and *Tetrachord*, to express *Fifths*, *Fourths*, *Thirds*, and *Sixths*. See OCTAVE.

The *Diapason* is the first, and most perfect of the Concords: If consider'd *Simply*, it is but one Harmonical Interval; tho' if consider'd *Diatonically*, by Tones and Semi-tones, it contains seven Degrees, *viz.* three greater Tones, two lesser Tones, and two greater Semi-tones. See DEGREE.

The Interval of a *Diapason*, that is, the Proportion of its grave Sound to its acute, is *duplicate*, that is, as 2 to 1. See INTERVAL.

DIAPASON, among the Musical Instrument-makers, is a Kind of Rule, or Scale, whereby they adjust the Pipes of their Organs, and cut the Holes of their Flutes, Haut-Bois, &c. in due Proportion, for performing the Tones, Semi-tones, and Concords just.

A Square being divided into eight equal Parallelograms; the Points wherein a Diagonal intersects all these Parallelograms, express all the usual Intervals in Music: And on this Principle it is, that the *Diapason* is founded.

There is a particular Kind of *Diapason* for Trumpets; serving as a Standard, or Measure, for the different Magnitudes, they must have to perform the four Parts of Music. See TRUMPET.

There is another for Sack-buts, and Serpets, shewing how far they are to be lengthen'd, or shorten'd, to rise or fall from one Tone or Interval to another.

The Bell-founders have likewise a *Diapason*, or Scale, serving to regulate the Size, Thickness, Weight, &c. of their Bells. See *Bell*-FOUNDERY.

DIAPASONDIAEX, in Music, a Kind of compound Concord; whereof there are two Sorts: The greater, which is in the Proportion of 10 to 3; and the less, in that of 16 to 5. See CONCORD.

DIAPASONDIAPENTE, in Music, a compound Consonance, in the Triple Ratio, or as 3 to 9. See CONCORD.

The *Diapason-diapente* is a Symphony made when the Voice proceeds from the 1st to the 12th Tone.

The Word is properly a Term in the *Greek* Music: We should now call it a *Twelfth*.

DIAPASONDIATESSARON, in Music, a compound Concord, founded on the Proportion of 8 to 3.

The *Diapason-diatessaron* is a Symphony, wherein the Voice proceeds from its first Tone to its eleventh. This the Moderns would rather call the *Eleventh*.

DIAPASONDITONE, in Music, a Concord, whose Terms are in the Proportion of 10 to 4, or 5 to 2.

DIAPASONSEMIDITONE, a Concord, whose Terms are in the Proportion of 12 to 5.

DIAPEDESIS, in Medicine, an Eruption, or oozing of Blood through the Coats of the Veins, or Arteries; occasioned either by the Bloods becoming too much dissolved, or attenuated; or by the Pores of the Vessels becoming too patent, and open. See BLOOD.

There are some able Physicians who deny there can be any such a Tenuity of Blood, as that it shall exude thro' the Vessels, without any Apperture made therein.

The Word is compounded of διὰ, *through*; and πηδάω, *I leap*.

DIAPENTE, in the ancient Music, an Interval making the Second of the Concords; and with the *Diatessaron*, an Octave.

This is what in the modern Music we more usually call a *Fifth*. See FIFTH.

The *Diapente* is a simple Concord; yet if consider'd Diatonically, it contains four Terms, two greater Tones, a lesser Tone, and a greater Semi-tone. The *Diapente* is the greatest Part of the Diapason, or Octave, harmonically divided. It is produced when the Voice passes from its first Tone to its fifth.

DIAPENTE, is also used in Pharmacy, for a Compound of five several Drugs, or Ingredients.

The Word is form'd of διὰ, and πέντε, *five*.

DIAPHANOUS, in Philosophy, *Transparent*, or *Pellucid*, is somewhat that gives Passage to the Rays of Light; as Water, Air, Glass, Talc, fine Porcelane, &c. See TRANSPARENT.

The Word is form'd of διὰ, *three*, and φαίνω, *luceo*, I shine.

DIAPHANEITY, in the Schools, the Quality of a transparent Body; or that which denominates it such. See TRANSPARENCY.

The *Cartesians* hold the *Diaphaneity* of a Body to consist in the Rectitude of its Pores; that is, in their being situate in right Lines; so as that there is no intermediate Substance to prevent the Passage of the Rays. And hence argue, that the rendring Glass malleable is an Impossibility: For as soon as it becomes malleable, its Pores will cease to be situate directly against each other; and of Consequence it will lose its *Diaphoneity*, the principal Character of Glass. See GLASS.

Sir

Sir *Isaac Newton* accounts for *Diaphaneity* from another Principle, *viz.* from the Homogeneity, and Similarity between the *Medium*, wherewith the Pores are filled, and the Matter of the Body itself. For the Refractions the Rays undergo in passing thus out of the Matter into the Pores, *i. e.* out of one *Medium* into another, being but small, the Progress of the Ray is not so much interrupted, but that it can make its Way through the Body. See Opacity, Refraction, *&c.*

DIAPHOENIC, in Pharmacy, a soft Purgative Electuary, thus call'd from the Dates, which make its *Basis*; the Palm-Tree, whose Fruit they are, being call'd by the *Greeks* φοίνιξ. See Date.

The other Ingredients are the Penides, Almonds, Turbith, Ginger, white Pepper, Mace, Cinnamon, Rice, Fennel, *Daucus*, and Honey.

Diaphœnic purges chiefly Serosities, and excites the Menses. It is also used in Dropsies, Lethargies, Apoplexies, and Palsies.

DIAPHORESIS, in Medicine, includes all Discharges made through the Skin; but chiefly that by insensible Perspiration, and Sweat: Whence *Diaphoretic*, &c.

DIAPHORETIC, in Medicine, is applied to Remedies that promote the Expulsion of Humours by insensible Perspiration. See Perspiration.

Diaphoretic is much of the same Import as *Sudorific*: Except that the latter promote sensible, and the former insensible Perspiration. Their only Difference, therefore, is in the Degree of Action. See Sudorificks, *&c.*

Diaphoretic *Antimony*, or *Mineral Diaphoretic*, is a Preparation of Antimony, the Process whereof see under the Article Antimony.

DIAPHRAGM, in Anatomy, popularly call'd *Midriff*, and by Anatomists, likewise, *Septum*, or *Medium Transversum*, is a nervous Muscle, separating the Breast, or *Thorax*, from the *Abdomen*, or lower Venter; and serving as a Partition between the Natural, and the Vital Parts. See Venter.

Its Figure is round, resembling a Ray, or Thornback. It consists of two Circles, the one Membranous, the other fleshy; tho' others will have both of them Muscular: of two Arteries; and two Veins, call'd *Phrenicæ*; and several Branches of Nerves.

The first, or superior Circle arises from the *Sternum*, and the Ends of the last Ribs: The second, or inferior, comes from the *Vertebræ* of the Loins. The upper is cover'd a-top with a Membrane deriv'd from the *Pleura*; and the lower lined at bottom with another from the *Peritoneum*. Its Situation is oblique; being extended from the *Cartilago Xiphoides*, by the Extremes of the Ribs, to the Region of the Loins.

It is pierced in the middle for the Passage of the *Vena Cava*; and in its lower Part for the *Oesophagus*; and between the Productions of the inferior Circle pass the *Aorta*, *Thoracic Duct.* and *Vena Azygos*. In its natural Disposition it is convex on the upper Side towards the Breast, and concave on the lower towards the Belly. Hence it has two Motions; the one of Contraction, the other of Relaxation. By the Contraction, or Swelling of the Fibres, the *Diaphragm* becomes flat on each Side; the Consequence of which is, that the Cavity of the Breast is enlarged, to give Liberty for the Lungs to receive the Air in Inspiration; and the Cavity of the *Abdomen* lessen'd, and consequently the Stomach and Intestines press'd, for the Distribution of the Chyle. In its Relaxation, whereby it resumes its natural Situation, the Cavity of the Breast is diminish'd, and the Lungs press'd for the Expulsion of the Air in Exspiration. See Respiration.

It was *Plato*, as *Galen* informs us, that first call'd it *Diaphragm*, from the Verb διαφράττειν, *to separate*, or be between two. Till his Time it had been call'd φρένες, *Understanding*; from a Notion, that an Inflammation of this Part produced Phrenzy: which is not at all warranted by Experience, no more than that other Tradition, that a transverse Section of the *Diaphragm* with a Sword causes the Patient to die laughing. The *Latins* call it *Septum transversum*, q.d. *Partition laid a-cross*.

Dr. *Hook* observes, that an Animal may be kept alive, without *Thorax*, or *Diaphragm*, by blowing Air into the Lungs with a Bellows: Of which he had made the Experiment.

Diaphragm is also a general Name, among the Learned, for all Partitions, or Separations between two Parts of a Thing; As the little perforated Partitions in the Tubes of long Telescopes. See Tube, *&c.*

DIAPHRAGMATIC, is applied to the Arteries, Veins, and Nerves distributed through the Diaphragm.

They are also call'd *Phrenic*, or *Phreneric*. See Phrenic.

DIAPRE, or DIAPER, in Heraldry, a Dividing of a Field into Planes, or Compartments, in the manner of Fret-work; and filling the same with Variety of Figures. See Fret.

This chiefly obtains on Bordures, which are *diaper'd*, or fretted over, and the Frets charg'd with Things proper to Bordures: As in the adjoyning Figure.

DIAPRUNUM, in Pharmacy, a soft, purgative Electuary, thus call'd from the Pulp of *Damascus* Prunes, which is its Base.

Diaprunum is either *Simple*, or *Compound*.

Simple Diaprunum consists of the Pulp afore-mentioned, with *Cassia*, Tamarinds, Rhubarb, red Roses, Violet Seeds, Santals both red and Citron, Scrapings of Ivory, Liquorice Juice, and the four cold Seeds. It is good to prepare, and soften the Humours.

Compound, or *Solutive* Diaprunum, is only the Simple, with the Addition of half an Ounce of Scammony to every Pound of the Electuary, to render it more purgative.

DIARRHÆA, in Medicine, a *Looseness*, or Flux of the Belly; or a profuse Evacuation of liquid Excrements by Stool. See Evacuation, and Stool.

The Word, in the general, is used for any Kind of *Flux* of the Belly; but properly for that wherein the Humour, or Excrement flows out either pure, or mix'd; with, or without Pain, in a fluid State. See Flux.

Diarrhœa's are of divers Kinds, according to the Diversity of the Excrements: Some being bilious; some serous; some pituitous; and some purulent. The Purulent always arises from some Abscess open'd in the Body; the rest either from morbid Humours irritating the Intestines, and expressing the Juices out of the adjacent Parts; or from a Laxness of the Intestinal Fibres; or an extraordinary Fermentation in the Blood, whereby it discharges its Excrements into the Intestines.

There are also *Diarrhœa's* arising from unwholesome Foods, and Stoppage of the other Excretions, particularly Perspiration.

It is a standing Observation, that such as perspire but little, are ever subject to a *Diarrhœa*; and on the contrary, People who perspire much, are commonly bound.

Baglivi mentions *Diarrhœa's* as one usual great Effect of Grief; as likewise of immoderate Anger; without which a Fever would be produced.

In the Cure of *Diarrhœa's*, from whatever Cause they arise, the Stomach must be corroborated, and Sudorificks to be mix'd with Absorbents. The Patient to drink sparingly. Quince and Wine burnt with Aromaticks is good. *Wainwright* observes, that a Flannel Shirt contributes much to the Cure of an habitual *Diarrhœa*.

Stolterfoth, a Physician of *Lubeck*, relates, that a Mechanic of that City had a continual *Diarrhœa* from 30, to the Age of 65 Years, which always gave him 5 or 6 Stools a Day, yet he was in good Health all the while, having a good Appetite, and sufficient Strength and Vigour. But in his 65th Year taking some astringent Medicines, he stopp'd his Flux; upon which he was immediately seiz'd with a violent Pain in the Kidneys, Difficulty of Breathing, Loss of Digestion; He gave up his Food as he took it, grew cold at the Extremes of the Body, swell'd in the Thighs, had an insupportable Thirst, and more Appetite, and urined, with much Difficulty, a thin watery Humour, destitute of all Sulphur.

The Word is form'd of the *Greek* διὰ, *through*, and ῥέειν, *to flow*.

DIARRHODON, in Pharmacy, a Name given to divers Compositions, wherein red Roses are an Ingredient.

Diarrhodon *Abbatis*, is a Cordial Powder, denominated from the Abbot who invented it. It consists of red Roses; red, and Citron Santals, *Lignum Aloes*, Cinnamon, Rhapontic, Spikenard, Ivory, Harts-horn, Saffron, Mastic, Pearls, Amber-gris, Musk, *&c.* It is used to strengthen the Heart, Stomach, and Liver, to assist in Digestion, and prevent Vomiting.

There are also *Trochisci* Diarrhodon, composed of red Roses, Scrapings of Ivory, the Santals, Liquorice, Mastic, Saffron, Camphor, and Rose-Water. They are good to fortify the Heart, Stomach, and Liver, and to stop Dissenteries, and other Fluxes of the Belly.

Pillulæ Diarrhodon are composed of Aloes, *Trochisci Diarrhodon*, Wormwood Leaves, Mastic, and Rock-Salt. They purge, then fortify the Stomach, promote Digestion, and prevent a stinking Breath.

The Word is form'd of διὰ, and ῥόδον, *Rose*.

DIARTHROSIS, in Anatomy, a Kind of Articulation, or Juncture of the Bones, which being pretty lax, affords room for a manifest Motion. See Articulation.

It is opposed to *Synarthrosis*, wherein the Articulation is so close, that there is no sensible Motion at all. See Synarthrosis.

Diar-

Diarthrosis is of three Kinds: 1. When the Head of the Bone is big, and long, and the Cavity that receives it, deep; it is call'd *Enarthrosis*: Such is that of the Thigh, with the Hip. 2. When the Head of the Bone is flat, and the Cavity that receives it superficial, it is call'd *Arthrodia*: such is that of the Jaws, with the Bones of the Temples. 3. When two Bones receive each other reciprocally, and are moveable in each other, it is call'd *Ginglymus*: Thus the *Cubitus* receives the *Radius*, at the same Time that the *Radius* receives the *Cubitus*. See ENARTHROSIS, GINGLYMUS, &c.

DIARTHROSIS *Synarthroidalis*, call'd also *Amphiarthrosis*, is a Kind of neutral, or dubious Articulation; being neither absolutely *Diarthrosis*, as not having a manifest Motion; nor absolutely *Synarthrosis*, as not being quite immoveable.

Thus the Articulations of the Ribs, with the *Vertebræ*, and those of the Bones of the *Carpus*, and *Tarsus*, among each other, are *Synarthroidal Diarthroses*. See RIBS, &c.

The Word comes from διὰ, and ἄρθρον, *Juncture*, *Assemblage*.

DIARY *Fever*, is a Fever of one Day. See EPHEMERA.

DIASCORDIUM, in Pharmacy, a Kind of Electuary, or Opiate, first described by *Fracastorius*, and denominated from *Scordium*, which is an Ingredient therein. See SCORDIUM.

The other Ingredients are red Roses, Bole, Storax, Cinnamon, *Cassia Lignea*, *Dittany*, Tormentille Roots, Bistort, Gentian, *Galbanum*, Amber, *Terra Sigillata*, *Opium*, Long Pepper, Ginger, *Mel Rosatum*, and Malmsey.

It is used against malignant Fevers, the Plague, Worms, the Colic, to provoke Sleep, and resist Putrefaction.

DIASEBESTEN, in Pharmacy, a soft, purgative Electuary, whereof *Sebestes* are the *Basis*. See SEBESTES.

The other Ingredients are Prunes, Tamarinds, Juices of Iris, *Auguria*, and *Mercurialis*, *Penidia*, *simple Diaprunum*, Violet Seed, the four cold Seeds, and *Diagrydium*. It is good in intermitting, and continued Fevers, appeases Thirst, promotes Sleep, and expels the morbid Humors by Urine.

DIASENNA, in Pharmacy, a soft, purgative Electuary, thus call'd from *Senna*, which is its Base. See SENNA.

The other Ingredients are Sugar Candy, Cinnamon, *Lapis Lazuli*, Silk, Cloves, *Galanga Minor*, black Pepper, *Nardus Indicus*, Seed of the *Basilica*, Leaves of Cloves, *Cardamomum*, Saffron, Ginger, Zedoary, Rosemary Flowers, Long Pepper, *Lapis Armenius*, and Honey.

Diasenna eases and comforts the Melancholic, and Splenetic; and is good against all Diseases arising from an *Atrabilis*.

DIASTEM, in Musick, a Name the Ancients gave to a simple Interval; in Contra-distinction to a compound Interval, which they call'd a *System*. See INTERVAL.

Musicians divide Intervals into two Kinds: One of them call'd *System*, which is to contain at least two Intervals in any Kind of Music whatever; but many, contain more.

The other, call'd *Diastem*, is a mere, or single Interval; The proper Signification of the *Greek* διάστημα being *Interval*. See SYSTEM.

DIASTOLE, in Anatomy, *Dilatation*, or *Distention*; a Term expressing that Motion of the Heart, and Arteries, whereby those Parts dilate, or distend themselves: The other opposite Motion is call'd the *Systole*, and *Artery*; wherein they contract themselves. See HEART.

The *Diastole* of the Heart is properly the Recess of the Parietes of the two Ventricles from each other; the Enlargement of their Cavities and Diminution of their Lengths, or their Approximation to a Spherical Form. See SYSTOLE.

The *Diastole*, or Dilatation of the Heart, arises from the Blood brought, by the Veins, into its Ventricles; and that of the Arteries, from the Blood thrown into their Cavities by the Contraction of the Heart. So that the *Diastole* of the Heart, and Arteries, is not effected at the same Time; the *Diastole* of the Heart happening when the Arteries are contracted, and that of the Arteries when the Heart is contracted.

What we call the Beating of the Pulse, is only the *Diastole* of the Arteries. See PULSE.

The Lungs and Breast have likewise their *Systole*, and *Diastole*; so has the Brain. See LUNGS, &c.

The Word is *Greek*, form'd from the Verb διαστέλλειν, *to separate*, *open*.

The true Cause of the *Diastole* of the Heart was but lamely accounted for before Dr. *Drake*. That the Heart is a Muscle, is made evident beyond all doubt by Dr. *Lower*; and that the Motion of all Muscles consists in Constriction, is not to be doubted. By such means the *Systole* is easily accounted for. But in as much as the Heart has no Antagonist Muscle, the *Diastole* has puzzled the greatest Wits. Dr. *Lower* unhappily attributes it to a *Motion of Restitution*. As the Motion of the Heart, says he, is perform'd by Contraction; and as the Fibres of the Heart are alone form'd for Constriction; it is evident, all the Motion of the Heart lies in its *Systole*; And that the Fibres, in the several Contractions, being stretch'd beyond their Tone, assoon as the *Nisus* is over, the Heart relaxes again by a Motion of Restitution, *A nullo enim Cordis Motu, nisi Tensionem ejus remittente, & ab irruente Sanguine*, Diastole *ejus libratis Vicibus succedit*. de Corde, p. 75. Mr. *Cowper* accounts for the *Diastole* from the Analogy the Heart of an Animal bears to the *Pendulum's* of those Artificial *Automata*, Clocks and Watches: its Motion is perform'd like that of other Muscles, the Blood doing the Office of a *Pondus*, or Weight. Both these Notions Dr. *Drake* refutes; and with great Reason and Probability maintains the Weight of the Atmosphere to be the *Pondus*, or Counterpoise to the contractive Force of the Heart. See HEART.

It has long been known, that the *dura Mater* has a *Systole* and *Diastole*, exactly corresponding to those of the Heart. But its Cause was not so well known. Dr. *Ridley*, in the *Philosoph. Transact*, having bored a Hole in the upper Part of the *Bregma* of a Dog, first perceived the alternate Vibrations of the *dura Mater*; then, continuing the Hole to the Brain, he found both by his Eye, and even afterwards by Touch, very sensibly, that there was a like brisk *Systole* and *Diastole* of the Brain. See BRAIN.

DIASTOLE, in Grammar, a Figure whereby a Syllable naturally short, is made long. Thus it is, that *Virgil* begins a Verse with the Word *Italus*, the first Syllable whereof is short.

DIASTYLE, in the ancient Architecture, an Edifice, where the Columns stand at such Distance one from another, that eight Modules, or four Diameters, are allowed for the Intercolumniation. See INTERCOLUMNIATION.

DIASYRMIS, in Rhetoric, a kind of Hyperbole; or an Exaggeration of some low ridiculous Thing. See HYPERBOLE.

DIATESSARON, in Pharmacy, a Sort of Treacle, thus call'd because consisting of four Ingredients, which are Roots of *Aristolochia*, and Gentian, Laurel-berries, and Myrrh. See TREACLE.

It is also call'd *Theriaca Pauperum*, because made at a very easy Expence, and in a short Time. It is good against Stingings of venomous Beasts, Epilepsies, Convulsions, Colicks, to strengthen the Stomach, and promote the Menses.

The Word is *Greek*, and signifies a Composition of *four* Drugs.

DIATESSARON, in the ancient Music, was a Concord or harmonical Interval, composed of one greater Tone, one lesser, and one greater Semi-tone; Its Proportion being as 4 to 3. See CONCORD.

In the modern Music, it is call'd a perfect *Fourth*. See FOURTH.

DIATHESIS, a Term used by some Writers, in the same Sense with *Constitution*. See CONSTITUTION.

DIATONIC, an Epithet given the common Music, as it proceeds by different Tones, or Degrees, both ascending, and descending. See MUSIC, and GENERA.

Authors divide the Sorts of Music into *Diatonic*, *Chromatic*, and *Enharmonic*.

DIATONIC *Music* only allows of three Degrees; the greater and lesser Tone, and the greater Semi-tone. See TONE, and DEGREE.

Hence *Diatonic Music* appears the most natural, and of Consequence is the most ancient. The *Genus*, or Kind, which makes the Character of the *Diatonic Music*, is call'd the *Diatonic Kind*, or *Genus*.

In the *Diatonic Music* there is a Tone between every two Notes, except between *Mi* and *Fa*, and *Si* and *Ut*, where there is only a greater Semi-tone. See SCALE.

DIATRAGACANTH, in Pharmacy, is applied to certain Powders, whereof Gum Adraganth is the Base. There are two Kinds, *Cold* and *Hot*.

Powder of *Cold Diatragacanth* is composed of the Gums Adraganth and Arabic, Liquorice, Starch, white Poppy Seed, and the four great cold Seeds. It is good to thicken, and soften the too sharp, and subtile serous Humours falling on the Breast, to assuage Coughs, and promote Spitting.

Powder of *Hot Diatragacanth* is composed of Gum Adraganth, Cinnamon, Hyssop, Almonds, Lin-Seed, and Fennegreek, Liquorice, Juice of Liquorice, and Ginger. It is good against Asthma's, to promote Expectoration, strengthen the Stomach, and assist Digestion.

DIAZEUTIC *Tone*, in the ancient *Greek* Music, was that which disjoyn'd two Fourths, one on each Side of it, and which being joyn'd to either, made a Fifth. This, in their Music was from *Mese* to *Paramese*; that is, in ours, from A to B: Supposing *Mi* to stand in B *sub Mi*. They allowed to this *Diazeutic Tone*, which is our *La*, *Mi*, the

Proportion of 9 to 8, as being the unalterable Difference of *Diapente* and *Diatessaron*.

DICHOTOMY, *Bissection*, a Term used by Astronomers for that *Phasis*, or Appearance of the Moon, wherein she is bissected, or shews just half her Disk, or Circle. See PHASIS.

The Time of the Moon's *Dichotomy*, is of considerable Use in fixing the Sun's Distance from the Earth. But 'tis very difficult to fix the precise Moment when the Moon is bissected, or in her true *Dichotomy*. Observation informs us, that when she is 30 Minutes distant from the Quadratures, she appears bissected; but she appears so too in the Quadratures themselves, and some time afterwards, as *Ricciolus* acknowledges in his *Almagest*. So that she appears *Dichotomized* at least for the Space of a whole Hour: In which Time, any Moment may be taken for the true Point of the *Dichotomy*, as well as any other. But the infinite Number of Moments of Time give an infinite Diversity of Distances. The Moment in which the true *Dichotomy* happens, being thus uncertain; but it being granted withal that it happens before the Quadrature, *Ricciolus* takes the middle Point between the Quadrature, and the Time when it is first dubious, whether the Moon be *Dichotomized*, or not, for the true *Dichotomy*, Keill.

The Word is *Greek*, form'd of Διχοτομέω, *I bissect*, or cut in two, of δὶς, *twice*; and τέμνω, τέτομα, *I cut*.

DICTAMNUM, *Dittany*, a Medicinal Plant, much valued among the Ancients, and particularly applauded by their Poets.

It was esteemed a Specific for Wounds of Arrows, which it drew out with wonderful Ease, and according to them, only grew in the Island of *Crete*, and even only in a little obscure Corner thereof; whence its Appellation *Dictamnus Creticus*. At present we scarce know whether there be any Remains thereof in that Island.

The modern *Dictamnus*, call'd also *White Dittany*, or *Fraxinella*, from its Leaves, which resemble those of the Ash, call'd by the Latins *Fraxinus*, is scarce in less Esteem than that of the Ancients. Its Root, wherein all its Virtue is lodged, is about the Thickness of a Finger, and is frequently divided into a Number of little Branches; its Colour is white, its Taste bitter, its Smell strong, somewhat like that of a He-goat, its Stem is about two Foot high, reddish, and full of Leaves; at the Top of the Stem is a Flower not unlike a *Spica*, or Ear; in the Middle of the Flower is a Pistil with five little Pieces wherein the Seed is contain'd, which is black, shining, and oval. The Root is excellent against the Bite of venomous Beasts, as also against Worms, the Colick, &c. It must be chosen white, both Inside and Outside, not fibrous, and well cleaned.

There are several other Kinds of *Dittany*, but all of less Value: As the *Bastard Dittany*, whose Leaves are much less; the *Wild Dittany*, which neither bears Flowers, nor Fruit.

The Ancients have a Tradition, that the wounded Deer first discover'd the Virtue of the *Dictamnus Creticus*, which being eaten, presently drew out the Arrows sticking in 'em. Thus *Pliny* Lib. VIII. C. 27. And the like Account we have from *Cicero de Natur. Deor.* Lib. II. *Virgil. Æneid.* Lib. XII. v. 412. *Tertull. de Pænit.* C. XI. Tho' *Cicero*, more prudent and reserved than *Pliny*, is contented to speak of it as by hear-say. *Aristotle* Lib. *de Mirabilib. Auscult.* relates it of the Roe-buck. *Pliny* says expressly, that the Juice of this Plant taken inwardly, expels Arrows, and cures Wounds made with other Arms: He adds, that it stops Suppurations, provokes the Menses, and Delivery, and is good in Frictions and Fumigations.

DICTATE, *Dictamen*, in the Schools, a Suggestion, Motion, or Sentiment of a Man's Conscience.

A good Action becomes evil if done contrary to the *Dictates* of one's own Conscience.

DICTATE, *Dictata*, is likewise used in the Schools for a Lesson, or Exercise, wherein the Master reading, or speaking something, the Scholars take it down in Writing after him. Here the Act of the Master is likewise call'd *Dictating*.

DICTATOR, a *Roman* Magistrate, created by the Senate, or People, on some extraordinary, and eminent Occasion, to command, with soveraign Authority, for a certain Time never exceeding six Months.

Recourse was never had to such an Officer, but in dangerous, and difficult Times; as in sudden Wars, Popular Factions, &c.

He had absolute, and Monarchic Power while his *Dictature* lasted: And some will even have it, his Power went beyond that of the Kings. He was Arbiter of Peace and War, and had Command of Life and Death, without any Appeals lying to the People. 24 Axes were bore before him, whereas only 12 before the Consul. See FASCES.

T. Largius Flavius was the first *Dictator*, appointed in the Year of *Rome* 255. *Sylla* was the first perpetual *Dictator*, and *Cæsar* the next. After *Cæsar* there were no more *Dictators*. The first *Dictator* chose from among the People, was *Marcus Rutilius*, created in 399.

Dionysius Halicarnasseus derives the Word *ab Edicendo*, because they ordained, and appointed what they pleased. But *Varro* will have the Word taken hence, that the Consul named him, which the *Latins* call *dicere*, L. IV. *de Lingua Latina*. Dictator *quod a Consule dicebatur, cujus dicto audientes omnes essent*.

DICTION, the Phrase, Elocution, or Style of a Writer, or Speaker. See STYLE.

The *Diction* of a Tragedy, &c. is that which expresses the Sentiments. See SENTIMENT.

The *Diction* of an Orator should be pure, proper to the Subject, rich without Affectation, strong and close without Dryness, and suitable to the Person, Time, Place, and Audience. The *Diction*, or Language of *Tragedy* is accounted the fourth of the Essential Parts thereof. It is of the least Importance of any; yet must peculiar Care be taken herein to make every Passion speak its proper Language. See TRAGEDY, &c.

DICTIONARY, a Collection, or Catalogue of all the Words of a Language, or an Art, with their Significations; rang'd in Order of Alphabet. See ALPHABET.

What the *Latins*, and we after them, call *Dictionary*, the *Greeks* call *Lexicon*. See LEXICON.

For the proper Character, Nature, Office, &c. of a *Dictionary*, see the Preface to this Work. See also the Article VOCABULARY.

The most ancient *Dictionaries* for the *Latin* Tongue, are, that call'd *Papias*, compiled by *Solomon*, Abbot of St. *Gall*, Bishop of *Constance*, who liv'd about the Year 1409: Another was made in 1469, call'd *Gemma Vocabularum*: And a third in 1502, call'd *Gemma Gemmarum*: Another by *Dionysius Nestor*, a Cordelier.

But the most celebrated one was that of *Ambrose Calepine*, a Hermit of St. *Augustin* at *Bergamo*, and Son of the Count of *Calepin*. *Conrad Gessner* is said to have augmented it with four thousand Words. *Paulus Manutius* increased it still more; and *Passerat* after him; and yet *Matthias Martinus* made two Volumes of their Omissions.

There is another noted Latin *Dictionary* of *Crispinus*; To say nothing of *Cowper*, *Holyoke*, *Goldman*, *Littleton*, and numerous others of less Consideration.

For the *Greek*, we have those of *Henry Stephens*, and *Scapula*: For the *Spanish*, that of *Covarruvias*: For the *Italian*, that of the Academy *della Crusca*: For the *French*, those of *Nicod*. *Fa. Monet*, *Fa. Gaudin*, *Trevoux*, and that of the *French* Academy: For the *English*, we have scarce any worth the Mentioning, unless perhaps that of *Philipps*: Tho' we are in Expectation of one from a good Hand, on the Model of that of the *French* Academy.

Junius has a *Dictionary*, or Alphabet of the *Gothic*, *Runic*, and *Anglo-Saxon*. There is another in the *Malaya* Language, which is a dead Language, famous throughout the *East Indies*, where it stands the stead of the *Latin* among us.

There are also *Historical*, and *Geographical Dictionaries*, as that of *Charles Stephens*, which is translated into *French*, and augmented by *Morery*: Another of *Hoffmann*, printed at *Basil*, in 1677. in two Volumes *Folio*; which were followed by a Continuation of as many Volumes in 1683. Another of Mr. *Bayle*, under the Title of *Historical*, and *Critical Dictionary*, printed at *Rotterdam*, in 1697. in two large Volumes. A *Philosophical Dictionary* of Mr. *Chauvin*, of *Berlin*; *Law Dictionaries*; *Physical Dictionaries*, *Family Dictionaries*, *Dictionaries of Arts*, *of Commerce*, &c.

DIDACTIC, in the Shools, signifies the manner of speaking, &c. adapted to teach, or explain the Nature of Things.

There are many Words that are only used in the *Didactic*, and Dogmatick Way. The Word is form'd from the *Greek* δίδαμαι, *disco*, I learn.

DIDYMI, the same with *Gemelli*, or *Twins*. See GEMINI.

DIEM *clausit Extremum*, a Writ issued out of Chancery to the Escheator of the County, upon the Death of any of the King's Tenants *in Capite*, to enquire by a Jury of what Lands he died seiz'd, and of what Value, and who was the next Heir to him.

DIÆRESIS, *Section*, *Dissection*, in Chirurgery, an Operation serving to divide, and separate the Parts whose Union and Continuity were an Obstacle to the Cure; or which were joyn'd, and conglutinated contrary to the Order of Nature. See SECTION.

There

There are four manners of performing the *Diæresis*: viz. by *Cutting*, *Pricking*, *Tearing*, *Drawing*, and *Burning*. See CUTTING, BURNING, TAPPING, CAUTERY, &c.

The Word in its Original *Greek* Διαίρεσις, signifies *Division*.

DIÆRESIS, Διαίρεσις, is also used in Medicine for the Eating out, or Consuming of the Vessels, or Canals of an Animal Body: when, from some cutting, or corroding Cause certain Passages are made, which naturally ought not to have been, or certain natural Passages are dilated beyond ordinary; So that the Juices which should have been contain'd therein, extravasate, or run over. *Blanchard*.

DIÆRESIS, in Grammar, a Figure whereby a Diphthong is divided into two Syllables. As *Aulæ* into *Aulai*. See DIPHTHONG.

DIÆRESIS, is also used in the general for any Division of one Syllable into two; as in that Verse of *Tibullus*, *Stamina non ulli dissoluenda Deo*, for *dissolvenda*.

This is usually noted by two Points placed over a Letter, to shew that it is sounded by it self, and not joyn'd with any other, so as to make a Diphthong: Thus *Aera*, by the Points over the *e*, is distinguish'd from *Æra*.

It is also a Kind of *Metaplasm*, or Addition to a Word, by dividing one Syllable into two; as *Aulae*, by a *Diæresis*, is of three Syllables, instead of *Aulæ*.

DIES. See DAY.

DIES, in common Law. There are two Kinds of *Days*: *Juridici*, & *Non Juridici*.

DIES *Juridici*, or *Fasti*, are all Days wherein Justice is administer'd in Court. See FASTI.

DIES *Non Juridici*, or *Nefasti*, are all Sundays in the Year; and in Easter Term, the Feast of the Ascension of our Lord; In Trinity Term, the Nativity of St. *John* the Baptist; In Michaelmas Term, the Feast of All Saints, and All Souls; And in Hillary Term, the Purification of the Blessed Virgin.

The same Distinction holds not only as to Legal Proceedings in Court, &c. but also as to Contracts.

In some ancient Authors, *Dies* is also used for daily Provision. *Et reddebat dimidium Diem Mellis*, q.d. as much Honey as serv'd the King's Family half a Day.

DIES *datus*, is a Day, or Time of Respite given to the Tenant, or Defendant by the Court. See DEPARTURE.

DIESIS, in Music, a Division of a Tone, lesser than a Semi-tone; or an Interval consisting of a lesser, or imperfect Semi-tone. See TONE.

The *Diesis* is the smallest, and softest Change, or Inflexion of the Voice imaginable. It is also call'd a *Feint*, and exprefs'd by a St. *Andrew*'s Cross, or Saltier.

Aristotle calls *Dieses* the Elements of Voice, as Letters are those of Discourse. Indeed, *Aristotle*'s *Dieses* were apparently different from ours: And we find *Vitruvius* expressly making the *Diesis* a fourth Part of a Tone. But the *Pythagoreans*, who are held the Inventors of the Name *Diesis*, did not make it so small; they only divided the Tone into two unequal Parts, and call'd the lesser *Diesis*, which we call the lesser Semi-tone; and the greater, which we call the greater Semi-tone, they call'd *Anatome*. See SEMITONE.

But in After-times, when the Tone came to be divided into three and four Parts, the Name *Diesis* was retain'd to them all. And hence those different Accounts we meet withal in Authors, of the Quantity of the *Diesis*.

The *Enharmonical* DIESIS is the Difference between a greater, and lesser Semi-tone.

Dieses are divided into three Kinds: The *Lesser Enharmonical Diesis*, or *Simple Diesis*, denoted by a single Cross, raises the Note following by two Comma's, or about $\frac{1}{4}$ of a Tone: The *Chromatic*, or *double Diesis*, denoted by a double Cross, raises the following Note by a lesser Semi-tone, or about 4 Comma's; which is the common *Diesis*: The *Greater Enharmonical Diesis*, denoted by a triple Cross, raises the Note by 6, or 7 Comma's, or about $\frac{3}{4}$ of a Tone. None but the *double Diesis* is used in Music. A Flat is frequently used to take away the *Diesis*, and a *Diesis* to take away a Flat.

When Semi-tones are placed where regular Tones should be; or a Tone where there should be a Semi-tone, it is call'd a *Diesis*, or a *Feint*.

DIESPITER, in Antiquity, a Name given to *Jupiter*. Some Authors will have it the same with *Dios pater*, *Jupiter*, Father, *Jupiter* being call'd in *Greek* Ζεὺς, or Δεὺς; whence the oblique Cases Διός, Δῖ, &c. Others hold *Diespiter* to signifie *Diei pater*, Father of the Day. St. *Augustin* derives the Name from *Dies*, Day; and *Partus*, Production, Bringing forth; it being *Jupiter* that brings forth the Day. Of which Sentiment are *Servius*, and *Macrobius*; the former adding, that in the Language of the *Osci*, they call'd him *Lucentius*; and *Diespiter* in *Latin*. *Struvius Antiq. Rom. Synt.* C. I. seems to intimate, that *Diespiter* is *Pluto*; But if that be his meaning, he is apparently mistaken: For both in *Cicero*, and in the Inscription he quotes from *Gruter* XXI. 8. we have only *Dispater*, and not *Diespater*.

DIET, in Medicine, &c. a spare Regimen or Course of living, out of regard to Health. See REGIMEN, and HEALTH.

Diet is a soveraign Remedy against all Diseases arising from Repletion. See DISEASE, REPLETION, &c.

Diet is founded on this, that Nature ought not to be busied, and distracted in the Concocting of Food, but left wholly to her Work of digesting, and expelling the morbific Matter. See FOOD.

The Word is form'd from the *Greek* Δίαιτα, which signifies *Regimen*, or *Rule of Life*, prescribed by Physicians. And as the Physicians usually order a spare, scanty *Modicum*, less than is usually taken; *Diet* has pass'd into a Name for this Retrenchement, or Diminution of the ordinary Quantity of Food, whether it be by Advice of a Physician, or by a Person's own Choice: provided it be to remove, or prevent some Disorder.

For the Advantages of a *spare simple Diet*, see ABSTINENCE, and FASTING.

Dr. *Cheyne* shews, how one may supply the Place of Medicines by *Diet*: Any one, says he, may lose a Pound of Blood, take a Purge, or a Sweat, by dropping the great Meal, or Abstaining from Animal Food, and strong Liquors for four or five Days, in Chronical Cases, as effectually as by opening a Vein, swallowing a Dose of Pills, or taking a Sudorific *Bolus*. He advises therefore all Gentlemen of a sedentary Life, and of learned Professions, to use as much Abstinence as possibly they can, consistently with the Preservation of their Strength, and Freedom of Spirits. This they ought to have recourse to, as soon as they find any Heaviness, Inquietudes, restless Nights, or Aversion to Application: Either by lessening one half their usual Quantity of Animal Food, and strong Liquors, till such Time as they regain their wonted Freedom, and Indolence; Or by living a due Time wholly on *Vegetable Diets*, as Sago, Rice, Pudding, and the like, and drinking only Wine and Water. *Essay on Health*, &c.

DIET, or DYET, is also used for an Assembly of the States, or Circles of the Empire, or *Poland*, to deliberate, and concert Measures for the public Good. See STATE, PARLIAMENT, &c.

The *Diets* of the Empire are ordinarily held at *Ratisbon*. See COLLEGE, EMPIRE, ELECTOR, &c.

The *General Diet* of *Poland* is by the Laws only to be held every two Years. But pressing Occasions convene them every Year. The Laws confine their Sitting to 15 Days; but they frequently protract it to six Weeks. Its usual Place is at *Warsaw*, the Capital of the Kingdom; tho' it has been often held at other Places: In Effect, as by the Laws every third *Diet* is to be convened at *Grodno*, in *Lithuania*; whenever for particular Reasons it is judg'd meet to baulk the Turn, and hold it elsewhere, the Nobility of the Grand Dutchy must consent to it. 'Tis the King fixes the Time, and summons it by Circular Letters sent to all the Palatins. In an *Interregnum*, the Arch-Bishop of *Gnesen* calls the *Diet*. The several *Particular Diets*, which are held six Weeks before the *General* One, do each send three Deputies chose out of the Members thereof. In *Poland* there are likewise *Diets* on Horse-back, held in the Campagne, or Country. Such are those wherein they chuse their King. They are call'd *Postolites*.

There are likewise *Diets* held in *Switzerland*: *Diets* of the Protestant Cantons; *Diets* of the Catholick Cantons; and *General Diets*. The first assemble at *Arau*, and are convoked by the Canton of *Zurich*: The second at *Lucern*, convoked by the Canton of that Name. The third, composed of the Deputies of all the Cantons, both Protestant and Catholick, is held twice a Year, at the End of *June*, and the Beginning of *December*, and meets at *Baden*. 'Tis the Canton of *Zurich* has the Right of convening it.

The Word *Diet* in this Sense comes from *Diæta*, which originally signified a *Hall*, or *Banquetting Room*; and at length an Assembly of the States, by reason the *Germans* held most of their Councils at Table.

DIETA, in our old Law-Books, denotes a Journey, or Days-Journey: *Omnis Rationabilis* Dieta *constat ex viginti Miliaribus*. Fleta.

DIETETIC, or *Diætetica*, that Part of Physic, which considers the way of living with Relation to Food, or *Diet*, suitable to particular Cases. See FOOD, and DIET.

DIEU & *mon Droit*, q.d. *God and my Right*, the Motto of the Arms of *England*, first given by King *Richard* I. to intimate, that he held not his Empire in Vassalage of any Mortal. See MOTTO.

It was afterwards taken up by *Edward* III. when he first claim'd the Crown of *France*; and was continued without Interruption to the Time of King *William* III. who used the Motto, *Je maintiendray*; tho'

tho' he commanded the former to be retain'd on the great Seal. The same is to be understood of the late Queen *Anne*, who used the Motto, *Semper Eadem*; which had been before used by Queen *Elizabeth*.

DIFFAMATORY, a Term chiefly used in the Phrase *Diffamatory Libel*, signifying a Writing intended to scandalize, or discredit a Person, &c. See LIBEL.

By the *Roman* Law, and the ancient Ordonnances of *France*, the Makers of *diffamatory Libels* were punish'd with Death. See *Balduin. Commentarius ad Leges de Libellis famosis.*

The Historian tells us, that Cardinal *Ximenes* was insensible to all *Diffamatory Libels*. He found it but reasonable, to leave Inferiours the Liberty of venting their Grief by Writings, which only last while the Person is offended at them, and lose all their Spirit and Malignity when despis'd, or disregarded.

DIFFAREATION, among the *Romans*, a Ceremony whereby the Divorce of their Priests was solemnized. See DIVORCE.

Diffareation was properly the dissolving of Marriages contracted by Confarreation; which were those of the Pontifices. *Festus* says, it was perform'd with a wheaten Cake; and that it was call'd *Diffarreation* from *Far*, Wheat. *Vigenere* will have Confarreation and *Diffareation* to be the same Thing. See CONFARREATION.

The Word comes from the Preposition *Dis*, which is used in Composition for Division, or Separation; and *Fareation*, a Ceremony with Wheat, of *Far*, Wheat.

DIFFERENCE, in Logic, an Essential Attribute belonging to some Species, and not found in the *Genus*; being the universal Idea that defines the Species. See GENUS, and SPECIES.

Thus, Body and Spirit are the two Species of Substance, which in their Ideas include something more than is included in the Idea of Substance. In Body, for Instance, is found Impenetrability, and Extention; In Spirit, a Power of Thinking, and Reasoning. So that the *Difference* of Body is *impenetrable Extension*; and the *Difference* of a Spirit is *Cogitation*. See DEFINITION.

DIFFERENCE, in Mathematicks, the Excess of one Quantity above another.

This Angle is 60 Degrees, and that 90; Their Difference is 30. See ANGLE.

When a less Quantity is substracted from a greater, what remains is call'd the *Difference*. See SUBSTRACTION.

DIFFERENCE *of Longitude* of two Places, is an Arch of the Equator intercepted between the Meridians of the Places. See LONDITUDE.

Ascensional DIFFERENCE, in Astronomy, is an Arch of the Equator comprehended between the Circle of six a-Clock, and the Horary Circle of the Sun. See ASCENSIONAL.

DIFFERENCES in Heraldry, are certain Additaments to Coat Armour, whereby something is alter'd, or added to distinguish the younger Families from the elder, or shew how far they are removed from the principal House. They are call'd in Latin *Diminutiones*, and *Discernicula Armorum*, and by the French *Brisures*. See DIMINUTION.

Of these Differences *Sylv. Morgan* gives us nine, which obtain principally among us: *viz.* the *Label*, which denotes the first, or eldest Son: The *Crescent*, the second: The *Mullet*, the Third: The *Martlet*, the fourth: The *Annulet*, the fifth: The *Flower de Lis*, the sixth: The *Rose*, the seventh: The *Eight foil*, the eighth: And the *Cross Moline*, the ninth. See each under its proper Article, LABEL, &c.

Again, as the first *Differences* are single for the Sons of the first House, or Descent; the Sons of the younger Houses are differ'd by combining or putting the said *Differences* upon each other. As the first *Differences* are the *Label*, *Crescent*, &c. for the first House; the *Difference* for the second House is the *Label* on a *Crescent*, for the first of that House: For the third Brother of the second House a *Mullet* on a *Crescent*, &c.

The Original of *Differences* is controverted. *Cambden* will have them to have begun about the Time of King *Richard*. *Paradin* assigns *Differences* wore as early as the Year 870. The President *Fauchet* observes *Differences* to have been hereditary in the *French* Families before the Time of *Louis le Gros*, who came to the Crown in the Year 1110. *Moreau* refers them to the Time of St. *Louis*; and *Lallonette*, *Belle-forest*, &c. to that of *Philip Augustus*. The Occasion of their Rise is well accounted for by *Colombiere*.

All Nations, says he, prefer the elder Brothers to the younger; whence those, in a direct Line, succeeding their Fathers, and becoming Masters of their Lands, took on them their Coat Armour, without any Change, or Alteration; and transmitted the same again to their eldest Sons; the younger Brothers, or Bastards not being allowed to bear the same Arms, without some additional Mark, to distinguish them from the elder. Hence some Heralds, he goes on, have endeavour'd to confine them to certain fix'd, and determinate Figures, for distinguishing the second from the first, the third from the second; and so on to the sixth: Assigning the second a *Label*, the third a *Bordure*, the fourth an *Orle*, the fifth a *Battoon*, and the sixth a *Bend*, or *Cottice*.

And the Descendents of these to bear double *Differences*, or *Differences* charg'd on one another, *viz.* the eldest Son of the second Son to retain his paternal Coat, with the *Difference* of the *Label* of 3 Points; the second the *Label* of 4 Points; the third such a *Label* on a Chief; the fourth a *Label* charged with certain Figures, as *Eaglets*, *Lioncels*, *Martlets*, *Crescents*, *Roses*, &c. And for the same reason, the second Son of the third Son shall bear a *Bordure* engrailed, the third a *Bordure* charged with Bezants, or Tourteaux, &c.

But the same Author judges the fixing any certain invariable *Differences* at all an Abuse; by reason they may happen not to be agreeable to the paternal Coat, but very much deface, and blemish it. He adds, that many other Figures beside those abovementioned, may be used as *Differences*; As Shells, Bezants, Cinque-foils, and a thousand more. Some younger Families have made the *Difference* in their Arms by only diminishing the Ordinaries, or changing the Posture; And others by only changing the Metal, or Colour.

It must be added, that the *Differences* may be of Metal on Metal, or Colour on Colour; which in other Cases is false Heraldry.

DIFFERENTIAL, *Differentiale*, in the higher Geometry, an infinitely small Quantity, or a Particle of a Quantity so small as to be incommensurable thereto, or less than any assignable one. See QUANTITY.

It is call'd a *Differential*, or *Differential Quantity*, because frequently consider'd as the Difference of two Quantities; and as such is the Foundation of the *Differential Calculus*: Sir *Isaac Newton*, and the *English*, call it a *Fluxion*, as being consider'd as the momentary Increase of a Quantity. See FLUXION.

Mr. *Leibnitz*, and others, call it an *Infinitesimal*. See INFINITESIMAL.

DIFFERENTIAL *of the first*, *second*, &c. *Degree*. See DIFFERENTIO-DIFFERENTIAL.

DIFFERENTIAL *Calculus*, or *Methodus*, is a Method of *differencing* Quantities; that is, of finding a *differential*, or infinitely small Quantity, which taken an infinite Number of Times, is equal to a given Quantity.

This Methnd is one of the finest, and subtilest in all Mathematicks, Mr. *Leibnitz*, who claims the Invention thereof to himself, calls it *Differentialis Calculus*, as considering the infinitely small Quantities found hereby as the *Differences* of the Quantities; and accordingly expressing them by the Letter *d* prefix'd: as the *differential* of *x*, by dx; that of *y* by dy, &c.

Sir *Isaac Newton*, who has a better Title to the Discovery, calls it the *Method of Fluxions*, as considering the infinitely little Quantities rather as Fluxions, or momentary Increments, *e. gr.* of a Line, generated by the Fluxion of a Point; of a Surface, by the Flux of a Line; or a Solid, by the Flux of a Surface; and instead of *d* notes 'em by a *dot*; e.gr. the Fluxion of *x*, instead of dx he writes $\dot{x}$; that of *y*, $\dot{y}$, &c. which is the only Difference between the *Differential Calculus*, and the *Method of Fluxions*.

For the *History*, *Doctrine*, *Use*, &c. thereof, see FLUXIONS.

DIFFERENTIO-DIFFERENTIAL *Calculus*, is a Method of differencing Differential Quantities.

As the Sign of a *Differential* is the Letter *d*; that of a *Differential* of dx, is ddx; and the *Differential* of ddx, $dddx$, or d^2x, d^3x, &c; or $\ddot{x}$, $\dddot{x}$, &c.

Thus, we have *Powers*, or *Degrees of Differentials*.

The *Differential* of an ordinary Quantity is call'd a DIFFERENTIAL *of the first Power*, or *Degree*; as dx.

A DIFFERENTIAL *of the second Power*, or *Degree*, is an *Infinitesimal* of a *Differential* Quantity of the first Degree; as ddx, or $dxdx$, or dx^2, $dxdy$, &c.

A DIFFERENTIAL *of the third Degree*, is an *Infinitesimal* of a *Differential* Quantity of the second Degree; as $dddx$, dx^3, $dxdydz$, and so on.

The *Powers of Differentials*, as dx^2, are *differenced* after the same Manner, as the Powers of ordinary Quantities. And again, as Compound *Differentials* either multiply, or divide each other, or are Powers of *Differentials* of the first Degree; *Differentials* are *differenced* after the same manner as ordinary Quantities. And, therefore, the *Differentio-Differential Calculus*, is the same, in Effect, with the *Differential*.

DIFFERENTIAL, in the Doctrine of Logarithms. *Kepler* calls the Logarithms of Tangents, *Differentiales*; which we usually call *Artificial Tangents*. See LOGARITHM and TANGENT.

DIF-

DIFFORM, is a Word used in Opposition to *Uniform*, and signifies, that there is no manner of Regularity in the Form, or Appearance of a Thing. See UNIFORMITY.

The Botanists use it as a Distinction of the Flowers of Plants. See FLOWER.

DIFFUSE, *Diffusive*, is chiefly used for a prolix, specious Manner of Writing, &c. See PROLIX.

A Dictionary cannot be too *diffusive*: For a Man is never too much inform'd of the Word he wanted; and he is not oblig'd to read the rest.

A *Diffuse* Style is proper for Discourses in the demonstrative Kind. *Demosthenes* is close, and concise; *Cicero* on the contrary *diffusive*, &c. See STYLE.

DIFFUSION, a *Quasi-fusion*, or Dispersion of any Thing, upon several Bodies, or Parts of Space.

The School-men make 3 Kinds of *Diffusion*: The first that whereby a pure Quality is *diffused*; as *Cold*, *Force*, &c. This they distinguish into *Equal*, whereby equal Portions, or Degrees of the Quality are distributed upon equal Parts of the *Medium*: Thus, when a direct Motion is impress'd on a moveable, all the Parts of the moveable receive an equal *Impetus*: And *Unequal*, when unequal Degrees of the Quality are distributed on different Parts of the Subject; Thus it is, that *Force* is impress'd on a Lever, and *Cold* propagated thro' a *Medium*.

The second Kind of *Diffusion* is that perform'd by the Motion of Bodies; Such is the *Diffusion* of *Light*, *Sound*, *Smell*, *Magnetick*, *Electric Virtues*, &c.

The third is perform'd partly by the Motion of Corpuscles, and partly by the *Diffusion* of a Quality; and thus they hold Fire to be *diffused*.

But the modern Philosophers reject the Notion of Qualities, and their *Diffusion*. According to them, there is no other *Diffusion*, but that of Corporal Substance, emitted in minute *Effluvia*, or Particles, into a Kind of Atmosphere all a-round the Body; which *Diffusion* of Corpuscles some call *Atmospherical*, as being supposed to be terminated by a Circle, whereof the *diffusing* Body is the Centre. Every Body, it is now proved, has its Sphere of Activity, or *Diffusion*, within which the Particles, or Corpuscles, torn from it, and flying away, have a sensible Effect, as we see in odorous, sonorous, &c. Bodies: See QUALITY; where the Physical Law of the *Diffusion* of Qualities is laid down. See also SPHERE *of Activity*, ATMOSPHERE, EFFLUVIA, &c.

DIGAMY the same with *Bigamy*. See BIGAMY.

DIGASTRICUS, in Anatomy, a Muscle thus call'd, as having a double Belly; from *δις*, *bis*, twice; and *γαστηρ*, *Belly*. See MUSCLE.

It arises fleshy from the upper Part of the *Processus Mastoidæus*, and descending, contracts into a round *Tendon*, which passes thro' the *Stilohyoidæus*, and an annular Ligament, which is fasten'd to the *Os Hyoides*; then it grows fleshy again, and ascends towards the Middle of the Edge of the lower Jaw, where it is inserted. When it acts, it pulleth the lower Jaw down, by the Help of an annular Pully, which alters its Direction.

DIGEST, a Collection of the *Roman* Laws, rang'd and digested under proper Titles, by Order of the Emperor *Justinian*.

That Prince gave his Chancellor *Tribonianus* a Commission for this Purpose; who, in Consequence thereof, chose 16 *Jurisconsulti*, or Lawyers, to work upon the same. These, accordingly, took out the best, and finest *Decisions* from the two thousand Volumes of the ancient *Jurisconsulti*, and reduced them all into one Body; which was publish'd in the Year 533, under the Name of *Digest*. This the Emperor gave the Force of a Law, by a Letter at the Head of the Work, which serves it as a Preface. See JURISCONSULTI.

The *Digest* makes the first Part of the *Roman* Law, and the first Volume of the *Corpus*, or Body of the Civil-Law. See CIVIL-*Law*.

It was translated into *Greek* under the same Emperor, and call'd *Pandecta*. See PANDECT.

The Method of quoting it is by a double *ff*, on Account of the *Greek* Name *Pandect*, which being first abbreviated by a Figure of two ΠΠ; to abbreviate it yet further, the two Characters were joyn'd into one ΠΠ, which the *Latin* Copists mistook for *ff*.

Cujas says, that *Digest* is a common Name for all Books disposed in a good Order, and Oeconomy: And hence it is, that *Tertullian* calls the Gospel of St. *Luke*, *Digest*.

DIGESTER, or *Digestor*, an Artificial Means, or Instrument, serving to *digest*, or dissolve Meats out of the Stomach, by a Way analogous to that of Animal Digestion.

Mr. *Leigh*, in the *Philosoph. Transact.* gives us an Artificial *Digestor* to illustrate the Natural one: It is prepared from Spirit of Sulphur, Spirit of Harts-horn, the Chyle of a Dog, and its *Saliva*. A Piece of Veal, Mutton, Beef, or the like, of the Bignes of a Nut, being put in a Dram of this Preparation, and set on a Digesting Furnace two Hours, drew from the Flesh a Juice, that had the Colour and Taste of Chyle, and left the Meat light, dry, and insipid. Dr. *Havers* prepares a *Digestor* of Oil of Turpentine, mix'd with Oil of Vitriol; in which, raw Flesh, and Crums of Bread being put, and the whole committed for four Hours to *digest* in *Balneo Mariæ*, the Meat is found dissolv'd, and the whole together forms a thickish Pulp: Hence, those Authors, each of 'em, conclude the Food in the Stomach to be *digested* by some such *Menstruum's*. See DIGESTION.

But the most noted *Digestor* is *Papin's Digestor*, the Effect whereof bears a more near Resemblance to the Operation of the Stomach. It is a Sort of Vessel, wherein Meat being put, together with so much Water as serves exactly to fill it, a Lid is screw'd close on, so as to admit of no external Air. Then, by the Application of two, or three lighted Char-Coals, or even a single small Lamp-flame, the Meat is in a few Minutes (six or eight) reduced into a perfect Pulp, or rather Liquor. By a little Increase of the Fire, or the Addition of a few Minutes in time, the hardest Bones themselves are brought into a Pulp, or Gelly.

The Effect is accounted for from the strict Closure of the Engine, which excluding the Intervention, or Escape of Air, the Succussions occasion'd by the Expansions, and Oscillations of Air included in the Flesh, are equable and strong, and so resolve the whole into one seemingly homogeneous Body, and mix the aqueous, saline, oleous, and other Particles, so strongly together, as scarce to be separable; but while hot, to appear one Liquor, and when cold a Gelly, of a Strength proportionate to the Quantity of Flesh, or Bones dissolved in the Water.

This Experiment seems to hold a close Analogy with the Operation of the Stomach. For tho' the Stomach do not ordinarily dissolve, either so strongly, or so quick; yet in Proportion to its Heat and Constriction, Dr. *Drake* takes it to do the same Thing: Thereby breaking and resolving into small, the Bodies which it included, so mix'd, *inter Minima*, with its Humours. These, thus reduced into a Fluor, and intimately mix'd with the Liquids of the Drink, and Juices of the Stomach, compose that lactescent Liquor, call'd *Chyle*, or *Chyme*. See CHYLE.

DIGESTION, in Medicine, call'd also *Concoction*, that Change of the Food taken in at the Mouth, which it undergoes in the Stomach, in order to afford fit Matter to compose or distend an Animal, till it arrives at its destined Bulk; and to repair the Loss of those Particles, which the Body, in its natural State, necessarily undergoes. See CONCOCTION.

The Operation of *Digestion* succeeds to *Mastication*, and *Deglutition*. See MASTICATION, and DEGLUTITION.

It includes *Chylification*, and is succeeded by *Sanguification*, and *Nutrition*. See SANGUIFICATION, and NUTRITION.

The Cause, Manner, and means of *Digestion*, have been infinitely controverted: It would be endless to enter into all the Systems, and Hypotheses, that have been fram'd by Philosophers, and Physicians, to account for this important Operation. Some contend, that it is done by a Kind of *Elixation*, or boiling of the solid, and grosser Parts of the Food, in the liquid, by the Heat of the Stomach, and the adjacent Parts, the Liver, Spleen, &c. See ELIXATION.

Others, by *Attrition*; as if the Stomach by those repeated Motions, which are the Effects of Respiration, rubb'd, or ground off the minuter Particles from the grosser Matters; and agitating, and driving the rest against each other, attenuated, and dissolved them. See TRITURATION.

Others think the *Bilious* Juice; Others the Spirits, &c. chiefly concern'd in the Affair.

Others will have the Food dissolved by a *Menstruum*, or *Dissolvent*: But these are greatly divided, as to the Nature, and Origin of this *Menstruum*; Some supposing it an *Acid*, furnish'd by the Glands of the Stomach; Others a *Nitro-aereous* Spirit, which by penetrating the Mass of Food, breaks the Connexion of the most solid Parts; And others, a *Saline* Juice, which divide, and volatilize the Parts of the Food. See MENSTRUUM.

Others again suppose *Digestion* to be perform'd by means of a *Ferment*, or *Leaven*; which, mixing with the Aliment, excites an intestine Motion in the Parts thereof, by whose mutual Fractions, and Collisions, the Parts are attenuated, and dissolved. See FERMENT.

But these, too, differ in their Opinions of this *Ferment*; Some taking it to be the Remains of the Food last *digested*, which by its Continuance in the Stomach, has contracted an Acid Quality, which constitutes it a *Ferment*: Others take the *Ferment*, or Principles of Fermentation to be contain'd in the Aliment it self; which when inclosed in the Stomach, and heated thereby, being put in Motion, enters on its Office of Fermentation: But these, too, are divided; Some taking it to be the spirituous Part; and some the Air in Foods. See DIGESTER.

Others suppose this Ferment supplied by the Glands of the Stomach: And lastly, others contend for the *Saliva*,

and make that the Ferment serving principally for the *Digestion* of the Food.

All these Systems are now reduced to three principal Ones; which we still find explain'd, and defended in the several Writings on that Subject: The first holding *Digestion* to be perform'd by *Fermentation*; The second by *Trituration*; And the third by *Fermentation*, and *Trituration* together.

The *first* Opinion was for a long Time the only one. The Retainers hereto hold, that the Food, after it is receiv'd into the Stomach, is there impregnated with certain menstruous Juices, which being assisted by the natural Heat of the Stomach, raises a Fermentation in the Foods, which dissolves, attenuates, and converts them into Chyle.

This was the System of the Ancients; who, tho' they only express themselves in general Terms, as dissolving, softening, subduing, Concretion, Qualities, &c. yet seem to have had the Notion of what we call *Fermentation*. Thus *Empedocles* and *Hippocrates* teach, that *Digestion* is perform'd by a Putrefaction of the Foods, after the like manner as the same *Empedocles* holds Water to be converted by Putrefaction into Wine. *Hippocrates*, and *Aristotle* use the Term *Concoction*, which we likewise find in *Erotian*, *Plutarch*, and *Actuarius*, to express the manner of Fruits ripening, the Must's changing into Wine, and Past's rising. *Hippocrates* expressly names *Effervescence*, and *Fermentation*, *de vetere Medicina*, C. 5. and *Galen* likewise, *L. de Consuetudine*, C. 2. And in another Place he asserts, that a certain Serosity of the Stomach concurs with the Bile and Spirits to effect *Digestion*. To say nothing of *Cicero*, who, according to the prevailing Opinion of his Time, attributes *Digestion* to the Heat of the Stomach. *Lib.* II. *de Nat. Deor.*

The Juices, or Ferments in the Stomach, to whose Action *Digestion* is supposed owing, are, the Saliva, Bile, and Pancreatic Juice. This is so true, that in certain voracious Animals, which eat, and *digest* fast, particularly Wolves, Ostriches, and Porcupines, the Bile discharges it self immediately into the Cavity of the Stomach; And we have observed a Disposition analogous thereto in a Man that had been a great Eater.

There are only three Marks to know the Fermentation of Dough and Must by: First, In that the Dough rises, and swells; and the Must boils, and rarifies. Secondly, In that the Bread and Wine made by these Fermentations, have different Tasts and Qualities from those the Flower and Must had before. Thirdly, In that the Bread, and Wine, by Distillation, yield Principles that differ in those respects from those drawn from Flower and Must. Now, all these Characters are found in the Change made in the Food by *Digestion*.

Against this System it is objected by Mr. *Hecquet*, and others, that in every 24 Hours there is prepared a Pound of Saliva, half a Pound of Bile, and at least two Ounces of Pancreatic Juice; to which is to be added that Stomach-Liquor, resembling Saliva; the whole amounting to about 2 Pounds, or 13824 Grains of Ferment. Now, say they, it is allowed by the Chymists, that one Grain of Ferment is sufficient for 803 Grains of Matter to be fermented; consequently 2 Pounds of Ferment would suffice for 1200 Pounds of Food: Whereas a Man ordinarily does not take above 4 Pounds in a Day.

Now, this, say they, is an Argument, that Fermentation is not the only, or principal Intention of these Juices; since, if it had, they would have been better proportioned to the Occasion. And, further, it furnishes an Objection, since such a Quantity of saline, menstruous Humour, having so little Business to employ it in fermenting the Food, must act on the Stomach, corrode and destroy the fine Membrane it is lined withal, and do other Mischiefs.

But to this it is answered, 1. That, according to Mr. *Hecquet* himself, the Faculty of fermenting only belongs to the Salts, and that, by his own Computation, half a Pound of Bile only contains 30 Grains of Salt; and a Pound of Saliva, with two Ounces of Pancreatic Juice, and the Stomach-Liquor, contain but 14 Grains more: So that the Ferment of the Stomach produced each Day, only amounts to about 44 Grains, which were scarce enough for 2 Pounds of Food. But Mr. *Hecquet* diminishes the Quantity of these Salts too much, which *Verheyen*, and others, make a deal more. To which is to be added the volatile Salt, mix'd with the Phlegm and Spirits. 2. It is not true, that there is always required a Grain, and only a Grain of Leaven for 800 Grains of Matter. Experience contradicts this Rule. In some Fermentations there is no need of any Leaven at all, and in others a deal less. As to the Ferment's acting on the Membranes of the Stomach; 'tis certain, it does act on, and vellicate the same when there is no Food to employ it; and this it is, that occasions the Sensation of Hunger. But as fast as they are corroded, they are repair'd again by the Nourishment proper to them. The Stomach is sometimes gnawed, and incommoded by the *Menstruum*; but ordinarily it is preserv'd by a viscid Matter, wherewith its inner Coat is lined.

Another Objection against this Doctrine, is, that the Chyle yields no inflammable Spirit; which it should, were it the Effect of Fermentation: But Monsr. *Astruc* answers, that all Fermentations don't produce any such Spirit: That of Dough, for Instance, affords none, nor that of rotten Fruits, nor of Acids, or pure Alcali's. The inflammable Spirit, in Effect, requires a fine attenuated Sulphur, which is not found in all Fermentations.

The *second* System was invented, or at least renewed in the present Age; and has been maintain'd with a deal of Zeal, and Vivacity, as is commonly the Case in any Thing that has the Appearance of Novelty. Those who espouse this Opinion, contend, that 'tis a mere continual Attrition, or Grinding, that breaks, attenuates, and reduces the Food, and with the Addition of a proper Fluid, forms it into that whitish Substance, call'd *Chyle*; much as Corn is ground between the Stones of a Mill. Which Opinion seems to be confirm'd by something observ'd in Birds: Their Gizzard, or Crop, is composed of two strong, solid, compact Muscles, which rubbing against each other, and being assisted by little angular Stones, or Grains of Sand swallow'd by the Birds, break and grind the dry Food those Animals live on: And when the Sand is grown smooth, they cast them off with their other Excrements, and swallow fresh ones.

This Sentiment is thus explain'd by an able Assertor thereof, Mr. *Hecquet*, in his Treatise of *Digestion*. Every thing in the Body is Vessel, consequently, every thing therein is hollow. Every thing therein lives, after its Manner; consequently, every thing is in Motion; Animal Life being nothing but Motion; and consequently all the Vessels are in Motion. Now, the Parts of a Body that are to move, will move towards those Sides, where they find the least Resistance. But the Place of the least Resistance in Tubes is the Cavity; consequently, the Motion of the Parts of Vessels is towards their Axes. The Parts of Vessels that are to move, are the Parietes, or Sides, because flexible, and elastic; and this Motion can only be effected by an Approximation of those Parts: Consequently, the Motion of the Vessels consists in an Approximation of their Parietes; It is, therefore, a Sort of Contraction, Pression, or Coarctation: Hence, as all the Parts of the Body are only Vessels, they all undergo a Systole, Pression, or Contraction. Further, all these Vessels contain Juices in their Cavities; And, therefore, all the Juices, or Liquids in the Body are continually compress'd. This Pression is the Action of an Elastic Force; consequently the Pression will be such as is the Force; and, therefore, alternative: Consequently, it is a Pulse, or Palpitation; and therefore the Juices are continually beaten. Now, these Juices are exceedingly divisible; and consequently are continually attenuated, and divided: And a Division effected by a Pulsation, or Beating, is a *Trituration*; and consequently, the Juices in the Body are continually triturated, or ground. The reason why the compressive Force should be alternative, is, that the Membranes, which compose the Vessels, consist of two Plans, or Series of Fibres; the one longitudinal, the other circular, cutting the longitudinal at right Angles: The Longitudinal are tendinous, and Elastic; the Circular are muscular, or motive, like Sphincters, which compress. The Circular are over the Longitudinal, and embrace, or gird them round. The former, we have already observed, are Elastic; and their Elasticity opposes the Compression of the latter. From this Opposition, or Resistance, arises a reciprocal Action, and Reaction, which is the alternative grinding Force required.

To such as account for *Digestion* from a Ferment, these Philosophers object, that *Digestion* is a Dissolution; that to prepare the Matters for this Dissolution, they must be soften'd; that the proper Effect of acid Ferments, is, to gnaw, or tear the hardest Matters, and to harden the softer, to thicken the fluid, fix the fat, and coagulate the milky: Consequently, that an acid Ferment should rather impede, than promote *Digestion*. Add, that beside the Force to grind the Juices, and the Vessels to compress them, there are likewise Liquors to dilute, and temper them, *viz.* the Saliva, and Stomach-Liquor. And Mineral Matters, which the Stomach-Liquor cannot dissolve, are found to be worn, and polish'd after having stay'd some time in the Stomach. Now polishing is the Effect of Triture, or grinding, not of corroding. Accordingly we find Pelotoons, or Balls of Hairs, or Threads in the Stomach of Cattel, very smooth, and shining, and far from any Marks of Corrosion.

The Authors of Trituration require three Things for *Digestion* to proceed: A Liquor, to wet and dilute the Food, which they find in the Saliva, and Stomach-Liquor: A Vessel, which is the Stomach: And a moving Power to grind, which they imagine to have found in the Muscles of the Stomach, Diaphragm, and Abdomen. The moving Force in the Muscles of the Stomach they maintain to be equivalent to a Weight of 248235 Pounds; and the Force of the Stomach alone, to a Weight of 12951 Pounds: A Power more than equal to that of one of the ablest Mill-stones. See *Traite de la Digestion par Monsr.* Hecquet.

Bo-

Borelli, on the footing of the *Equilibrium* of Fluids, has demonstrated, that the Force of the Flexor of the last Articulation of the Thumb is equal to 3720 Pounds: Whence *Pitcairn* deduces, that the Force of the Fibres of the Stomach is equal to 12951, and that of the Diaphragm, and Muscles of the lower Venter, to 248235 Pounds. His Way of Estimating is this: The Flexor only weighs 122 Grains, and yet may sustain 3720 Pounds: Consequently, the Fibres of the Stomach weighing 8 Ounces, and the Diaphragm with the Muscles of the lower Venter, weighing together 8223 Grains, have the Force abovemention'd. But this Argumentation seems founded on a Mistake; for 'tis not in Virtue of its Weight of 122 Grains, that the Flexor Muscle is equivalent to 3720 Pounds: Besides that it would follow hence, that the heavier the Muscles of the Stomach, Diaphragm, and Abdomen, are, the more Force they would have, and consequently the more easy, and expedite would the *Digestion* be: which is false.

The Patrons of this System compare the Brain to the Arbor, or Screw of a Press, the Heart to a Piston, the Lungs to Bellows, the Mouth to a Mill-stone or Pestle, the Stomach to a Press, and the Intestines to a Receiver, or Vat. They contend, that *Castellus*, a Physician of *Messina*, was the first of the Moderns, who expressly espoused the System of Ferments, and that he was followed by *Van Helmont*, and *Willis*.

But even the Partisans of Trituration are not perfectly agreed among themselves: *Pitcairn* will have it perform'd by a total Contraction of the Stomach: And Mr. *Hecquet*, by a successive, peristaltic, or vermicular Contraction.

Astruc, in his Treatise, *de la Cause de la Digestion*, refutes this System of Trituration at length. He makes a strong Opposition to the *Calculus*, which raises the moving Force of the Stomach, &c. so very high. The Contraction of the Fibres of the Stomach, to compress the Food, he shews, cannot exceed three Ounces; and 'tis even *gratis* that he allows so much: That of the Diaphragm, and Abdomen, he computes at about 4 Pounds. He observes, that *Pitcairn*, surprized, in all Probability, with what he had asserted of this Force, durst not pursue the Proportion whereon his *Calculus* was founded, and according to which, one of the Forces would be found equivalent to 117088 Pounds, and the other to 250734; which together make 367822 Pounds. The Diaphragm in its Motion has two Forces; the one direct, which is that, whereby its Muscles draw from the Centre to the Circumference: the other lateral, whereby it rests, or presses on the Stomach; The latter very small in Comparison of the former. Now, what has deceiv'd *Mess. Pitcairn* and *Hecquet*, is, their taking the direct for the lateral Force; the Contraction of Fibres for their Pressure on the Stomach. And the same Oversight they are guilty of in the Muscles of the Abdomen, whose Pressure against the Abdomen is only lateral. Add, that there are voracious Animals without any Diaphragm at all; as Fishes, which respire through their Gills: and others that have only a single Membrane; as Birds, in whom the Muscles of the lower Venter are very small, and feeble, and in a Situation that incapacitates them from acting at all on the Stomach.

The Membranes of the Stomach being very soft, and having only a slender Motion, seem very unfit for the Office of a Mill-stone. 'Tis true, in certain Fowls the Stomach consists of a close, compact, fleshy Muscle exceeding strong, so as to break little Stones, and Bits of Glass. But to this it is urged, that it is no *Digestion*, which in these Animals is effected in the Intestines. And the Structure of our Stomach compared with the Gizzard, or Crop of granivorous Birds, does, on the contrary, furnish a very cogent Argument against Trituration. The Gizzard is provided on the Out-side with four fleshy Muscles, the Tendons whereof meet in two opposite Points: The Inside is lined with a hard, thick, cartilagenous Membrane; especially in the Places where the Tendons meet. By this Mechanism Nature plainly intimates the Office of the Gizzard to be the Grinding of the Grain by the Friction of its Parietes, or Sides: Whereas, the Membrane in the Stomach of a Man is exceedingly thin and fine, furnish'd with a few fleshy Fibres, cover'd with a tender, sensible Kind of Down; and the Stomach it self is of a great Capacity. And the Stomach in rapacious Birds, who devour huge Pieces of raw Flesh without chewing, is a still finer Membrane. Lastly, on the System of Trituration there seems no accounting for Hunger, Nausea's, Indigestions, Crudities, &c.

In the System of Trituration it seems impossible to explain, why certain Things easy to grind, *e. gr.* Cabbage Flowers, cannot be *digested* in certain Stomachs, which yet find no Difficulty in *digesting* more hard, and solid Meats, as Beef, and Mutton: Whereas, the Difference of Dissolvents gives a natural, and easy Solution. Hydropic People continue to *digest*, notwithstanding the Fibres of the Stomach, as well as the rest of the Body, are extreamly relax'd through the Abundance of Humour. And the total, prompt Change of Nature induced in Foods can be the Effect of nothing else but Fermentation; which even discovers it self by Belches, &c. while it goes on. The Iron, Needles, Pins, &c. sometimes found undissolved in the Stomach, are no Objection to the System of Fermentation; it being notorious, that no Dissolvent dissolves all Bodies. In Birds, which feed on Grain, the Fermentation is manifest, first, in the Crop where the Grain is prepar'd for *Digestion*, by being macerated in a Liquor like Saliva; and afterwards in the Gizzard, where the *Digestion* is perfected by a Dissolvent pour'd into it by a conglomerate Gland. But the Thing is still more apparent in Ruminating Animals, which are provided with four Stomachs; the two first whereof, tho' form'd of a nervous Membrane, make but little Alteration in the Aliment, for Want of a Ferment, or *Menstruum*; So that it returns to be chew'd again; and only becomes well *digested* in the fourth Stomach, whither a Dissolvent is pour'd from a conglomerate Gland.

The Partisans of the *third* Opinion allow it incontestable; that there are Acids in the Stomach, which mix with the Foods, and act on them; and hold likewise, that their Action is aided, and promoted by the Motion of the Systole, and Diastole in the *Viscera*: They add, that the Acids produce a Fermentation; and the Oscillatory Motion of the *Viscera* a Trituration; and that thus *Digestion* is the Effect of Fermentation, and Trituration at the same Time.

Be it as it will with each of the three Systems; thus much we may venture to lay down from 'em all, as the real Process of *Digestion*: The End of this Operation being to prepare the Foods, so as they may serve for Nutrition; those Foods must be consider'd from the Time the Man takes them in, till being converted into Chyle, they mix with the Blood, which conveys them into all Parts of the Body. The Foods then we take, are either crude, as Oysters, Fruits, certain Pulse, &c. or dress'd, as Flesh, and Fish, which are roasted, boil'd, fried, &c. and season'd a thousand divers Ways with Salt, Pepper, and other Spices, Vinegar, Wine, &c. to heighten and enrich the Taste as much as to assist *Digestion*. See FOOD, DRESSING, &c.

Further, there are some Foods we swallow without chewing, as Liquids; and others, which we break and comminute by chewing, as Bread, Flesh, &c. 'Tis of these last we shall here speak, as undergoing more Preparations, and more Changes to fit them for Food, than the others.

The Food, then, is first broke, and divided by the Teeth, and, at the same Time, moisten'd with a Liquor supplied by the Salival Glands, and thus form'd into a Kind of Paste. See MASTICATION.

Thus prepar'd, it is pass'd through the *Oesophagus* into the Stomach, there to ferment. See DEGLUTITION.

This Fermentation is caused, 1. By the Salival Juice, which is a Ferment, and has the same Effect on the Aliment, that Leaven, or Barm has on Paste. 2. By the Heat of the Stomach, *Viscera* of the Abdomen, and even Excrements; which here has nearly the same Effect on Foods, as the Dunghill has on Matters laid by the Chymists to *digest* therein. 3. By the Remains of Foods left adhering in the *Rugæ*, or Folds of the Stomach, and there turn'd sour, and acrimonious. 4. By the Compression of the Muscles of the Abdomen, and Diaphragm. 5. By the Liquor which the repeated Compression of those Muscles occasions to drip from the Glands of the Stomach. 6. According to the Sentiment of some modern Physicians, by the Air it self, which being mix'd, and embarass'd in the Aliments, dilates by the Heat of the Stomach, and separates the Parts of the Foods. These Causes all contribute to attenuate, and divide the Food, so as to convert them into a cineritious Matter, call'd *Chyle*. See CHYLE.

From the Stomach the Chyle descends into the *Ducodenum*, where it is further perfected by the Pancreatic Juice, and the Bile, which thin it, precipitate its grosser Parts, and render it more fluid. The Chyle thus perfected and attenuated, enters the Lacteal Veins, which convey it into the Receptacle, where it is further diluted by the *Lympha*, which is brought hither in Abundance. Hence it rises into the Thoracic Duct, and enters the Subclavian Vein; where being taken up by the ascending *Cava*, it is pour'd into the right Ventricle of the Heart.

The Chyle thus mixing with the Blood, embarasses the Globules thereof, and thus abates its Motion: And hence that Inclination to go to sleep after Meals. But, by Degrees, the Blood communicates its Motion to the Chyle; and by its volatile, and exalted Parts, together with the Saline and Nitrous Parts of the Air, subtilizes, and gives it its last Perfection. Then the *Digestion* is finish'd: and the Foods being by so many Changes render'd the immediate Matter of Nutrition, are carried by the Blood into all Parts of the Body, to repair, and fill the Vacancies of such as are continually dissipating, and exhaling; or even to add new ones. See NUTRITION.

As to the grosser Parts of the Foods separated from the Chyle by the Bile and Pancreatic Juice, they assume the Colour of Excrements from the Bile; and that rank Smell, they derive from the coarser Sulphurs thereof. These Sulphurs, and Salts of the Excrements, serve, after they have passed through the Intestines, and are arrived at the last, which is the

the *Rectum*, to vellicate the Muſcles thereof, and diſpoſe 'em to relax, and thus to apprize Nature of a Neceſſity to diſcharge. See EXCREMENT.

The Separation of the Urine from the Blood, may be eſteem'd a Part of perfect *Digeſtion*; the Deſign of ſuch Separation being to render the Blood more pure and balſamic, and of Conſequence more fit for Nutrition; which the Salts the Urine abounds withal, greatly prevented. This Separation is thus perform'd: The Branches of the emulgent Arteries, which terminate in the Glands, whereof the Subſtance of the Kidneys is compoſed, carry the Blood thither; where a Seroſity is ſeparated from the Blood, by means of the Pores in the Glands of the Kidneys; thoſe Pores repreſenting the Holes in a Sieve, which only let paſs ſuch Things as are of a leſs Diameter than themſelves. This Seroſity, call'd Urine, is diſcharged hence into ſeveral little Tubes, which joyning into a Kind of Pyramids, yield their Humour into the *Pelvis*, whence it runs through the Ureters into the Bladder. See URINE.

DIGESTION, in Chymiſtry, is a Preparation of Plants, Minerals, Metals, and other Bodies beaten, or ground, by putting 'em in a Veſſel, and heating them gradually over a gentle Fire, like the Heat of an Animal Body. See FIRE.

Digeſtion is a previous Kind of Diſpoſition to a perfect Diſſolution of a Body, made by means of Fire, or fiery Particles, beating and looſening the Pores of the Body, and attenuating the Parts of the Fluids, that their Connexion with the harder Matter may be more eaſily, and perfectly diſſolved. *Bohnius* ſeems to deſcribe it pretty adequately by an inſenſible Action and Reaction of the Particles of a Maſs, moving together by ſome ſubtile, ambient Fluid, to which it was expoſed for *Digeſtion*. By calling *Digeſtion* a reciprocal Action, their Motion is intimated, by means whereof they are torn from the contiguous Ones; and in a Word, differently modified: So that the Motion ended, the digeſted Maſs, differs either wholly, or in Part, from the ſame Maſs before *Digeſtion*; ſometimes in Colour, ſometimes in Smell, ſometimes in Tranſparency, ſometimes in Taſte, ſometimes in Conſiſtence, and other Affections. That *Digeſtion* is effected by Motion, is evident from an Obſervation of Dr. *Grew*; who bringing a Mixture of Salt of Tartar, and Oil of Turpentine, ſeveral Days Journey with him in a Coach to *London*, found it had undergone a more intimate Mixion, than if it had been expoſed to a long *Digeſtion*.

Digeſtion is ordinarily confounded with *Maceration*; but the two Things differ, in that there is Heat required to *Digeſtion*; whereas *Maceration* is done in the Cold. See MACERATION.

Digeſtion is uſually perform'd with the Addition of ſome *Menſtruum* ſuitable to the Matter: Thus, Roſes and Poppies Heads are put to *digeſt* in Oil, or Water, to make Unguents, or Syrups; Calcined Lead, and Ceruſs, are *digeſted* in diſtill'd Vinegar, to make the Magiſtery thereof, or the *Sal Saturni*. Hence Dr. *Quincy* defines *Digeſtion* to be the Solution of Bodies, made by *Menſtruum's*, with the Aſſiſtance of Fire.

To conceive the Nature of Chymical *Digeſtion*, it may be neceſſary to ſhew, how the Particles of Bodies can by this Proceſs be diffuſed every Way, and ſuſtain'd in the *Menſtruum*; which deſerves the more to be accounted for, becauſe thoſe ſolid Particles have not the ſame ſpecific Gravity, as the Liquors have in which they ſwim. Tho' the Nature of a perfectly fluid Body be ſuch, as that the Particles, which conſtitute it, do very readily give Way upon the ſmalleſt Impulſe, and recede from one another; yet there is found in moſt Liquors ſome Degree of Tenacity; and from hence ariſes ſuch a Cohesion of Parts, as cannot be broken without ſome Force. And tho' indeed this Force of Cohesion in Liquors ſeems to be but little, or none at all, when compared with what we experience in Solids, yet we find, it can make ſome Reſiſtance. And as the Force in Liquors is either ſtronger or weaker, ſo it produces a Variety of Effects, differing more or leſs from the Phenomena, which would naturally flow from a perfect Fluid; So that, tho' by the Laws of Hydroſtaticks, every Corpuſcle, how ſubtil ſoever, if put into a Fluid, which is ſpecifically lighter, muſt neceſſarily ſink to the Bottom; yet we find ſome heavy Bodies, ſuch as Gold, &c. when reduced into thin Plates, will be ſuſtained in Spirit of Wine. This Force, therefore, of Tenacity, which reſiſts the Motion of Bodies in a Fluid, is proportional to the Number of Parts, which are to be ſeparated, or to the Surface of the Body, which we would have move in the Fluid. Hence it is, that ſince the Surface of a Body may be enlarged, without altering any Thing of its Gravity, the Reſiſtance of a Fluid may be ſo augmented, as to equal the Force of Gravity, which carries the Body downwards. And a Body, tho' ſpecifically heavier than a Fluid, in which it is immerſed, may be very well ſuſtained in that Fluid, provided it be reduced into very ſmall Particles; becauſe the Gravity of a Body thus reduced into ſmall Particles, decreaſes in a much greater Proportion, than the Surface does, or, which is proportional to it, the Tenacity of the Fluid: So that at length the Reſiſtance ariſing from its Tenacity, will be equal to the Gravity of the Particle, and ſo hinder its Deſcent. And, therefore, both in Solution, and *Digeſtion*, it is a general Rule, that if the Gravity of a Body be to the Tenacity of the Fluid, as P to 1; and if the Body be then ſubdivided, ſo that the Diameters of the Parts be to that of the whole, as 1 to P; the Reſiſtance which the Particles will meet with in their Deſcent, will be equal to their Gravity: for ſince their Weight is $\frac{1}{P^3}$, but their Surface $\frac{1}{P^2}$, the Gravity will be to the Reſiſtance as $\frac{P}{P^3}$, to $\frac{1}{P^2}$, or as 1 to 1. So that by this we may underſtand, how the Corpuſcles of Metals ſwim in *Menſtruum's*, which are ſpecifically lighter, as Gold in the Spirit of Nitre, which is drawn off from Bezoar Mineral, tho' the Gravity of Gold be 15 times greater. And in the ſame manner we may underſtand, how Corpuſcles ſpecifically heavier, are ſuſpended in any other *Menſtruum*. And it is for the ſame Reaſon, that ſuch as are lighter, cannot riſe up to the Surface: for the Preſſure of Fluids being equal every Way, the ſuperior Parts act reciprocally on the inferior; ſo that the ſame Force, which keeps the heavy Particles from ſinking, will not permit thoſe, which are lighter, to aſcend.

The Uſe of *Digeſtion*, in Pharmacy, is, to extract the Particles, which are more volatile, by a certain *Menſtruum*, and to mix them intimately with it. To this End a gentle Fire is commonly uſed, that the Corpuſcles, which are moſt volatile, may ſeparate, as it were of their own Accord: for a fierce Fire forces out the Fæces, as well as the finer Particles; and if it does not abate the Strength of the Liquor, it will not fail of ſpoiling its Clearneſs.

DIGESTION, in Chirurgery, is applied to Impoſthumes, or Abſceſſes; and expreſſes their Diſpoſition to ripen, and come to Suppuration. See DIGESTIVE.

Tumors ariſing on the Parotides of Children, are of eaſy *Digeſtion*: They ripen in a little Time. *Dionis*.

DIGESTION is alſo uſed for *Maturation*, or that State of a Diſeaſe, wherein the morbific Matter is ſo changed in Bulk, Figure, Coheſion, Mobility, &c. by the Uſe of proper Medicines, or even by the Force of Nature, as to be leſs noxious and hurtful, and conſequently to abate the Violence of the Diſtemper. See MATURATION.

The *Greeks* call it πεπάσμος. The Matter of the Diſeaſe ſo far *digeſted*, as to become next a-kin to ſalubrious, or healthy Matter, is ſaid to be *reſolved*. See CRUDITY, and CRISIS.

DIGESTIVE. The ancient Philoſophers admitted a *Digeſtive Faculty*, or *Quality* in the Body; as not knowing how otherwiſe to account for the Act of *Digeſtion*. See FACULTY, and DIGESTION.

DIGESTIVE is alſo uſed in Medicine for ſuch Remedies as ſtrengthen, and increaſe the Tone of the Stomach, and aſſiſt in the Digeſtion of Foods. To this Claſs belong all *Stomachicks*, and *Strengtheners*, or Corroborants. See STOMACHIC, and STRENGTHENER.

DIGESTIVE, in Chirurgery, is a Sort of Unguent, Plaſter, or the like, that ripens, and prepares the Matter of Wounds, &c. for Suppuration. It is uſually compoſed of Turpentine, Yolk of Eggs, Oil of *Hypericum*, *Unguentum Baſilicum*, and Tincture of Aloes. The Wound muſt be dreſs'd the firſt Day with a *Digeſtive*, to bring it to Suppuration.

DIGITATED, among Botaniſts, is applied to the Leaf of a Plant, which is either compoſed of many ſimple Leaves ſet together upon one Foot-Stalk, as in the Cinque-foil, Vetches, &c. or elſe when there are many deep Gaſhes, or Cuts in the Leaf, as in thoſe of Straw-berries, Hops, &c. See LEAF.

DIGIT, *Digitus*, in Anatomy. See FINGER.

DIGIT, in Aſtronomy, is the Meaſure whereby we eſtimate Eclipſes; amounting to the 12th Part of the Diameter of the Luminary eclipſed.

The Diameter of the Body, or Diſk of the Sun, or Moon, is divided into 12 Parts, call'd *Digits*; and an Eclipſe is ſaid to be of ten *Digits*, when ten of thoſe Parts are hid. See ECLIPSE.

Theſe *Digits*, *Wolfius*, and ſome others, call *Digiti Eclyptici*.

DIGIT, in Arithmetick, ſignifies any Integer under Ten, as 1, 2, 3, 4, 5, 6, 7, 8, 9. See UNITS.

DIGIT, is alſo a Meaſure taken from the Breadth of the Finger.

A *Digit* is properly 3 Fourths of an Inch, and contains 4 Grains of Barley, laid breadth-wiſe ſo as to touch each other. See MEASURE.

DIGLYPH, a Kind of imperfect Triglyph, conſole, or the like, with only two Channels, or Engravings. See TRIGLYPH.

DIGNITARY, in the Canon Law, and particularly in Chapters, a Perſon who holds a *Dignity*, that is, a Benefice, which gives him Pre-eminence in the Choir above mere Prieſts, and Canons. Such is a *Dean*, and *Arch-deacon*; tho' the Word

Word is also abusively applied to a mere Prebend, or Canon.

Dignities are sometimes simple, sometimes with Cure of Souls, and sometimes with Jurisdiction and Administration of sacred Things. The Canonists even define *Dignity*, *Administratio cum Jurisdictione & Potestate conjuncta*. If the *Dignity* have no Contentious, or Exterior Jurisdiction, 'tis a simple *Parsonage*, and only gives Pre-eminence.

Of *Dignities*, including Prebends, *Cambden* reckons in *England* 544 in Number.

DIHELIOS, in the Elliptical Astronomy, a Name *Kepler* gives to that Ordinate of the Ellipsis, which passes through the *Focus*, wherein the Sun is supposed to be placed. See Ellipsis.

DIJAMBUS, a Foot of *Latin* Verse, of four Syllables; compounded of two Jambics; so that the first and last are short, and the two middle long. See Jambus.

DIKE, or *Dam*, a Work of Stone, Timber, or Fascines, raised to oppose the Entrance, or Passage of the Waters.

Dikes are usually Elevations of Earth, with Hurdles of Stakes, Stones, and other Matters.

The *Dike* of *Rochel* is made with Vessels fasten'd to the Bottom. The *Dikes* of *Holland* are frequently broke thro', and drown large Tracts of Land.

The Word comes from the Flemish *Dyk*, a Heap of Earth to bound, or stem the Water. *Salmasius*, and *Menage* take them to have borrowed the Word from the *Greek* τεῖχος. *Guichard* derives it from the Hebrew *Daghab*.

DILAPIDATION, is a wastful Destroying, or letting Buildings run to Ruin, and Decay, for Want of necessary Reparation: 13 *Eliz. Cap.* 13.

The Money recover'd for *Dilapidations*, by 14 *Eliz.* 11. shall be employed in the Repair of the same Houses.

DILATATION, in Medicine, *&c.* is the laying open any Orifice, or the Lips of a Wound wider; or the Extension of any Vessel: whence *Dilatorium*.

Dilatation, in Physicks, a Motion of the Parts of a Body, whereby it expands, or opens it self to a greater Space. See Expansion.

The Generality of our Authors confound *Dilatation* with Rarefaction; but the more accurate, especially the Foreigners, distinguish between them; defining *Dilatation* to be the Expansion of a Body into a greater Bulk, by its own Elastic Power: And Rarefaction, the same Expansion produced by means of Heat. See Rarefaction.

The Moderns have observed, that Bodies, which, after being compress'd, and again left at Liberty, restore themselves perfectly, do endeavour to *dilate* themselves with the same Force whereby they are compress'd; and accordingly, they sustain a Force, and raise a Weight equal to that whereby they are compressed.

Again, Bodies, in *dilating* by their Elastic Power, exert a greater Force at the Beginning of their *Dilatation*, than towards the End; as being at first more compress'd; and the greater the Compression, the greater the Elastic Power, and endeavour to *dilate*. So that these three, the Compressing Power, the Compression, and the Elastic Power, are always equal. See Elasticity.

Again, The Motion whereby compressed Bodies restore themselves, is usually accelerated: Thus, when compressed Air begins to restore it self, and *dilate* into a greater Space, it is still compressed; and consequently, a new *Impetus* is impressed thereon, from the *dilatative* Cause, and the former remaining, with the Increase of the Cause, the Effect; that is, the Motion and Velocity must be increased likewise: Thus an Arrow shot from a Bow, does not quit the String, till after that be perfectly restored to its Natural State; Nor does the Arrow move a whit swifter than the String; And if the String, 'ere it have perfectly restored it self to its right Line, be stopp'd, the Arrow will not go its full Length: Which is a Proof, that it is continually acquiring a new *Impetus* from the String. And since Projects at the Beginning of their Motion, are little, or nothing retarded, but rather accelerated, it is evident, that the Motion of a String restoring it self, is likewise accelerated. Indeed it may happen, that where the Compression is only partial, the Motion of *Dilatation* shall not be accelerated, but retarded. As is evident in the Compression of a Spunge, soft Bread, Gawze, *&c.*

DILATORES *Alæ Nasi*, in Anatomy, a Pair of Muscles common to the *Alæ Nasi*, and Upper Lip. See Muscle.

They arise thin, broad, and fleshy, from the Cheek-bones under the Orbits of the Eyes, and descend obliquely with a two-fold Order of fleshy Fibres in each Muscle, which partly terminate in the Upper Lip, and partly in the *Alæ Nasi*. They draw the *Alæ* from each other, and widen the External Openings of the Nostrils.

DILEMMA, in Logic, an Argument consisting of four or more Propositions, so disposed, that grant which you will of them, you will be press'd by the Conclusion. See Syllogism.

Or *Dilemma* is an Argument consisting of two contrary Parts, or Sides, either of which catches the Adversary. And hence it is also call'd *Syllogismus cornutus*, a horned Syllogism, its Horns being so disposed, that if you avoid the one, you run upon the other.

It is also call'd *Crocodilinus*, by reason, that as the Crocodile leads such as follow it, into the *Nile*, and pursues such as fly it; to destroy them; so, whatever the Adversary either affirms, or denies in this Kind of Syllogism, is turned to his Disadvantage. See Crocodilus.

Take an Example: A Philosopher once dissuaded a Man from marrying, by this Argument: *Either the Woman you marry will be handsome, or ugly: If handsome, she will give you Jealousy; if ugly, Displeasure.*

Cicero uses this fine *Dilemma*, to prove, that all Pain is to be bore with Patience: *Omnis Dolor aut est vehemens, aut levis: Si levis, facile feretur; Si vehemens, certe brevis futurus est.*

The same *Cicero*, by another *Dilemma*, proves, that no Messengers shall be sent to *Anthony*: *Legatos decernitis; Si ut deprecentur, contemnet: Si ut Imperetis, non audiet.* Nor must we here omit that beautiful *Dilemma* of *Tertullian*, whereby he clears the Christians, and accuses *Trajan*, who had forbad the seeking them out, and yet order'd them to be punish'd, when found: *O Sententiam Necessitate confusam! Negat inquirendos, ut Innocentes; & mandat puniendos, ut Nocentes: parcit & sævit, dissimulat & animadvertit. Quid temetipsum Censura circumvenis? Si damnas, cur non & inquiris? Si non inquiris, cur non & absolvis?*

For a *Dilemma* to be legitimate, there are two Things required: 1. A full Enumeration of Parts: Thus that of *Aristippus* abovementioned, whereby he dissuades from Marriage, is invalid, as being defective in the Enumeration; there being a middle Degree, or Form between *handsome* and *ugly*.

2. That the *Dilemma* press the Adversary alone, and that the Person, who makes it, be not liable to have it retorted upon him. This was the Case in that celebrated *Dilemma* of the Sophist *Protagoras*, which the *Areopagites*, with all their Wisdom, were not able to settle.

A Youth named *Evathlus*, put himself to *Protagoras*, to learn Dialectic, upon this Condition, that he should pay him a large Sum of Money, the first Cause he pleaded, in Case he gain'd the same. *Evathlus*, when fully instructed, refusing to pay the Condition; *Protagoras* brings his Action, arguing thus: You must pay the Money, however the Cause go; for if I gain, you must pay in Consequence of the Sentence, as being cast in the Cause: And if you gain it, you must pay in Pursuance of our Covenant. Nay, retorts *Evathlus*, which Way soever the Cause go, you'll have nothing: For if I prevail, the Sentence gives it, that nothing is due to you; and if I lose, then there is nothing due by the Covenant.

After the like Manner, an ancient Priestess dissuading her Son from Haranguing the People, by this *Dilemma*: *Nam si injusta suaseris*, says she, *habebis Deos iratos: Sin vero justa, Iratos habebis homines:* The Youth thus returned the *Dilemma* on his Mother; *Imo*, says he, *expedit ad Populum Verba facere, nam si justa dixero Dii me ababunt; si injusta Homines.*

The Word *Dilemma* is form'd from the *Greek* δὶς, *bis*, twice, and λῆμμα, *Sumptio*.

DILUTE. To *dilute* a Body, is to render it liquid; or, if it were liquid before, to render it more so, by the Addition of a thinner thereto.

Those Things thus added, are call'd *Diluents*, or *Dilutors*; such are common Wheys, Ptisans, and Juleps, which in respect of the Blood in a State of Viscidity are thinner, and therefore are said to thin, or *dilute* it.

Flower must be well *diluted*, to make it into Paste. Oker is *diluted* with Oil, to paint Beams, Doors, *&c.*

DIMENSION, is the Extension of a Body, consider'd as measurable. See Extension, and Measure.

Hence, as we conceive a Body extended, and measurable both in Length, Breadth, and Depth; we conceive a *Trine Dimension*, viz. *Length*, *Breadth*, and *Thickness*. The first call'd a *Line*, the second a *Surface*, the third a *Solid*. See Line, Surface, and Solid.

Dimension, is particularly used with regard to the Powers of the unknown Quantity of an Equation, which are call'd the *Dimensions* of those Quantities.

Thus in a simple Equation, the unknown Quantity is only of *one Dimension*, as $x = a + b : 2$. In a quadradic Equation it is of *two Dimensions*, as $x^2 = a^2 + b^2$. In a Cubic, of *three*, as $x^3 + a^3 = b^3$. &c. See Equation, Power, *&c.*

DIMINISH'D *Column*, in Architecture. See Column, and Diminution.

Diminish'd *Interval*, in Music, is a defective Interval, or an Interval which is short of its just Quantity by a lesser Semi-tone. See Interval, and Semi-tone.

A *diminiſh'd Interval* is mark'd with a flat, or a double *Dieſis*.

DIMINUTION, in Rhetoric, is the Augmenting, and Exaggerating what you have to ſay, by an Expreſſion that ſeems to weaken, and *diminiſh* it.

As, for Inſtance, when a Man ſays with a certain Tone, *This Woman is not ugly*; meaning, ſhe is very handſome.

Some Authors take *Diminution* in a ſtricter Senſe, *viz.* for ſaying leſs than a Man really means, as: *You are not indeed to be commended*; where a greater Reproach is ſecretly meant.

DIMINUTION, in Muſic, is when there are a Number of Words, which are to make Tones and ſeveral quick Motions in the Space of a Cadence; ſeveral Quavers, and Semiquavers, correſponding to a Crochet, or Minim.

DIMINUTIONS, in Heraldry, a Term uſed by the *Latins* for what we more uſually call *Differences*, and the French *Briſures*. See DIFFERENCES.

DIMINUTION, in Architecture, a Contraction of the upper Part of a Column, whereby its Diameter is made leſs than that of the lower Part. See COLUMN.

To attain thoſe two important Points in Architecture, Strength, and the Appearance of Strength, all Architects have made their Columns leſſer above than below; which is call'd their *Diminution*. Some have likewiſe made them a little bigger towards the middle than at the Bottom, which is call'd their *Swelling*. The *Gothic* Architects, indeed, obſerve neither *Diminution*, nor *Swelling*: Their Columns are perfectly Cylindrical; for which reaſon they are properly call'd *Pillars*, in Contra-diſtinction to *Columns*. See PILLAR.

The *Diminution* generally commences from one Third of the Height of the Column. Some make it begin from the very *Baſis*, and hold tapering to the Capital; but this has not ſo good an Effect. *Vitruvius* would have the *Diminution* of Columns differ according to their Height, and not according to their Diameter. Thus, a Column 15 Foot high, he *diminiſhes* a ſixth Part of its Diameter, and another of 50 Foot, only an 8th Part; but we don't find this Rule obſerv'd in the Antique.

The Difference of Orders, Mr. *Perrault* obſerves, does not infer a Difference of *Diminution*; there being ſmall and great *Diminutions* in different Works of the ſame Order: Excepting, however, the *Tuſcan*, which *Vitruvius* diminiſhes by a 4th Part; tho' *Vignola* only makes it a 5th, and the *Trajan* Column a 9th. The *Diminutions* are very differently adjuſted in the different antique Buildings, as well as in the different modern Authors.

DIMINUTIVE, in Grammar, a Word form'd from ſome other, to ſoften, or *diminiſh* the Force, and Effect thereof: Or, to ſignify a Thing that is little in its Kind.

Thus Bullock is a *Diminutive* of *Bull*; *Cellule* of *Cell*.

The *Italians* abound in *Diminutives*; Every Author being at Liberty to make as many as he pleaſes. The *French* are a good deal more reſerved in that reſpect; tho' their old Authors were every whit as licentious as the *Italians*, witneſs *Belleau*, &c.

In *Engliſh* we have very few; not that our Language is hard, and incapable of the ſoftreſt Expreſſions, but by reaſon we lay all our Tenderneſs in our Sentiments: Or rather, our Language is tender like a Perſon of Diſcretion, who always ſpeaks Senſe, even in ſpeaking of his Paſſion.

In *Latin*, *Italian*, *Engliſh*, and moſt other Tongues, *Diminutives* are form'd from Primitives, by the Addition of a few Letters, or Syllables: In *French*, the Caſe is frequently otherwiſe, the *Diminutive* being ſometimes ſhorter than the Primitive, ſometimes the ſame Length.

Some Grammarians call *at leaſt* a *diminutive* Conjunction, as ſerving to leſſen, or *diminiſh* the Force of what went before. See CONJUNCTION.

DIMISSORY *Letters*, *Dimiſſoriæ Literæ*, in the Canon Law, a Letter given by a Biſhop to a Candidate for holy Orders, born, or inhabiting in his Dioceſe; directed to ſome other Biſhop, and giving Leave for the Bearer to be ordain'd by him. See ORDINATION.

When a Perſon produces Letters of Ordination, or Tonſure conferr'd by any other than his own Dioceſan, he muſt at the ſame Time produce the *Letters Dimiſſory* given by his own Biſhop, on Pain of Nullity.

Letters Dimiſſory cannot be given by the Chapter *Sede vacante*; This being deem'd an Act of voluntary Juriſdiction, which ought to be reſerv'd to the Succeſſor.

DIMOCRITÆ, a Name given the *Apollinariſts*. Thoſe Hereticks at firſt held, that the Word only aſſum'd a human Body, without taking a reaſonable Soul like to ours. But being at length convinc'd by formal Texts of Scripture, they allowed, that he did aſſume a Soul, but without Underſtanding; the Word ſupplying the Want of that Faculty. From this Way of ſeparating the Underſtanding from the Soul, they became denominated *Dimocrites*, q. d. Dividers, Separaters, of διὰ, and μείρω, *I divide*. See APOLLINARIST.

DINNER, the great Meal, or that taken about the Middle of the Day. See MEAL.

Monks are ſaid to *dine* at eleven o' Clock, the common People about 12, and the Men of Buſineſs about 2. The *Grand Tartar*, Emperor of *China*, after he has *dined*, makes Publication by his Heralds, that he gives Leave to all the other Kings and Potentates of the Earth, to go to *Dinner*; as if they waited for his Leave.

The Word is form'd from the French *Diſner*, which *du Cange* derives from the barbarous Latin *diſnare*. *Henry Stephens* derives it from the *Greek* δείπνειν; and will have it wrote *Dipner*. *Menage* deduces it from *deſinare*, uſed for *deſinere*, as the *Italians* ſtill ſpeak it.

In the general, 'tis agreed to be the moſt ſalutary, to make a ſpare Supper, and to eat the more plentifully at *Dinner*; eſpecially for tender, valetudinary People. This is the Sentiment of the *Schola Salernitana*:

Ex magna Cœna Stomacho fit maxima Pœna:
Ut ſis Nocte levis, ſit tibi Cœna brevis.

Yet *Bernardinus Paternus*, an eminent *Italian* Phyſician, maintains the contrary in a Treatiſe expreſs. See FOOD.

The *Romans*, we are aſſur'd, never minded *Dinner*; but deferr'd their good Cheer to the Evening, which they made their grand Meal. *Dacier*.

DIOCESE, the Circuit, or Extent of the Juriſdiction of a Biſhop, or Arch-Biſhop. See BISHOP.

Dioceſe is alſo uſed in ancient Authors, &c. for the Province of a Metropolitan. See PROVINCE, and METROPOLITAN.

The Word is form'd from the *Greek* Διοίκησις, *Government*, *Adminiſtration*, form'd of διοικέω, which the ancient Gloſſaries render *adminiſtro*, *moderor*, *ordino*; Hence διοίκησις τῆς πόλεως, the *Adminiſtration*, or *Government of a City*.

Διοίκησις, *Dioceſis*, was originally a Civil Government, or Prefecture compoſed of divers Provinces. The firſt Diviſion of the Empire into *Dioceſes* is ordinarily aſcribed to *Conſtantine*; who diſtributed the whole *Roman* State into four, viz. the *Dioceſe* of *Italy*, the *Dioceſe* of *Illyria*, that of the *Eaſt*, and that of *Africa*. And yet long time before *Conſtantine*, *Strabo*, who wrote under *Tiberius*, takes Notice *Lib.* XIII. *p.* 432. that the *Romans* had divided *Aſia* into *Dioceſes*, and complains of the Confuſion ſuch a Diviſion occaſioned in Geography, *Aſia* being no longer divided by Peoples, but by *Dioceſes*, each whereof had a *Tribunal*, or Court where Juſtice was adminiſter'd. *Conſtantine*, then, was only the Inſtitutor of thoſe large *Dioceſes*, which comprehended ſeveral Metropoles, and Governments; the former *Dioceſes* only comprehending one Juriſdiction, or Diſtrict, or the Country that had Reſort to one Judge, as appears from this Paſſage in *Strabo*, and before *Strabo*, from *Cicero* himſelf, *Lib.* III. *Epiſt. ad famil. ep.* 9. and *Lib.* XIII. *ep.* 67.

Thus, at firſt, a Province included divers *Dioceſes*; and afterwards a *Dioceſe* came to comprize divers Provinces. In After-times the *Roman* Empire became divided into XIII. *Dioceſes*, or Prefectures; tho' including *Rome*, and the ſuburbicary Regions, there were XIV. Theſe XIV *Dioceſes* comprehended 120 Provinces: Each Province had a Proconſul, who reſided in the Capital, or *Metropolis*; And each *Dioceſe* of the Empire had a Conſul, who reſided in the principal City of the Diſtrict.

On this Civil Conſtitution, the Eccleſiaſtical one was afterwards regulated: Each *Dioceſe* had an Eccleſiaſtical Vicar or Primate, who judg'd finally of all the Concerns of the Church within his Territory. See ECCLESIASTICAL.

At preſent there is ſome further Alteration: For *Dioceſe* does not now ſignify an Aſſemblage of divers Provinces; but is limitted to a ſingle Province under a Metropolitan, or even to the ſingle Juriſdiction of a Biſhop.

Gul. Brito affirms *Dioceſe* to be properly the Territory, and Extent of a Baptiſmal, or Parochial Church; whence divers Authors uſe the Word to ſignifie a ſimple Pariſh. See PARISH.

DIOCLETIAN *Epocha*. See EPOCHA.

DIONYSIAN *Period*. See PERIOD.

DIONYSIACA, Feaſts held among the Ancients, in Honour of *Bacchus*, on the third Day of *September*. See FEAST.

The *Latins* call'd them *Liberalia*, and the *Feaſt of Vintages*, by reaſon *Bacchus*, *Liber* in the Heathen Syſtem is reputed the God of Wine; ſee *Varro* Lib. 5. See LIBERALIA.

The Word is form'd from the *Greek* Διονύσια, of Διονύσιος, *Bacchus*; and that of Διὸς, the Genitive of Ζεὺς, *Jupiter*, and *Nyſa*, a City in *Egypt* on the Frontiers of *Arabia*, where *Bacchus* is ſaid to have been educated by the Nymphs.

Others derive Διονύσιος from *Du*, and *Dy*, *Lord*; and *Niſa*, put by *Metatheſis*, or Tranſpoſition, for *Sina*; So that,

that, according to *Tzetzes*, Διονύσιος signifies no more than Δεσπότης καὶ ἄναξ Νύσσης, *Lord and King of Nyssa.*

DIOPTER, or *Dioptra*, in the Writers of Astronomy, is frequently used for the Holes pierced in the *Pinnulæ*, or Sights of an Alhidade. See SIGHTS.

DIOPTRA, among Surgeons, is an Instrument whereby one may see into the *Matrix*, and inspect any Ulcers therein, call'd also SPECULUM *Matricis*, and DILATATORIUM.

DIOPTRICKS, the Doctrine of refracted Vision, call'd also *Anaclasticks*. See VISION.

Dioptricks is properly the third Branch of Opticks; Its Office being to consider, and explain the Effects of Light refracted by passing through different *Mediums*, as Air, Water, Glass, &c. and especially *Lens's*. See OPTICKS.

The Word *Dioptricks* is originally *Greek*, being form'd of διὰ, *per*, through, and ὄψομαι, *I see*; whence διόπτροται should be to *see through any Thing*.

The Laws of Dioptricks, *see deliver'd under the Articles* REFRACTION, LENS, *&c. and the Application thereof, in the Construction of Telescopes, Microscopes, and other* Dioptrical *Instruments, under the Articles* TELESCOPE, MICROSCOPE, *&c.*

DIPHRYGES, in Pharmacy, the *Scoria*, Sediment, or Calx of melted Copper gather'd in the Furnace, when the Metal is run out. See SCORIA.

Dioscorides makes three Kinds of *Diphryges*: One call'd *Natural*, tho' made of a Kind of Clay, or Bole dried in the Sun: That made of Marcassite, or Pyrites burnt; and that of the *Fæces* of Copper. See COPPER.

It is moderately sharp, and astringent, and is reputed good for Ulcers that cicatrize with Difficulty.

The Word is form'd from the *Greek* δὶς, *twice*, and φρύγειν, *to roast*.

DIPLOE, in Anatomy, a spongy, medullary Substance, separating the two Tables of the *Cranium*, and together with them constituting the Skull. See CRANIUM.

The Substance of the *Diploe* being spongeous, easily imbibes the Blood, and is found separated into an infinite Number of little Cells of different Magnitudes, which receive little Branches of Arteries from the Brain, and give Passage to little Veins that proceed to the *Sinus's* of the *dura Mater*.

DIPLOMA, an Instrument given by some Colleges, and Societies, on Commencement to any Degrees, or passing Examination, as a Proof of Qualification for any Advancement to Title, or Power.

DIPPING-*Needle*, or *Inclinatory-Needle*, a Magnetical Needle, so hung, as that instead of playing horizontally, and pointing out North and South, one End *dips*, or inclines to the Horizon, and the other Points to a certain Degree of Elevation above it. See NEEDLE, and MAGNET.

Or, a *Dipping-Needle* may be defined with Mr. *Whiston*, to be a long straight Piece of Steel, (represented *Tab. Navigation Fig.* II.) every way equally pois'd on its Centre, and afterwards touch'd with a Load-stone; but so contriv'd, as not to play on the Point of a Pin, as does the common horizontal Needle, but to swing in a Vertical Plane, about an Axis parallel to the Horizon: And this in Order to discover the exact Tendency of the Power of Magnetism. See MAGNETISM.

The Inventor of the *Dipping-Needle*, Mr. *Whiston* observes, was, without all Question, an *Englishman*, *Robert Norman* by Name, a Compass-maker at *Wapping*, about the Year 1576; which is not only testified by his own Account, in his *New Attractive*; but was allow'd by Dr. *Gilbert*, and other Writers of that Time. The Occasion of the Discovery he himself relates: *viz.* that it being his Custom to finish, and hang the Needles of his Compasses, before he touch'd 'em; he always found, that immediately after the Touch, the North-Point would bend, or decline downward, under the Horizon; Insomuch, that to balance the Needle again, he was always forc'd to put a Piece of Wax on the South End, as a Counter-poize.

The Constancy of this Effect led him at Length to observe the precise Quantity of the *Dip*, or to measure the greatest Angle which the Needle would make with the Horizon.

This in the Year 1576 he found at *London* to be 71° 50′. But the *Dip* varies as well as the Horizontal Direction; and is now found, at the same Place, to be 75° 10′.

Burrows, *Gilbert*, *Ridley*, *Bond*, &c. endeavour'd to apply this Discovery of the *Dip*, to the finding of the Latitude; and the last Author, going further, likewise proposed the finding of the Longitude thereby: but for Want of Observations, and Experiments, he could go no length.

Mr. *Whiston*, being furnish'd with the further Observations of Col. *Windham*, Dr. *Halley*, Mr. *Pound*, Mr. *Cunningham*, *Pere Noel*, Mr. *Feuillee*, and his own, has improved very much on the Doctrine, and Use of the *Dipping-Needle*, brought it to more certain Rules, and endeavour'd in good Earnest to find the Longitude thereby.

In Order to this, he observes, I. That the true Tendency of the North, or South End of every Magnetic Needle is not to that Point in the Horizon to which the Horizontal Needle points, but towards another directly under it in the same Vertical; and in different Degrees under it, in different Ages, and at different Places.

II. That the Power by which a Horizontal Needle is govern'd, and all our Navigation ordinarily directed, is prov'd to be but one Quarter of the Power, by which the *Dipping-Needle* is moved; which should render the latter far the more effectual, and accurate Instrument.

III. That a *Dipping-Needle* a Foot long, will plainly shew an Alteration of the Angle of Inclination in these Parts of the World in half a Quarter of a Degree, or 7½ Geographical Miles; *i. e.* supposing that Distance taken along, or near a Meridian. And a Needle of 4 Foot, in two or three Miles.

IV. A *Dipping-Needle* 4 Foot long, in these Parts of the World, will shew an equal Alteration along a Parallel; As one of a Foot long will shew along a Meridian, *i. e.* this will with equal Exactness shew the Longitude, as that the Latitude.

This depends on the Position of the *Lines of equal Dip*, in these Parts of the World, which are found to lye about 14 or 15 Degrees from the Parallels.

Hence he argues, that as we can have Needles of 5, 6, 7, 8, or more Feet long, which will move with Strength sufficient for exact Observation; And since Microscopes may be applied to the Viewing the smallest Divisions of Degrees on the Limb of the Instrument, it is evident, the Longitude at Land may be found thereby to less than four Miles.

And as there have been many Observations made at Sea with the same Instrument by *Noel*, *Feuillee*, &c. which have determin'd the *Dip* usually within a Degree, sometimes within ½ or ⅓ of a Degree, and this with small Needles of 5, or 6, or at the most 9 Inches long; 'tis evident, the Longitude may be found even at Sea, to less than half a Quarter of a Degree.

Thus much premis'd, the Observation it self follows.

To find the Longitude, or Latitude by the DIPPING-*Needle*:

If the Lines of equal *Dip* below the Horizon be drawn on Maps, or Sea-Charts, from good Observations, it will be easy from the Longitude known to find the Latitude; and from the Latitude known to find the Longitude, either at Sea, or Land.

Suppose, *e. gr.* you were travelling, or sailing along the Meridian of *London*, and found the Angle of *Dip*, with a Needle of one Foot to be 75°; the Chart will shew, that this Meridian, and the Line of *Dip* meet in the Latitude of 53° 11′; which, therefore, is the Latitude sought. See LATITUDE.

Or, suppose you were travelling, or sailing along the Parallel of *London*, i. e. in 51° 32′ North Latitude, and you find the Angle of *Dip* to be 74°. This Parallel, and the Line of this *Dip* will meet in the Map in 1° 46′ of East Longitude from *London*; which is, therefore, the Longitude sought. See LONGITUDE.

DIPTERE, or DIPTERON, in the ancient Architecture, a Temple surrounded with two Rows of Columns, which from a Sort of Portico's, call'd *Wings*, or *Isles*. See TEMPLE.

The Word is *Greek*, form'd from δὶς, *twice*, and πτέρον, *Ala*, Wing.

DIPTHONG, in Grammar, a *double Vowel*, or the Union, or Mixture of two Vowels pronounced together, so as only to make one Syllable; as the Latin *ae*, or *æ*, *oe*, or *œ*; the *Greek* αι, the English *ai*, *au*, &c. See VOWEL, and SYLLABLE.

The *Latins* pronounced the two Vowels in their *Dipthongs* much as we do; with this Exception, that the two were not heard equally, but the one was somewhat weaker than the other, tho' the Division was made with all the Delicacy imaginable.

Among us, most of the Latin *Dipthongs* are lost in the Pronunciation: Their *æ* and *œ* are only spoke as *e's*; So also the English *ea*, *oa*, &c. tho' wrote with two Characters, are pronounced as simple Sounds.

In *English*, *French*, and divers other Languages, one may distinguish *Dipthongs* with regard to the Eyes, from *Dipthongs* with regard to the Ears.

A *Dipthong* with regard to the Eye, is form'd of two Vowels meeting in the same Syllable, whether the particular Sound of each of them be heard in the Pronunciation, whether the Sound of one of them be drown'd; or lastly, whether a new Sound different from either of them result from both. In the two latter Occasions, 'tis with some Impropriety, that we call them *Dipthongs*. The first only are real *Dipthongs*, as being such both to the Eye, and Ear.

Dipthongs with regard to the Ear, are either form'd of two Vowels, meeting in the same Syllable, or whose Sounds

are

are severally heard; Or of three Vowels in the same Syllable, which only afford two Sounds in the Pronunciation.

On this last Occasion, *Dipthongs* with regard to the Ear, are Tripthongs with regard to the Eye.

English *Dipthongs*, with regard both to the Eye and Ear, call'd *Proper Dipthongs*, are *ai*, as in *fair*; *au*, in *Laud*; *ee*, in *bleed*; *oi*, in *void*; *oo*, in *Food*; and *ou*, in *House*.

English *Improper Dipthongs*, or *Dipthongs* with regard to the Eye, are *aa*, pronounced only like *a*; as in *Aaron*; *ea*, like *a*, as in *Swear*, *Heart*; or like *e*, as *already*; or like *ee*, as *Veal*: *eo*, like *e*, in *Feoffee*; or like *o*, in *George*: *eu*, or *ew*, like *u*, as *Deuteronomy*: *ie*, like *e*, as *Cieling*, *Field*: *ei*, like *a*, in *feign*, or like *e*, in *Deceit*: *oa*, as in *Cloak*, *Boat*: *oe*, as in *Doe*, *Oeconomy*: *ue*, as in *guess*: And *ui*, as *guile*, *recruit*.

The Word is form'd from the Latin *Dipthongus*, and that from the *Greek* διφθόγγος, which signifies the same Thing.

DIPTOTES, in Grammar, a Kind of irregular Nouns, having no more but two Cases: As, *Suppetiæ*, *Suppetias*, &c. See CASE.

DIRECT, in Opticks. *Direct Vision* is that perform'd by *direct* Rays; in Contra-distinction to Vision by refracted, or reflected Rays. See VISION.

Direct Vision, is the Subject of Opticks, which prescribes the Laws, and Rules thereof. See OPTICKS.

DIRECT *Rays* are those which pass in right Lines from the Luminary to the Eye, without being turn'd out of their Rectilinear Direction by any intermediate Body, either opake, or pellucid. See RAY.

DIRECT, in Arithmetic. The Rule of three *Direct* is that opposite to the *Inverse*. In the *Direct*, the 4th Number required increases the Proportion; and in the Inverse diminishes it. See RULE *of Proportion*.

DIRECT, in Astronomy. We consider the Planets in three States, viz. *direct*, *stationary*, and *retrograde*. See PLANET.

They are said to be *direct*, when they appear to move forward, according to the Succession of the Signs; and *retrograde*, when they go the contrary Way. See RETROGRADATION, and STATION.

DIRECT, in Matters of Genealogy, is understood of the principal Line, or the Line of Ascendants, and Descendants; in Contra-distinction to the Collateral-Line. See LINE.

Thus the House of *Bourbon* is said to descend in a *direct* Line from St. *Louis*.

The Heirs in a *direct* Line always precede those in the Collateral Lines. See COLLATERAL.

A very good Historian uses the Phrase DIRECT *Speech*, or *Harangue*, when he introduces any one speaking, or haranguing of himself; And he calls it *Indirect*, when the Historian speaks, and only rehearses the chief Points of the Person mentioned.

DIRECT { *Erect* / *East* / *West* } *Dials* are those whose Planes lye directly open to the East, or West-Points of the Heavens, or parallel to the Meridian of the Place. See DIAL.

DIRECT *South*, or *North* { *Inclining* / *Reclining* } *Dials*. See DIAL.

DIRECT *Sphere*. See RIGHT *Sphere*.

DIRECTION, in Astronomy, the Motion, and other Phænomena of a Planet, when *direct*. See STATION, and RETROGRADATION.

DIRECTION, in Astrology, is a Kind of *Calculus*, whereby they pretend to find the Time wherein any notable Accident shall befal the Person whose Horoscope is drawn. See HOROSCOPE.

For Instance, having establish'd the Sun, Moon, or Ascendant, as Masters, or Significators of Life; and Mars, or Saturn, as Promisers, or Portenders of Death; *Direction* is a Calculation of the Time wherein the Significator shall meet the Portender.

The Significator they likewise call *Aphetes*, or Giver of Life; and the Promiser, *Anaeretes*, *Promissor*, or Giver of Death.

They work the *Directions* of all the principal Points of the Heavens, and Stars, as the Ascendant, Mid-heaven, Sun, Moon, and Part of Fortune. The like is done for the Planets, and fix'd Stars, but all differently, according to the different Authors.

DIRECTION, or *Line of Direction*, in Mechanicks, is particularly used for a Line passing from the Centre of the Earth thro' the Centre of Gravity of a Body, and the Support or *Fulcrum* that bears it. A Man must necessary fall down as soon as the Centre of his Gravity is out of the *Line of Direction*. See CENTRE, &c.

DIRECTION *of the Load-stone*, that Property whereby the Magnet always presents one of its Sides towards one of the Poles of the World, and the opposite Side to the other Pole. See MAGNET, and POLE.

The Attractive Property of the Magnet was shewn long before its *Directive*; and the *Directive* long before the Inclinatory. See NEEDLE, COMPASS, &c.

DIRECTION *Magnetical*, is also used in the general for the Tendency, or Turning of the Earth, and all Magnetical Bodies to certain Points. See MAGNET, and MAGNETISM.

The Situation of our Earth, we know, is such, that its Axis is in the Axis of the Universe; and therefore its Poles, and Cardinal Points, exactly correspond to those thereof. This Situation some account for hence, that it is the most commodious with regard to the Aspects, and Influences of the heavenly Bodies, and renders it the fittest Habitation for Man. Others hold this Position of the Earth an Effect of a Magnetic Virtue; and suppose a Celestial Pole, endued with a like Magnetic Virtue; which extending as far as our Earth, draws the correspondent Part thereof, the Pole, towards it self. See EARTH, and POLE.

Line of DIRECTION, in Mechanicks, that wherein a Body moves, or endeavours to proceed. See LINE.

Angle of DIRECTION, in Mechanicks, is that comprehended between the Lines of *Direction* of two conspiring Powers. See ANGLE.

DIRECTLY. In Geometry, we say, two Lines lie *directly* against each other, when they are Parts of the same right Line.

In Mechanicks, a Body is said to strike, or impinge *directly* against another, if it strike in a right Line perpendicular to the Point of Contact.

A Sphere, particularly, strikes *directly* against another, when the Line of *Direction* passes through both their Centres. See PERCUSSION.

DIRECTOR *Penis*, in Anatomy, a Muscle of the Penis, call'd more usually *Erector*. See ERECTOR.

DIRIGENT, a Term in Geometry, expressing the Line of Motion, along which the describent Line, or Surface is carried in the *Genesis* of any Plane, or solid Figure. See GENESIS.

Thus, if the Line AB (*Tab. Geometry Fig.* 33.) move parallel to it self, and along the Line AC, so that the Point A always keeps in the Line AC, a *Parallelogram*, as ABCD, will be form'd, of which the Side AB is the Describent, and the Line AC the *Dirigent*: So also, if the Surface ABCD be supposed to be carried along the Line CE, in a Position always parallel to it self in its first Situation, the Solid ADFH will be form'd, where the Surface AD is the Describent, and the Line CE is the *Dirigent*.

DIS, a Particle inseparable from divers Words; the Effect whereof is, either to give them a Signification contrary to what the simple Words had; As in *Disgrace*, *Disparity*, *Disproportion*, &c. Or to intimate a Separation, Detachment, Distribution, &c. as in *discerning*, *discoursing*, *distracting*, *disposing*, &c.

DISABILITY, in Law, is when a Man is *disabled*, i. e. made incapable to inherit, or take the Benefit, which otherwise he might do; which may happen four Ways, *viz.* by the Act of the Ancestor; by the Act of the Party; by the Act of Law; and by the Act of God.

DISABILITY *by the Act of the Ancestor* is, if a Man be attainted of Treason, or Felony; by this Attainder his Blood is corrupted, and thereby himself and his Children are *disabled* to inherit.

DISABILITY *by the Act of the Party* himself, as if one Man make a Feoffment to another, who then is sole, upon Condition, that he shall enfeoff a Third before N, and when such Feoffment is made, the Feoffee takes a Wife; he has by that *disabled* himself to perform the Condition, according to the Trust in him reposed, and therefore the Feoffer may enter, and out him. Also, if a Man be excommunicated, he cannot, during that Time, sue any Action, but shall be thereby *disabled*, and so in other Cases.

DISABILITY *in Act of Law*, is properly, when a Man by the sole Act of Law is *disabled*; Thus is an Alien born; and therefore, if a Man born out of the King's Ligeance, will sue an Action, the Tenant, or Defendant, may say, he was born in such a Country out of the King's Ligeance, and demand Judgment, if he be answered; for the Law is our Birth-Right, to which an Alien is a Stranger, and therefore *disabled* from taking any Benefit thereby.

DISABILITY *by the Act of God*, as when the Party is *Non Compos Mentis*, or, *Non sanæ Memoriæ*, which so *disables* him, that in all Cases, where he gives, or passes any Thing, or Estate out of him, after his Death it may be disannull'd, and voided.

DISC, DISK, or *Discus*, in Antiquity, a Kind of round *Quoit*, or Palet of Stone, or Metal, about a Foot over, used by the Ancients in their Exercises. See EXERCISE.

The *Discus* of the Ancients was flat and round, resembling the apparent Figure of the Sun.

The

The Exercise of the *Discus* was one of those practised in the Solemnities of their public Games: It consisted in pitching, or throwing a *Discus* either upward, or straight forward; and he who threw it highest, or furthest, bore away the Prize.

Those who practis'd at this Game, were call'd *Discoboli*, i. e. Throwers of the *Discus*.

Hyacinth, a Favourite of *Apollo*, playing at the *Discus* with that God, was kill'd by a Blow of *Apollo*'s *Discus*, which his Rival *Zephyrus* diverted from its Course, and cast on the Boy's Head.

The *Discus* was thrown by means of a little Cord made of Hair, as appears from *Claudian* Lib. II. in *Eutrop. Carm.* 20. v. 359. & *seq.* *Ovid* describes this Sport *Metam.* Lib. X. v. 175. The *Romans* learnt the Game of the *Discus* of the *Greeks*, and practis'd it among themselves.

Dempster, *Parallip. in Rosini Antiq. Rom.* L. V. C. I. and *Pet. Faber. Agonisticon* L. II. C. I. treat of the Diversion of the *Discus*.

DISC, DISK, or *Discus*, in Astronomy, the Body, or Face of the Sun, or Moon; such as it appears to us. See SUN, &c.

In a total Eclipse of either of those Luminaries, the whole *Disk* is obscured, or darken'd; In a partial Eclipse, only Part of them. See ECLIPSE.

Half the Moon's *Disk* was immerged in the Shadow of the Earth in such an Eclipse.

The *Disc* is conceiv'd to be divided into twelve equal Parts, call'd *Digits*; by means whereof it is, that the Magnitude of an Eclipse is measur'd, or estimated. Such an Eclipse was so many Digits, or Parts of the Sun, or Moon's *Disk*. Mercury and Venus are sometimes seen in the Sun's *Disk*, transiting the Sun's *Disk*. See TRANSIT.

DISC, in Opticks, the Magnitude of Telescope Glasses; or the Width of their Apertures, whatever their Figure be, whether Plain, Convex, Meniscus, &c.

DISC, *Discus*, in Botany, is applied to the central, or middle Part of radiated Flowers; as being round and plain like a Quoit. See DISCOUS *Flower*.

This is sometimes also call'd the *Pelvis*, or *Bason*.

The *Disc* is composed of several Fleurons perpendicularly placed.

DISC, in the *Greek* Liturgy, is the same Thing with the *Patena* in the *Latin*.

In the *Greek* Church the consecrated Bread is laid on a *Discus*, as in the *Latin* Church it is on a *Patina*. The *Discus* only differs from the *Patina*, in that it is bigger, and deeper; as resembling a Plate, which was the proper Signification of the Word *Discus* among the Ancients.

DISCENT. See DESCENT.

DISCERNING, an Act of the Mind whereby it distinguishes between Idea's. See IDEA.

On this Faculty of *Discerning*, depends the Evidence and Certainty of several, even general Propositions, which pass for innate Truths; and which in Reality flow from this clear *discerning* Faculty of the Mind, whereby it perceives two Idea's to be the same, or different.

In being able nicely to distinguish one Thing from another, where there is the least Difference, consists in great Measure the Exactness of Judgment, and Clearness of Reason, which is to be observ'd in one Man above another; which is quite opposite to Wit, which consists most in the Assemblage of Idea's, and putting those together with Quickness and Variety, which have the least Resemblance to form agreeable Visions: whereas Judgment separates carefully those Idea's, wherein can be found the least Difference, to prevent Error, and Delusion. To the well-distinguishing our Idea's, it chiefly contributes, that they be clear, and determinate; and when they are so, there will not arise any Confusion, or Mistake about them, tho' the Senses should convey them from the same Object differently on different Occasions. See JUDGMENT.

DISCIPLINE, primarily signifies Instruction and Government; But is figuratively applied to a stated Method of living, according to the Rules of some Profession.

Thus we say the *Military Discipline*, the *Ecclesiastic*, or *Church Discipline*, the *Regular*, or *Monastic Discipline*, &c.

We don't say *Civil Discipline*, but instead thereof, *Policy*. See POLICY.

DISCIPLINE, is also used in a peculiar Sense, for the Chastisement, or bodily Punishment inflicted on a Religious, who has been caught delinquent; Or even for that they voluntarily undergo, or inflict on themselves by way of Mortification. See PENANCE.

Among all the Austerities practised by the ancient Monks and Solitaries, *Dupin* observes, there is no mention made of *Discipline*: In Effect, it does not appear to have been in Use in Antiquity, unless to punish the Monks, who had been taken tripping.

'Tis commonly said to be St. *Dominic*, and *Peter Damian*, who first introduced the Use of *Discipline*: But *Fa. Mabillon* notes, that *Guy*, Abbot of *Pomposia*, and others, had practised it before them. 'Tis pretty certain, the Practice was first establish'd in the eleventh Century, with Design to redeem the Penances the Canons impos'd on divers Offences; and at length, they came not only to redeem for themselves, but also for others. See *Fa. Mabillon*.

DISCIPLINE, is also frequently used for the Instrument, wherewith a Monk chastises, or mortifies himself; which is usually made of Ropes, knotted Hair, or twisted Parchment. St. *Jerom* is painted with *Disciplines* of Iron Chains, with Spur Rowels, &c.

DISCLAIMER, in Law, a Plea, containing an express Denial, renouncing, or disclaiming of a Thing alledged: As if the Tenant sue a Replevin upon a Distress taken by the Lord, and the Lord avow, saying, that he holds of him as his Lord, and that he destrained for Rent not pay'd, or Service not perform'd; then the Tenant denying to hold of such Lord, is said to *disclaim*: And the Lord proving the Tenant to hold of him, the Tenant loses his Land.

Also, a Man denying himself to be of the Blood, or Kindred of another in his Plea, is said to *disclaim* his Blood. If a Man arraign'd of Felony, *disclaim* Goods; being clear'd, he loses 'em.

DISCONTINUANCE, an Interruption, Intermission, or Cessation of the Course of a Thing: As, *Discontinuance of Possession*; *of a Plea*; *Process*, &c.

The Effect of a *Discontinuance of Possession*, is this, that a Man may not enter on his own Land, or Tenement alienated, whatever his Right be to it, of himself, or by his own Authority; but must bring his Writ, and seek to recover Possession by Law. As if a Man alien the Lands he holdeth in Right of his Wife; Or if a Tenant in Tail make any Feoffment, or Lease for Life not warranted by the *Stat.* 32. *Hen.* VIII. by Fine, or Livery of Seisin; Such Alienations are call'd *Discontinuances*. See POSSESSION.

The Effect of *Discontinuance of Plea*, is, that the Opportunity of Prosecution is lost, and not recoverable, but by beginning a new Suit. For to be *discontinued*, and to be put off without a Day, are the same Thing; and nothing less than to be finally dismiss'd the Court.

If a Justice-Seat be *discontinued* by the not coming of the Justices, the King commonly renews the same by his Writ, &c. *Crompton Jurisd.* See PLEA.

DISCORD, in Music, the Relation of two Sounds which are always, and of themselves, disagreeable, whether applied in Succession, or Consonance. See SOUND.

If two simple Sounds are in such a Relation of Tune, that is, have such a Difference of Tune, as that being founded together, they make a Mixture, or compound Sound, which the Ear receives with Displeasure, it is call'd a *Discord*; As, on the contrary, if it receive it with Pleasure, it is call'd a *Concord*: And whatever two Sounds make an agreeable, or disagreeable Compound, they will have the same Effects respectively, if they be applied in Succession. See TUNE, CONCORD.

As Concords are denominated *Harmonical Intervals*; so may *Discords* be denominated *Unharmonical Intervals*. See INTERVAL.

Discords are distinguish'd into *Concinnous*, and *Inconcinnous Intervals*.

The *Concinnous*, by the Ancients call'd *Emmeli*, are such as are apt, or fit for Music, next to, and in Combination with Concords. These are Relations, which in themselves are neither very agreeable, nor disagreeable; and have only a good Effect in Music by their Opposition, as they heighten, and illustrate the more natural and essential Principles of the Pleasure we seek for; or, as by their Mixture, and Combination with them, they produce a Variety necessary to our being better pleas'd.

Notwithstanding this they are still call'd *Discords*; as the Bitterness of some Things may help to set off the Sweetness of others, and yet still be bitter.

The *Inconcinnous Discords*, by the Ancients call'd *Ecmeli*, are such as are never chosen in Music; as having too great a Harshness in them: Tho' even the greatest *Discord* is not without its Use. See CONCINNOUS, &c.

The Essential Principles of Harmony, Harmonical Intervals, or Concords, are but few, in Number only eight; the indefinite Number of other *Ratio's* are all *Discords*. Hence Mr. *Malcolm* shews the Necessity of taking some of the less untoward of these *Discords* into the System of Music: In order to this, he considers the Effect of having none but harmonical Intervals in the System of Music.

1. With respect to a single Voice; If that should move always from one Degree of Tune to another, so as every Note, or Sound to the next were in the *Ratio* of some Concord; the Variety, which is Life of Music, would soon be exhausted,

ſted. For to move by no other, than Harmonical Intervals, would not only want Variety, and ſo weary us with a tedious Repetition of the ſame Things, but the very Perfection of ſuch Relations of Sounds would cloy the Ear in the ſame Manner as ſweet and luſcious Things do the Taſte, which for that reaſon are artfully ſeaſon'd with the Mixture of Sower and Bitter. See DEGREES.

2. With reſpect to Muſic in Parts, *i. e.* when two, or more Voices joyn in Conſonance, the general Rule is, that the ſucceſſive Sounds of each be ſo order'd, that the ſeveral Voices ſhall be all Concords. Now there ought to be a Variety in the Choice of thoſe ſucceſſive Concords, and alſo in the Method of their Succeſſions; all which depends on the Movement of the ſingle Parts. So that, if theſe could only move in an agreeable Manner by harmonical Diſtances, there are but a few different Ways wherein they could move from Concord to Concord; and hereby we ſhould loſe much of the Raviſhment of Sounds in Conſonance. As to this Part then, the Thing demanded is a Variety of Ways whereby each ſingle Voice, or more in Conſonance, may move agreeably in the ſucceſſive Sounds, ſo as to paſs from Concord to Concord, and meet at every Note in the ſame, or a different Concord, from what they ſtood in at the laſt Note.

In what Caſes, and for what Reaſons *Diſcords* are allow'd, the Rules of Compoſition muſt teach; But only joyning theſe two Conſiderations, *&c.* we ſee how imperfect Muſic would be without any other Intervals than Concords. See COMPOSITION.

Beſide the *Concinnous Diſcords* uſed deſignedly in Muſic; there are ſeveral other *Diſcord* Relations, which happen unavoidably, in a Kind of accidental, and indirect Manner. Thus in the Succeſſion of ſeveral Notes there are to be conſider'd not only the Relations of thoſe which ſucceed others immediately, but alſo of thoſe betwixt which other Notes intervene. Now the inmediate Succeſſion may be conducted ſo as to produce good Melody; yet among the diſtant Notes there may be very groſs *Diſcords*, that would not be tolerable in immediate Succeſſion, and far leſs in Conſonance. And ſuch *Diſcords* are actually contain'd in the Scale of Muſic. Thus, taking any one Species, *e. gr.* that with the greater Third, and marking the Degrees betwixt each Term and the next; and tho' the Progreſſion be melodious, as the Terms refer to one common Fundamental, yet there are ſeveral *Diſcords* among the mutual Relations of the Terms, *e. gr.* from 4th to 7th *g* is 32 : 45; and from 2d *g* to 6th *g*, is 27 : 40; and from 2d *g* to 4th is 27 : 32 all *Diſcords*.

The Species of Counterpoint, wherein there is a Mixture of *Diſcords*, is call'd *Figurative Counterpoint*; Of which there are two Kinds: That wherein the *Diſcords* are introduced occaſionally, to ſerve as Tranſitions from Concord to Concord; and that wherein the *Diſcord* bears a chief Part in the Harmony. See FIGURATIVE *Counterpoint*.

Upon the unaccented Parts of the Meaſure, *Diſcords* may tranſiently paſs without any Offence to the Ear: This is call'd *Suppoſition*, by reaſon the tranſient *Diſcord* ſuppoſes a Concord immediately following. See SUPPOSITION.

The *Harmony of Diſcords* is that wherein the *Diſcords* are made Uſe of as the ſolid and ſubſtantial Part of the Harmony. For by a proper Interpoſition of a *Diſcord*, the ſucceeding Concords receive an additional Luſtre. Thus the *Diſcords* are in Muſic what the ſtrong Shades are in Painting. See HARMONY.

The *Diſcords* are the 5th when joyn'd with the 6th; the 4th joyn'd with the 5th, the 9th is of its own Nature a *Diſcord*; ſo is the 7th.

The *Diſcords* are introduced into the Harmony with due Preparation, and muſt be ſucceeded by Concords; which is commonly call'd the *Reſolution of the Diſcord*. The *Diſcord* is prepar'd by ſubſiſting firſt in the Harmony in the Quality of a Concord; that is, the ſame Note which becomes the *Diſcord* is firſt a Concord to the Baſs-Note immediately preceding that to which it is a *Diſcord*.

The *Diſcord* is *reſolved* by being immediately ſucceeded by a Concord deſcending from it by the Diſtance only of greater 2d, or leſſer 2d.

Apple of DISCORD, *Pomum Diſcordiæ*, a Phraſe uſed to ſignify the Subject, or Occaſion of ſome Miſunderſtanding in a Society.

It is borrow'd from Mythology: The Poets feign, that at the Marriage of *Thetis* and *Peleus*, the Goddeſs of *Diſcord* threw a golden Apple whereon were wrote theſe Words, *To the Faireſt*, which immediately ſtirr'd up a Diſſention between *Juno*, *Pallas*, and *Venus*, each pretending a Title to the Apple.

DISCOVERY, in Dramatic Poetry, a Manner of Unravelling a Plot, or Fable, very frequent in Tragedies, Comedies, and Romances; wherein, by ſome unforeſeen Accident, a *Diſcovery* is made of the Name, Fortune, Quality, and other Circumſtances of a principal Perſon, before unknown. See UNRAVELLING, FABLE, *&c.*

A late Author defines the *Diſcovery* by a Change, which bringing us from Ignorance to Knowledge, produces either Love or Hatred in thoſe whom the Poet has a Deſign to make either happy, or miſerable. For a *Diſcovery* ſhould never be in vain, by leaving thoſe who thus *diſcover* one another in the ſame Sentiments they were in before: In Effect, thoſe *Diſcoveries*, which are immediately follow'd by a *Peripetia*, or Change of Fortune of ſome principal Character, whereon the Unravelling depends, are the moſt beautiful. See PERIPATIA.

One of the fineſt *Diſcoveries* ever brought upon the Stage, is that of *Oedipus* in *Socrates*; For the minute he finds himſelf the Son of that *Jocaſta*, who was then his Wife, he becomes of the moſt happy, the moſt miſerable of all Men.

There are three Sorts of *Diſcoveries*: The firſt by certain Marks in the Body, either natural, or accidental; Such is that of *Ulyſſes*, who having receiv'd a Wound in the Thigh by a Boar, before the *Trojan* War, is *diſcover'd* by the old Nurſe, upon waſhing his Legs after his Return home *incognito*.

The ſecond by Tokens; as the Caſket of Things, which the Prieſts found with *Ion* when he was expoſed, *diſcovers Creuſa*, whom he was a-going to kill, to be his Mother.

The third is made by Remembrance, that is, when the Sight, or Hearing of any Thing occaſions us to recollect our Miſfortunes. Thus, when *Ulyſſes* heard *Domodocus* ſing his Actions at *Troy*, the Memory of them ſtruck him, and drew Tears from his Eyes, which *diſcover'd* him to *Alcinous*.

But the fineſt Sort is that, which ariſes from the Subject, or Incidents of the Fable; as that of *Oedipus* from his exceſſive Curioſity; and the Letter that *Iphigenia* ſent by *Pylades*. See FABLE.

DISCOUNT, in Commerce, a Sum deducted, or retain'd in Hand, upon paying a greater. It is much uſed among Mechanics, and Manufactures, who keep Workmen, Journymen, Labourers, *&c.* for the Sums advanced them before hand, which are *diſcounted* when the Payments are made in Courſe.

DISCOUNT, is particularly uſed for an Allowance made on a Bill of Exchange, or any other Debt not yet become due; to induce the Acceptor, or Debtor, to advance the Money. See EXCHANGE.

Diſcounts are alſo frequently made for the Payment of dubious, or bad Debts. See REBATE.

DISCOUNT is alſo us'd among Merchants when they buy Commodities on Truſt, with a Condition, that the Seller ſhall *diſcount* ſo much with him *per Cent.* for each Payment made before the Time expir'd. See PROMPT *Payment*.

The *Sieur de la Porte* diſtinguiſhes between theſe two Kinds of *Diſcount*: The firſt, or that upon Bills of Exchange, is reckon'd like the Exchange, at the Rate of ſo much *per Cent.* e. gr. at 2 *per Cent. Diſcount* on an hundred, there is only ninety eight Pound to pay: whereas that on Commodities, is not only laid on the hundred Pound, but on the hundred and *Diſcount* added together. So that *diſcounting* for Goods at 10 *per Cent.* there is only 8 abated on an hundred and eight, and not on the hundred. This laſt, he ſays, is the true *Diſcount*.

DISCOUNT, is alſo us'd for the Tare, or Waſte of any Commodity, Sum, *&c.* There are 12 Shillings *Diſcount* in this Bag.

The Cag of Oil ſent me from *Spain* leaks; there are fifty Pints *Diſcount*. See TARE, *&c.*

DISCOURSE, an Operation of the human Mind, whereby it paſſes, or procedes from one Thing to another; that is, from a known Thing to an unknown. See REASONING.

The School-men define it an Act of Cognition, whereby the Mind deduces one Thing from another: This it does, when in Conſequence of an Aſſent given to one Propoſition, is gives Aſſent to another; So that *Diſcourſe* conſiſts in a Dependancy of Aſſents; and ſuppoſes ſuch an Order betwen the Acts, that that belonging to the Conſequent ariſes from that belonging to the Antecedent. So that the Intellect is then ſaid, *diſcurrere*, to diſcourſe, when from an Aſſent to one, or more Propoſitions, it draws an Aſſent to another.

The Object of *Diſcourſe*, therefore, or that about which the Intellect is employ'd in *Diſcourſing*, is the Connexion of Extreams conſider'd with regard to ſome Third, or *Medium*: Thus, when it judges, that every reaſonable Animal is riſible, affirming, that there is a Connexion between Riſibility, and Rationality; and then finds, there is likewiſe a Connexion betwixt Man and reaſonable Animal; And afterwards gathering from the Connexion found between Riſible and Man, with Rational, that Man and Riſible have likewiſe a Connexion, as both are connected with Rational: it is ſaid to *diſcourſe*.

Hence it appears, that *Diſcourſe*, whereof Men uſe to value themſelves, does really betray the Infirmity of the human Underſtanding; as it denotes a Chain or Scale of ſeveral

ral successive Acts of Cognition necessary to arrive at a Truth. So that there is no *Discourse* in God, who understands all Things truly. See KNOWLEDGE.

DISCOUS *Flower*. Botanists reckon two Kinds of Plants with a *Discous Flower*: 1. Such as have the Flower compounded, and the Seed pappous, but the Leaves and Stalks not milky, when broken. 2. The *Corymbiferous* Plants, whose Flowers are compounded into a *Discous* Figure, but their Seeds are not pappous.

Of the former Kind, are the Flea-Banes, Ragweeds, Groundsels, &c. and of the latter, are Daisies, Chamomile, Tansy, Wormwood, &c.

DISCRETE, or *Disjunct Proportion*, is, when the *Ratio* between two Pairs of Numbers, or Quantities is the same, and yet there is not the same Proportion between all the four Numbers. See RATIO, and PROPORTION.

Thus if the Numbers 6 : 8 : : 3 : 4, are consider'd, the *Ratio* between the first Pair, 6 and 8, is the same as that between 3 and 4, and therefore these Numbers are *Proportional*; but it is only *discretely*, or *disjunctly*, for 6 is not to 8, as 8 to 3; that is, the Proportion is broken off between 8 and 3, and is not continued all along, as it is in these following, which are call'd *Continual Proportionals*, viz. 3 : 6 : : 12 : 24.

DISCRETE *Quantity*, is such, as is not continued, and joyn'd together. See QUANTITY.

Such is a Number, whose Parts being distinct Units, cannot be united into one *Continuum*; for in a *Continuum* there are no actual determinate Parts before Division, but they are potentially infinite; wherefore it is usually and truly said, that Continued Quantity is divisible in *Infinitum*. See CONTINUITY.

DISCRETIVE *Propositions*, are those, where various Judgments are made, and denoted by the Particles *but*, *notwithstanding*, or Words of the like Nature either express'd, or understood. See PROPOSITION.

Thus, Fortune may deprive me of my Wealth, *but* not of my Virtue; They who cross the Seas change their Climate, *but* not their Disposition, are call'd *Discretive Propositions*.

DISCUS, among the Ancients, a Name which was given to a round Shield, consecrated to the Memory of some famous *Hero*; and hung up in the Temples of their Gods, as a Trophy of some great Action. From the Figure of this *Discus*, or rather of that, which the *Greeks* and *Romans* used to divert themselves with, especially at their public Games, and which is a round Quoit of Brass, comes the Word so much in Use among Astronomers, *viz.* the *Disk* of the Sun, or Moon. See DISC.

DISCUSSION, in Matters of Literature, signifies a clear Treating, or Handling of any Point, or Problem; where the Word imports a *Shaking off* the Difficulties with which it was embarrass'd. In which Sense we say, such a Point was well *discuss'd*, when it was well treated of, and clear'd up.

DISCUSSION, is also used in a Medicinal Sense, for a Dispersing the Matter of any Tumor, or Swelling in the Body.

In which Sense the Surgeons define it an Evacuation of some thin Matter gather'd in any Part, by insensible Perspiration. See DISCUTIENTS.

DISCUTIENTS, or DISCUSSIVES, in Medicine, are Remedies proper to open the Pores, and evacuate the redundant Humours of the Body, by insensible Perspiration; or to discharge Flatulencies, Swellings, &c. by shaking, jumbling, &c.

Discutients are the same with what we otherwise call *Diaphoreticks*, and *Resolvents*. See DIAPHORETICK, CARMINATIVE, &c.

DISDIAPASON, in Music, a compound Concord, described by *Fa. Parran* as Quadruple of 4 to 1, or of 8 to 2. See CONCORD.

The *Disdiapason* is produced when the Voice goes from the first Tone to the 15th, and may be call'd a *Fifteenth*.

The Voice ordinarily does not go further than from its first Tone, to the *Disdiapason*, i. e. it does not go beyond the Compass of a double Octave, for the *Disdiapason* is an Octave doubled. See OCTAVE.

The Voice may sometimes rise several Tones above a *Disdiapason*, but the Effort or Struggle disfigures it, and makes it false.

The antient Scale, or Diagramma, only extended to a *Disdiapason*. See DIAGRAMMA.

DISDIAPASON-*Diapente*, in Music, a Concord in a Sextuple *Ratio* of 1 to 6.

DISDIAPASON-*Diatessaron*, a compound Concord in the Proportion of 16 to 3.

DISDIAPASON-*Diton*, a compound Consonance in the Proportion of 10 to 2.

DISDIAPASON-*Semi-diton*, a compound Concord in the Proportion of 24 to 5.

DISEASE, in Medicine, that State of a living Body, wherein it is prevented the Exercise of any of its Functions, whether Vital, Natural, or Animal: Or, *Disease* is an Indisposition contrary to Nature, whereby the Action of some Part is immediately injured. See FUNCTION.

An ingenious Author of a late *Latin* Treatise, *de Purgatione*, holds the Essence of a *Disease* to consist in a Want of that *Equilibrium* between the solid, and fluid Parts, which is necessary to the Maintenance of Health: Others add, that all *Diseases* arise either from too lax, or too strict a Tension of the Fibres. See HEALTH.

Of all Animals, Man is subject to the most *Diseases*; and of them, the studious and speculative are most exposed thereto. Other Animals have their *Diseases*; but they are in small Number: Nor are Plants without them; tho' their Maladies scarce exceed half a score.

The Antients deified their *Diseases*: *Vossius de Idolol. Lib.* VIII. *C.* V.

Several Authors have given us very compendious Theories of *Diseases*; reducing 'em all to some one general Disaffection: Thus, *du Broue* deduces all the *Diseases* of the human Frame from the *Scorbutus*; *Musgrave* from the *Arthritis*; and Dr. *Woodward* from the *Bile*: Others imagine them the Effects of a *Pocky Virus*, which has lurk'd in the Seed ever since the Sin of *Adam*: *Helmont*, and *Serreinus* the *Dane*, take 'em to depend on some extraneous *Ferment*, form'd in, or out of us. Lastly, it appearing from the Observations of *Pliny*, *Kircher*, *Langius*, and *Bononio*, that there are little Worms in feverish Blood, Pustules, Carbo's, and the Itch; divers Physicians have took Occasion to suspect, that all the *Diseases* arise from *Worms*. See WORMS, ITCH, &c.

A *Disease* is well describ'd to be a deprav'd, and disorderly State of the solid, and fluid Parts, whereby all, or some of the Functions either of the Body, or Mind, or both, are either abolish'd, or impair'd.

For some *Diseases* only impair the Use of the Part, as the *Ophthalmia*, *Gout*, &c. Others destroy it entirely; as the *Gutta serena*, *Palsy*, &c. Some affect the whole Body, as the *Fever*, *Apoplexy*, *Epilepsy*, &c. Others only impair a Part, as the *Asthma*, *Colic*, *Dropsy*, &c. Some only affect the Body, as the *Palsy*; Others disturb the Mind, as *Melancholy*, *Delirium*, &c. Lastly, others affect both the Body and Mind, as the *Mania*, *Phrenzy*, *Pains*, &c.

As the Actions, or Conditions of the Body, so also the *Diseases*, or Defects thereof, may be reduced to three general Heads: *viz.* 1. *Diseases of the Solid Parts*: 2. *Those of the fluid Parts*: And 3. *Diseases compounded* of both.

A Popular *Syllabus* of *Diseases* may be given, as follows: The Solid Parts, *i. e.* the Bones and Flesh may be disorder'd five Ways: *viz.* Render'd turgid, by *Tumors*; Cut, with *Wounds*; Corroded by *Ulcers*, or *Caries's*; Removed out of their Places, as in *Hernia's*, *Descents*, and *Dislocations*; Or *discontinued* by *Fractures*, and *Contusions*.

Diseases of the Fluids are either in the Mass of the *Blood*, or the *Spirits*: Those of the Blood are reducible to two Kinds; those that thicken, and inspissate, or which amounts to the same, retard its Motion; and those which attenuate, and dissolve, and of Consequence accelerate it.

To this latter Kind belong *Fevers*, and feverish Affections alone: All the other *Diseases* of the Blood belong to the former. See FEVER.

In too thick a State of the Blood, its Principles are too crass, and its Molecules too big, whence a *Lentor*, lazy Motion, and even Stoppage, particularly in the sinous Passages of the Glands: Hence *Obstructions*, *Inflammations*, *Schirrhus's*, *Sarcoma's*, *Verrucæ*, *Pustules*, *Oedemata*, *Impetigines*, and other *Tumors*, and *Congestions* both in the *Viscera*, and *Habit* of the Body: And hence, again, *Drowsiness*, *Melancholy*, *Hypochondriacal* Affections, &c. If this thick Blood be too much replete with sharp acid Salts, it will destroy the Texture of the Parts, and break out in *Ulcers*, as in *Phthysical*, *Scrophulous*, *Scorbutic*, and *Venereal* Diseases, *Gangrenes*, *Carbo's*, *Cancers*, and other Erosive Tumors, according to the Quality and Degree of Saltness and Acrimony. And from the same Source arise *Cephaalgia's*, *Cardialgia's*, *Colicks*, *Gouts*, *Rheumatisms*, *Pleurisies*, &c. which by abrading the solid Substance, frequently emaciate the Body.

The *Diseases* of the Animal Spirits, arise either, 1. from an Intermission, or Retardation of their Motion; or a Diminution of Quantity; or, 2. from a Disorder in their Organism, or Quality.

To the first Class are reduced the *Catalepsis*, *Apoplexy*, *Coma*, *Carus*, *Palsy*, *Stupor*, *Tremor*, &c. To the second, belong the *Mania*, *Phrensy*, *Delirium*, *Foolishness*, *Melancholy*, *Vertigo*, *Spasms*, *Epilepsy*, *Hysteric* Affections, *Horror*, &c. Add, that as all *Diseases* of the *Blood* arise from external Causes, *viz.* some one or more of the Non-Naturals, as Food, Air, Evacuation, &c. so those of the *Spirits* generally proceed from Disorders of the Blood.

Lastly, the *Diseases* of the Fluids, whether those in the Blood, or Spirits, are seldom confin'd long thereto; but presently come to disturb, and impede some of the Functions affected to the solid Parts; and at last corrupt the Substance of the Solids themselves. Hence *Compound Diseases*; which are infinitely various.

But

But the Learned *Boerhaave* furnishes us a much more accurate, and scientifical Division of *Diseases*.

Diseases *of the Solids*, he considers, either as of the simple, and *Similar* Parts; Or of the *Organical*.

I. *Similar Diseases*, are, 1. Those of the last, and smallest *Fibres*; which are reducible to too great *Tension*, and *Laxness*, too great *Strength*, or *Weakness*, and a *Solution of their Continuity*. See Fibre, &c.

2. Those of the *Membranes*, which being only Assemblages of the Fibres just mention'd, are subject to the same Disorders. See Membrane.

3. Those of the last, and *smallest Canals*, which are formed of such Membranes.

4. Of the *Membranes* composed of such Canals.

5. Of *Canals* composed of such Membranes, which are all the greater Vessels of the Body.

6. Of the *solid Parts*, which are composed of Canals compress'd, and grown together, so as to be void of Humour to distend 'em; Or Canals growing into one consistent Part, the Humour hardening together with the Vessel that contain'd it.

Lastly, Supposing these Parts all sound, *Diseases* may befal them with respect to their Structure, from a Vice, or vicious Application of the Matter of Nutrition. See Solid.

II. *Organical Diseases*. An Organical Part consisting of the several simple Parts abovemention'd, and fitted to perform any Office by means of some Humour contain'd in it; may be consider'd, either in it self, as a solid Part, or with respect to the Humour it contains: In the first View, *Organical Diseases* are reducible to four Classes.

1. *Disorders* in the *Figure*, and the Circumstances thereof, as Roughness, Solidity, Cavity, &c. To this belong the ἀναγόμωσις, when one Vessel opens into another; the Διαπόδησις, when a Rupture is made; and Διαιρέσις, when a Breach is occasion'd by Corrosion; the ἐμφράξις, which is a total Obstruction of the Cavity, by a viscous, grumous Matter; the γενοχωρία, or Narrowness of the Passage; the θλίψις, or Compression of the Sides of the Cavity; συμφύσις, when the Sides are quite closed up; and συνίζησις, when the Vessel is so emptied, that the Sides falling together, the Cavity is lost.

2. In the *Number*, where 'tis either deficient or redundant: But the Parts seldom err in this respect, so as to occasion a *Disease*.

3. In *Magnitude*; to which belong *Nodes*, *Exostoses*, and *Callus's*.

4. In the *Situation*, and *Connexion*; as when the *Ligaments* are too long, or too short, when broke, or deprav'd; also *Distortions*, *Luxations*, *Subluxations*, *Herniæ*, or Ruptures in the Groin, Scrotum, Bladder; *Procidentiæ* of the Womb, Bladder, and Rectum; Disorders of the Tendons, and Muscles, particularly their flying out of their Places; the Relaxation, or Rupture of the Membranous Ligament that should retain 'em.

Lastly, there is a *Disease* common both to *Similar*, and *Organical* Parts, call'd *Solution of Continuity*.

Diseases *of the Fluids*, considering those Fluids simply, and in themselves, may be reduced to Disorders in respect of Quantity, and Quality: But considering them as contain'd in Solids, they may err, too, in Place and Proportion.

As to the first, such an Abundance of the Humours, as disturbs the Animal Functions, is call'd a *Plethora*: *Diseases* from the Defect of Humours, we scarce know of any.

As to the second, such Quality of the Humours, as disturbs the Animal Functions, is call'd *Cacochymia*. Now, this is either in the Fluids consider'd in themselves, their own Parts, and Composition; Or consider'd as they concur towards constituting some Part of the Body.

If the Morbid Quality be consider'd in the Particles of the Humour, it must either consist in an Augmentation of *Bulk*, whence the *Emphraxis*, *Atrophy*, *Symphysis*, and *Synezesis*; or in the Diminution thereof, as in the *Diapnoe*, and *Ceneangeia*: Or an Increase of *Solidity*, whence too great an *Attenuation*; or a Decay thereof, whence a *Lentor*, *Stagnation*, and *Cohesion*: Or in the *Figure*, as when of Spherical it becomes Angular, and consequently, with respect to the Part 'tis applied to, sharp; whence *Acrimonies*, both acid, alcaline, muriatic, ammoniac, saponaceous, vitriolic, &c. and *Oleosities*: Or in *Rigidity*, and *Flexibility*: Or in *Elasticity*: Or in *Cohesion*, and Divisibility.

Again, all the Juices consider'd together, the principal Disorders they are subject to, are too great *Fluidity*, or Tenacity: too much *Velocity* in their Vessels, or too little.

Lastly, considering the Fluids as contain'd in the Solids, there arise divers *Diseases* merely from their changing of Place; which may be reduced to two Classes, *viz.* the grosser Humours *intruding* themselves into the finer Canals; and the Humours *extravasating*, or getting out among the solid Parts; whence *Inflammations*, *Aneurisma's*, *Varices*, *Enchymoses*, *Oedema's*, *Pustules*, *Dropsy*, *spungeous Membranes* of the Head, Breast, Abdomen, and Uterus; and *Emphysema's*.

Add, that the Humours collected, and stagnating among the Parts, grow *putrid*, *purulent*, *ichorous*, *erosive*, and *sharp*; and thus destroy the tender Stamina, or Solids; whence *Sinus's*, *Fistula's*, *Ulcers*, *Gangrenes*, *Sphacelus's*, *Cancers*, and the like.

These are the prime Differences of the *Diseases* of the Body; and from these arise most of the rest: So that they may be regarded, not only as *Diseases*, but as the Causes of *Diseases*. *See each further explain'd under its respective Article in this Work.*

There is another Division of *Diseases*, in Use among Physicians, taken from certain external Accidents, which are common to a great many different *Diseases*: which Distinction, too, has its Use; tho' they generally run it too far. *Diseases*, then, are distinguish'd, 1. With respect to their *Cause*, into *Idiopathy*, *Sympathy*, *Protopathy*, *Deuteropathy*, *Hereditary*, *Connate*, and *Acquired*. 2. With respect to their *Subject*, into *Diseases* of *old Age*, *Children*, *Adults*, *Men*, *Women*, *Maids*, *Pregnant*, *Parturient*, *Endemical*, *Epidemical*, &c. 3. With respect to *Duration*, into *most acute*, which terminate in four Days; *Acute*, in twenty; and *Chronical*, which are all those of longer Continuance. 4. With respect to *Seasons*, into *Vernal*, *Autumnal*, *Continued*, and *Intermitting*. 5. With respect to their *Effects*, into *Benign*, *Malignant*, *Curable*, *Incurable*, *Mortal*, and *Contagious*. And 6. With respect to their *State*, into *Beginning*, *Progress*, *State*, *Declension*, and *End*.

Diseases *of Plants*. Monsr. *Tournefort*, in an express Dissertation on this Subject, in the *Memoires de l'Academie des Sciences*, refers all the *Diseases of Plants* to the following Causes:

1. The too great Abundance of the Nutritious Juice. 2. The Defect, or Want of this Juice. 3. Some ill Qualities it acquires. 4. Its unequal Distribution in different Parts of the Plant. And 5. External Accidents.

The *Diseases* principally observed by our Gardeners, are, 1. *Barrenness*, when the Tree, tho' outwardly fresh and healthy, bears no Blossoms; or if it does, they fall; or if they set, the Fruit drops e're it come to Maturity. See Barrenness.

2. *Blasting of the Buds*, occasion'd by a Frost happening when the Leaves and Blossoms are wet. By this means the Pores are shut, and the vital Juices suffocated; when, if the Sun break out on a sudden, they turn yellow, with round fiery Specks growing on them; whence frequently procede Tumours like Warts, which rotting, grow full of Maggots. Mr. *Mortimer* adds, that the Want of Rain at Blossoming Time, often occasions the Dropping off of the Blossoms for Want of Sap; he, therefore, recommends the watering 'em.

3. *Consumption*, proceeding from a Want of Sustenance, through the Failure of the nourishing Juices; or from Obstructions of the Veins, and Roots; or ill Digestion, and Secretion of Humours, &c.

4. The *Moss*; an Account of which, see under the Article Moss. See also Parasite.

5. The *Jaundice*, which, tho' it does not hinder the Tree from appearing sound, yet when it begins to sprout, the Leaves become of a whitish green, and as they grow bigger, turn yellow. It frequently arises from external Causes, as the Mildew; but chiefly from a stony, or chalky Soil, impregnated with an acid Salt.

6. *Mildew*, a Kind of Epidemical *Disease*, most frequent and fatal in the Spring Season. It is properly a corrosive, and nipping Dew, proceeding from pent up Vapours now exhaled, and returned back on the tender opening Buds, which infects 'em by its Acrimony, and obstructs the Circulation of the nutritive Juices. By which means the Leaves begin to fade, and wither, and both the Blossoms and Fruit are much prejudiced. See Mildew.

7. A *thick Fog*, or too abundant Dew, *Agricola* assures us, occasions the same *Disease* as the Mildew, only in a less Degree.

8. *Falling of the Leaves*, which happens when the Trees sprouting too soon, are either surprized by excessive Heat, or Cold.

9. *Uredo*, or *Scorching*, of which there are two Kinds; the first happening upon the Fall of a subtil Dew, or small Rain, immediately followed by the piercing Beams of the Sun, which suddenly closes the Pores before dilated, and burns up the Leaves: The second happening from the like Fervour in the internal Parts of the Tree, *viz.* in the Pith; occasion'd by some inner Failing. *Agricola* imputes it to the Fault of the Gardeners, who in transplanting Trees, frequently cut off the lesser Filaments, and Roots, as also the greater Roots, without covering the Wounds with Wax, or the like.

10. *Scurf*, or *Leprosy*, a *Disease* chiefly of the Bark, caused by a too great Dilatation of the Pores, whereby too much perspirable Matter transuding it, hangs and hardens on the Bark, which by this means chaps, and cracks, and thus a Sort

a Sort of Lepra is form'd, Perspiration obstructed, &c. Add, that this scurfy Skin proves a Harbour for Vermine, which live both on the Bark and Tree.

11. The *Worm*, a little Animal generated in the corrupted Substance of the Bark, Blossoms, Fruit-Leaves, Pith, and Roots. Mr. *Gentil* mentions another Kind, call'd *Cockchaffers*, which stick to the Roots of young tender Trees, and Bark, and kill them. There is a third Sort, call'd *Breezes*, or Gad-flies, which gnaw the Roots. The Worm is a very frequent *Disease*; whereby young hopeful Trees are all of a sudden brought to languish, and decay.

12. *Rotten Roots*, occasion'd chiefly by their being planted too deep. This *Disease* is incurable.

13. *Blights*. A particular Account whereof, see under BLIGHT.

DISEMBOGUE. When a Ship passeth out of the Mouth of some Gulph, they call it *disemboguing*: They say also of a River, that at such a Place, or after it has run so many Leagues, it *disembogues* it self into the Sea.

DISFRANCHISE, the contrary to *Enfranchise*; signifying the taking away one's Freedom, or Privilege. See ENFRANCHISE.

DISHERISON, an old Word of the same Import as *Disinheriting*.

Our Lord the King, considering his own Damage, and Disherison *of the Crown*, &c. *Stat.* 8. *Rich.* II. *Hen.* IV.

DISHERITOR, a Person who *disinherits*, or puts another out of his Inheritance.

The Sheriff shall forthwith be punish'd as a Disheritor *of our Lord the King, and his Crown.* Stat. 3. *Edu.* I.

DISJUNCT *Proportion*. See DISCRETE *Proportion*.

DISJUNCTIVE, something that separates, or *disjoyns*.

Thus *Or* and *Neither* are call'd *Disjunctive Conjunctions*, which, in binding a Discourse, do yet separate the Parts thereof. See CONJUNCTION.

Aut Cæsar, aut Nullus; Either *Cæsar*, or nothing. He neither advanced, nor gave back.

Disjunctive Conjunctions may also be call'd *Partitive*, *Distributive*, and *Alternative*.

DISJUNCTIVE *Propositions*, in Logic, are compound Propositions consisting of two Members, or Parts connected by a *Disjunctive Conjunction*. See PROPOSITION.

The first Proposition of a *Dilemma* is always a *Disjunctive Proposition*:

You must either obey the King, or be a Rebel.
But you must not be a Rebel,
Therefore you must obey the King.

DISK. See DISC.

DISLOCATION, the putting a Bone out of Joint, by some Violence; usually call'd by the Physicians, *Luxation*. See LUXATION.

DISMEMBER'D, in Heraldry, is applied to Birds that have neither Feet, nor Legs: As also to Lions, and other Animals, whose Members are separated.

DISMES, *Decimæ*, in our Law-Books, *Tiths*. See TITH.

DISMOUNTING, in the Military Art, the Act of *Unhorsing*.

Thus, to *dismount* the Cavalry, is to make 'em a-light. They also say to *dismount* the Canon, when they are thrown off the Carriages, and broken; Horses are also *dismounted* when they are render'd unfit for Service.

DISORIENTATED, a Term applied to a Thing that is turned from the East, or some other of the Cardinal Points. See CARDINAL *Point*.

The Dials drawn on this Stone, do not go well, by reason it has been moved, and *disorientated*: It no longer looks East and West.

But the Word is most frequently us'd in a figurative Sense, for the *Disconcerting*, or putting a Man out of his Way, or Element. Speak of Law to a Physician, or of Physic to a Lawyer, and they will all be *disorientated*.

An. Marvel uses the Word *disoccidentated*, instead of *disorientated*.

Geneva had *disoccidentated* our Geographer.

The Word is form'd of the privative Particle *de*, and *Oriens*, East.

DISPARAGEMENT, is properly used for the Matching an Heir, &c. in Marriage, below his, or her Degree, or Condition; or against the Rules of Decency.

The Word is a Compound of the privative Particle *Dis*, and *Par*, equal.

DISPATCH, a Letter on some Affair of State, or other Business of Importance, sent, with Care and Expedition, by a Courier express.

The Business of *Dispatches* lies on the Secretaries of State, and their Clerks. The King gives Directions to his Ministers abroad by *Dispatches*.

The Word is also us'd for the Packet, or Mail containing such Letters. *The Courier has deliver'd his* Dispatches.

The *French*, during the Reign of the late *Louis* XIV. had a *Conseil des Depeches*, Council of Dispatches, held in the King's Presence, at which the *Dauphin*, the Duke of *Orleans*, the Chancellour, and four Secretaries of State assisted.

DISPAUPER. When any Person, by reason of his Poverty, (attested by his own Oath, of not being worth 5 Pound, his Debts being pay'd) is admitted to sue *in Forma Pauperis*; If afterwards, before the Suit be ended, the same Party have any Land, or personal Estate fall to him; or that the Court, wherein his Suit is depending, thinks fit, for that, or other reason, to take away the Privilege from him; he is then said to be *dispauper'd*. See FORMA *Pauperis*.

DISPENSARY, or, as some write it, DISPENSATORY, a Name given to divers Collections of compound Medicines, wherein are specified the Ingredients, Proportions, and the chief Circumstances of the Preparation and Mixture; the same with what we otherwise call a *Pharmacopœia*, or *Antidotary*.

Such are the *Dispensaries* of *Mesue*, *Cordus*, the College of Physicians at *London*, *Quincy*, &c.

The Apothecaries, in and about *London*, are oblig'd to make up their compound Medicines according to the Formules prescrib'd in the *College Dispensary*; and are enjoyn'd to keep always ready in their Shops all the Medicines there enumerated.

DISPENSARY, is likewise used for a Magazin, or Office of Medicines kept ready to be *dispensed* at the prime Cost of the Ingredients, for the Benefit of the sick Poor.

Of which Kind we have two or three in *London* maintain'd by the College of Physicians. One at the College it self, first begun in the Year 1696; another in St. *Peter*'s Alley, *Cornhill*; and a third in St. *Martin*'s Lane: where the best Medicines are sold for their intrinsic Value, and Patients are advised every Day, but Sunday, at one of the three Places. See COLLEGE.

DISPENSATION, in Law, &c. a Permission to do something contrary to the standing Laws: Or a Relaxation, or Suspension of a Law on some just Occasion.

Some confound *Dispensation* with *Equity*; but they are very different Things: For Equity is only the Correction, or Modification of a Law, which is too general; But a *Dispensation* suspends the Obligation of the Law it self, and can, therefore, be only given by the Legislative Power. See EQUITY.

The King grants *Dispensations* of Age to some Officers, to be admitted before the Legal Age.

But the greatest Dealer in *Dispensations* is the Pope, who claims the Office *Jure divino*, and extends it to every Thing. Indeed, the more sober of the *Romanists* themselves deny, that he can give a *Dispensation* for a Thing contrary either to the divine Law, or the Law of Nature; and confine him to what is contrary to positive Laws, as to Things relating to Fasts, Marriages, holding several Benefices, &c. And even in these Things they put Bounds: Thus, say they, a *Dispensation* in the first Degree of Affinity, as of Father and Daughter, Brother and Sister, would be abusive, and null. But 'tis certain, the Papal See does not apprehend it self under any such severe Restrictions.

The Right of giving *Dispensations*, they thus argue: 'Tis certain, the Church has a Power to make Laws; A Power, which the Apostles themselves exercised, and which their Successors have continued to exercise after them. Whoever can make a Law, can annul it; and much more can he *dispense* with it in certain Cases: The Church, then, may *dispense* with the Laws it self has made; And we find it to have done accordingly, in all Ages. In the first Times, it left it to the Judgment of the Bishops to *dispense* with the Length of the Penance enjoyn'd by the Canons; And the IV Council of *Carthage* allows of the Translation of Bishops, and Priests, when the Churches Occasion should require it.

The Author of a Treatise of *Dispensations*, printed in 1713, reduces all the Causes of *Dispensation* to the Necessity and public Service of the Church, and not to the private Advantages of the Persons who sollicit the *Dispensation*; otherwise, Causes, he observes, will never be wanting.

The same Author maintains, that *Dispensations* should be dispatch'd *gratis*: *Marcellus* II. he observes, was resolv'd to have it so. That Pope used to say, that if *Dispensations* were just, they should be granted *gratis*; and if unjust, they were to be refused. And Pope *Pius* V. refused a large Sum of Money offer'd by a *Spanish* Lord for a *Dispensation*, which that Pope granted, because he judg'd it just. The 9 Prelates, whom *Paul* III. consulted for the Reformation of the Court of *Rome*, recommended the same Thing; Except for *Dispensations* of Marriages contracted malgre some known Impediment.

DISPENSATION, in Pharmacy, the Disposition, and Arrangement of several Medicines, either simple or compound.

all weigh'd in their proper Doses, or Quantities; in order to be employ'd in the making a Composition.

DISPERSION, in Dioptricks. *Point of Dispersion* is a Point from which refracted Rays begin to diverge, when their Refraction renders them divergent. See DIVERGENT.

It is call'd *Point of Dispersion*, in Opposition to the *Point of Concourse*, which is the Point wherein converging Rays concur after Refraction. See CONCOURSE.

But the latter is more usually call'd *Focus*, and the former *Virtual Focus*. See VIRTUAL, and FOCUS.

DISPLAYED, in Heraldry, is understood of the Position of an Eagle, or other Bird, when it is erect, with its Wings expanded, or spread forth. See EAGLE.

DISPONDEE, in the *Greek*, and *Latin* Poetry, a double Spondee; or a Foot consisting of four long Syllables; as *Juramentum*, *Mœcenates*. See SPONDEE.

DISPOSITION, in Rhetoric, is defined by *Cicero*, the Distribution of the Things, or Arguments invented, or found out, into a proper Order; Or a due placing, or ranging the several Parts of a Speech, or Discourse. See DISTRIBUTION.

The *Disposition* is one of the grand Parts, or Divisions of Rhetoric. See RHETORIC.

The *Disposition* is of the same Necessity in Oratory, as the marshalling an Army, in order to a Battel; or a beautiful Composition in Architecture, Painting, &c. *Horace* enjoyns it expresly in Poetry. *Singula quæque Locum tenant sortita decenter.*

The *Disposition*, then, is the Order, or Arrangement of the Parts of an Oration: which Parts are usually reckon'd four, *viz.* the *Exordium*, or Beginning; the *Narration*; the *Confirmation*; and the *Peroration*, or *Conclusion*.

Thu' some make 'em six: *viz.* the *Exordium*, *Division*, *Narration*, *Confirmation*, *Confutation*, and *Peroration*; as indicated in that Popular Verse,

Exorsus, narro, seco, firmo, refuto, peroro.

But the Division is more naturally referr'd to the Exordium; and the Confutation to the Confirmation.

The *Disposition* is either *Natural*, or *Artificial*. *Natural*, is the Order the Parts are above rehearsed in. *Artificial*, is, when for some particular reason we recede from the Order of Nature. See each Part under its proper Article, EXORDIUM, &c.

DISPOSITION, in Architecture, is the just placing of all the several Parts of an Edifice, according to their proper Order.

DISPROPORTION, a Term of Relation, implying a Want of Proportion, or Suitableness. See PROPORTION, DEFORMITY, &c.

DISPUTE, or DISPUTATION, in the Schools, &c. a Contest, or Combat, either by Word or Writing, on some Point of Learning, or Religion, for a Degree, Prize, Exercise, or even for the mere sake of Truth, or Advantage of a Party, or the Honour of a Triumph.

The *Port Royalists* take Occasion to observe, that nothing gives so many different Lights, and Openings for discovering the Truth, as *Disputing*. The Movements of a Mind employ'd singly in the Examination of any Subject, are usually too cool, and languid: It needs a certain Degree of Heat, to wake its Idea's. Now, by the Oppositions in a Dispute, we come to find wherein the Difficulty lies, and the *Impetus* the Mind has acquired, enables it to surmount it.

DISQUISITION, an Enquiry into the Nature, Kinds, and Circumstances of any Problem, Question, or Topick; in order to gain a right Notion of it, and to discourse clearly about it.

DISSECTION, in Anatomy, the Operation of cutting, and dividing the Parts of an Animal Body, with a Knife, Scissors, &c. in order to see, and consider each of them a-part. See ANATOMY.

The Ancients made *Dissections* of living Men; as we read of *Herophilus*, and *Erisistratus*, and in our own Times, of *Carpus*, and *Vesalius*.

Yet, *le Gendre* observes, that the *Dissection* of a human Body, even dead, was held a Sacrilege till the Time of *Francis* I; And the same Author assures us, he has seen a Consultation held by the Divines of *Salamanca*, at the Request of *Charles* V. to settle, whether or no it were lawful, in Point of Conscience, to *dissect* a human Body, in order to learn the Structure thereof.

DISSEISIN, in Law, an unlawful Dispossessing a Man of his Land, Tenement, or other immoveable, and incorporeal Right.

Hence, the Assises are call'd *Writs of Disseisin*, which lie against *Disseisors* in any Case: Whereof some are term'd *little Writs of Disseisin*, as being Vicontial, that is, suable before the Sheriff in the County Court, because determinable by him without Assise. See ASSISE.

Disseisin is of three Sorts; viz. *Simple Disseisin*, committed by Day, without Force, and Arms: and *Disseisin by Force*; for which see DEFORCEOR; and FRESH *Disseisin*. See also RE-DISSEISIN, and POST-DISSEISIN. *Wrongful Disseisin* is no Descent in Law.

DISSEISOR, he who *disseiseth*, or puts another out of his Land: As *Disseisee*, is he who is so put out.

For the Difference between *Disseisor*, and Intruder, and Deforceor, see INTRUDER, and DEFORCEOR.

DISSEMINATE *Vaccum*. See VACUUM *Disseminatum*.

DISSENTERS, a general Denomination, of equal Import with *Non-conformists*.

It expresses certain Sects, or Parties in *England*, who in Matters of Religion, Church Discipline, and Ceremonies, *dissent* from, or disagree with the Church of *England*, and have a Toleration by Law for the same. See TOLERATION.

Such, particularly, are the *Presbyterians*, *Independents*, *Anabaptists*, and *Quakers*. See PRESBYTERIANS, INDEPENDENTS, &c.

DISSIMILAR *Leaves*, are the two first Leaves of any Plant at its first shooting out of the Ground. See LEAVES.

They are thus call'd, because they usually are of different Form from the common Leaves of the grown Plant.

These Dr. *Grew* observes to be nothing but the very Lobes of the Seed expanded, and thus advanced. See GERMINATION.

Their Use is for Protection of the Plume; which, being young, and tender, is thus guarded on each Side, and has also some Rain, and Dew gradually convey'd down to it by this means. See PLUMULA.

DISSIMILAR, in Anatomy. Authors divide the Parts of the Body into *Similar*, and *Dissimilar*.

Dissimilar Parts, by some call'd *Compound*, and *Organical*, are such as may be divided into various Parts of different Structure, &c. Thus the Hand is divisible into Veins, Muscles, Bones, &c. whose Divisions are neither of the same Nature, nor Denomination. See SIMILAR.

DISSIMILITUDE, in Geometry, &c. See SIMILITUDE.

DISSIMILITUDE, or, *a Dissimili*, in Rhetoric, &c. an Argument, wherein, from *dissimilar*, or unlike Things, other *dissimilars* are deduced.

Thus *Cicero*, *Si barbarorum est in diem vivere*; *Nostra Concilia sempiternum tempus spectare debent*. *Catullus* furnishes a very beautiful Argument from *Dissimilitude*:

Soles occidere & redire possunt,
Nobis cum semel occidit brevis Lux,
Nox est perpetua una dormienda.

DISSIPATION, in Physicks, an insensible Loss, or Consumption of the minute Parts of a Body; or, properly, the Flux whereby they fly off, and are lost. See EFFLUVIA.

Thus, we don't say *Dissipation*, but *Loss* of Blood, in speaking of the Blood lost at a Wound, or in any other sensible Manner: On the contrary, we say with Mr. *Lemery*, the *Dissipation* of the Spirits is in greater Abundance than that of the solid Parts, consequently the Reparation thereof must be more frequent and copious.

DISSOLVENT, something that *dissolves*, i. e. divides, and reduces a Body into its smallest Parts. See DISSOLUTION.

Thus, *Aqua Regia* is the *Dissolvent* of Gold; *Aqua fortis* of Silver, and other Metals; Water, of Salts and Gums; Spirit of Wine, of Resins; Spirit of Vinegar, of Pearls, Corals, &c.

Sea-Salt is found the proper *Dissolvent* of Gold: This, in almost any Form, whether as a Fluid, or a Solid, or a Spirit, does the Business: Accordingly, this is the *Basis*, or fundamental Ingredient of *Aqua Regia*. See GOLD, and *Aqua* REGIA.

So Nitre is the proper *Dissolvent* of Silver; and has that Effect, in whatever Form applied: and accordingly is the *Basis* of *Aqua fortis*. See SILVER, and *Aqua* FORTIS.

Spirit of Nitre added to that of Sea-Salt, makes it *dissolve* Gold the better: But Spirit of Sea-Salt added to Spirit of Nitre, disables it from having any Effect on Silver.

Mr. *Homberg*, however, in the Memoirs of the *French* Academy, furnishes an Instance of a *Dissolution* of Silver, made by the *Dissolvent* of Gold. An *Aqua Regia* may be composed of Spirit of Salt, and Spirit of Nitre, only in such small Quantity each, that they may float separately in a third Liquor, and not meet often enough to unite, at least not in any Quantity. This Water may be made so weak, as not to *dissolve* Gold, but only extract a slight yellow Tincture from it, that scarce takes off any thing of the Weight of the Metal: Nor will it *dissolve* Silver; as being too weak: So that both Metals are safe from it. But this *Aqua Regia*, after it has *dissolved* Gold as far as it can do, that is, after it has extracted a yellowish Tincture from it, is in a Condition to *dissolve* Silver. This Phænomenon Mr. *Homberg* accounts for hence: That Spirit of Salt, whether alone, or joyn'd with Spirit of Nitre, being employ'd in keeping those few Particles of Gold dissolved; will not meddle with the Silver: Which, by this means, receiving

receiving the Impreſſion of the greater Quantity of Spirit of Nitre alone, is *diſſolved* thereby. But the Experiment cannot be inverted, i. e. *Aqua Regia* cannot begin with *diſſolving* Silver lightly firſt, and afterwards *diſſolve* Gold; by reaſon Spirit of Nitre does not hinder Spirit of Salt from acting on Gold; as Spirit of Salt does Spirit of Nitre from acting on Silver. See GOLD, and SILVER.

Diſſolvents are uſually call'd by the Chymiſts *Menſtruums*. See MENSTRUUM.

Univerſal DISSOLVENT. See ALCAHEST.

DISSOLUTION, in Phyſicks, a Diſcontinuation, or *Analyſis* of the Structure of a mixt Body; whereby, what was one, and contiguous, is divided into little Parts, either homogeneous, or heterogeneous.

Diſſolution, then, is a general Name for all Reductions of concrete Bodies into their ſmalleſt Parts, without any regard either to Solidity, or Fluidity: Tho' in the uſual Acceptation of the Word among Authors, it is reſtrained to the Reduction of ſolid Bodies into a State of Fluidity; which is more properly expreſſed by *Solution*, as a Branch of *Diſſolution*. See SOLUTION.

According to the Opinion of *Fr. Tertius de Lanis*, now confirm'd by that of the Learned *Boerhaave*, in his Chymiſtry, the Power, or Faculty of *Diſſolving*, is lodged in Fire alone. See FIRE.

Other Fluids, commonly ſuppoſed *Diſſolvents*, only produce their Effect by means of the fiery *Spiculi* they abound withal. Even Air, which is judg'd a powerful *Menſtruum*, owes all its Force to the Rays of Light diffuſed therein. See AIR, and MENSTRUUM.

Sir *Iſaac Newton* accounts for all *Diſſolutions*, and the ſeveral Phænomena thereof, from the great Principle of *Attraction*; And, in Effect, the Phænomena of *Diſſolution* furniſh a great Part of the Arguments, and Conſiderations, whereby he proves the Reality of that Principle. See ATTRACTION.

A Specimen of that great Author's Way of Philoſophizing on the Subject of *Diſſolution* take as follows:

When Salt of Tartar *diſſolves* by lying in a moiſt Place, is not this done by an Attraction between the Particles of the Salt of Tartar, and thoſe of the Water, which float in the Air in Form of Vapours? And why does not common Salt, or Salt-petre, or Vitriol do the like; but for Want of ſuch an Attraction. And when *Aqua fortis*, or Spirit of Vitriol, pour'd on Steel-filings, *diſſolves* the Filings, with a great Heat, and Ebullition; is not this Heat and Ebullition effected by a violent Motion of the Parts? And does not that Motion argue, that the acid Parts of the Liquor ruſh towards the Parts of the Metal with Violence, and run forcibly into its Pores; till getting between the outmoſt Particles, and the main Maſs of Metal, they looſen 'em therefrom, and ſet 'em at Liberty to float off into the Water? When a Solution of Iron in *Aqua fortis* diſſolves *Lapis Calaminaris*, and lets go the Iron; Or a Solution of Copper *diſſolves* Iron immerſed in, and lets go the Copper; Or a Solution of Mercury in *Aqua fortis* pour'd on Iron, Copper, Tin, or Lead, *diſſolves* the Metal, and lets go the Mercury; does not this argue, that the acid Particles of the *Aqua fortis* are attracted more ſtrongly by the *Lapis Calaminaris*, than by Iron; by Iron than by Copper; by Copper than by Silver; and by Iron, Copper, Tin, and Lead, than by Mercury? And is it not for the ſame reaſon, that Iron requires more *Aqua fortis* to *diſſolve* it, than Copper; and Copper more than the other Metals; And that of all Metals Iron is *diſſolved* moſt eaſily, and is moſt apt to ruſt; and next after Iron, Copper? When *Aqua fortis* diſſolves Silver, and not Gold; and *Aqua Regia* diſſolves Gold, and not Silver; may it not be ſaid, that *Aqua fortis* is ſubtile enough to penetrate the Pores of Gold as well as of Silver, but wants the attractive Force to give it Entrance; and the ſame of *Aqua Regia*, and Silver? And when Metals are *diſſolved* in acid *Menſtruums*, and the Acids in Conjunction with the Metal, act after a different Manner; So as that the Taſte of the Compound is milder than that of the Simples, and ſometimes a ſweet one; is it not becauſe the Acids adhere to the Metallic Particles, and thereby loſe much of their Activity? And if the Acid be in too ſmall a Proportion to make the Compound diſſoluble in Water; will it not, by adhering ſtrongly to the Metal, become inactive, and loſe its Taſte; and the Compound become a taſteleſs Earth? For ſuch Things as are not diſſoluble by the Moiſture of the Tongue, are inſipid. *Newt. Opt. in Calce.*

Monſr. *Geoffroy* furniſhes ſome curious Experiments on *Cold Diſſolutions*, in the *Memoires de l'Academie Royale des Sciences*; which have been tranſlated in the *Philoſophical Tranſactions*: 'Tis nothing ſurprizing, that a ſimple *Diſſolution* ſhould be cold; that common Water, for Inſtance, wherein Sea-Salt, or *Sal Ammoniac*, or Vitriol, has been caſt, ſhould become the colder, by the Mixture of ſuch Salts; It being obvious, that the Salts, being of themſelves deſtitute of Motion, and coming to ſhare that which the Fluidity gives the Water, muſt diminiſh it, when they become intimately mix'd therewith by *Diſſolution*; And it is generally agreed among Philoſophers, that Heat is a Motion, and Cold a Ceſſation, or at leaſt a Diminution of Motion.

Yet, notwithſtanding this general Principle; 'tis no great Wonder all *Diſſolutions* are not Cold, as thoſe are of all volatile Alcalies in common Water; But that ſome are Hot, as thoſe of all fix'd Alcalies. The Difference may be accounted for hence, that all fix'd Alcalies having been calcined by a vehement Fire, they have impriſon'd, and retain'd in their Pores ſome of the Particles thereof.

But it is ſurprizing, that *Diſſolutions* accompanied with Fermentation, *i. e.* where the Matters boil, and ſwell, and that with a great Noiſe, ſhould be cold, and make the Thermometer fall, when immerged therein.

This Coldneſs, with ſo conſiderable an Augmentation of Motion, is ſomewhat extraordinary. But this is not all: For, of theſe cold Fermentations, there are ſome that emit hot Vapours. Thus it is, with a Mixture of Oil of Vitriol, and *Sal Ammoniac*; for a Thermometer being plunged in the Mixture, and another a little higher, to receive only the Fumes thereof; the firſt Thermometer is ſeen to fall very haſtily, through the Coldneſs of the Fermentation, and the latter to riſe through the Heat of the Vapours. Monſr. *Geoffroy* adds an Experiment, ſhewing that cold Water is render'd ſtill colder for a few Moments, by throwing a large Quantity of live Coals therein.

DISSOLUTION, in Chymiſtry, Pharmacy, &c. the Reduction of a compact, hard, or ſolid Body into a fluid State, by the Action of ſome fluid *Menſtruum*, or *Diſſolvent*. See MENSTRUUM, and DISSOLVENT.

Dr. *Quincy* gives us a Mechanical Account of *Diſſolution*, in the Inſtance of Salt *diſſolved* in Water, which is the moſt ſimple Operation that falls under this Head. This Motion he aſcribes to that attractive Force, which is ſo very extenſive in Natural Philoſophy, that there is no Kind of Matter, but what is under its Influence. It may be obſerved, that the Corpuſcles of Salts, which are the moſt ſimple of any, are withal very minute, and for their Bulk very ſolid, and, therefore, exert a very ſtrong attractive Force, which, *cæteris Paribus*, is proportional to the Quantity of Matter. Hence it comes to paſs, that the Particles of Water are more ſtrongly attracted by the ſaline Particles, than they are by one another: The Particles of Water, therefore, cohering but looſely, and being eaſily moveable, approach the Corpuſcles of Salts, and run, as it were, into their Embraces; and the Motion of them is quicker, or ſlower, according to their leſs, or greater Diſtances; the attractive Force in all Bodies being ſtrongeſt, at the Point of Contact. Therefore, if Salt be thrown into the middle of a Diſh full of Water, we ſhall find the aqueous Particles, which are in the middle of the Diſh, ſharp, and pungent to the Taſte; but the Water upon the Sides of the Veſſel almoſt inſipid; ſo that, when ſuch a Motion once ariſes, the aqueous Particles are carried with the ſame Force towards the Salts; and the Moment of them is to be eſtimated from the *Ratio* of their Weight, and Celerity, conjunctly. By the Force of this Impulſe, they open to themſelves a Paſſage into the Pores of the Salts, which are very numerous; and at length break, and divide their Texture, that all Coheſion of their Parts is deſtroyed: Hereupon, being ſeparated, and removed to a convenient Diſtance from one another, they are diſperſed, and float here and there about the Water. See FUSION, SALT, SOLUTION, &c.

DISSOLUTION of Metals, &c. by Fire, is particularly call'd *Fuſion*. See FUSION.

DISSOLUTION *of the Blood*, is an Affection of that Humor, directly oppoſite to *Coagulation*. See COAGULATION.

The *Diſſolution* is ſuch a Comminution of the fibrous Parts of the Blood, as indiſpoſes it for that Separation of the *Craſſamentum* from the ſerous Part, which always enſues in healthy Blood on its cooling out of the Body. See BLOOD.

This *Diſſolution* is frequently the Conſequence of malignant, and peſtilential Fevers, and ſhews it ſelf in *Petechiæ*, or Purple Spots; alſo of certain Poiſons, particularly the Bites of venomous Beaſts, &c. See FEVER, POISON, &c.

DISSOLUTION *of Parliament*. See PARLIAMENT, and PROROGATION.

DISSONANCE, or DISCORD, in Muſic, a falſe Conſonance, or Concord. See CONCORD, and CONSONANCE.

A *Diſſonance* is properly the Reſult of a Mixture, or Meeting of two Sounds, which are diſagreeable to the Ear: Such are *Ditones*, *Tritones*, *Falſe Fifth*, *Redundant Fourth*, *Seventh*, &c.

Diſſonances are uſed in Muſic, and have a good Effect therein; tho' it be only by Accident. See DISCORD.

DISSUASION, in Rhetoric. See PERSUASION.

DISSYLLABLE, a Word of two Syllables; as *Fortune*, *Lament*, &c. See FOOT.

The Spondee, Trochee, Jambus, and Pyrrichius, are *diſſyllabic* Feet. See SPONDEE.

DI-

DISTANCE, is properly the shortest Line between two Points, Objects, &c.

The Word is also us'd figuratively for an Interval, not only in respect of Place, but also of Time, and Quality.

Thus, we say the *Distance* of the Creation of the World from the Nativity of *Jesus Christ* is upwards of 4000 Years: The *Distance* between the Creator and Creature, is infinite.

For the Vision of DISTANCE, or the manner wherein we come by the Idea of *Distance* in Objects. See VISION.

DISTANCES, in Geometry, are measur'd by the *Chain*, *Decempeda*, &c. See CHAIN, &c.

Inaccessible DISTANCES are found by taking Bearings thereto from the two Extremes of a Line whose Length is given. See PLAIN TABLE, THEODOLITE, &c.

DISTANCE, in Geography, is the Arch of a great Circle intersected between two Places.

To find the *Distance* of two Places A and B, (*Tab. Geography Fig.*4.) far remote from each other: Assume two Stations C and D, from which both the Places A and B may be seen, and with a proper Instrument find the Angles ADC CDB ACD and DCB, and measure the *Distance* CD.

Then in the Triangle ACD we have two Angles given ACD and ADC, together with a Side, from which, by an easy Rule in Trigonometry, found under the Article TRIANGLE, we find AD.

So also in the Triangle CBD the Base DC, and the Angles at the same being given, DB is found.

Lastly, in the Triangle ADB, having the Sides AD and DB, together with the included Angle ADB, the *Distance* required AB is found by the Rules given for the Resolution of Triangles. See TRIANGLE.

The Height of a remote Object being known, to find its *Distance*, when the Eye first descries it; And again, the Height of the Eye given, to find the *Distance* to which the Eye can reach on the Surface of the Sea, or Land: Add the Height of the Eye AB, (*Fig.* 5.) to the Semi-Diameter of the Earth BC, by which you have AC: And since in the Rectangle Triangle ADC, the Sides AC and DC are given, the Angle DCA is found by the common Rule for Resolution of Triangles; the Quantity of which Angle forms the Arch DB; which Arch converted into Feet, or the like, gives the *Distance* required.

Suppose, *E. gr.* the Height of the Eye AB; which is somewhat less than in a Man of ordinary Stature. Since BC is 19695539, AC will be 19695544, and the Angle DAB will be found 89° 57″ Minutes, 43 Seconds. Consequently DCB, or the Arch DB is 2′ 17″ or 137″: And, therefore, since 1° or 3600″ make 343752 *Paris* Feet, DB 13081$\frac{3}{4}$ of a Foot. After the same manner we find the *Distance* AB, to which an Object of a given Altitude DB may be seen, and consequently we know what *Distance* we are off from an Object of a given Altitude, when we first discover the Top thereof.

DISTANCE, in Navigation, is the Number of Degrees, or Leagues, &c. that a Ship has sail'd from any Point. See SAILING.

DISTANCE, in Astronomy. The *Distance* of the Sun, Planets, and Comets, is found from their *Parallax*. See PARALLAX.

That of the fix'd Stars, as having no sensible *Parallax*, we can little more guess at. See FIXED STAR.

The *Distances* of the Planets from the Sun and Earth, in Semi-diameter of the Earth, supposing the greatest Horizontal *Parallax* 6″; and the Dimensions of the Orbits, as assign'd by *Kepler*, are as follow.

Dist. from the Sun.	Greatest.	Mean.	Least.	*Dist* from the Earth.	Greatest.	Mean	Least.
Jupiter	3456	326925	308290	♄	380556	327544	274532
Saturn	187254	178640	170026	♃	222250	179259	136268
Mars	57226	52336	47426	♂	92221	52944	13668
Earth	34995	34377	33758	☉	34996	34377	33759
Venus	25061	24889	24718	♀	60056	34548	9041
Mercury	16142	13340	10537	☿	51138	37179	23221
				☽			

Mr. *Cassini* makes the *Distances* somewhat less; as supposing the Sun's *Parallax* a little greater.

Dist. from the Earth.	Greatest.	Mean.	Least.	*Dist.* from the Earth.	Greatest.	Mean	Least.
Jupiter	244000	210000	176000	Venus	38000	22000	6000
Saturn	143000	155000	87000	Mercury	33000	22000	11000
Mars	59000	33500	8000	Moon	61	57	53
Sun	22374	22000	21626				

Dr. *Hook*, by exact Observations with a Telescope of 16 Foot, perpendicularly placed, first discover'd, that the *Distances of the Stars from the Zenith* is not the same at all Times of the Year; Particularly the bright Star in the Dragon's-head he found 27, or 30 Seconds nearer the Zenith of *Gresham* College, in the Brumal Solstice, than in the Estival. And after him Mr. *Flamsteed* observed the like Variations in the Pole-Star.

DISTANCE *of the Sun from the Moon's Node, or Apogee*, is an Arch of the Ecliptic, intercepted between the Sun's true Place, and the Moon's Node, or Apogee. See NODE.

Curtate DISTANCE, is the *Distance* of the Planets Place from the Sun, reduced to the Ecliptic. See CURTATE.

Line of DISTANCE, in Perspective, is a right Line drawn from the Eye to the principal Point: Such is the Line OF, (*Tab. Perspective Fig.* 10.) drawn between the Eye O, and the principal Point F.

This, as it is perpendicular to the Plane, or Table, can only be the *Distance* of the Eye from the Table.

Point of DISTANCE, in Perspective, is a Point in the Horizontal Line at such *Distance* from the principal Point, as is that of the Eye from the same. See POINT.

Such is the Point P, or Q, (*Tab. Perspective Fig.*11.) in the horizontal Line PQ; whose *Distance* from the principal Point F, is equal to that of the Eye from the same F.

DISTANCE *of the Bastions*, in Fortification, is the Side of the exterior Polygon. See BASTION.

DISTASTE, or DISGUST, a Loss of Appetite, or an Aversion, or Repugnance to Foods which are commonly eaten. See NAUSEA.

Distaste is held by Physicians one of the principal Disorders of the Stomach. It arises from a Want of Sensation in the Upper Orifice of the Ventricle; which may be occasioned various Ways: as, by a too great Abundance of Food; thick, heavy Humors in the Stomach; fat, viscid Aliment; Obstructions of the Lacteals; Suppressions of the usual Evacuations; Intermissions of the ordinary Exercises; a Defect in the Nerves, in having their natural Faculty abolish'd, or suspended, as in a Lethargy, and Apoplexy; and, according to *Silvius*, by a gross, viscid Saliva, or a thick Bile, ascending out of the small Guts into the Stomach.

DISTEMPER, in Medicine. See DISEASE.

DISTEMPER, is also us'd in Painting, for the working up of Colours with something else besides bare Water, or Oil. See COLOUR.

If the Colours are prepar'd with the former of these, that Kind of Painting is call'd *Limning*; and if with Oil, it is call'd *Painting in Oil*, and simply *Painting*. See LIMNING, and PAINTING.

If the Colours are mix'd with Size, Whites of Eggs, or any such proper glutinous, or unctuous Substance, and not with Oil, they then say, it is done in *Distemper*; as the admirable Cartons at *Hampton-Court*.

DISTENSION, the Act of stretching a Thing; also the State of a Thing violently stretch'd, and *distended*.

The *Calculus* is a hard, solid, &c. Body, causing a Stupor, Obstructions, and *Distentions*. Degori.

DISTICH, a Piece of Poetry, the Sense whereof is comprehended in two Lines.

There are excellent Morals in *Cato*'s *Distichs*. See *Vigneul de Marville on the* Distichs *of* Cato, *T.* 1. *p.* 54, 55.

Hexameter, and Pentameter Verses, otherwise call'd Elegiacks, are disposed in *Distichs*. See VERSE.

DISTICHIASIS, in Medicine, a Disorder of the Eye-lids, wherein, instead of one, they have two Rows of *Cilia*, or Hairs. See CILIA.

In the *Distichiasis*, over the common, and natural Hairs, there grows another extraordinary Row, which frequently eradicates, and tears up the former, and pricking the Membrane, immediately investing the Eye, occasions Pain, and draws Defluxions upon it.

'Tis cur'd, by plucking up the second Row of Hairs with Nippers, and burning the Pores, out of which they issued.

The Word is form'd of δὶς, *twice*, and στίχος, or στοῖχος, *Order*, *Rank*.

DISTILLATION, or DESTILLATION, in Chymistry, and Pharmacy, the Art, or Act of separating, or drawing off the spirituous, aqueous, oleaginous, or saline Parts of a mix'd Body from the grosser, and more terrestrial Parts, by means of Fire; and collecting, and condensing them again by Cold. See HEAT, &c.

The Use of *Distillation* is very great; it being by means hereof, that Waters, Spirits, Essences, and Extracts are chiefly made. See WATER, SPIRIT, &c.

Distillation is usually perform'd by means of Fire rais'd to a greater, or lesser Degree, as Circumstance least require. See FIRE.

The Fire is either applied immediately to the Vessels wherein the Matters are to be *distilled*; or it is applied mediately, by means of Water, Sand, Iron-filings, &c. These different Methods of applying the Fire, are call'd *Baths*, *Balnei*; *Bal-*

Balneum Mariæ or *Maris*, *Balneum Arenosum*, &c. See BALNEUM.

They are also call'd *Heats*; as *Sand-heat*, *Water-heat*, &c. See HEAT.

Distillation is two-fold, 1. *Per Ascensum*, by *Ascent*; when the Matter to be *distill'd* is above the Fire, and the Spirit, or other Principle, is raised from it.

2. *Per Descensum*, by *Descent*; when the Matter which is to be *distill'd* is below the Fire, and the Vapour drawn from it, precipitated to the Bottom of the Vessel.

DISTILLATION *by Ascent*, is either *Right*, or *Oblique*.

Right DISTILLATION, is perform'd with a common Alembick, or Cucurbite, wherein the Liquor is rais'd, and descends again, in Form of Drops, into a Receiver: And is chiefly us'd when the Texture of the Body is such as allows of an easy Ascent, as in Vegetables. See ALEMBICK.

Oblique DISTILLATION, is perform'd side-ways, and in crooked Vessels, as *Retorts*. Its Use is for such Bodies as consist of heavier Particles, and which cannot be raised without a strong Impulse, nor even by the strongest so high as the Top of the Alembick; of which Kind are almost all Minerals, and Metals. See RETORT.

DISTILLATION *by Descent*, is where the Fire is apply'd on the Top, and all around the Vessel, whose Orifice is at the Bottom; and consequently, the Vapour not being able to rise upwards, it is forc'd to precipitate, and *distil* down to the Bottom.

There is a second Kind of *Distillation by Descent*, call'd *Per Deliquium*; which is a Natural Liquifying, or Resolving of Salts into a Liquor, by means of Moisture. See DELIQUIUM.

In the Resolution of Simples, an excellent Method to preserve their Virtues, is, in lieu of Fire, or any other foreign Heat, which might alter, or destroy these Virtues, to make Use of the Heat of a Dunghil made of putrified Herbs of the same Kind with those to be *distilled*.

The Process, and Measures of *Distillation*, are very different, according to the different Subjects to be *distill'd*.

Acid Spirits are usually drawn in a Reverberatory Furnace, and with a vehement Fire: *Ponderous Woods*, as Guaiacum, Box, Amber, &c. are *distill'd* in a Retort, after the same Manner. In these, first comes a little Phlegm, and then, the Fire increasing, the Spirits fly out in white Clouds. When they cease to come, the Matter in the Receiver is filtrated through a Tunnel, which lets pass the Spirits, leaving a black fetid Oil behind.

Odoriferous Plants, as Balm, Wormwood, Sage, Hyssop, &c. are *distill'd* by the Cucurbite, or *Vesica*; first pouring a strong Decoction of the same Plant hot, upon the Plant it self bruis'd, and letting the whole digest in a close Vessel two Days. Then about half the Water, or Spirit is drawn away by *Distillation*; and what remains, being press'd, filtrated, and evaporated to the Consistence of Honey, is the *Extract* of the Plant. Lastly, drying what remain'd in the Cloth after Expression, and burning it, they make a *Lixivium* of its Ashes; which being filtrated, and evaporated to Dryness, what remains is the fix'd Salt of the Plant.

Plants not odoriferous, are generally manag'd thus: The Plant being pounded, and two Thirds of the Alembic, or Retort fill'd with it, they pour a good Quantity of the express'd Juice of the same Plant upon it, so as the bruis'd Matter may float therein, without sticking any where to the Vessel. Then they draw off about half as much Water, as there was Juice, which is the *distill'd* Water of that Plant. What remains, being press'd in a Cloth, and the Juice settled, they filtrate, and evaporate it to two Thirds, and setting it in a cool Place, the *Essential Salt* shoots into Crystals.

There is also a Method of Distilling *Cold*; which is thus perform'd: They take, for Instance, 4 Pounds of Flowers, more or less, and put 'em in 3 or 4 Pints of Water, and the whole in a Capital, which they lute exactly; then they place the Alembick in a Vessel half fill'd with Ice, beaten and salted, as if they meant to freeze the Water; then fit on a Receiver, and lute it well; Then wetting a linnen Cloth in hot Water, they cover the Capital therewith, repeating this several times: by which means the finest Parts are raised from the Flowers. But Care must be taken, that all the superfluous Water have been first emptied out of the Capital.

Dr. *Beal*, in the *Philosophical Transactions*, mentions an extraordinary Kind of *Cold Distillations*, viz. made by Frost and cold Air: His Thermometer being exposed out of Doors, during the severe Frosts of 1665; fine clear Drops, like Dew, ascended to the Top of the Tube, which afterwards, in time, re-descended into the Stem, and fill'd the Space of half an Inch; which, tho' the Spirit of Wine it self was tinged very deep, yet this second Spirit was clearer and brighter than any Crystal. The like he did by Exposing his Thermomerer to the hot Air in the middle of Summer. And hence takes Occasion to recommend a further Prosecution of this *Psychrotechnia*.

The Ascent of Fluids, we are taught by Philosophy, is effected two Ways: 1. On Account of their Specific Gravity; and 2. By Impulse.

The first Way of *Elevation* is manifest from this *Lemma*, viz. That Particles of Bodies which swim in any Fluid, if they are specifically lighter, must be born upwards by that Fluid. Hence, as *distilled* Liquors are carried upwards thro' the Air, it is to be inquired, how they come to be specifically lighter than Air.

Now, a Fluid will be specifically lighter than another, when, under a larger Surface, it has an equal, or a less Gravity: According to this Proportion, the Bulk of the Fluid ought to be increased in *Distillation*; and how easily, by the Help of Fire, it may be increased, or, which is the same Thing, rarefied, will appear from what we have said under the Articles RAREFACTION, HEAT, &c.

It is known by Computation, that the Proportion of the specific Gravity of Water to that of Air, is something more than 800 to 1. Since, therefore, similar Spheres, or Solids, are as the Cubes of their Diameters, and the specific Gravity decreases reciprocally, in the very same Proportion, as the Cubes of their Diameters increase: In order to make a Particle of Water lighter than a Particle of Air, no more is necessary than to rarefy it, till its Diameter becomes ten times greater, which in this Case is but a very small Degree of Rarefaction: for the Cube of the Diameter in a Particle so rarefied, is 1000. If the Diameter be made 11 times greater, the Cube will be 1331; and if twelve, 1728. So that Water, when rarefied but 12 Degrees, will be above double lighter than Air. And if the Rarefaction be carried on farther, it may easily be collected from the Increase of the Numbers, that a Particle of Water may be render'd almost infinitely lighter than Air. Now, the Elevation of Bodies equally fluid, and heavy, is always proportionable to their different Aptitude to be rarefied; that is, they ascend quicker, upon the Application of any Force, the more susceptible they are of Rarefaction: but in Bodies, whose Aptitude to rarefy is equal, the Time of Ascent is to be determined by their specific Gravity.

But 'tis not only specific Gravity that serves to elevate Bodies in *Distillation*, but an external Impulse may also cause their Ascent: The Impulse, we have here to do with, comes from the Fire, whose Particles, tho' extreamly small and light, yet may raise Bodies much heavier than themselves, by acting upon them with a certain Degree of Force: For since the Moment of a Body, or that Force, by which it acts upon another, is in a compound *Ratio* of the Quantity of Matter, and Celerity; the Celerity may be so increased, as to give a sufficient Force to the Body, tho' the Quantity of Matter in it be ever so small. Let some heavy Body, therefore, be supposed to descend, with no other Moment than what it receives from its own Gravity; in this Case, then, the Air, which is much lighter, may be moved with such Celerity, as not only to sustain that Body, but to mount it up higher; and the more rapid the *Impetus* of the Air is, or the Surface of the Body more diffused, the higher and swifter will the Elevation be.

So Fire, tho' it be a Body of the minutest Size, may be moved with that Rapidity, as to acquire, and communicate what Force can be desired towards removing any Obstacles. When, therefore, the Moment of Fire is augmented in the manner explain'd, so as to exceed the Force of the *distill'd* Body, it will remove it from its former Situation; or what is here the same Thing, because the Direction of its Motion tends upwards, will carry it up. And thus, Particles specifically heavier than the Air contain'd in the Retort, as those of acid Spirits are, ascend by a more violent Impulse of the Fire us'd in *Distillation*.

Another Thing, to be noted, is, That the same Quantity of Matter is elevated so much the easier, in Proportion, as the Surface is enlarged; for the more this is diffused, the more Particles of Fire it receives: having, therefore, this united Force to drive it up, it more easily ascends; so that, by the same Degree of Fire, Bodies will not equally arise, tho' they are equally heavy, if there be that Difference in their Surfaces already supposed.

The Air also has no small Share in the Business of Impulse; for being rarefied by the Fire, it is not only impelled upwards it self, but carries other Particles up with it: and it may be learned by many very familiar Experiments, what *Impetus* Bodies so rarefied exert. Whosoever, therefore, well considers these three Things, *viz.* Specific Levity; an Impelling Force; and the Extent of Surface; and what may be effected by them, and how many Ways, and in what Proportions all of them may be changed, will very easily account for all the Variety, which is found in the several Processes of *Distillation*.

DISTINCT *Notion*, or *Idea*, according to Mr. *Leibnitz*, is, when we can enumerate Marks and Characters enough whereby to recollect a Thing. *E. gr.* That a Circle is a Figure bounded with a Curve Line that returns into it self; all the Points whereof are equally distant from one middle Point. See NOTION, and IDEA.

DISTINCT *Base*, in Opticks, is that precise Distance from the Pole of a convex Glass, in which Objects, beheld through

it, appear *distinct*, and well defin'd; So that the *Distinct Base* coincides with what we otherwise call the *Focus*. See Focus.

The *Distinct Base* is caus'd by the Collection of the Rays proceeding from a single Point in the Object, into a single Point in the Representation; and, therefore, Concave Glasses, which do not unite, but scatter, and dissipate the Rays, can have no real *Distinct Base*. See Concave.

DISTINCTION, a Diversity of Things, or Conceptions: Or, as Logicians define it, an Assemblage of two, or more Words, whereby desparate Things, or their Conceptions, are denoted.

Hence it is evident, that *Distinction* arises out of Division. See Division.

A *Metaphysical* Distinction, call'd also by the Schoolmen *Alietas*, *Alteritas*, and *Diversitas*, is a Non-agreement of being, whereby this Entity is not that, or one is not another.

There are three Kinds of *Distinctions* taken from the three different Modes of Existence; the first *Real*, the second *Modal*, and the last *Rational*.

A *Real* Distinction, is that between Things which may exist, or be conceiv'd to exist a-part from each other; such is that between two Substances, or the Modes of two Substances.

A *Modal* Distinction, is that between several Things, one whereof may exist without the other, but not *vice versa*, the other without that; such is that between the Mind, and an Act of Will; between Wax, and its Hardness; Water, and its Freezing, &c.

A Distinctio *Rationis*, or *Rational Distinction*, is that between several Things, which are really one and the same, and whereof one cannot exist without the other, nor *vice versa* the other without this: Such is that between a Thing, and its Essence; between the Essence, and Properties, &c.

Of this *Distinction* some Authors admit two Kinds; the one *Founded*, barbarously call'd *Rationis Ratiocinatæ*, and having some Foundation in Things; as when we distinguish the Justice of God from his Mercy: The other *Not-founded*, call'd *Rationis Ratiocinantis*, which has no Foundation at all, and therefore is by many quite rejected.

Tho' others contend, that there is no *Distinctio Rationis*, but is at the same Time a *Real Distinction*: Thus, say they, God, and just God, are to each other as Milk and white Milk; and a just God, and merciful God, as white Milk and sweet Milk. But when I say, Milk is distinguish'd from white Milk, or white Milk from sweet Milk, the *Distinction* falls between Whiteness and Sweetness, which is a *Real Distinction*. See Abstraction.

Distinction, or Distinguo, in the Schools, an Expedient to evade an Argument, or to clear up, and unfold an ambiguous Proposition, which may be true in one Sense, and false in another.

The Respondent was hard press'd, but he disengag'd himself by a Distinguo.

Moliere makes *T. D.* say to his Mistress, who had told him, he must submit to the Will of a Person he loved: Distinguo, *Madamoiselle; pour l'Interest de son Amour*, Concedo: *Contre sa Passion*, Nego.

DISTORTION, in Medicine. *Distortio Oris*, or *Distortion of the Mouth*, is a Contraction, or Shortening of one Side of the Mouth, occasion'd by a Convulsion, or a Palsy of the Muscles of one Side the Face. See Convulsion.

When the *Distortion* arises from a Convulsion, it is on the same Side with the Convulsion, the Force of the convulsed Part being superior to that of the sound Part: On the contrary, when it arises from a Palsy, it is on the opposite Side, the paralytic Part being here surmounted by the sound. See Palsy.

In a *Distortion of the Mouth* the Patient can only spit on one Side; and if you make him laugh, or oblige him to pronounce the Letter O, you'll easily perceive, that he only moves one Side of his Mouth.

The *Greeks* call this Disorder σπάσμος κυνικὸς. See Spasmus.

There is also a *Distortion of the Eye*, call'd *Squinting*, or *Strabismus*. See Strabismus.

DISTORTOR *Oris*, in Anatomy, a Muscle of the Mouth, call'd also *Zygomaticus*. See Zygomaticus.

DISTRACTION, in Medicine, the Act of pulling a Fibre, Membrane, or the like, beyond its natural Extent; and what is capable of this Enlargement, is said to be *distractible*. See Fibre.

DISTRAIN, in Law. To *distrain* is to attach, or seize on one's Goods, for the Satisfaction of a Debt. See Distress.

DISTRESS, in Law, signifies a Compulsion in certain real Actions, whereby to bring a Man to appear in Court, or to pay Rent, or other Duty denied.

The usual Effect of *Distress* is to drive the Party *distrained* to replevy the *Distress*, and so take his Action of Trespass against the *Distrainer*; or else to compound with him for the Debt, or Duty, for which *Distress* was made.

Distress is divided by *Briton* into *Real*, and *Personal*.

Personal Distress is made by *distraining* a Man's moveable Goods, and seising all the Profits of his Lands, and Tenements from the Teste, or Date of his Writ; for the Defendant's Contempt in not appearing to an Action brought against him, when he was summoned, or attach'd: And the Issues so return'd by the Sheriffs, are forfeited to the King, and estreated into the Exchequer.

Real Distress is made on immoveable Goods. It differs from an Attachment in this, that it cannot be taken by any common Person, without the Compass of his own Fee; except it be presently after the Cattel, or other Things, are driven, or bore off the Ground, on Purpose to avoid *Distress*. See Attachment.

Distress is also divided into *Finite*, and *Infinite*.

Finite Distress, is that limited by Law, how often it shall be made to bring the Party to Trial of the Action, *viz.* once, twice, &c.

Infinite Distress, is, without Limitation, till the Party come; as against a Jury, which refuses to appear upon Certificate of Assise, the Process is *Venire facias*, *Habeas Corpus*, and *Distress Infinite*.

Lastly, *Distress* is again divided into *Grand Distress*, by *Fitzherbert* call'd *Magna Districtio*; and *Ordinary Distress*.

Grand Distress, is that made of all the Goods and Chattels the Party hath within the County. See Grand *Distress*.

There are several Things not *distrainable*: For a *Distress* must be of a Thing, whereof a valuable Property is in some body; and, therefore, Dogs, Bucks, Coneys, &c. that are *feræ Naturæ*, cannot be *distrained*.

Again, altho' it be of a valuable Property, as an Horse, (yet when a Man, or Woman is riding on him) or an Ax (in a Man's Hand cutting Wood) and the like, are for that Time privileged, and cannot be *distrained*.

Again, valuable Things shall not be *distrained* for Rent, which are for the Benefit, and Maintenance of Trades, and which, by Consequence, are for the Common-Wealth, and are by Authority of the Law there; as an Horse in a Smith's Shop; Materials in the Weaver's Shop for making Cloth; Cloth, or Garments in the Taylor's Shop; Sacks of Corn, or Meal in a Mill, or a Market; nor any Thing *distrained* for Damage-feasant, for it is in *Custodia Legis*.

Again, nothing shall be *distrained* for Rent, which cannot be render'd again in as good a Plight, as it was at the Time of the *Distress* taken; as Sheaves, or Shocks of Corn cannot be *distrained* for Rent, but for Damage-feasant they may. Again, Beasts belonging to the Plow shall not be *distrained*.

Lastly, Furnaces, Cauldrons, or the like, fix'd to the Freeholds, or Doors, or Windows of an House, or the like, cannot be *distrained*: When a *Distress* is taken, that has Life in it, it must be brought into the common Pound, or kept in an open Place, where the Owner may give it Food.

DISTRIBUTION, the Act of dividing a Thing into several Parts, in order to the disposing each in its proper Place. See Division.

A Dramatic Poet should have *distributed* his Subject into Acts and Scenes, ere he proceed to the Versification, &c. See Act, &c.

Orators *distribute* their Harangues into *Exordium*, *Narration*, *Confirmation*, &c.

The *Jewish* Nation was *distributed* into 12 Tribes. See Tribe.

The *Digest* is *distributed* into 50 Books. See Digest.

The *Distribution* of the Food throughout all the Parts of the Body, is one of the greatest Wonders in Nature. See Digestion, and Nutrition.

Manual, and *Quotidian* Distributions, are certain small Sums of Money, appointed by the Donors, or Founders thereof, to be *distributed* to such of the Canons of a Chapter as are actually present, and assistant at certain Obits, and Offices.

Distribution, in Rhetoric, a Kind of *Description*; or a Figure, whereby an orderly Division, and Enumeration is made of the principal Qualities of a Subject.

For Example, *He has the Light to see our Faults, the Justice to restrain 'em, and the Authority to punish 'em.*

Their Throat is an open Sepulchre, they flatter with their Tongues; the Poison of Asps is under their Lips; their Mouth is full of Cursing, and Lyes; and their Feet swift to shed Blood.

Distribution, in Printing, the taking a Form a-sunder, separating the Letters, and disposing 'em in the Cases again, each in its proper Cell. See Printing.

Di-

DISTRIBUTION, in Architecture. *Distribution of the Plan*, is the dividing, and dispensing the several Parts, and Pieces, which compose the Plan of a Building. See BUILDING.

DISTRIBUTION *of Ornaments*, is an equal, orderly placing of the Ornaments in any Member of Architecture. See ORNAMENT.

DISTRIBUTIVE *Justice*, is that whereby we give every Person what belongs to him. See JUSTICE.

DISTRICT, the Territory, or Extent of Jurisdiction of a Judge. See JURISDICTION.

A Judge, or Officer cannot judge, or act out of his own *District*. See JUDGE.

DISTRICT, is properly the Place wherein a Man has the Power of distraining; or, the Circuit, or Territory, wherein one may be compell'd to appear.

Where we say, *Hors de son Fee*; others say, *Extra Districtum suum*.

DISTRINGAS, a Writ directed to the Sheriff, or other Officer, commanding him to distrain one for a Debt to the King; or for his Appearance at a certain Day. See DISTRESS.

DISVELLOPED, in Heraldry, is used much in the same Sense with *Display'd*. Thus Colours said in an Army to be *flying*, are in Heraldry said to be *disvelloped*.

DITCH, in Fortification, call'd also *Foss*, and *Moat*, a Trench dug round the Rampart, or Wall of a fortified Place between the Scarp and Counterscarp. See MOAT.

Some *Ditches* are *dry*; others *full of Water*: Each whereof have their Advantages.

The Earth dug out of the *Ditch* serves to form the Rampart. See RAMPART.

The *Ditch* should be of such Breadth as that the Tallest Tree may not reach over it, *i. e.* from 15 to 20 Fathoms; Tho' the Rule others give for the Dimensions of the *Ditch*, is, that it afford Earth enough to build the Rampart of due Magnitude.

The Space between the Rampart and *Ditch*, being about 6 Foot, is call'd the *Berm*, or *List*. See BERM.

DITHYRAMBIC, belonging to the *Dithyrambus*; as *Dithyrambic* Verse, *Dithyrambic* Poet, *Dithyrambic* Hear, *&c.*

A Compound, *Dithyrambic* Word, Mr. *Dacier* observes, has sometimes its Beauty and Force. Some Moderns call Compositions in the Taste of the Ode, only not distinguish'd into Strophes, and consisting of all Kinds of Verse indifferently, *Dithyrambic Odes*. See DITHYRAMBUS.

Dithyrambic Poetry owes its Birth to *Greece*, and the Transports of Wine. It savours strongly of its Original; as admitting of no Rules, but the Sallies of a fiery Imagination. And yet Art is not quite excluded; but delicately applied, to guide and restrain the *Dithyrambic* Impetuosity, and only indulge it in Flights that are pleasing. In effect, what our Poets say of the Ode, is more true of the *Dithyrambus*, than of the Ode, that its Disorder is an Effect of Art. See PINDARIC.

DITHYRAMBUS, in the ancient Poetry, a Hymn in Honour of *Bacchus*, full of Transport, and Poetical Rage.

The Measure, which is what distinguishes this Kind of Poetry, is said to have been invented by *Dithyrambus*, a *Theban*; but *Pindar* attributes it to the *Corinthians*; and the modern Etymologists furnish us with another Origin of the Word.

In effect, the Verse might he call'd thus from the God it was consecrated to, who himself was call'd *Dithyrambus*; Either on Account of his having been brought twice into the World, according to the Fable of *Semele* and *Jupiter*, or on Account of his having triumph'd twice; the Word being a Compound of δὶς, *twice*, and θρίαμβος, *Triumph*.

Be this as it will, the Ancients, as we are told by *Aristotle* and *Horace*, gave the Appellation *Dithyrambus* to those Verses wherein none of the common Rules, or Measures were observ'd, much like those call'd by the French *Vers Libres*, by the Italians *Versi Sciolti*, and by the modern Greeks, *Politici*, a Name they give to Prose, which these Verses resemble more than Poetry. See PINDARIC.

We have now no Remains of the *Dithyrambi* of the ancient Poets, so that we cannot say precisely what their Measure was: All we know is, that it was very bold, and irregular. The Poets not only took the Liberty to forge new Words for the Purpose, but made double, and compound Words, which contributed very much to the Magnificence of the *Dithyrambus*.

Horace has sometimes imitated 'em. *Dacier*, *Fa. Commire*, and some other modern Writers, have composed *Latin* Pieces of all Kinds of Verse indifferently, according as the Subject, and Words presented themselves, without any Order, or Distribution into Strophes, and call 'em *Dithyrambi*.

DITONE, *Ditonum*, in Music, an Interval comprehending two Tones. See INTERVAL, and TONE.

The Proportion of the Sounds that form the *Ditone* is 4 to 5; and that of the *Semi-ditone*, as 5 to 6. *Fa. Parran* makes the *Ditone* the 4th Kind of simple Concords, as comprehending two Tones, a greater, and a lesser: Others make it the first Discord; dividing the *Ditone* into 18 equal Parts, or Comma's, the Nine on the acute Side make the greater Tone, as asserted by *Salomon de Caux*.

The Word is form'd of δὶς, *twice*, and τόνος, *Tone*.

DITRIGLYPH, in Architecture, the Space between two Triglyphs. See TRIGLYPH.

DIVAL, in Heraldry, the Herb *Night-shade*, used by such as blazon with Flowers and Herbs, instead of Colours and Metals, for *Sable*, or Black. See SABLE.

DIVALIA, in Antiquity, a Feast held among the ancient *Romans* on the 21st of *December*, in Honour of the Goddess *Angerona*; whence the *Divalia* were also call'd *Angeronalia*.

This Feast was establish'd on Occasion of a Disease which destroyed Man and Beast: That Disease was a Kind of Squinancy, or Inflammation and Swelling of the Throat, call'd in Latin *Angina*; whence the Appellation *Angeronalia*, as *Macrobius* relates *Lib. I. Saturn. C. 12.* See ANGERONALIA.

On the Day of this Feast, the Pontifices perform'd Sacrifice in the Temple of *Volupia*, or the Goddess of Joy and Pleasure, who was the same with *Angerona*; and supposed to drive away all the Sorrows and Chagrins of Life.

DIVAN, a Council-Chamber, or Court wherein Justice is administred, in the Eastern Nations, particularly among the *Turks*.

Travellers relate Wonders of the Silence, and Expedition of the *Divans* of the East.

We say, *The Grand Vizier has held a* Divan; meaning, he has assembled the Grandees of the Port, to deliberate of the Affairs of the Empire.

Divan is an *Arabic* Word, signifying an *Estrade*, or the same with *Sofa* in the *Turkish* Dialect. See SOPA.

The Word is also us'd for a *Hall*, in the private Houses of the Orientals: The Custom of *China* does not allow the receiving of Visits in the inner Parts of the House, but only at the Entry, in a *Divan* contriv'd on Purpose for Ceremonies. *Le Compte*.

DIVAN-*Begui*, or *Beghi*, one of the Ministers of State in *Persia*. The *Divan-Begui* is the Controller of Justice: His Place is the last of the six Ministers of the second Rank, who are all under the *Etmadauler*, or first Minister.

To the Tribunal of the *Divan-Begui* Appeals lye from Sentences pass'd by the Governours. He has a fix'd Stipend, or Appointment of 50000 Crowns, that he may render Justice *gratis*. All the Sergeants, Ushers, *&c.* of the Court, are in the Service of the *Divan-Begui*. He takes Cognizance of the Criminal Causes of the *Cams*, Governours, and other great Lords of *Persia*, when accused of any Fault, and receives Appeals from the *Daruga*.

There are *Divan-Beghi's* not only at Court, and in the Capital, but also in the Provinces, and other Cities of the Empire. He is not confin'd by any other Law, or Rule in the Administration of Justice, but the Alcoran; which, too, he interprets at Pleasure. He only takes Cognizance of Criminal Causes.

DIVERGENT, or DIVERGING *Lines*, in Geometry, are such whose Distance is continually increasing. See LINE.

Lines which converge one Way, *diverge* the opposite Way. See CONVERGING.

DIVERGENT, or DIVERGING, in Opticks, is particularly applied to Rays, which issuing from a radiant Point, or having in their Passage undergone a Refraction, or Reflection, do continually recede further from each other. See RAY.

In which Sense the Word is opposed to *Convergent*, which implies the Rays to approach each other; or to tend to a Centre, where being arrived, they intersect, and if continued further, become *diverging*. See CONVERGING.

Concave Glasses render the Rays *diverging*; and Convex ones, converging. See LENS.

Concave Mirrors make the Rays converge; and Convex ones, *diverge*. See MIRROR, and also CONVEXITY, CONCAVITY, RAY, REFRACTION, and REFLEXION.

'Tis demonstrated, in Opticks, that as the Diameter of a pretty large Pupil does not exceed 2″ or $\frac{1}{5}$ of a Digit; *Diverging* Rays, flowing from a radiant Point, will enter the Pupil, parallel, to all Intents and Purposes, if the Distance of the radiant from the Eye be 40000 Feet. See LIGHT.

DIVERGING *Hyperbola*, is one whose Legs turn their Convexities towards one another, and run towards quite contrary Ways. See HYPERBOLA.

DIVERSION, in War, is when you attack an Ennemy in one Place, where he is weak, and unprovided, with Design to make him call his Forces from another Place, where he was going to make an Irruption.

The *Romans* had no Way to drive *Hannibal* out of *Italy*, but to make a *Diversion*, by attacking *Carthage*.

DI-

DIVERSION, in Medicine, is the turning of the Course, or Flux of Humours from one Part to another, by proper Applications. See REVULSION, and DERIVATION.

DIVERSITY differs from *Distinction* in this, that the latter is the Work of the Mind; but the former is in Things themselves, antecedent to any Operation of the Mind. For Things that are several, are *different*; even tho I do not conceive 'em. See DISTINCTION, and DIFFERENCE.

The *Diversity*, or *Difference* of Things, therefore, arises from their essential Attributes.

DIVESTING, properly signifies *Undressing*, or stripping off one's Garments, in Contra-distinction to *Investing*. See INVESTITURE.

In Law, it is us'd for the Act of surrendring, or relinquishing one's Effects. By a Contract of Donation, or Sale, the Donor, or Seller are said to be *dissei sed*, and *divested* of their Property in such a Commodity, and the Donee, or Purchaser becomes *invested* therewith.

Demission is a general *Divestiture*, which the Fathers and Mothers make of all their Effects, in Favour of their Children.

DIVIDEND, in Arithmetick, the Number given to be *divided*; Or that whereof the *Division* is made. See DIVISION.

The *Dividend* must always be greater than the Divisor. The Quotient always contains as many Unites, as the *Dividend* contains the Divisor times. See DIVISION.

DIVINATION, the Art of foretelling future Events. See PROPHESY.

Divination is divided by the Ancients into *Artificial* and *Natural*.

Artificial is that, which proceeds by reasoning upon certain external Signs, which it considers as Indications of Futurity: *Natural* is that, which presages Things from a mere internal Sense, and Persuasion of the Mind, without any Assistance of Signs.

Natural DIVINATION is of two Kinds: the one *Native*; the other by *Influx*.

The first is founded on this Supposition, that the Soul, collected within it self, and not diffused among the Organs of the Body, has, from its own Nature and Essence some Fore-knowledge of future Things; Witness what is seen in Dreams, Extasies, the Confines of Death, &c.

The second is founded on this, that the Soul receives, after the Manner of a Mirror, some secundary Illumination from the Presence of God, and other Spirits.

Artificial DIVINATION is also of two Kinds: the one arguing from *Natural Causes*; such are the Predictions of Physicians about the Events of Diseases, from the Pulse, Urine, &c. such also are those of the Politician, *Oh Venalem Urbem, & cito perituram si Emptorem Inveneris.*

The second proceeds from Experiment and Observations arbitrarily instituted; and is mostly superstitious.

Infinite are the Systems of *Divination* reducible to this Head: By *Birds*, the Entrails of *Beasts*, *Dreams*, *Lines* of the Hand, *Points* mark'd at Random, *Numbers*, *Names*, the Motion of a *Sieve*, the *Air*, *Fire*, the *Sortes Prænestinæ*, *Virgilianæ*, and *Homericæ*; Numerous others, with the principal Species whereof, with their Names, are:

Psychomancy, or *Sciomancy*, which consists in calling up the Souls, or Shades of the Deceas'd, to learn of 'em something required. *Dactylomancy*, perform'd by means of one, or more Rings. *Hydromancy*, perform'd with Sea-Water. *Pegomancy*, with Spring-Water. *Ornithomancy*, which was the Business of the Augurs. *Clidomancy*, perform'd with Keys. *Coskiromancy*, with a Riddle, or Sieve. *Cledonism*, by Words, or Voice. *Extispicina*, by the Entrails of Victims. *Alphitomancy*, or *Aleuromancy*, by Flower. *Kerannoscopia*, by the Consideration of Thunder-bolts. *Capnomancy*, by Smoak. *Alectriomancy*, by Cocks. *Pyromancy*, by Fire. *Lithomancy*, by Stones. *Lychnomancy*, by Lamps. *Necromancy*, by the Dead, or their Bones, &c. *Oneocritica*, by Dreams. *Oroscopy*, by Eggs. *Lecanomancy*, by a Bason of Water. *Gastromancy*, by the Belly, or by Vials. *Palpitation*, *Salissatio*, παλμὸς, by the Pulsation, or Motion of some Member. *Axinomancy*, by a Hatchet, or Cleaver. *Catoptromancy*, or *Crystallomancy*, by a Mirror. *Chiromancy*, by the Lines of the Hand. *Geomancy*, by the Earth. *Ceromancy*, by Figures of Wax. *Arithmomancy*, by Numbers. *Belomancy*, by Arrows. *Sycomancy*, &c. all described by *Cardan* in his IVth Book, *de Sapientia*; and under their proper Articles in this Dictionary. See PSYCHOMANCY, DACTYLOMANCY, SORTES, &c.

Flud has several particular Treatises of the several Species of *Divination*: *Cicero* has two Books of the *Divination* of the Ancients, wherein he refutes the whole System. All these Kinds of *Divination* have been condemn'd by the Fathers, and Councils, as supposing some Compact with the Devil.

In Holy Scripture we find mention made of nine different Kinds of *Divination*.

The first perform'd by the Inspection of Planets, Stars, and Clouds: 'Tis supposed to be the Practicers of this, whom *Moses* calls מעונן *Meonen*, of ענן *Anan*, Clouds, *Deuter.* C. XVIII. v. 10. 2. Those, whom the Prophet calls in the same Place מנחש *Menachesch*, which the Vulgate, and Generality of Interpreters render *Augur*. 3. Those, who in the same Place are call'd מכשף *Mecaschepb*, which the Septuagint, and Vulgate translate, *A Man given to ill Practices.* 4. Such Authors, whom *Moses* in the same Chapter, *v.* 11. calls חובר *Hbober*. 5. Those, who consult Spirits, call'd *Python*; or, as *Moses* expresses it in the same Book, שאל אוב, those who ask Questions of *Python*. 6. Witches, or Magicians, whom *Moses* calls ידעני *Judeoni*. 7. Those, who consult the Dead, *Necromancers*. 8. The Prophet *Hoseah*, C. IV. 12. mentions such as consult Rods, שאל בקלי, which Kind of *Divination* may be call'd *Rabdomancy*. 9. The last Kind of *Divination* mention'd in Scripture, is *Hepatoscopy*, or the Consideration of the Liver.

DIVINE, something that comes from, or relates to a God. See GOD.

The Word is also us'd, figuratively, for any thing that is excellent, extraordinary, and that seems to go beyond the Power of Nature, and the Capacity of Mankind: In this Sense, the Compass, Telescope, Clocks, &c. are said to be *divine* Inventions. *Plato* is call'd the *divine Author*, the *Divine Plato*; and the same Appellation is given to *Seneca*: *Hippocrates* is call'd, *the divine old Man*, Divinus Senex, &c.

The *Arabs* give the Appellation of *Divines*, אלהיון *Elahioun*, to their second Sect of Philosophers, which consists of such as admit a first Mover of all Things, a spiritual Substance free from all Kind of Matter, in a Word, a *God*. By this Name they distinguish 'em from their first Sect, whom they call *Deherioun*, or *Thabaioun*, i. e. Worldly, or Natural, or rather, Worldlings, and Naturalists, as admitting of no Principles beyond the Material World, and Nature.

The Word אלהיון *Elahioun*, is deriv'd from אלא *Alla*, God: So that the *Elahioun* are the *Divines*, or Theologues, as *Castellus* renders it; or, such as own a God.

DIVINITY, the Nature, and Essence of God. See GOD.

Divinity and Humanity are joyn'd together in *Jesus Christ*. 'Tis falsly, that the Atheists hold the Notion of a *Divinity* to be a Political Invention of the ancient Legislators, to secure and warrant the Observation of their Laws: On the contrary, 'tis certain, the Legislators made Use of the Opinion, which they found already impress'd on the Minds of the People.

The *Heathen Divinities* may be reduced to three Classes: The first, *Theological*, representing the Divine Nature under divers Attributes; Thus *Jupiter* denotes the absolute Power of God, *Juno* his Justice, &c.

The second Class of *Divinities* are *Physical*: Thus *Eolus* is that Power in Nature, whereby Vapours and Exhalations are collected to form Winds, &c.

The last are *Moral Divinities*. Thus the *Furies* are only the secret Reproaches and Stings of Conscience.

DIVINITY is also us'd in the same Sense with Theology. See THEOLOGY.

DIVING, the Art, or Act of descending under Water to considerable Depths, and abiding there a competent Time.

The Uses of *Diving* are very considerable, particularly in the Fishing for Pearls, Corals, Spunges, &c. See PEARL-*Fishing*, SPUNGE, &c.

There have been divers Methods proposed, and Engines contriv'd, to render the Business of *Diving* more safe and easy. The great Point is to furnish the *Diver* with fresh Air, without which, he must either make a short Stay, or perish.

Those who *dive* for Spunges in the Mediterranean, help themselves by carrying down Spunges dipt in Oil in their Mouths. But considering the small Quantity of Air that can be contain'd in the Pores of a Spunge, and how much that little will be contracted by the Pressure of the incumbent Air, such a Supply cannot long subsist the *Diver*. For it is found by Experiment, that a Gallon of Air included in a Bladder, and by a Pipe reciprocally inspired and expired by the Lungs, becomes unfit for Respiration in little more than one Minute of Time. For tho' its Elasticity be but little alter'd in passing the Lungs, yet it loses its vivifying Spirit, and is render'd effete.

In effect, a naked *Diver*, Dr. *Halley* assures us, without a Spunge, cannot remain above a couple of Minutes enclosed in Water; nor much longer with one, without Suffocating; nor, without long Practice, near so long; ordinary Persons beginning to stifle in about half a Minute. Besides that, if the Depth be considerable, the Pressure of the Water in the Vessels makes the Eyes Blood-shot, and frequently occasions a Spitting of Blood.

Hence,

Hence, where there has been Occasion to continue long at the Bottom, some have contriv'd double flexible Pipes, to circulate Air down into a Cavity enclosing the *Diver*, as with Armour, both to furnish Air, and to bear off the Pressure of the Water, and give leave to his Breast to dilate upon Inspiration; The fresh Air being forced down one of the Pipes with Bellows, and returning by the other of 'em, not unlike to an Artery, and Vein.

But this Method is inpracticable when the Depth surpasses 3 Fathoms; the Water embracing the bare Limbs so closely as to obstruct the Circulation of the Blood in 'em; and without pressing so strongly on all the Junctures where the Armour is made tight with Leather; that if there be the least Defect in any of them, the Water rushes in, and instantly fills the whole Engine, to the great Danger of the *Diver's* Life.

The Diving-*Bell*, is a Machine contriv'd to remedy all these Inconveniencies. In this the *Diver* is safely convey'd to any reasonable Depth, and may stay more or less Time under Water, as the Bell is greater or less.

'Tis most conveniently made in Form of a truncated Cone, the smaller Base being closed, and the larger open. It is to be pois'd with Lead, and so suspended, that the Vessel may sink full of Air, with its open Basis downward, and as near as may be in a Situation parallel to the Horizon, so as to close with the Surface of the Water all at once.

Under this Convercle the *Diver* sitting, sinks down with the included Air into the Depth desired: And if the Cavity of the Vessel may contain a Tun of Water, a single Man may remain a full Hour, without much Inconvenience, at 5 or 6 Fathoms deep.

But the lower you go, still, the included Air contracts itself, according to the Weight of the Water that compresses it; So as at 33 Foot deep, the *Bell* becomes half full of Water; the Pressure of the incumbent Water being then equal to that of the Atmosphere: And at all other Depths the Space occupied by the compressed Air in the upper Part of the *Bell* will be to the under Part of its Capacity fill'd with Water as 33 Feet to the Depth of the Surface of Water in the *Bell* below the commun Surface thereof. And this condensed Air being taken in with the Breath soon insinuates it self into all the Cavities of the Body, and has no ill Effect, provided the *Bell* be permitted to descend so slowly as to allow Time for that Purpose.

One Inconvenience that attends it, is found in the Ears, within which there are Cavities which open only outwards, and that by Pores so small as not to give Admission even to the Air it self, unless they be dilated, and distended by a considerable Force. Hence, on the first Descent of the *Bell*, a Pressure begins to be felt on each Ear, which, by Degrees, grows painful, till, the Force overcoming the Obstacle, what constringe these Pores, yields to the Pressure, and letting some condensed Air slip in, presently Ease ensues. The *Bell* descending lower, the Pain is renewed, and again eased in the same Manner.

But the greatest Inconvenience of this Engine, is, that the Water entring it, contracts the Bulk of Air into so small a Compass, that it soon heats, and becomes unfit for Respiration: So that there is a Necessity for its being drawn up to recruit it; besides the uncomfortable Abiding of the *Diver* almost cover'd with Water.

To obviate these Difficulties of the *Diving-Bell*, Dr. *Halley*, to whom we owe the preceding Account, contriv'd some further Apparatus, whereby not only to recruit and refresh the Air from Time to Time, but also to keep the Water wholly out of it at any Depth: which he effected after the following Manner:

His *Diving-Bell* was of Wood about 60 Cubic Feet in its Concavity, coated externally with Lead so heavy that it would sink empty; a particular Weight being distributed about its Bottom, to make it descend perpendicularly, and no otherwise. In the Top was fix'd a Glass like a Window, to let in Light from above; with a Cock, to let out the hot Air: And below, about a Yard under the *Bell*, was a Stage suspended from it by three Ropes, each charg'd with an hundred Weight, to keep it steady.

To supply Air to this *Bell* when under Water, he had a couple of Barrels, holding 36 Gallons a-piece, cased with Lead, so as to sink empty, each having a Bung-hole at Bottom, to let in the Water as they descended, and let it out again, as they were drawn up again. In the Top of the Barrels was another Hole, to which was fix'd a leathern Pipe, or Hose, long enough to hang below the Bung-hole; being kept down by a Weight appended. So that the Air driven to the upper Part of the Barrel by the Encroachment of the Water, in the Descent, could not escape up this Pipe, unless the lower End were lifted up.

These Air-Barrels were fitted with Tackle, to make 'em rise and fall alternately, like two Buckets; being directed in their Descent by Lines fasten'd to the under Edge of the *Bell*: So that they came readily to the Hand of a Man plac'd on the Stage, to receive 'em; and who taking up the Ends of the Pipes, affoon as they came above the Surface of the Water in the Barrels, all the Air included in the upper Part thereof was blown forcibly into the *Bell*; the Water taking its Place.

One Barrel thus receiv'd, and emptied; upon a Signal given, it was drawn up, and at the same time the other let down: By which alternate Succession fresh Air was furnish'd so plentifully, that the Learned Doctor himself was one of five, who were all together in 9 or 10 Fathoms deep of Water for above an Hour and a half, without the least Inconvenience; the whole Cavity of the Bell being perfectly dry.

All the Precaution he observed, was to be let down gradually about 12 Foot at a Time, and then to stop, and drive out the Water that had enter'd by taking in 4 or 5 Barrels of fresh Air before he descended further. And being arrived at the Depth intended, he let out as much of the hot Air that had been breath'd, as each Barrel would replenish with cold, by means of the Cock at the Top of the Bell; thro' whose Aperture, tho' very small, the Air would rush with so much Violence, as to make the Surface of the Sea boil.

Thus, he found, any thing could be done that was required to be done underneath. And by taking off the Stage, he could, for a Space as wide as the Circuit of the Bell, lay the Bottom of the Sea so far dry as not to be over Shoes therein. Besides, that by the Glass Window so much Light was transmitted, that, when the Sea was clear, and especially when the Sun shone, he could see perfectly well to write, or read, much more to fasten, or lay hold of any thing under him that was to be taken up. And by the Return of the Air Barrels he often sent up Orders written with an Iron Pen on a Plate of Lead, directing how he would be mov'd from Place to Place.

At other times, when the Water was troubled and thick, it would be as dark as Night below; But in such Cases he was able to keep a Candle burning in the *Bell*.

The same Author intimates, that by an additional Contrivance, he has found it practicable for a *Diver* to go out of the *Bell* to a good Distance from it; the Air being convey'd to him in a continued Stream by small flexible Pipes, which serve him as a Clew to direct him back again to the *Bell*. So that there seems little further wanting to the Perfection of *Diving*.

Yet, the famous *Corn. Drebell*, had an Expedient in some respects superior even to this; if what is related of it, be true. He contrived not only a Vessel to be row'd under Water, but also a Liquor to be carried in the Vessel, which supplied the Place of fresh Air.

The Vessel was made for King *James* I; carrying 12 Rowers, beside the Passengers. It was tried in the River *Thames*, and one of the Persons in that submarine Navigation, then living, told it one from whom Mr. *Boyle* had the Relation.

As to the Liquor, Mr. *Boyle* assures us, he discover'd by a Physician, who married *Drebell's* Daughter, that it was us'd from Time to Time, when the Air in the submarine Boat was clogg'd by the Breath of the Company, and unfitted for Respiration: At which Time, by unstopping the Vessel full of this Liquor, he could speedily restore to the troubled Air such a Proportion of vital Parts, as would make it serve again a good while. The Secret of this Liquor *Drebell* would never disclose to above one Person, who himself assured Mr. *Boyle* what it was. *Boyl. Exp. Phys. Mech. of the Spring of the Air.*

DIVISIBILITY, a passive Power, or Property in Quantity, whereby it becomes separable into Parts; either actually, or at least mentally. See Quantity, and Matter.

The School-men define *Divisibility*, *Capacitas Coextensionis cum pluribus*, a Capacity of Coextending with several Things: Thus, a Staff 4 Foot long is *divisible*, because it may be coextended with 4 Feet, or 48 Inches, *&c.*

This, the Peripateticks, and *Cartesians*, universally hold an Affection, or Property of all Matter, or Body: The *Cartesians*, as holding the Essence of Matter to consist in Extension; For every Part, or Corpuscle of the Body being extended, has Parts without Parts, and consequently is *divisible*. See Extension.

The *Epicureans*, again, hold *Divisibility* to agree to every Physical Continuum, as, without Parts adjacent to Parts, there can be no Continuity, and wherever there are Parts so adjacent, there must be *Divisibility*. But they deny, that this Affection agrees to all Bodies: For the primary Corpuscles, or Atoms they hold perfectly inseeable, and indivisible. See Atom.

The principal Argument they alledge, is, that from the *Divisibility* of all Body, and of every assignable Particle of Body, even after any repeated Number of Divisions, it follows, that the smallest Corpuscle is infinitely *divisible*, which with them is an Absurdity. For a Body can only be divided into such Parts as it actually contains. But to suppose infinite Parts

in the smallest Corpuscle, say they, is to suppose it infinitely extended: For infinite Parts placed externally to each other, as the Parts of Bodies doubtless are, must make an infinite Extension.

They add, that there is a World of Difference between the *Divisibility* of Physical, and Mathematical Quantities. For every Mathematical Quantity, or Dimension, they grant, may be increas'd and diminish'd infinitely: But Physical Quantity, neither the one nor the other.

An Artist, dividing a continued Body, arrives at certain minute Parts, beyond which he cannot go; which we may call *Minima Artis*. In like manner Nature, which may begin where Art ends, will find Bounds; which we may call *Minima Naturæ*: And God, whose Power is infinite, beginning where Nature ends, may subdivide the *Minima Naturæ*, but he will at length come at certain Parts, to which there being no other Parts continuous, they cannot be taken away. These minute Parts are Atoms.

All we can say to the Point, is, that on the one hand 'tis certain, every extended Corpuscle must have two Sides, and consequently is *divisible*; for if it had not two Sides, it were not extended; and if it had no Extension, an Assemblage of divers such Corpuscles would not compose a Body. And on the other hand, the infinite *Divisibility* supposes an Infinity of Parts in the minutest Corpuscle: whence it follows, that there is no Body, how small soever, but may furnish as many Surfaces, or Parts, as the whole Globe of the Earth can; nay, and infinitely more; which, to say no worse, is a violent Paradox.

The infinite *Divisibility* of Mathematical Quantity is thus prov'd, and illustrated by the Mathematicians: Suppose a Line AD (*Tab. Geometry Fig.* 35.) perpendicular to BF, and another, as GH, at a small Distance from A, also perpendicular to the same Line; with the Centres CCC, &c. and Distances CA, CA, &c. describe Circles cutting the Line GH in the Points e, e, &c. Now, the greater the Radius AC is, the less is the Part e G: But the Radius may be augmented in *Infinitum*, and therefore the Part e G may be diminish'd in the same manner; and yet it can never be reduced to nothing; because the Circle can never coincide with the right Line BF. Consequently, the Parts of any Magnitude may be diminish'd in *Infinitum*.

The chief Objections against the Doctrine, are: That an Infinite cannot be contain'd by a Finite; That it follows from a *Divisibility in Infinitum*, either that all Bodies are equal, or, that one Infinite is greater than another: To which it is answer'd, that to an Infinite may be attributed the Properties of a finite, and determined Quantity. And who has ever proved, that there could not be an infinite Number of Parts infinitely small in a finite Quantity; or that all Infinites are equal: The contrary is demonstrated by Mathematicians in innumerable Instances. We are not here contending for the Possibility of an actual Division in *Infinitum*, we only assert, that however small a Body is, it may be still farther divided; which we imagine may be call'd, a Division in *Infinitum*, because what has no Limits, is call'd infinite. See Infinite.

True, there are no such Things as Parts infinitely small; yet the Subtilty of the Particles of several Bodies is such, that they very much surpass our Conception; and there are innumerable Instances in Nature of such Parts actually separated from one another.

Mr. *Boyle* gives us several Instances. He speaks of a silken Thread 300 Yards long, that weigh'd but two Grains and an half. He measured Leaf-Gold, and found by weighing it, that 50 square Inches weigh'd but one Grain: If the Length of an Inch be divided into 200 Parts, the Eye may distinguish 'em all; therefore there are in one square Inch 40000 visible Parts; and in one Grain of Gold there are 2000000 of such Parts; which visible Parts no one will deny to be farther *divisible*.

A whole Ounce of Silver may be gilt with eight Grains of Gold, which is afterwards drawn into a Wire thirteen thousand Foot long. See Gold, and Ductility.

In Odoriferous Bodies we can still perceive a greater Subtilty of Parts, and even of such actually separated from one another; several Bodies scarce lose any sensible Part of their Weight in a long Time, and yet continually fill a very large Space with odoriferous Particles. See Effluvia.

By Help of Microscopes, such Objects as would otherwise escape our Sight, appear very large: There are some small Animals scarce visible with the best Microscopes; and yet these have all the Parts necessary for Life, as Blood, and other Liquors: How wonderful must the Subtility of such Parts be, which make up such Fluids! whence is deducible the following Theorem:

Any Particle of Matter, how small soever, and any finite Space, how large soever, being given; it is possible for that small Sand, or Particle of Matter, to be diffused through all that great Space, and fill it in such manner, as that there shall be no Pore in it, whose Diameter shall exceed any given Line; as is demonstrated by Dr. *Keil. Introduct. ad Ver. Phys.*

DIVISION, the Act of separating a Whole into the Parts it contains. See Part.

If the whole be composed of Parts really distinct, call'd Integral Parts, the *Division* made thereof is properly call'd *Partition*: As when a House is *divided* into its Apartments. See Partition.

If the Whole be composed of Parts, call'd *Subjective*, that is, if the Whole be only one common Term, the Subjects comprized in the Extent whereof are the Parts, the *Division* thereof is what we properly call *Division*: Such is the *Division* of a Genus into its Species, &c.

Division, in Physicks, or *Divisio Continui*, is the Partition, or Separation of the Parts of a Quantity; whereby, what before was one, is now reduced into several. See Continuity.

This *Division* is effected by means of Motion, without which there can be no Separation of any Continuum, or even Contiguum.

This Motion is perform'd divers Ways, by *Fraction*, *Scission*, *Section*, *Fission*, *Resolution*, *Dilution*, *Maceration*, *Dispersion*, *Effusion*, *Distraction*, &c. See Divisibility.

Division, in Logic, is the separating any Thing into divers Parts, or Idea's: or more strictly, it is the Distribution of a Whole into all it contains. See Distribution.

The School-men define it a Discourse, explaining a Thing by its Parts: In which it approaches near to the Nature of a *Definition*, whose Character is to define a Thing by its Parts. See Definition, Part, &c.

Division, we have said, is a Distribution of a Whole, &c. But the Whole has two Significations, whence two Kinds of *Division*.

A *Whole* is properly what consists of integral Parts; as the Human Body, which contains divers Members: And a Distribution into such Parts, is properly call'd *Partition*: Such is that of a House into its Parts. See Partition.

But there is another Sort of Whole, which is properly no other than an abstract Idea common to more Things than one, as the *Universals*: Or a compound Idea comprehending the Substance, and its Accidents, or at least most of its Accidents.

This Whole admits of a triple *Division*. 1. When the Genus, or Kind, is *divided* by its Species, or Differences; as when Substance is *divided* into Body and Spirit; or into Extended, and Thinking. The second, when any Thing is *divided* into several Classes, by opposite Accidents; as when the Stars are *divided* into those which shine by their own Light, and those that only reflect a borrowed Light. 3. When the Accidents themselves are *divided* according to the Subjects in which they inhere; as when Goods are *divided* into those of the Body, the Mind, and Fortune.

The Laws of *Division* are, 1. That it be full, and adequate, that is, that the Members of the *Division* entirely exhaust the whole Thing *divided*: As when all Numbers are *divided* into *Equal*, and *Unequal*. 2. That the Members of the *Division* be opposite; as *Equal*, and *Unequal*; *Corporeal*, and *Not Corporeal*; *Extended*, and *Thinking*. 3. That one Member of the *Division* be not contain'd in another, so as the other may be affirm'd of it. Tho', in other respects, it might be included without any Fault in the *Division*: Thus Extension, Geometrically consider'd, may be *divided* into a *Line*, *Surface*, and *Solid*; tho' the Line be included in the Surface, and the Surface in the Solid. 4. The *Division* not to be made into too many, or too general Parts. Lastly, the Members, unless the Subject require it, not to be too unequal; as if the Universe were *divided* into Heaven, and Earth.

The Division *of a Word*, is a Discourse explaining the Latitude, or Comprehension of a Word: The *Latitude*, when the Word is universal; as when the Genus is *divided* into Species, and Differences: The *Comprehension*, when the Word is ambiguous, as *Taurus*, Bull; which sometimes denotes a Constellation, sometimes a Beast, and sometimes a Mountain.

The Division *of a Mode*, *divides* a Quality into its Degrees. The Philosophers, after the Physicians, suppose 8 Degrees of every Quality: Hence when a Quality is said to be in the 8th Degree, it marks, that it can be no further intended, or heighten'd. See Degree, and Quality.

Division, in Arithmetick, is the last of the four great Rules; being that whereby we find how often a less Quantity is contain'd in a greater; and the Overplus.

Division, in Reality, is only a compendious Method of Substraction; Its Effect being to take a less Number from another greater, as often as possible; that is, as oft as 'tis contain'd therein. There are, therefore, three Numbers concern'd in *Division*: 1. That given to be divided, call'd the *Di-*

Dividend. 2. That whereby the Dividend is to be divided, call'd the *Divisor.* 3. That which expresses how often the Divisor is contain'd in the Dividend; or the Number resulting from the *Division* of the Dividend by the Divisor, call'd the *Quotient.* See QUOTIENT, *&c.*

There are divers Ways of performing *Division*, one call'd the *English*, another the *Flemish*, another the *Italian*, another the *Spanish*, another the *German*, and another the *Indian* Way, all equally good, and just, as finding the Quotient with the same Certainty, and only differing in the manner of arranging, and disposing the Numbers.

We have likewise *Division* in Integers; *Division* in Fractions; and *Division* in Species, or *Algebra.*

Division is perform'd by seeking how often the Divisor is contain'd in the Dividend; and when the latter consists of a greater Number of Figures than the former, the Dividend must be taken into Parts, beginning from the left, and proceeding to the Right, and seeking how often the Divisor is found in each of those Parts. For Example, 'tis required to divide 6759 by 3: I first seek how oft 3 is contain'd in 6, *viz.* twice; then, how oft in 7, which is likewise twice, with one remaining. This 1, therefore, is joyn'd to the next Figure 5, which makes 15, and I seek how oft 3 in 15; and lastly, how oft 3 in 9. All the Numbers expressing how oft 3 is contain'd in each of those Parts, I write down according to the Order of the Parts of the Dividend, that is, from Left to Right, and separate 'em from the Dividend it self, by a Line, thus.

Divisor. Dividend. Quotient.

3) 6759 (2253.

It appears, therefore, that 3 is contain'd 2253 times in 6759; or that 6759 being divided into 3, each Part will be 2253. If there be any Remainder, that is, if the Divisor repeated a certain Number of times is not equal to the Dividend, what remains is wrote over the Divisor fraction-wise. Thus, if instead of 6759 the Dividend were only 6758, the Quotient will be the same as in the former Case, except for the last Figure 8; for 3 being only contain'd twice in 8, the last Number in the Quotient will be 2; and as twice 3 is only 6, there remains 2 of the Dividend; which I write after the Quotient, with the Divisor underneath it, and a Line to separate the two; thus,

$$3)\ 6758\ (2252\ \tfrac{2}{3}$$

Proof of DIVISION.

Division is proved by multiplying the Quotient by the Divisor, or the Divisor by the Quotient; and adding what remains of the *Division*, if there be any thing. If the Sum be found equal to the Dividend, the Operation is just, otherwise there is a Mistake.

DIVISION { *in Decimal Fractions.* / *in Vulgar Fractions.* / *of Proportion.* } See { DECIMAL. / FRACTION. / PROPORTION. }

DIVISION, in Species, or *Algebra*, is perform'd by reducing the Dividend and Divisor into the Form of a Fraction: This Fraction being the Quotient.

Thus, if ab were to be divided by cd, it must be placed thus, $\frac{ab}{cd}$, and that Fraction is the Quotient: tho' others chuse to write it thus, $cd)\ ab$, or $cd : ab$, or $ab \div cd$, which last Mark $\div$ is the most common Character for *Division.* See CHARACTER.

To perform the Work of *Division* algebraically, these Rules are to be observed: 1. When the Dividend is equal to the Divisor, the Quotient is Unity, and must be placed in the Quotient, because every Thing contains it self once.

2. When the Quotient is express'd Fraction-wise (as in simple *Division*) if the same Letters are found equally repeated in each Member of the Numerator, and Denominator; cast away those Letters, and the Remainder is the Quotient: Thus, $\frac{ab}{b}$ (a, and $\frac{abc}{ab}$ (c, &c.

3. When there are any Co-efficients, divide them as in common Arithmetic, and to the Quotients annex the Quantities express'd by Letters: Thus, $\frac{360\ ab}{24\ b}$ ($= 15\ a$.

4. The general Way of *Division* of compound Quantities, is like the ordinary Way in common Arithmetic, respect being had to the Rules of Algebraic Addition, Substraction, and Multiplication; as also that like Signs give $+$, and unlike $-$ in the Quotient: taking Care to divide every Part of the Dividend by its corresponding Divisor, (that is, that whose Letters shew it of the same Kind with the other) to prevent a Fraction, which would otherwise arise: Thus,

$$\begin{array}{l} a+b)\ aa+ab-ca-cb\ (a-c. \\ \quad\ \ aa+ab \\ \hline \quad 0 \quad\ \ 0-ca-cb \\ \qquad\qquad -ca-cb \\ \hline \qquad\qquad\quad 0 \end{array}$$

That for the same reason like Signs giving a Positive, and unlike a Negative Quotient, do hold in *Division*, as well as in Multiplication, is clear from considering the Nature of *Division*; (which is only resolving the Thing into its Parts) consequently, since every Dividend is nothing else but the Product of the Divisor, and Quotient multiplied by each other, the Quotient must consist of such Signs, which could produce the Dividend; therefore, if the Dividend be divided by a Quantity, that has a similar Sign with it, the Quotient must be positive; if by a Quantity having a dissimilar Sign, the Quotient must be negative. It may be a general Rule in compound *Division* in Algebra, always to place such a Letter in the Quotient, as will, when multiplied into the Divisor, produce the Dividend, for that is always a Rect-angle under the Divisor, and the Quotient: As for Example,

$$\begin{array}{l} zz-16)\ z^6-8z^4-124\,zz-64\ (z^4+8zz+4. \\ \quad z^6-16z^4 \\ \hline \qquad 8z^4-124\,zz \\ \qquad 8z^4-128\,zz \\ \hline \qquad\qquad 4\,zz-64 \\ \qquad\qquad 4\,zz-64 \\ \hline \qquad\qquad\quad 0 \end{array}$$

DIVISION *by* { *Nepairs Bones.* / *Logarithms.* } See { NEPAIRS *Bones.* / LOGARITHM. }

DIVISION, in Lines, or *Geometrical* DIVISION, is also call'd *Application*; the Design of which, when it is employ'd about the Construction of plain Problems, is this, *viz.* a Rectangle being given; as also a right Line; to find another right Line, the Rectangle contain'd under which with the right Line given, shall be equal to the Rectangle first given: Such Effection, or Construction is call'd the *Application* of a given Rectangle to a right Line given; and the right Line arising by such Application, is call'd the *Parabola*, or *Geometrical Quotient.*

This is found by the Rule of Three, by making, As the Line given: is to one Side of the Rect-angle :: so is the other Side: to the Line sought. Not unlike to which is *des Cartes*'s Way of working *Division* in Lines, by Scale, and Compass: Thus suppose ac ($=6$) were to be divided by ad ($=3$) make any Angle at Pleasure, and therein set off first ad ($=3$) the Divisor, and then on the same Leg au = to Unity: Then on the other Leg of the Angle set ac ($=6$) the Dividend, and joyn dc, and to it, through u, draw ub parallel to dc, which shall cut off ab the Quotient sought; for as $ad : au :: ac : ab$; that is, as the Divisor: is to Unity :: so is the Dividend: to the Quotient; on which Reason depends all *Division.*

DIVISION, in Music, the dividing of the Interval of an Octave into a Number of lesser Intervals. See OCTAVE, and SYSTEM.

The 4th, and 5th, each of 'em, divide, or measure the Octave perfectly, tho' differently. When the 5th is below, and serves as a Base to the 4th, the *Division* is call'd *Harmonical*; When the 4th is below, the *Division* is call'd *Authentic.* See SCALE. See also CONCINNOUS.

DIVISION, in War, is a Batallion, or other Body of Forces in March.

The Lieutenant commanded the first *Division* of Musqueteers; and the second Lieutenant, the second *Division.*

DIVISION, in Sea-Language, the third Part of a Naval Army, or Fleet, or of one of the Squadrons thereof, under the Command of some General Officer.

Naval Battals are usually rang'd in three Lines, according to their three *Divisions.*

DIVISOR, is the dividing Number; or that which shews how many Parts the Dividend is to be divided into. See DIVIDEND, *&c.*

DIVORCE, a Breach, or Dissolution of the Bond of Marriage. See MARRIAGE.

In our Law *Divorce* is of two Kinds: The one, *a Vinculo Matrimonii*; which alone is properly *Divorce*: The other, *a Mensa & Thoro*; a Separation from Bed and Board.

The Woman divorced *a Vinculo Matrimonii*, receives all again that she brought with her: The other has a suitable separate Maintenance allow'd her out of her Husband's Effects.

The first only happens through some essential Impediment, as Consanguinity or Affinity within the Degrees forbidden, precontract, Impotency, Adultery, *&c.* Of which Impediments the Canon Law allows fourteen, comprehended in these Verses:

Error, Conditio, Votum, Cognatio, Crimen,
Cultus, Disparitas, Vis, Ordo, Ligamen, Honestas,
Si sis affinis, si forte coire nequibis,
Si parochi & duplicis desit præsentia Testis,
Raptave sit Mulier, nec parti reddita tutæ.

Divorce is a Spiritual Judgment, and, therefore, is pass'd in the Spiritual Court. Under the old Law, the Woman *divorced* was to have of her Husband a Writing, as St. *Jerom* and *Josephus* testify, to this Effect: *I promise, that hereafter I will lay no Claim to thee*; which was call'd a *Bill of Divorce.*

Di-

Divorce was allow'd of in great Latitude both among the *Pagans* and *Jews*. At *Rome*, Barrenness, Oldness, Disease, Madness, and Banishment, were the ordinary Causes of *Divorce*. *Carvilius*, 500, or 600 Year after the Building of *Rome*, was the first who put away his Wife because she was barren.

Justinian afterwards added Impotence, a Vow of Chastity, and the Profession of a Monastic Life, as valid Reasons of *Divorce*.

Among the *Jews*, Uglineſs, old Age, or ill Humour in a Wife, were sufficient Reasons for giving her a Bill of *Divorce*. Even the Man's own Pleasure, or his repenting of his Match, were admitted as good Reasons.

Some hold, that *Jesus Christ* allow'd of *Divorce* in the single Case of Adultery. But we take it for a Mistake: *Divorce* is no where permitted in the New Testament for Adultery; but only a Separation. See *Matth.* XIX. 9. *Mark* X. 11. *Paul* 1. *Cor.* X. 39. See also the Council of *Florence*; at the End, after the Questions proposed to the *Greeks*. *Tertull. de Monogam.* C. 9. and 10. *Augustin. de Bono Conjugio, & de Adult. Conjug.* See also what we have deliver'd under the Article ADULTERY.

Pope *Innocent* I. in his Decretal to *Exuperus*, declares such as contract a new Marriage after *Divorce*, Adulterers; as well as the Persons they marry withal. The Occasion of this Decree was, that such Marriages were then allow'd of by the *Roman* Laws. There is an Exception, however, in the Case of Marriage between two Heathens, which the Decrees allow to be dissolved after the Conversion of one of the Parties. And St. *Paul* says the same, 1. *Cor.* VII. 15. Yet even in this Case, 1. The Marriage is not immediately dissolv'd by the Conversion of one of the Parties, but they may still live together, and even on some Occasions ought to do so. Nor is it even dissolv'd by the Separation of the infidel Party; for if she be afterwards converted, he is obliged to take back his Wife: as *Innocent* himself decides it *L.* IV. *Decret. de Divort. C. Gaudemus.* But the Marriage is dissolved by a second Marriage of the converted Party with another Person.

2. Tho' the Party converted to the Faith, may, the Minute of his Conversion, legally separate himself, and contract with another; a Liberty the *Christian* Law allows him; as in Justice he is not deem'd to owe any Thing to an Infidel; yet Charity frequently forbids such *Divorce* and Separation: As, *e.gr.* if the Infidel consent to live with him, and not molest him in his Religion; if his Faith be not at all in Danger; if there be any Hopes of converting her; or of gaining the Children; if the Separation would prove a Scandal to the Heathens, and render Christianity odious, *&c.* See St. *Paul* 1. *Cor.* VII. 13, 14. St. *Augustin* L. I. *de adult. Conjug. ad Pollent.*

The 4th Council of *Toledo* decrees, that in a Country where Christianity is the prevailing Religion, the Infidel Party must be advertized to become Christian, which if she refuse, the Marriage to be dissolv'd.

The Council of *Trent* prohibits *Divorce* on any Occasion whatever. The Papal Dispensations, however, are a *Salvo* for this Piece of Rigor.

In England *Divorces* can only be had by Consent of Parliament. *Milton* has an express Treatise of the Doctrine and Discipline of *Divorce*, where he maintains, that *Divorce* ought to be permitted for a mere Incompatibility of Humors.

DIURESIS, from διὰ, *per*, through, and ῥέω, *fluo*, to flow; is us'd to express that Separation which is made of the Urine by the Kidneys: whence *Diuretic*. See DIURETICS.

DIURETICKS, in Medicine, are such Remedies as provoke, or promote the Discharge of Urine. See URINE.

Such is Water drank plentifully, white Wine drank in a Morning; Alcali Salts of all Kinds; Sea-Salt, *Sal Gemmæ*, Nitre, Borax, Alumn, Tartar, Ammoniac, Whey, sour Milk, Lemmon Juice, *&c.*

Aqueous Liquors are generally *Diuretic*, especially if mix'd with Salt, and drunk cold. Fermented Liquors are the least *Diuretic* of all; and the less as they are the fatter. Sharp thin sour Wines, *Rhenish*, &c. as also acid Spirits of Vinegar, Salt, Sulphur, Alumn, Vitriol, *&c.* Asparagus, bitter Almonds, Smallage, Eryngium, Eupatorium, Sassafras, *&c.* do the same.

DIURNAL, in Astronomy, something relating to the *Day*: In Opposition to *Nocturnal*, which regards the *Night*. See DAY, and NIGHT.

DIURNAL *Circle*, is an immoveable Circle, in which any Star, or Point in the Surface of the mundane Sphere, moves by a *Diurnal* Motion. See CIRCLE.

Thus, if a right Line be conceiv'd to be continued from the Centre of a Star, perpendicular to the Axis of the World, as far as the Surface of the Sphere of the World; it will describe a *Diurnal Circle* thereon, in making one Revolution about its Axis.

DIURNAL *Arch*, is the Arch, or Number of Degrees, that the Sun, Moon, or Stars describe between their Rising, and Setting.

DIURNAL *Motion* of a Planet is so many Degrees and Minutes, *&c.* as any Planet moves in 24 Hours. See MOTION.

The Motion of the Earth about its Axis (in the Copernican System) is call'd its *Diurnal Motion*, which causes the Vicissitudes of Days and Nights.

The DIURNAL *Motion* of the Earth is its Rotation round its Axis, the Space whereof constitutes the Natural *Day*. See DAY.

The *Diurnal Rotation* of the Earth is now past all Dispute. See EARTH.

DIURNAL is also us'd in speaking of what belongs to the *Nycthemeron*, or Natural Day of 24 Hours, in which Sense it stands opposed to *Annual*, *Menstrual*, &c. as *Diurnal Motion*, *Diurnal Rotation*, &c.

The *Diurnal* Phænomena of the heavenly Bodies are solv'd from the *Diurnal* Revolution of the Earth; that is, from one Revolution of the Earth round its own Axis in 24 Hours. To illustrate this: Suppose the Circle PRTH, (*Tab. Astronomy Fig.* 13.) to denote the Earth; C the Centre of the Earth, through which its Axis is conceiv'd to pass, a-round which, its *Diurnal* Revolution is perform'd: B denotes any Place on the Earth; the Line EW the visible Horizon of the Place; E the East Point of the said Horizon, W the West: the Circle a b c d e f the Circumference of the Heavens; the Circle S the Sun in the Heavens, the Semi-Circle PRT, the enlighten'd Hemisphere of the Earth, or that Half of it, opposite to the Sun; and lastly, the Semi-Circle PHT the darken'd Hemisphere of the Earth.

Now, the Earth supposed in this Situation, and moving round its Axis towards the Sun; it is evident, the Place P of the Earth, will then just begin to be enlighten'd by the Sun, and so the Sun will appear there to be just *rising*, or ascending the Horizon at E the East Point of it. The Earth being moved round its own Axis, so as the Place P of the Earth, which afore was under the Point a in the Heavens, is now under the Point b; it is evident, the Horizon of the said Place P, will be now so situated, as that the Sun will appear to a Spectator at P, as descended considerably above E the East End of the Horizon. And while by the Revolution of the Earth round its Axis, the Place P passes from under the Point b in the Heavens, to the Point c, the Horizon of the Place P will continually sink lower and lower in respect of the Sun, and so the Sun will appear to ascend higher and higher, till P is come under c, where the Sun will appear in its greatest Height above the Horizon for that Day; and so it will be *Noon*, or *Mid-Day*, at the Place P. The Earth moving on, as the Place P passes from under c to d, the West Point of its Horizon will ascend higher and higher, and so the Sun will appear more and more to descend, as is represented by the Horizon at the Point of the Earth under d. The Place P being carried by the *Diurnal* Revolution of the Earth from under d to under e, the Sun will then appear just on W, the West Point of the Horizon, and so will appear to be just *setting*. The Place P being come under f, it will be then *Mid-night* there. Lastly, the Place P being come round again under a, it will be there *Sun-Rising* again. The same holds good as to any other of the Celestial Lights, and the Earth; as is obvious from the Figure: the Circle representing the Sun being taken to denote any other Star, Planet, *&c.*

It remains to observe, that whereas by the *Diurnal* Revolution of the Earth, all the several Celestial Lights seem to move in the Heavens from East to West, hence this seeming *Diurnal* Motion of the Celestial Lights is call'd their *common Motion*, as being common to all of them. Besides which all the Celestial Lights, but the Sun, have a proper Motion; from which arise their proper Phænomena: As for the proper Phænomena of the Sun, they likewise seem to arise from the proper Motion of the Sun; but are really produc'd by another Motion, which the Earth has, and whereby it moves round the Sun once every Year, whence it is call'd the *Annual Motion of the Earth*. See SUN.

DIURNARY, *Diurnarius*, an Officer in the *Greek* Empire, who wrote down in a Book for that Purpose, whatever the Prince did, order'd, regulated, *&c.* every Day. See the 8th Law of the *Theodosian* Code, *de Cohort.*

DIVUS, DIVA, in Antiquity, Names attributed to Men and Women, who had been deified, or placed in the Number of the Gods. See GOD, DEIFICATION, *&c.*

Hence it is, that on Medals struck for the Consecration of an Emperor, or Empress, they give 'em the Title of *Divus*, or *Diva*: For Example, DIVUS JULIUS. DIVO ANTONINO PIO. DIVO PIO. DIVO CLAUDIO. DIVA FAUSTINA AUG. *&c.*

DIZZINESS. See VERTIGO.

DOCK,

DOCK, DOCKING, in Law, a Means, or Expedient for cutting off an Estate Tail in Lands, or Tenements; that the Owner may be enabled to sell, give, or bequeath them. See TAIL.

To effect this, a feigned Writ of Entry *sur Disseisin in le Post* is brought of the Lands whereof he intends to *dock* the Entail; and in a feigned Declaration made thereon, 'tis pretended he was disseis'd by a Person, who by a feigned Fine, or Deed of Bargain, and Sale, is named, and supposed to be Tenant of the Lands.

The feigned Tenant, if it be a single Recovery, is made to appear, and vouch the Bag-bearer of Writs for the *Custos Brevium* in the Court of Common Pleas; who making Default, a Judgment is by such Fiction of Law enter'd, that the Demandant shall recover, and have a Writ of Seisin for the Possession of the Lands demanded; and that the Tenant shall recover the Value of the Lands, against the Lands of the Vouchee Bag-bearer, a poor, unlanded, illiterate Person; which is feigned to be a Satisfaction to the Heir in Law; tho' he never be to expect it. See RECOVERY.

DOCK, in the Sea Language, a Pit, great Pond, or Creek by the Side of an Harbour, made convenient to work in, in order to build, or repair Ships.

This is of two Sorts: 1. A *Dry Dock*, where the Water is kept out by great Flood-gates, till the Ship is built, or repaired, but afterwards can be easily let into it again to float, and launch her.

2. A *Wet Dock*, is any Place in the Ouze, out of the Tide's Way, where a Ship may be haled in, and so *dock* herself, or sink herself a Place to lie in.

DOCKET, a little Bill tied to Wares, or Goods, and directed to the Person, and Place they are to be sent to.

DOCTOR, a Person who has pass'd all the Degrees of a Faculty, and is impower'd to teach, or practise the same. See DEGREE.

The Title of *Doctor* was first created towards the Middle of the XIIth Century; to succeed to that of *Master*, which was become too common, and familiar. See MASTER.

The Establishment of *Doctorates*, such as now in Use among us, is ordinarily attributed to *Irnerius*, who himself drew up the Formulary. The first Ceremony of this Kind was perform'd at *Boulogne*, in the Person of *Bulgarus*, who began to profess the *Roman* Law, and on that Occasion was solemnly promoted to the Doctorate, *i. e.* install'd *Juris utriusque Doctor*.

But the Custom was soon borrow'd from the Faculty of Law to that of Theology: The first Instance whereof was given in the University of *Paris*, where *Peter Lombard*, and *Gilbert de la Porree*, the two top Divines of those Days, were created *Doctors* in Theology, *Sacræ Theologiæ Doctores*.

Spelman gives another Turn to the Thing: He takes the Title *Doctor* not to have commenced till after the Publication of *Lombard*'s Sentences, about the Year 1140, and affirms, that such as explain'd that Work to their Scholars, were the first that had the Appellation of *Doctors*.

Others go much higher, and hold *Bede* to have been the first *Doctor* at *Cambridge*, and *John de Beverley* at *Oxford*, which latter died in the Year 721. But *Spelman* will not allow *Doctor* to have been the Name of any Title, or Degree in *England*, till the Reign of King *John*, about the Year 1207.

To pass *Doctor of Divinity* at *Oxford*, 'tis necessary the Candidate have been 4 Years Batchelor of Divinity. For *Doctor of Laws*, he must have been 7 Years in the University to commence Batchelor of Law; 5 Years after which he may be admitted *Doctor of Laws*. Otherwise, in three Years after taking the Degree of Master of Arts, he may take the Degree of Batchelor in Law; and in four Years more, that of *LLD.* which same Method and Time are likewise required to pass the Degree of *Doctor in Physic*.

At *Cambridge*, to take the Degree of *Doctor in Divinity*, 'tis required the Candidate have been 7 Years Batchelor of Divinity. Tho' in several of the Colleges, the taking of the Batchelor of Divinity's Degree is dispensed with, and they may go out *per Saltum*. To commence *Doctor in Laws*, the Candidate must have been five Years Batchelor of Law, or seven Years Master of Arts. To pass *Doctor in Physic*, he must have been Batchelor in Physic 5 Years, or 7 Years Master of Arts.

DOCTOR *of the Law*, was a Title of Honour, or Dignity among the *Jews*.

The *Jews*, 'tis certain, had *Doctors* long before *Jesus Christ*. The Investiture, if we may so say, of this Order, was perform'd by putting a Key, and a Table-Book in their Hands; which is what some Authors imagine our Saviour had in View, *Luke* XI. 52. where, speaking of the *Doctors of the Law*, he says, *Woe unto you* Doctors of the Law, *for you have taken away the Key of Knowledge; you enter'd not in your selves, and them that were enter'd, you hinder'd*.

The *Greek* Text of St. *Luke* calls 'em Νομικοὶ; and the Vulgate *Legisperiti*; agreeably to which our *English* Translators call 'em *Lawyers*. But the *French* Version of *Docteurs de la Loi*, seems the most adequate. In effect, the Word *Legisperitus* is only found in St. *Luke*, and St. *Paul*, *Titus* III. 13. and Νόμικος in St. *Matthew*, XXII. 35. is render'd by the Vulgate, *Legis Doctor*; tho' the *English* Version still retains, *Lawyer*.

These *Jewish Doctors* are the same whom they otherwise call *Rabbins*. See RABBIN.

DOCTOR *of the Church*, a Title given to certain of the Fathers who have publish'd Books, and whose Doctrines and Opinions have been the most generally followed, and authorized by the Church.

We usually reckon four *Doctors* of the *Greek* Church, and four of the *Latin*. The first are St. *Athanasius*, St. *Basil*, St. *Gregory Nazianzen*, and St. *Chrysostom*. The latter are St. *Ambrose*, St. *Jerom*, St. *Augustin*, and *Gregory* the *Great*.

In the *Romish* Breviary there is a particular Office for the *Doctors*. It only differs from that of the Confessors by the Anthem of the *Magnificat*, and the Lessons.

The Appellation *Doctor* has since been adjoyn'd to several specific Epithets, expressing wherein the Merit of such as the Schools own'd for their Masters, consisted.

Thus *Alexander Hales* is call'd the *Irrefragable Doctor*, and the *Fountain of Life*, as mention'd in *Possevinus*. *Thomas Aquinas* is call'd the *Angelical Doctor*; St. *Bonaventure* the *Seraphic Doctor*; *John Duns* Scotus, the *Subtile Doctor*; *Raimond Lully* the *Illuminated Doctor*; *Roger Bacon* the *Admirable Doctor*; *William Ocham* the *Singular Doctor*: *John Gerson*, and *Card. Cusa* the *Most Christian Doctors*; *Dionysius* the *Carthusian*, the *Extatic Doctor*; and an Infinity of others to be met withal in Ecclesiastical Writers.

DOCTOR, διδάσκαλος, in the *Greek* Church, is a particular Officer, appointed to interpret Part of the Scriptures. He who interprets the Gospels, is call'd *Doctor of the Gospels*: He who interprets St. *Paul*'s Epistles, *Doctor of the Apostle*: He who interprets the Psalms, *Doctor of the Psalter*.

DOCUMENT, in Law, a Proof given of any Fact asserted; but chiefly with regard to ancient Matters.

Thus we say, The Antiquity of the Foundation of such a Church is proved by a Number of authentic Titles and *Documents*.

DODECAEDRON, in Geometry, one of the regular Bodies, comprehended under twelve equal Sides each whereof is a Pentagon. See REGULAR *Body*.

Or a *Dodecaedron* may be conceiv'd to consist of twelve Quinquangular Pyramids, whose Vertices, or Tops meet in the Centre of a Sphere conceiv'd to circumscribe the Solid; consequently they have their Bases and Altitudes equal.

To find the Solidity of the Dodecaedron; find that of one of the Pyramids, and multiply it by the Number of Bases, *viz.* 12, the Product is the Solidity of the whole Body. Or its Solidity is found by multiplying the Base into $\frac{1}{3}$ of its Distance from the Centre, 12 times: And to find this Distance, take the Distance of two parallel Faces: the Half is the Height. See SOLID, and SOLIDITY.

The Diameter of the Sphere being given, the Side of the *Dodecaedron* is found by this Theorem: *The Square of the Diameter of the Sphere is equal to the Rectangle under the Aggregate of the Sides of a Dodecaedron* and *Hexaedron* inscribed in the same, and triple the Side of the *Dodecaedron*. Thus, if the Diameter of the Sphere be 1, the Side of the *Dodecaedron* inscribed will be $(\sqrt{\frac{5}{3}}-\sqrt{\frac{1}{3}}):2$; Consequently, that, is to this, as 2 to $(\sqrt{\frac{5}{3}}-\sqrt{\frac{1}{3}})$ and the Square of that, to the Square of this, as 4 to $5-\sqrt{3}$. Therefore the Diameter of the Sphere is incommensurable to the Side of an inscribed *Dodecaedron* both in itself, and its Power.

DODECAGON, a regular Polygon, or Figure with twelve equal Sides and Angles. See POLYGON.

Dials are sometimes drawn on all the Sides of a *Dodecagon*. See DIAL.

In Fortification, a Place surrounded with twelve Bastions, is call'd a *Dodecagon*: Such is *Palma Nova*, in *Friuli*, &c.

DODECATEMORY, in Astronomy, the 12th Part of a Circle. See CIRCLE, ARCH, &c.

The Term is chiefly applied to the twelve Parts of the Zodiac of the *Primum Mobile*, to distinguish 'em from the 12 Signs.

DODECATEMORY, is also a Denomination some Authors give to each of the twelve Signs of the Zodiac, by reason they contain a twelfth Part of the Zodiac a-piece. See SIGN.

DODONÆUS, DODONIAN, in Antiquity, an Epithet given to *Jupiter*, as adored, or worshipp'd in the Temple of *Dodona*, in *Dodona*'s Grove, or Forest.

Dodona, whence the Appellation arises, is an ancient City of *Epirus*, celebrated on divers Accounts, as the *Forest of Dodona*, the *Oracle of Dodona*, and the *Fountain of Dodona*,

Dodona's Forest, was a Wood, or Grove of Oaks, all consecrated to *Jupiter*. In this Wood was a Temple of that God, wherein was the most famous, and as 'tis said, the most ancient Oracle of all *Greece*. See ORACLE.

Indeed, 'twas not in the Temple only, that Oracles were deliver'd; The Pidgeons that inhabited the Wood, are said to have done the same.

The Origin, and Occasion of this Fable, we have from *Herodotus*, who observes, it was founded on this, that Πελειάδες, which in the *Thessalian* Language signifies a Pidgeon, does likewise signify a Witch, or Prophetess. But what is more extraordinary, is, another Tradition among the Poets, as if the very Oaks of the *Forest of Dodona* spoke, and deliver'd Oracles.

This Fable is easily deduced from the former: The Pidgeons in the Oaks being supposed to speak, 'twas no great Flight of a Poetical Fancy, to introduce the Trees themselves speaking, &c. See *Vossius de Idolol.* L. I. 7. p. 27.

The *Fountain of Dodona*, was in the Temple of *Jupiter*. The ancient Naturalists assure us, it had a Property of re-kindling Torches, &c. newly extinguish'd. This, no doubt, it did by means of the sulphureous Fumes exhaling from it; as we still find a Fountain in *Dauphine*, call'd the *Burning Fountain*, Do. 'Tis also said, to have extinguish'd lighted Torches; which is no great Miracle, since plunging them into a Place where the Sulphur was too dense, *i. e.* into the Water, must have that Effect.

DODRANS, in Antiquity, a Division of the As. See As.

DOG, in Astronomy, a Name common to two Constellations, call'd the *Great*, and *Little Dog*; but among Astronomers, more usually, *Canis Major*, & *Minor*. See CANIS *Major* & *Minor*.

Dog-*Draw*, in the Forest-Law, a manifest Deprehension of an Offender against Venison in a Forest; when he is found *drawing* after a Deer by the Scent of a Hound, led in his Hand.

There are four of these Offences noted by *Manwood*, viz. *Stable-Stand*, *Dog-draw*, *Back-bear*, and *Bloody hand*. See STABLE-*Stand*, &c.

Dog-*Days*, *Dies Caniculares*, are certain Days, in which the Dog-Star rises, and sets with the Sun; the Weather being excessive hot, and sultry.

They begin about *July* 24th, and end about *August* 28th. See CANICULAR *Days*.

Bite of a Mad DOG. See HYDROPHOBIA.

DOGE, the chief Magistrate in the Republicks of *Venice*, and *Genoa*.

The Word properly signified *Duke*, being form'd from the Latin *Dux*; as *Dogate*, and *Dogado*, from *Ducatus*, Dutchy.

The *Dogate*, or Office and Dignity of *Doge*, is elective: At *Venice*, the *Doge* is elected for Life; at *Genoa*, only for two Years: He is address'd under the Title of *Serenity*, which among the *Venetians* is superior to that of Highness. See SERENITY.

The *Doge* is the Chief of the Council, and the Mouth of the Republic; he being always to answer for her. Yet the *Venetians* do not go into Mourning at his Death, as not being their Soveraign, but only their first Minister. In effect, the *Doge* of *Venice* is no more than the Fantom, or Shadow of the Majesty of a Prince; all the Authority thereof being reserv'd to the Republic. He only lends his Name to the Senate: The Power is diffused throughout the whole Body, tho' the Answers be all made in the Name of the *Doge*. If he give any Answers on his own Bottom, they must be very cauriously express'd, and in general Terms, otherwise he is sure to meet with a Reprimand. So that 'tis absolutely necessary he be of an easy, pliable Disposition.

Anciently, the *Doges* were Soveraigns; but Things are much alter'd; and at present, all the Prerogatives affected to the Quality of *Doge*, are these which follow. He gives Audience to Embassadors; but does not give 'em any Answer on his own Head, in Matters of any Importance: Only, he is allowed to answer as he judges good, to the Compliments they make to the Signory; such Answers being of no Consequence. The *Doge*, as being first Magistrate, is Head of all the Councils; and the Credentials which the Senate furnishes its Ministers in foreign Courts, are wrote in his Name; and yet he does not sign 'em, but a Secretary of State signs them, and seals 'em with the Arms of the Republic. The Embassadors direct their Dispatches to the *Doge*; and yet he may not open 'em, but in Presence of the Councellors. The Money is struck in the *Doge's* Name, but not with his Stamp, or Arms. All the Magistrates rise, and salute the *Doge*, when he comes into Council; and the *Doge* rises to none, but foreign Embassadors.

The *Doge* nominates to all the Benefices in the Church of St. *Mark*; He is Protector of the Monastery *delle Virgine*; and bestows certain petty Offices of Ushers of the Houshold, call'd *Commanders* of the Palace. His Family is not under the Jurisdiction of the Master of the Ceremonies; and his Children may have Staff-Officers, and Gondoliers in Livery.

His Grandeur, at the same Time, is temper'd with Abundance of Things, which render it burdensome. He may not go out of *Venice*, without Leave of the Councellors; and if he does go out, he is liable to receive Affronts, without being entitled to demand Satisfaction; and if any Disorder should happen where he was, it belongs to the *Podesta*, as being invested with the public Authority, to compose it.

The Children, and Brothers of the *Doge*, are excluded from all the chief Offices of State. They may not receive any Benefice from the Court of *Rome*; but are allowed to accept of the Cardinalate, as being no Benefice, nor including any Jurisdiction. The *Doge* may not divest himself of his Dignity, for his Ease; and after his Death, his Conduct is examined by three Inquisitors, and five Correctors, who sift it with a deal of Severity.

DOGGER, a small Ship, built after the *Dutch* Fashion, with a narrow Stern, and commonly but one Mast; us'd in fishing on the *Doggers* Bank. See FLOATING *Vessel*.

DOGMA, a Maxim, Axiom, Tenet, settled Proposition, or Principle; particularly in Matters of Religion, and Philosophy.

Thus we say, the *Dogmata of Faith*: Such a *Dogma* was condemn'd by such a Council. The *Dogmata* of the *Stoicks* were most of 'em Paradoxes. Speculative *Dogmata*, which do not lay any restraint on Men, appear to them more essential to Religion, than Virtues, which restrain, and confine 'em; nay, they often persuade themselves, that it is allowable to maintain those *Dogmata*, at the Expence of the Virtues.

DOGMATICAL, originally signifies Instructive, Scientific, or something relating to an Opinion, or Science.

In common Use, a *Dogmatical* Philosopher is such a one as asserts Things positively; in Opposition to a *Sceptic*, who doubts of every Thing.

And a *Dogmatical Physician*, he, who, on the Principles of the School Philosophy, rejects all Medicinal Virtues not reducible to manifest Qualities. See DOGMATIST.

DOGMATICI, DOGMATISTS, a Sect of ancient Physicians, call'd also *Logici*, Logicians, from their using of the Rules of Logic in Subjects of their Profession. See MEDICINE.

They laid down Definitions, and Divisions, reducing Diseases to certain *Genera*, those *Genera* to Species, and furnishing Remedies for 'em all; supposing Principles, drawing Consequences, and applying those Principles and Consequences to the particular Diseases under Consideration. In which Sense the *Dogmatists* stand contra-distinguish'd to *Empericks*, and *Methodists*. See EMPERICI, &c.

Others define *Dogmatists* to be those who brought Physic into a Form, and Arrangement, like those of other speculative Sciences; defining, dividing, laying down Principles, and drawing Conclusions: And hence also the Appellation of *Logici*.

They also applied themselves to seek the Causes of Diseases, the Nature of Remedies, &c.

Erisistratus, a famous *Dogmatist*, went so far, that not contented to dissect Dogs, and other brute Animals, he begg'd condemn'd Criminals of the Magistrates, open'd them while alive, and search'd in their Entrails. See PHYSICIANS.

DOLE, in the *Saxon* Tongue, signifies a Part, or Portion, most commonly, of a Meadow. The Word still signifies a *Share*; a distributing, or dealing of Alms, or a liberal Gift made by a great Man to the People.

Hence also *Dole-Meadow*, is a Meadow wherein several Persons have Shares.

DOLIMAN, a Kind of long Soutanne, wore by the Turks, hanging down to the Feet, with narrow Sleeves, button'd at the Wrist.

The *Turks*, both Men and Women, wear Drawers next the Skin; over that a Shift, or Shirt; and over the Shirt a *Doliman*. In Summer it is Linnen, or Mussilin; in Winter, Sattin, or Stuff.

DOLLAR, or DALLER, a Silver Coin nearly of the Value of the Piece of Eight, or *French* Crown. See COIN.

Dollars are coin'd in divers Parts of *Germany*, and *Holland*; and have their Diminutions, as *Semi-Dollars*, *Quarter-Dollars*, &c.

They are not all of the same Fineness, nor Weight. The *Dutch Dollars* are the most frequent. In the *Levant* they are call'd *Asiani*, from the Impression of a Lion thereon.

DOLPHIN, *Delphinus*, in Astronomy. See DELPHINUS.

DOM, or DON, a Title of Honour, originally *Spanish*, tho' us'd occasionally in some other Countries. See TITLE.

It is equivalent to *Master*, *Sir*, or *Lord*, *Monsieur*, *Sieur*, *Mynheer*, &c. See SIR, MONSIEUR, &c.

Gollut in his *Memoires de Bourg.* L. V. C. 11. assures us, that the first, on whom the *Spaniards* conferr'd the Title, was *Dom Pelayo*; when, upon their being routed, and driven out by the *Sarazens*, at the Beginning of the VIIIth Century, they rallied again on the *Pyrenians*, and made him King. In *Portugal*, no body is allow'd to assume the Title of *Dom*, which is a Badge or Token of Nobility, without the King's Leave.

The Word is likewise us'd in *France* among some Orders of Religious, as the *Chartreux*, *Benedictins*, &c. The Reverend Father *Dom Calmet*, *Dom Alexis*, *Dom Balthasar*, &c. In the Plural they write *Doms*, with an *s*, in speaking of several RR PP. *Doms Claude du Ruble*, and *Jacques Douceur*.

It is form'd from the Latin *Dominus*; of which it is an Abbreviature. *Domnus* is found in divers Authors of the corrupter *Latin*. *Onuphrius* assures us, it was a Title first given the Pope alone; then to the Bishops, Abbots, and others, who held any Ecclesiastical Dignity, or were eminent for Virtue, and Religion. At length it was usurp'd by the mere Monks.

Some say, they declined the Title *Dominus* out of Humility, as belonging to God alone; and assuming that of *Domnus*, as expressing Inferiority, *quasi minor Dominus*. Indeed, the Appellation *Domnus* for *Dominus* appears very ancient, if we consider the Surname of *Julia*, Wife of the Emperor *Septimus Severus*, who is call'd on Medals, JVLIA DOMNA, for JVLIA DOMINA.

DOMAIN, the Inheritance, Estate, Habitation, or Possession of any one.

Of how much Evil was Cause, not thy Conversion, but those rich Domains. *Milton.*

Menage derives the Word from *Domanium*, wrote in the barbarous *Latin* for *Dominium*.

DOM-*Book*. See DOMES-*Day*.

DOME, or DOOM, by the *Saxons* call'd *Dom*, signifies Judgment, Sentence, Ordnance, or Decree.

The Homagers Oath in the Black-Book of *Hereford* ends thus: *So help me God at his Holy* Dome, *and by my Trowthe*.

DOME, in Architecture, a spherical Roof; or a Work of a Spherical Form rais'd over the Middle of a Building, as Church, Hall, Pavillion, Vestible, Stair-Case, &c. by Way of Crowning, or Acroter. See ROOF, and CROWNING.

Domes are the same with what the *Italians* call *Couppolas*; and we frequently *Cupola's*: The *Latins*, according to *Vitruvius*, *Tholi*. See CUPOLA.

They are usually made round; tho' we have Instances of square Ones; as those of the *Louvre*: and others, that are Polygons, as that in the Jesuites Church in the *Rue* St. *Antboine* at *Paris*. They have usually Columns rang'd around their Out-sides, both by Way of Ornament, and to support the Vault.

A *Flat* DOME is that whose Sweep, or Contour, is less than a Hemisphere.

The Word is form'd from the Latin *Doma*, which among the Ancients signified a *Roof*, or *Open Porch*; as is observ'd by *Papias*. 'Tis frequent in the corrupt *Latin* Authors, who borrowed it from the *Greeks*, among whom *Trullus*, or *Trullum*, is a common Name for any round Building, such as the Palace of *Constantinople*, wherein was held the Council; thence call'd *in Trullo*. See TRULLUS.

DOME, in Chymistry, the arched Cover of a Reverberatory Furnace. See REVERBERATORY.

DOMES-*Day*, or DOOMS-*Day-Book*, denominated *Liber Judiciarius*, *vel Censualis Angliæ*, i. e. the Judicial Book, or Book of the Survey of *England*, is a most ancient Record made in the Time of *William* the *Conqueror*; upon a Survey, or Inquisition of the several Counties, Hundreds, Tithings, &c. Its Name is form'd from *Dom*, Doom, Judgment, Sentence; and *Day*, which has the same Force: So that *Dome-Day* is no more than a Reduplicative, founding, *Judgment Judgment*.

The Stress, or Design of the Book, is to be a Register, by which Sentence may be given in the Tenures of Estates; and from which that noted Question, whether Lands be ancient Demesne, or not, is still decided. Its Contents are summ'd up in the following Verses.

Quid deberent fisco, quæ, quanta Tributa,
Nomine quid Census, quæ Vectigalia, quantum
Quisque teneretur feodali solvere Jure.
Qui sunt Exempti, vel quos Angaria damnat,
Qui sunt vel Glebæ Servi, vel Conditionis,
Quove Manumissus Patrono Jure ligatur.

This Book is still remaining in the Exchequer, fair and legible; consisting of two Volumes, a Greater, and a Less; the Greater comprehending all the Counties of *England*, except *Northumberland*, *Cumberland*, *Westmoreland*, *Durham*, and Part of *Lancashire*; which were never survey'd; And except *Essex*, *Suffolk*, and *Norfolk*, which are comprehended in the Lesser Volumn, which concludes with these Words: *Anno Millesimo Octogesimo Sexto ab Incarnatione Domini, vigesimo vero Regis Wilhelmi, facta est ista Descriptio non solum per hos tres Comitatus, sed etiam alios.*

It is call'd *Liber Judicialis*, by reason a just, and accurate Description of the whole Kingdom is contain'd therein; with the Value of the several Inheritances, &c.

It was begun by five Justices, assign'd for the Purpose in each County, in the Year 1081. and finish'd in 1086. *Camden* calls it, *Guilielmi Librum Censualem*, King *William*'s Tax-Book.

Our Ancestors had many *Dome-Books*. We are told by *Ingulphus*, that King *Alfred* made a like Register, with that of *William* the *Conqueror*. It was begun upon that Prince's dividing his Kingdom into Counties, Hundreds, Tithings, &c. when an Inquisition being taken of the several Districts, it was digested into a Register, call'd *Domboc*, q. d. the Judgment-Book, and reposited in the Church of *Winchester*; whence it is also call'd the *Winchester Book*, and *Magna Rolla Winton*. And upon the Model of this Domboc it is, that the *Doom-Day* of the Conqueror was form'd.

That of King *Alfred* referr'd to the Time of King *Ethelred*.

And that of the *Conqueror*, to the Time of *Eduard* the *Confessor*: The Entries being thus made, *C. tenet Rex Guilielmus in Dominico, & valet*, &c. *ibi ducatæ*, &c. T. R. E. *valebat*; q. d. It was worth so much *Tempore Regis Eduardi*, in the Time of King *Eduard*.

There is a third *Dom-Boc*, or *Domes-Day-Book* in 4°. differing from the other in *Folio*, rather in Form, than Matter. It was made by order of the same Conqueror; and seems to be the more ancient of the two.

A fourth Book there is in the Exchequer, call'd *Domes-Day*; which, tho' a very large Volume, is only an Abridgment of the other two. It has Abundance of Pictures, and gilt Letters at the Beginning, which refer to the Time of *Eduard* the *Confessor*.

DOMESTIC, a Term of somewhat more extent than that of *Servant*; The latter only signifying such as serve for Wages, as Footmen, Lacqueys, Porters, &c. Whereas *Domestic* comprehends all who act under a Man, compose his Family, and live with him, or are supposed to live with him. Such are Secretaries, Chaplains, &c.

Sometimes, *Domestic* goes further, being applied to the Wife and Children.

DOMESTIC, *Domesticos*, Δομέστικοι, in Antiquity, was a particular Officer in the Court of the Emperors of *Constantinople*.

Fabrot in his Glossary on *Theophilax Simocatta*, defines *Domestic*, in the general, to be any Person intrusted with the Management of Affairs of Importance; a Councellour *cujus fidei graviores alicujus Terræ, & Sollicitudinis committuntur*.

Others hold, that the *Greeks* call'd *Domestici* those who at *Rome* were call'd *Comites*; particularly, that they began to use the Name *Domesticus*, when that of Count was become a Name of Dignity, and ceas'd to be the Name of an Officer in the Prince's Family. See COUNT.

Domestici, therefore, were such as were in the Service of the Prince; and assisted him in the Administration of Affairs, both those of his Family, those of Justice, and of the Church.

The *Grand Domestic*, or *Megadomesticus*, call'd also by Way of Eminence the *Domesticus*, served at the Emperor's Table, in Quality of what we Occidentals call *Dapifer*. Others say, he was rather what we call *Majordomo*.

The *Domesticus Mensæ* did the Office of Grand Seneshal, or Steward.

The *Domesticus Rei Domesticæ* acted as Master of the Houshold.

Domesticus Scholarum, or *Legionum*, had the Command of the reserved Forces, call'd *Scholæ Palatinæ*, whose Office was to execute the immediate Orders of the Empire. See SCHOLA.

Domesticus Murorum, had the Superintendance of all the Fortifications.

Domesticus Regionum, that is, of the East and West, had the Care of public Affairs, much like our Attorney or Sollicitor General.

Domesticus Icanatorum, or of the Military Cohorts.

There were divers other Officers of the Army, who bore the Name *Domesticus*; which signified no more than Commander, or Colonel. Thus, the *Domestic of the Legion*, call'd *Optimates*, was the Commander thereof. See LEGION.

Domesticus Statorum.

Domesticus Chori, or *Chantor*, whereof there were two in the Church of *Constantinople*; the one on the right Side of the Church, and the other on the left. They were also call'd *Protopsaltes*, ἀρχωιδός. *Dom. Macri* distinguishes three Kinds of *Domestici* in the Church. *Domestic of the Patriarchal Clergy*, The *Domestic of the Imperial Clergy*, that is, the Master of the Empresses Chappel: And the *Domesticus Despinicus*, or of the Empress. There was another Order

Order of *Domesticks*, inferior to any of those abovemention'd, call'd *Patriarchal Domesticks*.

DOMESTICI was also a Body of Forces in the *Roman* Empire. *Pancirollus* takes 'em to have been the same with those call'd *Protectores*; who had the chief Guard of the Emperor's Person, in a Degree above the *Pretorians*; and who under the Christian Emperors had the Privilege to bear the Grand Standard of the Cross.

They are supposed to have been 3500 before *Justinian*'s Time, who added 2000 more to the Number. They were divided into several Companies, or Bands, which the *Latins* call'd *Scholas*, some whereof are said to have been instituted by *Gordian*. Some of 'em were Cavalry, and some Infantry.

Their Commander was call'd *Comes Domesticorum*. See COUNT.

DOMIFYING, *Domification*, in Astrology, the dividing or distributing the Heavens into twelve Houses; to erect a Theme, or Horoscope; by means of six great Circles, call'd *Circles of Position*. See HOROSCOPE.

There are divers Ways of *Domifying*, according to divers Authors. That of *Regiomontanus*, which is the most usual, makes the Circles of Position pass through the Intersections of the Meridian, and Horizon. Others make 'em pass thro' the Poles of the World, or the Equator; and others through the Poles of the Zodiac.

DOMINATION, in Theology, the 4th Order of Angels, or blessed Spirits, in the Hierarchy; reckoning from the Seraphim. See HIERARCHY, and SERAPH.

DOMINICAL *Letter*, in Chronology, popularly call'd *Sunday-Letter*, one of the seven Letters of the Alphabet, A B C D E F G, us'd in Almanacks, Ephemerides, *&c.* to denote the Sundays throughout the Year. See SUNDAY.

The *Dominical Letters* were introduced into the Calendar by the Primitive Christians, in lieu of the *Nundinal Letters* in the *Roman* Calendar. See LETTER.

The Word is form'd from *Dominica*, or *Dominicus Dies*, Lord's-Day, Sunday.

These Letters, we have observed, are seven: And, that in a common Year, the same Letter should mark all the Sundays, will easily appear; In as much as all the Sundays are seven Days a-part; and the same Letter only returns in every seventh Place.

But in Bissextile, or Leap-Year, the Case is otherwise: For by means of the Intercalary Day, either the Letters must be thrust out of their Places, for the whole Year afterwards, so, *e.gr.* as that the Letter, which answers to the first of *March*, shall likewise answer to the second, *&c.* or else the Intercalary Day must be denoted by the same Letter as the preceeding one. This latter Expedient has been judg'd the better, and accordingly the Sundays after the intercalary Day have another *Dominical Letter*.

Hence, 1. As the common *Julian*, and *Gregorian* Year consists of 365 Days, *i.e.* of 52 Weeks, and one Day. The Beginning of the Year, every common Year, goes backwards by one Day; thus, *e.gr.* if this Year the Beginning, or first Day fall on a Sunday, the next Year it will fall on Saturday, the next on Friday, *&c.* Consequently, if A be the *Dominical Letter* of the present Year, G will be that of the next Year.

2. As the *Julian*, and *Gregorian* Bissextile, or Leap-Year, consists of 366 Days, *i.e.* 52 Weeks, and 2 Days, the Beginning of the next Year after Bissextile goes back 2 Days. Whence, if in the Beginning of the Bissextile Year, the *Dominical Letter* were A, that of the following Year will be F.

3. Since in Leap-Years the Intercalary Day falls on the 24th of *February*, in which Case the 23d, and 24th Days are denoted by the same Letter; After the 24th Day of *February* the *Dominical Letter* goes back by one Place: Thus, if in the Beginning of the Year the *Dominical Letter* be A, it will afterwards be G.

4. As every fourth Year is Bissextile, or Leap-year, and as the Number of Letters is 7; The same Order of *Dominical Letters* only returns in 28 Years; which, without the Interruption of Bissextiles, would return in 4 Years. See BISSEXTILE.

5. Hence the Invention of the Solar Cycle of 28 Years; upon the Expiration whereof the *Dominical Letters* are restored successively to the same Days of the Month, or the same Order of the Letters returns. See CYCLE *of the Sun*.

To find the DOMINICAL *Letter of any given Year.*

Seek the Cycle of the Sun for that Year; as directed under CYCLE: And the *Dominical Letter* is found corresponding thereto. Where there are two; the proposed Year is Bissextile; and the first obtains to the 24th of *February*; and the last for the rest of the Year.

By the Reformation of the Calendar under Pope *Gregory*, the Order of the *Dominical Letters* was again disturbed in the *Gregorian* Year: For the Year 1582, which at the Beginning had G for its *Dominical Letter*; by the Retrenchment of 10 Days after the 4th of *October*, came to have C for its *Dominical Letter*; by which means the *Dominical Letter* of the ancient *Julian* Calendar is four Places before that of the *Gregorian*: The Letter A in the former answering to D in the latter.

DOMINICAL, in Church-History. The Council of *Auxerre* held in 578, decrees, that Women communicate with their *Dominical*. Some Authors contend, that this *Dominical* was a linnen Cloth, wherein they receiv'd the Species; as not being allowed to receive 'em in the bare Hand. Others will have it a Kind of Veil, wherewith they cover'd the Head. The most probable Account is, that it was a Kind of linnen Cloth, or Handkerchief, wherein they receiv'd, and preserv'd the Eucharist in Times of Persecution, to be taken on Occasion.

DOMINICANS, an Order of Religious, call'd in some Places *Jacobins*, and in others, *Prædicants*, or *Preaching Fryars*. See JACOBINS, PRÆDICANTS, *&c.*

The *Dominicans* take their Name from their Founder *Dominic de Gusman*, a *Spanish* Gentleman, born in 1170, at *Calarvega*, in Old *Castile*. He was first Canon and Arch-Deacon of *Osma*; and afterwards preach'd with a deal of Zeal, and Vehemence against the *Albigenses* in *Languedoc*, where he laid the first Foundation of his Order. It was approv'd of in 1215, by *Innocent* III. and confirm'd in 1216, by a Bull of *Honorius* III. under the Rule of St. *Augustin*, and the Title of *Preaching Fryars*.

The first Convent was founded at *Tholouse*, by the Bishop thereof, and *Simon de Montfort*. Two Years afterwards they had another at *Paris* near the Bishop's House, and some time after, a third in the *Rue* St. *Jacques*, St. *James*'s Street, whence the Denomination of *Jacobins*.

St. *Dominic*, at first, only took the Habit of the Regular Canons, that is, a black Sontanne, and Rochet; But this he quitted in 1219, for that which they now wear, which, 'tis pretended, was shewn by the blessed Virgin herself to *Renaud* at *Orleans*.

This Order is diffused throughout the whole Earth. It has 45 Provinces under the General, who resides at *Rome*; and 12 particular Congregations, or Reforms, govern'd by Vicars General.

They reckon three Popes of this Order, above 60 Cardinals, several Patriarchs, 150 Arch-Bishops, and about 800 Bishops. Beside Masters of the sacred Palace, whose Office has been constantly discharg'd by a Religious of this Order, ever since St. *Dominic*, who held it under *Honorius* III. in 1218.

The *Dominicans* are also Inquisitors in many Places. See INQUISITION.

The Dogma's of the *Dominicans* are usually opposite to those of the *Franciscans*. See FRANCISCAN.

There are also Nuns, or Sisters of this Order, call'd in some Places, *Preaching Sisters*. These are even more ancient than the Fryars; St. *Dominic* having founded a Society of Religious Maids, at *Prouilles*, some Years before the Institution of his Order of Men, *viz.* in 1206.

There is also a *Third Order* of *Dominicans*, both for Men and Women. See THIRD *Order*.

DOMINIUM, DOMINION, or DOMAINE, in ancient Customs, is a Rent due to the Lord, where the Property is not his. With respect to Signory, he who pays Rent, has the *Dominium utile* of the Lands; and the Lord he pays it to the *Dominium directum*.

Directum Dominium is the Title alone of *Dominium*; And *Dominium utile*, the Profit redounding from it.

The Wife retains the *Dominium directum* of her Jointure, and the *Dominium utile* passes to her Husband.

DOMINUS, in ancient Times, being prefix'd to a Name, usually denoted the Person to be either a Knight, or a Clergyman. Tho' the Title was sometimes given to a Gentleman not dubb'd; especially, if he were a Lord of a Manour. See DOM, SIR, and GENTLEMAN.

DONATION, a public Act, or Contract, whereby a Man transfers to another, either the Property, or the Use of the Whole, or a Part of his Effects.

A *Donation* to be valid, and compleat, supposes a Capacity both in the Donor, and the Donatory; and requires Consent, Acceptance, Registring, and Delivery.

DONATISTS, ancient Schismaticks in *Africa*, denominated from their Leader, *Donatus*.

They had their Origin in the Year 311; when, in the room of *Mensurius*, who died the preceeding Year, on his Return to *Rome*, *Cecilian* was elected, whom the People refused to acknowledge, and to whom they opposed *Majorinus*, who, accordingly, was ordain'd by *Donatus*, Bishop of *Castis nigris*. They were condemn'd in a Council held at *Rome*, two Years after their Separation, and afterwards in another at *Arles*, the Year following.

The Errors of the *Donatists*, beside their Schism, were 1. That Baptism conferr'd out of the Church, that is, out of their Sect, was null. 2. That there was no Church but in *Africa*: All the rest of the Churches they held as prostitute, and

and fallen. *Donatus* seems likewise to have given into the Doctrine of the *Arians*, with whom he was closely allied; And accordingly, St. *Epiphanius*, *Theodoret*, and some others, accuse the *Donatists* of *Arianism*. But St. *Augustin Ep.* 185. to Count *Boniface*, affirms, that the *Donatists*, in this Point, kept clear of the Errors of their Leader.

In 344, under the Empire of *Theodosius* the *Great*, there arose a Schism among the *Donatists* themselves, by which they were broke into two Parties. For *Parmenian*, their Bishop, being dead, some elected *Primian*, and were call'd *Primianists*; and others, *Maximian*, call'd *Maximianists*. The *Donatists* had likewise other Appellations, as *Circumcelliones*, *Montenses*, or *Mountaineers*, *Campites*, *Rupites*, &c.

They held three Councils, or *Conciliabules*; that of *Cirta* in *Numidia*, and two at *Carthage*. *Constantine* decreed Exile, and even Death, against the *Donatists*. *Constans*, and *Honorius*, made Laws for their Banishment: And *Theodosius*, and *Honorius*, condemn'd 'em to grievous Mulcts.

DONATIVE, *Donativum*; a Present made any Person, call'd also GRATUITY.

The *Romans* made large *Donatives* to their Soldiers. *Julia Pia*, Wife of the Emperor *Severus*, is call'd on certain Medals, MATER CASTRORVM, by reason of the Care she took of the Soldiery, by Interposing for the Augmentation of their *Donatives*, &c.

The *Donative* was properly the Gift made the Forces in the Army; as the *Congiarius* was that made the People.

Salmasius in his Notes on *Lampridius*, in the Life of *Heliogabalus*, mentioning a *Donative* that Emperor gave of three Pieces of Gold *per* Head, observes, that this was the common, and legitimate Rate of a *Donative*. *Casaubon* in his Notes on the Life of *Pertinax*, by *Capitolinus*, observes, that *Pertinax* made a Promise of three thousand *Denarii* to each Soldier; which amounted to upwards of 97 Pounds Sterling. See COIN.

The same Author writes, that the legal *Donative* was 20000 *Denarii*; and that it was not customary to give less, especially to the *Pretorian* Soldiers; that the Centurions had double, and the Tribunes, &c. more in Proportion.

DONATIVE, in the Cannon Law, a Benefice given, and collated to a Person, by the Founder, or Patron; without either Presentation, Institution, or Induction by the Ordinary. See BENEFICE.

If Chappels founded by Laymen, be not approv'd by the Diocesan, and, as 'tis call'd, *spiritualized*, they are not accounted proper Benefices, neither can they be conferr'd by the Bishop, but remain to the pious Disposition of the Founders: So that the Founders, and their Heirs, may give such Chappels without the Bishop. *Gregorius de Beneficiis*. See CHAPPEL.

Gwin observes, that the King might of ancient Time found a free Chappel, and exempt it from the Jurisdiction of the Diocesan. So may he by Letters Patents give Liberty to a common Person to found such a Chappel, and make it *Donative* Not-presentable. And the Chaplain, or Beneficiary, shall be deprivable by the Founder, or his Heir, and not by the Bishop. And this seems to be the Original of *Donatives* in *England*.

All Bishopricks in ancient Time were *Donative* by the King.

Again, where a Bishop has the Gift of a Benefice, it is properly call'd a *Donative*, because he cannot present to himself. See BENEFICE, PATRON, PRESENTATION, COLLATION, &c.

DONJON. See DUNGEON.

DONJON, in Fortification, is generally taken for a large Tower, or Redoubt of a Fortress, where the Garrison may retreat in Case of Necessity, and capitulate with greater Advantage.

DONOR, in Law, he who gives Lands, or Tenements to another in Tail: And *Donee*, is he to whom the same are given. See DONATION, &c.

DOOR, in Architecture, an Aperture in a Wall, to give Entrance, and Exit in, and out of the Building, or an Apartment thereof. See HOUSE, BUILDING, APERTURE, &c.

It ought to be a Rule, that the *Doors* of a House be as few in Number, and as moderate in Dimensions, as possible: For, in a Word, all *Openings are Weakenings*. 2. That they do not approach too near the Angles of the Walls; It being a most glaring Sollecism to weaken that Part, which must weaken all the rest: A Precept, well recorded, but ill practised by the *Italians* themselves, particularly at *Venice*. 3. That the *Doors*, if possible, be right over one another; that void may be over void, and full over full. 4. That, if possible, they be opposite to each other, so as that one may see from one End of the House to another; which will not only be graceful, but also convenient; as it affords a Means of cooling the House in Summer, by letting in Air; and of keeping out the Wind in Winter, which Way soever it sit. 5. 'Tis not only Ornamental, but secure, to turn Arches over *Doors*; as it discharges 'em in great Measure of the superincumbent Weight.

The Proportions of *Doors* are adjusted by those of a Man: In larger Buildings they must always be larger than in smaller; but in none should they be less than 6 Foot high, to admit a Man of just Stature, erect; And as the Breadth of a Man, with his Arms placed a-kimbo, is nearly subduple his Height, the Width should never be less than 3 Foot.

Some Architects give us these Dimensions: In small Buildings the Breadth of the *Door* 4 Foot, or 4 and a half; in middling Buildings, 5 or 6; in large Ones, 7 or 8: In Chambers of the first, 3 and a half, $3\frac{3}{4}$, or 4; of the second, 4, or 4 and a half; and of the third, 5, or 6; in Churches, 7 or 8; in Gates, 9, 10, or 12: hence their Height is easy determin'd; except for the Gates of Cities, which should only be $\frac{4}{3}$ of their Breadth.

'Tis an Observation of the excellent *Palladio*, that the principal *Door*, or Entrance of a House, must never be regulated by any certain Dimensions, but by the Dignity of the Person that is to live in it: yet, to exceed rather in the more, than the less, is a Mark of Generosity; and may be excused with some noble Emblem, or Inscription, as that of the Conte *di Bevilacqua* over his large Gate at *Verona*, where had been committed a like Disproportion, *Patet Janua, Cor magis*.

DORIC, in Grammar. The *Doric Dialect* is one of the five *Dialects*, or Manners of speaking which obtain'd among the *Greeks*. See DIALECT.

It was first us'd by the *Lacedemonians*, and particularly those of *Argos*; thence it pass'd into *Epirus*, *Lybia*, *Sicily*, the Islands of *Rhodes*, and *Crete*.

In this *Dialect*, *Archimedes* and *Theocritus* wrote, who were both of *Syracuse*; and likewise *Pindar*. Port Royal.

In Strictness, however, we should rather define *Doric* the Manner of speaking peculiar to the *Dorians*, after their Recess near *Parnassus*, and *Asopus*; and which afterwards came to obtain among the *Lacedemonians*, &c.

Some even distinguish between the *Lacedemonian*, and *Doric*; but in Reality they were the same; setting aside a few Particularities in the Language of the *Lacedemonians*; as is shewn by *Rulandus* in his excellent Treatise, *de Lingua Græca, ejusque Dialectis*, L. V.

Beside the Authors already mention'd to have wrote in the *Doric* Dialect, we might add *Architas* of *Tarentum*, *Bion*, *Callinus*, *Simonides*, *Bacchylides*, *Cypselas*, *Alcman*, and *Sophron*.

Most of the Medals of the Greater *Greece* and *Sicily* savour of the same Dialect in their Inscriptions; Witness, AMBRAKIΩTAN, ΑΠΟΛΛΩΝΙΑΤΑΝ, ΑΧΕΡΟΝΤΑΝ, ΑΧΤΡΙΤΑΝ, ΗΡΑΚΛΕΩΤΑΝ, ΤΡΑΧΙΝΙΩΝ ΘΕΡΜΙΤΑΝ, ΚΑΥΛΟΝΙΑΤΑΝ, ΚΟΠΙΑΤΑΝ, ΤΑΥΡΟΜΕΝΙΤΑΝ, &c. Which shews the Countries wherein the *Doric* Dialect was used.

The general Rules of this Dialect are thus given by the *Port Royalists*.

D'ΗΤα, d'ω grand, d'ε d'ο & d'ι la fait le Dore.
D'ει fait ᾶτα. d'ε, ω, & d'ω αυ fait Encore.
Oste ι de l Infini: & pour le Singulier
Se sert au Feminin du Nombre Plurier.

But they are much better explain'd in the IVth Book of *Rulandus*; where he even notes the minuter Differences of the Dialects of *Sicily*, *Crete*, *Tarentum*, *Rhodes*, *Lacedemon*, *Laconia*, *Macedonia*, and *Thessaly*.

DORIC, in Architecture, is the second of the five Orders; being that between the *Tuscan* and *Ionic*. See ORDER.

The *Doric* Order seems the most natural, and best proportioned of all the Orders; all its Parts being founded on the natural Position of solid Bodies. Accordingly, the *Doric* is the first, and most ancient of the Orders of Architecture, and is what gave the first Idea of regular Building. See ARCHITECTURE.

At its first Invention it was more simple than at present; and when in After-times they came to adorn, and enrich it more, the Appellation *Doric* was restrain'd to this richer Manner, and the primitive simple Manner they call'd by a new Name the *Tuscan* Order. See TUSCAN.

The Tradition is, that *Dorus*, King of *Achaia*, having first built a Temple of this Order at *Argos*, which he dedicated to *Juno*, occasion'd it to be call'd *Doric*: Tho' others derive its Name, I know not how, from its being invented, or us'd by the *Dorians*.

Some time after its Invention they reduced it to the Proportions, Strength, and Beauty of the Body of a Man. Hence, as the Foot of a Man was judg'd the 6th Part of his Height, they made the *Doric* Column, including the Capital, 6 Diameters high, *i.e.* six times as high as thick. Afterwards they added another Diameter to the Height, and made it 7 Diameters; with which Augmentation it might be said to be nearer the Proportion of a Man: The human Foot, at least in our Days, not being a 6th, but nearly a 7th Part of the Body. See COLUMN.

The Characters of the *Doric* Order, as now manag'd, are, the Height of its Column, which is 8 Diameters; its Frize, which is enrich'd with Triglyphs, Drops, and Metopes; its Capital, which is without Volutes; and its admitting of Cymatiums. See TRIGLYPH, CYMATIUM, *&c.*

The Ancients, we have already observ'd, had two *Doric* Orders: The first, which was the more Simple and Massive, they us'd chiefly in Temples; The second, which was the more light and delicate, serv'd in Portico's, and Theatres.

Vitruvius, indeed, complains of the *Doric* as very troublesome, and perplexing, on Account of the Triglyphs, and Metopes, so as scarce to be capable of being us'd, except in the Pycnostyle, by putting a Triglyph between each two Columns, or in the Araeostyle, by putting 3 Triglyphs between each two Columns. See INTERCOLUMINATION.

The Moderns, on Account of its Solidity, use it in large strong Buildings; as in the Gates of Cities, and Citadels, the Outsides of Churches, and other massy Works, where Delicacy of Ornaments would be unsuitable.

The most considerable ancient Monument of this Order, is the Theatre of *Marcellus*, at *Rome*, wherein the Capital, the Height of the Frize, and its Projecture, are much smaller than in the modern Architecture.

Vignola adjusts the Proportions of the *Doric* Order thus: The whole Height of the Order, without Pedestal, he divides into 20 Parts, or Models; one of which he allows the Base, 14 to the Shaft, or Fust, one to the Capital, and 4 to the Entablature.

The particular Proportions, *&c.* of the several Parts, and Members, see under their respective Articles, SHAFT, CAPITAL, ENTABLATURE, PEDESTAL, BASE, ARCHITRAVE, FRIZE, and CORNICH.

DORIC *Cymatium*. See CYMATIUM.

DORIC, in Music. The *Doric Mode* is the first of the authentic Modes of the Ancients.

Its Character is to be severe, temper'd with Gravity, and Joy; And it is proper for Occasions of Religion, and War. It begins with *D*, *Sol*, *Re*. See MODE.

Plato admires the Music of the *Doric* Mode; and judges it proper, to preserve good Manners, as being Masculine. And on this Account allows of it in his Common-wealth.

The Ancients had likewise their *Subdoric Mode*, which was one of their Plagal Modes. Its Character was to be very grave, and solemn. It began with *G Ut*, a Diatessaron lower than the *Doric* Mode.

DORMANT, is the Herald's Term for the Posture of a Lyon born *sleeping*, in a Coat of Arms.

DORMANT-*Tree*, in Building, a Name the Workmen frequently give to a great Beam lying a-cross the House; usually call'd a *Summer*. See SUMMER.

DORMANT-*Tyles*. See TYLE.

DORMER, or DORMANT, in Architecture, is a Window made in the Roof of an House, or above the Entablature; being rais'd upon the Rafters. The *Latins* call it *Lucerna*, whence the French *Lucerne*, and our *Luthern*.

There are divers Kinds; Square, Round, *&c.* See LUTHERN.

DORMITORY, a Gallery in Convents, or Religious Houses, divided into several Cells, wherein the Religious lodge, or lye, *&c.* See CONVENT.

'Tis deem'd a Crime in a Religious to lye out of the *Dormitory*. By Chap. XXII. of *The Rule* of St. *Benedict*, it appears, that the ancient *Dormitories* were not divided into Cells, but were a Kind of large open Halls, fill'd with Beds, as in our Hospitals. See CELL.

The Word is form'd from the Latin *Dormitorium*, of *dormire*, to sleep.

DORSAL *Nerves*. See NERVES.

DORSALIS *Tabes*. See CONSUMPTION, and PHTHYSIS.

DORSI *Latissimus*, in Anatomy. See LATISSIMUS *Dorsi*.

DORSI *Longissimus*, a Muscle common to the Loins, and the Back: It rises from the upper Part of the *Os sacrum*, *Ilium*, and first *Vertebræ* of the Loins, and in its Beginning is confounded, if not the same with the *Sacro Lumbalis*. It runs upwards along the whole Tract of the Back, and is connected to every transverse Process in its Way; ending sometimes in the first *Vertebra* of the Back, and sometimes in the first of the Neck.

DORSIFEROUS, or DORSIPAROUS *Plants*, are those of the Capillary Kind; which are without Stem, and bear their Seeds on the Backside of their Leaves. See CAPILLARY.

DORSUM, in Anatomy, is the hind Part of the *Thorax*; tho' commonly translated, *Back*.

It includes the Loins. See LOINS.

DORSUM *Manus*, and *Pedis*, is the Outside of the Hand, and Foot; Or that Part opposite to the *Palm*, and *Sole*. See PALM, and SOLE; as also HAND, and FOOT.

DORSUM *Nasi*, is the *Ridge* of the Nose, which runs the whole Length of that Part. See NOSE.

In those we call *Roman* Noses, the *Dorsum* is higher, and more prominent about the Middle, than in the rest; which Part is call'd the *Spina*. See SPINA.

DOSE, in Pharmacy, *&c.* the Quantity of any Medicine to be taken at one Time: Or the Weight, or Measure of the several Ingredients in a medicinal Composition. See MEDICINE.

A Secret in Physic is nothing, unless the *Dose* be known. Authors, and Dispensatories, that describe the same Remedy, frequently the *Dose* is different; which occasions a great Difference in its Effect.

The Word is form'd from the *Greek* Δόσις, which signifies the same Thing.

Dr. *Cockburn* has given us an Essay towards determining the *Doses* of purgative Medicines, on Mechanical Principles. See PURGATIVE.

DOSITHEANS, an ancient Sect among the *Samaritans*. See SAMARITAN.

Mention is made in *Origen*, *Epiphanius*, *Jerom*, and divers other *Greek* and *Latin* Fathers, of one *Dositheus*, the Chief of a Faction among the *Samaritans*; But the Learned are not at all agreed, as to the Time wherein he lived. St. *Jerom* in his Dialogue against the *Luciferians*, makes him before our Saviour; wherein he is followed by *Drusius*, who in his Answer to *Serrarius*, places him about the Time of *Senaccherib*, King of *Assyria*. But *Scaliger* will have him since our Saviour's Time. And, in effect, *Origen* intimates him to have been contemporary with the Apostles; in observing, that he endeavour'd to persuade the *Samaritans*, that he was the *Messiah* foretold by *Moses*.

He had many Followers; and his Sect was still subsisting at *Alexandria* in the Time of the Patriarch *Eulogius*; as appears from a Decree of that Patriarch, publish'd by *Photius*. In that Decree *Eulogius* accuses *Dositheus* of injuriously treating the ancient Patriarchs, and Prophets; and attributing to himself the Spirit of Prophecy. He makes him cotemporary with *Simon Magus*; and accuses him of corrupting the Pentateuch in divers Places, and of composing several Books, directly contrary to the Law of God.

Arch-Bishop *Usher* takes *Dositheus* for the Author of all the Changes made in the *Samaritan* Pentateuch; which he proves by the Authority of *Eulogius*. But all we can justly gather from the Testimony of *Eulogius*, is, that *Dositheus* corrupted the *Samaritan* Copies since us'd in that Sect. But that Corruption did not pass into all the Copies of the *Samaritan* Pentateuch, now in Use among us, which vary but little from the *Jewish* Pentateuch. See PENTATEUCH.

And in this Sense we are to understand that Passage in a *Samaritan* Chronicle, where it is said, that *Dousis*, i. e. *Dositheus*, altered several Things in the Law of *Moses*.

The Author of that Chronicle, who was a *Samaritan* by Religion, adds, that their High-priest sent several *Samaritans*, to seize *Dousis*, and his corrupted Copy of the Pentateuch. *Epiphanius* takes him to have been a *Jew* by Birth, and to have abandon'd the *Jewish* Party for that of the *Samaritans*.

He imagines him likewise to have been the Author of the Sect of *Sadducees*; which is inconsistent with his being later than our Saviour. And yet the Jesuit *Serrarius* agrees to make *Dositheus* the Master of *Sadoc*, from whom the *Sadducees* are derived. See SADDUCEES.

Tertullian, making mention of the same *Dositheus*, observes, that he was the first who dared to reject the Authority of the Prophets, by denying their Inspiration. But he makes that a Crime peculiar to this Sectary, which, in Reality, is common to the whole Sect, who have never allowed any but the five Books of *Moses* for divine.

DOUBLE *Plea*, in Law, is that wherein the Defendant alledges for himself two several Matters in Bar of the Action; whereof, either is sufficient to effect his Desire, in debarring the Plaintiff. See PLEA.

This is not admitted in the Common Law: for which reason it is to be well observ'd, when a Plea is *double*, and when not; for if a Man alledge several Matters, one nothing dependant on another, the Plea is accounted *Double*; But if they be mutually depending on each other, then it is accounted but *Single*.

DOUBLE *Quarrel*, *Duplex Querela*, a Complaint made by a Clerk, or other, to the Arch-Bishop of the Province, against an inferior Ordinary, for delaying Justice in some Ecclesiastical Cause; as to give Sentence, institute a Clerk presented, or the like.

Its Denomination seems owing to this, that it is commonly made both against the Judge, and him, at whose Suit Justice is delay'd.

DOUBLE *Ratio*. See DUPLE.

DOUBLE *Vessel*, in Chymistry, is when the Neck of one Bolt-Head, or Matrass, is put, and well luted into the Neck of another.

It is also call'd a *Pellican*. See PELLICAN, and MATRASS.

Of

Of these there are divers Kinds and Forms, us'd in the Circulation of Spirits, in order to their being exalted, and refin'd as high as can be. See CIRCULATION, COHOBATION, RECTIFICATION, &c.

DOUBLE *Letter*, in Grammar, a Letter, which has the Force and Effect of two; as the Hebrew *Tsade*, which is equivalent to the Latin *T* and *S*; the *Greek* Ξ, &c. See LETTER.

These Letters are evidently equal to two; And even, when we pronounce the Latin *Axis*, or the English *Axillary*, we give the *x* the same Sound, as if it were wrote with two *cc*, *Accis*, *Accillary*, or a *c* and *s*, *Acsis*, *Acsillary*. *Double Letters*, along with the *σ*, or *s*, include one of the Mutes.

The *Greeks* have three Ζ Ξ Ψ: The *Latins* only two *X*, and *Z*. And most of the modern Languages have the same.

DOUBLE	*Descant*, in Music.	See	DESCANT.
	Feast.		FEAST.
	Fever.		FEVER.
	Tenaille.		TENAILLE.
	Time, in Music.		TIME.

Instances of DOUBLE *Children*, DOUBLE *Cats*, DOUBLE *Pears*, &c. are frequent in the *Philosoph. Transact.* and elsewhere. See MONSTER.

Sir *John Floyer*, in the same *Transactions*, giving an Account of a *Double Turkey*, furnishes some Reflections on the Production of *Double* Animals in general. Two Turkies, he relates, were taken out of an Egg of the common Size, when the rest were well hatch'd, which grew together by the Flesh of the Breast-Bone; but in all other Parts were distinct. They seem'd less than the ordinary Size, as wanting Bulk, Nutriment, and Room for their Growth; which latter, too, was apparently the Occasion of their Cohesion.

For, having two distinct Cavities in their Bodies, and two Hearts; they must have arose from two Cicatricula's; and consequently, the Egg had two Yolks; which is no uncommon Accident. He has a dried *Double Chicken*, he assures us, that, tho' it has four Legs, four Wings, &c. it has but one Cavity in the Body, one Heart, and one Head; and consequently, was produced from one Cicatricula.

So, *Paræus* mentions a *Double Infant*, with only one Heart: In which Case, the Original, or *Stamen* of the Infant was one, and the Vessels regular; only, the Nerves, and Arteries towards the Extremities dividing into more Branches than ordinary, produced *double* Parts.

The same is the Case in the *Double Flowers* of Plants, occasion'd by the Richness of the Soil. So it is in the Eggs of Quadrupeds, &c.

There are, therefore, two Reasons of *Duplicity* in Embryo's: 1. The Conjoyning, or Connexion of two perfect Animals; And, 2. An extraordinary Division, and Ramification of the Original Vessels, Nerves, Arteries, &c.

DOUBLE-*Fichee*, in Heraldry. A Cross is denominated *Double-Fichee*, when the Extremities are pointed at each Angle; that is, each Extremity has two Points: In Contradistinction to *Fichee*, where the Extremity is sharpen'd away to one Point. See CROSS.

Leigh calls it *Double Pitchy*, which seems to be a Mistake. *Gibbon* expresses it by an *Octagonal Cross*, the two Points whereof at each Extremity are parted inwards by a small Space of a Line. By which it is distinguish'd from the Cross of *Malta*; the two Points whereof proceed from a third Point; or acute Angle between 'em.

DOUBLE *Point*, in the higher Geometry. When all the right Lines tending the same Way, with the infinite Leg of any Curve, do cut it in one only Point, (as happens in the Ordinates of the *Cartesian*, and in the Cubical Parabola, and in the right Lines which are parallel to the Abscisses of Hyperbolism-Hyperbola's, and Parabola's;) then you are to conceive, that those right Lines pass through two other Points of the Curve, placed (as I may say) at an infinite Distance. Which coincident Intersection, whether it be at a finite, or an infinite Distance, Sir *Isaac Newton* calls the *Double Point*. See CURVE.

DOUBLINGS, in Heraldry, are the Linings of Robes, or Mantles of State; or of the Mantlings in Atchievements. See MANTLE, and FUR.

DOUBLING, in a Military Sense, is the putting two Ranks, or Files of Soldiers, into one. See RANK, and FILE.

When the Word of Command is, *Double your Ranks*, then the second, fourth, and sixth Ranks are to march up into the first, third, and fifth; so that of six Ranks they make but three, leaving double the Interval there was between them before: But it is not so when they *double the half Files*, because then three Ranks stand together, and the three others come up to *double* them; that is, the first, second, and third, are *doubled* by the fourth, fifth, and sixth; or on the contrary.

Double your Files, directs each other to march to that next to it on the Right, or Left, according to the Word of Command; In which Case the six Ranks are turned into twelve, the Men standing twelve deep; the Distance between the Files being now *double* of what it was before.

DOUBLING *a Cape*, or *Point*, in Navigation, signifies the coming up with it, passing by it, and leaving it behind the Ship.

The *Portugueze* pretend to be the first that ever *doubled* the *Cape of good Hope*, under their Admiral *Vasquez de Gama*: But we have Accounts in History, particularly in *Herodotus*, of the *Egyptians*, *Carthagenians*, &c. having done the same long before them.

DOUBLON, DUBLOON, a *Spanish* Coin, being the *Double* of a Pistole. See PISTOLE.

DOUBTING, the Act of Withholding a full Assent from any Proposition; on Suspicion, that we are not thoroughly appriz'd of the Merits thereof; Or from our not being able peremptorily to decide between the Reasons for, and against it. See FAITH, LIBERTY, &c.

The *Scepticks*, and *Pyrrhonians*, *doubt* of every Thing: The Character of their Philosophy is, not to allow any Thing for true; but to withhold the Assent, and keep the Mind free, and in Suspence. See SCEPTICKS.

The *Epicureans* trust their Senses, and *doubt* of their Reason: Their leading Principle is, that our Senses always tell Truth; That they are the first, and only Criterions of Truth; and that go ever so little from them, and that you come within the proper Province of *Doubting*. See EPICUREANS.

The *Cartesians*, on the contrary, of all Things bid us *doubt* our Senses; They are perpetually inculcating the Deceitfulness of our Senses; and we are to *doubt* of every one of their Reports, till they have been examined, and confirm'd by Reason. See CARTESIANS; as also TRUTH, FALLACY, &c.

DOUBTING, in Rhetoric, a Figure wherein the Orator appears some time fluctuating, and undetermined what to do, or say. *What shall I do? Shall I apply to those I once neglected, or implore those who now forsake me.*

Tacitus furnishes us a famous Instance of *Doubting*, in those Words of *Tiberius*, wrote to the Senate. *Quid scribam, P. S. aut quomodo scribam, aut quid omnino non scribam hoc Tempore, Dii me Deæque pejus perdant, quam perire quotidie sentio, si scio.*

DOUCINE, in Architecture, a Moulding, or Ornament on the highest Part of the Cornice, in Form of a Wave, half convex, and half concave. See CORNICHE.

The *Doucine* is the same with a *Cymatium*, or *Gula*. See CYMATIUM, and GULA *Recta*, and *Inversa*.

DOVE-*Tail*, in Carpentry, the strongest of the Kinds of Jointings, or Assemblages; wherein the *Tenon*, or Piece of Wood that enters the other, goes widening to the Extreme, and so cannot be drawn out again, by reason the Tip, or Extreme is bigger than the Hole.

It has its Denomination from the Resemblance the Tenon bears to a *Dove's* Tail.

The *French* call it *Queue d'Aronde*, Swallow's Tail; which Name the *English* themselves retain in Fortification. See QUEUE *d'Aronde*.

DOVETAILING, in Architecture, is a Way of fastening Boards, or Timbers together, by letting one Piece into another indentedly, with a *Dove-tail* Joint, or with a Joint in the Form of a *Dove's* Tail.

DOWAGER, *Dotissa*, (*q. d.* a Widow *endowed*, or that has a Jointure) a Title, or Addition applied to the Widows of Princes, Dukes, Earls, and Persons of Honour only. *Queen Dowager*. See QUEEN.

DOWER, or DOWRY, by the *Latins* call'd *Dos*, is properly the Money, or Fortune, which the Wife brings her Husband in Marriage, to have the Use of it, during her Marriage, towards supporting the Charge thereof. See MARRIAGE.

It is otherwise call'd *Maritagium*, Marriage Goods. See MARITAGIUM.

Among the *Germans* it was anciently customary for the Husband, to bring a *Dowry* to his Wife. *Romanis non in Usu fuit Uxoribus* Dotes *retribuere*; *ideo Verbo genuino carent quo hoc dignoscitur*; *& Rem ipsam in Germanorum Moribus Miratur Tacitus*: Dotem, *inquit*, *non Uxor Marito*, *sed Uxori Maritus affert*. Spelman.

At present, in *Germany*, the Women of Quality have but very moderate Fortunes. For Instance, the Princesses of the Electoral House of *Saxony*, have only 30000 Crowns: Those of other Branches of the same Family, 20000 Florins: Those of *Brunswic*, and *Baden*, only 1500 Florins; besides a Sum for Cloaths, Toys, and Equipages.

DOWER, is also us'd in a Monastic Sense, for a Sum of Money given along with a Maid, upon entering her in some Religious Order.

In *France*, the *Dowry* of Persons entering a Monastery, to make Profession of a Religious Life, is limited by Law. That, *e. gr.* given upon entering a Monastery of *Carmelites*, *Urselines*, and others, not regularly founded, but establish'd since the Year 1600, by Letters Patents, must not exceed the

Sum

Sum of 8000 Livres, in Towns where Parliaments are held; nor 6000, in other Places.

Dower, by the Latins *Dotarium*, or *Doarium*, is also a Portion of Lands, or Tenements, which the Wife enjoys for Term of Life, from her Husband, in Case she survives him; and which at her Death, descends to their Children.

Among the *Goths*, the *Dower* was only the tenth Part of the Husband's Estate: Among the *Lombards*, a fourth; among the *Romans*, and *Sicilians*, a third: which is the Rate that still obtains among us, and most other Nations.

Our Law-Book distinguish five Kinds of *Dower*: viz. *Dower per Legem communem*: *Dower per Consuetudinem*: *Dower ex Assensu Patris*: *Dower ad Ostium Ecclesiæ*: And *Dower de la plus belle*.

Dower *by the common Law*, is a third Part of such Lands, as the Husband was sole seiz'd of in Fee, during the Marriage; which the Wife is to enjoy during her Life, and for which there lies a *Writ of Dower*.

Dower *by Custom*, gives the Wife, in some Places, half her Husband's Lands, so long as she lives single; as in Gavelkind. And as Custom may enlarge, so may it abridge *Dower*, and restrain it to a fourth Part.

In Dower *ex Assensu Patris*; and *ad Ostium Ecclesiæ*, the Wife may have so much *Dower*, as shall be assign'd, or agreed upon; but it ought not to exceed the third Part of the Husband's Lands. If this be done before Marriage, it is call'd a *Jointure*.

Dower *de la plus belle*. By this she is endowed with the fairest, and best Part of her Husband's Estate.

DOWNS, an Elevation of Stone, or Sand, which the Sea gathers, and forms along its Banks; and which serves it as a Barrier.

The Word is form'd from the French *Dune*, or the German *Duins*. *Charles de Visch* in his *Compend. Chronolog. Exord. & Progress. Abbat. Clariss. B. Mariæ*, *de* Dunis, says, *Vallem referit Arenarum Collibus (quos Incolæ* Duynen *vocant) undique cinctam*.

Downs are particularly used for a famous Road for Ships, along the Eastern Coast of the County of *Kent*; from *Dover*, to the North Foreland.

This Road has excellent Anchorage, and is well defended by the Castles of *Sandwich*, *Deal*, and *Dover*.

Here it is, the *English* Fleets usually meet. *The Fleet is yet in the* Downs: *Sail'd from the* Downs.

The Word is form'd from the French *Dune*, of the Celtic *Dun*, a Mountain, or Eminence.

DOXOLOGY, a Church Term, applied by the *Greeks* to the 14th Verse of the second Chapter of St. *Luke*, *Glory be to God on High*, &c. because beginning with the *Greek* Word δόξα, *Glory*.

This they distinguish by the Name of *Great Doxology*: The *Gloria Patri*; *Glory be to the Father*, they call the *Less Doxology*, as beginning with the same Word δόξα. See Gloria *Patri*.

Philostorgius, *L.* III. *N.* 13. gives three Formula's of the *Lesser Doxology*. The first is, *Glory be to the Father, and to the Son, and to the Holy Ghost*. The second, *Glory be to the Father, by the Son, in the Holy Ghost*. And the third, *Glory be to the Father, in the Son, and the Holy Ghost*.

Sozoman, and *Nicephorus*, give a fourth, viz. *Glory be to the Father, and the Son, in the Holy Ghost*.

The first of these *Doxologies*, is that in common Use throughout the Western Church. It was first instituted about the Year 350, by the Catholicks of *Antioch*, then call'd *Eustathians*.

The three others were composed by the *Arians*: The second was that of *Eunomius*, and *Eudoxus*, and which was approv'd by *Philostorgius*. The three were all made about the Year 341, in the Council of *Antioch*, when they first began to disagree among themselves: *Philostorgius* assures us, that *Flavian*, afterward Patriarch of *Antioch*, was the Author of the first, or *Catholic Doxology*; but *Sozoman*, and *Theodoret*, say nothing of it; and *Philostorgius*, an *Arian* Author, scarce deserves to be credited on his single Word.

There were anciently very great Disputes, and principally at *Antioch*, as to the Form of *Doxology*: That mostly us'd among the Orthodox, was the same as still obtains; the rest were affected by the *Arians*, and other Antitrinitarians: Yet, St. *Basil*, in his Book, *on the Holy Spirit*, defends the second as orthodox, and legitimate, See Eustathian.

Some Authors write *Hymnology*, as synonymous with *Doxology*: But there is a Difference; *Hymnology* is applied to Psalms, or the Recitation of Psalms; and *Doxology* only to the little Verse, *Glory be to the Father*, &c. repeated at the End of each Psalm. See Hymnology.

DOZEIN. See Decennier.

DRACHM, DRACHMA, an ancient Silver Coin, used among the *Greeks*. See Coin.

The *Drachma* is supposed by most Authors to have been the same among the *Greeks*, with *Denarius*, or Penny, among the *Romans*, which was equivalent to four Sesterces. See Denarius.

Of this Opinion is *Budæus*, *de Asse*; who confirms it from the Authorities of *Pliny*, *Plutarch*, *Strabo*, and *Valerius Maximus*, with whom δραχμη is synonymous with *Denarius*.

But this is no strong Conviction, that the two Monies were precisely of the same Value: Those Authors, in not treating expressly of Coins, might easily render the one by the other, provided there were no considerable Difference between 'em.

Scaliger, in his Dissertation, *de Re Nummaria*, does not say absolutely, that the *Denarius* and *Drachma* were the same Thing; but from a *Greek* Passage *of the Lawyer*, *C.* XXVI. *Mandati*, where the *Drachma* is said to be composed of six *Oboli*, he concludes, that in the Age of *Severus*, at least, the *Denarius* and *Drachma* were the same.

But *Agricola*, *de Mens. & Ponder. L.* IV. proves from *Pliny*, *Celsus*, and *Scribonius Largus*, that the *Denarius* only contain'd 7 Ounces; and from *Livy*, *Appian*, *Cleopatra*, &c. that the *Drachma* contain'd 8: And maintains, that when some *Greek* Authors speak of the Ounce as only containing 7 *Drachms*; they don't mean the *Attic Drachm*, but the *Roman* Denarius, which the *Greek* Authors render by δραχμη.

Gronovius agrees with *Agricola*, viz. that the *Drachma* was the 8th Part of an Ounce. The Opinion is confirm'd by *Isidore*, *L.* XIV. *C.* 24. by *Fannius*, who says as much in express Terms; and by *Volusius*, who divides the Ounce into 24 *Scriptuli*, or Scruples, whereof the *Drachm* comprehended three.

Thus much supposed, and supposing likewise the ancient *Roman* Ounce equal to the modern one, and of Consequence 40 Grains less than ours, it follows, that the ancient *Roman* Ounce weigh'd 536 of our Grains, and the *Attic Drachma* 67 Grains. Lastly, supposing the Silver at *Athens* of the same Fineness with ours; and taking ours at the Price it now bears, the *Attic Drachma* will be found equivalent to about 7 Pence 3 Farthings Sterling. See Money.

The *Grecian* Way of accounting Sums of Money, was by *Drachmæ*: 10 of which were equal to 6 Shillings, 5 Pence ½ Penny; and 100 equal to a *Mina*. See Mina.

Drachm, is also a Weight, us'd by our Physicians; containing just sixty Grains; or 3 Scruples; or the 8th Part of an Ounce. See Grain, and Ounce.

In Averdupois Weight, the *Drachm* is an 8th Part of an Ounce. See Weight.

Drachma was likewise an ancient *Jewish* Money, having on one Side a Harp, and on the other a Bunch of Grapes.

This Coin was a *half Shekel*; and was so call'd by the *Jews*. 'Tis only the *Greeks* call'd it δραχμη. It was equal to 2 *Attic Drachmæ*. See Shekel.

DRACO, *Dragon*, in Astronomy, a Constellation of the Northern Hemisphere. See Constellation.

The Stars in the Constellation *Draco*, according to *Ptolomy*, are 31; according to *Tycho*, 32; according to *Bayer*, 33; and according to Mr. *Flamsteed*, 49.

The Longitudes, Latitudes, Magnitudes, &c. whereof are as follows.

Stars in the Constellation Draco.

Names and Situations of the Stars.	Sign.	Longit. ° ′ ″	Latitude. North. ° ′ ″	Magnit.
Last of the Tail.	♋	5 59 05	57 13 24	4
Another Subseq. and Contiguous.		6 29 10	57 30 55	6
		12 33 10	61 10 10	6
Last but one of the Tail.		11 51 58	61 43 40	4
That follows this.	♋	11 35 15	61 57 45	5
15				
Preceding the Antepenultimate.	♍	0 31 19	65 21 50	5
Antepenultimate of the Tail.		3 03 11	66 21 43	3
Preceding in the last Bend.	♎	0 32 27	71 03 49	3
Subsequent in the same Bend.		12 20 34	74 25 09	3
Preced. of two follow. the last Bend.		9 58 34	78 27 02	3
10				
North in the third Bend.	♍	0 42 04	81 06 11	6
Last of those following the last Bend.		29 49 00	81 39 25	6
Middle in the third Bend; double.	♎	0 10 58	83 19 35	6
		1 06 40	83 21 30	6
In the Tongue.	♏	20 11 05	76 14 30	6
15				
Subsequent in the third Bend.	♍	28 35 53	84 47 29	3
That over the Eye.	♐	7 21 37	75 18 35	3
In the Mouth; double.		5 38 33	78 10 38	5 6
		5 42 55	78 10 07	5 6
Preced. of two follow. the third Bend.	♋	20 24 33	86 52 52	6
20				
Subsequent in the same.		7 18 11	86 54 30	5
	♐	19 06 14	74 11 06	6
Preced. of the preced. △ in the Belly.	♋	9 10 29	84 07 35	4
Against the Jaw.	♐	20 21 13	80 19 43	4
Bright one in the Crown of the Head.		23 35 35	74 58 26	2 3
25				

Names

Names and Situations of the Stars.	Sign.	Longit. ° ′ ″	Latitude. North. ° ′ ″	Magnit.
	♊	29 25 24	84 29 50	5 6
	♒	2 21 19	87 25 03	6
N of 3. in the first Bend of the Neck.	♍	18 12 21	81 48 48	6
South of the preced. △ in the Belly.	♊	6 46 10	84 50 02	4
North of the same Triangle.		12 02 00	83 30 27	4
30				
Middle in the first Bend.	♍	21 38 02	79 47 27	6
South in the same Bend.		25 31 25	77 44 56	6
Behind the first Bend.	♒	10 55 52	80 49 31	6
		9 35 57	79 06 28	6 7
	♊	3 29 55	81 35 55	5
35				
	♒	6 44 17	76 57 50	6
		4 52 03	74 40 03	5
Preced. of the second △ in the Belly.	♉	16 04 14	83 09 33	5
	♒	15 20 52	77 13 18	5
40		18 48 48	77 44 31	6 7
(the preced. Side.				
N. in the □ against the 2d Bend of	♈	13 10 55	82 51 04	3
South of the same Side.	♓	29 26 46	81 48 28	4 5
	♊	4 56 12	78 38 10	6
North of the second △ in the Belly.	♉	20 32 52	80 37 38	5
South of that Triangle.	♈	27 11 22	80 53 11	6
45				
North of those following, in the □		28 34 21	79 26 17	4
Informis near Cepheus's Arm; double.		2 07 35	77 29 00	5 6
		1 27 34	77 19 45	7
South of those following in the □	♈	16 17 23	78 07 15	5

DRACO *Volans*, with the Meteorologists, is a fat, Heterogeneous, Earthy Meteor, appearing long, and sinous, something in the Shape of a flying Dragon. See METEOR.

This Shape they will have to arise from the latter Part of the Matter of this Meteor, being fired with greater Impetuosity, than what comes first out of the Cloud; and they suppose the broken Parts of the Cloud, and the sulphureous Matter which adheres to them, forms the apparent Wings of this imaginary Dragon.

DRACONARIUS, in Antiquity, *Dragon-bearer*.

Several Nations, as the *Persians*, *Parthians*, *Scythians*, &c. bore Dragons on their Standards; whence the Standards themselves were call'd *Dracones*, Dragons. The *Romans* borrowed the Custom from the *Parthians*; or, as *Casaubon* has it, from the *Dacæ*; or, as *Codin*, from the *Assyrians*.

Among the *Romans*, they were Figures of Dragons painted in red, on their Flags; as appears from *Ammian Marcellinus*: But among the *Persians*, and *Parthians*, they were like the *Roman* Eagles, Figures in full *Relievo*; So that the *Romans* were frequently deceiv'd, and took 'em for real Dragons.

The Soldier, who bore the Dragon, or Standard, was call'd by the Romans *Draconarius*; and by the *Greeks* Δρακοναριος, and Δρακοντεφορος; for the Emperors carried the Custom with them to *Constantinople*.

Pet. Diaconus Chron. Casin. L. IV. *C.* 39. observes, that the *Bajuli*, *Cercostraarii*, *Staurophori*, *Aquiliferi*, *Leoniferi*, and *Draconarii*, all march'd before King *Henry* when he went into *Rome*.

DRACONTIC *Month*, the Space of Time wherein the Moon going from her ascending Node, call'd *Caput Draconis*, returns to the same. See DRAGON'S *Head*, and MONTH.

DRACUNCULI, in Medicine, a Disease in Children, wherein they feel a vehement Itching; supposed to arise from little Worms, call'd *Dracunculi*, generated from a viscid Humour under the Skin, about the Back, Shoulders, and Arms. See WORMS.

Children seiz'd with the *Dracunculi*, become hectic, and scarce receive any Nourishment at all, tho' they eat plentifully.

The Disease, however, is not so peculiar to Children, but that grown Persons have been sometimes affected with it. The Emperor *Henry* V. is said, to have died of it; having had it from his Birth.

The Women in *Poland* cure their Children of the *Dracunculi*, after the following Manner: The Child is wash'd, and bathed in hot Water, wherein a Quantity of crum'd Bread, and a handful of Ashes have been cast. The Water being pour'd off, and the Bread gather'd into a Mass; when they come to break it again the next Day, they find in it an infinite Quantity of fine Hairs, which some call *Dog's Hairs*, and others, *Worms*; and 'tis those Hairs, or Worms, are supposed to be the Cause of the Disease.

After thus bathing the Children, they rub their Shoulders, and Arms, with Flower steep'd in Vinegar, or Honey; upon which immediately arises on the Skin a great Number of Tubercles, like Poppy-Seed; supposed to be the Heads of Worms. These they scrape off as fast as they appear; otherwise they withdraw beneath the Skin again. The Operation is repeated till such Time as no more Tubercles arise.

The *Dracunculi* is a Disease little known in *England*. The Editors of the *Leipsic* Acts, speaking of it, in the Tome for the Month of *October* 1682, call the Bodies, which put forth at the Pores after bathing, thick Hairs, *Corpuscula Pilorum crassiorum instar densa & spissa*, and not *fine slender Hair*, as *Degori* calls 'em. They add, that these little Corpuscles are hence call'd *Crinones*; and by reason of their devouring the Food, which should nourish the Children, *Comedones*.

Velchius, in a curious Dissertation on the Subject, calls 'em *Capillary Worms*. *Exercitatio de Vermibus Capillaribus Infantum*.

As to the Nature and Figure of these little Bodies, the same Editors observe, that the Microscope has put it past doubt, they are real living Animals, of an Ash Colour, having two long Horns, two large round Eyes, and a long Tail terminated with a Tuft of Hair; that 'tis difficult to draw them out whole, by scraping the Child's Body, in that being very soft, the least rubbing bruises 'em, and breaks 'em. See VERMES.

DRAG, in Building. A Door is said to *drag*, when in Opening and Shutting it hangs, or grates upon the Floor. See DOOR.

DRAGOMAN, a Term of general Use through the East, for an *Interpreter* whose Office is to facilitate Commerce between the Orientals, and Occidentals. See INTERPRETER.

The Word is form'd from the Arabic *Tergeman*, or *Tergiman*, of the Verb *Taragem*, *he has interpreted*. From *Dragoman*, the *Italians* have form'd *Dragomano*, and, with a nearer Relation to its *Arabic* Etymology, *Turcimanno*; whence our *Truchemen*, as well as *Dragoman*, and *Drogman*.

DRAGON, in Astronomy, *Dragon's Head*, and *Tail*, or *Caput & Cauda Draconis*, are the Nodes of the Planets; or the two Points, wherein the Ecliptic is intersected by the Orbits of the Planets; and particularly that of the Moon; making with it Angles of 5 Degrees. See PLANET, ORBIT, and NODE.

One of these Points tends Northward; the Moon beginning then to have Northern Latitude: and the other Southward; where she commences South. See MOON.

This her Deviation from the Ecliptic seems (according to the Fancy of some) to make a Figure like to that of a *Dragon*, whose Belly is, where she has the greatest Latitude; the Intersections representing the *Head* and *Tail*, from which Resemblance the Denomination arises.

But note, that these Points abide not always in one Place, but have a Motion of their own, in the Zodiac, and retrogradewise almost 3 Minutes a Day; compleating their Circle in about 19 Years; so that the Moon can be but twice in the Ecliptic, during her Menstrual Period, but at all other Times will have *Latitude*, as they call it. See LATITUDE.

'Tis in these Points of Intersection that all Eclipses happen. See ECLIPSE.

They are usually denoted by the Characters ☊ *Dragon's Head*, and ☋ *Dragon's Tail*. See HEAD, and TAIL.

DRAGON'S *Blood*, *Sanguis Draconis*, call'd also *Lapathum rubrum*, in Medicine. See BLOOD.

The Ancients had a Notion, that the *Dragon* fighting with the Elephant, suck'd all its Blood through its Eyes and Ears; that the Elephant falling down dead, crush'd the *Dragon*; and that from their Blood, thus mix'd on the Ground, arose what they call'd *Dragon's Blood*, which they held in high Esteem.

This is the Account given by *Solinus*, *Pliny*, *Isidore*, and others after them; but this Combat is a mere Fable, invented by the Merchants.

Avicenna, and *Serapion* likewise give the Appellation *Dragon's Blood* to Cinnabar. See CINNABAR.

But the genuine *Dragon's Blood* is the Juice, or Resin of a large Tree, call'd *Draco*, *Dragon*, growing in *Africa*, and *America*. The Resin is of a dark red, and easily dissolves when brought towards the Fire: if cast into the Fire, it flames: But dissolves with much Difficulty in any Liquor.

It is a good Astringent; and is us'd in Hæmorrhages, and Dysenteries, to fasten the Teeth, and strengthen the Gums.

There is also a counterfeit *Dragon's Blood*, made of the Gum of the Cherry, or Almond-tree, dissolved, and boil'd in a Tincture of *Brazil* Wood; but this is of no Use, except for outward Diseases of Horses.

It derives its Name *Dragon's Blood* from the Redness of its Colour, and gives its Name *Dragon* to the Tree that yields it. Some Botanists talk of the Figure of a *Dragon*, finely represented under the Rind of the Fruit of that Tree. But this is a mere Fiction.

DRAGONNEE, in Heraldry. A *Lyon Dragonne*, is where the upper Half resembles a Lyon; the other Half going off like the hind Part of a *Dragon*.

The ſame may be ſaid of any other Beaſt as well as the Lyon.

DRAGOON, in War, a Kind of Soldier who marches on Horſe-back, but without Boots; and fights on Foot, tho' ſometimes, too, on Horſe-back. See GUARDS.

The *Dragoons* are uſually poſted in the Front of the Camp, and march firſt to the Charge, like a Kind of *Enfans Perdus*.

They are uſually reputed as belonging to the Infantry, and in that Quality have Colonels, and Serjeants; but they have Cornets, too, like Cavalry.

Their Arms are a Sword, Fire-Lock, and Bagonet. When they march on Foot, their Officers bear the Pike, and the Serjeants the Halbert.

Menage derives the Word *Dragoon* from the Latin *Draconarius*: which in *Vegetius* is us'd to ſignify Soldiers. But it is more probably derived from the German *Tragen*, or *Draghen*, which ſignifies *to carry*; as being Infantry carried on Horſe-back.

DRAMS. See CORDIALS.

DRAMA, in Poetry, a Piece compoſed for the Theatre; Or a Piece of Dramatic Poetry. See THEATRE.

A *Drama*, or as we popularly call it, a *Play*, is a Compoſition either in Proſe, or Verſe, conſiſting, not in the ſimple Recitation, but in the actual Repreſentation of an Action.

Our *Drama's*, are Tragedies, Comedies, and Farces: For thoſe Groteſque Entertainments, lately introduced upon the Stage, ſcarce deſerve the Appellation. See TRAGEDY, COMEDY, FARCE, *&c.*

Some Criticks take the Book of *Canticles* for a *Drama*. See CANTICLES.

The Word is *Greek*, δρᾶμα, which literally ſignifies *Action*; by reaſon, in *Drama's*, or Dramatic Poems, they act, or repreſent *Actions*, as if they really paſſed.

Some ſcrupulous Authors would reſtrain *Drama* to ſerious Pieces; as Tragedies: But with reſpect to the Etymology, a Comedy is as much a *Drama*, as a Tragedy.

DRAMATIC, in Poetry, is an Epithet given to Pieces wrote for the Stage. See STAGE, and DRAMA.

For the Laws of *Dramatic* Poetry. See UNITY, ACTION, CHARACTER, FABLE, *&c.*

DRAPERY, in Painting, and Sculpture, the Repreſentation of the Garments, or Cloathing of human Figures. See FIGURE.

In the general Senſe, *Drapery* includes not only the Garments, but alſo the Tapiſtry, Linings, and moſt other Things that are not *Carnations*, nor Landſkips. See PAINTING.

The Art of *Drapery* conſiſts chiefly in three Points, *viz.* The Order of the Folds, or Plates: The different Quality of the Stuffs: And the Variety of their Colours.

As to the *Folds*, they ſhould be ſo manag'd, that you may eaſily perceive what it is that they cover, and diſtinguiſh it from any Thing elſe. For Inſtance, that you ſee 'tis an Arm that is under the *Drapery*, and not a Leg, *&c.* The Folds, again, muſt be large, as breaking, and dividing the Sight the leſs. There ſhould likewiſe be a Contreaſt between 'em, otherwiſe the *Drapery* will be ſtiff.

The *Quality of the Stuffs* ſhould likewiſe be well conſider'd; ſome making their Folds abrupt, and harſh, and others more ſoft, and eaſy. The Surface of ſome, again, has a Luſtre, others are dead: Some are fine, and tranſparent, others firm, and ſolid.

The Variety of *Colours*, when well manag'd, makes the great Beauty of a Painting; all being not equally amicable, and friendly, with reſpect to each other; and ſome never to be placed near certain others. See COLOURING.

Mr. *de Piles* gives Abundance of good Obſervations, as to *Drapery*. Their firſt Effect, he obſerves, and that which the Painter ought to have principally in View, is, that they expreſs the Thing they are ſuppoſed to cover: They muſt never be made to adhere, and ſtick to the Parts of the Body: A great Lightneſs, and Motion of the *Drapery*, are only proper for Figures in great Agitation, or expoſed to the Mind. The Nudities of the Figures ſhould always be deſign'd, 'ere the Painter proceed to the *Draperies*. *Paolo Veroneſe* excell'd in *Draperies*.

The Word is French, *Drapperie*, form'd from *Drap*, Cloth.

DRASTIC, from δραστικος, *activus*, briſk; a purgative Medicine that works with Speed, and Vigour; as *Jalap*, *Scammony*, and the ſtronger Catharticks. See PURGATIVE.

DRAUGHT, in Medicine. See POTION.

DRAUGHT, in Trade, is an Allowance made in the weighing of Commodities; the ſame as *Clough*. See CLOUGH.

DRAUGHT, in Painting, *&c.* See DESIGN.

DRAUGHT, or, as 'tis pronounced, DRAFT, in Architecture, the Figure of an intended Building deſcribed on Paper; wherein is laid down, by Scale, and Compaſs, the ſeveral Diviſions, and Partitions of the Apartments, Rooms, Doors, Paſſages, Conveniencies, *&c.* in their due Proportion. See BUILDING.

'Tis uſual, and even exceedingly convenient, 'ere a Building is begun to be rais'd, to have *Draughts* of the *Ichnography*, or Ground-plot of each Floor, or Story; As alſo of the Form and Faſhion of each Front, with the Windows, Doors, Ornaments, *&c.* in an *Orthography*, or Upright. See ICHNOGRAPHY, and ORTHOGRAPHY.

Sometimes the ſeveral Fronts, *&c.* are taken, and repreſented in the ſame *Draught*, to ſhew the Effect of the whole Building, call'd a *Scenography*, or *Perſpective*. See SCENOGRAPHY.

DRAW. A Ship is ſaid to *draw* ſo much Water, according to the Number of Feet ſhe ſinks into it.

Thus, if fifteen Foot from the Bottom of her be under Water, or if ſhe ſinks into the Water fifteen Foot perpendicularly, ſhe is ſaid to *draw* fifteen Foot Water; according as ſhe *draws* more, or leſs, ſhe is ſaid to be of more, or leſs *Draught*.

DRAW-*back*, in Commerce, a *Rebate*, or *Diſcount*, upon the Price of Commodities, purchaſed on certain Conditions. See REBATE, and DISCOUNT.

DRAW-*Bridge*, a Bridge made after the manner of a Floor, to be *drawn* up, or let down, as Occaſion ſerves, before the Gate of a Town, or Caſtle. See BRIDGE.

DRAWING *Medicines*, or DRAWERS. See EPISPASTICKS, and RIPENERS.

DRAWING *of Gold*, or *Silver*, is the paſſing it through a Number of Holes in an Iron, each leſs than other, to bring it into a Wiar. See WIAR *drawing*.

DRAWING *of a Bill of Exchange*, is the Writing, ſigning, and giving it to the Perſon who has already pay'd the Value, or Content thereof, to receive it in another Place. A Perſon ſhould never *draw* a Bill of Exchange, unleſs he be well aſſured, it will be accepted, and pay'd. See BILL *of Exchange*.

DRAWING, in Painting, *&c.* See DESIGNING.

DRAWING, among Hunters, is when they beat the Buſhes after a Fox.

Drawing amiſs, is when the Hounds, or Beagles hit the Scent of their Chace contrary, ſo as to hit it up the Wind, whereas they ſhould have done it down the Wind.

Drawing on the Slot, is when the Hounds touch the Scent, and *draw* on till they hit on the ſame Scent.

DRENCH, among Farriers, a Phyſical Draught, or Potion given a Horſe, by Way of Purge. See POTION.

DRENCHES, or DRENGES, in our old Cuſtoms, a Term about which the Lawyers and Antiquaries are a little divided.

Drenges, ſays an ancient Manuſcript, were *Tenentes in Capite*. *Spelman* ſays, they were *e Genere Vaſſallorum non Ignobilium, cum ſinguli qui in* Domes-day *nominantur ſingula poſſiderent Maneria*. Such, as at the coming in of the Conqueror, being put out off their Eſtates, were afterwards upon Complaint reſtored thereto; for that, they, being before Owners thereof, were neither in *Auxilio*, nor *Concilio* againſt him.

DRESSING *of Meats*, the preparing 'em for Food, by means of Culinary Fire. See MEAT, and FOOD.

The Deſign of *Dreſſing*, is to looſen the Compages, or Texture of the Fleſh, and diſpoſe it for Diſſolution, and Digeſtion in the Stomach. Fleſh not being a proper Food without *Dreſſing*, is alledg'd as an Argument, that Man was not intended by Nature for a Carnivorous Animal. See CARNIVOROUS.

The uſual Operations are *Roaſting*, *Boiling*, and *Stewing*.

In *Roaſting*, it is obſerved, Meat will bear a much greater, and longer Heat than either in *Boiling*, or *Stewing*; and in *Boiling*, greater, and longer than in *Stewing*. The reaſon is, that *Roaſting* being perform'd in the open Air, as the Parts begin externally to warm, they extend, and dilate, and ſo gradually let out Part of the rarified included Air, by which means the internal Succuſſions, on which the Diſſolution depends, are much weaken'd, and abated; *Boiling* being perform'd in Water, the Preſſure is greater, and conſequently, the Succuſſions to lift up the Weight, are proportionably ſtrong; by which means the Coction is haſten'd: And even in this Way there are great Differences; for the greater the Weight of Water, the ſooner is the Buſineſs done.

In *Stewing*, tho' the Heat be infinitely ſhort of what is employ'd in the other Ways, the Operation is much more quick, becauſe perform'd in a cloſe Veſſel, and full, by which means the Succuſſions are more often repeated, and more ſtrongly reverberated. Hence the Force of *Papin's Digeſtor*; and hence an *Illuſtration of the Operation of Digeſtion*. See DIGESTOR, and DIGESTION.

Boiling, Dr. *Cheyne* obſerves, draws more of the Rank, ſtrong Juices from Meat, and leaves it leſs nutritive, more diluted, lighter, and eaſier of Digeſtion: *Roaſting*, on the other hand, leaves it fuller of the ſtrong, nutritive Juices, harder to digeſt, and needing more Dilution. Strong, grown, and adult Animal Food, therefore, ſhould be *boil'd*; and the younger, and tenderer, *roaſted*.

DRIE *Exchange*, *Cambium Siccum*, a ſoft Appellation, anciently us d to diſguiſe Uſury under; intimating ſomething to paſs on both Sides, whereas, in Truth, nothing paſs'd

but

but on one: In which respect it might be call'd *Dry*. See USURY.

Cambium siccum, says *Lud. Lopes, de Contract. & Negot. est Cambium non habens Existentiam Cambii, sed Apparentiam ad Instar Arboris Exsiccatæ*, &c.

DRIE *Rent*. See RENT *Sec.*

DRIFT *of the Forest*, an exact View, or Examination of what Cattel are in the Forest, that it may be known, whether it be overcharg'd, or not, and whose the Beasts are; and whether they are commonable Beasts, or not. See FOREST, and COMMON.

DRIFT-*Sail*, in a Ship, is a Sail us'd under Water; it is veer'd out right a-head, upon the Sea in a Storm, having Sheets fasten'd to it as other Sails have; its Use being to keep the Ship's Head right upon the Sea.

It is also useful, to hinder a Ship's driving with a Current, and with that View generally us'd by Fisher-men, especially in the North-Sea.

DRINK, a Part of our ordinary Food, in a liquid Form, serving to dilute, and moisten the dry Meat. See FOOD.

The *Drinks*, in different Countries, are different. Those, ordinarily us'd among us, are, *Water*, *Malt-Liquors*, and *Wine*. See WATER, MALT-*Liquor*, and WINE.

The Extraordinaries, are, *Cyder*, *Punch*, *Brandy*, *Tea*, *Strong Waters*, &c. which see.

The *Malt-Drink* brew'd in *England*, in one Year, *Chamberlayne* assures us, amounts to very near 2 Millions of Barrels of strong, and small. See EXCISE.

Water, Dr. *Cheyne* observes, was without all Dispute the primitive original Beverage, as it is the only simple Fluid (for there are but three more in Nature, Mercury, Light, and Air, none of which is fit for human *Drink*) fitted for diluting, moistening and cooling, the Ends of *Drink* appointed by Nature: And happy had it been for the Race of Mankind, had other mixt, and artificial Liquors never been invented. Water alone is sufficient, and effectual for all the Purposes of human Wants in *Drink*. Strong Liquors were never design'd for common Use. They were formerly kept, here in *England*, as other Medicines are, in Apothecaries Shops, and prescribed by Physicians, as they do *Diascordium*, and *Venice* Treacle, to refresh the Weary, strengthen the Weak, and raise the low-spirited. The Effect of the ordinary Use of Wine, and spirituous Liquors, as natural Causes will always produce their Effects, is to inflame the Blood into Gout, Stone, and Rheumatism, Fevers, Pleurisies, Small-Pox, &c. to dry up the Juices, and scorch and shrivel the Solids. Those, whose Appetite, and Digestion is good, and entire, never want strong Liquors to supply 'em with Spirits: Such Spirits are too volatile, and fugitive for any solid, or useful Purposes of Life. Two Ounces of Flesh Meat, well digested, beget a greater Stock of more durable, and useful Spirits, than ten times as much strong Liquors.

All strong Liquors are as hard to digest, and require as much Labour of the Concoctive Powers, as strong Food it self. Water is the only universal Dissolvent, or Menstruum, and the most certain Diluter of all Bodies proper for Food. There are a great many spirituous Liquors, which not only will not dissolve, but will harden, and make more indigestible, especially the Salts of Bodies, wherein their active Qualities, that is, those which can do most harm to human Constitutions, consist. And we have known Persons of tender Constitutions, who could neither eat, nor digest, upon drinking Wine, who, by drinking at Meals common Water, heated, have recover'd their Appetites, and Digestion, have thriven, and grown plump. 'Tis true, strong Liquors by their Heat and Stimulation on the Organs of Concoction, by increasing the Velocity of the Motion of the Fluids, and thereby quickening the other Animal Functions, will carry off the Load that lies upon the Stomach, with more present Chearfulness. But then, beside the future Damages of such a Quantity of Wine to the Stomach, and the Fluids by its Heat, and Inflammation, the Food is hurried into the Habit unconcocted, and lays a Foundation for a Fever, fit of the Colic, or some Chronical Disease. *Essay on Health*, &c. *p.* 47, 48, &c.

DRIP, in Architecture. See LARMIER.

DRIPS, are also us'd in Building for a Kind of Steps, on flat Roofs, to walk upon. This Way of Building is much us'd in *Italy*: where the Roof is not made quite flat, but a little raised in the Middle; with *Drips*, or Steps, lying a little inclining to the Horizon. See ROOF.

DRIVE, in the Sea-Language. A Ship is said to *drive* when an Anchor being let fall, it will not hold her fast, but that she sails away with the Tide, or Wind. See ANCHOR.

The best Way to prevent this, is to veer out more Cable; for the more Cable she has, the surer, and safer she rides; or else to let fall more Anchors.

Also when a Ship is a *Hull*, or a *Trye*, we say, she *drives to Leeward*, or in *with the Shore*, according to the Way she makes.

DROGMAN. See DRAGOMAN.

DROIT, *Jus*, in our Law-Books, signifies *Right*, or *Law*: whereof our Lawyers make six Kinds, *viz.* 1. *Jus Recuperandi*, Right of Recovering: 2. *Jus Entrandi*, Right of Entring: 3. *Jus Habendi*, Right of Having: 4. *Jus Retinendi*, Right of Retaining: 5. *Jus Percipiendi*, Right of Receiving: 6. *Jus Possidendi*, Right of Possessing. See LAW, and RIGHT; as also RECTUM.

DROPAX, in Pharmacy, an external Medicine, in Form of a Plaster, us'd to take off the Hairs from any Part.

The *Dropax* is of two Kinds, *Simple*, and *Compound*.

The *Simple* is made of an Ounce of dry Pitch, and two Drachms of Oil.

The *Compound* is made with Pitch, Wax, Colophony, common Bitumen, *Sulphur vivum*, Pepper, Euphorbium, Cantharides, and Castor. There are also other Ways of making it.

It was anciently much in Use to warm the Parts, to draw the Blood and Spirits to them, and to cure Atrophies. It was applied hot on the Part affected, after first shaving it; and was pull'd off again 'ere quite cold, then heated a-fresh, and applied again; and the Operation thus repeated, till the Part were render'd very red.

The Word is form'd from the *Greek* δρεπειν, *to pluck, to tear*.

DROPPING, or *Dripping*, is a Term us'd among Falconers, when a Hawk mutes directly downwards in several *Drops*, not yerking her Dung straight forwards.

DROPS, in Meteorology. See RAIN.

The Spherical Form, into which the *Drops* of Fluids conform themselves, is a Phænomenon that has a little perplex'd the Philosophers.

The Solution commonly given, was, that the equable, uniform Pressure of the ambient, or incumbent Atmosphere closed 'em into this Form: But this Account will no longer pass, now that we find the Phænomenon holds in *Vacuo* as well as in Air.

The *Newtonian* Philosophers, therefore, ascribe it to their *Attraction*, which being greater between the several Particles of the Fluids, than between them, and those of the Medium, they are, as it were concentrated, and brought as near each other, and into as little Compass, as may be: which cannot be, without their being spherical.

Thus, Sir *Isaac Newton*: *Guttæ enim Corporis cujusque fluvei, ut figuram globosam inducere conentur, facit mutua partium suarum Attractio; Eodem modo quo Terra Mariaque in Rotunditatem undique conglobantur, Partium suarum Attractione mutua, quæ est Gravitas.* Opt. p. 338. See ATTRACTION.

DROPS, in Medicine, a liquid Medicine, whose Dose is estimated by a certain Number of *Drops*.

A little Lowness of Spirits, says Dr. *Cheyne*, speaking of the softer Sex under Fits of the Vapours, &c. requires *Drops*, which pass readily down under the Notion of Physic: *Drops* beget Drams, and Drams beget more Drams, till they come to be without Weight, and without Measure. Higher, and more severe Fits, begot by these, bring forth farther Necessity upon Necessity of *Drops*, Drams, and Gills, till at last, &c. *Essay on Health*.

English DROPS, or *Volatile English* DROPS, or *Guttæ Anglicanæ*, is a Liquor drawn by Fire from a great Number of Ingredients, and found a powerful Remedy against Coagulations of the Blood, Obstructions, Apoplexies, malignant Fevers, Small-pox, &c.

Its Inventor was Dr. *Goddard*, a Physician of *London*. King *Charles* II. had much ado to purchase the Secret of him, tho' he offer'd him 5000 Pounds for the same. However, he prevail'd at length; but the Physician look'd on it as a Favour done the Prince, to impart it to him on such Terms.

Hence it is, that the Remedy took the Name of *Guttæ Anglicanæ*. See GUTTÆ *Anglicanæ*.

DROPS, *Guttæ*, in Architecture, an Ornament in the Doric Entablature, representing *Drops*, or little Bells, immediately under the Triglyphs. See TRIGLYPH.

DROPSY, *Hydrops*, in Medicine, a Disease occasion'd by a præter-natural Collection of Serum, or Water, in some Part of the Body; Or a too great Proportion thereof in the Blood. See DISEASE.

The Word is derived from the *Greek* ὑδωρ, *Water*, and ὀψις, *Facies*, Face.

The *Dropsy* acquires different Names from the different Parts it afflicts, or the different Parts the Waters are collected in. That of the *Abdomen*, or lower Belly, call'd simply, and absolutely *Dropsy*, is particularly denominated *Ascites*: That of the whole Habit of the Body, *Anasarca*, or *Leucophlegmatia*: That of the Head, *Hydrocephalus*: That of the Scrotum, *Hydrocele*. See ASCITES, ANASARCHA, &c.

There is also a Species of this Disease caused, instead of Water, by a Collection of Wind, call'd *Tympanites*, and by *Hippocrates*, the *Dry Dropsy*. See TYMPANITES.

There

There are also *Dropsies of the Breast, Pericardium, Uterus, Ovaries*, &c.

The Causes of *Dropsies*, in general, are whatever may obstruct the serous Part of the Blood, so as to make it stagnate in the Vessels; Or brust the Vessels themselves, so as to let the Blood out among the Membranes; Or weaken, and relax the Tone of the Vessels; Or thin the Blood, and make it watery; or lessen Perspiration.

These Causes are various, *viz.* sometimes acute Diseases, schirrous Tumors of any of the more noble Viscera, excessive Evacuations, particularly Hæmorrhages, hard Drinking, *&c.*

The *Ascites*, or *Water-Dropsy* of the Abdomen, is the most usual Case, and what we particularly call the *Dropsy*: Its Symptoms are Tumors, first of the Feet, and Legs, and afterwards of the Abdomen, which keep continually growing; and if the Belly be struck, or shook, there is heard a Quashing of Water. Add to this three other Attendants, *viz.* a *Dyspnœa*; intense Thirst; and sparing Urine: with which may be number'd Heaviness, Listlessess, Costiveness, a light Fever, and an Emaciation of the Body.

The Curative Indications are two, *viz.* The Evacuation of the Water; and the Strengthening of the Blood, and Viscera. The first is effected by strong Purgatives, particularly *Elaterium*, and *Crocus Metallorum*. For such as are too weak to bear Purgatives, Dr. *Sydenham* recommends Emeticks, whereof the best are those made of Lixivial Salts. *Etmuller* prefers Diureticks to either Kind. Along with the Evacuants are to be used Stomachicks, especially *Absynthium, Marrhubium*, &c.

Where other means fail for Evacuating the Water, Recourse is had to the *Paracentæsis*, or Operation of Tapping. See PARACENTÆSIS.

Mayerne recommends *Mercurius dulcis*, and Nitre, and Ants Eggs, for the promoting of Urine, and draining the Tumour. As for the Viscera, they are restored by Chalybeats, and Strengtheners.

Baglivi notes, that in a *Dropsy* arising from a morbid Liver, there is always a vehement dry Cough: which is never observed in the other Species. *Tycho Brahe* observes, that Hydropic Persons usually die about full Moon. *Wainwright* extols an Infusion of Green Tea in *Rhenish* Wine; as also Briony Juice, as excellent in this Disease.

DROWNING, the Act of Suffocating, or being suffocated by Water. See SUFFOCATION.

People not accustom'd to diving, Dr. *Halley* observes, begin to *drown* in about half a Minute's Time. See DIVING.

Drowning was anciently a Kind of Punishment: In the Time of *Louis* XI. of *France*, the Chronicles assure us, that they frequently *drown'd* their Criminals, instead of hanging them. *Chron. Scand.* See PUNISHMENT.

Natural Historians, and Physicians, furnish us with divers well attested Instances of surprizing Recoveries of Persons *drown'd*: Which, if maturely consider'd, might perhaps let a little Light into the dark Notion of Life, and Death.

Pechlin, de Aer. & Alim. def. C. 10. gives us the History of a Gardener of *Tromingholm*, then living, ag'd 65 Years, who 18 Years before slipt under the Ice to the Depth of 18 Ells, where he stood at the Bottom, upright, as it were, for 16 Hours; when, being drawn out with a Crook struck into his Head, and wrapp'd up in Clothes, from the common Persuasion of those People, that he would recover; he was afterwards stroak'd, rubb'd with linnen Swaths, and Air blown up his Nostrils for several Hours; till the Blood began to move. Lastly, plying him with Antapoplectic, and Genial Liquors, he was restored to Life. In Memory of this Accident, the Queen Mother settled a yearly Stipend upon him, *&c.*

Tilasius, Keeper of the King's Library, gives us the History of a Woman he himself knew, who was under the Water 3 whole Days, yet brought to Life again after the same Manner as the *Tromingham* Gardener: and was still alive.

Lastly, *Burmannus* assures us, that being in the Village *Bones*, of the Parish of *Pithou*, he assisted at the Funeral Sermon of one *Laur. Jona*, an old Man of seventy; where the Preacher related, that when a Youth of 17, he had been buried 7 Weeks under Water, and at length drawn forth, and brought again to Life. *Pechlin. ubi sup.*

DRUG, in Commerce, a general Name for all Spices, and other Commodities, brought from distant Countries, and used in the Business of Medicine, Dying, and the Mechanic Arts.

The *Drugs* us'd in Medicine, are very numerous, and make the greatest Part of the Commerce of our *Druggists*. Some of 'em grow in *England, France*, &c. But the greatest Part are brought from the *Levant*, and the *East Indies*.

A List of 'em would be endless. Some of the Principal, are, *Aloes, Amber-gris, Amber, Assa fœtida, Antimony, Balsams, Bezoar, Borax, Benjoin, Camphor, Cantharides, Cardamum, Cassia, Castoreum, Colloquintis, Civet, Coral, Cubebs, Coffee, Cocao, Gums Animæ Armoniac Adraganth, Elemi Galbanum Gutta Labdanum Opoponax Sagapenum Sandarac Lacca, Jalap, Manna, Mastic, Mirrh, Musc, Opium, Pearls, Quinquina, Hellebore, Galanga, Zedoary, Rhubarb, Sarsaparilla, Storax, Sanguis Draconis, Senna, Sperma Ceti, Spica Nardi, Scammony, Sal Ammoniac, Sublimate, Tamarinds, Tea, Turpentine, Turbith, Tutia, Tartar Vitriol*, &c. The Natural History, *&c.* whereof, see under their respective Articles.

The *Drugs* used by Dyers, are of two Kinds; *Colouring*, which give the Dye, or Colour; And *Not-Colouring*, which only dispose the Stuffs to take the Colours the better, or to render the Colours more shining. See DYING.

Of the first Kind, are, *Pastels, Wood, Indigo, Kermes, Cochineel, Madder, Turmeric*, &c.

Of the second Kind, are, *Alumn, Tartar, Arsenic, Realgal, Saltpetre, Common Salt, Sal Gemmæ, Sal Ammoniac, Crystal of Tartar, Agaric, Spirit of Wine, Urine, Tin, Wheat-or Pease-Flower, Starch, Lime, Ashes*, &c.

There is a third Sort of *Drugs*, that answer both Intentions; As the *Root, Bark*, and *Leaf of the Walnut-tree, Galls, Copperose*, &c. An Account of each of these *Drugs*, see under their proper Articles.

DRUGGET, in Commerce, a Sort of cheap Stuff, very thin, and narrow, usually all Wool, and sometimes half Wool and half Thread: Sometimes cross'd; but usually without Crossing.

Those cross'd, are wove on a Loom with two Treddles, after the same Manner as Linnen, Camelot, *&c.*

Mr. *Savary* invented a Kind of Gold, and Silver *Druggets*; the Warp being partly Gold- and Silver-thread, and the Woof Thread.

DRUIDS, the Priests, or Ministers of Religion, among the ancient *Celtæ*, or *Gauls, Britains*, and *Germans*.

Some Authors derive the Word *Druid*, and *Drus*, from the *Hebrew* דרושים *Derussim, Drussim*, or *Drissim*, which they translate, *Contemplators*.

The *Druids* were the first, and most distinguish'd Order among the *Gauls*, and *Britains*: They were those out of the best Families; and the Honours of their Birth, joyn'd with those of their Function, procured 'em the highest Veneration among the People. They were versed in Astrology, Geometry, Natural Philosophy, Politicks, and Geography; and had the Administration of all sacred Things; were the Interpreters of Religion, and the Judges of all Affairs indifferently. Whoever refused Obedience to them, was declared impious, and accursed.

We know but little as to their peculiar Doctrines; only that they believed the Immortality of the Soul, and the *Metempsychosis*.

They were divided into several Classes, or Branches; *viz.* the *Vacerri, Bardi, Eubages, Semothii*, or *Semnothei*, and *Saronidæ*.

The *Vacerri* are held to have been the Priests; the *Bardi* the Poets; the *Eubages*, the Augurs; and the *Saronides*, the Civil Judges, and Instructors of Youth. As to the *Semothei*, who are said to have been immediately devoted to the Service of Religion, 'tis probable, they were the same with the *Vacerri*. See BARDI, *&c.*

Strabo, however, *L.* IV. *p.* 197. and *Picard* after him, in his *Celtopædia*, do not comprehend all these different Orders under the Denomination of *Druids*, as Species under their Genus, or Parts under the Whole; but make 'em quite different Conditions, or Orders.

Strabo, again, only distinguishes three Kinds; *Bardi, Vates*, and *Druids*. The *Bardi* were the Poets; the *Vates*, Οὐάτεις, (apparently the same with the *Vacerri*) were the Sacrificers, and Naturalists; and the *Druids*, beside the Study of Nature, applied themselves likewise to Morality. See VATES.

Diogenes Laertius assures us in his Prologue, that the *Druids* were the same among the ancient *Britains*, with the *Sophi*, or *Philosophers* among the *Greeks*, the *Magi* among the *Persians*, the *Gymnosophists* among the *Indians*, and the *Chaldeans* among the *Assyrians*. See MAGI, GYMNOSOPHIST, *&c.*

The *Druids* had one Chief, or *Arch-Druid* in every Nation, who acted as High-priest, or *Pontifex Maximus*. He had absolute Authority over all the rest; and commanded, decreed, punish'd, *&c.* at Pleasure. At his Death he was succeeded by the most considerable among the Survivors; and if there were several Pretenders, the Matter was ended by an Election, or put to the Decision of Arms.

The *Druids*, we have observ'd, were in the highest Esteem. They presided at Sacrifices, and other Ceremonies, and had the Direction of every Thing relating to Religion. The *British*, and *Gaulish* Youth flock'd to 'em in Crouds, to be instructed by 'em. The Children of the Noblesse, *Mela* tells us, they retired withal into Caves, or the most desolate Parts of Forests; and kept 'em there, sometimes for 20 Years, under their Discipline.

Beside the Immortality, and *Metempsychosis*, they instructed in the Motion of the Heavens, and the Course of the

the Stars, the Magnitude of the World, and the Earth, the Nature of Things, the Power and Wisdom of the Gods, &c. They preserved the Memory and Actions of great Men in their Verses, which they never allowed to be wrote down, but made their Pupils get 'em off by Heart. In their common Course of Learning, they are said to have taught 'em 24000 such Verses. They had the *Mistletoe* in singular Veneration. *Pliny* relates the Ceremony wherewith they gather'd it every Year. *L.* XV. *C.* 44. They placed a World of Confidence in Serpents Eggs gather'd after a peculiar Manner, and under a certain Disposition of the Moon, described by *Pliny*; and imagin'd 'em effectual Means for the gaining of Law-Suits, and procuring the good Graces of Princes. And hence, the same Author concludes, it is, that the *Caduceus*, or Rod encompass'd with two Serpents interwove, has been assum'd as a Symbol of Peace. *Suetonius*, in his Life of *Claudius*, assures us, they sacrificed Men; and *Mercury* is said to be the God they made these inhuman Sacrifices to. *Diod. Siculus* *L.* VI. observes, it was only upon extraordinary Occasions they made such Victims; as to consult what Measures to take, to learn what should befal 'em, &c. by the Fall of the Victim, the tearing of his Members, and the manner of his Blood gushing out. *Augustus* condemn'd the Custom: *Tiberius*, and *Claudius*, punish'd, and abolish'd it. See *Cæsar* *L.* VI. and *Mela* *L.* III. *C.* 2.

We learn from *Cæsar*, that they were the Judges, and Arbiters of all Differences and Disputes, both public and private, took Cognizance of Murders, Successions, Boundaries, and Limits; and decreed Rewards, and Punishments. Such as disobey'd their Decisions, they excommunicated, which was their principal Punishment: the Criminal being hereby excluded from all public Assemblies, and avoided by all the World; no body daring to speak to them, for fear of being polluted.

Strabo observes, they had sometimes Interest and Authority enough to stop Armies, upon the Point of Engaging; and accommodate their Differences.

They held an Assembly every Year at a certain Season about the Middle of the Country, and there in a Place consecrated for the Purpose, kept their Assizes, and terminated the Differences of the People, who flock'd thither from all Parts.

Cæsar, who had seen of the *Druids* in *Britain*, was of Opinion, they had come thence into *Gaul*: But the more able among the Moderns, generally take this for a Mistake, and believe the very contrary. In effect, it appears pretty probable, that the ancient *Britons* were originally *Gauls*; that the *Celtæ*, or *Belgæ*, *Gaulish* Nations, were the first that enter'd our Island, and peopled it. And that the *Druids* went along with 'em.

Picard Celtopæd. *L.* II. *p.* 58. believes the *Druids* to have been thus call'd from *Druis*, or *Dryuis*, their Leader, the 4th, or 5th King of the *Gauls*, and Father of *Saron*, or *Naumes*. *Pliny*, *Salmasius*, *Vigenere*, &c. derive the Name from Δρῦς, *Oak*; on Account of their inhabiting, or at least frequenting, and teaching in *Forests*; or perhaps, by reason, as *Pliny* says, they never sacrificed but under the *Oak*. But 'tis hard to imagine, how the *Druids* should come to speak *Greek*. *Menage* derives the Word from the old British *Drus*, Demon, Magician. *Borel* from the Saxon *Dry*, Magician; or rather the old British *Dru*, Oak; whence he takes δρῦς to be derived. *Gorop. Becanus* *L.* I. takes *Druis* to be an old *Celtic*, and *German* Word, form'd from *Trowis*, or *Trowis*, a Doctor of the Truth, and the Faith. This Etymology *Vossius* acquiesces in.

Hornius, in his History of Philosophy, *L.* II. *C.* 12. believes all the Learning and Philosophy of the *Druids* to have been derived from the Assyrian *Magi*, who are still call'd in *Germany*, *Trutten*, or *Truttner*: And that, as *Magus* has lost its ancient Signification, which was honourable, and now signifies a Magician, or Sorcerer; *Druid*, which had the same Sense, has likewise degenerated, and now signifies no other, than a Person who has Commerce with the Devil, or is addicted to Magic. And accordingly, in *Friseland*, where there anciently were *Druids*, such People are call'd *Druis*. *Gale*, *Dickenson*, and others, contend, that the *Druids* borrowed all their Philosophy, as well as Religion, from the *Jews*.

DRUIDE. There were also Women, call'd *Druids*, or *Druides*, among the *Gauls*, &c. The Authors of the *Historia Augusta*, particularly *Lampridius*, and *Vopiscus*, make mention thereof.

A *Druide*, says *Lampridius*, *p.* 135. told *Alexander Severus* something which denoted he should be unhappy.

Vopiscus, in the Life of *Aurelian*, relates, that having consulted the Gaulish *Druids*, whether or no the Empire should remain in his Family; they gave him for Answer, that no Name should be more glorious in the Empire, than that of the Descendants of *Claudius*. On which the Historian takes Occasion to observe, that *Constantius*, the Father of *Constantine*, was a *Claudius*.

Lastly, the same *Vopiscus*, in his Life of *Numerianus*, relates, that a *Druide* had foretold *Diocletian*, he should be Emperor, when he should have kill'd *Aper*, which signifies a Boar, and which was the Name of a *Præfectus Prætorii*, whom he kill'd with his own Hand.

Salmasius, in his Notes on *Lampridius*, is a little in doubt who these Women were: But he gives into the most easy, and plausible Opinion, that they were either the Wives, or the Children of the *Druids*.

DRUM, *Tympanum*, a Military, Musical Instrument, of Use principally among the Foot, serving to call the Soldiers together, to direct their March, Attack, Retreat, &c.

The Body of the *Drum* is made of a very thin Oak bent into a Cylinder, and cover'd at each End with Parchment, which is strain'd, or braced more or less, according to the Height, or Depth of the Sound required, by Strings; and struck with Sticks. The Height of the *Drum* is equal to its Breadth, which does not exceed two Foot and a half, by reason, no Skins can be had to cover bigger. There are also *Drums*, whose Body is of Brass.

Drum, or Drummer, is also a Soldier destined to beat the *Drum*.

In each Company of Infantry there is at least one *Drum*, and a *Drum-Major* in every Regiment.

There are divers Beats of the *Drum*: As the *March*, *Double March*, *Assembly*, *Charge*, *Retreat*, *Alarm*, *Chamade*, &c.

Drum, in Anatomy, or *Ear*-Drum, a Cavity in the Inner Ear, thus call'd from the Resemblance it bears to the Figure of a *War-Drum*. See Ear.

Its outer Extreme is cover'd with a Membrane, by Anatomists more usually call'd *Tympanum*, or more properly, *Membrana Tympani*. See Tympanum.

The Office of the *Membrana Tympani*, or *Drum of the Ear*, has been greatly controverted among Anatomists. The Account best warranted, is, that being a *Medium* for the Conveyance of the Sound to the Auditory Nerve, by its different Degrees of Tension, it serves to modify the Sound, and propagate it to the Nerve well proportioned, and commensurate thereto.

The ingenious Dr. *Holder* has improved on this Theory. He conceives, that the Action of the Muscle, whereby the *Drum* is stretch'd, and relax'd, does ordinarily, and constantly draw it to a moderate Tension; but when we have Occasion to listen, and give a particular Attention to any Sound, the Action of that Muscle is then more intense, and the *Drum* is drawn to a more than ordinary Tension, to facilitate the Passage of the Sound. See Attention.

Upon these Considerations, that Author having a young Gentleman, who was born deaf, put into his Hands; and perceiving the great Defect to lye in the Want of a due Tension of the *Tympanum*, he advised his Mother to consult with Physicians, whether by some astringent Fumes, or otherwise, it might not be restored to a due Tension.

In the mean Time he thought of a temporary Way, by the Impulse of any vehement Sound; as of a *Drum* beaten near him: Which Sound, during its Continuance, must needs give the *Tympanum* a Tension, by driving and swelling it outwards, as a fresh Gale of Wind fills the Sails of a Ship. And the Experiment succeeded according to Expectation. For so long as he beat a Drum fast, and loud by him, he could hear those that stood by him call him gently by his Name. But when the Drum ceased, he could no longer hear the same Persons calling him very loudly. See Deafness.

Drum, in Architecture. See Tambour.

DRUNGUS, a Body, or Company of Forces, thus call'd, under the *Roman* Empire.

The Name *Drungus*, as appears from *Vegetius*, *L.* III. *C.* 16. was at first only applied to foreign, and even hostile Troops; but under the Eastern Empire, it came in Use for the Troops of the Empire itself. On which Occasion, the Word Δρουγγος was form'd.

It amounts pretty nearly to what we call a *Regiment*, or *Brigade*. *Leunclavius* observes, that the *Drungus* was not less than 1000 Men, nor more than 4000.

The same *Leunclavius* observes, that Δρουγγος among the modern *Greeks* signifies a *Staff*, or *Rod*, the Badge of a Dignity, or Office, as *Agla* among the *Turks*; and thinks, that the Name may be form'd from the Latin *Truncus*. But it appears from *Vegetius*, that *Drungus* is a Barbarous, not a *Latin* Word.

Spelman takes it for *Saxon*, because at this Day, *Trong*, or *Throng*, in *English* signifies a Multitude. *Salmasius* derives it from Ρυγχος, Beak; on Account of the Battallion's being disposed beak-wise, or terminating in a Point.

DRUNKENNESS, physically consider'd, consists in a præter-natural Compression of the Brain, and a Discomposure of its Fibres; occasion'd by the Fumes, or spirituous Parts of Liquors. 'Tis accounted for thus: An immoderate

Quantity of Wine taken into the Stomach, is there heated, and undergoes a Kind of Effervescence; which happens the more readily, as the Liquor abounds the more in Sulphur. By this Action it becomes attenuated, and rarified; So that the grosser Parts being left behind, its finer Parts are fitted to penetrate, and shoot through the Veins to the Brain; or are convey'd through the Veins to the Heart, whence, after a further Heat, and Rarefaction, they are sent through the carotid Arteries, &c. to the Brain. Hence necessarily arises a Repletion of the Meninges of the Brain; and a Compression of the Fibres of the Brain it self, from the fresh Stock of rarefied Sulphur, continually exploded into them: Hence also an Obstruction of the Pores, or Passages of the Brain; a frequent, and disorderly Pulsation of the Fibres, and the other Symptoms of this Disease.

Hence it is, that all Liquors will not give *Drunkenness*; but only such as by their Sulphur, or Spirit, are disposed for an Effervescence in the Stomach, and Heart, to diffuse their subtle attenuated Parts plentifully to the Brain. See BRAIN, NERVE, MUSCULAR *Motion*, DELIRIUM, &c.

'Tis a popular Mistake, that the only Remedy for Gluttony, is *Drunkenness*; or that the Cure of a Surfeit of Meat, is a Surfeit of Wine: Than which nothing can be more contrary to Nature. *Cheyne*. See DRINK.

The ancient *Lacedemonians* used to make their Slaves frequently *Drunk*, to give their Children an Aversion, and Horror for the same. The *Indians* hold *Drunkenness* a Species of Madness; and in their Language, the same Term *Ramjan*, that signifies a *Drunkard*, signifies also a Phrenetic.

DRY *Measure*. See MEASURE.

DRYADES, in the Heathen Theology, the Nymphs of the Woods; a Sort of imaginary Deities, which the Ancients believed to inhabit the Woods, and Groves; and to hide themselves under the Bark of the Oak, call'd by the *Greeks* Δρύς. See GODDESS.

The *Dryades* differ'd from the *Hamadryades*, in that these latter were attach'd to some particular Tree, with which they were born, and with which they died; whereas the *Dryades* were the Goddesses of the Trees, and Woods in general, and liv'd at large in the Middle thereof. For tho' Δρύς properly signifies an *Oak*; it was also used in the general for *Tree*.

We likewise find mention made in divers Authors of a Kind of Prophetesses, or Witches, among the *Gauls*, call'd *Dryades*, or *Druides*. See DRUIDES.

DUCAL *Coronet*. See CORONET.

DUCAL. The Letters Patents granted by the Senate of *Venice* are call'd *Ducals*: So are the Letters wrote in the Name of the Senate, to foreign Princes. See DOGE.

A Courier was dispatch'd with a *Ducal* to the Emperor, returning him Thanks for renewing the Treaty of Alliance (in 1716) against the *Turk*, with the Republic of *Venice*.

The Name *Ducal* is derived hence, that at the Beginning of such Patents the Name of the *Duke*, or *Doge*, is wrote in Capitals, thus: *N . . . . Dei Gratia Dux Venetiarum*, &c. See DUKE.

The Date of *Ducals* is usually in *Latin*; but the Body *Italian*.

DUCAT, a foreign Coin, either of Gold, or Silver, struck in the Dominions of a *Duke*; being about the same Value with a Piece of Eight, or a *French* Crown, or 4 Shillings and 6 Pence Sterling, when of Silver: and twice as much, when of Gold. See COIN.

The Origin of *Ducats* is referr'd to one *Longinus*, Governour of *Italy*; who revolting against the Emperor *Justin* the Younger, made himself Duke of *Ravenna*, and call'd himself *Exarcha*, i. e. *without Lord*, or *Ruler*. And to shew his Independance, struck Pieces of Money of very pure Gold in his own Name, and with his own Stamp; which were call'd *Ducats*: as *Procopius* relates the Story.

After him, the first who struck *Ducats*, were the *Venetians*, who likewise call'd 'em *Cecchins*, or *Seguins*, from *Zecca*, the Place, where they first were struck. This was about the Year 1280, in the Time of *John Dandulo*: But we have pretty good Evidence, that *Roger*, King of *Sicily*, had coin'd *Ducats* as early as 1240. And *du Cange* scruples not to affirm, that the first *Ducats* were struck in the Dutchy of *Pouille*, in *Calabria*.

The chief Gold *Ducats* now currant, are the single, and double *Ducats* of *Venice*, *Florence*, *Genoa*, *Germany*, *Hungary*, *Poland*, *Sweeden*, *Denmark*, *Flanders*, *Holland*, and *Zurich*. The heaviest of 'em weighs 5 Penny weight 17 Grains, and the lightest 5 Penny weight 10 Grains; which is to be understood of the double *Ducats*, and of the single, in Proportion.

The *Spaniards* have no *Ducats* of Gold, but in lieu thereof make Use of Silver Ones. Not that the Silver *Ducat* is a real Species, but only a Money of Account like our Pound. It is equivalent to 11 Rials. See RIAL.

The Silver *Ducats* of *Florence* serve there for Piasters, or Crowns. See CROWN.

DUCATOON, a Silver Coin, struck chiefly in *Italy*, particularly at *Milan*, *Venice*, *Florence*, *Genoa*, *Lucca*, *Mantua*, and *Parma*; Tho' there are also *Dutch*, and *Flemish Ducatoons*.

They are all nearly on the same footing; and being a little both finer and heavier than the *French* Crown, are valued at 2 Pence, or 3 Pence more; *viz.* at about 4 Shill. 8 Pence Sterl. See COIN.

There is also a Gold *Ducatoon*, struck, and current chiefly in *Holland*. It is equivalent to 20 Florins, or Guldens; on the footing of 1 Shilling, 11 Pence, half Penny, the Florin. See FLORIN.

DUCES *Tecum*, a Writ commanding one to appear at a Day in Chancery, and *to bring with him* some Evidences, or other Things, which the Court would view.

The same is also granted, where a Sheriff having in his Custody a Prisoner, in a personal Action, returns upon a *Habeas Corpus*, that he is *adeo languidus*, that without Danger of Death he cannot have his Body before the Justices.

DUCENARIUS, in Antiquity, an Officer in the *Roman* Army, who had the Command of *two hundred Men*.

The Emperors had also *Ducenarii* among their Procurators, or Intendants, call'd *Procuratores Ducenarii*. Some say, that these were such whose Salary was 200 Sesterces; as, in the Games of the *Circus*, Horses hir'd for two hundred Sesterces, were call'd *Ducenarii*.

Others hold, that *Ducenarii* were such as levied the two hundredth Penny; Or the Officers appointed to inspect the Raising of that Tribute.

The Inscriptions at *Palmyra* have frequently the Word *Ducenarius*, in *Greek* Δουκενάριος.

DUCKING-*Stool*, in our Customs. See CUCKING-*Stool*.

DUCKING, or plunging in Water, *Olaus Magnus* tells us, was a Diversion anciently practised among the *Goths*, by Way of Exercise: But among the *Celtæ*, and *Franks*, a Sort of Punishment. *Tacitus* likewise assures us, that it was used among the ancient *Germans* for the Lazy, and Infamous. At *Marseilles*, and *Bourbon*, their Men and Women of scandalous Life are condemn'd to the *Cale*, as they call it, that is, to be shut up naked to the Shift, in an Iron Cage fasten'd to the Yard of a Chaloupe, and *duck'd* several times in the River. The same is done at *Tholouse*, to Blasphemers. It is also a Punishment for the Sea-men; who are thrown into the Sea from the Top of the Yard of a Main-Mast into the Sea, several times, according to the Quality of their Offence. Sometimes a Canon-Ball is fasten'd to their Feet, to make the Fall the more rapid. They have also a Kind of *Dry Ducking*, wherein the Patient is only suspended by a Cord, a few Yards above the Surface of the Water. This is a Kind of *Strapada*. The Punishment is made public by the Discharge of a Canon. See BAPTISING.

DUCT, *Ductus*, in Anatomy, a Term, in its general Sense, applied to all the Canals, or Tubes of a Body, as Veins, Arteries, &c. through which the Humors, Spirits, &c. are convey'd. See CANAL, TUBE, &c.

The Word has also a more immediate Application to several particular Vessels; as the

DUCTUS *Thoracicus*. See *Ductus* THORACICUS.

DUCTUS *Communis Choledochus*, a large Canal form'd by an Union of the *Ductus Cysticus*, and *Hepaticus*. This *Duct* descending about 4 Inches, discharges it self into the *Duodenum*, by an oblique Insertion, which does the Office of a Valve, in preventing the Regress of the Bile convey'd hereby into the Intestines. See BILE.

It sometimes opens into the *Duodenum* at the same Aperture with the *Pancreatic Duct*.

DUCTUS *Hepaticus*, call'd also *Meatus Hepaticus*, and *Bilary Pore*. See PORUS *Bilarius*.

DUCTUS *Cysticus*, or *Meatus Cysticus*, a Canal about the Bigness of a Goose-quill, which arising from the Neck of the Gall-bladder, about 2 Inches Distance therefrom, joyns the *Porus Bilarius*, and together with it constitutes the *Ductus Communis*. See CYSTIC *Duct*.

DUCTUS *Cyst-hepaticus*, or *Hepaticysticus*. See CYST-*Hepatic*.

DUCTUS *Adiposi*, are little Vascules in the *Omentum*, which either receive the Fat separated from the Adiposé Loculi, or Cells, or else brings it to them: For the extream Fineness of these Vessels renders it extream difficult to trace their Origin, or Course.

Indeed it remains somewhat doubtful, whether they be hollow, and real *Ducts*; or whether they be not solid Fibres, such as are observed in the Spleen, along which the liquid Fat does, as Dr. *Drake* expresses it, drill its Way, as the easiest it can find. *Malpighi*, their first Discoverer, inclines to the former Opinion. All we know for certain, is, that they terminate in little Globules of Fat, concerning the Use and Progress whereof much remains to be discover'd. See FAT.

DUC-

Ductus *Pancreaticus*, a little Canal arising from the *Pancreas*, and opening into the *Duodenum*, serving to discharge the Pancreatic Juice into the Intestines. See Pancreas, and Pancreatic *Juice*.

This *Duct* being first discover'd by *Virtsungus*, is frequently call'd *Ductus Virtsungianus*.

Ductus *Salivales*, the excretory Tubes of the Salival Glands; serving to discharge the secreted *Saliva* into the Mouth. See Salival *Ducts*.

Ductus *Lachrymales*, the excretory Vessels of the *Glandulæ Lachrymales*, serving for the Effusion of Tears. See Lachrymal *Ducts*.

Ductus *Alimentalis*, a Name that accurate Anatomist, Dr. *Tyson*, gives the Gula, Stomach, and Intestines; all which make but one continued Canal, or *Duct*. This *Duct* he makes the proper Characteristic of an Animal.

Ductus *Urinarius*, the same as the *Urethra*. See Urethra.

Ductus *Umbilicalis*. See Funiculus *Umbilicalis*.

Ductus *Chyliferus*, } the same as *Ductus Thoracicus*.
Ductus *Roriferus*, }
See Thoracic *Duct*.

Ductus *Thoracicus*. See Thoracic *Duct*.

The *Thoracic Duct*, Dr. *Wharton* assures us, was observed by *Barthol. Eustachio* in 1563; but its Use, and Communication with the *Receptaculum Chyli*, was unknown. And hence *Pecquet*, a Physician of *Dieppe*, is commonly supposed to have first discover'd it in 1651; whence its Denomination *Ductus Pecquetianus*: Tho' the Description he gives of its Insertion is faulty. *Van Horne* confounds it with the *Receptaculum*, or as he calls it, *Cisterna Chyli*.

DUCTILITY, in Physicks, a Property of certain Bodies, whereby they become capable of being beaten, press'd, drawn, or stretch'd forth, without breaking; Or, whereby they are capable of great Alterations in their Figure, and Dimensions; and of losing in one Way, as they gain in another. See Matter, Body, *&c.*

Such are Metals, which being urg'd by the Hammer, gain in Length and Breadth what they lose in Thickness; or being drawn into Wiar through Iron, grow longer as they become slenderer. See Metal.

Such, also, are Gums, Glues, Resins, and some other Bodies, which, tho' not malleable, yet may be denominated *Ductile*, in as much as when soften'd by Water, Fire, or some other Menstruum, they may be drawn into Threads. See Malleable.

So that we have two Classes of *Ductile* Bodies. The one *Hard*, and the other *Soft*: Each of which we shall bestow some Considerations upon.

The Cause of *Ductility* is very obscure; as depending in great Measure on *Hardness*, than which there is nothing in Nature we know less of. 'Tis true, we usually account for *Hardness* from the Force of Attraction between the Particles of the hard Body; and for *Ductility* from the Particles of the *ductile* Body, being, as it were, joynted, and entangled within each other. See Hardness, Cohæsion, *&c.*

Instead of fanciful Hypotheses to account for *Ductility*; we shall here entertain the Reader with some truly amazing Circumstances and Phænomena thereof.

One of the Properties of Gold, is to be the most *ductile* of all Bodies. See Gold.

Of this, the Gold-beaters, and Gold Wiar-drawers, furnish us with abundant Proof. *Fa. Mersenne*, Monsr. *Rohault*, Dr. *Halley*, &c. have made Computations thereof: But they trusted to the Reports of the Workmen. Monsr. *Reaumur*, in the *Memoires de l'Academie Royale des Sciences An.* 1713. took a surer Way: He made the Experiment himself. A single Grain of Gold, he found, even in the common Gold-Leafs, us'd in most of our Gildings, is extended into 36 and a half, square Inches; and an Ounce of Gold, which in Form of a Cube is not half an Inch either high, broad, or long, is beat under the Hammer into a Surface of 146 and a half square Feet: An Extent almost double what could be done 90 Years ago. In *Fa. Mersennes* time, it was deem'd prodigious, that an Ounce of Gold should form 1600 Leaves; which together only made a Surface of 105 square Feet. See Gold-*Beating*.

But the Distention of Gold under the Hammer (how considerable soever) is nothing to that it undergoes in the Drawing Iron. There are Gold-Leaves, in some Parts, scarce $\frac{1}{360000}$ Part of an Inch thick; but $\frac{1}{360000}$ Part of an Inch is a notable Thickness, in Comparison of that of the Gold spun on Silk in our Gold-Thread.

To conceive this prodigious *Ductility*, it is necessary, to have some Idea of the Manner wherein the Wiar-drawers proceed. The Wiar, and Thread we commonly call *Gold-Thread*, &c. which every body knows is only Silver-Wiar gilt, or cover'd over with Gold, is drawn from a large Ingot of Silver, usually about 30 Pound Weight. This they round into a Cylinder, or Roll, about an Inch and a half in Diameter, and 22 Inches long; and cover it over with the Leaves prepared by the Gold-beater, laying one over another, till the Cover is a good deal thicker than that in our ordinary Gilding. And yet even then 'tis very thin; as will be easily conceiv'd from the Quantity of Gold that goes to gild the 30 Pound of Silver. Two Ounces, ordinarily, do the Business; and frequently little more than one. In effect, the full Thickness of the Gold on the Ingot rarely exceeds $\frac{1}{400}$ or $\frac{1}{500}$ Part, and sometimes not $\frac{1}{1000}$ Part of an Inch.

But this thin Coat of Gold must be yet much thinner: The Ingot is successively drawn through the Holes of several Irons each less than other, till it be as fine, or finer than a Hair. Every new Hole lessens its Diameter; but it gains in Length what it loses in Thickness, and of Consequence increases in Surface. Yet the Gold still covers it; It follows the Silver in all its Extension; and never leaves the minutest Part bare, not even to the Microscope. Yet, how inconceivable must it be attenuated while the Ingot is drawn into a Thread, whose Diameter is 9000 times less than that of the Ingot.

Mr. *Reaumur*, by exact weighing, and rigorous Calculation, found, that one Ounce of the Thread was 3232 Feet long, and the whole Ingot 1163520 Feet, *Paris* Measure, or 96 *French* Leagues; equal to 1264400 *English* Feet, or 240 Miles *English*: An Extent which far surpasses what *Fa. Mersenne*, *Furetiere*, Dr. *Halley*, &c. ever dreamt of.

Mersenne says, that half an Ounce of the Thread is 100 Toises, or Fathoms long; on which footing, an Ounce would only be 1200 Foot: whereas Monsr. *Reaumur* finds it 3232. Dr. *Halley* makes 6 Foot of the Wiar one Grain in Weight, and one Grain of the Gold, 98 Yards, and consequently the ten thousandth Part of a Grain above one Third of an Inch. The Diameter of the Wiar he found one 186th Part of an Inch; and the Thickness of the Gold one 1545000th Part of an Inch. But this, too, comes short of Monsr. *Reaumur*: For on this Principle, the Ounce of Wiar would only be 2680 Feet.

But the Ingot is not yet got to its full Length. The greatest Part of our Gold-Thread is spun, or wound on Silk; and before they spin it, they flat it, by passing it between two Rolls, or Wheels of exceedingly polish'd Steel; which Wheels, in flatting it, lengthen it by above one Seventh. So that our 240 Miles are now got to 274. The Breadth, now, of these *Laminæ*, or Plates, Monsr. *Reaumur* finds, is only one 8th of a Line, or one 96th of an Inch, and their Thickness one 3072th. The Ounce of Gold, then, is here extended to a Surface of 1190 square Feet; whereas, the utmost the Gold-beaters can do, we have observed, is, to extend it to 146 square Feet.

But the Gold, thus exceedingly extended, how thin must it be? From Monsr. *Reaumur*'s Calculus it is found to be one 1750000th of a Line, or one 21000000th of an Inch; which is scarce one 13th of the Thickness of Dr. *Halley*'s Gold. But he adds, that this supposes the Thickness of the Gold every where equal; which is no ways probable: For in beating the Gold-leaves, whatever Care they can bestow, 'tis impossible to beat 'em equally. This we easily find by the greater Opacity of some Parts than others. And where the Leaf is thickest, it will gild the Wiar the thickest.

Monsr. *Reaumur* computing what the Thickness of the Gold must be where thinnest, finds it only one 31500000th of an Inch. But what is the one 31500000th Part of an Inch? Yet this is not the utmost *Ductility* of Gold: For instead of two Ounces of Gold to the Ingot, which we have here computed upon, a single one might have been used; And then the Thickness of the Gold, in the thinnest Places, would only be the 63000000th Part of an Inch.

And yet, as thin as the Plates are, they might be made twice as thin, yet still he gilt; by only pressing 'em more between the Wheels, they are extended to double the Breadth, and proportionably in Length. So that their Thickness at last will be reduced to one thirteenth, or fourteenth Millionth Part of an Inch.

Yet with this amazing Thinness of the Gold, 'tis still a perfect Cover for the Silver. The best Eye, nor even the best Microscope, cannot discover the least Chasm, or Discontinuity. There is not an Aperture to admit Alcohol of Wine, the subtilest Fluid in Nature, nor even Light it self. Add, that if a Piece of this Gold-Thread, or Gold-plate, be laid to dissolve in *Aqua fortis*, the Silver will be all excavated, or eat out, and the Gold left entire in little Tubules.

As to the *Ductility of Soft Bodies*, it is not yet carried to that Pitch. The Reader, however, must not be surprized, that among the *ductile* Bodies of this Class, we give the first Place to the most brittle of all others, *Glass*. We all know, that when well penetrated with the Heat of the Fire, the Workmen can figure, and manage it like soft Wax. But what is most remarkable, is, that it may be drawn, or spun out into Threads exceedingly fine, and long.

Our ordinary Spinners don't form their Threads of Silk, Flax, or the like, with half the Ease, and Expedition, as the Glass-Spinners do Threads of this brittle Matter. We have of

of 'em us'd in Plumes on Childrens Heads, and divers other Works, much finer than any Hair; and which bend, and wave like them with every Wind.

Nothing is more simple and easy than the Method of making them: There are two Workmen employ'd: The first holds one End of a Piece of Glass over the Flame of a Lamp; and when the Heat has soften'd it, a second Workman applies a Glass-hook to the Metal thus in Fusion; and withdrawing the Hook again, it brings with it a Thread of Glass, which still adheres to the Mass. Then, fitting his Hook on the Circumference of a Wheel about 2 Feet and a half in Diameter, he turns the Wheel as fast as he pleases; which drawing out the Threads, winds it on its Rim; till after a certain Number of Revolutions it is cover'd with a Skain of Glass-Thread.

The Mass in Fusion over the Lamp, diminishes insensibly, being wound out, as it were, like a Pelotoon, or Clue upon the Wheel; and the Parts, as they recede from the Flame, cooling, become more coherent with those next to 'em; and this by Degrees: The Parts nearest the Fire, are always the least connected together, and of Consequence must give Way to the Effort the test make to draw 'em towards the Wheel.

The Contour of these Threads is usually a flat Oval, being three or four times as broad as thick. Some of 'em scarce seem bigger than the Thread of a Silk-Worm; and are flexible to a Miracle. If the two Ends of such Threads be knotted together, they may be drawn and bent, till the Aperture, or Space in the Middle of the Knot don't exceed one 4th of a Line, or one 48th of an Inch in Diameter.

Hence, Mr. *Reaumur* advances, that as the Flexibility of Glass increases in Proportion to the Fineness of the Threads; had we but the Art of drawing Threads as fine as those of a Spider's Web, we might weave Stuffs, and Cloaths hereof, for Wear.

Mr. *Reaumur* made some Experiments this Way: He could make Threads fine enough, as fine, in his Judgment, as any Spider's web, but could never make 'em long enough, to do any Thing with 'em.

The same ingenious Author observes, that the Matter whereof Spiders and Silk-worms form their Threads, is brittle, when in the Mass, like dry Gums. As 'tis drawn out of their Bodies, it assumes a Consistence, much as Glass-threads become hard, as they recede from the Lamp; tho' from a different Cause. The *Ductility* of this Matter, and the Apparatus thereto being much more extraordinary in Spiders, than in Silk-worms; we shall here only consider the former. Something has already been said of each under the Article SILK, which see.

Near the Anus of the Spider are six *Papillæ*, or Teats, represented in *Tab. Nat. History Fig.* 6. The Extremities of the several *Papillæ* are furnish'd with Holes, that do the Business of Wiar-drawers, in forming the Threads. Of these Holes, M. *Reaumur* observes, there are enough in the Compass of the smallest Pins-head, to yield a prodigious Quantity of distinct Threads. The Holes are perceiv'd by their Effects: Take a large Garden-Spider ready to lay its Eggs, and applying the Finger on a Part of its *Papillæ*, as you withdraw that Finger, it will take with it an amazing Quantity of different Threads.

Monsr. *Reaumur* has often told 70, or 80, with a Microscope, but has perceiv'd, that there were infinitely more than he could tell. In effect, if he should say, that each Tip of a *Papilla* furnish'd a thousand, he is persuaded, he should say vastly too little. The Part is divided into an Infinity of little Prominences, like the Eyes of a Butter-fly, *&c.* Each Prominence, no doubt, makes its several Thread; or rather, between the several Protuberances, are Holes that give Vent to Threads; the Use of the Protuberances, in all probability, being to keep the Threads at their first Exit, 'ere yet harden'd by the Air, a-part. In some Spiders these Protuberances are not so sensible; but in lieu thereof there are Tufts of Hair, which may serve the same Office, *viz.* to keep the Threads a-part. Be this as it will, there may Threads come out at above a thousand different Places in every *Papilla*; consequently, the Spider having six *Papillæ*, has Holes for above 6000 Threads. 'Tis not enough, that these Apertures are not only immensely small: The Threads are already form'd 'ere they arrive at the *Papilla*, each of 'em having its little Sheath, or Duct, in which it is brought to the *Papilla* from a good Distance.

Monsr. *Reaumur* traces 'em up to their Source, and shews the Mechanism by which they are made. Near the Origin of the Belly, he finds two little soft Bodies, which are the first Source of the Silk. Their Form and Transparency resemble those of Glass-beads, (see *Fig.* 7.) by which Name we shall hereafter denote them. The Tip of each Bead, as R, goes winding, and makes an Infinity of Turns, and Returns towards the *Papilla*. From the Base, or Root of the Bead, proceeds another Branch much thicker; which winding variously, forms several Knots, and takes its Course like the other, towards the Hind-part of the Spider. In these Beads, and their Branches, is contain'd a Matter proper to form the Silk, only that it is too soft. The Body of the Bead is a Kind of Reservoir, and the two Branches two Canals proceeding from it. A little further backward, there are two other lesser Beads, which only send forth one Branch a-piece, and that from the Tip. Beside these, there are three other larger Vessels on each Side the Spider, which Mr. *Reaumur* takes for the last Reservoir, where the Liquor is collected. They are represented (*Fig.* 8.) The biggest is near the Head of the Insect, and the least near the Anus. They all terminate in a Point; and from the three Points of these three Reservoirs it is, that the Threads, at least the greatest Part of the Threads, drawn out at the three *Papillæ*, proceed. Each Reservoir supplies one *Papilla*. Lastly, at the Roots of the *Papillæ*, are discern'd several fleshy Tubes: probably, as many as there are *Papillæ*. Upon lifting up the Membrane, or Pellicle, that seems to cover these Tubes, they appear full of Threads, all distinct from each other, and which, of Consequence, under a common Cover, have each their particular One; being kept like Knives in Sheaths. The immense Quantity of Threads contain'd here, Monsr. *Reaumur* concludes, upon tracing their Course, do not all come from the Points of the Reservoirs; but some from all the Turns, and Angles; nay probably, from every Part thereof. But by what Conveyances the Liquor comes into the Beads, and out of the Beads into the Reservoirs, remains yet to be discover'd.

We have already observ'd, that the Tip of each *Papilla* may give Passage to above a thousand Threads; yet the Diameter of that *Papilla* does not exceed a small Pins-head: But we were there only considering the largest Spiders.

If we examine the young, rising Spiders, produced by those; we shall find, that they no sooner quit their Egg, than they begin to spin. Indeed their Threads can scarce be perceiv'd; but their Webs, form'd thereof, may. They are frequently as thick, and close, as those of House-Spiders; And no Wonder: there being often 4, or 500 little Spiders concuring to the same Work. How minute must their Holes be? The Imagination can scarce conceive that of their *Papillæ*. The whole Spider is perhaps less than a *Papilla* of that which produced it.

This is easily seen: Each big Spider lays 4 or 500 Eggs; these Eggs are all wrapp'd up in a Bag; and as soon as the young Ones have broke through the Bag, they begin to spin. How fine must their Threads be?

Yet is not this the utmost Nature does: There are some Kinds of Spiders so small at their Birth, that they are not visible without a Microscope. There are usually found an Infinity of 'em in a Cluster, and they only appear like a Number of red Points. And yet there are Webs found under them, tho' well nigh imperceptible. What must be the Tenuity of one of these Threads? The smallest Hair must be to one of these what the most massive Bar is to the finest Gold-wiar above mentioned.

The Matter whereof the Threads are form'd, we have observed, is a viscid Matter. The Beads are the first Receptacles where it is gather'd, and the Place where it has the least Consistence. 'Tis much harder when got into the six great Reservoirs, whither 'tis carried by Canals from the former: This Consistence it acquires in good Measure in its Passage; Part of the Humidity being dissipated in the Way; or separated by Parts destined for that Purpose.

Lastly, the Liquor is dried still further, and becomes Thread, in its Progress through the respective Canals to the *Papillæ*. When these first appear out at the Holes, they are still glutinous; so that such as spring out of neighbouring Holes, stick together. The Air compleats the drying.

By boiling the Spider, more, or less, the Liquor is brought to a greater or less Consistence, fit to draw out into Threads, for 'tis too fluid for that Purpose, while yet inclosed in its Reservoirs.

The Matter contain'd in these Reservoirs, when well dried, appears a transparent Gum, or Glue, which breaks when much bent: Like Glass, it only becomes flexible by being divided into the finest Threads. And probably 'twas on this Account Nature made the Number of Holes so immense. The Matter of the Silk form'd in the Bodies of Spiders being much brittler than that form'd in Silk-worms, needed to be wound smaller. Otherwise we don't conceive, why she should form a great Number of Threads, which were afterwards to be reunited: a single Canal might have done. See DIVISIBILITY.

DUEL, a single Combat, at a Time and Place appointed, in Consequence of a Cartel, or Challenge. See CHALLENGE, *&c.*

Duels were anciently allowed by common Law, in Cases where Proof could not be had. In which Sense *Fleta* defines *Duel*, *Singularis Pugna inter duos ad probandam Veritatem Litis, & qui vicit, probasse intelligitur.* Stat. de Finib. Levat. 27. *Edu.* I. See COMBAT.

This

This *Duelling* was so general a Method of terminating Differences among the Nobles; that even Ecclesiasticks, Priests, and Monks were not excused from the same. Only, to prevent their being stain'd with Blood, they oblig'd 'em to procure Champions to fight in their stead; as is shewn at large by Father *Dacheri*, in the VIIIth Tome of his *Spicilegium*. See CHAMPION.

None were excepted but Women, sick People, and Cripples, and such as were under 21 Years of Age, or above 60.

The Custom was for the two Champions to enter a List, or small Enclosure, by the Authority of the ordinary Judge, not only on Criminal Occasions, but on some Civil Ones, for the Maintenance of their Right.

The Monk *Sigebert* even relates, that a Question on a Point of Law being presented to the Emperor *Otho* I. *viz.* whether the Representation had Place in direct Succession: And the Doctors finding themselves embarrass'd in the Resolution thereof; the Emperor remitted the Decision of so critical a Point to the Judgment of Arms; and pitch'd on two bold Fellows to maintain the *pro* and the *contra*. The Victory fell to him who contended for the Representation; In Favour of whom a Law was straightway made, which is in Force to this Day.

This Custom came originally from the Northern Nations; among whom it was a Custom to end all their Differences by Arms; as we are assured by *Paterculus*. It afterwards passed as a Law among the *Germans*, *Danes*, and *Franks*; especially after *Gondebault*, King of the *Burgundians*, admitted it instead of Swearing. Mr. *Godeau*, in his History of the Church, VII. Cent. says, it was the *Lumbards* who first introduced into *Italy* the Barbarity of single Combats, whence the Custom spread throughout the rest of *Europe*.

The Form of the Combat was this: The Accuser and Accused giving Pledges to the Judge, on their respective Behalf; the Judge took first up that of the Defendant, and next that of the Demandant. They were then both clap'd up in safe Prison; and the Chief Justice was to furnish 'em with suitable Arms. Such as fought on Foot had only a Sword and Buckler. The Horse-men were arm'd at all Points, as well as their Horses.

The Day of Combat being come, they made Choice of four Cavaliers, to guard the Field; and perform'd divers Ceremonies, Prayers, Oaths, &c. describ'd by *Pasquier*, and other Authors, quoted by *du Cange*, who mentions an Ordonnance of King *Philip* the *Fair* in 1306, prescribing the several Rules, Conditions, and Ceremonies, which are curious to see.

The Vanquish'd, whether Accuser, or Accused, was punish'd with Death, or Mutilation of Members, and ignominiously drag'd out of the Camp, hung on a Gibbet, or burnt, according to the Circumstances of the Case.

This Way of trying by *Duel*, was instituted as a Method of consulting Providence, to learn who was the Criminal; and it was imagined, that God thus interrogated, would not fail to declare himself in Favour of the Innocent. But it happen'd so often, that the unjust Accuser came off victorious; that they began to be convinced, they must not prescribe to his Wisdom, the Necessity of Interrupting the Course of second Causes. This was giving Rules to Murther, and disguising Assassinations under Method and Measure. See SORTES.

Saxo Grammaticus observes, that as early as the Year 981, the Kings of *Denmark* had abrogated the Proof by *Duel*; and in lieu thereof, appointed the Proof by red hot Iron, which was annull'd in its Turn. See ORDEAL.

But *Duels* were condemn'd before by a Council held at *Valence* in 855; where the Person who kill'd his Enemy, was excommunicated; and the Person kill'd, pronounced unworthy of Burial. Afterwards, the Popes *Nicholas* I. *Celestin* III. and *Alexander* III. likewise interposed; and *Frederic* I. and II. prohibited 'em in *Germany*. St. *Louis* did what he could to abolish 'em in *France*; But his Ordonnance only took Place on his own Lands, and not on those of his Vassals. After his Example, the Counts *d'Auvergne* and *Poictou*, and several other Lords, forbad 'em likewise. *Philip* the *Fair*, following the Foot-steps of his Grand-father, St. *Louis*, forbad all Gages, or Pledges of Battel; and yet he permitted 'em in four Cases, in the Ordonnance abovementioned of the Year 1306. The last *Duel* of Note was in the Year 1547, before King *Henry* II. between *Jarnac* and *Chataigneraye*, mention'd by *Thuanus*, and *de Serres*.

In *England*, the Trial by *Duel* is disus'd; tho' the Law on which it is founded be still in Force. The last Trial of this Kind admitted, was in the 6th Year of King *Charles* I. between *Donnald*, Lord *Rey*, or *Rhee*, Appellant, and *David Ramsey* Esquire, Defendant, in the painted Chamber at *Westminster*.—*Stephanus de Nerbona omnibus*—*scitis me dedisse Wilhelmo filio Radulphi de Filungele pro Homagio & Servitio suo, & propter* Duellum *quod fecit pro me*—*duas virgatas Terræ*.

DUEL is also used for a single Combat on some private Quarrel, or Occasion.

The *Duel* must be premeditated; otherwise 'tis only a *Rencounter*. See RENCOUNTER.

The Folly, or rather Madness of *Duelling* reign'd for some Ages in *France*; where the Flower of the Noblesse perish'd thereby. 'Tis one of the Glories of the late *Louis* XIV. to have used all his Power and Authority towards abolishing *Duels*. The severe Edicts and Laws he made against *Duellists* put a Stop to the Custom.

The Word is form'd from *Duellum*, used by the barbarous *Latin* Writers, *quasi duorum bellum*.

DUKE, a sovereign Prince, without the Title, or Quality of King: Such are the *Duke* of *Savoy*; *Duke* of *Parma*, &c. See PRINCE.

There are also two Sovereigns, that have the Title of *Great-Duke*: The *Grand-Duke* of *Tuscany*, and the *Grand-Duke* of *Muscovy*, now call'd the *Czar*, or Emperor of *Russia*. The Emperor of *Germany* is *Arch-Duke* of *Austria*.

The Word is borrowed from the modern *Greeks*, who call *Doucas*, what the *Latins* call *Dux*.

DUKE is also a Title of Honour, or Nobility, the next below *Princes*. See NOBILITY, PRINCE, &c.

The *Ducate*, or Dignity of *Duke*, is a *Roman* Dignity, denominated *a Ducendo*.

The first *Dukes*, *Duces*, were the *Ductores Exercituum*, Commanders of Armies. Under the later Emperors, the Governours of Provinces were entitled *Duces*. In latter Times the same Denomination was given to the Governours of Provinces in Time of Peace.

The first Governour in Quality of *Duke*, was a *Duke* of the *Marchia Rhetica*, or Grisons, whereof mention is made in *Cassiodorus*. The *Goths*, and *Vandals*, upon their overrunning the Provinces of the Western Empire, abolish'd the *Roman* Dignities wherever they settled. But the *Franks*, &c. to please the *Gallish* People, who had long been us'd to that Form of Government, made it a Point of Politicks, not to change any Thing therein; and accordingly divided all *Gaul* into *Dutchies*, and Counties; and gave the Names sometimes of *Dukes*, and sometimes of Counts, *Comites*, to the Governours thereof. See COUNT.

In *England*, during the *Saxons* Time, *Cambden* observes, the Officers and Commanders of Armies were call'd *Dukes*, *Duces*, after the ancient *Roman* Manner, without any Addition. After the *Conqueror* came in, the Title lay dormant, till the Reign of King *Eduard* III. who created his Son *Eduard*, first call'd the *black Prince*, *Duke* of *Cornwall*. After whom, there were more made in such a Manner as that their Titles descended to their Posterity.

They were created with much Solemnity, *per Cincturam Gladii, Cappæque, & Circuli Aurei in Capite Impositionem*.

Tho' the *French* retain'd the Names, and Form of the Ducal Government, yet under their second Race of Kings, there was scarce any such Thing as *Dukes*; But all the great Lords were call'd *Counts*, *Peers*, or *Barons*. Excepting, however, the *Dukes* of *Burgundy*, and *Aquitaine*; and a *Duke of France*, which was a Dignity, *Hugh Capet* himself held, correspondng to the modern Dignity of *Maire de Palais*, or the King's Lieutenant.

By the Weakness of the Kings, the *Dukes*, or Governours made themselves Soveraigns of the Provinces trusted to their Administration. This Change happen'd chiefly about the Time of *Hugues Capet*; when the great Lords began to dismember the Kingdom; so that that Prince found more Competitors among 'em than Subjects. 'Twas even with a deal of Difficulty they could be brought to own him their Superior, and to hold of him by Faith, and Homage.

By Degrees, what with Force, and what by Marriages, these Provinces, both Dutchies, and Counties, which had been rent from the Crown, were re-united. But the Title *Duke* was no longer given to the Governours of Provinces.

From that Time *Duke* became a mere Title of Dignity, affected to a Person, and his Heirs Male, without giving him any Domaine, Territory, or Jurisdiction over the Place whereof he is *Duke*. All the Advantages thereof consist in the Name, and the Precedence it gives 'em.

The *Dukes* of our Days retain nothing of their ancient Power, but the Coronet on their Escutcheon; which is the only Mark of their departed Soveraignty.

They are created by Patent, Cincture of the Sword, Mantle of State, Imposition of a Cap, and Coronet of Gold on the Head, and a Verge of Gold in their Hand. See CORONET, GRACE, &c.

The eldest Sons of *Dukes* are by the Courtesy of *England* styled *Marquises*, and the younger Sons, *Lords*, with the Addition of their Christian Name, as Lord *James*, Lord *Thomas*, &c. and take Place of Viscounts, tho' not so privileged by the Laws of the Land. A *Duke* has the Title of *Grace*; and being writ to, is stiled, in the Heralds Language, *Most high, potent, and Noble Prince*. *Dukes* of the Blood

Royal, are ſtiled, *Moſt high, moſt mighty, and Illuſtrious Princes.*

DUKE-DUKE, a Quality given in *Spain* to a Grandee of the Houſe of *Sylva*, on Account of his having ſeveral Dutchies, by the uniting of two conſiderable Houſes in his Perſon.

Don *Rodrigo de Sylva*, eldeſt Son of Don *Ruy Gomez de Sylva*, and Heir of his Dutchies, and Principalities, married the eldeſt Daughter of the *Duke de l'Infantado*; In Vertue of which Marriage, the preſent *Duke de Paſtrana*, who is deſcended therefrom, and is Grand-ſon of Don *Rodrigo de Sylva*, has added to his other great Titles, that of *Duke-Duke*, to diſtinguiſh himſelf from the other *Dukes*, ſome whereof may enjoy ſeveral Dutchies, but none ſo conſiderable Ones, nor the Titles of ſuch eminent Families.

DULCIFYING, the *Sweetening* of any Thing: a Term uſed in Phyſick, for rendering a Fluid leſs acid, and rough, either by taking away its Salts, or breaking their Points, or covering 'em with ſomething ſmooth, and ſoft.

DUMBNESS, the State of a Perſon who wants the natural Uſe of Speech. People born deaf, are ſaid to be all naturally *dumb*, as not being able to learn Words. See DEAFNESS.

Dumbneſs is ſometimes the Reſult of the Want, or even the ill Conformation, of the Tongue. See TONGUE.

Yet in the 3d Tome of the *Ephem. German.* we have an Account of a Book, entitled, *Jac. Rolandi Agloſſoſtomographia, ſive Deſcriptio Oris ſine Lingua, quod perfecte loquitur*, &c. See MUTE.

DUNG, in Agriculture, and Gardening. See MANURE, and COMPOST.

DUNGEON, DONGEON, or DONJON, the moſt elevated Part of a Caſtle built after the ancient Mode; ſerving as a Watch-Tower, or Place of Obſervation. See CASTLE.

In ſome Caſtles, as that of *Vincennes*, &c. the *Dungeon*, or Donjon, ſerves as a Priſon for Perſons they would have the moſt ſecurely kept; whence our Word *Dungeon*.

Fauchet derives *Dungeon* from *Domicilium*, in that the *Dungeon* being the ſtrongeſt Part of the Caſtle, was uſually the Lord's Apartment. *Menage* derives it from *Dominionus*, which in ſome ancient Writings we find us'd in the ſame Senſe. Others derive it from *Domus Julii Cæſaris*, or *Domus Jugi*; And others from *Domus Juliani*, the Emperor *Julian* having built ſeveral ſuch Caſtles in the *Gauls*, whereof there is one ſtill ſtanding in *Lorraine*, call'd *Dom Julien*. *Du Cange* derives the Appellation from *Duno aut Colle Ædificatum*, which the barbarous Writers have alter'd into *Dunjo*, *Dungeo*, *Dongio*, *Dangio*, *Domgio*, and *Domnio*.

DUO, in Muſic, a Song, or Compoſition to be perform'd in two Parts only; the one ſung, and the other play'd on an Inſtrument; or by two Voices alone.

It is alſo call'd a *Duo*, when two Voices ſing different Parts, accompanied with a Third, which is a thorough Baſs. Uniſons and Octaves muſt rarely be uſed in *Duo's*, except at the Beginning and End.

DUODENA *Arteria*, and *Vena*, a Branch of an Artery, which the *Duodenum* receives from the Cœliac; to which anſwers a Vein of the ſame Name, returning the Blood to the *Porta*. See VEIN, and ARTERY.

DUODENUM, in Anatomy, the firſt of the *Inteſtina tenua*, or ſmall Guts; being that which receives the Food half chyliſied from the Stomach. See INTESTINES.

It has its Name *Duodenum*, as being about *twelve* Fingers Breadth, long: On which Account, ſome alſo call it *Dodecadactylum*.

The *Duodenum* ariſes from the *Pylorus*, or right Orifice of the Stomach; whence deſcending towards the Spine, from Right to Left, quite ſtraight, it terminates where the Circumvolutions of the reſt begin.

Its Coats are thicker, and its Cavity, or Canal leſs than any of the other Inteſtines. At its lower End are two Canals, opening into its Cavity, one from the Liver, and Gall-Bladder, call'd the *Ductus Communis Cholidicus*; and the other from the *Pancreas*, call'd *Pancreaticus*. See CHOLIDICUS, and PANCREATICUS.

The *Duodenum* is quite ſtraight; but the *Inteſtinum Jejunum* makes divers Windings, and Inflexions: The reaſon is, that the Bile, and Pancreatic Juice mixing at the Beginning thereof, or at the End of the *Duodenum*, would otherwiſe precipitate not only the groſs Parts of the Excrements, but alſo the Chyle it ſelf, too haſtily. See BILE, EXCREMENT, &c.

DUPLA, DUPLE, DOUBLE *Ratio*, is where the Antecedent Term is *double* the Conſequent; Or, where the Exponent of the *Ratio* is 2; Thus 6 : 3 is in a *Duple Ratio*. See RATIO.

Sub-DUPLE, *Sub*-DOUBLE *Ratio*, is where the Conſequent Term is *double* the Antecedent; Or, the Exponent of the *Ratio* is $\frac{1}{2}$. Thus, 3 : 6 is in a *Sub-duple Ratio*. See RATIO.

DUPLA-*Seſquialtera* } *Ratio*. { See RATIO.
DUPLA-*Superbipartiens tertias* }

DUPLICATE, a ſecond Inſtrument, or Act, in Writing; as a Brief, Writ, Diſpatch, &c. Or a Tranſcript, or Copy of another.

'Tis uſual to write a *Duplicate*, when it is apprehended the firſt Diſpatch, &c. is loſt.

In Chancery, *Duplicate* is particularly us'd for ſecond Letters Patent granted by the Lord Chancellour, in a Caſe where he had formerly done the ſame.

The Word is form'd from the Latin *Duploma*, or *Duplum*.

DUPLICATE *Ratio* muſt be well diſtinguiſh'd from *Duple*.

In a Series of Geometrical Proportions, the firſt Term to the third is ſaid to be in a *Duplicate Ratio* of the firſt to the ſecond; or as its Square is to the Square of the ſecond: Thus, in 2, 4, 8, 16, the *Ratio* of 2 to 8, is *Duplicate* of that of 2 to 4; or as the Square of 2 to the Square of 4; wherefore *Duplicate Ratio* is the Proportion of Squares, as Triplicate is of Cubes, &c. and the *Ratio* of 2 to 8, is ſaid to be compounded of that of 2 to 4, and of 4 to 8. See RATIO, &c.

DUPLICATION, *Doubling*, in Arithmetic, and Geometry, the multiplying a Quantity, either diſcrete, or continued, by *two*. See MULTIPLICATION.

The Term is chiefly us'd in the Phraſe, *Duplication of the Cube*, which is a famous Problem ſought by the Geometricians theſe two thouſand Years. See CUBE.

It was firſt propoſed by the Oracle of *Apollo* at *Delphos*; which, being conſulted about the Manner of ſtopping a Plague then raging at *Athens*, return'd for Anſwer, that the Plague ſhould ceaſe *when his Altar*, which was Cubical, *ſhould be doubled*. Upon this, they applied themſelves, in good Earneſt, to ſeek the *Duplicature* of the Cube, which hence forwards was call'd the *Delian Problem*. See PROBLEM.

The Problem is only to be ſolv'd by finding two mean Proportionals between the Side of the Cube, and double that Side; the firſt whereof will be the Side of the Cube *doubled*: as was firſt obſerv'd by *Hippocrates Chius*. See PROPORTIONAL.

Eutochius, in his Comments on *Archimedes*, gives ſeveral Ways of performing it by the Meſolabe. *Pappus Alexandrinus*, and his Commentator *Commandin*, give three Ways: The firſt, according to *Archimedes*; the ſecond, according to *Hero*; and the third, by an Inſtrument invented by *Pappus*, which gives all the Proportions required.

The Sieur *de Comiers* has likewiſe publiſh'd an elegant Demonſtration of the ſame Problem, by means of a Compaſs with three Legs: But theſe Methods are all Mechanical.

DUPLICATURE, in Anatomy, a Doubling, or Folding of the Membranes, or other like Parts; as the *Duplicatures of the Peritonæum, of the Omentum, of the Pleura*, &c. See PERITONÆUM, OMENTUM, PLEURA, &c.

In the Hiſtory of the *French* Academy for the Year 1714. an Account is given of a young Man, who died at the Age of 27 Years, in the *Duplicature* of whoſe Meninges were found little Bones, that ſeem'd to proceed out of the inner Surface of the *dura Mater*, and with their acute Points ſtimulated the *pia Mater*.

That *Duplicature* of the *Peritonæum*, wherein the Ancients placed the Bladder, is not found by the modern Anatomiſts. *Dionis.*

Fabricius ab Aquapendente firſt diſcover'd the *Duplicature* of the *Cuticula*. See CUTICLE.

DUPONDIUS, in Antiquity, a Weight of two Pounds: Or a Money of the Value of two As's. See AS.

As the *As*, at firſt, weigh'd a juſt *Pondo*, or *Libra*; the *Dupondius*, then, weigh'd two. And hence the Name.

And tho' the Weight of the As was afterwards diminiſh'd, and of Conſequence that of the *Dupondius* alſo; they ſtill retain'd the Denomination. See POUND, and LIBRA.

DURESSE, *Hardſhip*, in Law, is, where a Perſon is kept in Priſon, or reſtrain'd of his Liberty, contrary to Order of Law; or threaten'd to be kill'd, maim'd, or beaten.

In which Caſe, if a Perſon ſo in Priſon, or in Fear of ſuch Threats, make any Specialty, or Obligation, by reaſon of ſuch Impriſonment, or Threats; ſuch Deed is void in Law: And in an Action brought on ſuch Specialty, the Party may plead, that it was brought by *Dureſſe*.

Brook, in his Abridgment, joyns *Dureſſe* and *Manaſſe* together, *i. e. Duritiam & Minas*, Hardſhip, and Threatnings.

DURA *Mater*, or DURA *Meninx*, a ſtrong, thick Membrane, which lines, or covers all the inner Cavity of the *Cranium*, and includes the whole Brain; being it ſelf lined on its inner, or concave Side by the *pia Mater*, or *Meninx tenuis*. See MENINGES.

The *dura Mater* ſticks very cloſe to the Baſis of the Skull, and its Sutures by the Fibres, and Veſſels it ſends to the *Pericranium*. See BRAIN, and CRANIUM.

It is faſten'd to the *pia Mater*, and the Brain, by the Veſſels which paſs from one to the other. It gives a Coat, or Covering to all the Nerves which riſe from the Brain; and

and to the *Medulla Spinalis*, and all the Nerves, which rise from it. See NERVE.

Its Surface is rough towards the Skull, and smooth towards the Brain. It is a double Membrane, woven of strong Fibres, which may be plainly seen on its Inside, but very little on its Outside next the Skull: It has three Processes made by the Doubling of its inner Membrane. See DUPLICATURE.

The first resembles a Sickle, and is therefore call'd *Falx*. See FALX.

The second separates the *Cerebrum* from the *Cerebellum*, down to the *Medulla Oblongata*, that the Weight of the *Cerebrum* may not offend the *Cerebellum*, which lies under it. This Process is very strong, and thick, and in ravenous Beasts it is for the most Part bony, because of the violent Motion of their Brain.

The third is the smallest, and separates the External Substance of the hind Part of the *Cerebellum* into two Prutuberances. See CEREBELLUM.

In the *dura Mater* are several Sinus's, or Channels, which run between its internal and external Membrane: The four principal Ones, are, the *Sinus Longitudinalis*; the second and third Sinus's are call'd the *Laterales*; and the fourth, the *Torcular*. See SINUS, LONGITUDINALIS, &c.

Besides these there are more of inferior Note, mention'd by Anatomists, as *du Verney*, Dr. *Ridley*, &c. Their Use is, to receive the Blood of the adjacent Parts from the Veins, to which they are as so many Trunks, and discharge the Blood into the internal Jugulars. See JUGULAR.

The Vessels of the *dura Mater*, are, first, a Branch from the Carotidal, while it is in its long Canal, which is dispersed in its Fore- and lower Part of the *dura Mater*; secondly, an Artery, which enters the Hole of the Skull, call'd, *Foramen Arteriæ duræ Matris*: It is dispersed on the Sides of this Membrane, and runs as high as the *Sinus Longitudinalis*: The Vein which accompanies the Branches of this Artery, goes out of the Skull, by the *Foramen Lacerum*. Thirdly, a Branch of the Vertebral Artery, and Vein, which last passes through the Hole behind the Occipital *Apophysis*, where they are dispersed in the Hind-part of the *dura Mater*. It has also Nerves from the Branches of the fifth Pair, which give it an exquisite Sense.

It has a Motion of Systole, and Diastole, which is caused by the Arteries, which enter the Skull. No doubt, the great Number of Arteries in the Brain contribute more to it, than those few proper to it self, which may assist a little, tho' not very sensibly, because of their Smallness, and Paucity.

The Use of the *dura Mater* is to cover the Brain, the Spinal Marrow, and all the Nerves; to divide the *Cerebrum* in two, and to hinder it from pressing the *Cerebellum*.

DURATION, an Idea we get by attending to the fleeting, and perpetually perishing Parts of Succession. See SUCCESSION.

The Idea of Succession we get by reflecting on that Train of Ideas, which continually follow one another in our Minds, while awake. The Distance between any Parts of this Succession is what we call *Duration*: And the Continuation of the Existence of our selves, or any Thing else commensurate to the Succession of Ideas in the Mind, is call'd our *own Duration*, or that of the Thing coexisting with our Thinking. So that we have no Perception of *Duration*, when that Succession of Ideas ceases. See IDEA, and EXISTENCE.

Duration, in Mr. *Lock*'s Philosophy, is a Mode, or Modification of Space. See SPACE, and MODE.

The simple Modes of *Duration*, are any Lengths, or Parts thereof, whereof we have distant Ideas; as *Hours*, *Days*, *Weeks*, *Months*, *Years*, *Time*, and *Eternity*, &c. See HOUR, DAY, WEEK, MONTH, YEAR, &c.

Duration, as mark'd by certain Periods, and Measures, is what we properly call *Time*. See TIME.

1. By observing certain Appearances, at regular, and seemingly equi-distant Periods, we get the Ideas of certain Lengths, and Measures of *Duration*, as Minutes, Hours, &c. 2. By being able to repeat those Measures of Time, as often as we will, we come to imagine *Duration* where nothing really endures, or exists: Thus, we imagine, *to morrow*, *next Year*, *yesterday*, &c. 3. By being able to repeat such Idea of any Length of Time, as of a *Minute*, *Year*, &c. as often as we will, and add 'em to one another, without ever coming to an End, we get the Idea of *Eternity*. See ETERNITY.

Time is to *Duration*, as Place is to Space, or Expansion. They are so much of those boundless Oceans of Eternity, and Immensity, as is set out, and distinguish'd from the rest; and thus serve to denote the Position of finite, real Beings, in respect of each other in those infinite Oceans of *Duration*, and Space.

DUTCHY-*Court*, a Court wherein all Matters belonging to the *Dutchy*, or County Palatine of *Lancaster*, are decided by Decree of the Chancellour of that Court. See PALATINE.

The Original of this Court was in *Henry* the IVth Time; who obtaining the Crown by Deposition of *Richard* II. and having the *Dutchy* of *Lancaster*, by Descent, in Right of his Mother, became seiz'd thereof as King, not as Duke. So that all the Liberties, Franchises, and Jurisdictions of the said County pass'd from the King, by his great Seal, and not by Livery, or Attornment; as the Earldom of *March*, and other Possessions, which descended to him by other Ancestors than the King's, did.

Henry IV. by Authority of Parliament, sever'd the Possessions, Liberties, &c. of the said *Dutchy* from the Crown: But *Eduard* IV. restored 'em to their former Nature.

The Officers belonging to this Court, are the Chancellour, Attorney, Receiver General, Clerk of the Court, and Messenger; beside the Assistants: as an Attorney in the Exchequer; another in Chancery, and four Councellors. See CHANCELLOR *of the Dutchy*.

The *Dutchy* of *Lancaster*, says *Gwin*, grew out of the Grant of *Eduard* III. who gave that *Dutchy* to his Son *John* of *Gaunt*, and endowed it with Royal Rights, equal to those of the County Palatine of *Chester*. And forasmuch as it came afterwards to be extinct in the Person of King *Henry* IV. by reason of its Union with the Crown; the same King suspecting himself more rightfully Duke of *Lancaster*, than King of *England*, determined to save his Right in the *Dutchy*, whatever should befal the Kingdom. Accordingly, he separated the *Dutchy* from the Crown; and settled it so in his own Person, and Heirs, as if he had been no King, or Politic Body at all: In which Condition it continued during the Reigns of *Henry* V. and VI. who descended from him; till *Eduard* IV. who, by Recovery of the Crown, recontinuing the Right of the House of *York*, appropriated the *Dutchy* to the Crown again. Yet so, as he suffer'd the Court, and Officers to remain as he found 'em. In this Manner, it came, together with the Crown, to *Henry* VII. who taking *Henry* IV. Policy, (by whose Right, indeed, he obtain'd the Kingdom) re-separated the *Dutchy*, and so left it to his Posterity, who still enjoy it.

DUTY, in Policy, and Commerce, an Impost, laid by Authority of a Prince, &c. on Merchandizes, and Commodities, either of his own Country, or brought from abroad; towards supporting the Expences of the Government. See CUSTOMS.

The *Duties* on various Kinds of Commodities are infinite. The principal are, the

DUTIES *of Exportation*, and *Importation*, pay'd upon the bringing in, or carrying out of the divers Kinds of Goods, Animals, and even Persons; agreeable to the Tarifs settled between the several Nations. See IMPORTATION, and EXPORTATION.

There is no State in *Europe*, or perhaps in the World, where the *Duties* of Exportation and Importation, are so many, and so considerable, as in *England*. The two principal, are, the *Duties of Tunnage*, and *Poundage*. The first charged on Liquors, in Proportion to their Measure, and Content. See TUNNAGE.

The second on the other Commodities, and paid according to their Value, settled in a Tarif. See POUNDAGE.

These two *Duties*, which have a long Time been on foot in *England*, were re-establish'd at the Restoration of King *Charles* II. in 1660, upon the Parliament's annulling all the Laws made under *Cromwell*, and decreeing the Execution of the ancient Ordonnances.

To these there have been eighteen new *Duties* added since that Time: Ten of 'em for Liquids, and the other eight on other Kinds of Commodities.

The *Duties on Liquids*, are the ancient *Duty of Tunnage*, or *old Subsidy*: the *Additional Duty*; *Duty of Excise*, *Duty of Coinage*, the *old Imposition*, the *Additional Imposition*, the *Orphan's Money*, the *Duty on* French *Wines*, the *New Subsidy*, the *Duty on* Hungary *Wines*, and the *one Third, and two Thirds of Subsidies*.

The *Duties* on other Commodities, are the *Ancient Duty of Poundage*: the *Additional Duty of* 1660, *on Linens, and Silks*: the *new Imposition of Poundage*, call'd the *Impost of* 1690: Another *Imposition of four Fifths in* 1693: the *Duty of* 25 *per Cent on* French *Goods, imposed in* 1695: the *new Subsidy of Poundage in* 1697: Another *Additional Subsidy of a Third of Poundage in* 1703: Another *Third in* 1704: *A Duty on Fish, Oils, and Whale Fins, in* 1709: Another *on Leather, Velom, and Parchment, in* 1711: A second *on the same Goods, in* 1712: And lastly, in the same Year, *A Duty on Paper, Paste-Board, and Soap*.

We shall here enter into a more particular Detail of the *Duties on Liquids*; as *Wines*, *Brandies*, *Vinegars*, *Cyders*, &c.

First, then, the *Duty of Tunnage*, or the *Old Subsidy*, we have already observ'd, was establish'd in the twelfth Year of King *Charles* II. It was at first only granted him for Life; but afterwards continued in the first Year of King *James* II. during the Life likewise of that Prince. And lastly, by several Acts, in the Reign of Queen *Anne*, it was again continued for 96 Years, ending in the Year 1808.

This

This first *Duty of Tunnage*, is 4 Pound 10 Shillings Sterl. *per* Tun, on all *French* Wines brought by *English* Vessels into the Port of *London*; and only 3 Pound, into the rest. The same Wine brought by foreign Vessels into the Port of *London*, pays 6 Pound; and into the other Ports, 4 Pound 10 Shillings Sterl. *French* Vinegar made of Wine, pays 4 Pound 10 Shillings, brought by *English* Vessels; and 6 Pound, by foreigns. *French* Cyder, and Perry, and Vinegar made of those Liquors, pay as in the preceeding Article. *Rhenish* Wine brought into any Port of *England*, pays 1 Pound Sterl. *per* Awine, a Measure amounting to the Sixth of a Tun, so that the *Duty per* Tun is about 7 Pound 10 Shillings, which is a Fourth more than that of *French* Wine. *Spanish*, and *Portugueze* Wines, *Muscadines*, *Malmseys*, and other *Greek* Wines, pay the same as *French* Wines; and the like is to be understood of Vinegars made thereof.

Additional Duty of the old Subsidy. This first Augmentation of the old Tunnage, was made in 1660, and continued like the Subsidy itself to 1808.

For this *Duty*, *French* Wines pay 3 Pound Sterl. *per* Tun. *Rhenish* Wines pay as *French* Wines. *Spanish* Wines pay 4 Pound; *Portugal* Wines, 3 Pound; *Muscadines*, *Malmseys*, and other *Greek* Wines, pay the same as *Spanish* Wines. Vinegar, Cyder, and Perry, are exempt from this *Duty*. See SUBSIDY.

Duty of Excise, is not laid on Wines, but only on Malt-Liquors, &c. See EXCISE.

Duty of Coinage was imposed in the 18th Year of King *Charles* II. to defray the Expence of Coining of the Money. It has been continued by divers Acts to the Year 1715, and even since that Time.

Wines of all Kinds pay equally 10 Shilling Sterl. *per* Tun on this *Duty*. See COINAGE.

Duty of old Imposition of Tunnage was establish'd in the Year 1685, and continued by divers Acts; that of 1711 made it perpetual.

By this *Duty*, *French* Wines pay 8 Pound Sterl. *per* Tun in all the Ports of *England*; *Spanish*, *Portugal*, *Muscadine*, and other *Greek* Wines, 12 Pound: Vinegars 8 Pound.

Duty of Additional Imposition was establish'd in 1690, continued by divers Acts to 1720, and in 1712 made perpetual. This *Duty* none but the *French* pay, the other Nations being exempt from it.

Each Tun of *French* Wine pays for this *Duty* 8 Pound Sterl. in any Port of *England*: Vinegar, Cyder, and Perry pay 25 *per Cent.* of their Value.

Orphans-Duty is only charg'd on Wines brought into the Port of *London*. Its Name expresses the pious Office it is intended for.

It had its Rise in the 6th Year of King *William* III. It is fix'd at 4 Shillings *per* Tun on all Wines indifferently. See ORPHANS.

Additional Duty on French Wines, is one of the *Duties* to which *French* Wines alone are subject. It was establish'd in the Year 1695, for 20 Years, and since continued.

It is rated at 25 Pound Sterl. *per* Tun: And Vinegars at 15 Pound.

New Subsidy was granted to King *William* III. in 1695, for his Life, and since continued to Queen *Anne* for her Life.

This is properly a Duplicate of the *Duty* of Tunnage, to which *French*, and other Wines are equally subject, whether brought in *English*, or foreign Vessels; tho' there are some Differences, as to Vinegars, Cyders, and Perry.

Duty on Hungary Wines, is very late, only establish'd in the first Year of Queen *Anne*. It is the same with that pay'd by *Rhenish* Wines.

Duty, call'd *Third Subsidy*, is a Third of the old Subsidy, first establish'd in 1703, and since continued by divers Acts, to expire in 1805.

Duty, call'd *Two Third Subsidy*, is likewise a new *Duty*, first establish'd in 1704, to last only for a certain Time, tho' since made perpetual.

It consists in two other Thirds of the old Subsidy, so that these two *Duties* of 1703, and 1704, are equal to the whole Subsidy.

Besides these *Duties* imposed on all Wines imported, both by Natives, and Foreigners; there are likewise the *Duty of Butlerage*, another *Duty* call'd *Foreign*, another of *Bristol*, and another of *Southampton*, amounting together to about 40 Shillings *per* Tun; but as these *Duties* are only levied on Wines imported in foreign Vessels, 'tis but rarely they are paid; most of the Wine-Trade being manag'd by *English* Vessels.

From this State of the *Duties* paid by Wines and other Liquors brought into *England*, it appears that *French* Wines imported by *Englishmen* into the Port of *England*, pay 55 Pound, 16 Shill. 8 Pence Sterl. *per* Tun. Those imported by the same into the other Ports, 51 Pound, 13 Shillings, and 6 Pence: Those brought by Foreigners into the Port of *London*, 61 Pound, 15 Shillings, and 10 Pence; and into the other Ports, 57 Pound, 12 Shilling, and 8 Pence.

Spanish, *Italian*, *Muscadine*, *Malmsey*, and other *Greek* Wines, imported by the *English* into the Port of *London*, pay 27 Pound, 7 Shilling, and 10 Pence Sterling; and brought by the same into the other Ports, 23 Pound, 4 Shillings, and 9 Pence. The same Wines brought to *London* by Foreigners, pay 33 Pound, 7 Shillings, 3 Fourths.

Portugal, *Rhenish*, and *Hungary* Wines brought to *London* by *English* Vessels, pay 26 Pounds, 10 Shillings, and 3 Pence; into the other Ports, 22 Pound, 7 Shillings, and 2 Pence: The same Wines imported to *London* by Foreigners, pay 32 Pound, 9 Shilling, and 5 Pence; and into the other, 28 Pound, 6 Shilling, 3 Pence.

French Vinegars imported to *London* by the *English*, pay 27 Pound, 10 Shillings, 11 Pence; and into the other Ports, 26 Pound, 4 Shilling, 6 Pence: Imported by Foreigners into *London*, they pay 28 Pound, 17 Shillings, 3 Pence; and in the other Ports, 27 Pound, 10 Shillings, 11 Pence.

Spanish and *Portugal* Vinegars, imported to *London* by *English* Vessels, pay 12 Pound, 10 Shillings, 11 Pence; in the other Ports, 11 Pound, 4 Shillings, 6 Pence: The same Vinegars imported to *London* by foreign Vessels, pay 13 Pound, 17 Shillings, 3 Pence; and in the other Ports, 12 Pound, 10 Shillings, 1 Penny. As to Cyders, and Perries, the Importation is not considerable.

French Brandies imported by any Vessel into any Port, pay 78 Pound, 4 Shillings Sterl. *per* Tun; and Brandies from any other Countries, except *France*, only 48 Pound, 4 Shillings: All other foreign Brandies being exempted from *Duties* of 30 Pound Sterling, charged on *French* Brandies by Acts of Parliament, under the Reign of King *William* III.

The *English* Merchants, it is to be observed, are not oblig'd to pay these several *Duties* before 12 Months; nor Foreigners before 9: giving Security for the same. Or, if they pay ready Money, there is a Deduction made 'em of 5 *per Cent.* on the *old New Third*, and *two Third Subsidy*, and on the other *Duties* 6, and one Fourth *per Cent.* Add, that if these Merchandizes be again exported into other Countries, after they have been enter'd in *England*, the *Duties* are return'd; tho' this only within the Compass of a Year to Natives, and of 9 Months to Foreigners.

In *Spain*, the *Duties* of Export, and Import, are call'd, *Duties of Alcavala*, and amount to about 5 *per Cent.* of the Value of the Goods: For Instance, the Piece of Velvet of 40 *Spanish* Varres, or Yards, pays 20 Reals: Hats of *Vigone*, 5 Reals a Piece: Linnens, 224 Reals *per* 100 Varres: Gold and Silver Laces, 2 Reals 3 Quarters, the Mark Weight. The *Duties* of Exportation are nearly on the same footing.

In *Portugal*, the *Duties* of Importation were anciently the same on all Kinds of Goods; *viz.* 18 *per Cent.* of the Value. But since the Year 1667, Silks have been excepted out of the general Tarif, and reduced to 13 *per Cent.* For Exportation the *Duties* are only 6 *per Cent.*

In *Holland*, the *Duties of Exportation*, and *Importation*, are nearly alike; both of 'em being about the Rate of 5 *per Cent.* of the Value of the Goods. At *Hambourg*, and *Bremen*, the *Duties* are but 1 *per Cent.* At *Lubeck*, three 4ths *per Cent.* In *Muscovy*, 5 *per Cent.* At *Venice*, 6 and three 4ths *per Cent.* for what the Natives import; and 10 and a half to Strangers: The *Duties of Exportation* are 9 *per Cent.* At *Leghorn*, the *Duties of Exportation*, and *Importation* are very inconsiderable; but with the Addition of a Number of petty Dues, become as great as at *Venice*. In the Ports of the *Levant*, *Constantinople*, *Smirna*, *Aleppo*, &c. the *Duties of Exportation*, and *Importation* are nearly on an equal footing, *viz.* 3 *per Cent.* except to the *Venetians*, and *Jews*, who pay 5 *per Cent.*

The Consuls *Duties* are likewise to be added for *Smirna*, &c. which are about 2 *per Cent.* At *Cairo*, *Alexandria*, and some other Cities of *Egypt*, the *Duties* are of two Kinds: One for Goods brought in Ships from *Europe*; the other, for those brought by the Caravans from *Asia*. The first are fix'd at 20 *per Cent.* The second are arbitrary, but always very high. Beside the ordinary *Duty*, they here pay the *Golden Duty*, which is the tenth Part of what is paid for the first *Duty*. As to *Duties of Exportation*, they may be said to pay none, the 1 and a half *per Cent.* being rather the Custom-house Fee, than any *Duty* of the Soveraign.

DUUMVIR, a general Name among the ancient *Romans*, for several Magistrates, Commissioners, and Officers, where *two* were joyn'd together in the same Function. So that they had almost as many *Duumvirs*, as they had Officers joyn'd two by two in Commission.

There were *Duumvirs* to direct the Building, Repairing, and Consecrating of Temples, and Altars; *Capital Duumvirs*, who took Cognizance of Crimes, and condemn'd to Death. *Duumvirs* of the Marine, or Navy, &c. But the most considerable *Duumvirs*, and those usually thus call'd by Way of Eminence, were the

DUUMVIRI *Sacrorum*, which were created by *Tarquin*, for the Performance of Sacrifice, and Keeping of the Sybils Books.

Books. They were chose out of the Nobility, or *Patricii*; and held their Office for Life. They were exempted from serving in War, and from the Offices imposed on the other Citizens: Without them the Oracles of the Sybils could not be consulted.

The Commission held till the Year of *Rome* 388; when, at the Request of *C. Licinius*, and *L. Sexius*, Tribunes of the People, they were chang'd into *Decemviri*; that is, in lieu of *two* Persons, the Trust was committed to *ten*, half Patricians, half Plebeians. See DECEMVIRI.

Sylla added five to their Number, upon which they became denominated *Quindecemvirs*. Their Body was afterwards much increased, and at length amounted to sixty; yet still retain'd the Denomination of *Quindecemviri*. See QUINDECEMVIR.

They were entirely abolish'd under the Emperor *Theodosius*, along with the rest of the Heathen Superstitions. See SYBILS.

The *Capital* DUUMVIRS, *Duumviri Perduellionis*, were not ordinary Magistrates; but created on certain Occurrances. The first *Duumvirs* of this Kind were those appointed to judge the surviving *Horatius*, for killing his Sister, after vanquishing the *Curiatii*.

The Word is composed of *duo*, two, and *Vir*, Man.

There were also *Duumvirs* in the *Roman* Colonies; who held the same Rank and Authority in their respective Colonies, that the Consuls held at *Rome*. They were chose out of the Body of *Decuriones*, and wore the *Prætexta*, or Robe border'd with Purple.

There were also *Municipal Duumvirs*, whom *Vigenere* compares to our Sheriffs, or rather Mayors of Towns.

DUUMVIRATE, *Duumviratus*, the Magistrature, Office, or Dignity of the *Duumvirs*. See DUUMVIR.

The *Duumvirate* lasted till the Year of *Rome* 388; when it was chang'd into a *Decemvirate*. See DECEMVIRATE.

DWAL, in Heraldry, the Herb *Night-shade*; used by such as blazon with Flowers and Herbs, instead of Colours and Metals, for Sable, or Black. See SABLE, *&c.*

DWARF. See GYANT, PIGMY, and STATURE.

DWARF-*Trees*, are Fruit-Trees, thus call'd from the Lowness of their Stature; frequently planted in the Borders of Gardens. See FRUIT-*Tree*.

They seldom grow above 4 or 5 Foot high; and have usually a Hoop tied within the Middle of the Branches, to make 'em spread a-round.

Dwarf-Trees are of especial Advantage for Table-Fruit, whether Pears, Apples, Plums, or Cherries; The Fruit they yield is usually of the finest, and best; and as such they make a considerable Article in the Gardeners Province.

There are divers *Ways of Producing Dwarfs*.

Dwarf-Pears are usually produced by Inoculating on Quince-Stocks, which grow the *Dwarf's* Height.

As for *Dwarf-Apples*, the Stocks they chuse to graft on are those raised of the Cuttings of the Apple.

In order to provide Stocks of each Kind, they chuse such Stems, and Branches, as grow straightest; in the Month of *October*; from Trees whose Cuttings will grow, or which in the Places they are to be grafted in are at least an Inch thick: Cut 'em off an Hand's Breadth below the Knots, or Burs, which are the Places where they usually put forth their Roots; and cut off the Top, that they may not be above a Yard long. If they cannot be got so long of Quinces, shorter must do. Cut off all Side-Branches close to the Body, except one small Twig near the Top for the Sap to vent it self at. Set them in Beds, as Seed-plants are: and keep 'em a Foot above Ground.

It being somewhat difficult, to get enough of such Branches as have Burs and Knots on 'em; a particular Method has been invented to bring those Knots, and Burs, artificially, call'd *Circumposition*. It is perform'd by tying some Earth in a Piece of old Hat, a Foot long, about the Place where you intend to cut, in the Month of *February*; and in *October* it will have shot Roots therein.

Such Trees alone, as are apt to put forth Roots, are proper for *Dwarf* Stocks; as the *Kentish* Codlin, Gennet Moil, some Sorts of sweet Apple, Bitter Sweets, Quince-tree, Mulberry-tree, and the Paradise Apple Tree.

Stocks for *Dwarf Apple-Trees* are likewise rais'd by cutting down an old Tree, which is apt to cast forth good Suckers from the old Roots; which at two Years Age may be transplanted, or else inoculated where they stand.

As for *Dwarf Pear-Trees*, Stocks may be rais'd for them from the Suckers of old Pear-trees. Else, cut off the Top of some old ill Pear-tree, and the Roots will cast forth Suckers.

For *Dwarf Cherries* and *Plums*, Suckers of the common red Cherry, and ordinary Plum-tree, are the best.

As to the *Grafting*, or *Inoculating of Dwarf-Stocks*, it must be done as low as may be, with two Cyons, and those longer than in Grafting for long Standards; that they may spread from the Ground. See ENGRAFTING.

As to the *Planting of Dwarf-Trees*, 'tis best in a light, hot Earth, from the Middle of *October*, to the End of *November*. In cold, wet Soil, 'tis best in *March* and *April*. The Stem of the Tree to be cut off seven or eight Inches above the Graft; and remember to cut off half the Length of the Roots, and hairy Fibres; To turn the Cut of the three towards the North; to let the Graft always be two or three Inches above the Ground, lest it take Root; To plant 'em shallow, as being apt of themselves, in light Ground, to sink a Foot deep, which is sufficient; and to cover the Ground, when they are planted, with Horse-Litter.

DYE, in Architecture, is the Middle of the Pedestal; or that Part which lies between the Base and the Cornice: being so nam'd, because it is frequently made in the Form of a Cube, or *Dye*. It is also call'd *Dado*, by the *Italians*; and by *Vitruvius*, *Truncus*. See PEDESTAL.

DYE, is also us'd for a Cube of Stone, placed under the Feet of a Statue, and over its Pedestal; to raise it, and shew it the more.

DYNASTY, a Term in History, signifying a Race, or Succession of Kings of the same Line, or Family. See RACE.

We find frequent Mention in ancient History of *Dynasties* of *Persians*, *Assyrians*, *Medes*, &c.

Manetho has left an Historical Chronology of *Egypt*, divided into 30 *Dynasties*.

The Word is form'd from the *Greek* δυναστεία, of δυνασθαι, *to be powerful, to be King*.

DYPTYCHA, or rather DIPTYCHA, in Antiquity, a public Register, wherein were wrote the Names of the Consuls, and other Magistrates, among the Heathens; and of Bishops, and defunct, as well as surviving Brethren among the Christians.

Justinian, offended at Pope *Vigil*, for refusing to subscribe the Condemnation of the three Chapters, gave Orders for his Name to be erased out of the *Diptycha*. *Du Pin*. The Emperor commanded the Name of the new Patriarch to be enter'd in the *Diptycha Sacra*.

'Tis certain, there were prophane *Diptycha's* in the *Greek* Empire, as well as sacred Ones in the *Greek* Church. The former were the *Matricula*, or Register, wherein the Names of the Magistrates were enter'd: In which Sense *Diptycha* is a Term in the *Greek* Chancery.

Sacred DIPTYCHA. The Word is plural; *Diptycha* being a double Catalogue, in one whereof was wrote the Names of the Living, and in the other those of the Dead, which were to be rehears'd during the Office. We meet with something not unlike the *Sacred Diptychs* of the *Greeks*, in the Canon of the Mass, according to the *Latin* Usage; where the People are enjoyn'd to pray once for the Living, and once for the Dead; several Saints are invoked in different Times, *&c.*

Gentian Hervet explains the Word *Diptychs*, δίπτυχα, by *Altar-Cloths*: *Meursius*, by that of *Libelli Ecclesiastici*, Church-Books; But neither of those Authors, tho' in other respects of great Abilities, and well versed in the *Greek* Antiquity, has given the genuine Signification of the Word. The *Diptycha* were neither Altar-Cloths, nor Church-Books, but a Sort of Tables, or Tablets, alike in Figure to the two Tables of Stone given to *Moses*; On one of these Tables was wrote the Names of the Deceas'd, and on the other those of the Living, for whom Prayers were to be offer'd; which the Deacon read over, while the Mass was celebrated.

In these *Diptycha* were enter'd the Names of Bishops, who had govern'd their Flocks a-right; and were never expung'd out of the same, unless they were convicted of Heresy, or some other gross Crime. In the *Diptycha* were likewise enter'd the Names of such as had done any signal Service to the Church, whether they were living, or dead, and mention was made of 'em in the Celebration of the Liturgy.

The Jesuite *Rosweyd* affirms, that few Names were enter'd in the *Sacred Diptychs*, but those of Bishops and Patriarchs; and doubts very much, whether the Sacred *Delta*, mention'd by the pretended St. *Dionysius*, *Eccles. Hierarch. C.* II. wherein were enter'd the Names of the new baptized, with their God-fathers and God-mothers, were the same with the *Diptycha*. He allows, however, that the Names of the Emperors, and other great Persons, distinguish'd by their Faith, and their Merits, or Benefactions, were us'd to be enter'd.

Meursius, in his *Glossarium Græco-Barbarum*, imagines 'em to have wrote the Term *Diptycha*, by reason there were *two* Books, in one of which were wrote the Living, and in the other the Dead. But *Fa. Rosweyd* shews, he is mistaken: For in effect, there was but one, the Living being enter'd on one Side thereof, and the Dead on the other. And if the Living, and Dead, were each wrote in a several Book, each of 'em was call'd *Diptycha*, and not both together.

Casaubon, in his Observations on *Athenæus*, *L.* VI. *C.* 14. supposes the Christians to have borrowed the Custom of writing Names in a Book, and rehearsing 'em at Mass, from the Heathens, who enter'd the Names of Persons they would do any signal Honour to, in the Verses of the *Salii*; as was done to *Germanicus*, and *Verus*, Sons of the Emperor *Marcus*

cus Aurelius, and long Time before, during the Age of the Republic, to *Mamurcus Veturius*, and *Lucia Volumnia*, as we are told by *Tacitus*, *L.* II. *Spartian*, *Ovid*, *Festus*, *Plutarch*, &c.

But *Fa. Rosweyd* does not approve this Notion of *Casaubon*. The pretended St. *Dionysius*, a very ancient Author, says the contrary, and asserts the first Establishment of this Usage to have been founded on Scripture. 2 *Tim.* II. 19. *Psal.* CXV. 15. *Rosweyd* adds *Eccl.* XLIV. 1. and takes these to have been the Passages the ancient Church had a View to, rather than the *Salian* Verses.

The *Prophane Diptycha* were frequently sent as Presents to Princes, *&c.* On which Occasion they were finely gilt, and embellish'd; as appears from *Symmachus*, *L.* II. *Ep.* 81. Those presented were usually of Ivory. The first Law, *de Expens. Ludor. C. Theod.* forbids all Magistrates below Consuls, to make Presents of *Diptycha* of Ivory, in the public Ceremonies.

Fa. Rosweyd owns himself at a Loss for the Origin of this Custom of making Presents of *Diptycha's*. *Lud. Carrion*, *L.* II. *Emendat. C.* 6. supposes it to have arose hence, that such Presents were at first made to the Persons who had been nominated *Questores*, to whom they were to be of Use. Many imagine the *Diptycha* to have originally been a Kind of Table-Books us'd by Lovers. Thus *Papias* defines 'em, *Tabellæ in quibus Amores scribebantur.*

The Word *Diptycha* is form'd from the *Greek* δίπτυχον and δίπτυχα, and that from δίπτυξ, a Masculine Noun derived from πτύσσω, *I fold*, or *plait*. From its Future πτύξω is form'd πτύξ, *a Fold*, or *Plait*, to which adding δὶς, *twice*, we have δίπτυξ, in the Genitive δίπτυχος, whence the Nominative Neuter δίπτυχον, q.d. *a Book folded in two Leaves:* Tho' there were some in 3, and others in 4, or 5 Leaves.

An ingenious Author imagines this Name to have been first given 'em to distinguish 'em from the Books that were roll'd, call'd *Volumina*. See VOLUMES.

DYSCRASY, from δὺς, *malus*, bad, and κρασίς, or κρασία, *Temperamentum*, Constitution, is an ill Habit of Body; as in a Jaundice, or the like.

DYSENTERY, or DYSSENTERY, in Medicine, a bloody *Diarrhœa*; or a Flux of Blood by Stool; attended with Pains and Griping. See FLUX.

The Word *Dysentery* is form'd from the *Greek* δὺς, *difficultly*, and ἔντερον, *Intestine*; and properly signifies that Kind of Flux of the Belly, characterized by the Frequency of Stools, or Dejections, mix'd with Blood, and accompanied with Gripes: The Fever, Ulcer, *&c.* which attend it, are not essential to the Disease; tho' many, both of the Ancients and Moderns, think the Ulcer is.

The *Dysentery*, *Sydenham* observes, begins with a Chilness, and Shivering; which is followed by a Heat; then Gripings of the Belly ensue, with mucous, or sanious Stools, which in Progress of Time are found interspers'd with Streaks of Blood, with vehement Pain.

The Stools are sometimes void of Blood; and yet, if they be frequent, and attended with Gripes, and a mucous *Colluvies*, the same Author says, it is a proper *Dysentery*.

Along with the Excrements, beside a whitish Mucosity, frequently come Scrapings of the Guts, in Form of little Skins. If pure Blood be evacuated, the Patient's Life is in great Danger.

Etmuller makes three Kinds of *Dysenteries*: 1. When a laudable Blood is evacuated, from a mere *Plethora*, or Plenitude, without any Disorder of the Intestines; as in the *Hemorrhoidal Flux*. See HEMORRHOIDS.

2. When a thin, watery Blood is evacuated, call'd the *Hepatic Flux*, tho' really arising from the Hemorrhoidal Vessels.

The third Kind, which is that we properly call *Dysentery*, is, when Blood is cast out mix'd with a purulent Matter in the Excrements.

This is either *benign*, i. e. without a Fever, and not contageous; Or *malignant*, which is attended with a pestilential Fever; and frequently ravages whole Cities, and Provinces: Happening most commonly in Armies. In the last Stage, a Sort of Caruncles are frequently ejected along with the purulent Matter, which are difficult to be accounted for, unless from an Excoriation, and Ulceration of the Intestines. Sometimes the Intestines are even gangreen'd.

The next Cause of the *Dysentery*, as assign'd by some Physicians, is a serous, or other morbid Humour, mix'd with the Mass of Blood; the Consequence of which is a too great Fermentation in the Blood, and a Dissolution of its Parts, which are thus render'd too liquid. The second Cause is a Vellication, and Irritation of the nervous Fibres of the Intestines, occasion'd by sharp, acid Humours separated from the Blood; which occasion the Spiral Fibres, that produce the Peristaltic Motion of the Guts, to move too fast, and thus to expel the Matters too hastily out of the Intestines. The Mediate Cause, in the Physicians Language, is some foreign Body adhering strongly to the Intestines, and by its sharp Points, vellicating the nervous Fibres of the Intestines, and at length ulcerating 'em. The Remote Causes are any Thing that corrupts the Mass of Blood, as viscid, and crude, sharp Juices; ill Foods; Autumnal Fruits; Grapes; new Wine drunk in Excess; Poisons; violent Medicines; Waters convey'd through leaden Pipes; Rainy Weather in the Spring, with a dry Winter, and a hot Summer, and Autumn.

The Seat of the Disease is in the Intestines, either the big, or the small, or both: When the Disease is in the small Ones, the Gripes begin long before the Stools, and are felt about the Navel; and the Blood, and Excrements, are more blended; as being longer together. When the larger Intestines are seiz'd, the Pain is less vehement, and is felt lower, *&c.*

Purgatives have rarely any good Effect in *Dysenteries*; as increasing the Fermentation of the Blood, and irritating the Fibres of the Intestines more and more. Nor are Emeticks much better; as tending to draw the peccant Humours into the Stomach, or at least into the higher Intestines, and cause more frequent Stools.

Ipecacuanha, however, is excellent on this Occasion: Not so much as a Vomitory, Dr. *Friend* observes, as a Sudorific; having this Faculty, beyond all other Emeticks, that it corrects the *Dysenteric* Ferment, in Proportion as it evacuates it. In the *Philosophical Transactions* we have an express Discourse on the Subject; where it is asserted to be infallible in all *Dysenteries*, and Loosenesses, how dangerous and inveterate soever; except in Pulmonic and Hydropic Patients, whose Fluxes are Indications of approaching Death.

Sydenham commends Phlebotomy: But *Willis* says, no Evacuation is good: and prescribes hot Cardiacks, as Spirit of Wine a little burnt, *&c.*

Balsamic, and Styptic Medicines are also to be used, according to the divers Causes, and Symptoms of the Disease.

Borre, in a Letter to *Bartholin*, affirms, there is no better Medicament in *Dysenteries* than Rose-Water wherein Gold has been extinguish'd.

Dotæus relates, that he cured above an hundred Persons with Oil of sweet Almonds, mix'd with Orange Juice.

DYSPEPSY, in Medicine, a Difficulty, or Weakness of Digestion. See DIGESTION.

The *Dyspepsy* may arise from the Softness of the Ferment of the Stomach, or its being sparing in Quantity; from a Relaxation of the Fibres of the Stomach; the Want of a proper Heat in the Stomach, *&c.*

Bitters, and Sub-astringents, are its proper Remedy.

The Word is form'd from the *Greek* δὺς, *difficultly*, and πέπτειν, *coquere*, to concoct.

DYSPNOEA, in Medicine, a Difficulty of breathing. See RESPIRATION.

The *Dyspnœa* admits of three Degrees: A *Short-Breath*; an *Asthma*; and an *Orthophnæa*.

The *Short-Breath*, is the first, and lightest Degree.

The *Asthma* is more violent, accompanied with a wheezing. See ASTHMA.

The *Orthophnæa* is the highest of all; the Patient affected therewith not being able to lye down, but oblig'd to keep erect, without which he could not respire.

The most usual Causes of *Dyspnœa's* are Phlegms contain'd in the *Bronchia*; or the too strong Constitution of the *Bronchia* themselves, which prevent the easy Ingress of the Air into the Lungs.

The Word is form'd from the *Greek* δὺς, *difficultly*, and πνέω, *I breath.*

DYSURIA, in Medicine, a Difficulty of making Urine, accompanied with Pain, and a Sense of Heat.

It is also call'd *Ardor Urinæ*, by reason the Urine seems to burn the *Urethra*, as it issues forth. See URINE.

The *Dysuria* differs chiefly from the *Strangury* in this, that in the Strangury, the Urine only oozes out, as it were, Drop by Drop; whereas in the *Dysuria* it streams out without Interruption, and frequently in the proper Quantity. See STRANGURY.

The ordinary Causes of the *Dysuria*, are the Acrimony, or Sharpness of the Urine; and the Excoriation, or Exulceration of the Neck of the Bladder, or the Urinary Passage.

The Word is form'd from the *Greek* δὺς, *difficultly*, and ὀρεῖν, *to make Urine.*

E, The 5th Letter of the Alphabet, and the 2d Vowel. See LETTER and VOWEL.

E, is a Letter that admits of some Variety in the Pronunciation, in most Languages; whence *Grammarians* usually constitute so many different E's, or Kinds of E. The *Greeks*, e. gr. have their *long* and *short* e, *viz.* ε, and η, *Epsilon* and *Eta*.

The *Latins* have an opener e, called *vastius*; such was the last in the Word *Here* Master; and another closer, as that in the Adverb *Here* Yesterday. This latter e and i, were frequently used for each other: Thus for *here*, they wrote *heri*: And in divers Places we meet with *sibe*, *quase*, &c. for *sibi*, *quasi*, &c.

The *Roman* e, was likewise sometimes wrote æ: For which Reason, there are some Antiquaries, who take that Medal of *Gallian*, GALLIANÆ AUGUSTÆ, not to be any Satyrical Medal, as the rest have imagined; nor to be a *Dative* Feminine, but a *Vocative* Masculine, *Galliane Auguste*, wrote with an *æ*.

In *English* we easily distinguish three E's, or Sounds of E: The First, Mute, and not heard at all; as in *Amsterdam*, *Sense*, *Blue*, &c. The Second, close or short, pronounced with the Lips near shut; as in *Equity*, *Nettle*, &c. The Third, open or long; as in *Fear*, *Ease*, &c.

The *French* have, at least, six Kinds of E; the First, pronounced like A; as in *emporter*, *Orient*, &c. The Second, a final Mute, in the last Syllable of divers Words not pronounced at all; as in *bonne*, *donne*, &c. The Third, an imperfect Mute, pronounced much like the Diphthong *ea*, &c. as in *Je*, *de*, *te*. The Fourth, e *ferme*, or e masculine, marked at the Ends of Words with an Accent é. The Fifth, is e *ouvert*, or long e, having the same Sound with *ai*, as in *mer*, *feste*, &c. In the middle of Words it is sometimes mark'd with a Circumflex, and in the End, with an Accent è. The Sixth, is an Intermediate e, between the *ouvert* and *ferme*; as in *Cabaret*, *Lettre*, &c. Some add a Seventh Kind of e, not reducible to any of the former, as that in *Grammarien*, *Historien*, &c. And others admit of only three Kinds, *viz.* the Mute, open, and shut; but they make Variation therein; which amounts to the same thing.

As to the Form of the Letter E, we borrow it from the *Latins*, who had it from the *Greeks*, and they from the *Phœnicians*, by *Cadmus*, who first brought it them. Now the *Phœnicians* had the same Characters with the *Hebrews*. Accordingly, the Form of the Antient Hebrew *He*, was the same with that of our E, as may be seen in the *Hebrew* Medals, and the Jesuite *Souciet*'s Dissertation thereon, *p.* 143. All the Difference between them consists in this, that the *Hebrews* reading from Right to Left, turn their Letters that Way; whereas the Moderns, reading from Left to Right, write their Letters accordingly.

The little *e*, was form'd of the great one, in writing it fast, and making the cross Strokes at Top and Bottom without taking Pen off Paper, and then adding the Stroke in the Middle E.

The *Greek* η, H, *Eta*, was no original Letter; but added to the Alphabet in after Times. Of this we have Proofs still extant in the ancient Monuments; particularly, the *Farnese* Columns, brought to *Rome* from the *Via Appia*, where the *Epsilon* E, is used in lieu of the H. *e. gr.* ΔΕΜΕΤΡΟΣ ΚΟΡΕΣ, for ΔΗΜΕΤΡΟΣ ΚΟΡΗΣ. 'Tis said to have been added by *Simonides*. *Bibliand. de Ration. Communi. Linguar. p.* 40.

The Pronunciation of the η, seems to have been varied: *Terentianus* informs us, that it was pronounced like the *Latin* e; but the *Greeks* themselves, for several Ages, pronounced it like an *i*. 'Tis disputed how the *Latins* render it in their Language. The common Opinion is, that they render it by an e: As in Δημήτερ, βῆτα, ἡμέρα, Θησεύς, Θησαυρός, &c. which they rendred *Demetrius*, *Beta*, *Hemera*, *Thesens*, *Thesaurus*, &c. Tho' there are Persons, exceedingly well versed in Antiquity, who hold that they pronounced it like an i.

Lud. de Dieu, one of the most Learned *Grammarians* of his Age, observes as much in his Animadversions on *Genesis* VI. 24. Adding, that 'tis for this Reason, that the *Hebrews*, e. gr. the Paraphrast *Jonathan*, express it by a *Hhirik*; as, מִשְׁתֵּה, מִסְטוּד.

J. Rod. Wetsten proves the same in his Learned Orations on the true Pronunciation of the *Greek* Tongue, from an Infinity of Instances. Citing to this Purpose a M. S. Psalter of the VIIIth Century, where all the *H's* are expressed by *i's*. In Effect, *Wetsten* proves, not only that the *Latins* pronounced and wrote it as an *i*, which might happen from its being so easily confounded with an *i*; but also that they rendred it by an *e* and *ia*; that it was often used for Υ and ΕΙ; and that in the Time of *Plato*, this Letter had a Kind of intermediate Sound between the ε and ι. See that Author. See also *Vossius de Idoloi. L.* II. *C.* 16.

E on the Keys of an Organ, or Harpsichord, denotes the Tones *E*, *mi*, *la*.

On the Compass, in Sea-Charts, &c. it marks the East Point, or Wind. E. East. E S E. East South East. N E. North East, &c. See WINDS and COMPASS.

In Calendars, E is the 5th of the Dominical Letters. See DOMINICAL-*Letters*.

Among Authors, *E. gr.* stands for *Exempla gratia*; for Instance. See CHARACTER.

In several Dictionaries, we find it noted, that the Letter E, among the Antients, was a Numeral Letter, signifying 250, according to the Verse

E *quoque Ducentos & Quinquaginta tenebit.*

But it has already been observed, that this Use of Numeral Letters was unknown among the Antients. *Isidore Hispallensis*, an Author of the VIIth Century, says as much in express Terms, in the first Book of his *Origines*, *Cap.* III. In Effect, it was first introduced in the Times of Barbarism and Ignorance.

EAGLE, *Aquila*, Ἀετός, in Natural History, the largest, strongest, and swiftest of all the Birds that live by Prey. See BIRD.

It has a long, hooked Beak; yellow, scaly Legs; thick, crooked Talons; and a short Tail. Its Plumage is chestnut, brown, ruddy and white. Its Beak, black at the Tip; and in the middle, blue, tho' in some yellow.

Its *Airy*, or Nest, is usually on the highest Rocks, sometimes on the Tops of old Trees. It feeds its young till such Time as they are able to fly, and then drives them out of the Nests. Its Food is Birds, Hares, Lambs, Kids and Fawns; nay, Sir *Robert Sibbald* assures us, Children too, when it can catch them, of which he gives an Instance in the *Orcades* Islands. *Prod.* Nat. Hist. *Scot.* L. III. *p.* 2, & 14.

Ray mentions an *Eagle*'s Nest, found near the River *Derwent*, in 1668. It consisted of large strong Sticks, one End whereof was laid on the Crag of a Rock, and the other on two Beech-Trees: It was two Yards Square: In it were found one *Eaglet*, with the Carcasses of one Lamb, one Hare, and three Grygalli. *Synops. Method. Av. p.* 6. The *Eagle* frequently watches the fishing Hawk, and assoon as it perceives it to have struck a Fish, takes Wing, pursues the Bird till it lets fall its Prey, and often catches it ere it reaches the Earth or Water. *Philos. Transact.* No. 201.

It lives very long, and as Naturalists assure us, rarely dies but of Hunger; the upper Part of its crooked Beak growing so long, with Age, that it closes up the lower, and so disables it from opening and taking in Food.

Its Sight is quick, strong and piercing to a Proverb. The Reason why the *Eagle*, the Fibres of whose Optic Nerves are not stronger than those of other Animals, is able to face the Sun, and endure its brightest Rays, the Jesuite *Angelus*, in his *Opticks*, assures us, is, that it has two Sets of Eyelids, the one thick and close, and the other thinner and finer, which last it draws over the Eye, when it looks at any luminous Body, and thus breaks the Force of its Rays.

The Falconers have train'd up *Eagles* to the Game; but they only succeed in Mountainous Countries. On Plains they can't keep any time on the Wing, and when they stoop, or light, are weak, so that the Saker beats them. See FALCON.

Aristotle, and *Pliny*, reckon up Six Kinds of *Eagles*, to which they give Names corresponding to the Difference of their Plumage: As the *Eagle-Royal*, called by *Aristotle*, γνήσιος and ἀρπείας, from the ruddy, golden Colour of its Feathers, which are likewise spotted as it were with Stars. The *Black-Eagle*, *Valeria*, the smallest and most vigorous of all. The *White-tail'd Eagle*, or *Pygargus*. The *middle sized Eagle*, with a large Tail, living in *Morasses*; *Morphnus*: The *Sea-Eagle*, *Haliaetus*: And the *bearded Eagle*, *Ossifraga*.

EAGLE, in *Heraldry*, is the Symbol of Royalty, as being, according to *Philostratus*, the King of Birds; and for that Reason dedicated, by the Antients, to *Jupiter*.

The *Eagle*, is the Arms of the Emperor, and the King of *Poland*. It is accounted one of the most Noble bearings in *Heraldry*, and, according to the Learned in that Art, ought never to be given, but in Consideration of singular Bravery, Generosity, &c. On which Occasions, either a whole *Eagle*, or an *Eagle Naissant*, or only the Head, or other Parts, agreeable to the Exploit, may be granted.

The *Eagle* is sometimes represented with one Head, and sometimes with two, tho' never more than one Body, two Legs, and two Wings open'd, or stretch'd out, in which Posture, it is said to be *spread* or *display'd*: Such is that of the Empire, which is blazon'd a *spread Eagle*, *Sable*, *diadem'd*, *langued*, *beak'd and membred*, *Gules*.

The

The Reason why *Eagles* are generally given in *Heraldry* display'd, is partly, because in that Posture they fill up the Escutcheon better, and partly, because 'tis imagined a Posture natural to the *Eagle*, when it plumes its Feathers, or faces the Sun. However, there are *Eagles* born in other Postures: Some monstrous ones, with Human or Wolves Heads, *&c.*

The late Authors only say *display'd*, to express the two Heads; and say an *Eagle*, without any Addition, when it has but one. The Kingdom of *Poland* bears *Gules*, an *Eagle argent, crown'd and member'd Or.*

The *Eagle* has been bore, by Way of Ensign, or Standard, by several Nations. The first who seem to have bore the *Eagle*, are the *Persians*; according to the Testimony of *Xenophon*. Afterwards, it was assumed by the *Romans*; who, after a great Variety of Standards, at length fix'd on the *Eagle*, in the 2d Year of the Consulate of *C. Marius*: Till that Time, they used indifferently Wolves, Leopards, and *Eagles*, according to the Humour of the Commander.

Several among the Learned maintain, that the *Romans* borrowed this Custom from *Jupiter*, who had appropriated the *Eagle* as his own Badge, in Commemoration of its supplying him with Nectar, while he lay conceal'd in *Crete*, for Fear of being devour'd by his Father *Saturn*. Others hold that they borrow'd it from the *Tuscans*, and others from the *Epirots*.

The *Roman Eagles*, it must be observed, were not painted on a Cloth, or Flag; but were Figures in *Relievo*, of Silver or Gold, bore on the Top of Pikes; the Wings being display'd, and frequently a Thunder-bolt in their Talons. Under the *Eagle* were filed on the Pike, Bucklers, and sometimes Crowns. Thus much we learn from the Medals. See *Feschius* in his *Dissert. de Insignibus*. And *Lipsius, de Militia Romana, L.* IV. *Dict.* 5.

Constantine is said to have first introduced the *Eagle* with two Heads, to intimate, that tho' the Empire seem'd divided, it was yet only one Body. Others say, that it was *Charlemaign*, who returning the *Eagle*, as the *Roman* Ensign, added to it a second Head: But that Opinion is destroy'd, by an Eagle with two Heads, noted by *Lipsius*, on the *Anthonine* Column; as also by the *Eagle's* only having one Head on the Seal of the *Golden-Bull*, of the Emperor *Charles* IV. The Conjecture, therefore, of *F. Menestrier*, appears more-probable, who maintains, that as the Emperors of the *East*, when there were two on the Throne at the same Time, struck their Coins with the Impression of a Cross, with a double Traverse, which each of them held in one Hand, as being the Symbol of the Christians; the like they did with the *Eagle* in their Ensigns; and instead of doubling their *Eagles*, joyn'd them together, and represented them with two Heads. In which they were followed by the Emperors of the *West*.

Fa. Papebrock, wishes that this Conjecture of *Menestrier* were confirm'd by ancient Coins; without which, he rather inclines to think the Use of the *Eagle* with two Heads, to be merely arbitrary: Tho' he grants it probable, that it was first introduced on Occasion of two Emperors in the same Throne.

Eagle, *Aquila*, in Astronomy, is a Constellation of the *Northern* Hemisphere, having its right Wing contiguous to the Equinoctial. See Constellation.

For the Stars in this Constellation, their Number, Longitude, Latitude, *&c.* See Aquila.

There are also three several Stars, particularly denominated among the *Arab* Astronomers, *Eagles*. The 1st, *Nasr Sohail*, the *Eagle* of *Canopus*, called also *Sitareh Jemen*, the Star of *Arabia fœlix*, over which it is supposed to preside: The 2d, call'd *Nasr Althair*, the flying *Eagle*; and the 3d, *Nasr Alvake*, the resting *Eagle*.

White-Eagle, is a *Polish* Order of Knighthood, instituted in 1325, by *Uladislaus* V. on Marrying his Son *Casimir*, with a Daughter of the Great Duke of *Lithuania*.

The Cavaliers of this Order were distinguished by a Gold Chain, which they wore on the Stomach, whereon hung a Silver *Eagle* crown'd.

Black-Eagle, was a like Order, instituted in 1701. by the Elector of *Brandenburgh*, on his being crown'd King of *Prussia*.

Eagle, in Architecture, a Figure of that Bird antiently used, as an Attribute, or Cognizance of *Jupiter*, in the Capitals and Friezes of the Columns of Temples, consecrated to that God.

Eagles-*Stone*, in Natural History, a Stone, by the *Greeks*, call'd *Ætites*, and the *Italians, pietra de Aquila*; as being sometimes found in the *Eagle's* Nest; of famous traditionary Virtue, either for the forwarding, or preventing the Delivery of Women in Labour, according as it is applied above, or below the Womb.

Matthiolus observes that the Birds of Prey, could never hatch their Young without it, and that they go in Search for it as far as the *East-Indies*. *Bausch.* has an express *Latin* Treatise on the Subject. See Ætites.

The *Eagle* on Medals, is, according to M. *Spanheim*, a Symbol of Divinity and Providence, and according to all other Antiquaries, of Empire. The Princes on whose Medals 'tis most usually found, are the *Ptolomies* and the *Seleucides* of *Syria*. An *Eagle* with the Word Consecratio, expresses the Apotheosis of an Emperor.

EAGLET, or EAGLON, diminutives of *Eagle*, properly signifying young *Eagle*. The *Eagle* is said to prove his *Eaglets* in the Brightness of the Sun; if they shut their Eye-lids, he disowns them.

In Heraldry, when there are several *Eagles* on the same Escutcheon, they are called *Eaglets*.

EALDERMAN, or EALDORMAN, among the *Saxons*, was of like Import with an Earl among the *Danes*. *Camb. Britan.* p. 107. Also an Elder, Senator, or States-man.

Hence, at this Day, we call those *Aldermen*, who are Associates to the chief Officer in the Common-Council of a City, or Corporate Town. See Alderman.

EAR, the Organ of Hearing; or the Part whereby Animals receive the Impression of Sounds. See Hearing and Sound.

The Ear is generally divided into *Internal*, and *External*.

The External, or outer Ear, in most Animals, consists of two grand Parts, *viz.* that which appears prominent from the Head, called the *Auricle*; and an inner Part, which enters the Scull by a narrow Passage, called the *Meatus Auditorius*, and leads to the *Auris*, or *Ear*, properly so call'd.

The *Auricle*, or outer Part of the External Ear, is semicircular, and contains divers Sinuosities. Its upper Part, which is the broadest, is called the *Pinna*, and sometimes the *Ala*; and the lower, which is narrower, softer and pendant, the *Lobe*, or *Fibra*, being that to which Ladies hang their Rings, *&c.* The outer *Area*, or Extent of the *Auricle*, is called the *Helix*; and the inner, opposite thereto, the *Anthelix*: The little Protuberance of the Side next the Face, is called the *Tragus*, or *Hircus*; and the Ridge just above, and opposite to it, *Antitragus*: And the Cavity, leading to the Beginning of the *Meatus*, the *Concha*. See each Part described under its proper Article; Helix, Tragus, Concha, *&c.*

The *Auricle* stands out from the Head, and is furrowed with divers winding Canals, which receive and collect the wandring circumambient Impressions, and Undulations of Sound, and modify and forward them to the inner Ear. It is form'd of a thin *Cartilage*, cover'd with a Skin. It has two Muscles, which in Men are very small, whence some Anatomists deny there are any at all, tho' others increase their Number to three, one *Attollent*, and two *Retrahent*; and others to four. But in Brutes, which move and prick the Ears, as Horses, Asses, *&c.* they are very large and considerable. Those who have lost their *Auricles*, M. *Dionis* observes, have but a confused Way of Hearing; and are obliged either to form a Cavity round the Ear with their Hands; or to make use of a Horn, applying the End of it to the *Meatus Auditorius*. See Auricle.

The inner Part of the External Ear, is possess'd by the *Meatus Auditorius*, or Auditory Passage, which commences from the Bottom of the *Concha*, called the *Alvearium*, and is continued in a winding Direction, turning sometimes this Way, and sometimes that, to the *Membrana Tympani*. The *Meatus* is dug out of the *Os Temporis*, and lined with a Skin, or *Membrane*, which is furnish'd with divers little Glands, that separate a thick, yellow, glutinous Humor, call'd *Cerumen*, or Ear-wax, serving to defend the Ear from the Ingress of Vermine, and other extraneous Bodies. This *Meatus* is all the External Ear in divers Animals, as Reptiles, Birds, Moles, divers Fishes, *&c.* The further End thereof is closed by a thin, dry, round, transparent Membrane, called the *Membrana Tympani*; and improperly, *Tympanum*, or Drum, which separates the External Ear from the Internal. See Meatus *Auditorius*, and Tympanum.

Behind the *Membrana Tympani*, is a Cavity call'd, by different Authors, the *Tympanum, Cavitas Tympani, Concha Interna*, and *Meatus Auditorius Internus*. In this Cavity are five considerable Parts, *viz.* four little Bones, two Apertures, called *Foramina*, or *Fenestræ*, as many *Meatus's* or Passages; four *Muscles*, and a Branch of a *Nerve*.

The 1st of the Bones, or Ossclets, is the *Malleolus*, or Hammer, thus call'd from the Figure, which is bigger at one End, call'd the *Head*, than at the other, called the *Helve*, or Handle: The 2d, is called the *Incus*, or Anvil: The 3d, the *Stapes*, or Stirrop: And the 4th, the *Orbiculare*. These Bones are nearly of the same Bigness at the Birth of the Child, as when it is arrived at Maturity; so that all that Age does is to harden them.

To give Motion to these Bones, is the Office of the four Muscles of this Cavity; three of them belonging to the *Malleus*, viz. the *Externus, Obliquus*, and *Internus*; and the 4th to the *Stapes*, called the *Musculus Stapedis*.

The

The two *Meatus's* are situate at the Sides of the Cavity; the one opening into the Palate, called *Aquæductus*, not only on Account of its Form, but because it may serve for the Discharge of any heterogeneous Matters: By other Authors it is call'd from its Discoverer, *Tuba Eustachiana*. 'Tis by Means hereof, that Persons, thick of hearing, assist the Sense, by opening their Mouths. The other is shorter and bigger, opening into the *Sinus* in the Mamillary Process.

The two Apertures, or *Fenestræ*, of the *Tympanum*, are in the Surface of the *Os petrosum*, which is opposite to the Membrane of the *Tympanum*. The first, called *Fenestra Ovalis*, by Reason of its Figure, is situate a little higher than the other, and receives the Basis of the *Stapes*. The other call'd *Rotunda*, notwithstanding its Figure, is oval like the former, and closed by a thin, dry, transparent Membrane, resembling that of the *Tympanum*.

The last Thing to be consider'd in the Cavity of the *Tympanum*, is a fine Chord which runs over the inner Surface of the Membrane; called *Chorda Tympani*. Anatomists have long disputed, whether it was an Artery, a Vein, a Nerve, or the *Tendon* of one of the Muscles of the *Malleus*: But 'tis now discover'd to be a Branch of the fifth Pair of Nerves, which meets the *Portio dura* of the Auditory Nerve.

The two *Fenestræ* abovemention'd, open into a Cavity dug out of the *Os petrosum*, called the *Labyrinth*, as being perplex'd with divers *detours* and *Meanders*. In this Cavity is supposed to be contain'd the innate Air. It is divided into three Parts; the first called the *Vestible*, by Reason it leads into the other two: In it are observ'd nine Apertures, or *Foramina*. The second, comprehends three round Canals, disposed in a semicircular Form, and thence call'd *Canales Semicirculares*. The third is the *Cochlea*, which consists of two Parts, *viz.* a spiral Semi-oval Canal; and a *Lamina*, form'd into a spiral Flight. The Canal makes two Turns and an half round a *Newel*, or Axis, still growing less as it ascends. The spiral *Lamina* divides this Cavity into two, being fasten'd by its Base to this *Newel*, and by its other Extremity, to the Surface of the Canal, opposite to the *Newel*, by Means of a very fine Membrane. The Cavity of the *Cochlea* thus divided, forms, as it were, two winding Stair Cases, both built on the same *Newel*, one over t'other, but without any Communication between them.

Lastly, There is the Auditory Nerve, which consists of two Branches, or Parts, the one soft, call'd *Portio mollis*; and the other harder, *Portio dura*: The soft Part is spent on the Organ of Hearing, being divided into five Branches, which form a delicate Web, that lines the *Vestibulum*, *Cochlea*, &c. The hard Part, passing out of the *Cranium*, is distributed among the Parts of the External *Ear*, &c.

The other Vessels of the Internal *Ear*, are Arteries and Veins from the Carotieds and Jugulars.

Particular Descriptions of each Part of the Ear *above recited, see under the proper Articles*; TYMPANUM, FENESTRA, MALLEOLUS, STAPES, INCUS, ORBICULARIS, LABYRINTH, VESTIBLE, COCHLEA, *Canalis* SEMICIRCULARIS, AUDITORY NERVE, &c.

The immediate Organ of Hearing, has been generally supposed to be the Membrane of the *Tympanum*: But later Anatomists shew this to be a Mistake, from divers Instances wherein that Membrane has been absolutely destroy'd, and broke, without the least Diminution of the Sence of Hearing.

The Parts that bid the fairest for the Prerogative are those which compose the *Labyrinth*, viz. the *Cochlea*, *Lamina Spiralis*, *Vestible*, and *Semicircular Canals*: The *Portio mollis* of the Auditory Nerve, ramified and diffused through these Parts, receives the Impression of Sounds, and propagates it to the Brain. See HEARING.

Behind, and under, the External *Ear*, are a Number of large Glands, called *Parotides*, wherein is separated a great deal of *Saliva*, which is convey'd by the excretory Ducts into the Mouth. See PAROTIDES.

The comparative Anatomy of the *Ear* furnishes abundant Instances of the Creator's Wisdom.

In *Birds*, the outer *Ear* is of a Form proper for Flight; not protuberant, as that would obstruct their Progress, but close and cover'd. See BIRD.

In *Quadrupeds*, its Form is agreeable to the Posture and Motion of the Body, but admirably varied, according to their various Occasions: In some, as the Hare, 'tis large, open and erect; by which Means, that timorous, defenceless Creature, is warn'd of the least Approach of Danger: In others, 'tis cover'd, to keep out noxious Bodies. In the subterraneous *Quadrupeds*, who are forced to mine and dig for their Food and Habitation, as a protuberant *Ear* would obstruct 'em, and be liable to Injuries, their *Ears* are very short, lodged deep and backwards in the Head.

Thus Moles have no *Auricle* at all, but only a round Hole, between the Neck and Shoulder. Some Authors observe, that the *Meatus*, or Passage, is closed with a little Skin, which opens and shuts like an Eye-lid. The Sea-Calf, and the several Species of Lizards and Serpents, are likewise without any External *Ear*. And the Tortoise, Cameleon, and Generality of Fishes, have the Passage of the *Ear* quite stop'd, or cover'd over. There is a Sort of Whale, which has the Aperture of the *Ear* under the Shoulders.

Among all the Varieties in the Structure of this Organ, none, Dr. *Grew* observes, are more remarkable than those in the Passage into the *Os petrosum*. For in an Owl, which perches on a Tree, or Beam, and hearkens after the Prey beneath her, it is produced further out above, than below, for the better Reception of the least Sound: In a Fox, which scouts underneath the Prey at Roost, it is for the same Reason produced further out below: In a Pole-Cat, which hearkens strait forwards, it is produced behind, for the taking of a forward Sound: Whereas in a Hare, which is very quick of Hearing, and thinks of nothing but being pursued, it is supplied with a bony Tube, directed backwards, so as to receive the smallest, and most distant Sound that comes behind her.

Schelhammer denies the Existence of the innate Air, so much talk'd of, in the *Labyrinth*; and with good Reason, as there is a Passage out of the *Labyrinth* into the Throat, thro' which the innate Air might escape. This is past doubt: Since by stopping the Breath, and straining, we can force the External Air into the *Ear*, and even hear it rushing in. When the Passage is any Way stopp'd, as by a Cold, &c. the Hearing thereby becomes dull and obtuse: And when by strong Swallowing, or other Motion of the Throat, the Passage is open'd, we perceive it by a sudden Crack, and immediately hear very clearly; the Load of feculent Air being then discharged from the inner *Ear*. See SOUND, DEAFNESS, WHISPERING-*Place*, SPEAKING-*Trumpet*, BELLOWING-*Cave*.

Several Naturalists and Physicians have held, that cutting off the *Ears* render'd Persons barren, and unprolific; which Notion was what first occasion'd the Legislators to order the Ears of Thieves, &c. to be cut off, lest they should produce their like.

The *Ear* has its Beauties, which a good Painter ought by no Means to disregard: Where it is well form'd, it wou'd be an Injury to the Head to be hidden. *Suetonius* insists particularly on the Beauties of *Augustus's* Ears; and *Ælian*, describing the Beauties of *Aspasia*, observes she had short Ears. *Martial* ranks large Ears among the Number of Deformities. *Felibien*.

Among the *Athenians*, it was a Mark of Nobility to have the Ears bored or perforated. Among the *Hebrews* and *Romans*, it was a Mark of Servitude.

EAR, in Music, a kind of internal Sense, whereby we perceive and judge of Harmony, and musical Sounds.

In Music, we seem universally to acknowledge something like a distinct Sense from the external one of hearing; and call it a *good Ear*. And the like Distinction we should probably acknowledge in other Affairs, had we got distinct Names to denote those Powers of Perception by. See SENSE.

Thus, a greater Capacity of perceiving the Beauties of Painting, Architecture, &c. is called to a *fine Taste*. See TASTE.

EAR-*Wax*, } See { CERUMEN.
EAR-*Ring*, } { PENDANT.

EAR, is also applied to a long Cluster of Flowers, or Seeds, produced by certain Plants; usually called by Botanists, *Spica*. See SPICA.

The Flowers and Seeds of Wheat, Rye, Barley, &c. grow in *Ears*. The same holds of the Flowers of Lavender, &c. We say the Stem of the *Ear*, i. e. its Tube or Straw: The Knot of the *Ear*: the Lobes, or Cells, wherein the Grains are enclosed: The Beard of the *Ear*, &c. we have known 80 *Ears* of Wheat from the same Root.

EARL, an *English* Title of Honour, or Degree of Nobility, next below a *Marquis*, and above a *Viscount*. See NOBILITY, MARQUIS, VISCOUNT, &c.

Earls, were anciently Attendants, or Associates, of the King in his Councils, and Martial Expeditions; much as *Comites*, Counts, were of the Magistrates of *Rome*, in Quality of Deputies, to execute their Offices for them. See COUNT.

Hence also *Earls* are called in *Latin*, *Comites*; in *French*, *Comtes*, Counts, &c. The *Germans* call them *Graves*, as Langrave, Margrave, Palsgrave, &c. The *Saxons*, *Eoldormen*; the *Danes*, *Eorlas*; and the *English*, *Earls*.

At first the Title *Earl* always died with the Man: *William* the *Conqueror* first made it Hereditary; giving it in Fee to his Nobles; and annexing it to this or that Shire or County: For the Support of the State thereof, he allotted the third Peny out of the Sheriffs Court, issuing out of all Pleas of the Shire from which the *Earl* took his Title. But of later Days the Matter is much alter'd.

Earls are now created by Charter, without any Authority over, or particular Relation to, their Counties; and without any Profit arising thence, except some annual Stipend out of the Exchequer for Honours Sake. The Number of *Earls* being of late much increased, and no more Counties being left for them; several of them have made Choice of some eminent Part of a County, as *Lindsey*, *Holland*, *Craven*, &c. Others, of some Towns; as *Marborough*, *Exeter*, *Bristol*, &c. And others of some Village, or their own Seat, Park, &c. as *Godolphin*, *Bolton*, *Danby*, *Wharton*, &c.

Two Earls we have which are not local, *i. e.* not dignified from any Places, but from Noble Families; *viz.* Earl *Rivers*, and Earl *Poulet*. A third is denominated from his Office, *viz.* the *Earl-Marshal*. See MARSHAL.

Earls are created by Cincture of Sword, Mantle, a Cap and a Coronet on his Head, and a Charter in his Hand. They are styled by the King, *Consanguinei nostri*, our Cousins. Their Title is, *Most potent and Noble Lord*. Their Coronet has the Pearls rais'd on Points, with Leaves between. See CORONET.

Earl was a mighty Title among the *Saxons*: It is observed to be the most ancient of any of the Peerage; and that there is no other Title of Honour in Use among the present Nobility, which was likewise used among the *Saxons*, beside it.

The Original Titles of Honour among the *Saxons*, were Æðelinc, Ealdeorman, and Þeyen or Þane. The first was appropriated to those of the Royal Family. The other two to the rest of the Nobility. Only the *Thani* were afterwards distinguished into *Majores* and *Minores*. See THANE.

EARL-*Marshal*, is a great Officer, who had antiently several Courts under his Jurisdiction, as the *Court of Chivalry*, now almost forgotten; and the *Court of Honour*, now quite laid aside: But he hath still some Preheminence in the *Court of Marshalsea*; where he may sit in Judgment against Criminals offending within the Verge of the Court; whence the chief Officer under him is called *Knight-Marshal*. See MARSHAL, and MARSHALSEA.

Under him is also the Herald's Office, or College of Arms. See HERALD, and COLLEGE *of Arms*.

The Office of *Earl-Marshal* is Hereditary in the most Noble Family of *Howard*; and enjoy'd by the Duke of *Norfolk*, the principal Branch thereof; tho' now, for Reasons of State, it is discharged by Deputation: But yet it is to be observed, it is not given out of the Name and Family of *Howard*.

EARNEST, called also *Arrhes*, Money advanced to compleat, or assure, a verbal Bargain, and bind the Parties to the Performance thereof.

By the Civil Law, he who recedes from his Bargain, loses his *Earnest*: Or, if the Person, who receiv'd the *Earnest*, give back, he is to return the *Earnest* double. But, with us, the Effect of *Earnest* is more. The Person who gave it, is in Strictness obliged thereby to abide by his Bargain; and in Case he decline it, is not discharged upon forfeiting his *Earnest*; but may be sued for the whole Money stipulated.

EARTH, *Terra*, in Natural Philosophy, one of the four Vulgar, or Peripatetical Elements; defined, a simple, dry and cold Substance; and as such, an Ingredient in the Composition of all Natural Bodies. See ELEMENT.

It should be well observed, that the Element *Earth* is a very different Matter from the *Earth* whereon we tread: *Aristotle* having laid down *cold* and *dry* as his first Element; to give it a suitable Name, look'd among the divers Bodies, for that which should come the nearest thereto; which being *Earth*, he gave his first Element that Denomination: Tho', thus borrowing a Word, that had been used for a different Thing, occasioned a great Part of his Followers to run into an extravagant Error, and to suppose, that this habitable fossil *Earth*, was an Element. See PRINCIPLE.

EARTH, in Chymistry, is the fourth of the Chymical Elements, or Principles, into which all Bodies are resolvible by Fire. See PRINCIPLE.

After drawing off the Spirit, Sulphur and Phlegm, *e. gr.* of Wine, what remains in the Retort, is a tasteless, smellless, dusty Matter, not capable either of being rais'd by Distillation, or dissolved by Solution, and called *Earth*, or *Terra damnata*, or *Caput Mortuum*. See CAPUT *Mortuum* and TERRA *damnata*.

This *Earth* is supposed to be the Basis, or Substratum of all Bodies; and that, wherein the other Principles reside. 'Tis all that is solid, *e. gr.* in an Animal or Vegetable Body, *i. e.* all the Vascular Part; the rest being Juices. See SOLID, VESSEL, VEGETABLE, &c.

EARTH, in Natural History, is a fossil, or terrestrial Matter, whereof our Globe principally consists; whose Character is to be neither dissoluble by Fire, Water, nor Air; not transparent, more fusible than Stone, and generally containing some Degree of Fatness. See FOSSIL.

Of such *Earth*, some is Simple, and Immutable; other, Compound and Fatty. Of the first Kind is *Chalk*, *Pumice*, and *Rotten-stone*; of the Second, or Compound *Earths*, are *Boles* of all Kinds, red, white and brown; *Fullers Earth*, the divers Kinds of *Medicinal Earth*, as the *Cretica*, *Hungarica*, *Turcica*, *Suecica*, *Lemnian Earth*, *Malta Earth*, *Terra Sigillata*, &c. To this Class are likewise referred *Argillæ*, or *Clay Earth*, form'd into Potters Ware.

These *Earths* are all resolvible into an Oil, a little acid Salt, &c. and a *Calx*, which is the Basis, or the *Earth* properly so call'd. *See the divers Kinds of Earths described under their proper Articles*: CHALK, PUMICE, BOLE, SIGILLATA-*Terra*, &c.

Naturalists generally rank *Sand* as a Species of *Earth*; tho' with no great Propriety. Sands being, in Strictness, a Sort of Crystals, or little transparent Pebbles, calcinable, and by the Addition of a fix'd alcaline Salt, fusible, and convertible into Glass: And therefore properly reducible to the Class of Stones. See STONE.

By Means of Sand it is, that the fatty *Earth* is render'd fertile, and fit to feed Vegetables, &c. For pure Earth is liable to coalesce into a hard coherent Mass, as in Clay; and Earth thus imbodied, and as it were glued together, would be very unfit to nourish Plants. But if with such Earth, Sand, *i. e.* hard Crystals which are indissoluble in Water, and still retain their Figure, be intermix'd, they will keep the Pores of the Earth open, and the Earth it self loose and incompact, and by that Means give room for the Juices to move, ascend, &c. and for Plants to be nourished thereby. Thus a Vegetable, planted either in the Sand alone, or in the fat Globe and *Earth* alone, receives no Growth or Increase; but is either starved or suffocated: But mix the two, and the Mass becomes fertile. In Effect, by Means of Sand, the Earth is render'd in some Measure Organical; by preserving a Sort of Pores, and Interstices therein, somewhat analagous to Vessels is effected; by which the Juices of the *Earth* may be convey'd, prepared, digested, circulated, and at length excreted and thrown off into the Roots of Plants. See WATER and VEGETATION.

EARTH, in Geography, this terraquerous Globe, or Ball, whereon we inhabit, consisting of Land and Sea. See TERRAQUEOUS *Globe*; See also OCEAN.

The *Earth*, consider'd in different Relations, or Habitudes, makes the Subject of Geography and Geometry. See GEOGRAPHY, &c.

The *Figure of the Earth* is demonstrated to be nearly Spherical. Thus: the Moon is frequently seen eclipsed by the Shadow of the *Earth*; and in all Eclipses, that Shadow appears circular, what Way soever it be projected, whether towards East, West, North or South, howsoever its Diameter vary, according to the greater or less Distance from the Earth.

Hence it follows, that the Shadow of the *Earth*, in all Situations, is really Conical; and consequently the Body that projects it, *i. e.* the *Earth*, is nearly Spherical. See SHADOW.

The Natural Cause of this Sphericity of the Globe is, according to Sir *Isaac Newton*, the great Principle of Attraction, which the Creator has stamp'd on all the Matter of the Universe; whereby all Bodies, and all the Parts of Bodies, mutually attract one another. See ATTRACTION.

The same is the Cause of the Sphericity of the Drops of Rain, Quicksilver, &c. See DROP, SPHERICITY, &c.

We say 'tis *nearly* Spherical; for the Inequalities on its Surface prevent its being perfectly so. Besides that, *Huygens* and Sir *Isaac Newton* have shewn, that the *Earth* is higher and bigger under the Equator, than at the Poles: So that its Figure, nearly, is that of an oblate Spheroid, swelling out towards the Equatorial Parts, and flatted or contracted towards the Poles. The *Ratio* of the greater Diameter to the less, *Huygens* determines to be as 578 to 577. See MOUNTAIN, SPHEROID, PENDULUM, &c.

The Reason of this Inequality is deduced from the Diurnal Rotation of the *Earth* on its Axis; as is already shewn in that of the Sun. See SUN.

This Roundness of the *Earth* is further confirm'd by its having been frequently sail'd round: The first Time was in the Year 1519, when *Ferd. Magellan* made the Tour of the whole Globe in 1124 Days. In the Year 1557, our Countryman *Drake* performed the same in 1056 Days: In the Year 1586, Sir *Thomas Cavendish* made the same Voyage in 777 Days; *Simon Cordes*, of *Rotterdam*, in the Year 1590; and in the Year 1598, *Oliver Noort*, a *Hollander*, in 1077 Days; *Will. Corn. Van Schouten*, in the Year 1615, in 749 Days; *Jam. Heremit* and *Joh. Huygens*, in the Year 1623, in 802 Days: All of whom sailing continually from East to West, at length arrived in *Europe*, whence they set forth; and in the Course of their Voyage observed all the

the *Phænomena*, both of the Heavens and Earth, to correspond to and confess this spherical Figure.

What the *Earth* loses of its Sphericity by Mountains and Vallies, is nothing considerable; the highest Eminence being scarce Equivalent to the minutest Protuberance on the Surface of a Lemon: What it loses by the Swelling of the Equatorial Parts is more sensible. See MOUNTAIN.

Sir *Isaac Newton* makes the greatest Diameter 34 Miles bigger than the less, fixing the *Ratio*, as 692 to 688. If the *Earth* were in a fluid State, its Revolution round its Axis would necessarily make it put on such a Figure, by Reason the Centrifugal Force being greatest towards the Equator, the Fluid would there rise, and swell most: and that it should be so now, seems necessary to keep the Sea in the Equinoctial Regions from overflowing the *Earth* thereabouts.

Add, that Experiments made on Pendulums, which must be of different Lengths, to swing equal Times here and at the Equator, evince the same Thing. See PENDULUM.

Monsr. *de la Hire* and M. *Derham*, indeed, have shewn, in the *Memoirs of the* French *Academy*, and *Philosoph. Transact.* that this Diversity may arise either from the greater Heat, or the greater Rarity of the Air there than here; as having observed a like Variation between Pendulums when heated and cold, and when in *Vacuo* and open Air. But, beside that Sir *Isaac Newton* and Monsr. *Bernoulli*, have set aside these Causes as insufficient; Monsr. *Cassini* has found, that the Degrees of a Meridian grow larger, the further we go towards the Line by one Eight hundredth Part of every Degree; which puts the Spheroidism of the *Earth* past Question.

The Antients had various Opinions as to the Figure of the *Earth*: Some, as *Anaximander*, held it Cylindrical; and others, as *Leucippus*, in Form of a Drum. But the principal Opinion was, that it was flat; that the visible Horizon was the Bounds of the Earth, and the Ocean the Bounds of the Horizon; that the Heavens and Earth above this Ocean was the whole visible Universe; and that all beneath the Ocean was *Hades*. Of which Opinion were not only divers of the ancient Poets and Philosophers, but also some of the Christian Fathers, as *Lactantius*, St. *Augustine*, &c.

Fa. Tacquet draws some pretty Conclusions from the Spherical Figure of the *Earth*; as, 1. That if any Part of the Surface of the Earth were quite plain; a Man cou'd no more walk upright thereon, than on the Side of a Mountain: 2. That the Traveller's Head goes a greater Space than his Feet; and a Horseman than a Footman, as moving equal Arches of greater Circles: 3. That a Vessel full of Water being rais'd perpendicularly, some of the Water will be continually flowing out, yet the Vessel still remain full; and on the contrary, if a Vessel full of Water be let perpendicularly down, tho' nothing flow out, yet it will cease to be full: Consequently there is more Water contain'd in the same Vessel at the Foot of a Mountain, than on the Top; by Reason the Surface of the Water is compress'd into a Segment of a less Sphere below than above. *Tacq. Astronom. L. I. C. 2.*

The *Magnitude of the Earth*, and the Number of Miles its Diameter contains, has been variously determined by various Authors, ancient and modern. The Way to arrive at it, is, by finding the Quantity of a Degree of a great Circle of the Earth. But this Degree is found very different, according to the different Methods and Instruments made use of, as well as the different Observers. See DEGREE.

The Method observed by Mr. *Norwood*, and the *French* Astronomers *Picard*, *Cassini*, &c. viz. by measuring the Distance between two remote Places on the same Meridian, is undoubtedly the best; and was performed with such exceeding Accuracy, especially by Monsr. *Cassini*, that hardly any thing further or better can be expected. According to that Author, the Ambit or Circumference of the *Earth* is 123750720 *Paris* Feet; or, 134650777 *English* Feet; or, 25031½ of our Statute Miles: Whence, supposing the *Earth* spherical, its Diameter must be 7967 Statute Miles; and consequently its Radius, or Semi-diameter, may be taken in a round Number for 200000000 Feet: Its Surface will be 199444206 Miles; which being multiplied into ⅓ of its Semidiameter, gives the solid Content of the Globe of the *Earth* 264856000000 Cubic Miles.

On the Surface of the *Earth* are conceiv'd the same Circles, as on the Surface of the *Mundane* Sphere already described; *viz.* an EQUATOR, ECLIPTIC, TROPICKS, POLAR-*Circles*, MERIDIANS, HORIZON, PARALLELS, &c. which See, as also SPHERE and GLOBE.

The *Terraqueous* Globe is now generally granted to have two Motions, the one *Diurnal*, around its own Axis, in the Space of 24 Hours, which constitutes the Natural Day, or *Nycthemeron*. See DIURNAL-*Motion*.

The other *Annual*, round the Sun, in an Elliptical Orbit, or Track, in 365 Days 6 Hours, constituting the Year. See ANNUAL-*Motion* and YEAR.

From the former we derive the Diversities of *Night* and *Day*: See NIGHT and DAY. And from the latter, the Vicissitudes of Seasons, Spring, Summer, &c. See SEASON, SPRING, SUMMER, WATER, &c.

See the Motion of the Earth proved under the Article EARTH *in Astronomy.*

In the *Terraqueous* Globe we distinguish three Parts, or Regions, *viz.* 1. The *External* Part, or Crust, which is that from which Vegetables arise, and Animals are nourished. 2. The *Middle*, or intermediate Part, which is possessed by Fossils, extending further than human Labour ever yet penetrated. 3. The *Internal*, or *Central* Part, which is unknown to us, tho' by many Authors supposed of a magnetic Nature; by others, a Mass, or Sphere of Fire; by others, an Abyss, or Collection of Waters, surrounded by the Strata of *Earth*; and by others, a hollow, empty Space, inhabited by Animals, who have their Sun, Moon, Plants, and other Conveniencies within the same.

Others divide the Body of the Globe into two Parts, *viz.* the *External* Part, which they call the *Cortex*, including the whole Depth or Mass of the Strata of the *Earth*: And the *Internal*, which they call the *Nucleus*, being of a different Nature from the former, and possess'd by Fire, Water, or the like. See CORTEX and NUCLEUS.

The External Part of the Globe either exhibits Inequalities, as *Mountains* and *Vallies*; or it is plain and level; or dug in Channels, Fissures, Beds, &c. for *Rivers*, *Lakes*, *Seas*, &c. See RIVER, LAKE, OCEAN, &c.

These Inequalities in the Face of the *Earth*, are by most Naturalists supposed to have arose from a Rupture, or Subversion of the Earth, by the Force either of the subterraneous Fires or Waters. The Earth in its Natural and Original State, *Des Cartes*, and after him *Burnet*, *Steno*, *Woodward*, *Whiston*, and others, suppose to have been perfectly round, smooth, and equable; and accounts for its present rude and irregular Form, principally from the great Deluge. See DELUGE, EARTHQUAKE, &c.

In the External, or Cortical Part of the Earth, we meet with various *Strata*, which are supposed to be the Sediments of various Floods, the Waters whereof being replete with Matters of divers Kinds, as they dried up, or oozed through, deposited these different Matters, which in Time harden'd into *Strata* of Stone, Sand, Coal, Clay, &c. See STRATA, COAL, &c.

Dr. *Woodward* has consider'd the Business of *Strata* with great Attention, *viz.* their Order, Number, Situation with respect to the Horizon, Depth, Intersections, Fissures, Colour, Consistence, &c. and ascribes the Origin and Formation of them all, to the great Flood, or *Cataclysmus*. At that terrible Revolution, he supposes all the terrestrial Bodies of all Kinds to have been dissolved and mix'd with the Waters, and sustain'd therein, so as only to constitute one common Mass therewith. This Mass of terrestrial Particles, intermix'd with Water, he supposes to have been at length precipitated to the Bottom, and that, according to the Laws of Gravity; the heaviest sinking first, and the lighter in their Order. By such Means were the *Strata* form'd, whereof the *Earth* consists, which attaining their Solidity and Hardness by Degrees, have continu'd so ever since. These Sediments, he further concludes to have been at first all parallel and concentrical, and the Surface of the *Earth* form'd thereby, perfectly smooth and regular: But in Course of Time, divers Changes happening from *Earthquakes*, *Vulcano's*, &c. the Order and Regularity of the *Strata* was disturbed and broke, and the Surface of the *Earth*, by such Means, brought to the irregular Form in which it now appears. See further Particulars under FOSSIL, VOLCANO, SPRING, ATMOSPHERE, &c.

EARTH, in Astronomy, is one of the primary Planets, according to the System of *Copernicus*. Its Character is ♁. See PLANET, &c.

In the Hypothesis of *Ptolomy*, the *Earth* is the Centre of the *System*. See SYSTEM.

Whether the *Earth* move, or remain at Rest, *i. e.* Whether it be fixed in the Centre, with the Sun Heavens and Stars moving round the same from East to West; or whether, the Heavens and Stars being at Rest, the *Earth* move from West to East, is the great Article that distinguishes the *Ptolemaic* from the *Copernican* System. See COPERNICAN, and PTOLEMAIC *System*.

Motion of the EARTH.

The happy Industry of the Astronomers of our Age, has put the Motion of the *Earth* beyond all reasonable doubt: On which Account, the Names of *Copernicus*, *Gassendus*, *Kepler*, *Hook*, *Flamstead*, &c. will ever be mentioned with the highest Honour.

Indeed, the same Motion had been held by many of the ancient Philosophers. *Cicero*, in his *Tusc. Quest.* assures us, that *Nicetas* of *Syracuse* first discover'd that the *Earth* had a diurnal Motion, by which it revolved round its Axis in the Space of 24 Hours: And *Plutarch*, *de Placit. Philosoph.*

Philosoph. tells us, that *Philolaus* discover'd its Annual Motion round the Sun. About 100 Years after *Philolaus*, *Aristarchus* the *Samian*, proposed the Motion of the *Earth* in stronger and clearer Terms, as we are assured by *Archimedes*, in *Arenar.*

But the Religious Opinions of the *Heathen* World, prevented the Doctrine's becoming more cultivated. For *Aristarchus*, being accused of Sacrilege by *Cleanthes* for moving *Vesta*, and the tutelary Deities of the Universe out of their Place; the Philosophers began to lay aside so perilous a Position.

Many Ages afterwards, *Nic. Cusanus* revived the ancient System, in his *Doct. de Pignorant.*; and asserted the Motion of the *Earth*: But the *Dogma* got but little Ground till the Time of *Copernicus*, who shew'd its great Use and Advantages in Astronomy; and who had, immediately, all the Philosophers and Astronomers, that durst think differently from the Croud, and were not afraid of Ecclesiastical Censures, on his Side. So that *Kepler*, his Contemporary, made no Scruple to cry: *Hoderno tempore præstantissimi quique Philosophorum & Astronomorum Copernico adstipulantur: secta est hæc Glacies; vincimus suffragiis melioribus: Cæteris pene sola obstat Superstitio aut Metus a Cleanthibus.*

The Arguments alledg'd against the Motion of the *Earth*, are vain and frivolous. The Principal are,

1. That it is a heavy Body, and very unfit for Motion.
2. That if the *Earth* were to move round its Axis in 24 Hours, all our Houses, Buildings, *&c.* would tumble down.
3. That Bodies wou'd not fall upon the Places perpendicularly under them: Nor a Bullet, *e. gr.* shot perpendicularly from the Ground, fall back again upon the same Spot.
4. That it is contrary to the Words of Scripture: And,
5. That it is repugnant to our Senses, which represent the *Earth* at Rest, and the Sun in Motion.

The Arguments for the Motion of the *Earth* are of another Kind, and carry other-guise Evidence with them; being deduced from actual Observation and Phænomena, and not from the fanciful Surmises of timorous Zealots. They are these:

1. The Sun will equally appear in Motion, and the *Earth*, as standing still, to a Spectator on the *Earth*; whether the Sun really move round the *Earth* at Rest; or the *Earth* move round the Sun at Rest.

For suppose the *Earth* in T, (*Tab. Astronom. Fig.* 14.) and the Sun in 1; the Sun will then appear in ♈. And suppose the Sun to proceed in an Orbit, surrounding the *Earth*, from 1 to 2, he will then appear in ♉; and if he proceed further to 3, he will be seen in ♊; and thus will he appear to go on, according to the Order of the Signs in the Ecliptic.

Suppose again the *Earth* in 1; (*Fig.* 15.) the Sun, S, will be seen in ♈: Let the *Earth* go on from 1 to 2, the Sun will appear to the Inhabitants of the *Earth* to have proceeded from ♈ to ♉; and if the *Earth* proceed to 3, the Sun will appear to have advanced further from ♉ to ♊; and so on, according to the Successions of the Sign of the Ecliptic.

Thus does the Sun appear alike to move, whether it really move, or stand still; so that the Objection from Sense is of no Force. See Vision. But again,

2. If one of the Planets be supposed to have moved a certain Space, from West to East; the Sun, *Earth*, and other Planets, together with the fixed Stars, will all seem to an Inhabitant of that Planet, to have moved just so far round it the contrary Way.

For suppose a Star M, (*Fig.* 16.) in the *Zenith* of an Inhabitant of a Planet plac'd in T; and suppose the Planet to have revolved on its Axis from West to East; in a certain Space of Time, the Sun S, will have arrived at the *Zenith* of T; then the Star I, then N, then the *Earth* L, and at length the Star M again. To the Inhabitant of the Planet therefore, the Sun S, with the *Earth* L, and the Stars I, N, M, *&c.* will appear to have moved round the Planet a contrary Way.

Thus, to the Inhabitants of the Planets, if any such there be, the *Mundane* Sphere, with the Sun, Stars, and all the other Planets, will, as to us, appear to move round them from East to West. And accordingly, the Inhabitants of our Planet the *Earth*, are only liable to the same delusive Appearances with those of the rest.

3. The Orbits of all the Planets include the Sun, as the common Centre of them all: But 'tis only the Orbits of the superiour Planets that include the *Earth*, which however is not in the Centre of any of them, as we have already shewn under the Articles, Sun and Planet.

4. The *Earth's* Orbit being proved to be between those of *Venus* and *Mars*; it follows, that the *Earth* must turn round the Sun: for, as it lies within the Orbits of the superiour Planets, their Motions would indeed appear unequal and irregular; but they would never either be stationary or retrograde. See Station and Retrogradation.

5. From the Orbits and Periods of the several Planets about the Sun; and of the Moon and the Satellites round the *Earth*, *Jupiter* and *Saturn*; it is evident, that the Law of Gravitation is the same towards the *Earth*, *Jupiter* and *Saturn*, as towards the Sun; and the periodical Times of the several Bodies moving around each, are in the same *Ratio* to their several Distances from them. See Period.

Now, it is certain, that on the Hypothesis of the *Earth's* annual Motion, her periodical Time exactly suits this Law, bearing such a Proportion between those of *Mars* and *Venus*, as the several other Bodies directed by the same Law do bear, *i. e.* the Squares of the Periods are in all, as the Cubes of the Distances from the Centre of their Orbits. But supposing the *Earth* to be at Rest, this Law is broke most exorbitantly.

For if the *Earth* don't move round the Sun, the Sun must move with the Moon round the *Earth*: Now the Distance of the Sun to that of the Moon, being as 10000 to 46; and the Moon's Period being less than 28 Days, the Sun's Period should be found no less than 242 Years, whereas in Fact it is but one Year. Which single Consideration, Mr. *Whiston* thinks of Weight enough to determine the Controversy between the two Systems, and to establish the Motion of the *Earth* for ever. See Revolution.

Whereas, supposing our *Earth* to have once revolved about the Sun in a circular Orbit, whose semi-diameter were equal to the *Earth's* original Distance from the Sun six Degrees past its Perihelion, the annual Period would be found exactly and surprizingly equal to the *Lunar* or the ancient *Solar* Year, which were exactly commensurate; containing 12 Synodical, or 13 Periodical Months, *i. e.* 355 Days, 4 Hours, 19 Minutes. See Month.

6. The Distances of certain of the fix'd Stars from the *Zenith*, have been observed to be various at various Times of the Year. That, particularly, of the *Pole-star* from the Pole, has been discover'd by Mr. *Flamstead* from repeated Observations, for 7 Years successively; to be greater about the Summer Solstice, than about the Winter, by about 40 Seconds. Whence it appears, that the *Earth* changes its Situation; receding from the *Pole-Star*, and returning back to it again Annually. See Parallax *of the Earth's Orbit.*

Which Argument is further confirm'd from this, that the *Earth* is nearer the Sun at *Christmas*, than at *Midsummer*; as appears both from its apparent Diameter being greater in *December* than in *June*; and from its Motion being swifter by one 25th Part in the former Season, than the latter: Whence it is that there are about 8 Days more in the Summer half Year, *viz.* from *March* to *September*, than in the Winter, from *September* to *March*. See Solstice and Equinox.

7. Either the heavenly Bodies revolve round the *Earth* in 24 Hours, or the *Earth* revolves round its Axis in that Time. Now the Planets, revolving round the Sun, perform their Revolutions in greater or less Times, as their Orbits are greater or less, *i. e.* as they are more or less remote from the Sun. Of Consequence, if the Stars and Planets revolved round the *Earth*, they would perform their Revolutions in unequal Times, according as their Orbits, or their Distances, were unequally big. At least, the fix'd Stars, which are at such prodigious Distances from the *Earth*, wou'd never move round it in 24 Hours, as the nearest Planet is supposed to do. See Revolution.

This is an Inelegancy, which is avoided in the System where the *Earth* is supposed to move; and where every Planet is so much the longer in describing its annual Orbit round the Sun, as the Orbit is greater. See Orbit.

8. In all the Works of Nature we are acquainted withal, the Creator appears to act by the shortest, easiest, and simplest Means. Now, if the *Earth* be at Rest, and the Stars move, the Velocity of these latter must be immense, and yet all the Purposes thereof, might have been answer'd by a moderate Motion of the *Earth* alone.

For the Moon's mean Distance from the *Earth*, is 57 Semi-diameters of the *Earth*; which, supposing a Semi-diameter of the *Earth* 3440 Geographical Miles, amounts to 196080 Miles. Hence, the Circumference of the Moon's diurnal Circle, being 1231380 such Miles, the Moon's horary Motion must be 483308 Miles: Consequently in each Second, a Space less than that of the Pulse of an Artery, the Moon, tho' the slowest of all the heavenly Bodies, must move 3 Miles and five 9ths. See Moon. Again, the Sun's mean Distance from the *Earth* is 22000 Semi-diameters of the *Earth*, or 75680000 Geographical Miles; consequently the Sun's diurnal Progress, when in the Equator, must be 475270400 Miles: And therefore in the Space of one Second, *i. e.* in the twinkling of an Eye, he must move 5480 Miles.

Again, the Distance of the Sun from the *Earth*, is to that of *Mars* nearly as one and a half; to that of *Jupiter*, as one to five and a Quarter; and to that of *Saturn*, as one to nine: Wherefore as the diurnal Spaces, and all other Things described in the same Time, are in the same *Ratio*; *Mars*, in one

one twinkling of an Eye, muſt fly 8222; *Jupiter* 28688; and *Saturn* 52060 Miles. Laſtly, the fix'd Stars being yet vaſtly more remote from the *Earth* than *Saturn*, their Motion in, or near the Equator, muſt be vaſtly ſwifter than that of *Saturn*.

9. If the *Earth* be at Reſt, and the Stars move by any common Motion, the ſeveral Planets muſt each Day deſcribe ſeveral Spirals running forth to a certain Term towards the North, and thence returning to the oppoſite Term towards the South; ſometimes narrower, and ſometimes broader.

For the Diſtances of the ſeveral Planets from the *Zenith* alter every Day; increaſing to a certain Point towards the North, and thence decreaſing again towards the South: Conſequently, the Altitude of the Pole, being always found the ſame, and the Planets not returning to the ſame Point of the Meridian; they do not deſcribe Circles but Spirals. Add, that as the ſeveral Planets do not retain the ſame Diſtance from the *Earth*, but are ſometimes nearer, and ſometimes recede further from it; at a greater Diſtance, a greater Spiral, and at a leſs, a leſs is deſcribed.

Further, as their Motion is ſlower, when the Planet is further from the *Earth*; the greater Spirals are deſcribed in leſſer Times than the leſſer. And as the greateſt and leaſt Diſtance of the Planets from the *Earth* is not affix'd to the ſame Point of the Heavens, the Planets have moved in different Tracts every Day from the Beginning.

10. Bodies let fall from any conſiderable Height, are found by Experiment not to fall upon the Spot perpendicularly under them, but to the South-Eaſt thereof. See DESCENT.

The Experiment was propoſed to Dr. *Hook*, in the Year 1679, by a Perſon, who ſuggeſted, that if the *Earth* had any diurnal Motion, the Body would fall to the Eaſt of the perpendicular. Dr. *Hook*, on that Occaſion, read a Diſcourſe before the Royal Society, wherein he endeavour'd, *a priori*, to aſſign what Curve a falling Body would deſcribe; aſſerting particularly, that the Fall of the Body would not be directly Eaſt, but South Eaſt: Which was confirm'd by divers actual Trials.

11. The Power of Gravity is found to decreaſe as you approach nearer to the Equator: Which is a Circumſtance that agrees to all Bodies, which have a Motion on their Axis; and them only, as being really the neceſſary Reſult of ſuch Motions. See GRAVITY.

For a Body, revolving on its Axis, the Parts, or Appendages thereof, are continually endeavouring to recede from the Centre. Conſequently, the Equator being a great Circle, and the Parallels all decreaſing towards the Poles, the Centrifugal Force is greateſt in the Equator, and decreaſes towards the Poles, in the *Ratio* of the Diameters of the Parallels to that of the Equator. Now the Power of Gravity determines the ſeveral Parts or Appendages towards the Centre of the whole: Conſequently the Centrifugal Force acting contrary to the Power of Gravity, retards the Deſcent of Bodies, and that moſt where it is greateſt.

Dr. *Keil* computes, that the Force of Gravity to the Centrifugal Force at the Equator is as 289 to 1; conſequently, a Body placed there, would loſe one 289th Part of the Weight it would have, were the *Earth* at Reſt. Conſequently, the Centrifugal Force, at the Poles, being infinitely ſmall, a Body will there weigh 289 Pounds, which at the Equator only weighs 288.

12. The following is an actual Demonſtration of the *Earth's* Motion, drawn from Phyſical Cauſes, for which we are indebted to the Diſcoveries of Sir *Iſaac Newton*; and which Dr. *Keil* takes for concluſive, and unanſwerable.

All the Planets, 'tis demonſtrated, gravitate towards the Sun: And Obſervations teſtify to us, either that the *Earth* turns round the Sun, or the Sun round the *Earth*, in ſuch Manner, as to deſcribe equal, Areas in equal Times. But 'tis demonſtrated further, that whenever Bodies turn round each other, and regulate their Motion by ſuch Law, the one muſt of Neceſſity gravitate to the other: Conſequently, if the Sun in its Motion do gravitate to the *Earth*; Action or Re-action being equal and contrary, the *Earth* muſt likewiſe gravitate towards the Sun. Again, the ſame Author has demonſtrated, that when two Bodies gravitate to one another, without directly approaching one another in right Lines; they muſt both of them turn round their common Centre of Gravity: The Sun and *Earth*, therefore, do both turn round their common Centre of Gravity; but the Sun is ſo great a Body in Reſpect of our *Earth*, which is, as it were, but a Point; that the common Centre of Gravity of the two Bodies, will lie within the Body of the Sun it ſelf, and not far from the Centre of the Sun. The *Earth*, therefore, turns round a Point, which is in the Body of the Sun; and therefore turns round the Sun. Q. E. D.

To ſay no more, to ſuppoſe the *Earth* at Reſt, confounds and deſtroys all the Order and Harmony of the Univerſe, annuls its Laws, and ſets every Part at Variance with other, robs the Creator of half the Praiſe of his Work, and Mankind of the Pleaſure of the Contemplation thereof. In Effect, it renders the Motions of the Planets inexricable and uſeleſs, which otherwiſe are plain and ſimple. So that ſuch of the later Aſtronomers, as have aſſerted it with the moſt Zeal, have been forced to ſet it aſide, when they came to compute the Motions of the Planets. None of them would ever attempt to compute theſe Motions in variable Spirals; but in all their Theories they tacitly ſuppoſe the *Earth* to move on its Axis, ſo as to turn the diurnal Spirals into Circles.

Thus, the Jeſuite *Ricciolus*, who, at the Pope's Command, oppoſed the Motion of the *Earth* with all his Might, as ſomething contrary to Holy Scripture; yet, to frame Aſtronomical Tables, which ſhould any thing tolerably agree to Obſervation, he was forced to have Recourſe to the Motion of the *Earth*, as his only Refuge.

This, *De Chales*, another of the ſame Fraternity, frankly confeſſes: '*P. Ricciolus* —— *nullas Tabulas aptare potuit* '*quæ vel mediocriter Obſervationibus reſponderent*; *Niſi* '*ſecundum Syſtema terræ motæ*; notwithſtanding, that he 'called in all the foreign and forced Aſſiſtances of move- 'able Epicycles: So that in his *Aſtronomia reformata*, 'where he undertakes to give accurate Tables of the 'Cœleſtial Motions, he gives in to the Hypotheſis of the 'Motion of the *Earth*.' *De Chales Aſtron. Reformat. L. X. C. 1.*

The Syſtem, then, which ſuppoſes the *Earth* at Reſt, is, of it ſelf, of no Uſe, or Significancy in Aſtronomy; Nor does it avail more in Phyſicks: for the principal Phænomena are no Way deducible from it; but the Retainers thereto are either forced to fly to the immediate Agency of the Deity, (which in Phyſicks is the ſame as the *Reductio ad Abſurdum* in Geometry) or to Reaſons and Principles unknown.

Some oppoſe the Motion of the *Earth*, as contrary to Revelation; there being mention made, in Holy Scripture, of the Sun's riſing and ſetting; of his ſtanding ſtill in the Time of *Joſhua*; and his going back in that of *Hezekiah*.

Now, to take the genuine Senſe of theſe Paſſages, the Laws of Interpretation muſt be ſettled. 1. Then, we ſuppoſe, that the ſeveral Words of Scripture have their ſeveral Ideas correſponding to them; and that a Man takes their Senſe, in whom thoſe Ideas are excited by the reading. 2. That the Words of Scripture, attentively read, are ſufficient to excite thoſe Ideas in a Mind not prepoſſeſs'd. Hence, 3. It follows, that either God muſt have exhibited the Definitions of the Words that occur in Scripture; or, that he ſuppoſes prior Notions, and leaves us to take their Senſe the ordinary Way. Hence, 4. We argue, that no other Ideas are to be affix'd to the Words of Scripture, but ſuch as occur to a Perſon who looks or attends to the Things 'emſelves ſpoke of. See DEFINITION.

By the *Sun's Riſing*, therefore, is meant no more than his Re-appearance in the Horizon, after he had been hid below it: And by his *Setting*, an Occultation of the Sun, before viſible in the Horizon. When the Preacher therefore ſays, *Eccleſ.* I. 5. *The Sun riſes, and ſets, and returns to his Place*; he means, doubtleſs, no more than the Sun, which before was hid, is now ſeen in the Horizon; and after being there conſpicuous, is hid again, and at length re-appears in the Eaſt. For thus much only appears to a Perſon who views the Sun; and therefore thus much, and no more, is expreſs'd by the ſacred Writers.

In like Manner, when in *Joſh.* X. 12, 13. the Sun and Moon are ſaid to have *ſtood ſtill*; all meant by Station is, that they did not change their Place, with Reſpect to the *Earth*. For that General, by *Sun ſtand thou ſtill over Gibeon, and thou Moon, over the Valley of Ajalon*; required no more, than that the Sun, which then appeared over that City, ſhould not change its Situation. And from his bidding the Sun to keep his Situation, it would be unjuſt to infer, that it moves round the *Earth* at Reſt.

Gaſſendus, very pertinently to the preſent Purpoſe, diſtinguiſhes 'two ſacred Volumes, the one written, called 'the *Bible*; the other, Nature, or the *World*; God 'having manifeſted himſelf by two Lights: the one of 'Revelation, and the other of Demonſtration. Accordingly, 'the Interpreters of the former are Divines; of the latter, 'Mathematicians. As to Matters of Natural Knowledge, 'the Mathematicians are to be conſulted; and as to the 'Objects of Faith, the Prophets; the former, being no leſs 'Interpreters, or Apoſtles, from God to Men, than the latter. 'And as the Mathematician would be judg'd to wander out 'of his Province, if he ſhould pretend to controvert, or 'ſet aſide any Article of Faith from Principles of Geometry; 'ſo it muſt be granted, the Divines are no leſs out of 'their Limits, when they venture to pronounce on a Point 'of Natural Knowledge, beyond the Reach of any not 'verſed in Geometry and Opticks, merely from Holy Scrip-

'ture, which does not pretend to teach any thing of the 'Matter.

'For Instances, we may quote *Lactantius*, and *Augustine*; 'the first of whom render'd himself ridiculous by disputing, 'from Scripture, against the Roundness of the *Earth*; 'and the latter, against the *Antipodes*.' See ANTIPODES.

The *Earth*, thus proved to move, it is to be further observed, that the Altitude of the Pole being found at all Times of the Year, *i. e.* in all Points of its Annual Orbit, (the Ecliptic,) to be the same; it follows, that the *Earth* proceeds in such Manner along its Orbit, as that its Axis is constantly parallel to the Axis of the World, and of Consequence parallel to it self. See AXIS.

This Motion, which *Copernicus* calls the *Motion of Libration*, may be well enough illustrated, by supposing a Globe, with its Axis parallel to that of the *Earth*, painted on the Flag, or Antient of a Mast, moveable on its Axis, and continually driven by the West Wind, while it makes the Tour of an Island: 'Tis evident, that in every Situation of the Ship, the Axis of the painted Globe will continue Parallel to the Axis of the World. See LIBRATION, and PARALLELISM.

According to Sir *Isaac Newton*'s Principles, the *Earth*'s Axis does, in every annual Revolution, incline twice towards the Ecliptic, and twice return to its former Position. On which *Nutation* it is, that the Precession of the Equinoctial Points is supposed to depend; and as Mr. *Famstead* likewise imagines, the annual Parallax of the fix'd Stars likewise. See NUTATION, PRÆCESSION, PARALLAX, &c.

EARTH, in Agriculture and Gardening. See SOIL.

Untried Earth, i. e. the Soil, or *Earth* 6 or 7 Inches deep, where neither Spade nor Plow has reach'd, is greatly recommended by Mr. *Lawrence*, for Amendments and Improvements, both in the Fruit and Kitchen Garden. He assures us, from his own Experience, that no Kind of Compost, made with Art, exceeds it. And adds, that if the choicest Fruit-Trees be planted herein, they presently discover an uncommon Healthfulness and Vigour: And that if any tender Sorts of Annuals be discreetly sown in this *Earth*, made fine by sifting, their Looks, Colour, &c. soon discover that they like the Soil. Melons and Cucumbers, need no other Compost but this *Untried Earth*: And Asparagus it self will prosper, at least, as well in this *Untried Earth*, if laid a Foot and a half deep, as with all the usual Expence of Dung. Tho' for the tenderer Flowers, and Exoticks, this *Earth* is not found to have any extraordinary Excellencies. For annual Plants, produced from Seed, a Coat of this *Untried Earth*, 2 Inches deep, may suffice: On other Occasions, a greater Depth is required.

Fullers EARTH, *Soap* EARTH, *Seal'd* EARTH, *Lemnian* EARTH, &c. } See { FULLERS *Earth*. SOAP *Earth*. SIGILLATA *Terra*. LEMNIAN *Earth*, &c.

EARTH-*Bags*, in Fortification, the same with *Canvas Bags*; which see.

EARTH-*Flax*. See ALUMEN *Plumosum*.

EARTHING, in Agriculture and Gardening, the Covering of Vines, Sellery, and other Trees and Plants with Earth.

EARTHQUAKE, in Natural History, a vehement Shake, or Agitation of some considerable Place, or Part of the Earth; from Natural Causes; attended with a huge Noise like Thunder, and frequently with an Eruption of Water, or Fire, or Smoak, or Winds, &c.

Earthquakes are the greatest, and most formidable Phænomena of Nature. *Aristotle*, and *Pliny*, distinguish two Kinds, with Respect to the Manner of the Shake, *viz.* a *Tremor* and a *Pulse*; the first being horizontal, in alternate Vibrations, compared to the shaking of a Person in an Ague. The 2d, perpendicular, up and down: Which latter Kind are also called by *Aristotle* βεγκωι, from the Resemblance of their Motion to that of Boiling.

Agricola increases the Number, and makes four Kinds; which *Alb. Magnus*, again reduces to three, *viz.* *Inclination*, when the Earth librates alternately from right to left; by which Mountains have been sometimes brought to meet, and clash against each other: *Pulsation*, when it beats up and down like an Artery: And *Trembling*, when it shakes and totters every Way, like a Flame.

Phænomena of EARTHQUAKES.

The *Philosoph. Transact.* furnish us with Abundance of Histories of *Earthquakes*; Particularly, one at *Oxford*, in 1665, by Dr. *Wallis* and Mr. *Boyle*. Another, at the same Place, in 1683, by Mr. *Pigot*. And another in *Sicily*, in 1692-3, by Mr. *Hartop*, *Fa. Allessandro Burgos*, and *Vin. Bonajutus*; which last, is one of the most terrible Ones in all History.

It shook the whole Island; and not only that, but *Naples* and *Malta* shared in the Shock. It was of the second Kind mention'd by *Aristotle* and *Pliny*, viz. a perpendicular Pulsation, or Succussion. It was impossible, says the Noble *Bonajutus*, for any Body, in this Country, to keep on their Legs, on the dancing *Earth*; nay, those that lay on the Ground, were tossed from Side to Side, as on a rolling Billow: High Walls leapt from their Foundations several Paces, &c. *Phil. Transf.* N°. 207.

The Mischief it did is amazing: almost all the Buildings in the Countries were thrown down. Fifty four Cities and Towns, beside an incredible Number of Villages, were either destroyed or greatly damaged. We shall only instance the Fate of *Catanea*, one of the most famous, antient, and flourishing Cities in the Kingdom; the Residence of several Monarchs, and an University. This once famous, now unhappy *Catanea*, to use the Words of *Fa. Burgos*, had the greatest Share in the Tragedy. *Fa. Anthon. Serrovita*, being on his Way thither, and at the Distance of a few Miles; observed a black Cloud, like Night, hovering over the City; and there arose from the Mouth of *Mongibello*, great Spires of Flame, which spread all around. The Sea all of a sudden begun to roar, and rise in Billows; and there was a Blow, as if all the Artillery in the World had been at once discharged. The Birds flew about astonish'd, the Cattle in the Fields ran crying, &c. His and his Companions Horses stop'd short, trembling; so that they were forced to alight. They were no sooner off, but they were lifted from the Ground above two Palms; when casting his Eyes towards *Catanea*, he with Amazement saw nothing but a thick Cloud of Dust in the Air. This was the Scene of their Calamity: For of the magnificent *Catanea*, there is not the least Footstep to be seen. *S. Bonajutus* assures us, that of 18914 Inhabitants, 18000 perish'd therein. The same Author, from a Computation of the Inhabitants, before and after the *Earthquake*, in the several Cities and Towns, finds that near 60000 perish'd out of 254900. *Ibid.* N°. 202.

Jamaica is remarkable for *Earthquakes*. The Inhabitants, Dr. *Sloan* informs us, expect one every Year. That Author gives us the History of one in 1687: Another horrible one in 1692, is described by several anonymous Authors. In two Minutes Time it shook down and drown'd nine 10ths of the Town of *Port-Royal*. The Houses sunk out-right, 30 or 40 Fathoms deep. *Phil. Transact.* No. 209. The Earth opening, swallowed up People; and they rose in other Streets; some in the middle of the Harbour, and yet were saved; Tho', there were 2000 People lost, and 1000 Acres of Land sunk. All the Houses were thrown down throughout the Island. One *Hopkins*, had his Plantation removed half a Mile from its Place. Of all Wells, from one Fathom to six or seven, the Water flew out at the Top with a vehement Motion. *Ibid.* While the Houses, on one Side of the Street were swallow'd up, on the other they were thrown on Heaps; and the Sand in the Street rose like Waves in the Sea, lifting up every Body that stood on it, and immediately dropping down into Pits; and at the same Instant, a Flood of Water breaking in, roll'd them over and over; some catching hold of Beams and Rafters, &c. Ships and Sloops in the Harbour were overset and lost; the *Swan* Frigate particularly, by the Motion of the Sea, and sinking of the Wharf, was driven over the Tops of many Houses, *Ibid.* It was attended with a hollow rumbling Noise like that of Thunder. In less than a Minute, three Quarters of the Houses, and the Ground they stood on, with the Inhabitants, were all sunk quite under Water; and the little Part, left behind, was no better than a Heap of Rubbish. The Shake was so violent, that it threw People down on their Knees, or their Faces, as they were running about for Shelter. The Ground heav'd and swell'd like a rolling Sea; and several Houses, still standing, were shuffled and moved some Yards out of their Places. A whole Street is said to be twice as broad now as before; and in many Places, the Earth would crack, and open, and shut, quick and fast. Of which Openings, two or three Hundred might be seen at a Time; in some whereof, the People were swallow'd up; others, the closing Earth caught by the middle, and press'd to Death; in others, the Heads only appear'd. The larger Openings swallow'd up Houses; and out of some would issue whole Rivers of Waters, spouted up a great Height into the Air, and threat'ning a Deluge to that Part the *Earthquake* spared. The whole was attended with Stenches and offensive Smells, the Noise of falling Mountains at a Distance, &c. and the Sky, in a Minutes Time, was turned dull and reddish, like a glowing Oven. Yet, a great Sufferer as *Port-Royal* was, more Houses were left standing thereon, than on the whole Island beside. Scarce a Planting House, or Sugar Work was left standing in all *Jamaica*. A great Part of them were swallow'd up, Houses, People, Trees and all at one Gape: In Lieu of which afterwards, appear'd great Pools of Water, which when dried up, left nothing but Sand, without any Mark

Mark that ever Tree, or Plant, had been thereon. Above 12 Miles from the Sea, the Earth gaped and spouted out, with a prodigious Force, vast Quantities of Water into the Air: Yet the greatest Violences were among the Mountains and Rocks; and 'tis a general Opinion, that the nearer the Mountains, the greater the Shake; and that the Cause thereof lay there. Most of the Rivers were stop'd up for 24 Hours, by the falling of the Mountains; till swelling up, they found themselves new Tracks and Channels; tearing up in their Passage Trees, &c. After the great Shake, those People who escaped, got on board Ships in the Harbour, where many continued above two Months; the Shakes all that Time being so violent, and coming so thick, sometimes two or three in an Hour, accompanied with frightful Noises like a ruffling Wind, or a hollow rumbling Thunder, with Brimstone Blasts, that they durst not come a Shore. The Consequences of the *Earthquake* was a general Sickness, from the noisome Vapours belched forth, which swept away above 3000 Persons. *Ibid.*

After the Detail of these horrible Convulsions, the Reader will have but little Curiosity left, for the left considerable Phænomena of the *Earthquake* at *Lima*, in 1687, described by *Fa. Alvarez de Toledo*, wherein above 5000 Persons were destroy'd; this being of the *Vitratory* Kind, so that the Bells in the Church rung of themselves: Or that at *Batavia* in 1699, by *Witzen*: That in the *North* of *England* in 1703, by Mr. *Thoresby*: Or, lastly, those in *New-England* in 1663 and 1670, by Dr. *Mather*. We will therefore relieve him with some Attempts towards a Theory of *Earthquakes*.

Causes of Earthquakes.

Naturalists are here divided. Some ascribe *Earthquakes* to Water, others to Fire, and others to Air; and all of 'em with some Reason. To conceive which, it is to be observed, that the Earth every where abounds in huge subterraneous Caverns, Veins and Canals; particularly about the Roots of Mountains: That of these Cavities, Veins, &c. some are full of Water, whence are composed Gulphs, Abysses, Springs, Rivulets; and others full of Exhalations: And that some Parts of the Earth are replete with Nitre, Sulphur, Bitumen, Vitriol, &c. See Abyss, Stratum, &c.

This premised, 1. The Earth it self may be the Cause of its own shaking; when the Roots, or Basis, of some large Mass being dissolved, or wore away by a Fluid underneath, it sinks into the same; and with its Weight, occasions a Tremor of the adjacent Parts; produces a Noise; and frequently an Inundation of Water.

2. The subterraneous Waters may occasion *Earthquakes*, by their overflowing, cutting out new Courses, &c. Add, that the Water being heated, and rarified by the subterraneous Fires, may emit Fumes, Blasts, &c. which by their Action, either on the Water, or immediately on the Earth it self, may occasion great Succussions.

3. The Air may be the Cause of *Earthquakes*: For Air, being a Collection of Fumes, and Vapours rais'd from the Earth and Water; if it be pent up in the too narrow Viscera of the Earth, the subterraneous, or its own native Heat, rarifying and expanding it, the Force wherewith it endeavours to escape, may shake the Earth: Hence there arise divers Species of *Earthquakes*, according to the different Position, Quantity, &c. of the imprison'd *Aura*.

Lastly, Fire is a principal Cause of *Earthquakes*; both as it produces the aforesaid subterraneous *Aura*, or Vapours; and as this *Aura*, or Spirit, from the different Matter and Composition whereof arise Sulphur, Bitumen, and other inflammable Matters, takes Fire either from some other Fire it meets withal, or from its Collision against hard Bodies, or its Intermixture with other Fluids; by which Means bursting out into a greater Compass, the Place becomes too narrow for it; so that pressing against it on all Sides, the adjoyning Parts are shaken; till having made it self a Passage, it spends it self in a *Volcano*, or burning Mountain. See Volcano, Eruption, &c.

But to come nearer to the Point: Dr. *Lister*, in *Philosoph. Transact.* N. 157. is of Opinion, that the material Cause of Thunder, Lightning, and *Earthquakes*, is one and the same, *viz.* the inflammable Breath of the Pyrites, which is a substantial Sulphur, and takes Fire of it self. See Pyrites, Thunder, &c.

The Difference between these three terrible Phænomena, he takes only to consist in this; that this Sulphur, in the former, is fired in the Air; and in the latter, under Ground. Which is a Notion that *Pliny* had long before him: *Quid enim*, says he, *aliud est in Terra Tremor, quam in Nube Tonitru?*

This he thinks abundantly indicated by the same sulphureous Smell being found in any Thing burnt with Lightning; and in the Waters, &c. cast up in *Earthquakes*, and even in the Air before and after them.

Add, that they agree in the Manner of the Noise; which is carried on, as in a Train, fired; the one rowling and ratling through the Air, takes Fire as the Vapours chance to drive; as the other fired under Ground, in like Manner, moves with desultory Noise.

Thunder, which is the Effect of the Trembling of the Air, caused by the same Vapours dispersed through it, has Force enough to shake our Houses; and why may not there be Thunder and Lightning under Ground, in some vast Repositories there, I see no Reason. Especially if we reflect, that the Matter which composes the noisy Vapour above us, is in much larger Quantities under Ground. *Philosoph. Transact.* No. 202.

That the Earth abounds in Cavities, every Body allows; and that these subterraneous Cavities are, at certain Times, and in certain Seasons, full of inflammable Vapours, the Damps in our Mines sufficiently Witness, which fired, do every thing as in an *Earthquake*, save in a lesser Degree.

Add, that the *Pyrites* alone, of all the known Minerals, yields this inflammable Vapour, is highly probable: For that no Mineral, or Ore whatsoever, is sulphureous, but as it is wholly, or in Part, a *Pyrites*; and that there is but one Species of Brimstone, at least with us in *England*, which the *Pyrites* naturally, and only yields. The Sulphur *Vive*, of natural Brimstone, which is found in and about the burning Mountains, is certainly the Effects of Sublimation; and those great Quantities of it said to be found about the Skirts of *Volcano's*, is only an Argument of the long Duration and Vehemence of those Fires: Possibly, the *Pyrites* of the *Volcano's*, or burning Mountains, may be more sulphureous than ours: And, indeed it is plain, that some of ours in *England* are very lean, and hold but little Sulphur; others again very much: Which may be one Reason, why *England* is so little troubled with *Earthquakes*; and *Italy*, and almost round the *Mediterranean* Sea, so very much: tho' another Reason is, the Paucity of *Pyrites* in *England*.

Comparing our *Earthquakes*, Thunder and Lightning, with theirs, it is observed, that there it lightens almost daily, especially in Summer Time, here seldom; there Thunder and Lightning is of long Duration, here it is soon over; there the *Earthquakes* are frequent, long, and terrible, with many Paroxysms in a Day, and that for many Days; here very short, a few Minutes, and scarce perceptible. To this Purpose, the Subterraneous Cavities in *England* are small, and few, compared to the vast Vaults in those Parts of the World; which is evident, from the sudden Disappearance of whole Mountains and Islands.

Dr. *Woodward* gives us another Theory of *Earthquakes*: He endeavours to shew, that the subtereaneous Heat, or Fire, (which is continually elevating Water out of the Abyss, to furnish the Earth with Rain, Dew, Springs and Rivers) being stopped in any Part of the Earth, and so diverted from its ordinary Course, by some accidental Glut, or Obstruction, in the Pores or Passages, through which it used to ascend to the Surface; becomes, by such Means, preternaturally assembled, in a greater Quantity than usual, into one Place; and therefore causeth a great Rarefaction, and Intumescence of the Water of the Abyss; putting it into great Commotions, and Disorders, and at the same Time making the like Effort on the Earth; Which being expanded upon the Face of the Abyss, occasions that Agitation and Concussion we call an *Earthquake*.

This Effort, in some *Earthquakes*, he observes, is so vehement, that it splits and tears the Earth, making Cracks and Chasms in it, some Miles in length, which open at the Instant of the Shock, and close again in the Intervals betwixt them; nay, it is sometimes so violent, that it forces the super-incumbent *Strata*, breaks them all throughout, and thereby perfectly undermines, and ruins the Foundation of them; so that these failing, the whole Tract, as soon as the Shock is over, sinks down into the Abyss, and is swallow'd up by it; the Water thereof immediately rising up, and forming a Lake in the Place, where the said Tract before was. That this Effort being made in all Directions indifferently, the Fire dilating and expanding on all Hands, and endeavouring to get room, and make its Way through all Obstacles, falls as foul on the Water of the Abyss beneath, as on the Earth above, forcing it forth, which Way soever it can find Vent, or Passage, as well through its ordinary Exits, Wells, Springs, and the Outlets of Rivers, as through the Chasms then newly open'd; through the *Camini*, or Spiracles of *Ætna*, or other neighbouring *Vulcano's*; and those *Hiatus's* at the Bottom of the Sea, whereby the Abyss below opens into it, and communicates with it. That as the Water, resident in the Abyss, is, in all Parts of it, stored with a considerable Quantity of Heat, and more especially in those, where these extraordinary Aggregations of this Fire happen; so likewise is the Water, which is thus forced out of it; insomuch, that when thrown forth, and mixed with the

Waters

Waters of Wells, or Springs of Rivers, and the Sea, it renders them very sensibly hot.

He adds, that though the Abyss be liable to these Commotions in all Parts; yet the Effects are no where very remarkable, except in those Countries, which are Mountainous, and consequently stony and cavernous underneath; and especially where the Disposition of the *Strata* is such, that those Caverns open into the Abyss, and so freely admit, and entertain the Fire; which assembling therein, is the Cause of the Shock; it naturally steering its Course that Way, where it finds the readiest Reception, which is towards those Caverns. Besides, that those Parts of the Earth, which abound with *Strata* of Stone, or Marble, making the strongest Opposition to this Effort, are the most furiously shatter'd; and suffer much more by it, than those which consist of Gravel, Sand, and the like laxer Matter, which more easily give Way, and make not so great Resistance; but above all, those Countries which yield great Store of Sulphur, and Nitre, are, by far, the most injured and incommoded by *Earthquakes*; those Minerals constituting in the Earth a kind of natural Gunpowder, which taking Fire upon this Assemblage, and Approach of it, occasions that murmuring Noise, that subterraneous Thunder, which is heard rumbling in the Bowels of the Earth during *Earthquakes*, and by the Assistance of its explosive Power, renders the Shock much more greater; so as sometimes to make miserable Havock and Destruction.

And it is for this Reason, that *Italy*, *Sicily*, *Anatolia*, and some Parts of *Greece*, have been so long, and so often alarm'd and harass'd by *Earthquakes*; these Countries being all Mountainous and Cavernous, abounding with Stone, and Marble, and affording Sulphur and Nitre in great Plenty.

Further, that *Ætna*, *Vesuvius*, *Hæcla*, and the other *Vulcano's*, are only so many Spiracles, serving for the Discharge of this subterraneous Fire, when it is thus preternaturally assembled. That where there happens to be such a Structure and Conformation of the interior Parts of the Earth, as that the Fire may pass freely, and without Impediment from the Caverns, wherein it assembles unto those Spiracles; it then readily and easily gets out, from Time to Time, without shaking, or disturbing the Earth: But where such Communication is wanting, or Passage not sufficiently large and open, so that it cannot come at the Spiracles, it heaves up and shocks the Earth, with greater or lesser Impetuosity, according to the Quantity of Fire thus assembled, till it has made its Way to the Mouth of the *Vulcano*. That therefore there are scarce any Countries much annoyed with *Earthquakes*, but have one of these fiery Vents; which are constantly in Flames, when any *Earthquake* happens; as disgorging that Fire, which, whilst underneath, was the Cause of the Disaster. Lastly, that were it not for these *Diverticula*, it would rage in the Bowels of the Earth much more furiously, and make greater Havock than it doth.

We have seen what Fire and Water may do; and that either of them, in good Hands, are sufficient for all the Phænomena of *Earthquakes*: If they should both fail, we have a third Agent, scarce inferior to either of them: The Reader must not be surprized when we tell him it is Air.

Mons. *Amontons*, in the *Memoires de l'Acad. des Sciences*, *An.* 1703. has an express Discourse to prove, *That on the Foot of the new Experiments of the Weight and Spring of the Air, a moderate Degree of Heat may bring the Air into a Condition, capable of causing Earthquakes.* It is shewn, that at the Depth of 43528 Fathoms below the Surface of the Earth, Air is only one fourth less heavy than Mercury. Now, this Depth of 43528 Fathoms is only a 74th Part of the Semidiameter of the Earth. And the vast Sphere beyond this Depth, in Diameter 6451558 Fathoms, may probably be only filled with Air; which will be here greatly condensed, and much heavier than the heaviest Bodies we know of in Nature. But it is found by Experiment, that the more Air is compress'd, the more does the same Degree of Heat increase its Spring, and the more capable does it render it of a violent Effect: And that, for Instance, the Degree of Heat of boiling Water increases the Spring of the Air above what it has in its natural State, in our Climate, by a Quantity equal to a third of the Weight wherewith it is press'd. Whence we may conclude, that a Degree of Heat, which on the Surface of the Earth will only have a moderate Effect, may be capable of a very violent one below. And as we are assured, that there are in Nature, Degrees of Heat, much more considerable than that of boiling Water: 'Tis very possible there may be some, whose Violence, further assisted by the exceeding Weight of the Air, may be more than sufficient to break and overturn this solid Orb of 43528 Fathoms; whose Weight, compared to that of the included Air, would be but a Trifle.

Artificial EARTHQUAKES. Chymistry furnishes us a Method of making *Artificial Earthquakes*, which shall have all the great Effects of natural ones: Which, as it may illustrate the Process of Nature in the Production of these terrible Phænomena under Ground, we shall here add.

To twenty Pounds of Iron Filings, add as many of Sulphur: Mix, work, and temper the whole together with a little Water, so as to form a Mass, half moist, and half dry. This being buried three or four Foot under Ground, in six or seven Hours Time, will have a prodigious Effect: The Earth will begin to tremble, crack and smoak, and Fire and Flame burst through.

Such is the Effect even of two cold Bodies, in the cold Ground: There only wants a sufficient Quantity of this Mixture to produce a true *Ætna*. See VOLCANO. If it were supposed to burst out under the Sea, it would produce a Spout. See SPOUT. And if it were in the Clouds, the Effect would be Thunder and Lightning. See THUNDER, *&c.*

EASE, in the Sea-Language, is the same as let go slacker; thus they say, *Ease* the Bowling, *Ease* the Sheet, that is, let it go slacker.

EASEL-*Pieces*, among Painters, such small Pieces, either Portraits, or Landskips, as are painted on the *Easel*, i. e. the Frame whereon the Canvas is strain'd.

They are thus called, to distinguish them from larger Pictures drawn on Walls, Ceilings, *&c.*

EASEMENT, in Law, a Service, or Convenience, which one Neighbour has of another by Charter, or Prescription, without Profit: As a way through his Ground, a Sink or the like. In the Civil Law, these are call'd *Servitus prædii.*

EAST, in Astronomy, Geography, *&c.* one of the Cardinal Points of the Horizon, being the Point wherein the prime Vertical intersects that Quarter of the Horizon the Sun rises in. See ORIENT, CARDINAL-*Point*, HORIZON, *&c.*

To find the *East* and *West* Line, Points, *&c.* See MERIDIAN *Line.*

EAST-*Wind*, is that which blows from the *East Point.* See WIND.

The Word *East* is *German.* In *Italy*, and throughout the *Mediterranean*, the *East Wind* is called the *Levante.* In *Greek*, ἀπηλιώτης, because it comes from the Side of the Sun, ἀπ' ἠέλιος. In *Latin*, *Eurus.*

EAST-*Dials*, } See { DIAL.
EASTERN, } See { ORIENTAL.

EAST-*Indies.* See INDIES.

EAST-*India Company.* See COMPANY.

EASTER, a Feast of the Church, held in Memory of our Saviour's Resurrection. See FEAST, *&c.*

The *Latins*, &c. call it *Pascha*, A *Hebrew* Word, signifying *Passage*; applied to the Feast of the *Passover*, which is held among the *Jews*, much about the same Time. See PASSOVER.

In *English* it is called *Easter*, from the *Saxon* Eaɣteɹ, a Goddess, worship'd with peculiar Ceremony in the Month of *April.*

Easter is one of the most considerable Festivals in the Christian Calendar; being that which regulates and determines the Time of all the other moveable Feasts.

The Rule for the Celebration of *Easter*, fix'd by the Council of *Nice*, in the Year 325, is, that it be held on the Sunday after the Full Moon, next after the 21st of *March*, i. e. the Sunday following the first full Moon after the Vernal Equinox: So that if the full Moon next after the Vernal Equinox, happen on a Sunday; *Easter* Sunday is deferr'd eight Days longer, *viz.* to the Sunday following.

The Reason of which Decree was, that the Christians might avoid the celebrating their *Easter*, at the same Time with the *Jewish Passover*, which, according to the Institution of *Moses*, was held the very Day of the full Moon. See EQUINOX,

To find *Easter*, agreeably to this Rule, the Method that obtain'd throughout all the Church, from the Time of *Dionysius exiguus*, to that of the Reformation of the Calendar under Pope *Gregory*; and which still obtains in *England*, *Sweden*, and among the *Greeks*, where the *Gregorian* Correction is not admitted; is, by Means of the Golden Numbers, duly distributed throughout the *Julian* Calendar. See CALENDAR.

The Vernal Equinox, at the Time of the *Nicene* Council, happening on the 21st of *March*, has been, upon *Dionysius's* Authority, affix'd to the same Day of the *Julian* Year ever since; so that in the *Julian* Way of computing, no full Moon is *Paschal*, but that immediately after the 21st of *March*. Therefore *Easter* can never happen earlier than the 22d of *March*, Now, by finding the full Moons, next after the 21st of *March*, for the several Golden

Golden Numbers, or Years of the Lunar Cycle, we shall have a Table for the finding of *Easter* for ever.

Such Table being of notable Use in the *Julian* Computation, we shall here subjoyn it.

Gold. Numb.	Full Moons next after Ver. Equin.		*Gold. Numb.*	Full Moons next after Ver. Equin.	
I	5 *April*,	D	XI	15 *April*,	G
II	25 *March*,	G	XII	4 *April*,	C
III	13 *April*,	E	XIII	24 *March*,	F
IV	2 *April*,	A	XIV	12 *April*,	D
V	22 *March*,	D	XV	1 *April*,	G
VI	10 *April*,	B	XVI	21 *March*,	C
VII	30 *March*,	E	XVII	9 *April*,	A
VIII	18 *April*,	C	XVIII	29 *March*,	D
IX	7 *April*,	F	XIX	17 *April*,	B
X	27 *March*,	B			

Now to find *Easter*, for any given Year, find the Dominical Letter, and the Golden Number of the given Year, as directed under DOMINICAL *Letter* and GOLDEN *Number*.

Then, in the Table, seeking the Dominical Letter, with the Day of the Paschal full Moon, and the *Sunday* Letter annex'd thereto; Compare this Letter with the Dominical Letter of the given Year; that it may appear how many Days are to be added to the Day of the Paschal full Moon, to give *Easter*-Day.

E. gr. In the Year 1715, the Dominical Letter is B, and the Golden Number VI; consequently, the Paschal full Moon, is fixed, by the Table, to the 10th of *April*; whose *Sunday* Letter being B, the Dominical Letter given, it self is a *Sunday*: and, therefore, *Easter* will fall on the Eighth Day following, *viz.* the 17th of *April*.

But in this Computation, the Vernal Equinox is supposed affix'd to the 21st of *March*; and the Cycle of 19 Years, or Golden Numbers, is supposed to point out the Places of the new and full Moons exactly: Both which are Erroneous. Whence it follows, that the *Julian Easter* never happens at its due Time, unless by Accident.

For an Instance of the Error, it may be observed, that in the Year 1715, the Vernal Equinox falls on the 10th of *March*; 11 Days e're the Rule supposes it: And the Paschal full Moon on the 7th of *April*, 3 Days earlier than was supposed. *Easter*-Day, therefore, which is held on the 17th of *April*, should be held on the 10th.

This Error was grown to such a Pitch, in Course of Time, that Pope *Gregory* XIII. thought necessary to correct it. And accordingly, in the Year 1582, by the Advice of *Aloysius Lilius*, he order'd 10 Days to be thrown out of *October*; so to bring back the Vernal Equinox to its old Place, *viz.* the 21st of *March*. And hence the *Gregorian Calendar*, *Gregorian Year*, &c. See GREGORIAN.

In the New, or *Gregorian* Computation, in lieu of Golden Numbers, the Time of *Easter* is found by Means of Epacts, contrived for that Purpose. See EPACT.

The following Table renders the finding of *Easter* in the *Gregorian* Year, from the Year 1700, to the Year 1900, very easy.

Epacts.	Paschal full Moons.		*Epacts.*	Paschal full Moons.	
X	13 *April*,	E	IX	4 *April*,	C
XI	2 *April*,	A	XX	24 *March*,	F
XXII	22 *March*,	D	I	12 *April*,	D
III	10 *April*,	B	XII	1 *April*,	G
XIV	30 *March*,	E	XXIII	21 *March*,	C
XXV	18 *April*,	C	IV	9 *April*,	A
VI	7 *April*,	F	XV	29 *March*,	D
XVII	27 *March*,	B	XXVI	17 *April*,	B
XXVIII	15 *April*,	G	VII	6 *April*,	E
			XXVIII	26 *March*,	A

Now, to find *Easter* for any given *Gregorian* Year. Seek the Dominical Letter, and the *Gregorian* Epact; as shewn under EPACT, &c. Find the Epact in the Table, and note the Paschal full Moon, with the weekly Letter, corresponding to the same. The rest is perform'd, as already taught for the *Julian Easter*.

E. gr. The Dominical Letter of the Year 1715, is F, and the Epact XXV; consequently, the Paschal Moon falls on the 18th of *April*, C: And therefore *Easter*-Day is the 21st of *April*.

Tho' the *Gregorian* Calendar be, doubtless, preferable to the *Julian*; yet it has its Defects. It cannot, for Instance, keep the Equinox fix'd to the 21st of *March*; but it will sometimes fall on the 19th, and sometimes on the 23d. Add, that the full Moon happening on the 20th of *March*, might sometimes be Paschal; yet is it not allowed as such, in the *Gregorian* Computation: As, on the contrary, the full Moon of the 22d of *March*, may be allow'd for Paschal, which yet it is not. *Scaliger* and *Calvisius* have proved other Inaccuracies on this *Calendar*. See CALENDAR.

EAVES, the Margin, or Edge, of the Roof of a House; being the lowest Tiles, Slate, or the like, which hang over the Walls, to throw off the Waters to a Distance from the Wall. See ROOF.

EAVES-*lath*, is a thick feather-edge Board, generally nail'd round the *Eaves* of a House for the lowermost Tiles, Slate, or Shingles to rest upon.

EBIONITES, antient Hereticks, who rose in the Church, from the very Beginning thereof. See HERETICKS.

Origen takes them to have been so called from the *Hebrew* Word *Ebion*, which in that Language signifies *Poor*; because, says he, they were Poor in Sense, and wanted Understanding. *Eusebius*, with a View to the same Etymology, is of Opinion they were thus called, as having poor Thoughts of *Jesus Christ*; taking him for no more than a mere Man. But all this, says Mons. *Simon*, in his Critical History, is no more than a sorry Allusion to the Name of these Sectaries, which in the *Hebrew* Tongue signifies *Poor*.

'Tis more probable, the *Jews* gave this Appellation to the *Christians* in general, out of Contempt; because in the first Times there were few but *poor* People, that embraced the *Christian* Religion.

This Opinion *Origen* himself seems to give into, in his Book against *Celsus*; where he says, that they called *Ebionites*, such among the *Jews*, as believed that *Jesus* was truly the expected *Messiah*. It might even be urged, with some Probability, that the Primitive *Christians* assumed the Name of themselves, in Conformity to their Profession. 'Tis certain, *Epiphanius* observes, they valued themselves on being *Poor*, in Imitation of the *Apostles*.

The same *Epiphanius*, however, is of Opinion, that there had been a Man of the Name *Ebion*, the Chief, and Founder of the Sect of *Ebionites*; being contemporary with the *Nazarenes* and *Cerinthians*. He gives a long and exact Account of the Origin of the *Ebionites*, making 'em to have arose after the Destruction of *Jerusalem*; when the first *Christians*, called *Nazarites*, went out of the same to live at *Pella*. See NAZARITE.

The *Ebionites*, then, are little else than a Branch of *Nazarites*; only, that they alter'd and corrupted, in many Things, the Purity of the Faith, held among those first Adherents to Christianity. For this Reason, *Origen* distinguishes two Kinds of *Ebionites*, in his Answer to *Celsus*; the one believ'd that *Jesus Christ* was born of a Virgin; and the others, that he was born after the Manner of other Men.

The first were Orthodox in every Thing, except that to the *Christian* Doctrine, they joyn'd the Ceremonies of the *Jewish* Law, with the *Jews*, *Samaritans*, and *Nazarites*: They differed from the *Nazarites* however, in several Things, chiefly as to what regards the Authority of the sacred Writings: For the *Nazarites* received all for Scripture, contain'd in the *Jewish* Canon; whereas the *Ebionites* rejected all the Prophets; and held the very Names of *David*, *Solomon*, *Isaiah*, *Jeremiah* and *Ezekiel*, in Abhorrence. See PENTATEUCH.

They receiv'd nothing of the *Old Testament* but the *Pentateuch*; which should intimate them to have descended rather from the *Samaritans* than the *Jews*. They agreed with the *Nazarites* in using the *Hebrew* Gospel of St. *Matthew*, otherwise called the Gospel of the twelve Apostles: But had corrupted their Copy in Abundance of Places. And, particularly, had left out the Genealogy of our Saviour, which was preserv'd entire in that of the *Nazarites*, and even those used by the *Cerinthians*. See GOSPEL.

These last, whose Sentiments, as to the Birth of our Saviour, were the same with those of the *Ebionites*, built their Error on this very Genealogy. See CERINTHIANS.

Beside the *Hebrew* Gospel of St. *Matthew*, the *Ebionites* had adopted several other Books under the Names of St. *James*, *John*, and the other Apostles. They also made use of the *Travels of St.* Peter, which are supposed to have been written by S. *Clement*; but had alter'd them so, that there was scarce any Thing of Truth left in them. They made that Saint tell a World of Falshoods, the better to authorize their own Practices. See S. *Epiphanius*, who is very diffusive on the antient Heresy of the *Ebionites*, Hær. 30.

EBONY, in Natural History, a Kind of *Wood*, brought from the *Indies*, exceedingly hard and heavy, and taking a very fine Polish; and on that Account, used in *Mosaic* and Inlaid Works, Toys, &c. See WOOD, MOSAIC, &c.

There are divers Kinds of *Ebony*; the most usual among us are *black*, *red* and *green*; all of them the Product of the Island of *Madagascar*, where the Natives call them indifferently, *Hazon Mauthi*, q. d. *black Wood*. The Island

of St. *Maurice*, belonging to the *Dutch*, likewise furnishes Part of the *Ebonies* used in *Europe*.

Authors, and Travellers, give very different Accounts of the Tree that yields the *black Ebony*: By some of their Descriptions it should be a Sort of Palm Tree, by others a *Cytisus*, &c. The most authentick of them, is that of Mons. *Flacourt*, who resided many Years in *Madagascar* as Governour thereof. He assures us that it grows very high, and big; its Bark black, and its Leaves resembling those of our Myrtle, of a deep, dusky, green Colour.

Tavernier assures us, that the Islanders take Care to bury their Trees, when cut down, to make them the blacker. *F. Plumier* mentions another *black Ebony* Tree, discovered by him at St. *Domingo*, which he calls *Spartium portulacæ foliis aculeatum Ebeni materiæ*. *Candia* also bears a little Shrub, known to the Botanists, under the Name of *Ebenus Cretica*.

Pliny and *Dioscorides* say, the best *Ebony* comes from *Ethiopia*, and the worst from *India*; but *Theophrastus* prefers that of *India*. *Black Ebony* is much preferr'd to the other Colours. The best is a jet black, free of Veins and Rind, very massive, astringent, and of a sharp pungent Taste.

Its Rind infused in Water, is said to purge pituita, and cure Venereal Disorders; whence *Matthiolus* took *Guaiacum* for a Sort of *Ebony*. It yields an agreeable Perfume, when laid on the Coals: When green, it readily takes Fire, from the Abundance of its Fat. If rubbed against a Stone, it becomes brown. The *Indians* make Statues of their Gods, and Sceptres for their Princes, of this Wood. It was first brought to *Rome* by *Pompey*, after his subduing *Mithridates*. 'Tis now much less used among us, than antiently; since the Discovery of so many Ways of giving other hard Woods a black Colour. See MARQUETRY.

As to *green Ebony*, besides *Madagascar*, and St. *Maurice*, it likewise grows in the *Antilles*, and especially in the Isle of *Tobago*. The Tree that yields it is very bushy, its Leaves smooth, and of a fine green Colour. Beneath its Bark is a white Rind about two Inches thick; all beneath which, to the very Heart, is a deep green, approaching towards a black; tho', sometimes, streak'd with yellow Veins. Its Use is not confined to Mosaic Work: 'Tis likewise good in dying, as yielding a fine green Tincture.

As to *red Ebony*, called also *Grenadilla*, we know little of it more than the Name.

The Cabinet-Makers, Inlayers, &c. make *Pear Tree*, and other Woods, pass for *Ebony*, by *Ebonising*, or giving it the black Colour thereof. This, some do, by a few Washes of a hot Decoction of Galls, and when dry, adding Writing Ink thereon, and polishing it with a stiff Brush, and a little hot Wax.

Others heat, or burn their Wood black.

EBRBUHARITES, a Sect, or Order of Religious among the *Mahometans*; thus call'd from their Founder *Ebrbuhard*, a Disciple of *Nacschi bendi*.

The *Ebrbuharites*, notwithstanding the extraordinary Sanctity they make Profession of, with an absolute Derelliction of all worldly Things, are regarded by the *Mussulmans*, as no better than Hereticks; by Reason they don't esteem themselves obliged to go in Pilgrimage to *Mecca*. To excuse themselves herefrom, they urge that the Pureness of their Souls, their sublime Contemplations, Extasies, &c. shew them *Mecca* and *Mahomet's* Tomb, without stirring out of their Cells.

EBULLITION, in Physicks, the Act of *Boiling*; or, a vehement Agitation of the Parts of a Fluid, produced by Fire. See BOILING.

Philosophers are disagreed about the Cause and Manner of *Ebullition*. Some account for it from an Attenuation of the Particles of the Fluid, at the Bottom of the Vessel; which, by being attenuated, become lighter, and heave upwards against the super-incumbent Load: Others, from the Particles of Fire mixing with, and dilating the Particles of the Fluid, and so rendering them specifically lighter: And others, not from any Attenuation, nor even Rarefaction of the Particles of the Fluid by the Action of Heat; but from a Rarefaction of the Air pent up, and intermix'd with the Fluid; which coming to expand, tends upwards against the Pressure of the less heated, less rarified Part of the Fluid. See HEAT, AIR, &c.

A more precise Account of the Process under the foresaid Article BOILING.

EBULLITION, in Chymistry, &c. is also used for a violent intestine Motion, or Collucation of Parts, occasion'd by the Mixture of Salts of different Natures.

Dr. *Harris* will have it properly, and immediately, to signifie that particular Struggle, or Effervescence, arising upon the mingling together of an acid and alcalisate Liquor. See ACID and ALCALI.

Mr. *Boyle* has an Experiment to shew, that a considerable *Ebullition* may be produced by such a Mixture, without the Bodies acquiring any Heat; nay, that a Degree of Cold may be produced greater than was in either of the Bodies singly; tho' accompanied with a great Struggle, Tumult, Noise and Froth. For having shook one Part of Oil of Vitriol, into 12 Parts of common Water, the Mixture was at first sensibly warm: Then, the Ball of a Thermometer was placed in it, till the included Spirit had gain'd the Temperament of the Mixture; but then a convenient Quantity of Volatile Salt of *Sal Armoniac*, being gradually put in to satiate the acid Spirits of the Mixture, the Spirit in the Thermometer descended above an Inch. See EFFERVESCENCE.

ECARTELE, in Heraldry. See QUARTERLY.

ECCANTHIS, or ECKANTIS, in Medicine, is a Disease of the Eyes.

The *Eccanthis*, or *Eckantis*, is properly a fleshy Excrescence, in the *Canthus*, or Angle of the Eye; thus call'd from the *Greek*, ἐγκανθὶς, which signifies the same Thing.

ECCE-*Homo*, among Painters, a Name given a Painting, wherein our Saviour is represented in a Purple Robe, with a Crown on his Head, and a Reed in his Hand; such as he was presented before *Pilate* by the *Jews*.

The Phrase is *Latin*, borrow'd from the Words of the *Jews* themselves, *q. d. This is the Man*.

He has a fine *Ecce homo*.

ECCENTRIC, or EXCENTRICK, in Geometry, is applied where two Circles, or Spheres, tho' contain'd, in some Measure, within each other, yet have not the same Centre; and consequently are not parallel: In Opposition to *Concentric*; where they are parallel, have one and the same common Centre. See CONCENTRIC.

The Sun's Orbit is *Eccentric*, with regard to the Globe of our Earth; *Mars* is very *Eccentric*, with regard to the Sun, that is, his Motion is about a very different Centre. See EARTH, &c.

ECCENTRIC, in the New Astronomy, or *Eccentric Circle*, is a Circle, as P D A E, (*Tab. Astronom. Fig.* 17.) described from the Centre of the Orbit of a Planet C, with half the Axis C E, as a Radius. See ECCENTRICITY.

ECCENTRIC, or *Eccentric Circle*, in the Antient *Ptolomaic* Astronomy, was the very Orbit of the Planet itself, which it was supposed to describe about the Earth; and which was conceiv'd *Eccentric* thereto; called also the *Deferent*. See DEFERENT.

In Lieu of *Eccentric Circles* round the Earth; the Moderns make the Planets describe Elliptic Orbits round the Sun; which accounts for all the Irregularities of the Motions of the Planets, and their different Distances from the Earth, &c. more justly and naturally. See ORBIT.

Anomoly of the ECCENTRIC, is an Arch of the *Eccentric Circle* as A K, intercepted between the Aphelion A, and the right Line K L, which passing thro' the Centre of the Planet K, is drawn perpendicularly to the Line of the Apsides A P. See ANOMOLY.

ECCENTRIC *Equation*, in the Old Astronomy, is an Angle made by a Line drawn from the Centre of the Earth, with another drawn from the Centre of the *Eccentric*, to the Body or Place of any Planet; the same with the *Prostaphæresis*; and is equal to the Difference, (accounted in an Arch of the *Ecliptic*) between the Sun's, or a Planet's, real, and apparent Place. See PROSTAPHÆRESIS.

ECCENTRIC *Place* of a Planet, in its Orbit, is the Place wherein the Planet is seen from the Sun. See PLACE.

ECCENTRIC *Place*, in the Ecliptic, is the Point of the Ecliptic, to which the Planet viewed from the Sun, is referr'd. This coincides with the *Heliocentric Place*. See HELIOCENTRIC.

ECCENTRICITY, the Distance between the Centres of two Circles, or Spheres, which have not the same Centre. See ECCENTRIC.

ECCENTRICITY, in the old Astronomy, is the Distance of the Centre of the Orbit of a Planet, from the Centre of the Earth. See PLANET.

That the five Planets have such an *Eccentricity*, is allow'd on all Sides, and may be evinced from several Considerations; chiefly this, that *Saturn*, *Jupiter*, *Mars*, *Venus* and *Mercury*, at sometimes appear greater, and at others less; which can only proceed from hence, that their Orbits being Eccentric to the Earth, in some Parts thereof they are nearer us, and in others more remote: But as to the *Eccentricities* of the Sun and Moon, some Dispute has been made.

The Moderns many of them hold, that the Sun and Moon appear sometimes larger, and sometimes less; not that they are nearer us at one Time than another, but because they are view'd through different Columns of Air, which producing a Difference in the Refraction of their Light, may occasion those different Appearances. Accordingly, we find very sudden Alterations of the apparent Magnitude of the Moon; where nothing but a Change in the Air can take Place. See MOON and SUN.

Thus

Thus *Kepler*, on the 2d of *March*, in the Year 1588, found the Moon's apparent Diameter 31 Minutes, presently after 32′ 2″, then 30′ 3″; and the preceding Day it had been 33. And again, on the 22d of *February*, 1591, he observed the Moon's Diameter twice 31′, six Times 32, seven Times 33, and six Times 34′. See DIAMETER.

They add, that when the Sun and Moon are in the Southern Signs, and consequently lower, being then seen thro' a longer Column of dense Air, they must appear bigger: Consequently, in the Winter Time, when the Sun is in *Capricorn*, being seen thro' a greater Quantity of Air, he must appear larger than in Summer, when, being nearer our *Zenith*, the Quantity of Air he is seen thro' is lesser. And the like may be said of the Moon. See SUN, &c.

But others take the *Eccentricities* of the Sun and Moon to be sufficiently proved, both from Eclipses; from the Moons greater and less Parallax, at the same Distance from the *Zenith*; and from the Sun's being observed to continue longer in the Northern Hemisphere, than in the Southern, *viz.* 186 or 187 Days in the first, and only 178 or 179 Days in the latter. See DISTANCE, HEMISPHERE, EARTH, &c.

ECCENTRICITY, in the new Astronomy, is the Distance of the Centre of the Orbit of a Planet, as C, from the Sun S, *i. e.* the Distance between the Centre of the Ellipsis and the Focus thereof: called also *simple*, or *single Eccentricity*.

Double ECCENTRICITY, is the Distance between the two Foci in the Ellipsis; which is equal to twice the *single Eccentricity*. See FOCUS, ELLIPSIS, &c.

To find the *Eccentricity* of a Planet, *e. gr.* the Earth: Since the Sun's greatest apparent Diameter is to his least, as 32′ 43″ to 31′ 38″, or as 1963″ to 1898″; the Sun's greatest Distance from the Earth will be to his least, as 1963 to 1898. Since then, PS + SA = PA = 3861; the Radius of the Eccentric CP, will be found 1930: And consequently SC = PC − PS = 32. Wherefore, CP being 100000, CS will be found = 1658.

Hence, as the Earth's *Eccentricity* SC, is scarce the Sixteenth Part of the Radius of the Eccentric CP; the Earth's elliptic Orbit does not deviate much from a circular one. So that 'tis no Wonder a *Calculus*, made on the Foot of an Eccentric Circle, should answer near enough to Observation. And since the *Eccentricity*, determin'd from the Difference of the apparent Diameters, (in observing which, an Error of some Minutes could not easily be avoided) does not seem exact enough; nothing hinders but that the *Eccentricity*, and the Place of the Apogee, may be determined on the Hypothesis of the Excentric Circle.

ECCHO, or rather *Echo*. See ECHO.

ECCHYMOSIS, from ἐκχυσ, *effundo*, to pour out, and αἷμα, *Sanguis*, Blood, signifies those livid Spots, or Blotches, in the Skin, which are made by extravasated Blood: The same with *Ecchymoma*. See EXANTHEMATA.

ECCLESIA, a *Latin* Term signifying *Church*. See CHURCH.

In our antient Law-Books, *Fitz-Herbert* observes, *Ecclesia* properly signifies a *Parsonage*. Whence, if a Presentation were made to a Chappel, as to a Church, by the Name of *Ecclesia*, it changed the Name thereof, and it presently commenced a Church.

When the Question was, Whether it were, *Ecclesia, aut Capella pertinens ad Ecclesiam*? The Issue was, Whether it had *Baptisterium & Sepulturam*? For if it had the Administration of the Sacraments, and Sepulture, it was in Law judg'd a Church. See CHAPPEL.

ECCLESIANS, ECCESIANI, in Church History. Upon any falling out, or Misunderstanding, between the Emperors and the Church Men, the Adherents to the Emperor called such as stuck to the Interests of the Church, and Churchmen, *Ecclesiani*; a Term of Reproach, answering to our *High-Churchmen*.

ECCLESIASTES, one of the Books of the Old Testament; Thus call'd, by a *Greek* Word, signifying *Preacher*. By Reason the Author declares, or *preaches*, against the Vices and Vanities of the World.

This is *Mariana*'s Judgment; *Grotius* thinks otherwise: He takes it to derive its Appellation from its being a *Collection* of fine Sentences, and Reflexions on the Vanity of the Things of our Earth, &c. For the Word קהל signifies to *amass* or *collect* συναθροίζειν.

Some *Hebrew* Doctors take its Name to arise from *amassing* a deal of Wisdom: Others, because the Author's Aim is to *assemble*, and *call* together, all such as are willing to consult their Safety, and avoid the Dangers of the World; which is the Opinion of *Gejerus*: Lastly, others, with *Calovius*, deduce it from his *assembling* them about him, as a Preacher assembles his Auditory.

There are different Sentiments as to the Author of this Book: The most common is, that it is *Solomon*'s, who is supposed to have wrote it towards the Close of his Life, to give Tokens of his Penitence to Posterity.

Grotius, indeed, takes the Work to be posterior to *Solomon*; and to have been wrote after his Death by I know not what Authors, six in Number; who, to give their Book the greater Authority, put *Solomon*'s Name to it, and represented him as Repentant. What he founds so many positive Facts on, is, that we meet with Words in this Book, which are no where else seen, but in *Daniel*, *Esdras*, and the *Chaldee* Paraphrases.

But, 'tis certain, all, both *Hebrews*, *Greeks* and *Latins*, have always spoke of it as a Work of *Solomon*. Indeed, there are Authors, who have attributed all the Books of *Solomon* to *Isaiah*; but these are only to be understood as if that Prophet had collected them. If it be true, that there are *Chaldee* Words in the *Ecclesiastes*, 'tis easier to suppose *Solomon* understood that Language, than to deny him the Author of the Book.

If the Book is not *Solomon*'s, because *Grotius* has found four or five Dictions, which are only to be explain'd by the *Chaldee* and *Arabic*; we are not sure of the Author of any Book in the Bible. *Moses* must not be the Author of *Genesis*; For even in the very first Verse of that Book, we meet with two or three Words, that are only deducible from *Arabic* Roots. How many Authors attribute to *Solomon*, or to *Moses*, the Book of *Job*; which is that of all the Books of the Old Testament, where there is the most *Arabic*, *Chaldee*, or *Syriac*.

In fine, *Calovius* assures us, that the true Reason why *Grotius* would not allow *Solomon* the Author of the Book of *Ecclesiastes*, is, that it speaks too clearly, and precisely for his Time, of the Universal Judgment, Eternal Life, and the Pains of Hell, which yet are Truths established before *Solomon* in the *Psalms*, the *Pentateuch*, and *Job*.

There appear no Reasons, therefore, for denying this Book to *Solomon*; But several for ascribing it to him. The 1. The Title of the Book, which asserts its Author to be the Son of *David*, and King of *Jerusalem*. 2. Several Passages in the Book, which agree to no Body but that Prince, as *C.* I. v. 12. *C.* VII. v. 24. *C.* XII. v. 9, &c. 3. Constant Tradition of the antient *Jews* and *Christians*.

The *Thalmudists*, and other Rabbins, however, note that the Book of *Ecclesiastes*, was some Time e're it was put in the Canon. See the *Gemara* on *Pirke Abboth f.* 1. col. 1. *Massech Schabbath C.* II. *fol.* 30. col. 2. *Aben Ezra* on the *Ecclesiastes* VII. 4. *Maimonides*, *Moreh, Nebochim*, *L.* III. *C.* 28. *Mercerus*, *Calovius*, and *Gejerus* on this Book.

ECCLESIASTIC, or ECCLESIASTICAL, something belonging to, or set apart for the *Church*; in Contradistinction to *Civil*, or *Secular*, which regard the World. See CIVIL, &c.

There are *Ecclesiastical* Things and Persons: *Ecclesiastical Law*, *Jurisdiction*, *History*, *Ceremonies*, *Discipline*, *Preferments*, &c. See LAW, JURISDICTION, HISTORY, CEREMONY, &c.

Ecclesiastical Persons, are either *Regular* or *Secular*. See REGULAR and SECULAR.

In the Empire there are three *Ecclesiastical* Electors, *viz.* the Archbishops of *Mentz*, *Treves*, and *Cologne*. See ELECTOR.

In *France*, they have *Ecclesiastical Peers*, &c. See PEER.

ECCLESIASTICAL *Courts*, are the *Convocation*, *Court of Delegates*, *Of Arches*, *Of Audience*, *Prerogative Court*, *Court of Peculiars*, *Bishops Court*, and *Archdeacons Court*. See each under its proper Article, CONVOCATION, AUDIENCE, ARCHES, &c.

Ecclesiastical Censures and *Punishments*, are *Excommunication*, *Penance*, *Suspension*, *Deprivation*, and *Deposition*, or *Degradation*. See EXCOMMUNICATION, PENANCE, SUSPENSION, DEGRADATION, &c.

ECCLESIASTICUS, an Apochryphal Book, composed by *Jesus* the Son of *Sirach*, and admitted, by the *Romish* Church, in the Canon of the Old Testament. See APOCHRYPHA.

It is frequently wrote by an Abbreviation, *Eccli.* to distinguish it from the *Ecclesiastes*, which is wrote *Eccle*.

Isidore, *L.* VI. *Etym. C.* 2. and among the Moderns, *Grotius*, and *Drusius*, deny the Author of the *Ecclesiasticus* to be *Jesus* the Son of *Sirach*, Grandson of the High Priest *Jesus*, who return'd from *Babylon* with *Zorobabel*; but it appears pretty certain, they are deceiv'd. See the *Preface* of the Author, that XLth Chapter, v. 29. and the *Title* of the LIXth, with the whole Chapter.

Genebrard asserts, that *Jesus* the Son of *Sirach* was of the Race of *Jesus* Son of *Josedech*. But this does not appear.

St. *Jerome* assures us, in his Preface to the Books of *Solomon*, that he had seen this Book in *Hebrew*; and that the *Hebrews* intitled it *Parables*: From which the Jesuite *Mariana* concludes, that the High Priest *Jesus* wrote this Book in *Hebrew*; as it appears likewise from the Prologue

to

to the Book it ſelf; and that his Grandſon tranſlated it into *Greek*, which likewiſe appears from the Prologue: that he made this Tranſlation in *Egypt*, where the Author lived in his 38th Year; that it was done under the Reign of *Ptolomy Evergetes*, Succeſſor of *Ptolomy Philadelphus*, who began to reign in the Year of *Rome* 512, 240 Years before Chriſt; that the Grandfather had intitled it *Parables*, which the Grandſon changed into *Eccleſiaſticus*, q. d. *Preacher*: Laſtly, that the Book, however, is attributed to the Tranſlator, by Reaſon he changed, and added many Things to the Original.

Fa. Calmet takes the Book of *Eccleſiaſticus* to have been compoſed under the Pontificate of *Onias* III. Son of *Simon*, and the Reign of *Antiochus Epiphanes*, King of *Syria*. He adds, that neither the Author of the *Latin* Tranſlation, nor the Time when it was made, is known; but being quoted regularly by all the Antient Fathers, there is no doubt of its being very Antient. He takes it to have been done by the Tranſlator of the Book of *Wiſdom*.

ECCOPE, *Amputation*, in Chirurgery, a dividing of a fleſhy Part, and cutting off that which is gangreen'd, cancer'd, or the like: As alſo an *Amputation* of an Excreſcence, *&c.* See AMPUTATION.

ECCOPE, is likewiſe uſed for a Kind of Fracture, or Solution of Continuity of the Skull, by a ſimple Incision. See FRACTURE.

The Word is form'd from the *Greek*, ἐκκοπεῖν, *to cut*.

ECCOPROTICKS, in Medicine, *Laxative*, or *looſening* Remedies, which purge gently, by ſoftening the Humours and Excrements, and fitting them for Expulſion. See EVACUANTS, PURGATIVES, *&c.*

The Word is compoſed of the *Greek* Particle ἐκ, and κόπρος, *Excrement*.

ECHINATE *Seeds*, are ſuch as are prickly and rough like the Coat of a Cheſtnut; or, as ſome ſay, like the Skin of a Hedge-hog. See SEED.

ECHINUS, in Architecture, a Member, or Ornament, near the Bottom of the *Ionic*, *Corinthian*, and *Compoſite* Capitals; which, from its circular Form or Contour, is called by the *French*, *Quart de Rond*, and by the *Engliſh*, *Quarter round*, or *Boultin*; and from its being uſually carved, or cut with Figures of Eggs, *&c.* is called alſo by the *Latins*, *Ovum*, by the *Italians*, *Ovolo*, the *French*, *Ove*, and the *Engliſh*, *Eggs* and *Anchors*. See QUARTER-ROUND and OVOLO.

Laſtly, The Eggs being encompaſſed with a Cover, and thus bearing ſome Reſemblance to a Cheſtnut cut open; The *Greeks* have call'd it ἐχῖνος, *Echinus*, that is, *Cheſtnut*. See BOULTIN, *&c.*

ECHINUS, among Botaniſts, is uſed for the prickly Head, or Top of any Plant; thus called from its Likeneſs to an Hedge-hog or Cheſtnut.

ECHIQUITE, in Heraldry. See CHECKY.

ECHO, or ECCHO, a Sound reflected, or reverberated, from a ſolid, concave Body, and ſo repeated to the Ear. See SOUND and REFLECTION.

The *Peripateticks*, who took Sound for I know not what Species, or Image of the ſonorous Body, impreſſed on the adjoyning Air; account for *Echo* from a Reſilition of the Species, occaſion'd by its meeting ſome Obſtacle in the Way. But the Moderns, who know Sound to conſiſt in a certain Tremor, or Vibration, in the ſonorous Body, communicated to the contiguous Air, and by that Means to the Ear; give a more conſiſtent Account of *Echo*.

For a tremulous Body, ſtriking on another ſolid Body, 'tis evident, may be repelled without deſtroying or diminiſhing its Tremor; and conſequently a Sound may be redoubled by the Reſilition of the tremulous Body, or Air. See SOUND.

But a ſimple Reflexion of the ſonorous Air, is not enough to ſolve the *Echo*: For then every plain Surface of a ſolid hard Body, as being fit to reflect a Voice or Sound, would redouble it; which we find does not hold.

To produce an *Echo*, therefore, it ſhould ſeem that a Kind of Concameration, or Vaulting were neceſſary, in order to collect, and by collecting, to heighten and increaſe, and afterwards reflect the Sound; as we find is the Caſe in reflecting the Rays of Light, where a concave Mirror is required.

In Effect, as often as a Sound ſtrikes perpendicularly on a Wall, behind which is any Thing of a Vault, or Arch, or even another Parallel Wall; ſo oft will it be reverberated in the ſame Line, or other adjacent ones.

For an *Echo* to be heard, therefore, 'tis neceſſary the Ear be in the Line of Reflexion: For the Perſon who made the Sound to hear its *Echo*, 'tis neceſſary he be perpendicular to the Place which reflects it: And for a manifold or Tantological *Echo*, 'tis neceſſary there be a Number of Walls and Vaults, or Cavities, either placed behind each other, or fronting each other.

A ſingle Arch, or Concavity, *&c.* can ſcarce ever ſtop and reflect all the Sound; but if there be a convenient Diſpoſition behind it, Part of the Sound, propagated thither, being collected and reflected, as before, will preſent another *Echo*: Or if there be another Concavity, oppoſed at a due Diſtance to the former; the Sound reflected from the one upon the other will be toſs'd back again by this latter, *&c.*

Many of the Phænomena of *Echo's*, are well conſider'd by the Biſhop of *Leighs*, &c. Who remarks, that any Sound, falling either directly, or obliquely, on any denſe Body, of a ſmooth, whether plain or arched, Superficies, is reflected, or *Echoes* more or leſs. The Surface, ſays he, muſt be *ſmooth*, otherwiſe the Air, by Reverberation, will be put out of its Regular Motion; and the Sound thereby broke and extinguiſhed. He adds, that it *Eccho's more or leſs*, to ſhew, that when all Things are, as before deſcribed, there is ſtill an *Echoing*; tho' it be not always heard; either becauſe the direct Sound is too weak to be beat quite back again to him that made it, or that it does return to him, but ſo weak, that it cannot be diſcern'd; or that he ſtands in a wrong Place to receive the reflected Sound, which paſſes over his Head, under his Feet, or on one Side of him, and which therefore may be heard by a Man ſtanding in the Place where the reflected Sound will come, provided no interpoſed Body intercept it; but not by him that firſt made it.

Echo's may be produced with different Circumſtances: For,

1. A *Plane* Obſtacle reflects the Sound back in its due Tone and Loudneſs; Allowance being made for the proportionable Decreaſe of the Sound, according to its Diſtance. See PLANE.

2. A *Convex* Obſtacle reflects the Sound ſomewhat ſmaller, and ſomewhat quicker, tho' weaker, than it otherwiſe would be. See CONVEX.

3. A *Concave* Obſtacle, *echo's* back the Sound, bigger, ſlower, and alſo inverted; but never according to the Order of Words. See CONCAVE.

Nor does it ſeem poſſible to contrive any ſingle *Echo*, that ſhall invert the Sound, and repeat backwards: Becauſe, in ſuch Caſe, the Word laſt ſpoken, that is, which laſt occurs to the Obſtacle muſt be repell'd firſt, which cannot be. For where in the mean Time ſhould the firſt Words hang and be conceal'd; or how, after ſuch a Pauſe, be revived, and animated again into Motion.

From the determinate Concavity, or Archedneſs of the reflecting Bodies, it may happen that ſome of them ſhall only *echo* back one determinate Note, and only from one Place.

4. The *Echoing* Body being removed farther off, it reflects more of the Sound than when nearer; which is the Reaſon why ſome *Echo's* repeat but one Syllable, ſome one Word, and ſome many.

5. *Echoing* Bodies may be ſo contrived, and placed, as that reflecting the Sound from one to the other, either directly and mutually, or obliquely and by Succeſſion, out of one Sound, ſhall a *multiple Echo*, or many *Echo's* ariſe.

Add, that a *multiple Echo* may be made, by ſo placing the *Echoing* Bodies, at unequal Diſtances, as that they may reflect all one Way, and not one on the other; by which Means, a manifold ſucceſſive Sound will be heard; one Clap of the Hands like many; one Ha like a Laughter; one ſingle Word like many of the ſame Tone and Accent; and ſo one Viol, like many of the ſame Kind, imitating each other.

Laſtly, *Echoing* Bodies may be ſo order'd, that from any one Sound given, they ſhall produce many *Echo's*, different both as to Tone and Intenſion. By which Means a Muſical Room may be ſo contrived, that not only one Inſtrument playing therein, ſhall ſeem many of the ſame Sort and Size, but even a Conſort of different Ones; only by placing certain *Echoing* Bodies ſo, as that any Note play'd, ſhall be return'd by them in 3ds, 5ths, and 8ths.

ECHO, is alſo uſed for the Place where the Repetition of the Sound is produced, or heard.

The Word is form'd of the *Greek*, ἦχος, *Sonus*, of the Verb ἠχέω, *Sono*, *I ſound*,

Echo's are diſtinguiſhed into divers Kinds, *viz.*

1. *Single*, which return the Voice but once; whereof ſome are *Tonical*, which only return a Voice when modulated into ſome particular Muſical Tone. Others, *Polyſyllabical*, which return many Syllables, Words and Sentences.

2. *Multiple*, or *Tautological*, which return Syllables and Words the ſame oftentimes repeated.

In *Echo's*, the Place where the Speaker ſtands, is called the *Centrum Phonicum*; and the Object, or Place, that returns the Voice, the *Centrum Phonocampticum*. See CENTRUM.

At the Sepulchre of *Metella*, Wife of *Craſſus*, was an *Echo*, which repeated what a Man ſaid, five Times. Authors mention a Tower at *Cyzicus*, where the *Echo* repeated ſeven Times.

But

But the fineſt *Echo* we read of, is that mention'd by *Barthius*, in his Notes on *Statius*'s *Thebais*, *L.* VI. v. 30. which repeated the Words a Man utter'd ſeventeen Times: It was on the Banks of the *Nile*, between *Coblents* and *Bingen*. *Barthius* aſſures us, he had proved what he writes; and had told ſeventeen Repetitions. And whereas, in common *Echo's*, the Repetition is not heard till ſome Time after hearing the Words ſpoke, or the Notes ſung; in this, the Perſon who ſpeaks, or ſings, is ſcarce heard at all; but the Repetition moſt clearly, and always in ſurprizing Varieties; the *Echo* ſeeming, ſometimes to approach nearer, and ſometimes to be further off. Sometimes the Voice is heard very diſtinctly, and ſometimes ſcarce at all. One hears only one Voice, and another ſeveral: One hears the *Echo* on the right, and the other on the left, &c.

ECHO, in Architecture, is applied to certain Kinds of Vaults, and Arches, moſt commonly of Elliptical, or Parabolical Figures; uſed to redouble Sounds, and produce *Artificial Echo's*.

The Method of making an *Artificial Echo*, is taught by the Jeſuite *Blancani*, in his Echometry, at the End of his Book on *the Sphere*. *Vitruvius* tells us, that in divers Parts of *Greece*, and *Italy*, there were brazen Veſſels, artfully ranged under the Seats of the Theatres, to render the Sound of the Actors Voices more clear, and make a Kind of *Echo*; by which Means, of the prodigious Multitude of Perſons, who aſſiſted at the Spectacles, every Body might hear with Eaſe and Pleaſure.

ECHO, in Poetry, &c. a Kind of Compoſition, wherein the laſt Words, or Syllables, of each Verſe, contain ſome meaning, which being repeated a-part, anſwers to ſome Queſtion, or other Matter, contain'd in the Verſe.

Such is that famous *Echo* of *Eraſmus*, — *Decem annos conſumpſi in legendo Cicerone ... one*, i. e. ονη, *Aſine*.

The firſt *Echo*, in Verſe, according to *Paſquier*, is that in the *Sylvæ* of *Johannes Secundus*: But *Paſquier* is miſtaken; for the antient *Greek* and *Latin* Poets have wrote *Echo's*. This *Martial* intimates plainly enough, when laughing at ſuch Sorts of Baubles, he ſays, there is nothing like them among his Poems. *Nuſquam Græcula quod recantat Echo*: By which, on the one Side, he ſhews there were *Latin* Poets in his Time, who made *Echo's*; and on the other, that the Invention came from the *Greeks*.

Ariſtophanes, in his Comedy, intitled Θεσμοφοριαζουσαι, introduces *Euripedes* in the Perſon of *Echo*. And *Callimachus*, in the Epigram, Εχθαίρω τὸ πίνημα τὸ κυκλικόν, ſeems to have intended a Kind of *Echo*.

ECHOMETRE, in Muſic, a Kind of Scale, or Rule, with ſeveral Lines divided thereon, ſerving to meaſure the Duration, or Length, of Sounds, and to find their Intervals and Ratio's.

The Word is form'd of the *Greek*, ἦχος, *Sound*, and μετρον, *Meaſure*.

ECHYMOSIS, or ECCHYMOSIS, in Medicine, *Suffuſio*, a Diſeaſe of the Eye; wherein the Blood, extravaſated by ſome Blow, or Contuſion, upon its Arrival between the Cutis, and the Fleſh or Muſcles, ſtops there, without any Appearance of a Wound.

The *Echymoſis* is either *ſimple*, or with *Abſceſs*.

The Word is form'd of the *Greek*, ἐκχύμωσις, *Effuſion of Humours*, τῶν χυμῶν.

ECLECTIC, ECLECTICI, a Name given to ſome antient Philoſophers. See PHILOSOPHER.

Diogenes Laertius, *L.* I. and *Suidas* ſay, that the *Eclectici* were ſuch, as without attaching themſelves to any particular Sect, took what they judg'd good and ſolid from each. And hence their Denomination; which, in the Original *Greek*, ſignifies, that *may be choſen*, or that *chuſes*, of the Verb εκλέγω, *I chuſe*.

Laertius, in the ſame Place, notes, that they were alſo, for the ſame Reaſon, denominated *Analogetici*, but that they called themſelves *Philalethes*, i. e. Lovers of Truth.

The Chief, or Founder of the *Eclectici*, was one *Potamon*, of *Alexandria*, who lived under *Auguſtus*, and *Tiberius*; and who, weary of doubting of all Things with the *Scepticks* and *Pyrrhonians*, form'd the *Eclectic* Sect; which *Voſſius* calls the *Eclective*.

ECLEGMA, in Medicine, a Pectoral Remedy, of the Conſiſtence of a thick Syrup; called alſo *Lohoch*, *Linctus*, and *Lambative*. See LOHOCH, &c.

The Word is form'd of the *Greek* ἐκ, and λείχειν, *to lick*; by Reaſon the Patient is to take it by *licking* it off the End of a Liquorice Stick dipt therein: To the End that being taken thus by little and little, it may remain the longer in the Paſſage, and moiſten the Breaſt the better.

There are *Eclegma's* of Poppy, others of Lentils, others of Squillæ, &c. The Intention is to heal, or eaſe the Lungs in Coughs, Peripneumonies, &c. and are uſually compoſed of Oils, incorporated with Syrups.

ECLIPSE, in Aſtronomy, a Privation of the Light of one of the Luminaries, by the Interpoſition of ſome opake Body, either between it and the Eye; or between it and the Sun. See SUN, MOON, and SATELLITE.

The Word is derived from the *Greek*, εκλειψις, of εκλειπω, *deficio*, *I fail*.

The Antients had frightful Ideas of *Eclipſes*, as Preſages of the moſt diſmal Events: *Plutarch* aſſures us, that at *Rome*, it was not allow'd to talk publickly of any natural Cauſes of *Eclipſes*. They made a huge Noiſe with Brazen Inſtruments, and rais'd loud Shouts, during *Eclipſes* of the Moon, as thinking thereby to eaſe her in her Labour: Whence *Juvenal*, ſpeaking of a talkative Woman, ſays; *Una Laboranti poterit ſuccurrere Lunæ*. Others attributed the *Eclipſe* of the Moon to the Arts of Magicians, who by their Inchantments, pluck'd her out of Heaven, and made her ſkim over the Graſs. The Natives of *Mexico* kept Faſt, during the *Eclipſe*; and, particularly, their Women, who beat and abuſed themſelves, drawing Blood from their Arms, &c. They imagined the Moon had been wounded by the Sun in ſome Quarrel between them.

The Duration of an Eclipſe, is the the Time between the *Immerſion* and *Emerſion*.

The *Immerſion*, or *Incidence* of an *Eclipſe*, is the Moment when Part of the Sun or Moon's Diſk firſt begins to be hid. See IMMERSION.

The *Emerſion*, or *Expurgation*, is the Time when the Eclipſed Luminary begins to re-appear, or emerge out of the Shadow. See EMERSION.

To determine the Duration of *Eclipſes*, they uſually divide the Diameter of the Luminary *Eclipſed*, into 12 equal Parts, called *Digits*, or *Digiti Eclipticci*. See DIGIT.

Eclipſes, are divided with Reſpect to the Luminary *Eclipſed*, into *Eclipſes of the Sun*, *of the Moon*, and of *the Satellites*: And with Reſpect to the Circumſtances, into *Total Eclipſes*, *partial*, *annual*, &c. *Eclipſes*.

ECLIPSE *of the Moon*, is a Deficiency of Light in the Moon, occaſion'd by a Diametrical Oppoſition of the Earth between the Sun and Moon. See MOON.

The Manner of this *Eclipſe* is exhibited in *Tab. Aſtronom. Fig.* 34. where A repreſents the Earth, and B or C the Moon.

When all the Light of the Moon is intercepted, *i. e.* when her whole Disk is cover'd, the *Eclipſe* is ſaid to be *Total*; when only Part, *Partial*. When the *Total Eclipſe* laſts for ſome Time, it is ſaid to be *Totalis cum Mora*, Total with Continuance; when only Inſtantaneous, *Totalis ſine Mora*, Total without Continuance.

Eclipſes of the Moon, only happen in the Time of full Moon; by Reaſon 'tis only then the Earth is between the Sun and Moon. Nor do they happen every full Moon, by Reaſon of the Obliquity of the Moon's Way with Reſpect to the Sun's; but only in thoſe full Moons, which happen either in the Nodes, or very near them, where the Aggregate of the apparent Semi-diameters of the Moon and the Earth's Shadow, is greater than the Latitude of the Moon, or the Diſtance between their Centres. See NODE.

The moſt conſiderable Circumſtances in the Eclipſes of the Moon, are,

1. That as the Sum of the Semi-diameters of the Moon, and Earth's Shadow, is greater than the Aggregate of the Semi-diameters of the Sun and Moon, (that when leaſt, being $5\frac{1}{3}$, and this, when greateſt, ſcarce $3\frac{1}{3}$.) 'Tis evident, *Lunar Eclipſes* may happen in a greater Latitude of the Moon, and at a greater Diſtance from the Nodes, and conſequently are more often obſerv'd in any one Part of the Earth, than *Solar* ones; tho', with Reſpect to the whole Earth, the latter are as frequent as the former.

2. *Total Eclipſes*, and thoſe of the longeſt Duration, happen in the very Nodes of the Ecliptic; by Reaſon the Section of the Earth's Shadow, then falling on the Moon, is conſiderably greater then her Diſk. There may likewiſe be *Total Eclipſes*, within a little Diſtance off the Nodes; but the farther, the leſs their Duration; further off ſtill, there are only Partial ones, and at length none at all: As the Latitude and the Semi-diameter of the Moon together, are either leſs, equal, or greater than the Semi-diameter of the Shadow.

3. All *Lunar Eclipſes* are univerſal, *i. e.* are viſible in all Parts of the Globe, which have the Moon above their Horizon; and are every where of the ſame Magnitude, and begin and end together.

4. In all *Lunar Eclipſes*, the Eaſtern Side is what firſt Immerges, and alſo Emerges; for that tho' at firſt ſhe be more Weſterly than the Earth's Shadow, yet her proper Motion being ſwifter than the ſame, ſhe overtakes and outgoes it.

5. The Moon, even in the Middle of an *Eclipſe*, has uſually a faint Appearance of Light; which *Gaſſendus*, *Ricciolus*,

Ricciolus, *Kepler*, &c. attribute to the Light of the Earth's Atmosphere transmitted thither. See ATMOSPHERE.

Lastly, She grows sensibly paler and dimmer, before ever she enters within the Earth's Shadow, which is attributed to the Earth's *Penumtra*. See PENUMTRA.

Astronomy of Lunar ECLIPSES, *or the Method of calculating their Times, Places, Magnitudes, and other Phænomena.*

Preliminary 1. *To find the Length of the Earth's shadowy Cone.* Find the Sun's Distance from the Earth for the given Time; See SUN and DISTANCE. Then, as the Sun's Diameter is known in Semi-diameters of the Earth, the Length of the Cone will be found from the Rules given under SHADOW.

Suppose, *e. gr.* the Sun's greatest Distance from the Earth, 34996 Semi-diameters of the Earth; and the Sun's Semi-diameter to be to that of the Earth as 153 to 1. Then will the Length of the shadowy Cone be found $230\frac{1}{4}$.

Hence, as the Moon's least Distance from the Earth, is scarce 64 Semi-diameters; the Moon, when in Opposition to the Sun, in or near the Nodes, will fall into the Earth's Shadow, tho' the Sun and Moon be in their Apogees. And much more, if they be in or near their Perigees, by Reason the Shadow is then longer; and the Moon nearer the Base of the Cone.

2. *To find the apparent Semi-diameter of the Earth's Shadow, in the Place of the Moon's Passage, for any given Time.* Find the Sun and Moon's Distance from the Earth; and thence, their Horizontal Parallaxes: Add the Parallaxes together, and from the Sum, subtract the apparent Semi-diameter of the Sun. The Remainder is the apparent Semi-diameter of the Shadow.

Thus, suppose the Moon's Parallax 56′ 48″, the Sun's 6″: The Sum is 56′ 24″; from which the Sun's apparent Semi-diameter 16′ 5″ subtracted, leaves 40′ 19″ for the Semi-diameter of the Shadow.

Note, M. *de la Hire* omits the Sun's Parallax, as of no Consideration; but increases the apparent Semi-diameter of the Shadow by a whole Minute, for the Shadow of the Atmosphere; which would give the Semi-diameter of the Shadow, in our Instance, 41′ 13″.

3. *The Moon's Latitude*, A L, *at the Time of her Opposition, together with the Angle at the Node* B, *being given; to find the Arch between the Centres* A I, *and the Arch* I L. (*Fig.* 35.) Since in the spherical Triangle A I L, Rectangular at A; the Side A L is given, as also the Angle A L I, as being the Complement of L A I, or B to a right Angle; the Arch between the Centres A I, is found by spherical Trigonometry: And since the Angle L A I, is equal to B, each of them, with I A B, making a right Angle: And the Moon's Latitude A L is given; the Arch L I will likewise be found by spherical Trigonometry. See SPHERICAL *Triangle*.

To determine the Bounds of an ECLIPSE *of the Moon.*

Since there is no *Eclipse* possible, but when the Aggregate of the Semi-diameters of the Shadow, and the Moon is greater than the Moon's Latitude, (for without this, the Moon will not come in the Shadow) add the apparent Semi-diameters of the Moon in *Perigæo*, and of the Shadow, supposing the Sun in *Apogæo*; by which you will have the Side M O. Then, in the spherical Triangle M N O, (*Fig.* 36.) having given the Angle at the Node, whose Quantity is the Moon's greatest Latitude in the Conjunctions; the right Angle E; and the Leg M O; find the Moon's Distance from the Node N O: Which is the utmost Bound, beyond which the *Eclipse* cannot reach. After the same Manner, adding the apparent Semi-diameters of the Moon in *Apogæo*, and of the Shadow of the Sun in *Perigæo*, for the Sake of having the L H, in the Triangle N L H; the Distance of the Moon, from the ascending Node H N, will be found by spherical Trigonometry; which is the Bound within which the Moon will necessarily be *Eclipsed*.

Thus, *e. gr.* the Semi-diameter of the Shadow, when the Sun is in *Apogæo*, and the Moon in *Perigæo*, according to *Kepler*, is 49′ 40″. And the apparent Semi-diameter of the Moon in *Perigæo* 16′ 22″. Consequently M O 66′, or 1° 6′; and therefore there will be no *Eclipse* at all, if the Moon's Latitude be greater than 1° 6′. Now, as the same Angle N is supposed by *Kepler* to be 5° 18′.

Log. Sin. N	89655337
Sin. M O	82832433
Whole Sine	100000000

Log. of Sine O N 93177096. The Number corresponding to which in the Tables is 11° 59′ 50″. If, therefore, the Moon's Distance from the ascending Node be greater than 12°; no *Eclipse* can happen. And, in like Manner, the Semi-diameter of the Shadow in the Sun's Perigee, and the Moon's Apogee is 43′ 50″, and the Moon's Semi-diameter in her Apogee 15′. Consequently, L H is 58′ 50″. And, therefore, there will be an *Eclipse*, if the Moon's Latitude don't exceed 58′ 50″. But here, as before, the Argument of the Latitude is found 10° 40′.

To determine the Quantity of an Eclipse, or the Number of Digits Eclipsed.

Add the Moon's Semi-diameter I K, (*Fig.* 35.) to the Semi-diameter of the Shadow A M; then will A M + I K = I M + I K = A I + M K. From this Sum, therefore, subtract the Arch between the Centres A I, the Remainder gives the Scruples, or Parts of the Diameter *Eclipsed* M K. Say, therefore, as the Diameter K H, is to the Scruples, or Parts thereof *Eclipsed* M K; so is 12, to the Digits *Eclipsed*.

Thus, supposing K H, 30′ 44″, and consequently I K, 15′ 22″; A M, 41′ 13″; and A L, 43′ 14″: The Moon's Semi-diameter will be 15′ 22″, and that of the Shadow 41′ 13″; the Sum whereof, is 56′ 35″. From which the Arch between the Centres 43′ 14″, being subtracted, leaves 13 21 Scruples, or 801 Seconds. Then as 1844 : 801 :: 12 : $5\frac{28}{461}$ Dig. or 5 Dig. 13′.

To find the Scruples of half Duration of an Eclipse, or the Arch of the Lunar Orbit, which her Centre describes from the Beginning of the Eclipse to the middle thereof.

Add the Semi-diameters of the Shadow A P, and the Moon P N together; the Sum gives A N. From the Square of A N, subtract the Square of A I; the Remainder is the Square of I N, the Square Root of this Residue is the Arch I N required.

To find the Scruples of half Duration of a Total Darkness, in a Total Eclipse.

Subtract the Moon's Semi-diameter S V, (*Fig.* 37.) from the Semi-diameter of the Shadow A V; the Remainder is A S: In the Triangle A I S, which is Rectangular at I, therefore, we have the Arch A S given by the last Method; and the Arch between the Centres A I: Whence the Arch I S is found, as in the last Problem.

To find the Beginning, Middle, and End of a Lunar Eclipse.

Say, as the Moon's Horary Motion from the Sun, (See HORARY) is to 3600 Horary Seconds; so are the Seconds of the Arch L I, (*Fig.* 35.) to the Horary Seconds equivalent thereto. Subtract these Scruples, or Seconds, in the first and third Quadrant of the Anomoly, from the Time of full Moon, and add it to the same in the second and fourth; the Result is the Time of the middle of the *Eclipse*. Then say, as the Moon's Horary Motion from the Sun is to 3600 Scruples, or Seconds, so are the Seconds of half Duration I N, to the Time of half Duration: The double of which gives the whole Duration. Lastly, subtract the Time of half the Duration, from the Time of the middle of the *Eclipse*, the Remainder will be the Beginning of the *Eclipse*. And add the same to the same, the Sum will be its End.

Suppose, *e. gr.* L I = 4′ 5″ = 245″, I N 2530″, Time of Full Moon 9^h 23′ 49″, Horary Motion of the Moon from the Sun, 30″ 12′, or 1812″, then will

Log. Hor. ☽ from ☉	32581581
Log. 3600	35563025
Log. L I	23891660
	59454685

Log. of Time required 26873104; The Number corresponding to which, in the Tables, is 486″, or 8′ 6′.

Time of Full Moon	9^h 23 49.
Time of mid. *Eclipse*	9^h 15′ 43″.
Log. Hor. ☽ from ☉	32581581
Log. 3600	35563025
Log. I N.	33404934
	68967959

Log. of half Duration 36386378. The Number corresponding to which, in the Tables, is 4351″, or,

	1^h 12′ 31″
Duration of *Eclipse*	2^h 25 2
Time of mid. *Eclipse*	9^h 15 31
Half Durat. Subtract.	1^h 12 31
Begin. of *Eclipse*	8^h 3 12
Time of mid. *Eclipse*	9^h 15 43
Half Durat. added	1^h 12 31
End of *Eclipse*	10^h 28 14

To

To calculate an Eclipse of the Moon.

1. For the given Time of the mean full Moon, compute the Moon's Distance from the Node; to find whether there be an *Eclipse* or not: As taught in the first Problem.

2. Compute the Time of the true full Moon, with the Sun and Moon's true Place reduced to the Ecliptic.

3. For the Time of the true full Moon, compute the Moon's true Latitude, the Distance of each Luminary from the Earth, with the Horizontal Parallaxes, and apparent Semi-diameters.

4. For the same Time, find the Sun and Moon's true Horary Motion.

5. Find the apparent Semi-diameter of the Shadow.

And 6. The Arch between the Centres A I, with the Arch L I.

7. Compute the Scruples of half Duration I N.

And thence, 8. Determine the Beginning, Middle, and End of the *Eclipse*.

Lastly, Find the Scruples *Eclipsed*, and thence the Quantity of the *Eclipse*: *as taught under the preceding Problems.*

E. gr. Anno. 1708, the mean full Moon fell on the 29th Day of *September*, at $3^h\ 45'\ 4''$ Afternoon: And then the Moon's Distance from the ascending Node, was $5°\ 22'\ 36'$. Consequently the Full Moon was *Eclipsed*. Now, for that Time, we find

True full Moon	9^h	$23'$	$49''$
True Place of the Sun	$6°$	$43'$	$47''$
Moon's Place in the Ecliptic	6	43	47
Moon's True Latit. North		43	25
Horizont. Parallax. of ☉			6
of ☽		56	18
Apparent Semi-diam. of ☉		16	5
of ☽		15	22
True Horar. Mot. of ☽ from ☉		30	12
Semi-diam. of Shadow		41	13
Arch between the Centres		43	14
Arch L I		4	5
Scruples of half Duration		36	30
Scruples *Eclipsed*		13	21
Duration of *Eclipse*	2^h	25	2
Beginning	8^h	3	12
Middle	9	15	43
End	10	28	14
Quantity	5 Dig. 13′.		

To draw a Type, or Figure of a Lunar Eclipse on a Plane.

1. Let C D, (*Fig.* 38.) represent the Ecliptic; and let the Centre of the Shadow be in A: Thro' which draw a right Line G A, perpendicular to D C: And suppose D the East, C the West, A the South, and G the North.

2. From A, with the Interval of the Aggregate A N, of the Semi-diameter of the Shadow A P, and of the Moon P N, describe a Circle D G C Q; and with the Interval of the Semi-diameter of the Shadow A P, draw another Concentric Circle E M F R, which will exhibit the Section of the Shadow in the Passage of the Moon.

3. Let A L be equal to the Latitude of the Moon at the Beginning of the *Eclipse*; and in L erect a perpendicular L N, meeting the greater Circle in N, towards the West. Then will the Centre of the Moon, at the Beginning of the *Eclipse*, be in N.

4. After like Manner, make A S equal to the Latitude of the Moon at the End of the *Eclipse*; and in S, erect a perpendicular O S, parallel to D C: Then will the Centre of the Moon be in O, at the End of the *Eclipse*.

5. Connect the Points O and N by a right Line: O N will be the Arch of the Orbit, which the Centre of the Moon describes during the *Eclipse*.

6. From O and N, with the Interval of the Moon's Semi-diameter, describe Circles P V and T X, which will exhibit the Moon at the Beginning and End of the *Eclipse*.

7. Then, from A, letting fall a perpendicular A I to O N; the Centre of the Moon will be in I, in the Middle of the Darkness.

Wherefore, lastly, from I, with the Interval of the Moon's Semi-diameter, describe a Circle H K: This will represent the Mnon in its greatest Obscurity, and at the same Time the Quantity of the *Eclipse*: The Circle P N T, *&c.* terminating the Shade.

Eclipse *of the Sun*, is an Occultation of the Sun's Body, occasion'd by a diametrical Interposition of the Moon between the Sun and the Earth. See Sun.

It is distinguished, like that of the Moon, into *Total* and *Partial*, &c. to which must be added a third Species called *Annular*.

Eclipses of the Sun, some Authors observe, should in Propriety be called *Eclipses of the Earth*. See Earth.

As the Moon is found to have a Parallax of Latitude; *Eclipses* of the Sun only happen when the Latitude of the Moon, viewed from the Sun, is less than the Aggregate of the apparent Semi-diameter of the Sun and Moon. *Solar Eclipses*, therefore, happen when the Moon is in Conjunction with the Sun, in, or near the Nodes, *i. e.* at the new Moons. Consequently, the memorable *Eclipse of the Sun*, at our Saviour's Passion, happening at the Time of full Moon, when the Sun and Moon are in Opposition, was preternatural. See Conjunction, Opposition, *&c.*

Tho' the New Moon cover the Sun from the Earth, yet is not there an *Eclipse* every new Moon; by Reason the Moon's Way is not precisely under the Ecliptic, but placed obliquely thereto; only intersecting it twice in every Period. So that *Eclipses* can only be occasion'd in such new Moons, as happen in these Intersections or *Nodes*, or very near them.

In the *Nodes*, when the Moon has no visible Latitude, the Occultation is *Total*: and with *some Continuance*, when the Disk of the Moon, in *Perigæo*, appears greater than that of the Sun in *Apogæo*, and its Shadow is extended beyond the Surface of the Earth; and, *without Continuance*, at moderate Distances, when the Cusp, or Point of the Moon's Shadow, barely touches the Earth. Lastly, out of the Nodes, but near them, the *Eclipses* are partial.

Further, when the Moon, being in her Apogee, appears much less than the Sun; as happens most sensibly, when he is in *Perigæo*: the Cusp of the Lunar Shadow not reaching the Earth, she becomes in a Central Conjunction with the Sun, yet not able to cover his Disk; but lets his whole Limb appear like a lucid Ring or Bracelet: hence called an *Annular Eclipse*.

The other Circumstances of *Solar Eclipses*, are,

1. That none of them are universal; that is, none of them are seen throughout the whole Hemisphere, which the Sun is then above; the Moon's Disk being much too little, and much too near the Earth, to hide the Sun from the Disk of the Earth, which is fifteen Times bigger than it.

2. Nor does the *Eclipse* appear the same in all Parts of the Earth, where it is seen; but when in one Place it is Total, in another it is Partial.

3. It does not happen at the same Time, in all Places where it is seen; but appears more early to the Western Parts, and later to the Eastern.

4. Its Beginning is always on the Western Side the Sun, and on the same Side it ends.

5. In most *Solar Eclipses*, the Moon's darken'd Disk is cover'd with a faint, dawning Light; which is commonly attributed to the Reflexion of the Light, from the illuminated Part of the Earth.

Lastly, In Total *Eclipses* of the Sun, the Moon's Limb is seen surrounded by a pale Circle of Light; which the late Astronomers take for a manifest Indication of a *Lunar* Atmosphere. See Atmosphere.

The Astronomy of Eclipses *of the Sun.*

To determine the Bounds of a *Solar Eclipse*.

If the Moon's Parallax were insensible, the Bounds of a *Solar Eclipse* would be determined after the same Manner as those of a *Lunar*: But by Reason here is a sensible Parallax, we must alter our Measures a little, *viz.*

1. Add the apparent Semi-diameters of the Luminaries both in *Apogæo* and *Perigæo* together.

2. Since the Parallax diminishes the Northern Latitude; to the former Sum, add the greatest Parallax of Latitude possible: And since the Parallax augments the Southern Latitude, from the same Sum, substract the greatest Parallax of Latitude. Thus, in each Case, will you have the true Latitude, beyond which there can be no *Eclipse*.

This Latitude given, the Moon's Distance from the Nodes, beyond which *Eclipses* cannot happen, is found, as already directed for *Lunar Eclipses*.

As different Authors follow very different Hypotheses, with Regard to the apparent Diameters of the Luminaries, and the greatest Parallax of Latitude; they differ much in assigning the Bounds at which *Solar Eclipses* happen. *Ptolomy*, makes the utmost Bound of *Eclipses* at $19°\ 25'$, Distance from the Node; *Copernicus*, at $19°\ 12'$; *Tycho*, at $18°\ 25'$; *Kepler*, at $17°\ 16'$; *Ricciolus*, at $18°\ 49'$. Tho' *Ptolomy*, in other Places, judges $16°\ 42'$ Minutes distance from the Node, necessary; *Copernicus*, $16°\ 25'$; *Tycho*, $17°\ 9'$; *Kepler*, $15°\ 55'$; and *Ricciolus*, $15°\ 58'$.

To find the Digits Eclipsed.

Add the apparent Semi-diameters of the Luminaries into one Sum: From which substract the Moon's apparent Latitude, the Remainder is the Scruples, or Parts of the Diameter *Eclipsed*. Then say, as the Semi-diameter of the Sun is to the Scruples *Eclipsed*; so are 6 Digits reduced into Scruples, or 360 Scruples, to the Digits *Eclipsed*.

To find the Scruples of half Duration, or the Line of Immersion.

The Method is the same as that deliver'd for *Lunar Eclipses*.

To

To determine the Duration of a Solar Eclipse.

Find the Horary Motion of the Moon from the Sun, for one Hour before the Conjunction, and another Hour after: Then say, as the former Horary Motion is to the Seconds in an Hour, so are the Scruples of half Duration to the Time of Immersion: And as the latter Horary Motion is to the same Seconds, so are the same Scruples of half Duration to the Time of Emersion. Lastly, adding the Time of Immersion to that of Emersion; the Aggregate is Total Duration.

To determine the Beginning, Middle, and End of a Solar Eclipse.

From the Moon's Latitude, for the Time of Conjunction; find the Arch I L, (*Fig.* 35.) or the Distance of the greatest Obscurity. Then say, as the Horary Motion of the Moon from the Sun, before the Conjunction, is to 3600 Seconds of an Hour; so is the Distance of the greatest Darkness, to the Interval of Time between the greatest Darkness and the Conjunction.

Substract this Interval, in the first and third Quarter of the Anomoly, from the Time of the Conjunction; and in the other Quarters, add it to the same; the Result is the Time of the greatest Darkness. Lastly, from the Time of the greatest Darkness, substract the Time of Incidence, and add it to the Time of Emersion; the Difference, in the first Case, will be the Beginning; and the Sum, in the latter Case, the End of the *Eclipse*.

Indeed, as the Interval between the Conjunction, and the greatest Obscurity is very small, and exceedingly precarious; 'tis scarce worth while to be so very precise; and, accordingly, many Authors use the Time of the apparent Conjunction for that of the greatest Darkness.

E. gr. in our Case,			
Time of Conjunction	21^h	36′	59″
Time of Incidence	1	2	36
Beginning of *Eclipse*	20	34	23
Or	8^h Morn.	34	23
Time of Conjunction	21	36	59
Time of Emergence	1	5	47
End of *Eclipse*	22^h	42	46
Or	10 Morn.	42	46

Or, if you wou'd determine it with more Accuracy, substract about two Minutes for the Distance between the Conjunction seen, and the Time of the greatest Obscurity.

To find the Moon's apparent Latitude at the Beginning and End of an Eclipse.

From the Argument of the Moon's Latitude, computed for the Time of the apparent Conjunction, Substract the Scruples of half Duration, together with the Motion of the Sun, answering to the Time of Incidence: The Remainder, is the Argument of Latitude, at the Beginning of the *Eclipse*.

To the same Sum add the same Scruples, together with the Sun's Motion answering to the Time of Emergence: The Aggregate is the Argument of Latitude, at the End of the *Eclipse*. The Argument of the Latitude given; the Moon's true Latitude is found after the common Manner. (See LATITUDE.) And from the true Latitude, the apparent one.

The apparent Latitude of the Moon, at the Beginning and End of a Solar Eclipse, given; to draw a Type or Figure thereof.

This is perform'd, as already taught for *Eclipses* of the Moon.

To calculate an ECLIPSE *of the Sun.*

1. Find the mean New Moon, and thence the true one; together with the Place of the Luminaries for the apparent Time of the true one.

2. For the apparent Time of the true new Moon, compute the apparent Time of the new Moon observed.

3. For the apparent Time of the new Moon seen, compute the Latitude seen.

4. Thence, determine the Digits *Eclipsed*.

5. Find the Time of the greatest Darkness, Immersion, and Emersion.

6. Thence determine the Beginning, and Ending of the *Eclipse*.

From the preceding Problems, it is evident, that all the Trouble, and Fatigue of the Calculus, arises from the Parallaxes of Longitude and Latitude; without which, the Calculation of *Solar Eclipses* would be the same with that of *Lunar* ones.

ECLIPSES *of the Satellites.* See SATELLITES *of Jupiter.*

The chief Circumstances here observed are,

1. That the Satellites of *Jupiter* undergo two or three Kinds of *Eclipses*; whereof, the first are proper, being such as happen when *Jupiter*'s Body is directly interposed between them and the Sun: These happen almost every Day. Mr. *Flamsteed* and *Cassini*, give us Tables, wherein their Immersions into *Jupiter*'s Shadow, and Emersions again, are computed to Hours and Minutes.

The 2d are Occultations, rather than Obscurations; wherein the same Satellites, coming too near to *Jupiter*'s Body, are lost in his Light: Which *Ricciolus* calls *occidere Zeusiace*, setting Jovially. In which Case, *Jupiters* nearest Satellite exhibits a third Kind of *Eclipse*; being observed like a Macula, or dark round Spot, transiting *Jupiter*'s Disk, with a Motion contrary to that of the Satellite: Just as the Moon's Shadow projected on the Earth, will appear to do, to the Lunar Inhabitants.

The *Eclipses* of *Jupiter*'s Satellites furnish the best Means of finding the Longitude at Sea. Those, particularly, of the first Satellite, are much surer than the *Eclipses* of the Moon; and withal happen much oftener: Beside that, the Manner of applying them is very easie. See LONGITUDE.

ECLIPTIC, *Eclipticus*, something belonging to *Eclipses*. See ECLIPSE.

All new and full Moons are not *Ecliptic*, i. e. Eclipses don't happen every new and full Moon, tho' there be then an Interposition, either of the Earth between the Sun and Moon, or of the Moon between the Sun and Earth. The Reason is, that the Interposition is only as to Longitude, and not as to Latitude. The Sun is always in the *Ecliptic*, but the Moon is not; she deviates from it about five Degrees, sometimes on the North Side, and sometimes on the South. But every five Months, or thereabouts, she cuts the *Ecliptic*; and 'tis only about those Times, that there can be Eclipses either of the Moon or Sun.

The Places, wherein she cuts the *Ecliptic*, are called the *Nodes* of the Moon. See NODES.

ECLIPTIC *Bounds*, or *Terms*, *Termini Ecliptici*; is the Space of about 15 Degrees from the Nodes of the *Ecliptic*; within which, if the Moon be, at the Time of a Conjunction or Opposition with the Sun, there may be an *Eclipse* of the Sun, or Moon, tho' she be not precisely in the Nodes. See ECLIPSE.

ECLIPTIC Digits, *Digiti Ecliptici*. See DIGITS.

ECLIPTIC, in Astronomy, is particularly used for a Line, or Circle, on the Surface of the Sphere of the World, under which the Centre of the Sun proceeds in its proper Motion: Or a Line, with the Sun's Centre, describes in his annual Progress. See CIRCLE, SUN, *&c.*

It has its Name *Ecliptic*, by Reason all Eclipses happen when the two Planets are in or near the Nodes, or Intersections of the *Ecliptic*. See ECLIPSE.

It is also called the *Sun's Orbit*, and *Sun's Way*, by Reason the Sun never deviates from it, in his annual Motion from East to West. See ORBIT.

The North, or ascending Node of the *Ecliptic*, is called the *Dragons-Head*, and the South, or descending Node, the *Dragons-Tail*. See DRAGON, *&c.*

The *Ecliptic* is placed obliquely with Respect to the Equator, and cuts it in two Points, *viz.* the Beginnings of *Aries* and *Libra*, or into two equal Parts; and, accordingly, we find the Sun twice every Year in the Equator: And all the rest of the Year, either on the North or South Side thereof. See EQUINOCTIAL.

The *Ecliptic* is a great Circle of the Sphere, bissected by the Horizon; consequently, the Arch of the *Ecliptic*, intercepted between the Horizon and the Meridian, is a Quadrant. And again, the *Solstitial Points* of the *Ecliptic*, i. e. those most remote from the Equator, are a Quadrant distant from the Equinoctial ones. Lastly, as the greatest Declination of the *Ecliptic*, from the Equator, is an Arch of a great Circle distant by a Quadrant from the Equinoctial Points; it will be the Measure, or Quantity of the *Obliquity of the Ecliptic*, i. e. of the Angle form'd by the Intersection of the Equator with the *Ecliptic*. See SPHERE.

The Obliquity of the Ecliptic, or the Angle wherein it cuts the Equator, is usually fix'd at 23° 30′; which, therefore, is the greatest Declination of the *Ecliptic* from the Equator: The Points of which greatest Declination on each Side, are called the *Solstitial Points*; thro' which are drawn the two Tropicks. See SOLSTITIAL and TROPIC.

The Method of observing the greatest Declination of the *Ecliptic* is thus: About the Time of one of the Solstices observe the Sun's Meridian Altitude with the utmost Care, for several Days successively: From the greatest Altitude observ'd, substract the Height of the Equator. The Remainder is the greatest Declination in the Solstitial Point.

Ricciolus, e. gr. at *Boulogne*, in the Year 1646, observed the Sun's Meridian Altitude, on the 20th of *June*, to be

be 68° 59′ 55″; on the 21st, 69° 0′ 10″; and on the 22d, 68° 59 55″. The greatest then was, 69° 0′ 10″; from which the Height of the Equator 45° 29′ 50″, being substracted, left 23° 30′ 20″ for the greatest Declination.

It has been Matter of great Dispute among the late Astronomers, whether the *Obliquity of the Ecliptic* be fix'd or moveable.

'Tis certain, the Observations of the antient Astronomers represent it considerably greater, than those of the Moderns: Whence *Purbachius*, *Reinholdus*, *Regiomontanus*, *Copernicus*, *Rheticus*, *Longomontanus*, *Tycho*, *Snellius*, *Lansbergius*, *Bullialdus*, and others, have concluded it variable.

To determine the Point, the Observations of the Astronomers of all Ages, have been collected together; the chief of which are: That of *Pytheas*, in the Year before Christ 324, which makes it 23° 52′ 41″: That of *Eratosthenes*, in 230, 23° 51′ 20″: And that of *Hipparchus*, in the Year before Christ 140, 23° 51′ 20″: That of *Ptolomy*, in the Year after Christ 140, 23° 51′ 20″: Of *Albategnius* in 880, 23° 25′: *Regiomontanus*, in 1460, 23° 30′: *Waltherus*, in 1476, 23° 30′: *Copernicus*, in 1525, 23° 28′ 24″: *Rothmannus* and *Byrgius*, in 1570, 23° 30′ 20″: *Tycho*, in 1587, 23° 30′ 22″: *Kepler*, in 1627, 23° 30′ 30″: *Gassendus*, in 1636, 23° 31′: *Ricciolus*, in 1646, 23° 30′ 20″: *Hevelius*, 23° 30′ 20″: *Mouton*, 23° 30′: And *De la Hire*, in 1702, 23° 29′.

Upon the whole, tho' the oldest Observations make the Obliquity the greatest, yet it appears to be immutable: For it was by Mistake that *Eratosthenes* concluded, from his Observations, the greatest Declination to be 23° 51′ 20″: From the same Observations he should only have made it 23° 31′ 5″; as is shewn by *Ricciolus*. And the like oversight has been found by *Gassendus* and *Peirescius* in the Observations of *Pythias*; which Mistakes of *Eratosthenes* and *Pythias* were retain'd by *Hipparchus* and *Ptolomy*: And gave Occasion to the forementioned Authors to conclude that the Obliquity was continually decreasing.

Yet Mons. *le Chevalier de Louville*, who has consider'd the Merits of the Cause with infinite Attention, is of another Sentiment: The Result of his Researches, he gives us in the Memoirs of the Royal Academy, for the Year 1717, *viz.* that the Obliquity of the *Ecliptic* diminishes at the Rate of a Minute in 100 Years. The Antients, we know, had no Regard to any Refractions in their Observations: And besides, made the Sun's Horizontal Parallax 3′; whereas the modern Astronomers scarce make it 10″. These two Inaccuracies have a very ill Effect on their Observations; which M. *de Louville* is obliged to free them of, e're he can build on them.

According to an antient Tradition of the *Egyptians*, mention'd by *Herodotus*, the *Ecliptic* had antiently been perpendicular to the Equator: This Notion they were led into, by observing, for a long Series of Years, that the Obliquity was continually diminishing; or which amounts to the same, that the *Ecliptic* was continually approaching to the Equator. For hence they took Occasion to suspect that those two Circles, in the Beginning, had been as far off each other as possible. *Diod. Siculus* relates, that the *Chaldeans* reckon'd 403000 Years from their first Observations to the Time of *Alexander*'s entring *Babylon*. This enormous Account, may have some Foundation, supposing the *Chaldeans* to have built on the Diminution of the Obliquity of the *Ecliptic* of a Minute in 100 Years. M. *de Louville*, taking the Obliquity such as it must have been at the Time of *Alexander*'s Entrance into *Babylon*, and going back to the Time when the *Ecliptic*, at that Rate, must have been perpendicular to the Equator, actually finds 402942 *Egyptian*, or *Chaldean* Years, which is only 58 Years short of the former *Epocha*. In the general, there is no Way of accounting for the fabulous Antiquity of the *Egyptians*, *Chaldeans*, &c. so probable, as by long Periods of very slow Cœlestial Motions, whereof they had observed a little Part, and thence calculated the Beginning of the Period; making the World and their own Nation to commence together. If M. *de Louvilles* System be true, in 140000 Years more, the *Ecliptic* and Equator must coincide and mix in one.

The *Ecliptic* is divided into twelve Parts, called *Signs*. See Sign.

Ecliptic, in Geography, &c. is a great Circle of the Globe, cutting the Equator under an Angle of 23° 29′. See Globe.

The *Terrestrial Ecliptic*, therefore, is in the Plane of the *Cœlestial Ecliptic*; Like which it has its *Equinoctial* and *Solstitial* Points, and is bounded by *Tropicks*. See Equator, Solstitial, Equinoctial, Tropic, &c.

ECLOGUE, in Poetry, a Kind of pastoral Composition, wherein Shepherds are introduced conversing together. See Pastoral.

The *Eclogue* is properly an Image of the Pastoral Life: Nor do we see what Finesse it was that determined *Sannazarius* to put Fishermen in lieu of Shepherds, who had been Time out of Mind in Possession of the *Eclogue*.

The Beauty of the *Eclogue*, Mons. *Fontenelle* observes, is not attach'd to Rural Things, but rather to what is calm and easy in the Country Life. Shepherds being agreeable Personages, the Poets abuse them; and provided they do but talk a little about Reeds, and Herbage, they conclude on Course 'tis an *Eclogue*.

There are *Eclogues* in *Theocritus* of a lofty Character; and *Virgil* has some in the sublime Style. The *Eclogue*, therefore, occasionally raises its Voice. Yet M. *Fontenelle* esteems it a Fault in some modern Poets, to have put Matters of high Concern in their *Eclogues*; and to have made their Shepherds sing the Praises of Kings and Heroes. *Ronsard*, in particular, has made himself ridiculous, by making the Eloge of *Budeus* and *Vatable* in his first *Eclogue*, by the Shepherd *Margot*. Such Folks should have been above the Knowledge of simple *Margot*.

The Sentiments, whereof *Eclogues* consist, the same Author observes, should be finer and more delicate than those of real Shepherds: Only, their Form should be as simple, and Country-like as can be. But this Simplicity excludes none but glaring and excessive Ornaments.

Since the Establishment of the Academy, or Assembly of *Arcadians* at *Rome*, about the Year 1690; the Taste for *Eclogues* has been greatly improved among the *Italians*. Those Gentlemen, who are the Flower of the Wits of *Italy*, take the Name of the Shepherds of *Arcadia*; and will not allow their Assembly to be treated as an Academy. They have each of them a poetical Name, which is always that of some Shepherd; and apply themselves particularly to *Eclogues*, as Pieces most proper to their Profession.

The learned *Sig. Crescentini*, one of the Founders of the Assembly, who had long been Custos, *i. e.* the President thereof, and bore the Name of *Alphesibæo Cario*, has wrote the Laws and Establishment of the Society, with the Names of all who had been admitted thereof, at the End of his Book, entitled, *la Bellezza de la Volgar Poesie*.

The Word *Eclogue*, is form'd from the *Greek* εκλογή, *Choice*. According to the Etymology of the Word, therefore, *Eclogue* should be no more than a choice Piece; but Custom has determined it to a farther Signification, *viz.* a little, elegant Composition in a simple, natural Style and Manner.

Idyll and *Eclogue*, in their primary Intention, are the same Thing: Thus, the *Idylls*, εἰδύλλια of *Theocritus*, are Pieces wrote perfectly in the same Vein with the *Eclogæ* of *Virgil*.

But Custom has made a Difference between them, and affected the Name *Eclogue*, to Pieces wherein Shepherds are introduced speaking; *Idyll*, to those wrote like the *Eclogue*, in a simple, natural Style, but without any Shepherds in them. See Idyll.

Some imagine the Name *Eclogue*, to have been originally attributed to such Poems, as were wrote in Imitation of others; such as the *Eclogues* of *Virgil*, which are only Imitations of *Theocritus*.

Others are of Opinion, the Word was first form'd from αἴξ αἰγὸς, *Goat*, and λογὸς, *Discourse*, q. d. a Conversation or *Discourse* of *Goats*, or *Goat-herds*. But *Fa. Ruæus*, in his Comments on *Virgil*, thinks, they would then have made it Αἰγολογία, *Ægology*, rather than *Eclogue*; or, at least, the Word would have been wrote in *Greek* by *αι*, and in *Latin* by *æ*, not *c*.

Barthius advances another Opinion, *viz.* that the Name *Eclogue*, was given to all Poetical Compositions that were of a moderate Length, tho' too short to give them the Name of *Books*; and hence it is, that *Statius*, in the Epistle at the Head of the IIId Book of his *Sylvæ*, and in the Preface to his fourth Book, calls his Poems *Eclogues*; tho' he had not call'd them so in the Title.

Ausonius, in the Preface to his *Cupid crucified*, calls also his *Idylls*, *Eclogues*. Add, that *Crucius*, in his Comment on *Horace*, declares to have seen very antient Manuscripts, wherein the Satyrs of the Poet are called *Eclogues*; in which he is seconded by our learned Countryman Mr. *Baxter*.

Eclogue, is also applied to other Compositions beside those of Poetry.

Thus, we sometimes read of the *Eclogues* of *Diodorus*, of *Polybius*, of *Ctesius*, *Theophrastus*, *Strabo*, &c. In which Sense it only signifies *Extract*, or *Collection*; whence the Name.

ECLOGARIUS, *Eclogary*, a learned Man, who has made Abundance of Extracts from Authors. *Justus Lipsius*, the Jesuite *Petavius*, *Vossius*, *Selden*, and *Grotius*, must have been great *Eclogaries*.

ECPHORA, *Projecture*, in Architecture, is usually the Line, or Distance, between the Extremity of a Member, or Moulding, and the Naked of the Column, or other Part it projects from.

Some Authors, however, account the *Ecphora* from the Axis of the Column; and define it to be the right Line intercepted between the Axis, and the outermost Surface of a Member or Moulding. See PROJECTURE.

ECPHRACTICKS, in Medicine, such Remedies as have a Faculty of opening, and unstopping the Vessels, through which the Humours are to pass: Or which incide, and attenuate tough, viscid Humours, and thereby promote their Discharge. The same with APPERIENTS and DEOBSTRUENTS.

The chief simple *Ecphracticks*, are the little *Centaureum*, *Wormwood*, *Agremony*, *Hyssop*, *Chamædris*, Bark of *Tamarisk*, Roots of *Capers*, *Scolopendrium*, &c.

The Word is form'd from the *Greek* εκφρασσειν, *to free from Obstruction*; of εκ and φρασσω, *obstruo*, *sepio*.

ECPIESMA, in Chirurgery, a Kind of Fracture of the Skull, &c. wherein there are several Splinters, that press and disorder the inner Membranes. See FRACTURE.

The Word is pure *Greek*, εκπιεσμα.

ECTHESIS, in Church History, a Name the Emperor *Heraclius* gave to a Confession of Faith publish'd by him in 639. See FAITH.

The *Ecthesis* favour'd the Error of the *Monothelites*; and establish'd only one Will in *Jesus Christ*. *Heraclius* publish'd it at the Instigation of *Athanasius*, Chief of the *Jacobites*, *Cyrus*, Patriarch of *Alexandria*, and *Sergius*, Patriarch of *Constantinople*: But finding that the *Roman* Church esteem'd it Heretical, he disown'd it, and declared by another Edict, which he spread throughout the East and West, that *Sergius* was the Author of the *Ecthesis*.

The Word is *Greek*, εκθεσις, and signifies *Exposition*.

ECTHLIPSIS, *Elision*, in Grammar, a Figure whereby an *m* is retrench'd, or cut off, at the End of a Word; for the Sake of the Measure of the Verse. See FIGURE.

The Word is *Greek*, εκθλιψις, which signifies *Elision*.

Thus, in *multum ille*, &c. In scanning the Verse, we drop the *m*, at the End of *multum*, and only make three Syllables in the two Words.

Some account the *Ecthlipsis*, a Poetical Licence in the *Latin* Versification: But, in Reality, the *Elision* of an *m* final, when the following Word, in the same Verse, begins with a Vowel, is of Necessity, not of Licence.

Antiently, the *s* was likewise retrenched before a Consonant; as *facundu suoque*, for *facundus*, &c. In Effect, the *m* and *s*, were peculiarly rough and harsh in the *Latin* Pronunciation; as appears from *Quintilian*. And 'twas this led the Poets to retrench them at the Ends of their Words; as the like Cause did the *French*, to drop their *e* Feminine before a Word, beginning with a Vowel, and us to avoid a Hiatus, or Concourse of Vowels.

ECTHYMOSIS, in Medicine, a vehement Agitation and Dilatation of the Blood; such as happens in extraordinary Emotions of Joy.

The Word is form'd of εκ *ex*, and θυμος, *Animus*, *Mind*.

ECTROPIUM, in Medicine, a Disease of the Eyes, consisting in a Sort of Inversion of the lower Eye-lid, which disables it from covering its Part of the Eye. See PALPEBRÆ.

The Word is *Greek*, εκτροπιον.

ECTYLOTICKS, Remedies proper to consume, and eat off Callus's, Warts, and other Excrescences, form'd on the Flesh. See CALLUS, &c.

The Word is form'd of εκ and τυλος, *Callus*.

ECTYPE, ECTYPUS, among Medallists, an Impression of a Seal, Ring, or Medal; or a figured Copy of an Inscription, or other ancient Monument.

In the Books of Travels, we find Abundance of *Ectypes* of antient Inscriptions, of the *Trajan* Column, of *Chilminar*, &c.

The Word is *Greek* αρχετυπον, is the Original, or Model, εντυπον, the Copy, or Image, moulded or struck in *Creux*: And ἐκτυπον, *Ectypon*, the Image *in relievo*, or embossed. See TYPE.

ECU, the *French* Crown. See CROWN.

ECUSSON, in Heraldry, an Inescutcheon, or little Escutcheon. See ESCUTCHEON.

EDDISH, or EADISH, is the latter Pasture, or Grass, that comes after mowing, or reaping; and is otherwise called *Eagrass*, *Earsh*, and *Etch*.

EDDY, in Natural History, is when the Water, at any Place, runs back, contrary to the Tide, or Stream, and so falls into the Current again.

The Sea-men call that *Eddy-Water* which falls back, as it were, on the Rudder of a Ship under Sail, the *Dead Water*. An *Eddy Wind*, is that which returns, or is beat back from any Sail, &c.

EDGINGS, in Gardening, Rows of Shrubs, or Plants, placed by Way of Borders, around Beds, Compartiments, &c.

For the *Edgings* of Compartiments, Box seems the most proper. But they are frequently made of Aromatic Plants, as Sage, Sweet Marjoram, Thyme, Lavender, Hyssop, &c.

EDHILING, *Edhilingus*, an ancient Name of the Noblesse among the *Anglo-Saxons*.

The *Saxon* Nation, says *Nithard*, *Hist. L.* IV. is divided into three Orders, or Classes of People; the *Edilingi*, the *Frilingi*, and the *Lazzi*: Which signifie the Nobility, the Freemen, and the Vassals or Slaves.

Instead of *Edhiling*, we sometimes meet with *Adeling*; which Appellation is likewise given to the King's Son, and the presumptive Heir of the Crown.

EDICT, an Instrument sign'd and seal'd by a Prince, to serve as a Law to his Subjects. See LAW.

Edicts have no Room in *England*, where the enacting of Laws is not lodg'd in the King, but in the Parliament.

In the *Roman* Law, we find frequent mention of the *Edict of the Prætor*, *quod Prætor edixit*, which was a Phrase consecrated to the Ordinances of the Prætor; tho' it was used on other Occasions. See PRÆTOR.

In the *French* Law, Edicts, *Edits*, make a great Figure: They are of various Kinds; some importing a new Law, or Regulation, as the *Edict* of Duels, of second Marriages, &c. Others the Erection of new Offices, Establishments of Duties, Rents, &c. Sometimes Articles of Pacification, as the *Edict* of *Nantz*, &c.

Edicts are all seal'd with green Wax, to shew that they are perpetual and irrevocable.

Edicts with them, are much the same as Proclamations with us; but with this Difference, that the former hath solely the Authority of a Law in it self, from the Power issuing it forth; whereas the latter is only the Declaration of a Law, to which it refers, and hath no Power in it self.

EDIFICE, a *Building*. See BUILDING.

The Word is form'd of the *Latin*, *Ædes*.

EDILE, or ÆDILE, ÆDILIS, in Antiquity, a *Roman* Officer, whose Function came near to that of our Mayors.

The *Ædiles* had the Care and Superintendence of public and private Buildings, of Baths, Aquæducts, Roads, Bridges, Causeways, &c. The Weights, and Measures, were likewise under their Direction.

They fix'd the Rates of Provisions, and took Care the People were not exacted on therein. The Inquiry and Cognizance of Debauches, and Disorders in public Houses, likewise belong'd to them: They were to revise Comedies; and it belong'd to them to treat the People with grand Games and Spectacles at their own Expence.

All these Functions, which render'd the *Edility* so considerable, belong'd at first to the *Ediles* of the People, *Ædiles Plebeii*, or *Minores*. These were only two in Number; and were first created in the same Year as the Tribunes: For the Tribunes, finding themselves oppress'd with the Multiplicity of Affairs, demanded of the Senate to have Officers, whereon they might discharge themselves of Affairs of less Importance; and, accordingly, two *Ediles* were created. And hence it was, that the *Ediles* were elected every Year, at the same Assembly as the Tribunes. See TRIBUNE.

But these *Plebeian Ediles*, having refused, on a signal Occasion, to treat the People with Shews; as pleading themselves unable to support the Expence thereof: The *Patricians* made an Offer to do it, provided they would admit them to the Honours of the *Edility*.

On this Occasion, there were two new *Ediles* created, of the Number of the *Patricians*, in the Year of *Rome* 388. They were called *Ædiles Curules*, or *Majores*, as having a right to sit on a *Curule* Chair, enrich'd with Ivory, when they gave Audience; whereas the *Plebeian Ediles*, only sat on Benches. See CURULE.

Beside that the *Curule Ediles* shared all the ordinary Functions with the *Plebeians*, their chief Employ was, to procure the Celebration of the grand *Roman* Games, and to exhibit Comedies, Shews of Gladiators, &c. to the People.

To ease these four first *Ediles*, *Cæsar* created a new Kind, called *Ediles Cereales*, as being deputed chiefly to take Care of Corns, which were called *Dona Cereris*; for the Heathens honour'd *Ceres* as the Goddess who presided over Corn, and attributed to her the Invention of Agriculture. These *Ædiles Cereales*, were also taken out of the Order of *Patricians*.

In the Municipal Cities there were *Ediles*, with the same Authority as at *Rome*.

The Word is form'd of *Ædes*, on Account of their having the Care of Temples, Houses, &c.

EDITOR, in the Common-wealth of Learning, a Person who takes the Care of publishing the Work of another Author;

Author; usually, of an antient Author: For *Editor* is neither properly applied to a working Printer, nor to an Author who prints his own Works.

Erasmus, was a mighty *Editor* of antient Writings. The *Lovain* Doctors, *Scaliger*, *Petavius*, *Fa. Sirmond*, Bishop *Walton*, Mr. *Hearn*, &c. are learned *Editors*.

EDUCATION, the Art of bringing up, forming, and instructing Children.

The Follies of a too delicate *Education*, are well express'd in that Devise of an Ape, which by over caressing and hugging its young ones, strangles them; with the Motto, *Complectendo necat*.

Octavius Ferrarius, has a very good *Latin* Treatise on the Subject of *Education*, entitled *Chiron*; the Name of the Centaur who was *Achilles*'s Tutor.

Mr. *Lock*'s excellent Treatise of *Education*, is known to every Body. *Quintillian* employs the second Chapter of his first Book, in enquiring whether a Domestic, or a College *Education*, be preferable, *i. e.* whether it be better to bring up ones Children at Home, or to send them to the Colleges, and public Schools. After urging all that can be said on either Side, he concludes for a College, or School *Education*.

EDULCORATION, in Pharmacy, is the *dulcifying*, or *sweetening* of any Remedy, by Means of Sugar, or Syrups. See DULCIFYING.

EDULCORATION, in Chymistry, is the *sweetening*, or purging any Thing of its Salts, *&c.* by repeated Lotions, or Washings in cold Water: *E. gr.* the freeing of Precipitates of Mercury, Metals, *&c.* of the sharp Salts by Means whereof they had been dissolved; or which had been mingled with them, to effect a Dissolution. See ABLUTION.

EFFARE, or EFFRAYE, in Heraldry, a Term applied to a Beast, when rearing on its hind Legs, as if it were affrighted.

EFFECT, the Result, or Consequence, of the Application of a Cause, or Agent, on some Subject. See CAUSE.

'Tis one of the great Axioms of Philosophy, that *Effectus pleni*, whole or adequate *Effects*, are always proportionable to the Powers of their Causes.

The Term is also of somewhat further Import in the Arts: As when we say, in Painting and Architecture, that such a Contrast, or such a Drapery, or such an Attitude, have a *fine*, or an *ill Effect*, i. e. are beautiful, or noble, *&c.* Too many Breaks, and little Enrichments in a Building, have a pitiful *Effect*, i. e. give it a mean Aspect.

In the Manage, *Effect* is applied to the Motions of the Hand, which direct the Horse.

They distinguish four *Effects* of the Hand, *viz.* in using the Bridle to put a Horse forwards, draw him backwards, and shifting it out of the right Hand into the left, or *vice versa*.

EFFECTS, in Commerce, *&c.* are the Goods possess'd by any Person, whether moveable or immoveable: particularly those which Merchants and Dealers, acquire by Trade. The *Effects* of Merchants are usually distinguished into three Classes, good, bad and doubtful. By an Ordonnance of the *French* Court in 1673, every Merchant is obliged to take an Inventory, or Review, every Year, of all his *Effects* of all Kinds.

EFFECTIONS, in Geometry, the Geometrical Constructions of Propositions. See CONSTRUCTION.

The Term is also used in Reference to Problems and Practices; which when they are deducible from, or founded upon, some general Propositions, are called the *Geometrical Effections* thereto belonging.

EFFERVESCENCE, is popularly used for a light *Ebullition*, or a strong intestine Motion, produced in a Liquor, by the first Action of Heat, without any notable Separation of its Parts. See EBULLITION.

Such a Liquor must be heated to a slight *Effervescence*.

EFFERVESCENCE, in Physicks, Chymistry, &c. is not applied to any Ebullitions, or Motions produced by Fire; but only to those resulting from the Mixture of Bodies of different Natures, which by their acting on one another, occasion a Heat, or at least an Agitation of Parts, resembling the Ebullition, or boiling produced by Fire.

Acids mix'd with Alkalies, *e. gr.* Oil of Tartar, and Spirit of Vitriol, produce an *Effervescence*, &c.

Chauvin defines *Effervescence* more scientifically, to be a violent Expulsion of the Air, out of the Pores of the Particles of one Body, by the Intrusion of the Particles of another Body mix'd therewith, into those Pores before possess'd by Air.

In Order for *Effervescence* to take Place, the Particles of the latter Body must be supposed conformable, both in Bulk and Figure, to the Pores of the other; so as they may enter, and fill the same, like Wedges: And beside, a strong Degree of Attraction between the Particles of the two Bodies, stronger than the Attraction, or Force of Cohesion, between the Particles of either of the Bodies alone. See ATTRACTION.

Hence it should seem, that *Effervescence* only differs from Fermentation, in the Degree of Explosion; which in *Effervescences*, by Reason of the greater Purity and Freedom of the Acid and Alkali, is greater than in Fermentations. See FERMENTATION.

Of *Effervescences*, some are *hot*, and others *cold*. Of the first Kind, are those produced by the Mixture of Oil of Tartar *per deliquium*, with Spirit of Vitriol; Quicklime with cold Water; all acid Spirits, with alcaline, or earthy Bodies; *Aqua fortis*, Spirit of Vitriol, Spirit of Nitre, *Aqua Regia*, &c. with all Metallic Bodies, Marcasites and Minerals; Coral, with Lemon, or Orange Juice; Marble with Spirit of Salt; Hartshorn, Chalk, Boars Tooth, Crabs Eyes, Mother of Pearl, and all Shells with Acids. In all which, the *Effervescences* are attended with a pretty intense Heat. Oil of Vitriol, and Oil of Turpentine, particularly, mix'd together, produce such a vehement Heat, that unless they be mix'd Drop by Drop, they are apt to burst forth into Flame, and break the Vial.

On the contrary, Silver-filings being dissolved in Spirit of Nitre, produce a cold *Effervescence*, which, instead of Heating, cools the Glass, so as to render it painful to the Sense of feeling.

This different Effect is ascribed to this, that in the former Case, the mix'd Bodies, one or both of them, abound with Sulphur; but not in the latter. Not but some attribute the Heat, usual in *Effervescences*, to the vehement Friction, and Collision of the Particles against each other.

Powder'd Coral, mix'd with distill'd Vinegar, produces a cold *Effervescence*, which the same Philosophers account for hence, that the Pores of the Coral being very great, it may be easily dissolved in the acid Spirit, without any great Friction, or Collision of the Parts, such as would be necessary to generate any considerate Heat.

An *Effervescence* may also be produced by the Mixture of two cold Liquors. See DISSOLUTION.

EFFICACIOUS, EFFECTUAL, in Theology. Within these 150 Years there have been very great Disputes on the the Subject of *Efficacious Grace*. Grace is usually divided into sufficient and *Efficacious*; tho' the *Jansenists* hold, that there is no Grace sufficient, but what is *Efficacious*, i. e. but what effectually determines the Will to act. See SUFFICIENT.

Efficacious Grace, is defined to be that which enlightens the Mind, and touches the Heart, in such Manner, as always to produce its Effect, however it be opposed, or resisted by the Will. See GRACE.

Some Divines maintain that *Efficacious Grace* is *Efficacious* of it self. *Efficacious Grace of it self*, if there be any such Thing, is that which produces its Effect merely of it self, and not in Vertue of any Consent of the Will. *Calvin*, is the first that ever used the Term *Gratia Efficax per se*, Grace *Efficacious* of it self.

A late Divine holds the *Efficacy* of Grace in it self to consist in this, that *Efficacious* Grace is always joyn'd with a Moral Necessity of doing the Thing it inclines to; and sufficient Grace, joyn'd with a moral Impotence of doing it. See SUFFICIENT.

The *Armenian* and *Popish* Way of conceiving the Necessity of *Efficacious* Grace, is to hold that this Grace is never wanting, at least to the Righteous, except thro' their own Default; that they always stand in Need of other inner Graces, truly and properly sufficient, in Order to draw down this *Efficacious* Grace; and that they do infallibly draw it down, when it is not rejected, tho' they often remain without Effect, thro' a Resistance, instead of a Consent thereto.

Fa. Malebranch maintains, that the mutual Commerce between Soul and Body, *i. e.* Life, has no other *Vinculum*, or Principle, but the *Efficacy* of God's Decrees: That second Causes have no proper *Efficacy*, *&c.* See SECOND *Cause*.

EFFICIENT, in Philosophy. An *Efficient Cause* is that which produces an *Effect*. See CAUSE and EFFECT.

Philosophers usually distinguish four Kinds of Causes in Nature: The *Efficient*, a *final*, a *formal*, and a *material*. See each under its proper Article.

The School Philosophers are exceedingly divided as to the Nature and Essence of an *Efficient Cause*.

Aristotle defines an *Efficient* to be, *id unde, that from which*: Or, *the first Principle of Change and Rest*, i. e. of Production and Conservation: The *Efficient*, called *id unde*, that from which; as the End or final Cause, is that proper, *quod*, for which; the Exemplar, *ad quod*, that to which; the Matter, *ex quo*, that of which; and the Form, *per quod*, that by which. And it is call'd the first Principle, not in Respect of Priority of Time, for the End exerts its Causality before the *Efficient*, but of Dig-

Dignity: The *Efficient* being the Physically active Principle; and the End only acting objectively.

Others of the Shoolmen define *Efficient* to be *Principium per se influens in aliud sine Mutatione sui* —. The *Ramists*, after *Plato* and *Cicero*, define an *Efficient* to be that, *a qua res est*, from which a Thing is: To which a a great Author, objecting that a Thing may also be from its End; adds, that an *Efficient* is that, *a qua res vera causalitate proficiscitur*.

Others define *Efficient* to be, *quæ per Actionem causat*, that which causes by acting: For to effect, every Body knows, is to act; and hence, neither a Procatarctic, nor an Exemplary Cause, are properly *Efficients*, tho' usually rank'd among the same.

Lastly, others define an *Efficient* to be a Cause, *a qua aliud producatur*, from which something is produced; Consequently, what arises from such a Cause, is called an *Effect*: And thus God is the *Efficient* Cause of the World; and the World the *Effect* of God. To which Definition of an *Efficient*, all the former Definitions are reducible.

An *Efficient* Cause then, is either *Physical*, as Fire is the *Efficient* Cause of Heat; or *Moral*, as an Adviser is the Cause of a Murther: Or *Universal*, which in various Circumstances produce various Effects, as God and the Sun; or *particular*, as a Horse, which produces a Horse: Or *Univocal*, which produces an Effect like it self; as a Horse begets a Horse: Or *Equivocal*, as the Sun producing a Frog: Or *Natural*, which acts not only without Precept, in Opposition to Artificial, but also from within, and according to its own Inclination, in Opposition to violent, as Fire acts when it warms: Or *Spontaneous*, as a Dog eating: Or *Voluntary* and *free*. See LIBERTY.

Others consider *Efficient* Causes, either as *Principal*, or as *Instrumental*. Others, either as *next*, or *remote*; or *Mediate* or *Immediate*. Others, in fine, divide *Efficient* Causes, among all the Kinds of Beings, natural and supernatural; spiritual and corporeal; substantial and accidental; vital and not vital, *&c.*

But the most celebrated Division of *Efficients*, is that into *first* and *second*.

A *first Cause* is that, between which and the Effect there is some necessary Connection. Of which Kind there is none but God alone.

A *second Cause* is that from which an Effect follows in Consequence of the Will, or Constitution of the Creator; and which the *Cartesians* call an *Occasional Cause*. But these precarious, or Occasional Causes are, in Reality, no Causes at all, but only antecedent Effects.

This is easily shewn: For 1. All Action, at least all corporeal Action, is contain'd in Motion; but Motion can only result from the first Cause: It being an allow'd Principle, that Body of it self is inert and inactive. The true Cause of Motion, therefore, is a spiritual, not a corporeal Nature. But neither can a finite, spiritual Nature, be the chief Cause of Motion; for there is no necessary Connection between the Will, *e. gr.* of an Angel, and the Motion of a Body, nor between that of any other Being except God. Thus, when an Angel wills, a Stone moves; by Reason God has constituted such a Law between the Will of the Angel, and the Motion of the Stone: And thus, we move our Hands when we please. Not that the Soul is the principal Cause of such Motion, but only the *Occasional* Cause. See OCCASIONAL.

Others have a different Notion of first and second Causes. A *first Cause*, say they, is that which is independent of every other, as God alone. A *second Cause* is that depending on some other, as every Creature.

EFFICIENTS, in Arithmetic, the Numbers given for an Operation of Multiplication, called also *Factors*. See FACTOR. The *Efficients* are the Multiplicand and Multiplyer. See MULTIPLICATION.

EFFIGY, EFFIGIES, a Portrait, Figure, or Representation of a Person to the Life. Kings are shewn in *Effigy* in their State Beds.

EFFIGY, is also used for the Print, or Impression of a Coin, representing the Prince's Head who struck it.

To *execute or degrade in Effigy*, is the Execution, or Degradation of a condemn'd, contumacious Criminal, who cannot be apprehended, or seiz'd. In *France* they hang a Picture on a Gallows, or Gibbet, wherein is represented the Criminal, with the Quality or Manner of the Punishment: At Bottom is wrote the Sentence, or Condemnation. 'Tis only Condemnations of Death, that are executed in *Effigy*.

EFFLORESCENCE, a breaking out of some Humours in the Skin; as in the Measles, and the like. See EXANTHEMA.

EFFLUVIUM, a Flux, or Exhalation of minute Particles from any Body: Or an Emanation of subtle Corpuscles, from a mix'd, sensible Body, by a Kind of Motion of *Transpiration*. See TRANSPIRATION.

That there are such *Effluvia*, continually emitted from all Bodies, is pretty certain: Thus, if a Body be immerged in Water, or any other humid Matter, there are little Bubbles continually transmitted therefrom to the Surface of the Water; which are supposed to be nothing else but little Particles, detach'd from the solid Body; and which, when they arrive at the Surface, emerge in Form of Bubbles. And thus a Body, placed in the Receiver of an Air-Pump, is seen, as it were, in a Kind of Effervescence, by Reason of the external Particles continually flowing from the same.

Odoriferous Bodies, every Body knows, are continually emitting substantial *Effluvia*; by Means whereof it is, that they excite in us the Sense of *Smelling*. These minute *Effluvia* are sometimes perceived by the Eye, in Fumes and Vapours. See SMELLING.

The School Philosophers hold these *Effluvia* to be intentional Qualities, as they call them, and nothing substantial; but the Moderns laugh at the Notion, as finding that these *Effluvia* refresh and nourish both the Animal and Vital Spirits.

Some Bodies are found to emit *Effluvia* for a great Number of Years, without any considerable Loss, either as to Bulk or Weight; as Magnets, Electrical Bodies, Ambers, divers odorous Bodies, *&c.* The Tenuity of whose emanant Corpuscles is incredible: Not but that the Loss they sustain by the continual Emission of *Effluvia*, may be made up to them by the Reception of other similar *Effluvia* of the same Kinds of Bodies, diffused thro' the Air.

'Tis added, that these *Effluvia* are emitted in Manner of *Radii*, Rays, *in Orbem*, and that the Circumference or Bound of the Activity of the Radiation, exhibits the same Figure as is that of the Radiant. This the Astronomers sufficiently prove, from the Ratio of the Refraction of the Atmosphere. For the Law of the Emission of these *Effluvia*. See QUALITY.

That *Effluvia* may considerably operate upon, and have great Effects on Bodies within the Sphere of their Activity, is proved by Mr. *Boyle*, in an express Treatise on the *Subtility of Effluvia*; where he shews, 1. That the Number of Corpuscles, emitted by Way of *Effluvia*, is immensely great. 2. That they are of a very penetrating Nature. 3. That they move with vast Celerity, and in all Manner of Directions. 4. That there is frequently a very wonderful Congruity, or Incongruity in the Bulk and Shape of these *Effluvia*, with the Pores of the Bodies they penetrate into and act upon. 5. That in animal and organical Bodies, particularly, these *Effluvia* may excite great Motions of one Part of the Frame upon another, and thereby produce very considerable Changes in the Oeconomy. Lastly, That they have sometimes a Power of procuring Assistance in their Operations by the more Catholic Agents of the Universe, such as Gravity, Light, Magnetism, the Pressure of the Atmosphere, *&c.*

That *Effluvia* are emitted to very great Distances, we have a notable Proof in this: That our Wines grow turbid in the Hogshead, precisely at the same Time when the Grapes are at their Maturity in other remote Countries, whence the Wine was imported. Beside that, Odoriferous *Effluvia* are, in many Cases, perceived at the Distance of many Leagues. Again, that the Generality of *Effluvia* retain the proper Colour, Smell, Taste, and other Properties, and Effects of the Bodies whence they proceeded, and this even after they have pass'd thro' the Pores of other solid Bodies, we have abundant Proof: Thus, magnetical *Effluvia* penetrate all, even the most solid Bodies, without any Change of their Nature, or Loss of Force. And the same we see confirm'd in *Sympathetic Inks*, and Powders, the Sagacity of *Blood-hounds*, &c. See DIVISIBILTY.

EFFUSION, the Pouring out of any liquid Thing with some Degree of Force.

In the antient Heathen Sacrifices, there were divers *Effusions* of Wine, and other Liquors; called *Libations*. See LIBATION.

When Princes conclude a Treaty of Peace, they usually pretend 'tis to prevent the *Effusion* of Christian Blood.

EFFUSION, or FUSION, *Aquarius*, in Astronomy, is that Part of the Sign *Aquarius*, represented on celestial Globes and Planispheres, by the Water issuing out of the Urn of the Water-Bearer. See AQUARIUS.

EGG, in Natural History, a Part form'd in the Females of certain Animals; which, under a Shell, or Cortex, includes an Embryo, or Fœtus, of the same Species; the Parts whereof are afterwards display'd, and dilated, either by Incubation, or by the Accession of a nutritious Juice.

The Species of Animals that produce *Eggs*, are particularly denominated *Oviparous*; and the Part wherein the *Egg* is form'd, the *Ovary*. See OVARY and OVIPAROUS.

Of

Of the various Kinds of *Eggs*, those of Hens, or Pullets, being the most usual, and which have been the most observed; we shall say somewhat of the Structure thereof, and the Generation of the Chick therein.

The Exterior Part, then, of a Hen's *Egg* is the *Shell*; a white, thin, friable Cortex, including all the other Parts, and defending them from Injuries. Immediately under the Shell lies the *Membrana communis*, which lines the whole Cavity of the Shell, adhering pretty closely to it, except at the bigger End, where a little Cavity is left between them, which with Age grows bigger. Under this Membrane are contain'd two *Albumina*, or Whites, each wrapp'd up in its own Membrane. In the middle of the inner White, is the *Vitellus*, or Yelk inclosed likewise, in its separate *Involucrum*, or Cover. The outer Albumen is oblong or oval, accommodated to the Figure of the Shell: The inner is spherical, and of a more crass, and viscid Substance; and the Yelk is of the same Figure. See ALBUMEN and YELK.

At each End is a *Chalazza*, or Treddle, which are, as it were, the Poles of this *Microcosm*: These are white, dense Bodies, consisting each of three little Globules like Hail connected together: In these not only the several Membranes are connected, or knit together; by which Means the several Liquors are kept in their proper Place and Position to each other; but they serve also to keep one and the same Part of the Yolk uppermost; let the *Egg* be turn'd which Way it will. See CHALAZZA.

About the Middle, between the *Chalazzæ*, on the Side of the Yelk, and in the Membrane thereof, is a little Vesica or Bladder, not unlike a Vetch, or Lentil, called the *Cicatricula*, and by some the Eye of the *Egg*. In this Vesicle is contain'd a Humour, in, and of which the Chick is generated. See CICATRICULA.

All these Parts of a Pullet's *Egg*, are found in all other *Eggs* to which the Definition of an *Egg* properly and strictly agrees: Such *Egg* being that, of a Part whereof the Animal is form'd, the rest serving for its Food. Accordingly, the first Seed, or Stamen of the Chick, is in the *Cicatricula*.

The *Albumen* is the Nutritious Juice, whereof it is distended and nourished till it become big; and the Yolk serves it for Food after it is well grown, and partly also after it is hatch'd. For, a good Part of the Yolk remains after Exclusion; being receiv'd into the Chicken's Belly, as a Store-house, and convey'd thence by the *Appendicula*, or *Ductus Intestinalis*, as by a Funnel, into the Guts, serving instead of Milk. See INCUBATION, and PUNCTUM SALIENS.

An *Egg*, *improperly so call'd*, is that of the whole whereof the Animal is form'd; such are the *Eggs* of Flies, Butterflies, *&c.* which *Aristotle* calls *Vermiculi*.

The Two have this further Difference, that whereas the former, after they are excluded from the Female, need no External Nutriment, nor any Thing but Warmth and Incubation, to bring the Fœtus to Perfection: The latter, after they are fallen out of the Ovary into the Uterus, require the Nutritious Juices of the Uterus to distend and enlarge them; whence they remain much longer in the Uterus than the other.

The principal Differences among *Eggs*, properly so call'd, are, that some are *perfect*, i. e. have all the Parts above described, while in the Ovary, or Uterus: And others, *Imperfect*, as not having all those Parts till after they are excreted or laid; such are the *Eggs* of Fishes, which after they are brought forth, assume an *Albumen* to themselves from the Water.

Another Difference is, that some are fœcundated, and others not: The first are those which contain a Sperm, injected by Coition of the Male, to dispose them for Conception: The rest, not impregnated with this Sperm, never breed young by any Incubation, but always putrify. An *Egg* fœcundified, contains the Rudiments of the Chick, e're ever the Hen have sate upon it. By the Microscope we see, in the middle of the *Cicatricula*, the plain *Carina* of the Chick, swimming in the *Liquamen* or Humour; it consists of fine white *Zones*, or Threads, which the Warmth of future Incubation enlarges, by rarifying and liquifying the Matter first of the *Albumen*, and then of the *Vitellus*, and pressing them into the Vessels of the *Cicatricula*, for a further Preparation, Digestion, Assimulation, and Accretion; till the Chick, too big for its Covercle, breaks the Shell, and is deliver'd.

'Twas antiently thought that none but Birds and Fishes, with some other Animals, were produced, *ab Ovo*, from *Eggs*; but the Generality of the Moderns incline to think, that all Animals, even Man himself, are generated the same Way. *Harvey*, *Graaf*, *Kerchringius*, and several other great Anatomists, have so strenuously asserted this Opinion, that it now generally obtains.

In the *Testes* of Women, are found little Vesicles, about the Size of green Peas, which are accounted as *Eggs*; for which Reason, these Parts, which the Antients call'd *Testicles*, the Moderns call *Ovaries*. These *Eggs*, fœcundified by the most volatile and spirituous Part of the Seed of the Male, are detach'd from the *Ovary*, and fall down the *Fallopian* Tubes into the *Uterus*, where they grow and increase. See CONCEPTION and GENERATION.

This System is countenanced and confirm'd by Abundance of Observations and Experiments. Mons. *de S. Maurice*, upon opening a Woman at *Paris*, in 1682, found a Fœtus perfectly form'd in the Testicle.

M. *Olivier*, a Physician at *Brest*, attests, that in the Year 1684, a Woman, pregnant seven Months, was brought to Bed of a whole Plate full of *Eggs*, fasten'd together like a Bunch of Grapes, and of various Sizes, from that of a Lentil, to that of a Pigeon's *Egg*. *Wormius* assures us, that he had himself seen a Woman who had lain an *Egg*. And *Bartholin* confirms him, *Cent.* I. *Hist. Anatom.* IV. *p.* 11. The same Author tells us, he knew a Woman at *Copenhagen*, who, after twelve Weeks Conception, was deliver'd of an *Egg* wrapp'd up in a thin Shell. *Lauzonus*, *Dec.* II. *An.* ix. Obs. 38. *p.* 73. of the *Curiosi Naturæ*, relates the same Thing of another Woman seven Weeks gone: The *Egg* she brought forth was of a Size between that of a Hen and a Pigeon; and was cover'd with Membranes instead of a Shell. The outer Membrane, or *Chorion*, was thick and bloody; and the inner, or *Amnios*, thin and transparent, including a whitish Humour, wherein the Embryo swam fasten'd by Umbilical Vessels, like Threads of Silk.

Bonetus, in a Letter to *Zuingerus*, published in the Ephemerides of the *Curiosi Naturæ*, *Dec.* II. *An.* 2. Obs. 186. *p.* 417. relates, that a young Maid had cast forth a great Number of little *Eggs*. *Con. Virdungius* observes, that in dissecting a Woman who had a Rupture, or Descent, he found *Eggs* of divers Sizes in the Cornu of the Womb. Lastly, we meet with divers Instances of the same Thing in *Rhodius*, *Cent.* III. Obs. 57. and in several Places of the Memoirs of the *Curiosi Naturæ*. Insomuch that *Berger*, in his Treatise *de Natura humana*, *L.* II. *C.* I. *p.* 461. makes no Scruple to settle it as his Opinion, that the only Difference between Animals, called *Oviparous*, and those denominated *Viviporous*, consists in this; that the former casts their *Eggs* out of the Body, and lay them in Nests; and that their *Eggs* contain all the Nourishment requisite for the Fruit, or Fœtus: Whereas in the latter, the *Eggs* are only lay'd from the Ovary into the Uterus; that they have but little Juice; and that the Mother furnishes the rest.

There is not so much as a Plant, whose Generation, according to the Sentiment of *Empedocles*, and since him of *Malpighi*, *Rallius*, *Fabric. ab Aquapendente*, *Grew*, and others, is not effected by the Way of *Eggs*. See PLANT, *&c.*

On the other Hand, we have numerous Instances of *Oviparous* Animals, producing their young absolutely alive, and without *Eggs*. Such Instances we have of a Crow, a Hen, Serpents, Fishes, Eels, *&c.* See *Isibord. ab Amelanxen*, *Breviar. Memorabil. N.* 28. *in Append. M. Curios. Nat. Dec.* II. *An.* 4. *p.* 201. Lyserus, *Obs.* VI. Aldrovand. *Hist. Serp. & Dracon. p.* 309. Seb. Nuremberg, *De Mirac. Natur. in Europ. C.* 41. Franc. Paullin *de Anguilla*, *S.* I. *C.* 2. *&c.*

But this is not all: Natural History abounds with Instances of Males, and even Men casting out *Eggs* by the Fundament. The Thing will look so odd to an *English* Reader, that we might be censured, were we to relate the various Accounts of this Kind in Form. We shall, therefore, content our selves to refer the Reader, who has Curiosity enough that Way, to the Authors and Places where he may meet with them; *viz.* Christ. Paulin. *Cynograph. Curiosi. Sect.* I. *L.* 3. § 56. *M. Curiosi. Nat. Dec.* II. *A.* 8. *Obs.* 117. *p.* 261. and *Dec.* I. *An.* 2. *Obs.* 250. and *Dec.* II. *An.* 4. *Append. p.* 199. Scheuch. *Hist. Monst. p.* 129, *&c.*

M. *Stolterforth* is of Opinion, that at least, in some of these Cases, what was taken for *Eggs* might be no more than certain Aliments ill digested, and coagulated; an Instance of which he himself had seen. As to those of Women, *Wormius* and *Formanus*, L. III. *de Fascinat*, P. VI. *C.* 20. § 9. *p.* 882. take it for the Effect of the Devil: But *Bartholin* and *Solterforth* treat the Notion, as it deserves, with Derision.

Goussel, *de Causis Linguæ Hebraicæ*, explodes the modern System of Generation *ab Ovo*, as contrary to Scripture: And others imagine they have seen the Animal alive, and form'd in the Seed of the Male. See ANIMALCULI and SEED.

Malpighi, has made very curious Observations with the Microscope, of all the Changes that happen in the *Egg*, every half Hour of Incubation. *Vossius*, and divers other Authors, are very sollicitous about settling the Question, which was form'd first, the *Egg* or the Pullet, *de Idolol.* L. III. *C.* 78.

In *Egypt*, they hatch their *Eggs* by the Heat of a Furnace, or Oven; and frequently have seven or eight Thousand Chickens come forth at a Time. An Account of the Method hereof we have in the *Philosoph. Transact.* See HATCHING.

At *Tunquin*, they are said to keep *Eggs* entire for the Space of three Years, by covering them up in a Past made of Ashes and Brine. The Tortoise is said to lay no less than fifteen Hundred *Eggs*, which she covers in the Sand, and leaves the Sun to hatch them; and the *Eggs* of the Ostrich are hatch'd after the same Manner. *Willough. Ornithol. L.* II. *C.* 8. §. 1.

In the *Acta Erudit. Lipf.* An. 1683. *p.* 221. mention is made of a Hen's *Egg*, in all Respects like the common Ones, in the middle whereof was found another, of the Size of a Pigeon's *Egg*. See SUPERFETATION.

Eggs with double Shells, are no unusual Phænomenon. *Harvey* is very large on the Rationale of these Appearances, in his Treatise *de Generation. Animal.* Among the Antients, the *Egg* was the Symbol of the World; it being a Tradition among them, that the World was made of an *Egg*: Whence *Eggs* became of singular Veneration, in the Sacrifices of *Cybele*, the Mother of the Gods.

Some of their Deities were likewise form'd of *Eggs*. See OOLOGY

EGG, in Architecture, an Ornament in that Form, cut in the Echinus, or Quarter-round, of the *Ionic* and *Composite* Capitals. The Profile, or Contour of the Echinus, is enrich'd with *Eggs* and Anchors, alternately placed. See ECHINUS, OVOLO, *&c.*

Cows-EGG, is a Name some Authors give to a Kind of *Bezoard*, frequently found in the Stomach of that Beast. See BEZOARD.

EGIS, or ÆGIS, in the antient Mythology, the Shield, or Buckler of *Jupiter* and *Pallas*.

The Goat *Amalthea*, which had suckled *Jupiter*, being dead; that God cover'd his Buckler with the Skin thereof: Whence the Appellation *Ægis*, from αὶξ, αἰγὸς, *She-Goat*.

Jupiter, afterwards restoring the Beast to Life again, cover'd it with a new Skin, and placed it among the Stars.

As to his Buckler, he made a Present of it to *Minerva*; whence that Goddess's Buckler is also called *Ægis*, in *Virgil*, *Æneid L.* VIII. *v.* 354, and 435, and other Authors.

Minerva, having kill'd the Gorgon *Medusa*, nailed her Head in the Middle of the *Ægis*, which henceforth had the Faculty of converting into Stone all those who look'd thereon; as *Medusa* her self had done during her Life. See *Homer*, *Iliad. L.* V.

Others take the *Ægis* not to have been a Buckler, but a *Cuirass*, or rather a *Plastron*. And 'tis certain, the *Ægis* of *Pallas*, described by *Virgil*, *Æneid L.* VIII. *v.* 435, must have been a *Cuirass*; since the Poet says expressly, that *Medusa*'s Head was on the Breast of the Goddess. But the *Ægis* of *Jupiter*, mention'd a little higher, *v.* 354, seems to have been a Buckler. The Word

——— Cum sæpe nigrantem
Egida concuteret dextra.

agreeing very well to a Buckler, but not at all to a *Cuirass*, or Breast-Plate.

Servius makes the same Distinction on the two Passages of *Virgil*; for in *v.* 354, he takes the *Ægis* for the Buckler of *Jupiter*, made as abovementioned of the Skin of the Goat *Amalthea*: And in Verse 435, he describes the *Ægis* as the Armour which covers the Breast; and which in speaking of Men is called *Cuirass*, and *Ægis* in speaking of the Gods. Abundance of Authors have overlooked these Distinctions for Want of going up to the Sources.

EGYPTIANS, in our Statutes, a counterfeit Kind of Rogues, who, being *English* or *Welsh* People, disguise themselves in uncouth Habits, smearing their Faces and Bodies; and framing to themselves an unknown, canting Language, wander up and down; and under Pretence of telling Fortunes, curing Diseases, *&c.* abuse the common People, tricking them of their Money, and stealing all that is not too hot, or too heavy for them.

See several Statutes made against them; *An.* 1 & 2 *Phil. & Mar.* Ch. 11. 5 *Eliz.* &c.

The Origin of this Tribe of Vagabonds called *Egyptians*, and popularly *Gypsies*, is somewhat obscure; at least, the Reason of the Denomination is so. 'Tis certain, the antient *Egyptians* had the Character of great Cheats, and were famous for the Cleanliness of their Impostures; whence the Name might afterwards pass proverbially into other Languages; as 'tis pretty certain it did into the *Greek* and *Latin*. Or else, the ancient *Egyptians*, being much versed in Astronomy, which in those Days was little else but Astrology, the Name was on that Score assumed by these *Diseurs de bonne Avanture*, as the *French* call them, or good Fortune-tellers.

Be this as it will, there is scarce any Country of *Europe* but has its *Egyptians*, tho' not all of them under that Denomination.

The *Latins* call them *Egyptii*; the *Italians*, *Ciani* and *Cingari*; the *Germans*, *Zigenner*; the *French*, *Bohemiens*; others, *Sarasens*; and others, *Tartars*, &c.

Munster, *Geogr. L.* III. C. 5. relates, that they made their first Appearance in *Germany*, in 1417, exceedingly tawny and sun-burnt, and in pitiful Array; tho' they affected Quality, and travell'd with a Train of Hunting Dogs after them, like Nobles. He adds, that they had Passports from King *Sigismond* of *Bohemia*, and other Princes. Ten Years afterwards they came into *France*, and thence pass'd into *England*.

Pasquier, in his *Recherch. L.* IV. C. 19. relates the Origin of the *Gypsies*, thus: On the 17th of *April* 1427, there came to *Paris* twelve Penitents, or Persons, as they said, adjudged to Penance, *viz.* one Duke, one Count, and ten Cavaliers, or Persons on Horseback: They took on themselves the Character of *Christians of the lower Egypt*, expell'd by the *Sarazens*, who having made Application to the Pope, and confess'd their Sins, receiv'd for Penance, that they should travel thro' the World for seven Years, without ever lying in a Bed. Their Train consisted of 120 Persons, Men, Women and Children, which were all that were left of 1200, who came together out of *Egypt*. They had Lodgings assign'd them in the Chappel, and People went in Crouds to see them. Their Ears were perforated, and Silver Buckles hung to them. Their Hair was exceedingly black and frizzled; their Women ugly, thievish, and Pretenders to telling of Fortunes. The Bishop soon afterwards obliged them to retire; and excommunicated such as had shewn them their Hands.

By an Ordonnance of the Estates of *Orleans*, in the Year 1560, it was enjoyned all these Impostors, under the Name of *Bohemians* and *Egyptians*, to quit the Kingdom on Penalty of the Galleys. Upon this they dispersed into lesser Companies, and spread themselves over *Europe*. The first Time we hear of them in *England*, was three Years afterwards, *viz.* Anno 1563. *Raph. Volaterranus* making mention of them, affirms that they first proceeded or stroll'd from among the *Euxians*, a People of the Persiade in *Egypt*.

EGYPTIAN-*Year*. See YEAR.

EJACULATION, in Medicine, the Act of emitting Seed; from the Latin *ejaculari*, to cast upwards. See EMISSION.

To evince a Man's Virility, in a Court of Justice, where he is accused of Impotency, 'tis required he give Evidence of Erection, Intromission, and *Ejaculation*. See CONGRESS, *&c.*

EJACULATOR, in Anatomy, a Name applied to two Muscles, from their Office in the Ejaculation of the Seed. See SEED.

The *Ejaculatores* arise from the Sphincter of the Anus, and advance along the Urethra, as far as the middle thereof; where they are inserted laterally.

The same Denomination is likewise given two Muscles of the *Clitoris*, which arising from the Sphincter *Ani*, advance laterally along the *Labia*, and are inserted aside of the *Clitoris*. See GENERATION.

EJACULATORY, in Anatomy, is a Term applied to two little Ducts, or Canals, arising from the *Vesiculæ seminales*.

The *Ejaculatory* Ducts are about an Inch in length: towards the *Vesiculæ*, they are pretty wide; but contract themselves as they approach towards the *Urethra*, which they penetrate together.

Some Authors apply the same Name to the *Vasa deferentia*; but *mal a propos*. See DEFERENTIA *Vasa*.

EICETES, called also HEICETES, Hereticks of the VIIth Century, who made Profession of the Monastic Life.

From that Passage in *Exodus*, where *Moses* and the Children of *Israel* are said to have sung a Song in Praise of the Lord, after they had pass'd the *Red Sea* wherein their Enemies had perish'd; the *Eicetes* concluded, that they must sing and dance, to praise God aright: And as *Mary* the Prophetess, Sister of *Moses* and *Aaron*, took a Drum in her Hand, on the same Occasion; and all the Women did the like, to testify their Joy, by playing, beating and dancing; the *Eicetes*, the better to imitate their Conduct herein, endeavour'd to draw Women to them to make Profession of the Monastic Life, and assist in their Mirth.

EJECTION, the Act of throwing out, or discharging any Thing, at some of the Emunctories; as by Stool, Vomiting, *&c.* See EXCRETION, EVACUATION, EMISSION, *&c.*

EJECTIONE *firmæ*, a Writ which lies for the *Lessee* for Years, who is ejected before the Expiration of his Term, either by the *Lessor*, or a Stranger.

EIRE, in Law. See EYRE.

ELABO-

ELABORATION, the Act of finishing or perfecting any Thing with Labour and Time.

The Term is chiefly used in Medicine, where the Chyle, Blood and Semen, are said to be *well Elaborated*, when they are well condition'd, have undergone all the Secretions, Mixions, Impregnations and Circulations necessary to bring them to Perfection. See CHYLE, BLOOD, and SEED.

If the Chyle went directly from its *Receptaculum* to the Breasts, it would not be sufficiently *Elaborated* to afford good Milk. See MILK.

ELABORATORY. See LABORATORY.

ELASTIC *Body* is that, which by being struck, or stretch'd, has its Figure alter'd; but endeavours, by its own Force, to resume the same. Or, it is a springy Body, which when compress'd, condensed, or the like, makes an Effort to set it self at Liberty; and to repel the Body that constrain'd it. Such is a Sword-Blade, a Bow, &c. which are easily bent, but presently return to their former Figure and Extension. See ELASTICITY.

Elastic Bodies are either *Natural*, or *Artificial*: Those most eminent for their *Elastic* Power among *Artificial* Bodies, are Steel Bows; Brass, Ivory, and Marble Balls; Leathers, Skins, Membranes; Brass, Silver, Iron, and Steel Chords or Wiars; Nerves, Guts, Hemp and Flax Strings, &c.

Amongst *Natural* Bodies, the principal are Air, Spunges, the Branches of green Trees, Wool, Cotton, Feathers, &c. 'Tis disputed, whether or no Water have any *Elastic* Force: The most common Opinion is, that it has none of it self; and that if it shew any, 'tis owing to the Air contain'd therein. See WATER.

The Word is form'd from the *Greek*, ελαστὸς, of ελαύνειν, *to push, press*, &c. See SPRING.

The principal Phænomena observed to obtain in *Elastic Bodies*, are,

1. That an *Elastic Body*, (i. e. *a Body perfectly Elastic*, if any such there be) endeavours to restore it self with the same Force wherewith it is press'd or bent. Thus, whatever Force is applied to bend a Bow, with the same Force it strives to unbend it self, or return to its Natural State. For the Force, wherewith the String is drawn, is the same with that which resists the Draught; the Bow being bent so long, till the Force applied, and that which resists it, are in *Equilibrio*.

2. An *Elastic* Body exerts its Force equally towards all Sides; tho' the Effect is found chiefly on that Side where the Resistance is weakest: As is evident in the Case of a Bow shooting out an Arrow; a Gun exploding a Ball, &c.

3. *Elastic Bodies*, in what Manner soever struck, or impell'd, are inflected, and rebound after the same Manner. Thus a Bell yields the same Sound in what Manner, or on what Side soever struck.

4. A Body perfectly Fluid, if any such there be, cannot be *Elastic*; by Reason its Parts cannot be compress'd. See FLUID.

5. A Body perfectly Solid, if any such there be, cannot be *Elastic*; in that having no Pores, it is incapable of being compress'd. See SOLID.

6. Hard, long, flexible Bodies, apt to acquire *Elasticity*, do it chiefly in three Manners: Either by being extended, by being contracted, or by being bent.

7. Bodies, in dilating themselves by their *Elastic* Power, exert a greater Force at the Beginning of their Dilatation, than towards the End thereof. By Reason the Bodies are more compress'd at first; and the Renitency is always equal to the Compression.

8. The Motion, whereby compress'd Bodies restore themselves, is usually an accelerated Motion. See DILATATION.

For the Laws of Motion and Percussion in ELASTIC *Bodies*, *See* MOTION *and* PERCUSSION.

ELASTIC *Force*. See ELASTICITY.

ELASTICITY, or ELASTIC *Force*, in Physicks, a Property, or Power, in natural Bodies, which denominates them *Elastic*; and by which they are restored to the Figure, and Extension they had lost from any External Cause. See ELASTIC *Bodies*.

The Cause, or Principle, of this important Property *Elasticity*, or Springiness, is variously assign'd: The *Cartesians* account for it from the *Materia subtilis* making an Effort to pass thro' Pores that are too narrow for it. Thus, say they, in bending, or compressing, a hard, elastic Body, *e. gr.* a Bow, its Parts recede from each other on the *Convex* Side, and approach on the *Concave*: Consequently the Pores are contracted or streighten'd on the *Concave* Side; and if they were before round, are now, for Instance, Oval: So that the *Materia subtilis*, or Matter of the second Element, endeavouring to pass out at those Pores, thus streighten'd, must make an Effort, at the same Time, to restore the Body to the State it was in when the Pores were more patent and round, *i. e.* before the Bow was bent: And in this consists its *Elasticity*. See RESILITION.

Other later, and more wary Philosophers, account for *Elasticity* much after the same Manner as the *Cartesians*; with this only Difference, that in lieu of the subtile Matter of the *Cartesians*, these substitute *Ether*, or a fine Etherial Medium, that pervades all Bodies. See ÆTHER.

Others, setting aside the precarious Notion of a *Materia subtilis*, account for *Elasticity* from the great Law of Nature, *Attraction*, or the Cause of the Cohesion of the Parts of solid and firm Bodies. See COHESION.

Thus, say they, when a hard Body is struck or bent, so as the component Parts are moved a little from each other, but not quite disjoyn'd, or broke off, or separated so far as to be out of the Power of that attracting Force whereby they cohere; they must certainly, on the Cessation of the External Violence, *spring* back to their former natural State. See ATTRACTION.

Others resolve *Elasticity* into the Pressure of the Atmosphere: For a violent Tension, or Compression, tho' not great enough to separate the constituent Particles of Bodies far enough to let in any foreign Matter, must yet occasion many little *Vacuola* between the separated Surfaces; so that upon the Removal of the Force they will close again, by the Pressure of the Aerial Fluid upon the external Parts. See ATMOSPHERE.

Lastly, Others attribute the *Elasticity* of all hard Bodies to the Power of Resilition in the Air included within 'em. And so make the *Elastic Force* of the Air, the Principle of *Elasticity* in all other Bodies. See AIR.

Laws of ELASTICITY.

To enquire a little more expressly into the Nature and Laws of *Elasticity*, we shall consider the Phænomena thereof. Let it be premised, then, that all the Bodies wherein this Power is observed do consist, or may be conceived to consist, of small Threads, or Fibres, which, laid together, constitute such Bodies. To examine *Elasticity*, therefore, in its most simple Case, we had best consider it in Musical Strings, or Chords, and particularly those of Metal; for those of Cat-gut, having a spiral Twist, cannot be consider'd as the Fibres whereof Bodies are firm'd.

Now the *Elasticity* of a Fibre, or Chord, consists in this, that it may be stretch'd or extended; and that upon removing the Force whereby it was stretch'd, or lengthen'd, it returns to its former length. Fibres have no *Elasticity*, unless they be extended with a certain Force; as appears in lax Chords, which may be moved a little out of their Position, without endeavouring to recover it. Tho' what the Degree of Tension is, necessary for *Elasticity* to commence, is not yet determined by Experiment. Add, that when a Fibre is too far stretch'd, it loses its *Elasticity*; tho' here, too, the Degree of Tension that destroys *Elasticity* is unknown. But 'tis certain, *Elasticity* depends on Tension, and is confined within a certain Sphere, or Boundary thereof on either Side. See CHORD and FIBRE.

This, if it do not give us the proper adequate Cause of *Elasticity*, yet shews us the Difference between *Elastic* and *Unelastic* Bodies; how it is a Body loses its *Elasticity*; and how a Body, destitute of any such Force, comes to acquire it.

Thus, a Plate of Metal, by repeated Blows of a Hammer, becomes *Elastic*; and being heated, again loses that Property.

Between the Limits of Tension, wherewith *Elasticity* is terminated, there are different Forces required to give different Degrees of Tensions, in order to stretch Chords to certain Lengths. What the Proportions of these Forces is, can only be determined by Experiment made with Chords of Metal. But as the Lengthenings of such Chords is scarce sensible, the Proportions cannot be directly measured; but a particular Apparatus, and a Kind of Circuit are necessary to arrive thereat. Dr. *Gravesande* has taken a good deal of Pains, in order to fix these Laws; the Result of whose Experiments are as follow.

1. That the Weight, whereby a Fibre is increas'd a certain Length, by its Stretching, is in the different Degrees of Tension, as the Tension it self: If, *e. gr.* there be three Fibres of the same Kind, Length and Thickness, whose Tensions are as 1, 2, and 3; any Weights, in the same Proportion, will stretch them equally.

2. That the least Lengthenings of the same Fibres are to one another, nearly as the Forces whereby the Fibres are lengthen'd. Which Property may likewise be applied to their Inflexion.

3. In Chords of the same Kind, Thickness, and which are equally stretch'd, but of different Lengths, the Lengthnings produced by superadding equal Weights, are to one another as the Lengths of the Chords. Which is evident hence, that the Chord is lengthen'd in all its Parts: Consequently the Lengthening of a whole Chord is double the Lenghthening of half of it, or a Chord of half the Length.

4. Fibres of the same Kind, but different Thicknesses, may be compared together after the like Manner; only con-

considering them as consisting of a greater or less Number of fine Fibres of the same Thickness; the Number whereof must be taken in the Ratio of the Solidity of those Fibres, *i. e.* as the Squares of the Diameters, or as the Weight of the Fibres, when their Lengths are equal. Such Fibres, of Consequence, will be equally stretch'd by Forces that are in the same Ratio of the Squares of the Diameters; which same Ratio, is likewise required between the Forces whereby the Chords are inflected, that the *Sagittæ* may be equal in the given Fibres.

5. The Motion of a stretch'd Fibre agrees with the Motion of a Body vibrating in a Cycloid; and how unequal soever the Vibrations are, they are all perform'd in the same Time. See CYCLOID.

6. In two equal Chords, unequally stretch'd, unequal Forces are required to inflect them equally. Their Motions may be compared to those of two Pendulums, describing similar Cycloids, by different Forces. Consequently, the Squares of the Times of the Vibrations of the Fibres are to each other inversely, as the Forces whereby they are equally inflected, which are as the Weights by which the Chords are stretch'd.

7. The Motions of similar Chords, equally stretch'd, but of different Lengths, must be compared with that of Pendulums after another Manner; for as the Times of the Vibrations are to be consider'd, the Celerities also, wherewith the Chords are moved, must be consider'd. Now these Celerities are to one another directly as the Weights whereby the Chords are inflected, and inversely as the Quantities of Matter in the Chords; that is, inversely as their Lengths. The Celerities, therefore, are in an inverse duplicate *Ratio* of those Lengths; that is, inversely as the Squares of the Lengths: And the Squares of the Times of the Vibrations, are likewise in the inverse Ratio. Consequently, the Lengths of the Chords will be as the Times of the Vibrations.

Elastic Laminæ, or Plates, may be consider'd as Congeries's, or Bundles of *Elastic* Chords. When the Plate is inflected, some Fibres are lengthen'd; and there are unequal Lengthenings in several Points of the Plate.

The Curve form'd by the inflected Plate, is easily determined from what has been shewn concerning Chords. In Effect, in the Vibrations of such Plate, or Spring, the Motion thereof is accelerated, after the same Manner as the Motion of a Chord, and of a Pendulum in a Cycloid, are accelerated. And the Vibrations of such Springs are all perform'd in the same Time.

Elastic Balls, Spheres, &c. may be consider'd as consisting of several *Elastic* Plates, or Springs; and the Introcessions, or Yieldings inward of any Point thereof, are proportionable to the Forces wherewith the Body is compress'd.

The ELASTICITY *of Fluids* is accounted for, from their Particles being all endowed with a Centrifugal Force; whence Sir *Isaac Newton*, Prop. 23. *Book* 2. demonstrates, that Particles, which mutually avoid, or fly off from one another by such Forces as are reciprocally proportional to the Distances of their Centre, will compose an *Elastic Fluid*, whose Density shall be proportional to its Compression; and *vice versa*, if any Fluid be composed of Particles, that fly off and avoid one another, and hath its Density proportional to its Compression; then the Centrifugal Forces of those Particles will be reciprocally, as the Distances of their Centres.

ELASTICITY *of the Air*, is the Force wherewith it dilates it self, upon Removing the Force whereby it was compress'd. See AIR.

The *Elasticity or Spring of the Air*, was first discover'd by the great *Galilæo*. Its Existence is proved by this Experiment of that Philosopher: That an extraordinary Quantity of Air, being intruded by Means of a Syringe into a Glass or Metal Ball, till such Time as the Ball, with this Accession of Air, weigh considerably more in the Balance than it did before; upon opening the Mouth thereof, the Air rushes out, till the Ball have sunk to its former Weight.

For hence we argue, that there is just so much Air gone out, as compress'd Air had been crouded in. Air, therefore, returns to its former Degree of Expansion, upon removing the Force that compress'd, or resisted its Expansion; consequently it is endued with an *Elastic Force*.

It must be added, that as the Air is found to rush out, in very Situation, or Direction of the Orifice; the *Elastic Force* of the Air acts every Way, or in every Direction.

The *Elasticity of the Air* making a considerable Article in the new Pneumaticks; we shall here give the principal Laws thereof.

1. The *Elasticity* of the lower Air, is equal to the Weight of all the upper incumbent Air. For the upper Air is easily proved to press on the lower. See PRESSURE.

And the *Elasticity of the Air*, has already been shewn equal to the compressing Power: Whence it follows, that the *Elasticity of the Air* is equal to the Weight of the whole incumbent Atmosphere.

Hence, as the Weight of the upper Air, incumbent on the lower, is equal to the Weight of a Column of Water of the same Diameter with the Column of Air, and the Altitude of 31 Feet; or to a Column of Mercury 28 Inches high: The *Spring* of the lower Air is equal to the same Column of Water, or Mercury.

Hence, again, the *Spring* of the Air, included in a Vessel, &c. is likewise equal to the Weight of the whole incumbent Atmosphere. Consequently the Air, included in a Vessel, presses with the same Force, as the Weight of the Atmosphere. And, therefore, the *Elasticity* of the included Air, is able to sustain Mercury to the Height of 28 Inches, and Water, to the Height of 31 Feet, in an empty Tube. See AIR-PUMP.

2. The *Elastic Force* of Air compress'd, is to that of the same Air dilated reciprocally, as the Bulk of the dilated Air to that of the compress'd Air.

For the *Elasticity of Air* more compress'd, is to that of Air less compress'd; as the Weight incumbent on that, to the Weight incumbent on this. But the Bulks of more, and less compress'd Air, are in the same reciprocal Ratio of these Weights. Therefore the *Elastic Force*, &c.

Hence the *Elasticity of Air* more compress'd, is stronger than that of Air less compress'd.

3. The *Elasticity* of more compress'd Air, is to that of Air less compress'd, *Cæteris paribus*, as Mass, or Quantity of more compress'd Air is to the Mass of Air less compress'd, under the same Bulk.

4. The Ratio of the Space fill'd by Air press'd only by the Weight of the Atmosphere, to the Space it is reduc'd into by further Compression, being given; to determine the *Elastic Force* of the compress'd Air.

Since the Spring of the Air, press'd only by the Weight of the Atmosphere, is equal to the Weight of a Column of Mercury of the same Base with the Column of Air, and of the Height of 28 Inches; to the Bulk of the compress'd Air, that of the Air not compress'd, and the Weight of the Column of Mercury; seek a fourth proportional: This will express the Quantity of the *Elastic Force* in the compress'd Air.

Hence, substracting the Weight of the Column of Mercury from the Quantity of the *Elastic Force*, thus determined, the Remainder is the *Force of Elasticity*, whereby it exceeds the Resistance of the Weight of the Atmosphere.

5. Heat increases the *Elasticity of the Air*; and Cold diminishes it. See HEAT and COLD.

6. The *Elastic Force* of the Air, whereby it is expanded, in Rarefaction, is to the *Elasticity of the Air* condensed; as the Bulk of the rarified Air, to the Bulk of the condensed Air.

ELATERIUM, in Pharmacy, a purgative Medicine, prepared from the wild Cucumber.

'Tis made of the Juice of the Plant, by straining it thro' a Cloth, and evaporating the Moisture thereof, till it come to the Consistence of an Extract, or a Mass for Pills.

Elaterium is a vigorous Purge, and is used in Lethargies, Palsies, and Hypochondriacal Melancholies.

The Word is form'd from the *Greek*, ἐλαύνω, *I repel.*

ELBOW, the outer Angle made by the Flexure, or Bend of the Arm: Or the Point to which the two Bones that form the Arm incline. See ARM.

That Eminence, whereon the Arm rests, called by us *Elbow*, is by the *Latins* call'd *Cubitum*, and the *Greeks* ἀγκων, and by others ὠλεκρανες.

ELBOW, is also used by Architects, Masons, &c. for an obtuse Angle of a Wall, Building, Road, &c. which diverts it from its right Line. See CUBIT.

ELCESAITES, or ELCESAIANS, as *Theodoret* calls them, antient Hereticks thus call'd from the great Prophet *Elcesai*, or *Elxai*.

This *Elxai*, who lived in the Time of *Trajan*, gave into the Sentiments of the *Ebionites*, touching *Jesus Christ*; tho' he alter'd and reform'd them in some Things, to denominate himself the Author of a Sect.

His Fundamental Doctrines were, that *Jesus Christ*, who was born from the Beginning of the World, had appear'd from Time to Time under divers Bodies; that he was a celestial Power, or Virtue, call'd *the Christ*, whereof the Holy Spirit was Sister; (Note, the *Hebrew* Word for Spirit, is *Feminine*) and that both of them had descended into *Jesus* the Son of *Mary*.

The *Elcesaites*, according to St. *Epiphanius*, were also called *Samseans*, from the *Hebrew* Word *Sames*, Sun.

Scaliger was notoriously mistaken, in holding that *Elxai* was no more than *Essai*, or *Essean*; on which Supposition the *Elcesaites* were the same with the Sect of *Esseans*, which is contrary to all Antiquity.

Origen

Origen makes mention of the *Elcesaites*, in one of his Homilies, as a Heresy newly risen. The Retainers hereto, says he, don't admit all the Books of the Canon, but only some of them. They allow some Passages out of the Old Testament and the Evangelists, but reject all the Epistles of St. *Paul*. Add, that they have produced a Book, which they pretend to have descended to them from Heaven; and maintain, that whoever perform what is enjoyn'd therein, shall obtain Pardon of all their Sins. See *Eusebius*, Hist. *Lib.* VI. *C.* 38. who remarks, that this Heresy became extinct almost assoon as it was found.

St. *Epiphanius* is very full on the Subject of this Sect, *Her.* 19. where he observes, that *Elxai* was a *Jew* by Birth, and that not being able to live according to the Law of *Moses*, he invented new Opinions, and got himself Followers. He was a profess'd Enemy of Virginity, and obliged all who profess'd his Doctrine, to marry. He tutor'd them to Hypocrisy in Times of Persecution; pretending it was lawful to adore Idols, provided the Heart had no Share therein.

ELDERS, *Seniores*, *Primores*, in the *Jewish* History, were the most considerable Persons for Age, Experience, and Manners, among the antient People. Thus, *Moses*, we read, assembled the *Elders* of the People together, and acquainted them with what the Lord had commanded.

Long afterwards, those who held the first Rank in the Synagogues, were usually call'd *Zekenim*, *Elders*, in Imitation of the 70 *Elders*, whom *Moses* establish'd for the Judges of the *Sanhedrim*. The President, or Chief, had in a particular Manner the Appellation of *Elder*, being, as it were, *Decanus seniorum*, Dean of the *Elders*.

In the first Assemblies of the Primitive Christians, those who were of the first Place, or Rank, assumed the Denomination of *Presbyters*, *Priests*, or *Elders*.

The Word *Presbyteri*, which occurs so frequently in the Old Testament, and which includes alike both Bishops and Priests, does likewise signifie *Elders*. See Mons. *Simon's* Observations thereon, in his Supplement *aux Ceremonies des Juifs*.

The President, or Bishop, as being the chief of the *Elders*, did likewise assume the Denomination of *Elder*: Whence it is, that in the New Testament the Name Bishop is frequently confounded with that of Priest. For the like Reason, the Council of the first Assemblies, or Churches, was called *Presbyterium*, or Council of the *Elders*, where the Bishop presided in Quality of first *Elder*, being seated in the middle of the other *Elders*. The Priests, or *Elders*, who sate by him, had each his Judges Chair; for which Reason they are called by the Fathers, *Assessores Episcoporum*. Nothing of any Importance was done, till it had first been examined, and resolved in this Assembly, where the Bishop only made one Body with the other *Elders* or Priests; the Jurisdiction which we now call Episcopal, not being then Dependant on the Bishop alone, but on all the *Elders*, over whom he was the President. See Bishop.

Elders, is also a Denomination still retain'd in the Presbyterian Discipline.

The *Elders* are Officers, who, in Conjunction with the Pastors, or Ministers and Deacons, compose the Consistories, or Kirk-Sessions, meeting to consider, inspect and regulate Matters of Religion and Discipline. They are chose from among the People, and receiv'd publickly with somewhat of Ceremony. In *Scotland*, there are an indefinite Number of *Elders* in each Parish, generally about Twelve.

Chamberlain makes mention of a *Ruling Elder* in each Parish, chose by the Kirk-Session; the Congregation afterwards approving the Choice, after a strict Scrutiny into his Life and Manners. He adds, that the Minister ordains him; and that his Office is for Life: His Business being to assist the Minister in overseeing and correcting the Manners of the People; to attend him in Visiting, Catechising, Praying for the Sick, in private Admonitions, and at the Communion Table.

But this Account we apprehend to be a Mistake; what that Author says of *Ruling Elders*, belonging properly to the *Simple Elders*. As to *Ruling Elders*, there are no such Things, but in the General Assemblies, where they appear as Representatives of the rest. See *Kirk*-Sessions, Synod, General *Assembly*, Presbytery, *&c.*

ELECT, *Chosen*. In Theology, particularly in the Scriptures, *Elect* is applied to the Saints, the Predestinated: In which Sense, the *Elect* are those Persons God has chose to bestow the Glory of Heaven upon.

The Apostles also apply it to the Primitive Christians: In which Sense, the *Elect* are those chosen to the Favour and Blessing of Christianity. God, who has predestinated the *Elect* to Glory, has likewise predestinated them to Sanctification. See Predestination.

Elect, is likewise applied to Archbishops, Bishops, and other Officers, who are chose, but are not yet consecrated, or actually invested with their Office, or Jurisdiction.

Emperor Elect, before he is inaugarated and Crown'd: *Lord Mayor Elect*; before his Predecessor's Mayoralty is expired, or the Sword put in his Hands.

Philip of *Savoy* was five Years Archbishop of *Lyons*, without ever being ordain'd or consecrated; after which he quitted his Archbishoprick to marry the Countess of *Burgundy*. All that Time he bore the Title and Quality of *Archbishop Elect of Lyons*, *Electus Lugdunensis*.

ELECTION, a Choice made of any Thing, or Person, whereby it is prefer'd to some other. There is this Difference, however, between Choice and *Election*; that *Election* has usually a Regard to a Company, or Community, that makes the Choice; whereas *Choice* is seldom used, but when a single Person makes it.

The most solemn *Election* is that of a Pope; which is perform'd by the Cardinals, in four several Manners.

The first, as they call it, by the *Holy Spirit*; when the first Cardinal who speaks, having given his Vote for any one, proceeds to the Adoration, and proclaims him Pope, as by a sudden Inspiration of the Holy Ghost. In which Case, he is deem'd duly *Elected*, if all, or at least two Thirds of the Assembly be consenting thereto.

The second, by *Compromise*, when the whole College pitches on three Cardinals, to whom they give a Power of nominating the Pope; which Power expires upon the Burning out of a Candle lighted on that Occasion.

The third, by Way of *Poll* or *Scrutiny*, which last is the most usual; the Cardinals throwing seal'd Tickets, wherein their Votes are wrote, into a Chalice, or Cup, placed on the Altar. Two thirds of the Votes are required to determine an *Election* by Scrutiny. See Conclave.

The fourth is by Way of *Accession*; when, the Votes being too much divided to *Elect* any Body, some of the Cardinals desist from their first Suffrage, and *Accedunt*; that is, give their Voices to him, who has already the Majority by Scrutiny.

The Way of Accession, however, is always added to the Scrutiny; it being the constant Practice for all the Cardinals, to give their Voices, after the last Scrutiny, to him whom they find to have the Plurality already. So that all *Elections* of Popes are, with the unanimous Consent of all the Cardinals. See Cardinal.

Election of Bishops, *of Members of Parliament*, *&c.* See Bishop, Parliament, *&c.*

Election, is also when a Person is left to his own free Will to take or do either one Thing, or another, which he pleases.

Election, in Theology, the Choice which God, of his good Pleasure, makes of Angels or Men, for the Designs of Mercy and Grace.

The *Election of the Jews*, was the Choice God made of that People to be more immediately attach'd to his Worship and Service, and for the Messiah to be born thereof.

Election also, sometimes, signifies a Predestination to Grace and Glory; and sometimes to Glory only. 'Tis an Article of Faith, that Predestination to Grace is gratuitous; merely and simply so: *Gratia quia gratis data*. But the Divines are divided as to the Point, whether *Election* to Glory be gratuitous, or whether it suppose Obedience and good Works, *i. e.* whether it be before, or after the Prevision of our Obedience.

Some hold that it is before, and after at the same Time: It is before the Prevision of our Obedience, as Glory is intended as antecedent to our Obedience: And it is after, as this Glory is intended us as a Reward, and of Consequence, as a Sequel of our Obedience. See Grace, Predestination, Reprobation, *&c.*

Election, is also a Part of Pharmacy; being that which teaches how to chuse simple Medicaments, Drugs, *&c.* and to distinguish the Good from the Bad. See Pharmacy.

Some distinguish a general *Election*, which gives the Rules and Marks for all Medicines in general; and a particular one for each Medicine in particular.

ELECTIVE, what is done by Election. The Empire of *Germany* was Hereditary in the Time of *Charlemaign*; and did not become *Elective*, till after the Death of *Louis* the IIId. the last of the Race of *Charlemaign* in the Empire. Indeed, it was not entirely *Elective* till the Time of *Frederic* II, in 1210.

Some Benefices are *Elective*, others Collative. Municipal Offices in *England*, are generally *Elective*; in *Spain*, Venal; *Poland* is an *Elective* Kingdom. All Prelatures in *France* are *Elective*, since the *Concordat*.

ELECTOR, a Person who has a Right to *elect*, or choose another to an Office, Honour, *&c.*

The *Electors* of a Burgess, a Knight of the Shire, a Grand Master of an Order, *&c.*

The Word is form'd of the *Latin*, *Eligere*, to choose.

ELECTOR, is particularly, and by Way of Eminence, used for the Princes of *Germany*, in whom lyes the right of electing the Emperor; being all soveraign Princes, and the principal Members of the Empire. See COLLEGE *of Electors*.

The Origin of *Electors* is not well known: Some refer it to *Otho* III, in the Year 997; others to *Frederic* II, who died in 1250; and others, to *Raoul* of *Hapsburg*, Founder of the Family of *Austria*, in the Year 1280.

Their Number, however, was unsettled, at least till the Time of *Frederic* II, in the 13th Century. The Golden Bull, published by *Charles* IV, in 1346, fix'd the Number of *Electors* to seven; three of them Ecclesiastics, *viz.* the Archbishops of *Mentz*, *Treves*, and *Cologne*; and four Seculars, *viz.* the King of *Bohemia*, the Count Palatine of the *Rhine*, the Duke of *Saxony*, and the Marquess of *Brandenburgh*. By the Treaty of *Munster*, in 1648, this Order was changed: The Duke of *Bavaria* being put in the Place of the Count Palatine, and an eighth *Electorate* erected for the Count Palatine.

In the Year 1698, a ninth *Electorate* was created by the Emperor *Leopold*, in Favour of *Ernest* Duke of *Hanover*, under the Title of *Elector* of *Brunswick*. Some Opposition was made to this Erection; and the Princes of *Germany* stood out for some Time, and refused to acknowledge it. But they afterwards acquiesced in it, and it has been recognised by all the foreign Princes. The King of *France* did it at last by the Treaty of *Rastad*.

The several Functions of the *Electors* are as follow: The *Elector* of *Mentz*, is Chancellor of *Germany*; convokes the States, and gives his Vote before any one of the rest. The *Elector* of *Cologne*, is grand Chancellor of *Italy*, and consecrates the Emperor. The *Elector* of *Treves*, is Grand Chancellor of the *Gauls*, and confers the Imposition of Hands on the Emperor. The Count Palatine of the *Rhine* is Grand Master of the *Imperial* Palace, and presents the Emperor with a Globe at his Coronation. The Marquess of *Brandenburgh* is grand Chamberlain, and puts the Ring on the Emperor's Finger. The Duke of *Saxony*, now King of *Poland*, is Grand Marshal, and gives the Sword to the Emperor. The King of *Bohemia*, who was antiently only Duke, is Grand Butler, and puts *Charlemaign*'s Crown on the Emperor's Head. Lastly, the Prince of *Hanover*, now King of *Great Britain*, is Arch-Treasurer; tho' first erected under the Title of Standard-Bearer of the Empire.

ELECTORAL, something relating, or belonging, to an *Elector*. See ELECTOR.

The *Electoral Prince* is the eldest Son of an *Elector*, and the presumptive Heir of his Dignity.

Electors are address'd under the Title of *Electoral Highnesses*. See HIGHNESS.

The *Electoral* College, consisting of all the Electors of the Empire, is the most Illustrious and August Body in *Europe*. *Bellarmine* and *Baronius* attribute the Institution of the *Electoral* College to Pope *Gregory* V. And the Emperor *Otho* III, in the Xth Century. Of which Opinion, are the Generality of Historians, and particularly the Canonists. But *Wicquefort* is of another Opinion; and endeavours to make it appear, from the Elections of the succeeding Princes, that the Number of Electors was not then fix'd; nor the *Electoral* Dignity annex'd to any particular Principalites, exclusive of the other Princes of *Germany*. He adds, that there was nothing settled with Regard hereto before *Charles* IV; and that the Publication of his Golden Bull, was only to prevent Schisms, and secure the Repose of the Kingdom by a Regulation in Form.

'Twas the Golden Bull, therefore, publish'd in 1356, that constituted the *Electoral* College, and reduced the Number of Electors to seven. See COLLEGE.

ELECTORAL *Crown*, or *Coronet*, is a Scarlet Cap, turn'd up with Ermine, closed with a Semi-circle of Gold, all cover'd with Pearls. On the Top is a Globe with a Cross thereon. See CROWN and CORONET.

ELECTORATE, the Dignity of an Elector, with the Territory, or Dominions, to which the Quality is annex'd. The *Electorate* of *Saxony*, of *Bavaria*, &c. The Emperor, of his own special Authority, in the Year 1692, erected a ninth *Electorate*, in Favour of the House of *Lunenburgh*. The Princes, who disputed the Validity of this Election, were called the *Opposers of the ninth Electorate*.

Tho' the Custom ordinarily be, in *Germany*, for the Sons of Princes to share their Father's Lands and Territories among them; those whereto the *Electorate* is attach'd, are not used to be divided; but pass entire to the eldest Son, who succeeds to the *Electorate*.

ELECTRICITY, or ELECTRIC *Force*, is that Power, or Property, whereby Amber, Jet, Sealing-Wax, Agat, Glass, and most Kinds of precious Stones, attract Straws, Paper, and other light Bodies to themselves. See ATTRACTION.

Electricity differs from Magnetism in this, that the latter only attracts Iron, whereas the former indifferently attracts most Kinds of Bodies; tho' the Effect is only sensible in light ones. See MAGNETISM.

The *Peripateticks* hold this Power to consist in I know not what Quality, or sympathetick Power, subsisting between the Amber, *e. gr.* and the Straw, and resulting from the substantial Form of each. See QUALITY.

But the later Philosophers generally agree to make it the Effect of a corporeal Effluvium, emitted from, and returning to, the Electrical Body. Tho' as to the Nature of these Effluvia, and the Manner of their acting, they are greatly divided. See EFFLUVIA.

Some, with *Cabæus*, suppose actual Steams to issue out of the *Electric* Body, when agitated by Attrition; and that these discuss and repel the ambient Air, which, after it has been driven off a little Way, makes, as it were, a little Whirlwind, by the Resistance it meets withal in the remoter Air, to which these *Electric* Steams did not reach: And that these Steams shrinking quickly back again to the attracting Body, do, in their Return, attract and bring along with them such light and small Bodies as they meet in their Way.

Others, with Dr. *Gilbert*, *Gassendus*, Sir *Kenelm Digby*, &c. hold, that on rubbing, or chafing, the *Electric* Body is made to emit Rays, or Fibres, of an unctuous Nature; which coming to be condensed and cool'd by the ambient Air, do lose their Agitation, and so shrink back again into the Body from which they sallied; and by that Means carry along with them such light and small Bodies, as happen to be fasten'd, or sticking to their further Ends. *Gassendus* adds, that these unctuous Effluvia being emitted all Manner of Ways, do frequently decussate, or cross each other; and by that Means take the better hold of Straw, *&c.*

The *Cartesians*, not being able to imagine how so hard and brittle a Body as Glass, should emit Effluvia; attribute *Electricity* to the Globules of the first Element; which breaking out thro' the Pores, or Chinks of the Body, like little Darts or Swords, and not meeting with proper Meatus's, or Passages in the Air, return whence they came, and carry the little Bodies, whose Pores they happen to enter, and be entangled in, along with them.

Mr. *Boyle*, Mr. *Hawksbee*, &c. have made a Number of Experiments, to ascertain the Nature and Laws of *Electricity*; the Result whereof may be summ'd up under the following Articles.

1. That *Electrical* Bodies do not at all, or very rarely attract, except when warm'd, and thereby sollicited to emit Effluvia more copiously.

Mr. *Hauksbee*, having heated a Glass Tube, of about an Inch Diameter, and 30 Inches long, by rubbing it vehemently on Paper; and then applying it to several Pieces of Leaf Brass, found, that they were no sooner within the Sphere of Activity of the Effluvia emitted by the Tube, than they began to be put into very brisk and surprizing Motions; would leap toward the Tube, even at the Distance of 12 or 14 Inches; would sometimes adhere, and fasten to the Tube, settle on its Surface, and there remain quiet: and sometimes be thrown off from it with a great Force. And thus would they be alternately attracted and repell'd, for several Times successively. Sometimes, again, they would move slowly toward the Tube; sometimes, would remain suspended between the Tube and the Table they were first laid on; and sometimes slide along in that Direction of the Side of the Tube, without touching it.

2. That Bodies, warm'd by Fire, don't attract so forcibly, as when heated by rubbing; tho' if they be first heated, and then rubb'd, they will attract the more strongly.

Mr. *Hauksbee* assures us, that the hotter he made the Tube by rubbing, to the greater Distance did the attractive Force extend it self: But that this would answer, in Proportion, to any Degree of Heat excited, he will not undertake. When the Tube was render'd the hottest by the strongest Attrition, the Force of the Effluvia was render'd manifest to another Sense, namely that of feeling, being plainly perceived on the Face, or any other tender Part, making Strokes or Impulses on the Skin, much like those made by pushing a Number of limber Hairs against it.

3. That Tension, or Wiping, is almost universally necessary, as well as Attrition, or rubbing, to produce *Electricity*; by Reason the Effluvia can more readily escape, when there is nothing to stop up, or choak the Pores.

4. That the Interposition of the finest Linnen, as Muslin, Gauze, or the like, will totally hinder the Operation of *Electrical* Bodies.

5. The Effect is less sensible in thick and cloudy Weather. For the Air being clogg'd with Vapours and Exhalations rais'd from below, the Resistance the *Electric* Effluvia meet withal, must be greater than when the Air is free of any such Impediments. Hence, also, in all Probability,

bability, arises the Necessity of Tension; the watery Particles being apt to run together, and condense on the Surface of the Body, and so obstruct the Passage of the Matter.

6. *Electrical* Bodies are more forcible, *Cæteris paribus*, in hot Weather than in cold; in Summer than in Winter; by Reason the more vigorous Action of the Solar Rays, does more effectually shake the Parts of Bodies, and unlock the Pores, and so make Room for a more plentiful Emission of Effluvia. Beside, that in warmer Weather, the Medium being rarer, makes less Opposition to the Passage of the Effluvia.

7. The Air being exhausted out of the Tube, it loses almost all its *Electricity*: So that tho' rubb'd, and heated more vehemently, and Leaf-Gold applied nearer than usual, it scarce attracts at all. And what little Attraction remains, Mr. *Hauksbee* conjectures, may arise from the little Portion of Air remaining in the Tube: And so the Attraction may continue in Proportion to the Quantity of Air. When the Air is let into the Tube again, the attractive Power is immediately restor'd; and that before any new Attrition can be given the Tube, or e're it be removed from the Distance and Position it was in when exhausted. Mr. *Boyle*, however, found that a Piece of Amber did sensibly attract when the Air was pump'd out of the Receiver.

8. *Electrical* Bodies attract all Things indifferently, whereas the Magnet draws only Iron and Steel.

9. A large Piece of very *Electrical* Amber being suspended by a silken Thread, and one End of it rubb'd strongly on a little Cushion; the Cushion being brought nearer, towards the Amber at rest, will plainly make the Amber tend towards it, and follow it. Whence it appears that the *Electric* Body, is attracted by the other Bodies, as well as it attracts them. And that it is only by Accident that the small attracted Bodies approach to the *Electric* ones.

10. After an *Electrical* Body has been well rubb'd, there is a certain Nick of Time in which the light Body, instead of being attracted, will be actually repell'd, or driven away from the *Electrical* one, by the Effluvia going briskly out, and not returning again.

Mr. *Hauskbee* assures us, that the Pieces of Leaf Gold would be sometimes thrown off from his Tube with a great Force, even to the Distance of six or seven Inches. And thus, not only when they adhered to the Surface of the Tube, would they be thus suddenly and precipitantly driven from it; but also in their Motion of Ascent towards it.

11. A Glass Globe, being contrived to be whirled round, with its Axis parallel to the Horizon, and a Semi-circle of Wire fitted round the upper Hemisphere thereof, at the Distance of 4 or 5 Inches, with several Pieces of Woollen Thread hung thereon, of such Lengths, as that when extended in a Direction towards the Centre of the Glass, they would reach within an Inch of the Circumference thereof; but when left at Liberty, hang down in a parallel Position: Upon applying the Hand, and so adding an Attrition to the former Rotation, the Threads presently began to change their Direction, and all harmoniously pointed to the Centre of the Globe; and to put it pass Doubt, this Effect depended on the Attrition, the Experimentator, by shifting the Place of the Attrition hither and thither, cou'd draw the Threads towards this or that End of the Globe, tho' they all still went uniformly converging towards some Centre, in the Axis thereof; and so form'd a Kind of Conical Surface.

The same Phænomena follow'd upon shifting the Wire, and putting it on the lower Hemisphere. Add, that upon suspending the Motion and Attrition, the Threads would continue in their strait direct Posture for the Space of four or five Minutes. And in the mean Time, if the Finger, or any other Body, were applied near the Extremity, or Points of the Threads, they would avoid and fly from the same: But if applied about an Inch Distance from the End of such Thread, the Thread would usually be attracted towards it.

ELECTRUM, the same as *Amber*. See AMBER.

ELECTUARY, in Pharmacy, a Form of Medicine, composed of Powders and other Drugs, incorporated with Honey or Sugar; to be divided into Doses, like Bolus's, when taken.

It is thus call'd, by Reason all the Parts, or Ingredients it consists of, should be well *chosen*; from the *Latin* Verb *Eligere*, to chuse, whence *Electus*, chosen. Others derive it from *Lac*; and accordingly the *Greeks*, under the *Eastern* Empire, call'd it λακτυάριον. *Scaliger* derives it from λείχω, *to lick*; and calls it in *Latin*, *Elinctum*.

Vossius observes, that all the Remedies prescribed for the Sick, as well as the Confections taken by Way of Regale, were called by the *Greeks*, ἐκλείγματα and ἐκλείκτα, of the Verb λείχω, *to lick*: Whence, says he, was form'd the Latin *Electarium*, and afterwards *Electuarium*. This Opinion he proves from the Laws of *Sicily*, where it is ordain'd, that *Electuaries*, Syrups, and other Remedies, be prepared lawfully. The *Bollandists*, who relate this Etymology, seem to confirm it. *Act. Sanct. Mart. F. II. p.* 131. See ECLEGMA.

Electuaries are either *soft*, or *solid*; and of each Kind, some are *Alterative*, others *Corroborative*, others *Purgative*, &c.

The soft are of the Consistence of Honey, and consist of 3 Ounces of Powders to a Pound of Honey or Sugar.

The solid are in Manner of *Tabellæ*, or Lozenges. The Purgative are usually of the soft Kind: But the Corroborative only admit of an Ounce and half or two Ounces.

Among the soft *Electuaries* are reckon'd *Treacle*, *Mithridate*, the Confection of *Hamech*, that of *Alkermes*, the *Catholicon*, *Diaprunum*, *Diaphœnic*, Galens *Hiera picra*, &c. which see explain'd under their respective Articles.

Among the solid *Electuaries*, are reckon'd *Carthamum*, *Rose Juice*, *Voilet Juice*, &c. Mons. *Lemery* reckons up above 120 Sorts of *Electuaries*.

ELEEMOSINA *Carucarum*, or *pro Aratris*, or *Aratri*, in our antient Customs, a Penny which King *Ethelred* order'd to be paid for every Plough in *England*, towards the Support of the Poor.

Sometimes 'tis called *Eleemosina Regis*, because first appointed by the King.

Eleemosinæ are also used for the Possessions belonging to Churches.

ELEEMOSINARIA. See AMBRY.

ELEGANCE, ELEGANCY, consider'd in the general, is a Manner of doing or saying Things with Choice, Politeness and Agreeableness: With *Choice*, in going out of the common Ways: With *Politeness*, in giving the Thing a Turn which strikes People of a delicate Taste: And with *Agreeableness*, in diffusing a Relish throughout which hits every Body.

Elegantiæ poeticæ, poetical *Elegancies*, are of Service to Scholars in making their Verses. By being too regular in the Grammatical Construction, we lose certain Licences, wherein the *Elegance* of Language consists. *Elegance*, tho' irregular, is better than Regularity without *Elegance*.

The *Elegance* of a Painting is not founded on the Correctness of the Design, as appears in *Raphael* and the *Antique*. It is most felt in Works otherwise careless and inaccurate; as in *Corregio*, where, maugre all the Defects as to Justness of Design, there is an *Elegance* even in the Manner of the Design it self, as well as in the Turn of the Attitudes. *&c.*

The *Elegance* of a Design, is a Manner of Being, which Embelishes, and heightens Objects either as to their Form, or Colour, or both; without destroying or perverting the Truth.

ELEGIAC, in the *Latin* Poetry, something that belongs to *Elegy*. See ELEGY.

Elegiac Verses, *Elegi*, are alternately Hexameter and Pentameter. See VERSE.

Quintilian esteems *Tibullus* the Top of the *Elegiac* Poets: But the younger *Pliny* gives the Preference to *Propertius*. They have each of them Reason on their Side; and one might make a third Choice, as true as either of them.

ELEGIT, in Law, a Writ judicial, which lies for him that has recover'd Debt, or Damages; or upon a Recognizance in any Court, against one not able in his Goods to satisfy; and directed to the Sheriff; commanding him to make Delivery of half the Party's Lands, and all his Goods, Oxen and Beasts for the Plough, excepted.

The Creditor shall hold the Moiety of the said Land so deliver'd to him, till his whole Debt and Damages are satisfied; and during that Time, he is Tenant by *Elegit*.

ELEGY, a Kind of Poem, or Poesy, used on mournful, plaintive Occasions. See POEM.

The first Inventor of the *Elegy* is not known: Some say 'twas one *Theocles* of *Naxi*, or, according to others, of *Etreria*; who, in the Heat of his Frenzy, first produced this Kind of Verse. But, no Wonder we are in the Dark as to this Matter: *Horace* assures us, 'twas a Point not settled among the Grammarians even in his Time, who the Author was.

Quis tamen exiguos Elegos emiserit Auctor
Grammatici certant & adhuc sub Judice lis est.

The chief Writers of *Elegy* among the *Greeks*, are *Callimachus*, *Parthenius* and *Euphorion*: And among the *Latins*, *Ovid*, *Catullus*, *Tibullus*, and *Propertius*.

The *Flemish* have distinguish'd themselves among the Moderns for this Kind of *Latin* Verse: And the *Elegies* of *Biderman*, *Grotius*, and especially *Sedronius* and *Vallius*, might become the purest Antiquity. The Countess

de la Suze, has distinguish'd her self for *Elegies* in the *French* Tongue.

In the *English*, we have nothing considerable of the *Elegiac* Kind, but what we have in *Milton*. The *English* and *French Elegies* are chiefly in *Alexandrine* Verses.

In Process of Time, *Elegy* degenerated from its Original Intention; and not only Matters of Grief, but also Joy, Wishes, and almost every Subject, became free of *Elegy*. Complaints, Expostulations, Prayers, Vows, Praises, Congratulations, Reproaches, *&c.*

The Office of the *Elegy* is well deliver'd by M. *Boileau*.

La plaintive Elegie en longs habits de Deuil,
Scait les Cheveux epars gemir sur un Circueil:
Elle peint des Amans la Joye, & la Tristesse;
Flatte, Menace, Irrite, appaise une Maitresse.

In Mourning Weeds sad *Elegy* appears,
Her Hair dishevell'd, and her Eyes in Tears:
Her Theme, the Lover's Joys, but more his Pains;
By Turns she sings, soothes, threatens and complains.

The Diction of *Elegy* is to be clean, easy, perspicuous, expressive of the Manners, tender and pathetic; not debauch'd or oppress'd with Sentences, Points, *&c.* No Apostrophe's are allow'd; and the Sense to be generally closed in every Distich or two Lines. At least in the *Latin*.

ELEMENTARY, something that relates to the *Elements*. See ELEMENT.

The Elements of a Body are also called the *Elementary Principles* thereof. See PRINCIPLE.

The whole Space, included within the Concave, or Orbit of the Moon, is called the *Elementary Region*, as being the Seat, or Sphere of the four Vulgar Elements, and the Bodies compounded thereof. See REGION.

The Author of the *Comte de Gabalis*, calls *Elementary People* a Kind of perfect Beings, which inhabit the Elements, and are only known by what they call the Philosophers, or Sages. According to these Folks, who at best are great Fools, the *Element* of *Fire* is inhabited by Salamanders; *Water*, that is, the Sea and Rivers, by Nymphs, or Oridians; *Earth*, by Gnomes and Gnomides; and *Air*, by Sylphs and Sylphides.

ELEMENTS, in Physicks, the first Principles, or Ingredients of Things; whereof all Bodies are compounded; and into which they are all resolvible. See BODY.

Elements are conceiv'd as the most simple, homogeneous Parts, or Corpuscles; of an Assemblage, and Mixture whereof, all the Bodies we see, consist. See CORPUSCLE, *&c.*

Authors generally talk very wildly and inconsistently of the *Elements*, and confound them with the *Principles* of Things: Yet is there a great deal of Difference. As we find, by Experience, that all Things cannot indifferently be made of all; that Stone, for Instance, and Marble, are not convertible into Flesh, nor are fit to nourish or augment an animal Body: It seems to follow, that all the Variety of Bodies could never arise from the first simple Combination of the two Principles, Matter and Form; but only some infinitely simple Beings, or Corpuscles, which being variously intermix'd, might constitute all other Bodies.

Now those most simple of all Beings, thus form'd of the first Determination and Concretion of Principles, are what the Philosophers properly call *Elements*: So that *Elements* and *Principles* have this Difference between them; that a *Principle*, as Matter, is a Kind of incompleat Nature; but an *Element*, a perfect or compleat one. See PRINCIPLE.

Hence it follows, that there must, of Necessity, be more *Elements* than one: Since otherwise all Things would be equally simple, and there would be no such Thing as a Compound in Nature. Most of the Antients, not aware of this, confound *Element* with *Principle*: On this footing, the *Elements* are sometimes held corruptible, and sometimes incorruptible.

The Retainers to incorruptible *Elements*, mean precisely by *Element* what we mean by the *first Matter*. In Effect, their *Elements* are their Atoms, or Corpuscles, which are supposed indivisible, incorruptible, *&c.* See ATOM and CORPUSCLE.

Democritus is held the first Author of this Tenet; which accordingly is adhered to by *Epicurus* and many of their Descendants, the *Epicurean* and *Corpuscular* Philosophers. See CORPUSCULAR, *&c.*

Among those who hold them corruptible, some will only have one, and some several. Of the former, the Principal are *Heraclitus*, who held Fire; *Anaximenes*, Air; *Thales Milesius*, Water; and *Hesiod*, Earth; as the only *Element*. *Hesiod* is follow'd by *Bernardin. Velesius*; and *Thales*, by many of the Chymists. See WATER, *&c.*

Among those who admit several corruptible *Elements*, the principal are the *Peripateticks*; who, after their Master *Aristotle*, contend for four *Elements*, viz. Fire, Air, Water, and Earth. *Aristotle* took the Notion from *Hippocrates*; *Hippocrates* from *Pythagoras*; and *Pythagoras* from *Ocellus Lucanus*, who seems to be the first Author of the *Dogma*.

But there is a still further Variety of *Elements*: For the Philosophers, not considering Matter in it self, or in the general, but only some of the Sensations it excites in us; some of them refer all to the Sense of Sight, and assert *lucid* and *obscure*, or *pellucid* and *opake*, to be the *Elements* of all Things: And others, regarding only the Sense of Touch, make *hard* and *liquid*, or *hot* and *cold*, the *Elements* of Things.

In this latter Class we are to reckon *Aristotle*; tho' his Way of Proceeding was somewhat different from the rest. For, considering the four principal Qualities that fall under the Sense of Touching, *Heat*, *Cold*, *Dryness* or *Hardness*, and *Humidity* or *Liquidity*: And observing that two of these Qualities might be one and the same Thing taken in two different Relations; and that they might be combined four Ways; he made four *Elements*; the first, *cold* and *dry*; the second, *cold* and *moist*; the third, *hot* and *moist*; and the fourth, *hot* and *dry*.

Then, to give Names to these *Elements*, he enquired in what Things these several *Elements* seem'd chiefly to prevail. Accordingly, taking the Earth to be the coldest, and, at the same Time, driest of all Things, he call'd the first *Element*, *Earth*. See EARTH.

And *Water*, being the coldest and moistest of all Things, he called his second *Element*, *Water*. See WATER.

Again, judging *Air* the moistest, and at the same Time hottest of all Things, his third *Element* he called *Air*. See AIR.

Lastly, *Fire* being the hottest and driest of all Things, his fourth *Element* he denominated *Fire*. See FIRE.

These Denominations gave Occasion to some, impertinently enough, to mistake his Meaning; and to take this habitable *Earth*, this potable *Water*, this *Air* we breath, and this *Fire* we burn on our Hearths, to be the four *Elements*; notwithstanding that the Word *Element* denotes a most simple Thing; whereas the Bodies just mention'd, are all exceedingly compound. See PERIPATETICK.

The *Cartesians* only admit three *Elements*; which they pretend are all that could arise from the first Division of Matter: To explain their Origin, they suppose the whole Mass of Matter in the Universe, divided into an infinite Number of Particles of unequal Magnitudes, and of any Figure at Pleasure. These several Particles they suppose, further, to have been revolved, or whirled, in various Manners, each round its Centre; so as to become truly separate and apart.

Thus much supposed, 'tis impossible but the Angular, Eminent, and Implicated Parts of the several Particles must be broke off; and thus, tho' little before, they must continue continually to grow less till they arrive at a perfect Rotundity. By this Means we get two Kinds of determinate Matter for the two first *Elements*: The first, a fine Dust rubb'd, or broke off from the Angles of the Particles, till they are turn'd round; which is the Matter of the *first Element*, or the *Materia subtilis*. The other, the Parts themselves thus turn'd round, and smooth, which makes the *second Element*.

And, as 'tis probable some Particles of Matter may either separately, or conjunctly, still retain irregular, hooked, and intricate Forms; these constitute the *third Element*.

'Tis added, that the *Elements* are convertible into each other: For the *third Element*, by growing round, may become the *second*; and the *second*, by a continual Comminution and Subtilizing, the *first*. See CARTESIAN *Philosophy*.

Our great Sir *Isaac Newton*, considers the primary *Elements* of Bodies on the atomical System, thus: All Things consider'd, it seems probable, that God in the Beginning form'd Matter in solid, massive, hard, impenetrable, moveable Particles of such Sizes, and Figures, and with such other Properties, and in such Proportion to Space, as most conduced to the End for which he form'd them; and that these primitive Particles, being solids, are incomparably harder than any porous Bodies compounded of them; even so very hard as never to wear out: No ordinary Power being able to divide what God made one in the first Creation. While the Particles remain entire, they may compose Bodies of one and the same Nature and Texture in all Ages: But should they wear away, or break in Pieces, the Nature of Things depending of them, would be changed. Water and Earth, composed of old worn Particles, and Fragments of Particles, would not be of the same Nature and Texture now, with Water and Earth composed of entire Particles in the Beginning. And, therefore, that Things may

may be lasting, the Changes of corporeal Things are to be placed only in the various Separations, and new Associations and Motions of those permanent Particles: Compound Bodies being apt to break not in the midst of solid Particles, but where those Particles are laid together, and only touch in a few Points. It seems to me, likewise, that these Particles have not only a *Vis Inertiæ*, with the passive Laws of Motion resulting therefrom, but are also moved by certain active Principles; such as is Gravity, and that which causes Fermentation and the Cohesion of Bodies. See GRAVITY, FERMENTATION, and COHESION.

ELEMENTS, in Chymistry, are the Principles, or component Parts of Natural Bodies, into which they are resolvible by Fire, *&c.*

The Effect of Chymistry is to analyze or resolve Bodies into their *Elements*. See CHYMISTRY.

The Chymical *Elements* are divided into *Active* and *Passive*. See PRINCIPLE.

The Chymists are somewhat divided as to their *Elements*: The Generality of them to the Vulgar *Peripatetic Elements*; *Water*, which they call *Phlegm*; and *Earth*, which they call *Caput mortuum*; add three more, *viz. Salt*, *Sulphur*, and *Mercury*. *Salt*, they hold, the Principle of Taste; and *Sulphur*, of Smell and Inflammation: As to *Mercury*, which they also call *Spirit*, some hold it the Principle of Colours, but others deny it; and, in Effect, they agree in nothing, but that 'tis the most subtle and spirituous Part. See SALT, SULPHUR, *&c.*

The *Elements* of Fossils are, 1. *Mercury*, as the Base; 2. *Sulphur*, as the Coagulator, or Binder. 3. *Salt*. 4. *Earth*. The *Elements* of Metals, are *Sulphur* and *Mercury* alone; *Mercury* as the Base, or Matter, and *Sulphur* as the Binder, or Cement. The *Elements* of Fossil Salts, are an insipid acid Spirit and Earth. The *Elements* of Earths, are an Oil, a little acid Salt, and a Calx. The *Elements* of Sulphurs are an acid Spirit, an Oil, and an Earthy or Metallic Matter. *Boerhaave.*

But, after all, it must be added, that there is no assigning any precise Number of Chymical *Elements*; some Bodies yielding more, and others less. And even these very *Elements* themselves are reducible, by a further Process, into other *Elements*.

Thus, by repeated Distillations of Wine, we successively get a Spirit of Wine, a vapid Water, a subacid Water, a more acid Water, Oil, bitter yellow Spirit, and a *Caput mortuum*, which is resoluble into Earth, Oil, *&c.* Now, are these so many several *Elements*? Add, that what they account an *Element*, now that it is separated, is very different from what it was when it existed in the mix'd; as appears hence, that upon remixing all the *Elements* a Body is resolved into, the Mixture will bear no Resemblance to the first Body.

In Effect, the *Elements* seem rather to be produced by the Fire, than separated by it. Beside, that they are convertible, or at least resolvible, into one another.

Thus, Spirit of Wine is found to yield an acid, an Oil, and a Water: And Salts yield either an Acid, or an Alcali, with Phlegm.

What makes the Notion of the Chymical *Elements* still more precarious, is, that a Pot-Herb, and a poisonous Herb, shall sometimes yield *Elements* perfectly alike; more so, that the same Plant analysed at two different Times. Mons. *Homberg*, has consider'd the Difficulties charged on *Elements*, with great Attention.

The Result of numerous Experiments made to ascertain the Matter is: That the four Principles, Salt, Oil, Water, and Earth, are always found in all Plants, in what Manner soever analysed: That these Principles are more or less Volatile, or fix'd according to the different Manners of Analysing: That this Difference arises, not only from the different Force of Fire, but also from the Fermentation of the mixt, preceding the Analysis: That a vehement Fire, rendering different *Elements* equally volatile, confounds them in the Analysis: That the Fire evaporates, and absolutely loses several Parts: And that to have the *Elements* as pure as may be, only Fermentation and a gentle Fire must be used.

ELEMENTS, are also used figuratively, for the Principles and Foundations of Arts and Sciences.

Thus we say, Letters are the *Elements* of Speech: He does not know the first *Elements* of Grammar.

The *Elements of Mathematicks* have been deliver'd by several Authors in their Courses, Systems, *&c.* The first Work of this Kind, is that of *Peter Herigon*, in *Latin* and *French*, published in 1664, in ten Tomes; wherein are contain'd the *Elements* of *Euclid*, *Euclids Data*, *Apollonius Pergeus*, &c. with the *Elements* of Arithmetic, Algebra, Trigonometry, Architecture, Geography, Navigation, Opticks, Sphericks, Astronomy, Music, Perspective, *&c.* The Work is remarkable for this, that throughout, a Kind of real and universal Characters are used; so that the Demonstrations may be understood by such as only remember the Characters, without any Language or Words at all. See CHARACTER.

Since *Herigon*, the *Elements* of the several Parts of Mathematicks have been laid down by others, particularly the Jesuite *Schottus*, in his *Cursus Mathematicus*, in 1674; Sir *Jonas Moor*, in his *New System of Mathematicus*, in 1681; *De Chales*, in 1674; *Ozanam*, in his *Cours de Mathematique*, in 1699. And above all, *Christ. Wolfius*, in his *Elementa Mathesios Universæ*, in two Vols. Quarto. The first published in 1713, and the second in 1715; a Work never enough to be commended.

The *Elements of Euclid*, are the first and best System of Geometry. We have Abundance of Editions, and Comments on the XV Books of *Euclid's Elements*. *Orontius Finæus*, first published the first VI Books in 1530; with Notes to explain *Euclid's* Sense. The like did *Peletarius* in 1557. *Nic. Tartaglea*, made a Comment on all the XV Books about the same Time, with the Addition of some Things of his own: And the like did *Fran. Hussates Candalla*, a noble *Frenchman*, in the Year 1578, with considerable Additions, as to the Comparison, and Inscriptions of solid Bodies; which Work was afterwards re-publish'd with a prolix Comment by *Clavius*, whose Edition has since been variously printed, at various Places and Times.

De Chales, *Herigon*, and *Commandinus*, have likewise done well upon *Euclid*; so has Dr. *Barrow*, who is remarkable for the Conciseness and Strictness of his Demonstrations. But as the whole XV Books do not seem necessary, especially for young Mathematicians, some Authors have chose only the first Six, with the Eleventh and Twelfth at most: It would be endless to relate the several Editions hereof: The two best are the *French* one of *Dechales*, and the *Latin* one of *And. Tacquet*: The best Edition of the former of which is that of *Paris* in 1709, by *Ozanam*; and of the latter, that of *Cambridge* in 1703, by Mr. *Whiston*.

Herlinus, and *Dasypodius*, have thrown all *Euclid's* Demonstrations into Syllogisms; to shew how by a concatenation of Syllogisms, a compleat Demonstration arises. *Pet. Ramus* disliked *Euclid's* Order, as appears from his *Discourse on the* XV *Books of Euclid*; and therefore he compiled 23 new Books of *Elements*, in the Order of the Schools, but unhappily: Tho' his Example was afterwards followed by others, particularly the Jesuite *Gaston Pardies*, in 1680; *Arnaud*, in 1667; and *Fa. Lamy*, in 1685; *Polynier*, a *French* Physician, in 1704, digested *Euclid* into a new Method: The like did *Angelus de Marchettis* of *Pisa*, in 1709, in his *Euclides Reformatus*.

ELEMENT *of an Area*, called also its *Differential*, is the Rectangle, P M R Q (*Tab. Analysis Fig.* 11.) of the Semi-ordinate P M, into the Differential of the Ascis, P P. See DIFFERENTIAL.

ELEMI, or ELEMY, in Pharmacy, a pellucid Resin, of a whitish Colour, intermix'd with yellowish Particles, which give it much of the Colour and Consistence of Wax; of a pretty brisk, bitter, tho' not disagreeable, Taste; and a Smell like that of Fennel.

'Tis usually called *Gum Elemi*, tho' very improperly, inasmuch as it takes Fire readily enough, and dissolves in oleaginous Liquors, which are the Characters of a Resin. It flows from Incisions made in the Trunk, and large Branches of a Kind of wild Olive Tree, growing in *Ethiopia*, and *Arabia fœlix*. It is also found in the *Pouille*, a Province of the Kingdom of *Naples*.

Pomet, in his History, and *Lemery*, in his Treatise of *Drugs*, describe *Elemi* as a white Resin, bordering on green, odoriferous, and brought from *Ethiopia*, in Cakes of two or three Pounds a-piece, wrapp'd up in the Leaves of the *Indian* Cane.

It is excellent in Diseases of the Head; and proper to digest, resolve and suppurate. It is held a Kind of Natural Balsam; and soveraign in the Cure of all Kinds of Wounds.

The true *Gum Elemy* is that above described; but there are several spurious ones, some natural, and others factitious, frequently sold for the same.

The factitious, or counterfeit, is made of Rosin wash'd in Oil of Aspic; tho' the ill Smell, and white Colour, might easily discover the Deceit. The natural Gums, obtruded for *Elemy*, are,

1. A Gum brought from the *American* Islands, in Barrels of divers Weight, cover'd up with the Leaves of a Plant unknown in *Europe*.

The 2d might be taken for Rosin, but for its Smell, which is somewhat sweeter, and more aromatic.

The 3d is of an Ash Colour, bordering on brown, brought over in large Pieces, very dry and friable.

Pomet does not take any of them for Natural; but rather supposes them to be originally *Elemy*, only impure

and coarse, since melted down, and made up by the Fire.

ELENCHUS, in Logic, by the *Latins* call'd *Argumentum* and *Inquisitio*, a vitious or fallacious Argument, which deceives under the Appearance of Truth; the same with *Sophism*. See SOPHISM.

ELEOSACHHARUM, from ἔλαιον, *Oleum*, and *Saccharum*, Sugar; a Mixture of Oil with Sugar, frequently added to distill'd Oils, to make them mix with aqueous Fluids for present Use.

ELEPHANT, gives the Denomination to a famous Military Order, conferr'd by the Kings of *Denmark*. See KNIGHT.

It is called the *Order of the Elephant*, from its Arms, which are an *Elephant*.

There are a deal of different Sentiments as to the Origin and Institution of this Order: The first is that of *Mennenius* and *Hoepingius*, who attribute it to *Christian* IV. who was elected King in 1584. The second, that of *Selden* and *Imhof*, who derive it from *Frederic* II, elected in 1542. 3°. *Gregorio Leti* goes back as far as *Frederic* II, who reigned about the Year 1530. 4°. *Bernard Rebolledus*, will have King *John* to be the Author, who began to reign in 1478. 5°. *Anselmius*, *Roserus*, and *Loescher*, hold it to have had its Rise under *Christian* I, Father of *Frederic* I. Lastly, *Voightius*, *Bechman*, and *Bicherodius*, maintain *Canutus* VI. to have been the first Institutor; and the Occasion thereof to be the *Croisades*. This Prince, according to the Chronology of *Swaning*, reign'd towards the Close of the XII th Century, from the Years 1168, to 1191.

This, at least, we are certain of, that the Order was subsisting in the Year 1494; there being a Painting still extant, done that Year by Count *Reinden*, a Knight of this Order. And we have even authentic Evidences of the Marquess of *Mantua*'s being created Knight of the same Order by *Christian* I, in 1474. There are Bulls of Pope *Pius* II, and *Sixtus* IV, confirming the Statutes of the Order, authorizing the holding of Assemblies, or Chapters, in the Chappel of *Boeschil*, and settling the Privileges of the Knights.

The Order was at first called the *Order of St. Mary*, *Ordo S. Mariæ*: Tho' it seems to have had the Appellation of the *Elephant*, as early as *Christian* I. Witness the Figure of an *Elephant*, so often struck on his Coins, Medals, &c.

The Manner of its Institution is thus related: King *Canutus* having sent a Fleet against the *Sarazens*, in 1189, which took *Siluma* and *Ptolemeis*; a Gentleman among the *Danish Croisees*, kill'd an *Elephant*; in Memory of which extraordinary Accident, the Order was erected. This Account is render'd the more probable by this; that it is refer'd to an *Æra*, when nothing was more common than to take the Spoils of a vanquish'd Enemy for Armories, or Cognizances: And accordingly some of the principal Arms of the like Kind now on Foot, *e. gr.* the *Lions* of the *Low-Countries*, had their Rise at the Time of the *Croisades*; as is shewn by *Hoegerus* and *Hoepinguis*. Which Circumstances greatly corroborate the Opinion of those, who ascribe the Order to King *Canutus*.

Bessarion brought with him a very antient, and rare Coin from the *East* to *Rome*; whereon was seen the Image of the Holy Virgin, with an *Elephant*. *Cassian* takes this to have been the Badge, or Symbol, of the *Danes*, engaged in the *Croisades* against the *Sarazens*; and supposes it to relate to the Order of the *Elephant*. The Chancellour *Frusius*, had another Coin of the like Kind, whereon was the Image of the Holy Virgin, an *Elephant*, and a *Crescent*, which was antiently a Member in the Arms of this Order. *Boisseau* relates another antient Figure of the Arms of this Order, bearing the Image of the Holy Virgin with four *Elephants*, charged with Towers. And *Petra Sancta*, a fourth, wherein was the Virgin with three Keys, and four *Elephants*, and Spurs: Whence it appears, that the Order was under the Protection of the Virgin. Accordingly, the Order is still called the *Order of St. Mary*. To the Collar of the Order hangs an *Elephant*, with a Silver Turret on its Back; and underneath the *Elephant*, an Image of the Holy Virgin, encircled with Rays. See the Abbot *Justiniani*, *Hist. de tutti gl. Ord. Milit. e Cavall.* T. II. *C.* 72.

The Chappel of *Roeschild*, was founded by *Christian* I. for the Assemblies, or Chapters, of the Order to be held in. It was at first called the Chappel of the three Kings, *Capella trium Regum*: Afterwards *Frederic* I. gave it the Name of the *Royal Chappel*.

The Order was retriev'd by *Frederic* II, who created Abundance of Knights at the Ceremony of his Coronation, which is the only Time when the *Danish* Kings make any of these Knights. *Christian* V, augmented and enrich'd it very considerably. In the Year 1694, a grand Chapter of the Order was held at *Fredericsburg*, in the Chappel of the Knights, wherein six *German* Princes were admitted into the Order.

We have Abundance of Writings on the Subject of this Order; whereof that of *Janus Bischerodius* may serve for all the rest: 'Tis the latest, the most ample, and masterly. It was published at *Copenhaguen*, in the Year 1705, under the Title of *Breviarium Equestre*; *seu de Illustrissimo, & Inclitissimo Ordine Elephantino*, &c.

ELEPHANTIASIS, in Medicine, a Kind of *Leprosy*, called *Lepra Arabum*, in Contradiction to the *Lepra Græcorum*, which is another Disease. See LEPROSY.

The *Elephantiasis* is thus call'd, by Reason those seiz'd therewith, have their Arms, and Legs, big, swollen, and tuberous; the Skin bloated, yet rough to the Touch, all wrinkled and unequal like the Skin of an *Elephant*.

The *Elephantiasis Græcorum*, or *Lepra Arabum*, is described by *Deodatus*, as a contagious Disease, infecting the Body with a Croud of Evils. The Skin of the Face, Knees, Elbows, Thighs, Hands and Feet is full of moveable, indolent Tubercles of a livid Colour, tending to Redness: In the Mouth, Palate, and Jaws, likewise, arise Tubercles, sometimes yellow, and sometimes livid: In the Intervals between the Toes, and on the Soles of the Feet, especially the hard callous Parts thereof, as also in other Parts of the Limbs, break out Ulcers, which penetrate the Cutis, are very broad, and keep spreading with callous, and tumid Lips: These, upon a little Violence yield Blood, and yet are indolent. Add, that Ulcers eat the Nose, with Tumors about the Ears; the Lips thicken, and the Feet and Hands are wonderfully bloated.

Yet *Etmuller*, *Haly*, *Abbas*, and others, speak of the *Elephantiasis* as a ruddy, livid Swelling of the Feet and Legs, with Varices, and Ulcers; which make the Feet appear like *Elephants* Feet.

The *Elephantiasis*, *Turner* observes, is a Disease unknown in our Parts of the World; at least in these Days. Some Authors call it *Leontiasis*, and others *Satyriasis*. The *Greeks* call it ἐλεφαντίασις; and sometimes ἐλέφας, *Elephant*, and ἐλεφαντιασμός.

ELEPHANTINE, something that relates, or belongs to an *Elephant*.

The Term is chiefly applied to certain Books of the antient *Romans*, wherein were recorded the Actions of the Princes, and the Proceedings, Acts, &c. of the Senate. This we learn from *Pollio*, and *Vopiscus*, in the Life of the Emperor *Tacitus*, where he observes that in the 6th Press of the *Ulpian* Library, was kept one of these *Libri Elephantini*; wherein, for a long Course of Time, were wrote down the Decrees, and Edicts of the Senate.

In some of these Books, were registred all the Acts and Measures of the Senate, and the Magistrates of *Rome*; in others, the Proceedings and Events in Provinces, in War, &c.

There were above thirty five large Volumes of them, as many as there were Tribes: There being likewise contain'd in them the Births, and Degrees of the Citizens; the Enumerations and all Things belonging to the Censure. They were renew'd every five Years with the Censors; and were all antiently kept in the *Ærarium*, or public Treasury, which was in the Temple of *Saturn*. *Vigenere on Tit. Livy*.

Vigenere, and several others, believe these Books to have been called *Elephantine*, by Reason of their enormous Bulk, *q. d.* as big as *Elephants*, or Bullocks. But *Loisel* on the XVII th Chapter of the XI th Book of *Aulus Gellius*, gives us a different Etymology; and assures us they were called *Elephantine*, because made of Ivory Leaves, or Tablets, which every Body knows is a Production of the Elephant. And, accordingly, *Ulpian*, *L.* 52. *H. de Legat.* 3. makes mention of an Ivory Book. *Scaliger* and *Gerard Vossius*, say they were made of the Intestines of an *Elephant*.

Vossius does not deny, indeed, but that they might have been made of Ivory; but being there were several other Books, and Tablets, made of that Matter, as appears from *Martial*, L. XIV. *Epigr.* 3. and a hundred other antient Authors, and from what we have shewn under the Term DYPTIC: It does not appear, why the Name *Elephantine* should be peculiarly appropriated to these.

Martial does not give the Name *Elephantinus*, but *Eboreus*, *of Ivory*, to the Tablets mention'd in the Place last quoted, *Eborei Pugillares*: *Alexander ab Alexandro Genial. Dier.* L. II. *C.* 2. makes mention of the *Libri Elephantini*: So does *Salmasius*, on the Passage in *Vopiscus*, just quoted; where he refutes *Scaliger*, maintains that these Books were of Ivory, and shews, that the Antients used the Word *Elephas*, for *Ivory*; witness *Virgil Æneid.* L. III. *v.* 464. and *Servius* on the same: And *Elephantinus*, for what was of Ivory; witness *Martianus Capella*,

Capella, and *Isidore* in his Glosses. He shews further, that it was no impossible Thing to write on Ivory, as *Scaliger* had suggested; that they did not make use of a Goose Quill as we do, nor of Ink like ours: But Rushes, or Reeds, form'd after a different Manner from our Pens, and Ink fit to take upon Ivory. The Matter of Fact, in fine, he asserts, is clear from *Martial*, and *Plautus* in his *Mostellaria*.

ELEVATION, *Altitude*, or *Height*, in Astronomy. The *Elevation of any Star*, or other Point, in the Sphere, is an Arch of the Verticle Circle, intercepted between his Star or other Point, and the Horizon.

And the same Definition serves for the *Depression*, or Depth of any Point.

Hence, as the Meridian is a Vertical Circle; a Meridian Altitude, or *Elevation*, i. e. the *Elevation* of a Point in the Meridian, is an Arch of the Meridian, intercepted between the Point and the Horizon. See ALTITUDE.

ELEVATION *of the Pole*, is the Altitude of the Pole above the Horizon of any Place; or an Arch of the Meridian, intercepted between the Pole and the Horizon. See POLE.

Thus, in *Tab. Astronomy Fig.* 39. A Q being supposed the Equator, H R the Horizon, H Z P N the Meridian, and P the Pole; P R is the *Elevation of the Pole*.

The *Elevation of the Pole*, is always equal to the Latitude of the Place; that is, the Arch of the Meridian intercepted between the Pole, and the Horizon, is equal to the Arch of the same Meridian, intercepted between the Equator and the Zenith.

Thus the North Pole is elevated 51° 32′ above the Horizon of *London*: And there is the same Distance, or Number of Degrees between *London* and the Equator; so that *London* is likewise in 51° 32′ of Northern Latitude. See LATITUDE.

To observe the Elevation of the Pole of any Place. See POLE and LATITUDE.

ELEVATION *of the Equator* is an Arch of the Meridian, less than a Quadrant, intercepted between the Equator, and the Horizon of the Place. See EQUATOR.

Thus A Q, as before, representing the Equator, H R the Horizon, P the Pole, and H Z P N the Meridian; H A is the *Elevation of the Equator*. See EQUATOR.

The *Elevations* of the Equator, and of the Pole, together, are always equal to a Quadrant: Consequently, the greater the *Elevation* of the Pole, the less the *Elevation* of the Equator, and *vice versa*.

Thus in the Figure just cited P A, is supposed by the Construction a Quadrant; and H A + A P + P R a Semi-circle: Consequently H A + P R is a Quadrant.

To observe the Elevation of the EQUATOR.

Find the *Elevation* of the Pole, after the Manner already directed under the Article POLE.

Subtract the *Elevation* found, from a Quadrant, or 90°. what remains is the *Elevation of the Equator*. Thus, the *Elevation* of the Pole 51° 32, being subtracted from 90°, leaves the *Elevation* of the Equator 38° 28′.

ELEVATION, in Architecture, a Draught, or Description, of the principal Face, or Side of a Building; called also an *Upright*, or *Orthography*. See ORTHOGRAPHY.

ELEVATION, we also find used in some Writers of Perspective, for the *Scenography*, or perspective Representation of the whole Body or Building. See SCENOGRAPHY.

ELEVATION, in the *Romish* Religion, is applied to that Part of the Mass, wherein the Priest hoists, or raises the Host, with the Cup, above his Head; for the People to adore it: After having consecrated, and adored it himself.

The Priest, who assists at Mass, rings a Bell at the *Elevation*; to apprize the People to cast their Eyes upon their new form'd Saviour, and adore him.

St. *Louis* decreed, that they should fall on their Knees at the *Elevation*, in Imitation of certain Religious whom he does not name. The *Chartreux*, and the Religious *de la Trape*, still observe this Ceremony of prostrating themselves at the *Elevation*.

Angle of ELEVATION, in Mechanicks, is the Angle A R B, (*Tab. Mechanicks Fig.* 37.) comprehended between the Line of Direction of a Projectile A R, and the Horizontal Line A B. See PROJECTILE.

ELEVATION *of a Mortar Piece*, or Gun, is the Angle, which the Chase of the Piece, or the Axis of the hollow Cylinder, makes with the Plane of the Horizon. See MORTAR, *&c.*

ELEVATOR, in Chirurgery, an Instrument used to raise up Bones, as those in Fractures of the Skull, when beaten, or crush'd in, with Blows, or the like.

There are dented *Elevators*: *Elevators* with three Feet, call'd *Elevatores Triploides*.

The *Elevator* made Lever wise, is a new Invention: Its Use is in drawing Teeth. One Extremity of it is flat, to rest on the Gum, at the Bottom of the Tooth, and the other hooked, like one of the Branches of a *Pelican* to fasten hold of the Tooth.

ELEVATOR, in Anatomy, a Name common to several Muscles, which do the Office of raising or lifting up of the Parts they belong to; of equal Import with *Attollens* and *Levator*. Such are the

ELEVATOR *Alæ Nasi*, a Muscle, or Pair of Muscles of the Nose, of a Pyramidal Figure, very narrow, tho' fleshy at its Origination on the fourth Bone of the upper Jaw; and very broad and thin at its Termination on the Side of the *Alæ Nasi*: Its Action is to pull the *Alæ* upwards, and turn it outwards. See NOSE.

ELEVATOR *Ani*. See LEVATOR *Ani*.

ELEVATOR *Auris*, or *Attollens Auriculam*, is in Reality no more than a Part of the Muscle of the Scalp, with some fleshy Fibres in it, as it descends over the temporal Muscles to the upper Part of the *Concha*. Its Action is scarce visible; the Auricles being scarce perceiv'd in Men to have ordinarily any Motion at all. See AURICLE.

ELEVATOR *Oculi*, one of the *Musculi Recti* of the Eye, serving to draw it upwards. See RECTI.

ELEVATOR *Labiorum Communis*, a Muscle of the Lips; arising from the fourth Bone of the upper Jaw, and terminating at the Angle of the Lips, under the *Zygomaticus*. See LIPS.

ELEVATOR *Labii inferioris*, is a Muscle, that arises from the second Bone of the under Jaw, below the Incisions. It descends, and passes under the *Zygomaticus*, and is inserted into the under Lip.

This, assisted by a small, but strong Pair of Muscles, arising from the Gum of the *Dentes Incisivi*, and descending directly, is inserted into the lower Part of the Skin of the Chin; and serves to pull the Skin of the Chin upwards, and consequently thrust up the Lip.

ELEVATOR *Labii Superioris*, ariseth from the upper Part of the second Bone of the upper Jaw; and descending obliquely, is inserted into the upper Lip, above the *Dentes Incisivi*. It draws up the Lip.

ELEVATOR *Scapulæ*. See LEVATOR.

ELEVE, a Term purely *French*; tho' of late used in our Language. Literally it signifies a Pupil, or Scholar, bred up under any one; from the Verb *elever*, to raise.

It was first used by the *French* Writers in speaking of Painters: Such a Painter was an *Eleve* of *da Vinci*, of *Raphael*, &c. From Painting, it came to be applied to such as studied, or learned any other Art under a Master. In the Royal Academy of Sciences, there were 20 *Eleves*: And in that of Inscriptions, 10 *Eleves*. The *Eleves* were to act in Concert with the Pensionaries.

We are not afraid, says Mons. *Fontenelle*, to compare a simple *Eleve*, such as Mons. *Amontons* was, to one of the greatest Members the Academy ever had. [M. *Mariotte*] The Name *Eleve*, with us, implies no Difference as to Merit; it only signifies somewhat of Seniority, and Survivance.

The Denomination *Eleve*, however, has been since suppress'd, and that of *Adjoint* substituted in its Room; by Reason every Body did not know the Sense affix'd to it by the Academy. And now the Pensionary Academists have not, as formerly, each of them an *Eleve*: But the *Eleves* are become *Adjoints*, or Associates to the Academy.

The Word is form'd of the *Italian*, *Allievo*, a Disciple or Novice.

ELEUSINIA, in Antiquity, the Mysteries of the Goddess *Ceres*; or the religious Ceremonies perform'd in her Honour: Thus call'd from *Eleusis*, a maritime Town of the *Athenians*, wherein was a Temple of that Goddess, famous for the Celebration of these Mysteries.

The *Eleusinia* were the most solemn and sacred Ceremonies in Use among the *Greeks*; for which Reason they were called *Mysteries* by Way of Eminence. They are said to have been instituted by *Ceres* her self, at *Eleusis*, in Memory of the Zeal and Affection wherewith the *Athenians* receiv'd her.

This is the Account *Isocrates* gives in his Panegyric; but *Diodorus Siculus* assures us, *L.* VI, that the *Eleusinia* were instituted by the *Athenians*, in Gratitude to *Ceres*, for having instructed them to lead a less barbarous and rustic Life. Yet the same Author, in the first Book of his *Bibliotheca*, relates the Thing in another Manner.

A great Drought, says he, having occasion'd a miserable Famine throughout all *Greece*; *Egypt*, which had that Year reap'd a most plentiful Harvest, bestow'd Part of the Fruits thereof upon the *Athenians*. 'Twas *Erictheus* that brought this extraordinary Supply of Corn: In Commemoration of which Benefaction, *Erictheus* was created King of *Athens*, who instructed the *Athenians* in these Mysteries, and the Manner of celebrating them.

This Account comes near to what we are told by *Herodotus* and

and *Pausanius*, viz. that the *Greeks* learn'd their Gods, and their Religion from the *Egyptians*.

Theodoret, *L.* I. *Græcanicar. Affection:* writes that it was *Orpheus*, not *Eriftheus*, who made this Eftablifhment; and who inftituted for *Ceres*, what the *Egyptians* practifed for *Ifis*: Which Sentiment is confirmed by the Scholiaft on the *Alcestis* of *Euripedes*.

Eleufis, the City where thefe Myfteries were celebrated, was fo jealous of the Glory thereof, that when reduced to the laft Extremities by the *Athenians*, it would not furrender but on this Condition, that the *Eleufinia* fhould not be taken from them; tho' thefe were no Religious Ceremonies peculiar to the Town, but were held common to all *Greece*.

The Matter of thefe Myfteries, as related by *Arnobius* and *Lactantius*, was an Imitation, or Repreftntation, or what the Fables teach of *Ceres*. They lafted feveral Days; during which, the People run about with burning Torches in their Hands; facrificed Abundance of Victims, not only to *Ceres*, but alfo to *Jupiter*; made Libations, from two Veffels, one of them to the Eaft, and the other to the Weft; march'd in Pomp and Procefion to *Eleufis*, making Paufes from Time to Time, wherein they fung Hymns, and facrificed Victims: And this they perform'd, not only in going to *Eleufis*, but in returning back to *Athens*.

For the reft, they were obliged to keep it as an inviolable Secret; and the Law condemn'd to Death any one who fhould dare to divulge their Myfteries. *Tertullian* in his Book againft the *Valentinians*, relates that the Figure fhewn in the *Eleufina*, and which was fo expreffly prohibited to be made public, was that of a Man's privy Parts: *Theodoret*, *Arnobius*, and *Clemens Alexandrinus*, likewife make mention of it; but fay it was the Figure of a Woman's Privities.

The Day after the Feaft, the Senate affembled at *Eleufis*, apparently to examine whether every Thing had been managed according to Order.

There were two Kinds of *Eleufinia*, the *great* and the *leffs*: Thofe we have been hitherto fpeaking of were the greater.

The *leffer* were inftituted in Favour of *Hercules*: For that Hero defiring to be initiated into the former; and the *Athenians* not being able to gratify him therein, by Reafon the Law prohibited any Stranger being admitted; being loth however to give him an abfolute Denial, they inftituted new *Eleufinia* whereat he affifted.

The greater were held in the Month *Boedronicon*, which anfwer'd to our *Auguft*; and the leffer in the Month *Anthefterion*, which happen'd in our *January*.

People were only brought to partake of thefe Ceremonies by Degrees: At firft, they were to be purified; then admitted to the little *Eleufinia*: And at laft initiated in the greater. Thofe who were yet only at the leffer, were called *Myftes*; and thofe admitted to the greater, *Epoptes*, or *Ephori*, i. e. Infpectors. They were ufually to undergo a Probation of five Years, e're they pafs'd from the leffer to the greater. Sometimes, indeed, they were contented with a fingle Year; immediately after which, they were admitted to the moft fecret religious Parts of the Ceremony. *Meurfius* has an expref Treatife on the *Eleufinia*, where moft of thefe Points are proved.

Some Writers call the City, where the *Eleufinia* were celebrated, *Eleufina*, not *Eleufis*: *Harpocration* confirms this Orthography, in deriving its Name from *Eleufinus*, a Son of *Mercury*: To which Sentiment, *Pauffanias* likewife adheres in his *Atticks*. Others, who write it Ἐλευσις, *Advent*, fuppofe it thus called, by Reafon *Ceres*, after running over the World in Search of her Daughter, ftop'd here, and put an End to her Purfuit. *Diodorus Siculus*, *L.* V. will have the Name *Eleufis* to have been given this City, as a Monument to Pofterity, that Corn, and the Art of cultivating it, were brought from Abroad into *Attica*.

ELEUTHERIUS, in Antiquity, a *Greek* Word, fignifying *Liberator*, *Deliverer*; given by the *Greeks*, as a Surname, or Epithet to *Jupiter*, on Occafion of his having gain'd them the Victory over *Mardonius*, General of the *Perfians*, and killed 300 Thoufand Men of his Army, and by that Means deliver'd them from the Danger they were under of being brought under the *Perfian* Yoke.

There were alfo Feafts folemnized, on this Occafion, in Honour of *Jupiter Eleutherius*, and call'd *Eleutheria*. They were held every five Years, with Courfes of armed Chariots, *&c.*

The *Scholiaft* on *Pindar*, *Olymp. Od.* 7. fays, they were celebrated at *Platea*, the Place where the Victory was obtain'd.

The Word is form'd from ἐλεύθερος, *free*.

ELICIT, or ELICITE, in Ethicks, is applied to an Act of the Will, immediately produced by, and of the Will, and received within the fame.

Such is Willing, Nilling, Loving, Hating, *&c.* Such Acts are denominated *Elicit*, by Reafon being before in the Power of the Will, they are now brought forth into Act. But thefe Acts are fo far intrinfic, that fome Authors confider them as the Will it felf; and deny they fhould be diftinguifhed from it any more than that Light is to be diftinguifhed from the Sun.

ELIGIBILITY, in the *Romifh* Canon Law. A *Bull of Eligibility*, is a Bull granted by the Pope, to certain Perfons, to qualify them to be *chofen*, or invefted with an Office, or Dignity, whereof they were before incapable, by Reafon of Want of Age, Birth, or the like.

In feveral Churches in *Germany*, a Perfon who is not of the Chapter, cannot be elected Bifhop, without a Bull of *Eligibility*.

The Word is form'd of the *Latin*, *eligere*, to chufe; whence the Word *Eligibilitas*, &c.

ELISION, in Grammar, the cutting off, or fuppreffing a Letter, at the End of a Word.

Elifions are but little known in *Englifh*: In *Latin*, *French*, &c. they are frequent; and confift moftly in Suppreffions of the *e* final.

In Writing, it is mark'd by an Apoftrophe; as *egon' quem quæram*, for *egone*. *Emin' ego te?* for *Emine*. *Venifin'* for *Venifine*, &c. *Cett' Efperance*, for *Cette*: *l' homme*, for *le homme*.

In the Pronunciation we make frequent *Elifions*, but don't mark them in Writing; thus we write *rifque it*, but pronounce *rifq' it*. So the *French* pronounce *un' ame*, but write *une ame*. In Effect, they never mark any *Elifions* but at the End of the Monofyllables *je ne le te ce que* and *la*. They never *elide* the *o*, nor *u*, nor *i*, but in the Conjunction *fi* before *il*; nor *a* but in *la*.

In Poetry, the Syllable where there is a Vowel *Elided*, is never reckon'd: And great Care is taken to avoid the Concourfe of Syllables, where there is no *Elifion*; this making what they call a *Hiatus*, or Chafm.

ELIXATION, in Pharmacy, *&c.* the feething or boiling of any Medicine in a proper Liquor, gently and for a confiderable Time; amounting to what, in the dreffing of Meats, we properly call *Stewing*.

The Liquor ordinarily ufed in *Elixations*, is Spring or River Water: Tho' on fome Occafions they ufe Milk, Whey, Beer or the like.

The ordinary Purpofe of *Elixation*, is to extract the Virtue out of the Medicine, and impart it to the Liquor. Tho' it is fometimes alfo ufed to free the Parts of Animals, Plants, *&c.* of their Crudities, as well as to fofren, and make them tender; to take away from Foods, or Medicaments, any difagreeable Tafte, or other ill Quality; to feparate the earthy or groffer Parts, and for other Intentions. See EXTRACTION.

The Word is form'd from the *Latin*, *lixare* to boil, or boil in Water. *Decoction* is a Sort of *Elixation*. See DECOCTION.

ELIXIR, in Medicine, a compound Extract, Tincture, or Effence, drawn from a Mixture of feveral Ingredients, by infufing them in a proper Menftruum. See EXTRACT.

Or it is a ftrong, fpirituous Liquor, or Juice, to be taken inwardly; containing the pureft, and moft efficacious Parts of feveral mix'd Bodies, communicated to it by Infufion and Maceration.

Dr. *Quincy* defines it a ftrong Infufion in fome Menftruum, whereby the Ingredients themfelves are almoft diffolved, and a Juice thus acquired of a thicker Confiftence than an ordinary Tincture. See TINCTURE, INFUSION, *&c.*

Boerhaave takes an *Elixir* to be a compound Magiftery, *i. e.* a compound of various Bodies, changed after the fame Manner as a fingle Body is in a Magiftery. See MAGISTERY.

Spirits drawn from Vegetables, *i. e.* the ftrong, or fpirituous Waters of Vegetables, are ufually the Bafe of *Elixirs* and the Menftruum, or Diffolvent, whereby the Effence of the other Ingredients is drawn or feparated. Spirit of Wine is the beft and moft commodious Menftruum of all.

The *Charletans* abufe the Term *Elixir*, and apply it to Abundance of fimple Extracts, or Tinctures; only to put them off at the higher Price. Some Authors, for *Elixir*, ufe the Word *Quintaffence*. See QUINTESSENCE.

Menage derives the Word from the *Arabic*, *Elixir*; properly fignifying *Fraction*, by Reafon *Elixirs* have the Force of breaking Difeafes: Others, more naturally derive it from *Alecftro*, an Artificial Extraction of fome Effence. Others from the *Greek* ἔλαιον, *Oil*, and ἕλκω, *I draw*, q. d. an Extract of the Oil, which is the effential Part of Mixts. Others from the *Greek* Verb, ἀλεξέω, *to help*, *affift*, by Reafon of the great Succours we receive from *Elixirs*. Laftly, others from ἕλκω, *to draw*.

Elixir *Proprietatis*, is a Remedy first invented by *Paracelsus*. It is composed of Aloes, Myrrh, and Saffron; the Tincture, or Essence whereof, is drawn by putting them to dissolve, or digest with Spirit of Sulphur. Some add Spirit of Wine to the Spirit of Sulphur.

Crollius takes this *Elixir* to be the Balm, or Balsam of the Antients; adding, that it contains all the Virtues of the Natural Balm. It comforts and fortifies the Heart and Stomach, assists Digestion, purifies the Blood, and promotes Sweat.

Elixir, among the Alchymists, is used for the *Philosopher's Stone*, or the *Powder of Projection*; and sometimes for an *Universal Medicine*, which shall cure all Diseases, called by Way of Excellence the *Grand Elixir*.

These two Things, most Alchymists take to coincide; so that what will make Gold, will cure all Diseases. See Philosophers-*Stone*.

The Notion of a *Grand Elixir* is of a long standing. *Kircher* assures us, that the antient *Egyptians* had a Method of drawing an *Elixir* from the hardest and most precious Substances; which, on Account of its Subtilty and Perfection, they call'd *Heaven*. And this he takes to be that admirable, and celestial Water, capable of removing all Diseases; called also the *Stone*, and the *Philosopher's Stone*, as being drawn from precious Stones; and sometimes, by the Hermetical Denominations, *Aqua Vitæ*, *Vegetable Seed of Nature*, *Solar Soul*, &c. Oed. Ægypt. *Tom.* II. p. 430.

ELKS *Claws*, in Pharmacy, a Drug, supposed to be good against the *Epilepsy*; known in the Shops by the Name of *Ungula Alcis*. See Epilepsy.

The Animal that yields it, call'd by the *Latins*, *Alce*; by the *Germans*, *French*, &c. *Ellend*; and by us, *Elk*; is a wild Beast, found in the Forests of *Muscovy*, *Sweden*, and *Prussia*; but more abundantly in *Canada*, and most Parts of North *America*.

'Tis about the Size and Figure of a Mule; only its Snout bigger, its Tail short, its Feet cloven; and that it bears a large Ramage, or Horn, like that of a Deer, weighing three, and sometimes four Hundred Weight. That anatomized in the Royal Academy of Sciences, was five Foot seven Inches long. Its Hair is brown, and about the Length of that of a Goat: Its Ears nine Inches long, and four broad; and its Tail not above two Inches: Its Neck short and thick: Its Skin strong and hard, tho' thin; its Flesh very delicate, especially that of the Female: And the Ligaments of its Joints exceeding strong; which has occasion'd some Authors to say, that its Legs had no Joints at all; and that it was this made it so ready at sliding on the Ice, to save it self from the Wolves.

It neither runs, nor bounds; but its Trot is almost equal to the swiftest Running of a Deer.

Pausanias says, that the Male has Horns: And *Cæsar*, that the Female hath none: But we find that both have.

The Hunting of the *Elk*, is one of the principal and most agreeable Employments of the Savages of *Canada*, *Accadie*, &c. They chuse a Time when the Snow is on the Ground; in which the Beast is apt to sink and stick. When they have kill'd enough with their Fire Arms, to feast for several Days; they flea them, and send the Skins to the *French*, who dress it in Oil, like the Buffelo Skin. See Chamois.

The Savages likewise take care to cut off the left hind Foot of each Beast; especially if it be a Female; the Hoof whereof is that applauded Remedy for the *Falling Sickness*.

Antient Authors tell us, that to catch the *Elk*, the *Northern* People watch the Occasion when he falls down of the Epilepsy; which it frequently does; and that they lay hold of it e're it can recover Strength enough to put its left Foot in its Ear; which cures it immediately.

And hence it is, that the Notion of its Virtue, in the Cure of that Disease, had its Rise. The *Germans* call it *Ellend*, that is, Misery, by Reason of the Misery it is reduc'd to in falling so often into the Epilepsy; tho' it has its Remedy always about it; which has given People reason to suspect, that the Virtue attributed to it is fabulous.

Accordingly, *Olaus Magnus* says, 'tis the outer Hoof of the right Foot that the *Elk* puts in its Ear to cure the Epilepsy; which being impossible, it should seem as if *Olaus* only spoke of it by Way of sneer.

He adds, that the Blows it deals are so strong, that with its hind Feet it will break the Trees like Mushrooms; and with its fore Feet pierce the Hunters thro' and thro'.

Pomet gives us the Marks to distinguish the genuine *Elks Claws*; but as their Virtue is very equivocal, not to say absolutely false, there is no great Harm in being deceiv'd: The Opinion alone may serve for the Reality.

ELL, *Ulna*, a Measure, which obtains under different Denominations in most Countries. See Measure.

The *Ell* is the Standard, or Measure, whereby Cloths, Stuffs, Linnens, Silks, &c. are usually measur'd, or estimated; answering, in good Measure, to the *Yard* of *England*, the *Canna* of *Italy*, the *Varre* of *Spain*, the *Palm* of *Sicily*, &c. See Yard.

Servius will have the *Ell* to be the Space contain'd between the two Hands when stretch'd forth: But *Suetonius* makes it no more than a *Cubit*. See Cubit.

The *Ells* which occur most frequently in *England*, are *English* and *Flemish*: The *Ell English* contains three Foot nine Inches; or one Yard one Quarter *English* Measure: The *Ell Flemish*, 27 Inches, or three Quarters of a Yard; so that the *Ell English* is to the *Flemish Ell* as five to three.

M. *Ricard*, in his Treatise *of Commerce*, reduces the *Ells* thus: An hundred *Ells* of *Amsterdam*, are equal to ninety eight, three Quarters, of *Brabant*, *Antwerp* and *Brussels*; to fifty eight and an half of *England* and *France*: To an hundred and twenty of *Hambourg*, *Francfort*, *Leipsic* and *Cologne*: An Hundred twenty five of *Breslaw*: An Hundred and ten of *Bergen* and *Drontheim*: And an Hundred and seventeen of *Stockholm*. See Measure.

ELLEBORE, a Medicinal Plant. See Helleboure.

ELLIPSIS, in Geometry, one of the Conic Sections, popularly call'd an *Oval*, or *Oblong*. See Conic.

The *Ellipsis*, to define it from its Form, is a regular, continued curve Line, including a Space that is longer than broad; wherein are two Points equally distant from the two Extremes of the Length; from which, two right Lines being drawn to any Point, assumed at Pleasure in the *Ellipsis*, their Sum is equal to the Length of the *Ellipsis*.

Thus, in the *Ellipsis* A E B M D, &c. (*Tab. Conicks Fig.* 21.) the Lines Fa and fa drawn from the two Points F and f, equally distant from the two Extremes A and B, are equal to A B.

Or, taking the *Ellipsis*, as Geometricians frequently do, for the Space contain'd, or included within this Curve Line; it is defined a Figure, contain'd under one single oblong Line, and having two unequal Axes or Diameters A B and D E.

The greater Axis of the *Ellipsis*, or the right Line representing the Length of the *Ellipsis* A B, or of the Space included by the *Ellipsis*, is call'd the *Transverse Axis*, or Diameter: And the lesser Axis, representing the Breadth of the *Ellipsis* D E, the *Conjugate*, or *second Axis*. The two Axes always bissect each other at right Angles. See Axis.

The two Axes are the two greatest Diameters of the *Ellipsis*, but there are an Infinity of other different Diameters. See Conjugate, Transverse, &c.

The *Centre of an* Ellipsis, is the Point C, wherein the two Axes intersect.

The two Points F and f, on the greater Axis, equally distant from the Extremes thereof A and B, are call'd the *Foci*, or *Umbilici of the Ellipsis*; from which two Lines, drawn to the Circumference of the *Ellipsis*, as already observed, are equal to the greater Axis. See Focus.

The *Ellipsis*, considering it as a Conic Section, that is, as a Curve arising from a Section of the Cone, is best defined from its Genesis, or the Manner of its Production, thus: An *Ellipsis* is a Curve Line, produced by cutting the Cone A B C, (*Fig.* 21.) by a Plane, in such Manner, as that the Axis of the Section D E, meets with the Diameter of the Base A B, produced in F.

Or, defining it from one of its known Properties assumed; an *Ellipsis* is a Curve Line, wherein the Square of the Semi-ordinate P M, (*Fig.* 22.) is to the Rectangle of the Axis A P and P B; as the Parameter, to the Axis.

Thus, if A B = a, the Parameter = b; P M = y; A P = x: Then will $b : a :: y^2 : ax - x^2$. Consequently $ay^2 = abx - bx^2$. See Conic *Section*.

Hence, 1. $y^2 = bx - bx^2 : a$. That is, the Square of the Semi-ordinate, is equal to the Rectangle of the Parameter into the Abscisss; abating another Rectangle of the same Abscisss into a fourth proportional to the Axis, Parameter and Abscisss.

And hence the Word *Ellipsis*, which is form'd from the *Greek*, ἔλλειψις, *Deficiency*, a Denomination the antient *Greek* Geometricians gave this Figure, by Reason, among other Properties, this is one, that the Squares of the Ordinates are less than, or *defective* of the Rectangles under the Parameters and Abscisses.

To find the Axis, Parameter, and Semi-ordinate of an ELLIPSIS.

Hence, alſo 2°. The Parameter, Abſciſs, and Semi-ordinates, in an *Ellipſis* being given; the Axis is found by making 1. $b : y :: y : \frac{y^2}{b}$, 2. $\frac{x - y^2}{b} = \frac{(bx - y^2)}{b} : x = x : a$.

3°. The Axis A B, the Abſciſs A P, (*Fig.* 23.) and the Semi-ordinate P M being given, the Parameter A G is thus found: Make A I = P M; and from A, thro' M, draw the right Line A L. In I erect a Perpendicular L I: Then, ſince A P : P M :: A N : L I; $L I = y^2 : x$. Produce P M to O, till P O = L I = $y^2 : x$ and from B, thro' O, draw a right Line B G. In A erect a Perpendicular G A = $ay^2 : (ax - x^2)$: This will be the Parameter A G.

4°. The Axis A B, and the Parameter A G being given, we can aſſign every Abſciſs, as B P, its Semi-ordinate P N; by drawing the Line G B to the Parameter A G, which is perpendicular to the Axis A B: Then, erecting a Perpendicular P N, make P L = P H. Laſtly, on A L deſcribe a Semi-circle.

To find the Foci, conjugate Axis, Ratio of the Ordinates, &c. of an ELLIPSIS.

1°. From B to L, (*Fig.* 22.) ſet off half the Parameter; then will C L = $\frac{1}{2}a - \frac{1}{2}b$. In the Centre C erect a Perpendicular C K, meeting the Semi-circle deſcribed on A L. Thus will C K = $\sqrt{(\frac{1}{4}a^2 - \frac{1}{4}ab)}$ Therefore, making C F = C K; F will be the *Focus*. The latter Equation furniſhes us this Theorem.

If the Axis A B, be cut in the Focus F, the Rectangle under the Segments of the Axis A F, F B will be ſubquadruple of the Rectangle under the Parameter and the Axis. See FOCUS.

2°. The Parameter, and Axis A B given, the Conjugate Axis is eaſily found; as being a mean proportional, between the Axis and Parameter. Conſequently, the Parameter is a third proportional to the greater and leſſer Axis. Add, that the Square of half the Conjugate Axis, is equal to the Rectangle, under the Diſtance of the Focus from the Vertex, and its Complement to the Axis.

3°. In an *Ellipſis*, the Squares of the Semi-ordinates P M, and p m, *&c.* are to each other as the Rectangles under the Segments of the Axis. Hence $DC^2 : PM^2 = CB^2 : AP\ PB$. Conſequently $DC^2 : CB^2 = PM^2 : AP\ PB$. That is, the Square of the leſs Axis is to the Square of the greater; as the Square of the Semi-ordinate, to the Rectangle under the Segments of the Axis.

4°. The right Line F D, (*Fig.* 24.) drawn from the Focus F, to the Extremity of the Conjugate Semi-Axis; is equal to half the tranſverſe Axis A C.

Hence, the Conjugate Axes being given, the Foci are eaſily determined. For, biſſecting the greater Axis A B in C; from C erect a Perpendicular C D, equal to the Conjugate Semi-Axis. Then, from D, with the Interval C A, the Foci F and f are determined.

To deſcribe an ELLIPSIS.

5°. The Sum of two right Lines F M, and f m drawn from each Focus of an *Ellipſis*, F and f to the ſame Point of the Periphery M, being equal to the greater Axis A B: The Conjugate Axes of an *Ellipſis* being given, the *Ellipſis* is eaſily deſcribed. For, determining the Foci F and f, as already directed; and fixing two Nails therein, and about theſe Nails tying a Thread F M f, equal to the Length of the greater Axis A B: The Thread being ſtretch'd, and a Style, or Pin, applied at its Extent, the Duct or Sweep of the Style or Thread about the Nails will deſcribe an *Ellipſis*.

6°. The Rectangle under the Segments of the Conjugate Axis, is to the Square of its Semi-ordinate, as the Square of the Conjugate Axis, to the Square of the greater Axis. Hence, the Co-ordinates to the Conjugate Axis, have the ſame Relation, as there is between the Co-ordinates to the greater Axis. Conſequently, the Parameter of the Conjugate Axis, is a third proportional to the Conjugate Axis, and the greater Axis.

To determine the Subtangent P T, (*Fig.* 25.) *and Subnormal* P R *in an* ELLIPSIS.

7°. As the firſt Axis, is to the Parameter; ſo is the Diſtance of the Semi-ordinate from the Centre, to the Subnormal. See SUBNORMAL.

8°. The Rectangle under the Segments of the Axis, is equal to the Rectangle, under the Diſtance of the Semi-ordinate from the Centre, into the Subtangent. See SUBTANGENT.

9°. As the Diſtance of the Semi-ordinate from the Centre, is to half of the Axis; ſo is the Abſciſs to the Portion of the Subtangent intercepted between the Vertex of the *Ellipſis* and the Tangent.

10°. The Rectangle under the ſubtangent P T, into the Abſciſs A P, is equal to the Rectangle under the Segments of the Axis. Hence, the Square of the Semi-Axis A C, is equal to the Rectangle of C T, into P C.

11°. The Rectangle under the Subtangent, and the Diſtance of the Ordinate from the Centre, is equal to the Difference of this Diſtance, and the Square of the Tranſverſe Semi-Axis.

12°. In an *Ellipſis*, the Square of the Semi-ordinate is to the Square of the Conjugate Semi-diameter; as the Rectangle under the Segments of the Diameter, to the Square of the Semi-diameter. Conſequently, the Relation of the Semi-ordinates to the Diameters, is the ſame as to the Axes: And the Parameter of the Diameter, is a third proportional to the Diameters.

Infinite ELLIPSES, are thoſe defined by the Equation $ay^{m+n} = bx^m (a - x^n)$ which ſome call *Elliptoides*, if m be greater than 1, and n greater than 1. See ELLIPTOIDES.

In Reſpect of theſe Curves, the *Ellipſis* of the firſt Kind is called the *Apollonian Ellipſis*.

Quadrature of the ELLIPSIS. See QUADRATURE.

ELLIPSIS, in Grammar, and Rhetoric, a figurative Way of ſpeaking, wherein ſomething is ſuppreſs'd, or left out in a Diſcourſe, and ſuppoſed or underſtood. See FIGURE.

This chiefly happens, when, being under the Tranſport of a violent Paſſion, a Man is not at Leiſure to ſay every Thing out at Length; the Tongue being too ſlow to keep Pace with the rapid Motions of the Mind. So that on theſe Occaſions we only bring forth broken, interrupted Words and Expreſſions; which expreſs the Violence of a Paſſion, better than any conſiſtent Diſcourſe.

Fa. Boſſu conſiders the *Ellipſis*, as a Way of diſguiſing Sentences; by ſuppreſſing the Word which ſhould make the particular Application, and leaving the whole in a Kind of ingenious Ambiguity. See SENTENCE.

Thus, the *Trojans*, in *Virgil*, being reduced by *Turnus* to the laſt Extremity, and ready to be deſtroy'd, ſpy *Æneas* coming to aſſiſt them: Upon which the Poet ſays, *Spes addita ſuſcitat Iras*. Which Expreſſion ſignifies either, in particular, that the Hope they conceive retrieves and augments their Courage: Or in general, that the Hope of Aſſiſtance at Hand naturally raiſes Courage, and gives new Strength.

If the Poet had added a Word, and ſaid, *Ollis ſpes addita ſuſcitat Iras*, the Paſſage had been expreſsly affected to the firſt Senſe; and it had ceaſed to be a Sentence, and commenced the Application of a Sentence. The Suppreſſion of that Word makes a Sentence in Form. See SENTENCE.

This, that excellent Critick looks on as one of the Fineſſes of the *Latin* Tongue; wherein it had vaſtly the Advantage of the Modern Tongues. *Traite du Poeme Epique*. Page 466, *&c.*

ELLIPTIC, or ELLIPTICAL, ſomething that belongs to an *Ellipſis*. See ELLIPSIS.

Kepler firſt maintain'd, that the Orbits of the Planets are not Circular, but *Elliptical*; which Hypotheſis was afterwards adhered to by M. *Bouillaud*. Mr. *Flamſtead*, Sir *Iſaac Newton*, Monſ. *Caſſini*, and others, of the later Aſtronomers, have confirm'd the ſame: So that this, which was once by Way of Contempt call'd the *Elliptic Hypotheſis*, is now the prevailing Doctrine. See ORBIT.

Dr. *Iſaac Newton* demonſtrates, that if any Body revolve round another in an *Elliptic* Orbit, its centrifugal Forces, or Gravities, will be in a duplicate Ratio; or as the Squares of its Diſtances from the Umbilicus, or Focus. See CENTRIPETAL.

Serlio, *Hartman*, &c. demonſtrated that the beſt Form for Arches, or Vaults, is the *Elliptical*. See ARCH.

ELLIPTIC *Space*, is the Area, contain'd within the Circumference, or Curve of the *Ellipſis*.

'Tis demonſtrated, 1°. That the *Elliptic Space* is to a Circle deſcribed on the tranſverſe Axis; as the Conjugate Diameter is to the tranſverſe Axis.

2°. That the *Elliptic Space* is a mean proportional between two Circles deſcribed on the tranſverſe and conjugate Axes. See CIRCLE.

ELLIPTIC *Conoid*, is the ſame with the *Spheroid*. See SPHEROID.

ELLIPTIC *Specula*, or *Mirrors*. See MIRROR.

ELLIPTICAL *Compaſſes*, is an Inſtrument, made uſually in Braſs; for the drawing any Ellipſis, or Oval, at one Revolution of an Index. See COMPASSES.

ELLIPTICAL *Dial*, is an Inſtrument, uſually of Braſs, with a Joint to fold together, and the Gnomen to fall flat; for the Sake of the Pocket.

By it are found the Meridian, Hour of the Day, Riſing and Setting of the Sun, *&c.* See DIAL.

ELLIPTOIDES, an Infinite *Ellipſis*, i. e. an *Ellipſis* defined by the Equation $ay^{m+n} = bx^m (a - x)^n$, wherein $m > 1$ and $n > 1$.

Of this there are ſeveral Kinds or Degrees: As the *Cubical Elliptoid*, wherein $ay^3 = bx^2 (a - x)$. A *Biquadratic* or *Sur-*

Surdesolidal Elliptoid, or that of the third Order, wherein $ay^4 = bx^2 (a - x)^2$

If any other Ordinate be called v, and the correspondent Abscis z; there will be $av^{m+n} = bz^m (a - x)^n$. Consequently, $ay^{m+n} : av^{m+n} = bx^m (a - x)^n : bz^m (a - z)^n$ that is, $y^{m+n} : v^{m+n} = x^m (a - x)^n : z^m (a - z)^n$

ELOCUTION, is defined by *Tully*, the chusing and adapting of Words, and Sentences, to the Things, or Sentiments, to be express'd. To the *Elocution* properly belongs the *Delectus Verborum*, the Choice of Words. See RHETORIC.

The Virtues of the *Elocution* consist chiefly in the Use of Figures, and figurative Dictions, in the Periods, and the Style. See FIGURE, PERIOD, and STYLE.

ELOGE, a Praise, or Panegyric, bestow'd on any Person, or Thing; in Consideration of its Merit. See PANEGYRIC.

The Term is principally used by the *French*; and from them borrow'd by the *English*. It is form'd of the *Greek*, ευλογια, *Commendation*, &c.

That fine Discourse of *Isocrates*, entitled πανήγυρις, is a historical *Eloge*, of the City of *Athens*. Fa. *Labbe*, has composed an historical *Eloge* of the City of *Bourges*; Fa. *Menestrier*, of the City of *Lions*; and M. *Martignac*, of the Bishops and Archbishops of *Paris*, for about a Century.

The Secretary of the Royal Academy of Sciences at *Paris*, makes the *Eloges* of such Members as die; and delivers them in public at the next Meeting of the Company. Funeral Orations are only *Eloges* of eminent Persons deceas'd.

Some Authors have wrote *Eloges* on despicable, and even pernicious Things. See ENCOMIUM.

ELONGATION, in Astronomy, the Digression, or Receding of a Planet from the Sun, with Respect to an Eye placed on our Earth. See PLANET.

The greatest Distance of the Planet, &c. from the Sun, is called the greatest *Elongation*: Which varies on two Accounts, *viz.* in that both the Earth and the Planet revolve, not in Circles, but in Ellipses.

The *Elongation* is chiefly considered in *Venus* and *Mercury*: The greatest *Elongation* of *Venus* is 45 Degrees, and that of *Mercury* 30 Degrees: That is, the former never recedes from the Sun, or is seen distant from him, above 45°; nor the latter above 30°. Whence it is that *Mercury* is so rarely seen; as being usually lost in the Light of the Sun. See MERCURY and VENUS.

ELONGATION, is also used, by some Authors, for the Difference in Motion, between the swiftest and the slowest of two Planets; or the Quantity of Space, whereby the one has overgone the other: Called also *Superation*.

The swiftest Motion of the Moon, with Regard to the Sun, is called the *Elongation* of the Moon from the Sun. See MOON and SUN.

We also say Diurnal *Elongation*, Horary *Elongation*, &c.

Angle of ELONGATION, or *Angle at the Earth*, is the Difference between the Sun's true Place, and the Geocentric Place of a Planet. Such is the Angle E T R (*Tab. Astronom. Fig.* 40.) between the Place of the Sun E, and that of the Planet R.

ELONGATION, in Chirurgery, is an imperfect Luxation; when the Ligament of any Joint is so extended, or relaxed, as to lengthen the Limb, but yet not to let the Bone go quite out of its Place. See LUXATION.

ELOPEMENT, in Law, is when a married Woman, of her own Accord, departs from her Husband, and dwells with an Adulterer; for which, without voluntary Reconcilement to the Husband, she shall lose her Dowry; nor shall the Husband, in such Case, be compelled to allow her any Alimony. See ALIMONY.

Sponte Virum Mulier fugiens, & adultera facta,
Do te sua careat, nisi sponso sponte retracta.

The Word is derived from the *Saxon*, Geleopan, *i. e.* to depart from one Place to dwell in another.

ELOQUENCE, the Art of speaking, or Writing well; or of touching and persuading. See RHETORIC and ORATORY.

Demosthenes, and *Cicero*, are the Princes of antient *Eloquence*; the one among the *Greeks*, the other among the *Romans*. Their Manner, however, was exceedingly different; the first being close, strong, nervous, concise, severe, so that a Word cou'd not be spared: The latter copious, florid, and rich, so that a Word could not be added.

It was objected to *Cicero*, that his *Eloquence* was *Asiatic*, that is, redundant, or stuffed with needless Words and Thoughts. See STYLE.

Pericles was call'd a *Torrent of Eloquence*, a *Thunderbolt of Eloquence*. Pedants don't distinguish *Eloquence* from the heaping up of Figures, the Use of big Words, and the Roundness of Periods.

True *Eloquence* depends principally on the Vivacity of the Imagination. In Strictness, 'tis not that which gives Grace and Ornament, but Life and Motion, to Discourse. Its Mien is that of an *Amazon*, not that of a *Coquette*.

The Authors of the *Art of Thinking* remark, that the Rules of *Eloquence* are observed in the Conversations of People naturally *Eloquent*, tho' they never think of them, while they practise them. They practise those Rules because they are *Eloquent*; they don't use them to be *Eloquent*.

The *Eloquence* of the Chair, and Pulpit, is much more difficult than that of the Bar. Sir *George Mackenzie* has a Treatise of the *Eloquence* of the Bar. *Idea Eloquentiæ forensis*, &c.

ELUDING, the Act of evading, or rendering a Thing vain, and of no Effect; a dextrous getting clear, or escaping out of an Affair, a Difficulty, an Embarras.

The Design of Chicanery is to *elude* the Force of the Laws: This Doctor has not resolved the Difficulty, but *Eluded* it. To *Elude* a Proposition, &c.

Alexander, says the Historian, in cutting the *Gordian* Knot, either *Eluded* the Oracle, or fulfill'd it: *Ille nequicquam luctatus cum latentibus Nodis, nihil, inquit, interest, quomodo solvatur; Gladioque ruptis omnibus loris, Oraculi sortem vel elusit vel implevit.* Q. Curt. 13.

ELYSIUM, or ELYSEAN, or ELISIAN *Fields*, in the antient Theology, or rather Mythology; a Place in the *Inferi*, i. e. in the lower World, or as we sometimes render it, in Hell; furnish'd with Fields, Meads, agreeable Woods, Groves, Shades, Rivers, &c. whither the Souls of good People went after this Life.

Orpheus, *Hercules*, and *Æneas*, are held to have descended into them, in their Life-time, and return'd again. *Virgil*, Lib. VI. *v.* 638, &c. And *Tibullus*, Lib. I. *Eleg.* 3. give us fine Descriptions of the *Elysean Fields*.

Virgil, opposes *Elysium* to *Tartara*; which was the Place where the Wicked underwent their Punishment.

Heic Locus est, parteis ubi se via findit in ambas:
Dextera, quæ Ditis magni sub mœnia tendit:
Hac Iter Elysium *nobis: at læva Malorum*
Exercet Pœnas, & ad Impia tartara mittit.

Some Authors take the Fable to have been borrowed from the *Phœnicians*; as imagining the Name *Elysium* form'd from the *Phœnician* עלז *alaz*, or עלץ *alats*, or עלם *alas*, to rejoyce, or be in Joy; the Letter *a* being only changed into *e*, as we find done in many other Names; as in *Enakim*, for *Anakim*, &c. On which Footing *Elysian Fields* should signifie the same Thing as a Place of Pleasure, or:

——— *Locos lætos & Amœna virecta*
Fortunatorum Nemorum, sedesque beatas. Virg.

Others, derive the Word from the *Greek*, λυω, *solvo*, *I deliver*, *I set loose*, *disengage*; by Reason here Men's Souls are freed, or disencumber'd from the Fetters of the Body. *Beroaldus* and *Hornius*, Hist. Philosoph. *L.* III. *C.* 2. take the Place to have derived its Name from *Eliza*, one of the first who came into *Greece* after the Deluge, and the Author and Father of the *Ætolians*. *Ol. Rudbecks* contends, that it was in *Sweden* the *Elysian Fields* were placed. See ACHERON.

On the Subject of the *Elysian Fields*, see the Treatise of J. Windet, *de Vitâ functorum Statu*.

ELYTHROIDES, in Anatomy, one of the proper Coats, or Tunicks of the Testicles. See TESTICLE.

The *Elythroides* is the second proper Coat of the Testes: It resembles a Sheath, or *Vagina*, whence some have also call'd it *Vaginalis*.

It is form'd of a Dilatation, of the Production of the *Peritonæum*: Its inner Surface is smooth and equable; and the outer rough and unequal; which makes it adhere the more strongly to the first of the proper Coats, called *Erithroides*.

The Word is form'd of the *Greek*, ἔλυθρον, *Vagina*, a Sheath, and εἶδος, *Form*.

EMANATION, the Act of flowing, or proceeding, from some Source, or Origin.

As, the *Emanation* of Light from the Sun; of Effluvia from odorous, &c. Bodies; of Wisdom, from God, &c.

The Word is also used for the Thing that proceeds, as well as the Act of Proceeding: As, the Power given a Judge, is an *Emanation* from the Regal Power: The reasonable Soul is an *Emanation* from the Divinity: The Holy Spirit is an *Emanation* from the Father and the Son, &c.

The Word is form'd of the *Latin e*, out, and *manare*, to flow.

Among

Among the School-men, *Emanation* is also used for the Production of some lesser Thing, in Order to the Production of a greater, by Virtue of some natural Connection, or Dependance between them.

For, as when several Moveables are joyn'd together, the same Power that moves the first moves all the rest (as in pulling up the Trunk, you pull up the Roots, Branches, *&c.* or in drawing one Link of a Chain, you bring forward all the rest). The same is to be understood in all conjunct, natural Effects; *viz.* that the same Power whereby the first is produced, does also produce all the rest, naturally connected to it: In that by Means of the Connection, the Action of the Agent is convey'd from one to the other; so that the first determines the Agent to the Production of all the rest.

In this Sense, they say an *Emanation* of Properties from the Essence, wherewith they have a natural Connection.

And hence that is call'd an *Emanative Cause*, (in Contradistinction to an Efficient Cause) which produces an Effect by its mere Presence, without the Intervention of any Action; as a Rose doth a Smell, *&c.* Others, and with good Reason, deny that there is any such Thing as an *Emanative Cause*, to produce an Effect without any Action. See CAUSE.

EMANCHE, in Heraldry. See MANCHE.

EMANCIPATION, in the *Roman* Law, the Act of setting a Son free from the Power, and Subjection to his Father. See FREEDOM, ENFRANCHISING, *&c.*

The Effect of *Emancipation* was, that the Goods, and moveable Effects, which the Son should thenceforth acquire, should be his sole Property, and not the Property of his Father; as they were before *Emancipation*. Beside that, *Emancipation* put the Son in a Capacity of managing his own Affairs, and of marrying without his Father's Consent, tho' a Minor, or Pupil, and less than 25 Years of Age. See PUPIL, *&c.*

There were two Kinds of *Emancipation*: The one *tacit*, which was by the Son's being promoted to some Dignity, or by his becoming of Age, or by Marriage: In all which Cases, the Son became his own Master of Course.

The other *express*, where the Father declared before the Judge, that he *emancipated* his Son. This was not perform'd without some Formality: The Father was first to sell his Son imaginarily, to another Man, whom the Lawyers call *Pater Fiduciarius*, Father in Trust; of whom being bought back again by the natural Father, he manumitted, or set him free by a Declaration before the Judge. See MANUMISSION.

That imaginary Sale was call'd *Mancipatio*; and the Manumission, consequent thereon, *Emancipatio*.

Emancipation still obtains in *France*, chiefly, with Regard to Minors, or Pupils, who are hereby set at Liberty to manage their Effects, without the Advice, or Direction, of their Fathers or Tutors. It must be observed, however, that the *Emancipation* only extends to the selling of Moveables, and letting of Leases, *&c.* of Immoveables; not to the Selling or Mortgaging of Immoveables: Which are only done with the Consent of a *Curator*, ordinarily appointed a Person when *emancipated*.

Formerly, *Emancipation* was perform'd in the ordinary Courts of Justice, when desired by the Child; but if he were a Minor, the King's Letter was required. Tho' there were other Ways of *Emancipation*, as Marriage; the Age of 20 Years: And in some Provinces, the Death of the Mother, by Reason the Children were there under the Power of the Father and Mother conjointly, so that the Death of either of them *emancipated* the Child.

Emancipation by Matriage, in *France*, gives a Power of marrying again, without the Father's Consent, tho' under Age: But among the *Romans*, *Cujas* tells us, a Widow, under 25 Years of Age, tho' *emancipated* by her former Marriage, return'd into the Power of her Father, and might not marry a second Time without his Consent.

Du Cange observes, that the Word *Emancipation* was also used in the Monasteries, in speaking of Monks, promoted to any Dignity, or removed from under the Power of their Superiours: As also in speaking of Monasteries, Chappels, *&c.* themselves, when exempted by the Pope, from the Jurisdiction of the Ordinary.

The Word is form'd of the *Latin*, *ex*, of, and *Mancipium*, a Slave.

EMASCULATION, the taking from a Male those Parts which make the Character of the Sex. See CASTRATION.

EMAUX *de l'Escu*, in Heraldry, the Metal and Colours of a Shield, or Scutcheon. See METAL and COLOUR.

EMBALMING, the Opening a dead Body, taking out the Intestines, and filling their Place with odoriferous and desiccative Drugs, and Spices, to prevent its putrifying.

The Word is form'd from *Balm*, which was a principal Ingredient in the *Embalmings* of the antient *Egyptians*. See BALM.

The Body of *Jacob* was 40 Days in *Embalming* in *Egypt*. See *Genesis* 50. v. 3. *Mary Magdalen*, and *Mary* the Mother of *James*, bought Perfumes to *Embalm* Jesus. See S. *Mathew*, &c. *John* King of *France*, dying at *London* in 1364, his Body was *Embalmed*, and sent to *France*, and there interr'd at St. *Dennis*. *Du. Tillet*. For the Manner of *Embalming* among the *Egyptians*, See *Thevenot*'s Collection, *Tome* I.

The *Peruvians* had likewise a Method of preserving the Bodies of their *Incas*, or Kings, *Embalm'd*. *Garcilasso de la Vega*, takes their main Secret to have been the burying of the Corps in the Snow, to dry them; and afterwards applying a certain Bitumen, mention'd by *Acosta*, which kept them as entire, as if they had been still alive.

Dr. *Grew*, in his *Musæum Regalis Societatis*, is of Opinion, that the *Egyptians* boil'd their Bodies in a large Caldron, with a certain Kind of liquid Balm: His Reason is, that in the Mummies preserved in the Collection of the Royal Society, the Balm has penetrated not only the fleshy and soft Parts, but even the very Bones; so, that they are all as black as if they had been burnt. See MUMMY.

EMBARCADERE, in Commerce, a *Spanish* Term, much used along the Coasts of *America*, particularly those on the Side of the South Sea.

The Word signifies a Place that serves some other considerable City further within Land, for a Port, or Place of Shipping, *i. e.* of *embarking and disembarking Commodities*. Thus *Colao*, e. gr. is the *Embarcadere* of *Lima*, the Capital of *Peru*: And *Arica* the *Embarcadere* of *Potosi*. There are *Embarcaderes* 40, 50, and even 60 Leagues off the City which they serve in that Capacity.

EMBARGO, a Restraint, or Prohibition, imposed by a Soveraign, on Merchant Vessels; to prevent their going out of Port; sometimes their coming in; and sometimes both, for a limited Time. *Embargo's* are usual in Time of War; in Apprehensions of Invasions, *&c.*

One great Occasion of *Embargo's* is, that the Government may make Use of the Merchant Vessels, with their Equipage, *&c.* in Armaments, Expeditions, Transporting of Soldiers, *&c.* *Embargo's* are of the worst Consequence to Commerce imaginable.

EMBARRAS, a *French* Term, tho' now naturalized. It signifies a Difficulty, or Obstacle, which perplexes or confounds a Person, *&c.*

The *Embarras* was very great in the Road, by Reason of the Army which defiled therein. A Man lives more in two Days of Leisure, and feels more of Life therein, than in two Years of Hurry and *Embarras*. *Chev. de M.* It discovers a Decay of the Passion, when the Lovers are under an *Embarras* to find themselves alone. *La. Bruyere.*

The Majesty, the Dignity of Kings, is *Embarrassing*, *Embarassant*; by Reason it obliges them to have a certain Air, and certain Manners suitable to their Rank; which are scarce had without a continual Attention, which must needs fatigue, and *Embarasse* a Man.

The Majesty of *Louis* XIV. is said not to have been any wise *Embarrassing*: It was natural to him.

EMBASSADOR, a public Minister, sent from one Soveraign Prince, as a Representative of his Person, to another. See MINISTER.

In *Latin*, we usually call him *Legatus*, or *Orator*; tho' 'tis certain, the Word *Embassador*, with us, has a much more extensive Signification, than that of *Legatus* among the *Romans*: And, excepting that they are both under the Protection of the Law of Nations, there is scarce any Thing in common between them. See LEGATUS.

Embassadors are either *Ordinary* or *Extraordinary*.

An *Embassador in Ordinary*, is he who resides statedly in the Court of another Prince, to maintain a mutual good Understanding, look to the Interests of his Prince, and transact such Affairs as may occur.

Embassadors in Ordinary, are but of modern Invention: 'Tis not above 200 Years ago since they were first heard of: Till then, all *Embassadors* were *Extraordinary*, and retired assoon as they had dispatched the Affair they were sent upon. See ORDINARY.

An *Embassador Extraordinary*, is he who is sent to a Prince's Court on some particular, and emergent Occasion; as to conclude a Peace, or Marriage; make a Complement, or the like. Indeed, there is no essential Difference between *Ordinary* and *Extraordinary*; their Errand is all: And they equally enjoy all the Privileges and Prerogatives which the Laws of Nations decrees.

At *Athens*, the *Embassadors* from foreign Princes and States, mounted the Tribune, or Pulpit, of the public Orators,

Orators, and there open'd their Commission, and acquainted the People with their Business and Errand: At *Rome*, they were introduced to the Senate, and deliver'd their Commission to them: Among us, they make their Address immediately and solely to the King.

Athens, and *Sparta*, says M. *Tourreil*, when in all their Glory, were never so much delighted, as to see, and hear a Number of *Embassadors* in their Assemblies, suing for the Protection, or Alliance of the one or the other State. It seem'd to them the noblest Homage that could be paid them; and that State, which received the most Embassies, was judg'd to have the Advantage over the other.

The Name of *Embassador*, *Cicero* observes, is sacred and inviolable; *Non modo inter Sociorum Jura, sed etiam inter Hostium Tela incolume versatur.* In Verr. Orat. VI. *David*, we read, made War against the *Ammonites*, to revenge the Injury done his *Embassadors*. Kings *L.* II. *C.* 29. *Alexander* put the Inhabitants of *Tyre* to the Sword, for having insulted his *Embassadors*; and the Youth of *Rome*, for affronting the *Embassadors* of *Vallona*, were deliver'd up into their Hands, to be punished at Discretion.

The *Embassadors* of Kings should never attend at any public Assemblies, Marriages, Interments, or other Solemnities, unless their Masters have some Interests therein; nor must they go into Mourning, or the like, on any Occasions of their own, by Reason they represent the Persons of their Princes, and must conform and keep Pace with him. *Scaliger in Verb. Embassador.*

The Word is derived from the corrupt Latin *Ambasciator*, form'd of *Ambactus*, an old Word borrow'd from the *Gaulish*, signifying Servant, Client, Domestic, or Officer: Such is the Origin given by *Borel*, *Menage*, and *Chiflet*, after *Salmasius* and *Spelman*. But the Jesuites of *Antwerp* reject this Opinion, in the *Acta Sanct. Mart.* Tom. II. *pag.* 128. by Reason the Gaulish *Ambact* had been discontinued long enough e're the Latin *Ambascia* was ever thought of: Which, however, is not strictly true; the Word *Ambascia* occurring in the *Salic* Law, *Tit.* 19. and being form'd of *Ambactia*, by pronouncing the *t* as in *actio*; and *Ambactia* came from *Ambactus*.

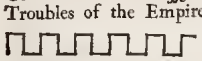
Lindenbrock derives the Word from the *German*, *Ambacht*, Work; as signifying a Person hired, to perform a Work, or Legation: And *Chorier*, meeting with the same Word in the Laws of the *Bourguignons*, gives into the Sentiment of *Lindenbrock*. *Alb. Acharisius* in his *Italian* Dictionary derives it from the Latin *Ambulare*, to walk, or travel.

And, lastly, the Jesuites of *Antwerp*, in the Place last cited, observing that the Word *Ambascia* occurs in the Laws of the *Bourguignons*, derive thence the Words *Ambassicatores*, and *Ambasciatores*, as signifying Envoys, or Agents, from one Prince, or State, to another. Their Sentiment then is, that among the *Barbarians*, who overspread *Europe*, *Ambascia* signified the Discourse of a Person who stoops or humbles himself; being form'd from the same Root with *abaisser*, viz. of *an*, or *am*, and *bas*.

EMBASSY, *Legatio*, a Mission from one Soveraign Prince, or State, to another, of some able experienced Person, to negotiate some Affair, in Quality of *Embassador*.

Fa. Daniel observes, that under the antient *French* Kings, their *Embassies* consisted of a Body, or Number of Persons, joyn'd together in Commission, and who composed a Kind of Council: Something like which is still retain'd at Treaties of Peace. Thus the *Embassy* of *Nimeguen*, for the Peace, consisted of three Plenipotentiaries; that of *Utrecht* of two, *&c.* See EMBASSADOR.

We likewise read of *Embassadresses*: Madam the Marechale *de Guebriant*, *Wicquefort* observes, was the first, and perhaps the only Woman, sent by any Court in *Europe*, in Quality of *Embassadress*. *Matth. L.* IV. *Vie. d' Henry* IV. tells us, that the King of *Persia* sent a Lady of his Court on an *Embassy* to the Grand Signior, during the Troubles of the Empire.



EMBATTELED, a Term in Heraldry, when the Out-line of any Ordinary is of this Figure; which represents the Battlements of a Wall, or Castle.

EMBER- or EMBRE-*Weeks*, are those wherein the *Ember*- or *Embring-Days* fall.

In the Laws of King *Alfred*, and those of *Canute*, they are called *Ymbren*, that is, Circular Days, from whence they are corrupted into *Ember-Days*: By the Canonists they are called, *Quatuor Anni Tempora*, the four Cardinal Seasons, on which the Circle of the Year turns.

They are the *Wednesday*, *Friday*, and *Saturday*, after *Quadragesima Sunday*, after *Whitsunday*, after *Holy-Rood* Day in *September*, and after St. *Lucies* Day in *December*: Which four Times answer well enough to the four Quarters of the Year, *Spring*, *Summer*, *Autumn*, and *Winter*.

Mr. *Sommer* thinks they were Fasts, instituted to beg God's Blessings on the Fruits of the Earth.

These *Ember-Weeks* are now chiefly taken Notice of, on Account of the Ordination of Priests and Deacons; because the Canon now appoints the *Sundays*, next succeeding the *Ember Weeks*, for the solemn Times of Ordination. Though the Bishops, if they please, may ordain on any *Sunday*, or Holiday. See ORDINATION.

EMBLEM, a Kind of painted Ænigma; which, representing some obvious History, with Reflections underneath, instructs us in some Moral Truth, or other Matter of Knowledge.

Such is that very significant Image of *Scevola*, holding his Hand in the Fire: With the Words, *Agere & pati fortia Romanum est.* To do and suffer couragiously is *Roman*.

The *Emblem* is somewhat plainer, and more obvious than the *Ænigma*. See ÆNIGMA.

Gale defines it an ingenious Picture, representing one Thing to the Eye, and another to the Understanding.

The *Emblems* of *Alciatus* have been in as much Reputation among the more learned, as those of *Quarles* among the Vulgar.

The Word is pure *Greek*, ἔμβλημα, form'd of the Verb, ἐμβάλλειν, *to cast in, to insert.* *Suetonius* relates, that *Tiberius* made the Word be erased out of a Decree of the *Roman* Senate, because borrow'd from another Language.

The *Greeks* gave the same Name ἐμβλήματα, *to inlaid*, or Mosaic Works, and even to all Kinds of Ornaments of Vases, Moveables, Garments, &c. And the *Latins* used *Emblema*, in the same Sense: Accordingly, *Cicero* reproaching *Verres* with the Statues, and fine wrought Works he had plunder'd from the *Sicilians*, calls the Ornaments fix'd thereto (and which on Occasion might be separated from them) *Emblemata*. Add, that the *Latin* Authors frequently compare the Figures and Ornaments of Discourse to these *Emblemata*: Thus, an antient *Latin* Poet, praising an Orator, says, that all his Words were ranged like the Pieces in Mosaic.

Quam lepidè λέξεις *compostæ, ut tesserulæ omnes,*
Endo pavimento, atque Emblemate *Vermiculato.*

We don't use our *English* Word *Emblem* in this Sense; tho' the antient *Juris consulti*, always retain the Latin *Emblema* to express such Ornaments, by Reason the *Greek* ἔμβλημα, literally denotes any Thing applied, or added to a Body by Way of Enrichment.

With us, *Emblem* ordinarily signifies no more than a Painting, Basso Relievo, or other Representation, intended to hold forth some Moral, Political, or Academical Instruction.

That which distinguishes an *Emblem* from a Devise, is, that the Words of an *Emblem* have a full compleat Sense of themselves; nay, all the Sense and Signification which they have with the Figure.

But there is a yet further Difference between *Emblem* and Devise: For a Devise is a Symbol affected, or determined to some Person, or that expresses something which concerns him particularly; whereas an *Emblem* is a Symbol that regards all the Word alike. These Differences will be apparent, from comparing the *Emblem* just quoted, with the Devise of a Candle lighted; and the Words, *juvando consumor*, I waste my self in doing good. See DEVISE.

EMBLEMENTS, a Term strictly signifying the Profits of Lands sown; tho' sometimes used more largely for any Profits arising, and growing naturally from the Ground; as Grass, Fruit, *&c.*

If a Tenant, for Life, sow the Land, and die; his Executor shall have the *Emblements*, and not he in Reversion. But if the Tenant, for Years, sow the Land, and before Severance the Term expires, there the Lessor, or he in Reversion, shall have the *Emblements*, and not he the Lessee.

EMBOLISM, in Chronology, *Intercalation*. As the *Greeks* made use of the Lunar Year, which is only 354 Days; in Order to bring it to the Solar, which is 365 Days; they had every two or three Years an *Embolism*, i. e. they added a thirteenth Lunar Month every two or three Years; which additional Month they called *Embolimæus*, because inserted or intercalated. See YEAR.

The Word *Embolism* comes from the *Greek*, ἐμβολισμὸς, form'd of ἐμβάλλειν, *to insert.* See EMBOLISMIC.

EMBOLISMIC, *Intercalary*. The Term is chiefly used for the additional Months, which the Chronologists insert to form the Lunar Cycle of 19 Years. See INTERCALARY.

For the 19 Solar Years, consisting of 6939 Days, and 18 Hours; and the 19 Lunar Years, only making 6726

Days:

Days: It was found neceſſary, in order to render the 19 Lunar Years equal to the 19 Solar, which make the Lunar Cycle of 19 Years, to intercalate or inſert 7 Lunar Months, containing 209 Days; which, with the four Biſſextile Days, happening in that Interval, make 213 Days, and the whole, 6939 Days. See CYCLE.

By Means of theſe ſeven *Emboliſmic*, or additional Months, the whole 6939 Days and 18 Hours of the Solar Years, are employed in the Calendar. See MONTH.

In the Courſe of 19 Years, there are 228 common Moons, and ſeven *Emboliſmic* Moons. Their Diſtribution is thus: Every 3d, 6th, 9th, 11th, 14th, 17th, and 19th Year are *Emboliſmic*, and conſequently contain 384 Days a-piece. And this was the Method of computing Time among the *Greeks*; when they uſed the *Enneadecaeterides*, or Cycle of 19 Years. But they did not keep regularly to it, as the *Jews* ſeem to have done.

The *Emboliſmic* Months, like other Lunar Months, are ſometimes 30 Days, and ſometimes only 29. See YEAR.

The *Emboliſmic Epacts*, are thoſe between XIX and XXIX; which are thus called, by Reaſon with the Addition of Epact XI, they exceed the Number XXX: Or rather, becauſe the Years, which have theſe Epacts, are *Emboliſmic*; having thirteen Moons a-piece, whereof the 13th is the *Emboliſmic*. See EPACT.

EMBOLUS, the moveable Part of a Pump, or Syringe; called alſo the *Piſton*, and popularly the *Sucker*. See PISTON: See alſo PUMP and SYRINGE.

The Pipe, or Barrel of a Syringe, *&c.* being cloſe ſhut; the *Embolus* cannot be drawn up without a very conſiderable Force; which Force removed, the *Embolus* returns again with Violence. This Phænomenon the *Ariſtotelians* attribute to Nature's Abhorrence of a Vacuum. See VACUUM.

But the modern Philoſophers finding that in an exhauſted Receiver, the *Embolus* is eaſily drawn up, tho' the Orifice be ſtop'd; prove that 'tis the Preſſure of the Atmoſphere, on the external Parts of the *Embolus*, that makes the Difficulty of drawing it up. See AIR, ATMOSPHERE, SUCTION, *&c.*

EMBOSSING, or IMBOSSING, the Act of forming, or faſhioning Works in Relievo, whether they be caſt, or moulded, or cut with the Chiſſel, *&c.* See RELIEVO, STATUE, FOUNDERY, *&c.*

Emboſſing is one great Part of Sculpture; being that which has to do with Figures rais'd, or prominent from the Plane or Ground: The other Part, which makes Figures, *&c.* that are indented, or cut in below the Ground, is call'd *Engraving*. See SCULPTURE and ENGRAVING.

EMBRACEOR, he who, when a Matter is in Trial between Party and Party, comes to the Bar with one of the Parties, (having receiv'd ſome Reward ſo to do) and ſpeaks in the Caſe, or privately labours the Jury, or ſtands there to over-look, awe, or put them in Fear.

The Penalty hereof is 20 Pound, and Impriſonment at the Juſtices Diſcretion.

EMBRASURE, in Architecture, the Enlargement made of the Gap, or Aperture of a Door, or Window, on the inſide the Wall. See DOOR.

Its Uſe is to give the greater Play, for the opening of the Door, Wicket, Caſement, *&c.* or to take in the more Light.

The *Embraſure* coming ſloping inwards, makes the inner Angles obtuſe. When the Wall is very thick, they ſometimes makes *Embraſures* on the out-ſide.

EMBRASURES, in Fortification, are the Holes, or Apertures, thro' which the Canons are pointed; whether in Caſemattes, in Batteries not cover'd with Gabions, or in the Parapets of Walls.

The *Embraſures* are generally about 12 Foot a-part, from ſix to nine Foot wide without, and two or three within. Their Height from the Plat-form is uſually three Foot on the inſide, and a Foot and half on the outſide: That ſo the Muzzle, on Occaſion, may be ſunk, and the Piece brought to ſhoot low.

They are particularly called *Cannonieres*, when big enough to paſs the Mouth of a Canon through; and *Meurtrieres*, when only big enough for Muſkets.

When the Parapet is ſo low, that the Canon may ſhoot without *Embraſures*, it is ſaid to ſhoot *en barbe*.

EMBROCATION, in Pharmacy, is the applying of Remedies, as Oils, Spirits, Decoctions, and other Liquids, by ſprinkling, or even rubbing them on the Part affected; called alſo *Irrigation*.

Embrocations are only a Kind of Lotions. See LOTION.

Embrocations are now little uſed, except in Diſeaſes of the Head. If the Pain do not abate, make an *Embrocation* of Cows Milk, lukewarm, on the Head. *Degori.* Make an *Embrocation* on the Part with Unguent. Dialtheæ, or Oil of Lilly very hot. *Dionis.*

The Pumping uſed in Natural Baths is properly an *Embrocation*.

The Word is form'd from the *Greek* βρέχω, *Irrigo, madefacio*, I ſprinkle, wet, macerate.

EMBROIDERY, the Enriching of a Cloth, or Stuff, by Working divers Figures thereon, with Needle and Thread of Gold, or Silver. See BROCADE.

That done with Silk, Flax, or the like, is not now call'd *Embroidery*; tho' antiently, and properly, the Word denoted all Kinds of figuring, or flouriſhing.

The chief Uſe of *Embroidery* is in Church Veſtments, Cloaths, Houſings, Guidons, Standards, *&c.* The Invention of *Embroidery* is attributed to the *Phrygians*; whence the *Latins* call Embroiderers *Phrygiones*.

The Word *Embroidery* is derived from the French *Broiderie*, of *broider*, to *Embroider*; which ſome deduce, by Tranſpoſition from *Bordeur*, by Reaſon they formerly *Embroider'd* only the Edges of Stuffs; whence the *Latins* alſo call the Embroiderers *Limbularii*. *Du Cange* obſerves, that they antiently wrote *aurobruſtus*, for *Embroider'd* with Gold, or *Bruſtus brudatus*, and *Brodatus*; whence *Broderie*.

There are divers Kinds of *Embroidery*: Among the reſt, *Embroidery on both Sides*, that is, which appears on both Sides; only practicable on thin ſlight Stuffs, as Taffetas, Gawſe, Muſtins, *&c.* *Embroidery on the Stamp*, where the Figures are very high, and prominent, being ſupported on Wool, Cotton, Hair, *&c.* *Low Embroidery*, where the Figures are low, and without any Enrichment between them.

EMBRYO, in Medicine, *Fœtus*; the firſt Beginning, or Rudiments of the Body of an Animal, in its Mother's Womb, before it have received all the Diſpoſitions of Parts, neceſſary to become animated: Which is ſuppoſed to happen to a Man on the 42d Day; at which Time, the *Embryo* commences a perfect *Fœtus*. See FOETUS.

The Moderns have made Abundance of fine Diſcoveries on the Formation and Growth of the *Embryo*. See EGG, GENERATION, CONCEPTION, *&c.*

The Word is derived from the *Greek*, ἔμβρυον, which ſignifies the ſame Thing; form'd of the Prepoſition ἐν and βρύω, *ſcaturio, pullulo*, I ſpring out: From the Manner of the firſt Growth of the *Embryo*, which reſembles that of the firſt Shoots of a Plant, as being a Kind of *Zoophyte*, and having only a Vegetative Life. See ZOOPHYTE.

Monſ. *Dodart* having an *Embryo* of 21 Days Age put in his Hands, made a nice Examen thereof; to find the Order Nature obſerves in the Formation of the Parts, and the firſt Riſe of the Parts themſelves.

The *Placenta*, he found more than half of the whole; and thence concludes, that the nearer the *Embryo* is to the Moment of its Conception, the greater is the *Placenta* with Reſpect to the Secundines, and the *Fœtus*. Which Circumſtance furniſhes a Reaſon why Miſcarriages are more dangerous than regular Deliveries; notwithſtanding the *Fœtus* in the former Caſe is much leſs than in the latter. For tho' the *Embryo* have made a Way ſufficient for it ſelf, it may not for ſo great a *Placenta* as is to follow it. See ABORTION, PLACENTA, *&c.*

The *Embryo* it ſelf was only ſeven Lines long, from the Top of the Head to the Bottom of the *Spina dorſi*, where it terminated. The Thighs were not yet unfolded: They only appeared like two little Warts at the Bottom of the Trunk: The Arms made juſt the ſame Appearance on the Shoulders. The Head was $\frac{1}{3}$ of the Length of the whole ſeven Lines: On this were ſeen two little black Points, which would one Day have been Eyes. The Mouth was very big; which M. *Dodart* takes for an Indication that the *Fœtus* was fed by the Mouth. There was no Eminence for the Noſe; but two little, almoſt imperceptible, Pits for the Noſtrils.

The Painters uſually make the Head $\frac{1}{8}$ of the Height of a well proportion'd Man; and $\frac{1}{4}$ of that of a young Child: In the *Embryo* before us, the Head was thrice the Height of the Head; whence it follows, that the younger the *Embryo*, the bigger the Head in Proportion to the Body. The Parts nearer the Head are alſo bigger in Proportion to the reſt; and the Legs and Feet the ſmalleſt.

The *Embryo* was a little crooked forwards, and bore ſome Reſemblance to the Maggot of a Silk-Worm: It weighed leſs than ſeven Grains, which is an extraordinary Lightneſs for a Body ſeven Lines long. It was ſo ſoft, that no Part of it could be touch'd without making a Change in its Form.

Upon opening it, M. *Dodart* diſcover'd the Heart, and the right Auricle: All the other Parts in the *Thorax*, and lower *Venter*, were only ſimple Lineaments, or Contours, and all *Veſicular*, excepting a Part on the left Side, which may be ſuppoſed to be the Spleen. There was no

no Appearance of any Thing on the right Side for a Liver. *Mem. de l'Acad.*

EMBRYO, is also used by Naturalists, to express the Grain, or Seed of a Plant; or rather the Germ, or first Sprout appearing out of the Seed: By Reason the whole future Plant is supposed to be contain'd therein. Just as the whole Chick, is supposed contained in the Cicatricula, or Treddle of an Egg. See SEED, GRAIN, PLANT, PLUMULE, RADICLE, *&c.*

EMBRYOTHLASTES, from ἔμβρυον, *Fœtus*, and θλάω, *contundo*, I bruise or break; an Instrument to crush the Bones of an *Embryo*, or dead Child; so as to make it easier of Extraction, and prepare it for the *Embryulcus*, to draw it out of the Womb. See DELIVERY.

EMBRYOTOMY, in Chirurgery, the Operation of cutting off the *Funiculus Umbilicalis*, or Navel String, of a Child just born; and tying it up. See UMBILICUS.

The Word is form'd of the *Greek*, ἔμβρυον, and τέμνω, *I cut*.

EMBRYULKIA, or EMBRYOLKIA, in Chirurgery, the Operation of extracting the Child out of the Mother's Womb.

What the *Greeks* call *Embryolkia*, the *Latins* call *Cæsarean Section*. See CÆSAREUS.

This latter Name, M. *Dionis* observes, has taken Place, and prevail'd over the former; as being more easy of Pronunciation.

The Word is form'd of the *Greek*, ἔμβρυον, *Child*, and ἕλκειν, *to draw*.

EMENDALS, an old Term still used in the Accounts of the inner Temple: Where, so much *in Emendals* at the Foot of an Account, signifies so much in the Bank, or Stock of the House, for Reparation of Losses, and other Occasions.

EMENDATIO *Panis & Cerevisiæ*, the Assize of Bread and Beer; or the Power of supervising and correcting the Weights and Measures belonging to them. See ASSIZE.

EMERALD, a pretious Stone, very green and transparent; and as to Hardness, the next after the Ruby. See PRETIOUS *Stone*.

Pliny reckons up twelve Kinds of *Emeralds*; and denominates each from the Provinces, or Kingdoms, where be supposed them to be found; as *Scythian*, *Bactrian*, *Egyptian*, *Persian*, &c.

But the modern Naturalists, and Jewellers, only know of two Kinds, *viz. Oriental* and *Peruvian*. And if we may credit *Tavernier*, in his Treatise of *Colour'd Stones found in the Indies*, inserted in the second Volume of his Voyages, these two should yet be reduced to one, *viz.* the *Peruvian*.

In Effect, he maintains that there is not, nor ever was, any Mine of *Emeralds* in the *East-Indies*; and that all that are there found, were brought from *Peru* by the Way of the *South Sea*; which was a Method of Commerce, carried on by the *Peruvians* before the Discovery of *America* by the *Spaniards*. But as the Point of such Commerce is not sufficiently proved, we must keep to the antient Division.

The *Oriental Emerald* is harder, more brilliant, and transparent than the *Peruvian*; which has generally Clouds found in it, and sparkles less. Beside that, there are such Quantities brought from *Peru*, by the Way of *Carthagena*, that they are much sunk in Value and Reputation. They talk likewise of *Emeralds* found in *Cyprus*, and even in our own Island; but they are very inconsiderable; if, indeed, there be any true ones at all.

Some Authors hold *Emeralds* to be taken out of Iron Mines: And *Pomet* assures us, he had one to which the Iron Ore was still sticking. To which, all we have to say, is, that it could not be a *Peruvian*, by Reason there is no Iron Mine in the Country.

The *Emerald* is supposed to grow more and more perfect in the Mine like the Ruby; and to arrive at its Greenness by slow Degrees, as the Fruit comes to Maturity by Degrees. 'Tis a common Opinion, that the *Emerald* grows in the Jasper; and 'tis certain there are some Jaspers so perfectly green, that many have taken them for *Emeralds*. See JASPER.

But the proper Matrix, or Marcasite of this Stone is the *Preme*, which is held among the coarser pretious Stones; being hard, transparent, half opake, and usually intermix'd with yellow, green, white, blue, *&c.*

The Antients made Amulets of *Emeralds* against all Kinds of Sorcery; and supposed them effectual against a thousand different Diseases. At present; that we have more Experience, or less Credulity, they are valued for their Beauty, not their Virtue; tho' there are still some who suppose, that when reduced into an impalpable Powder, and mix'd with Rose Water, they may be of some Use in Medicine.

We read in Authors of several *Emeralds* of incredible Magnitude: *Roderigo de Toleda* tells us, that when the *Sarazens* took that Town, King *Tarik* had for his Share of the Plunder, a Table 365 Foot long, and all of a-piece, which he maintains to be an *Emerald*. After this, the Reader will not wonder at that seen by *Theophrastus*, in a Temple in *Egypt*, four Cubits long, and three broad; nor even at an Obelisk of *Emerald* 40 Foot high.

The Word is form'd from the French *Esmeraude*, and that from the Latin *Smaragdus*, which signifies the same Thing. Others derive it from the Italian *Smeraldo*, or the Arabic *Zomorrad*.

In the *Dictionnaire de Commerce*, we have a very curious and accurate Estimate of the Values of the different Kinds of *Peruvian Emeralds*; which the Reader will not be displeased to find transcribed hither.

Rough EMERALDS.

Those of the first, and coarsest, Sort, called *Plasmes*, for grinding, are worth 27 Shillings Sterling the Marc, or 8 Ounces. The *Demi-Morillons*, 8 Lib. Sterl. per Marc. Good *Morillons*, which are only little Pieces, but of fine Colour, from 13 *L.* to 15 *L.* per Marc. *Emeralds* larger than *Morillons*, and call'd *of the third Colour, or Sort*, are valued at from 50 *L.* to 60 *L.* the Marc. *Emeralds*, call'd *of the second Sort*, which are in larger and finer Pieces than the preceding, are worth from 65 *L.* to 75 *L.* per Marc. Lastly, those of the *first Colour*, otherwise call'd *Negres Cartes*, are worth from 110 *Lib.* to 115 *Lib.*

EMERALDS *ready cut, or polished, and not cut, being of good Stone, and a fine Colour, are worth,*

	Lib.	*Sh.*
Those weighing One Caract, or 4 Grains	0	10
Those of Two Caracts - - - - -	1	7
Those of Three Caracts - - - - -	2	5
Those of Four Caracts - - - - -	3	10
Those of Five Caracts - - - - -	4	10
Those of Six Caracts - - - - -	7	10
Those of Seven Caracts - - - - -	15	0
Those of Eight Caracts - - - - -	19	0
Those of Nine Caracts - - - - -	23	0
Those of Ten Caracts - - - - -	33	0

EMERALD, or EMERAUD, in Heraldry, is used in Lieu of *Vert*, or Green, in Blazoning the Arms of Dukes, Earls, *&c.* See BLAZONING.

EMERGE. See EMERSION and EMERGENT.

EMERGENT *Year*, in Chronology, is the *Epocha*, or Date, whence we begin to account our Time. See EPOCHA.

Thus, our *Emergent Year* is sometimes the Year of the Creation: That of the *Jews*, is from the Deluge, or the *Exodus*, &c. The *Emergent Year* of the *Greeks*, was the Establishment, or at least the Restoration of the *Olympic* Games by *Iphitus*. The *Romans* accounted their Years from the Building of the City AB U. C. That is, AB URBE CONDITA.

EMERSION, in Physicks, the rising of any Solid above the Surface of a Fluid specifically lighter than it self, into which it had been violently immerged or thrust.

'Tis one of the known Laws of Hydrostaticks, that a lighter Solid being forced down into a heavier Fluid, immediately endeavours to *emerge*; and that with a Force, or Moment, equal to the Excess of Weight of a Quantity of the Fluid, above that of an equal Bulk of the Solid.

Thus, if a Solid be immerged in a Fluid of double its specific Gravity; it will *emerge* again, till half its Bulk, or Body, be above the Surface of the Fluid. See FLUID.

EMERSION, in Astronomy, is when the Sun, Moon, or other Planet, begins to re-appear, after having been eclipsed, or hid by the Interposition of the Moon, Earth, or other Body. See ECLIPSE.

The Difference of Longitudes is found by observing the Immersions and *Emersions* of the first of *Jupiter's Satellites*. See SATELLITES.

The Immersions are observed from the Time of *Jupiter's* being in Conjunction with the Sun, to his Opposition; and the *Emersions*, from the Opposition to the Conjunction. Which two Intervals are usually six Months a-piece; and divide the Year between them.

But when *Jupiter* is in Conjunction with the Sun, and fifteen Days before and afterwards; there is nothing to be observed: That Planet, with his Satellites, being then lost in the Light of the Sun. See JUPITER.

EMERSION, is also used when a Star, before hid by the Sun, as being too near him, begins to re-appear, and to get out of his Rays. See MERCURY.

Scruples, or *Minutes of* EMERSION, are an Arch of the Moon's Orbit, as T Q (*Tab. Astronom. Fig.* 46.) which the Moon's Centre passes over, from the Time she begins to *Emerge* out of the Shadow of the Earth to the End of the Eclipse.

EMERY,

EMERY, a Sort of Metallic Stone, found in most, or all Mines of Metals; but chiefly those of Iron, Copper, and Gold. See STONE and MINE.

We usually distinguish three Kinds of *Emery*; the *Spanish*, *Red*, and *Common Emery*.

The first is found in the Gold Mines of *Peru*, and other Provinces of the *Spanish America*: 'Tis judged a Kind of Marcassite of that rich Metal; being streak'd with little Veins, and Specks of Gold. 'Tis for this Reason the King of *Spain* prohibits it being exported: Which renders it exceeding rare among us; to the great Regret of the Seekers of the Philosopher's Stone, who build great Hopes in the Transmutation of this precious Mineral. The *Red Emery* is found in Copper Mines; the little we have of it comes from *Sweden* and *Denmark*.

The *Common Emery* is taken out of Iron Mines; and is almost the only Sort used among us. The Consumption hereof is very considerable among the Armorers, Cutlers, Locksmiths, Glaziers, Lapidaries, Masons, &c. Some of whom use it to polish and burnish Iron, and Steel Works; others, to cut and scollop Glass, Marble, and pretious Stones.

This *Emery* is of a brownish Colour, bordering a little on *Red*; exceedingly hard, and of Consequence difficult to pulverize. The *English* are the only People that have got the Art of making it into Powder; which they do chiefly by Means of certain Mills contrived for that Purpose: And thus send it in Powder to their Neighbours.

Pounding it in Mortars were in vain; it being so hard that it would pierce, or break the Mortar e're it would give Way.

Of the Powder, the most subtle and impalpable is the best: As to the Stone, it should be chose of a high Colour, and as free of the Rock as possible.

Emery fused with Lead, and Iron, hardens them. It increases and heightens the Weight and Colour of Gold. 'Tis usual to mix a little of it with the Gold from *Madagascar*, which is naturally pale and soft. See GOLD.

Putty of EMERY, is a Kind of dirty Matter, found on the Lapidaries Wheels; containing Part of the Powder of *Emery*.

The Word *Emery* appears to be derived from the Latin *Smyris*, and that from the *Greek* σμύρις, which signifie the same Thing; and which Mons. *Lemery* derives from the Verb σμάω, *I clean, scour*.

EMETIC, in Medicine, a Remedy that excites Vomiting; or that evacuates by Vomiting. See VOMITING and EVACUANTS.

Of these there are a great Variety; as *Ipecacuanha*, *Carduus Benedictus*, &c.

The Use of *Emeticks* is indicated by a Foulness of the Mouth in a Morning, rifting, loathing, gnawing of the Stomach, gradual Loss of Appetite, spontaneous Vomiting, &c.

Vomiting is rais'd by irritating the Spirits with the Presence of something loath'd; by an unusual Agitation, as Sailing, &c. by tickling the Fibres of the Jaws, and Pharynx with a Feather dipp'd in Oil; by drinking Quantities of warm Water, &c. by any Thing sharp and viscous; as the Flowers and Seeds of *Dill*, Leaves of *Cæsarum*, &c. Crocus and Glass of *Antimony*; the Flowers and Regulus thereof; *Mercurius Vitæ*, *Mineral Turbith*, and *Mercury* sharpen'd with Acids.

The *Emetic* Wine, *Vinum Emeticum*, is only white Wine, wherein is infused some *Crocus Metallorum*, or Glass of Antimony.

The *Emetic Powder*, called also Powder of *Algareth*, from the Name of its Author, is a Precipitate of Antimony, or Butter of Antimony, sweeten'd and softned by repeated Lotions. See ANTIMONY.

Emetic Tartar, is Cream, or Crystal of Tartar, powder'd and mix'd with one fourth of *Crocus Metallorum*.

The Word is form'd from the *Greek*, ἔμω, *I vomit*.

The Operation of *Emetic* Medicines is thus accounted for by Dr. *Quincy*: The Particles of the *Emetic* wedging themselves into the Orifices of the Emissaries of the Glands, placed adjacent to the Surface of the Stomach, do dilate the same; (which by some extrinsic Cause had been contracted) and after the same Manner, do dissolve (at least in some Degree) the Cohesion of the stagnant morbifick Matter; rendering it more fluid, and consequently making its Resistance less.

Now the natural and constant Actions of the Glands being Secretion; and the Impediment (by the Dilatation of the Orifice, and the Attenuation of the Fluid) being taken away, or at least made less than the natural Momentum of the Glands; the Matter must naturally flow into the Cavity of the Stomach, till it be heaped up in such a Quantity, (which not being to be done in an Instant, must require some Time) as is sufficient by its Stimulus to vellicate, and force the Fibres of the Stomach, Abdomen, and Diaphragm, by Communication of the first with the two last, into a violent Contraction; and thereby throw all out by the Oesophagus: And this makes all quiet for a Time, till a new and sufficient Quantity be excerned from these Glands to produce the aforesaid Contraction.

Thus there happens Fits of Vomiting and Quiet alternately, till either all the morbific Matter be thrown out, or the Force of the *Emetic* be so diluted, that it is no longer able to draw out the morbific Matter from the Glands.

And the strong Contraction in so many Muscles, and muscular Canals, as are at Work in the Action of Vomiting, and the violent Concussion which is produced all over the whole Body by a Power, which, by just Computation, is not inferior to 26000 *l.* Weight, may, and often does, take away the Obstruction in many other Canals, besides those which are adjacent to the Stomach and Gullet; as we plainly see, by those vast Sweats, which plentiful Fits of Vomiting occasion.

Emetic and Purgative Medicines differ only in this, that the Particles of the latter do not immediately vellicate the Fibres of the Stomach, dilate the Orifices, and attenuate the Matter contain'd in the Glands of the Stomach; but act gently, and assist the natural Motion of Digestion, and so are carried down into the Guts: And how they operate there. See PURGATIVE.

EMINENCE, in Geography, a little Hillock, or Ascent, above the Level of the Champagne. See MOUNT.

This Seat is built on an *Eminence*. The Enemies have taken Possession of such an *Eminence*, such a Height, from which they can canonade our Rear.

EMINENCE, in Anatomy, is a Part of the Brain, call'd the *Annular Eminence*. See BRAIN.

The fifth Pair of Nerves arises from the Sides of the *Annular Eminence* of the Brain. See NERVE.

EMINENCE, is also a Title of Honour given to a Cardinal. See CARDINAL.

'Tis his *Eminence* the Cardinal *de* ——. The Decree of the Pope, whereby it was appointed, that the Cardinals should be address'd under the Quality of *Eminence*, bears Date the 10th of *January*, 1630. They then laid aside the Titles of *Illustrissimi*, and *Reverendissimi*, which they had bore before.

The Grand Master of *Malta*, is likewise address'd under the Quality of *Eminence*. See MALTA.

The Popes *John* VIII, and *Gregory* VII, gave the same Title to the Kings of *France*. The Emperors have likewise bore it.

Eminentissimus, the superlative of *Eminent*, has of late been attributed to the Cardinals. *L'Eminentissime Cardinal de* Richelieu.

EMINENTER, EMINENTLY, in the Schools, is used in Contradistinction to *Formaliter*; and in the same Sense with *Virtualiter*: viz. when a Thing possesses, or contains any other Thing in a more perfect or higher Manner than is required to a formal Possession thereof.

Thus an Angel is said to have Prudence *Eminenter*; as he has it in a higher and more perfect Degree than it is in Man, in whom it is *Formaliter*. See FORMALITER and VIRTUALITER.

For one Thing to contain another *Eminenter*, there are usually required two Things, 1. That the containing be of a more excellent Nature than the contain'd. 2. That the less Excellent be some Way contain'd in the more excellent, *viz.* either as in its productive Cause: Or by some Similitude: Or as to the Manner, and Order of Acting, &c.

EMINENTIAL *Equation*, is used by some Algebraists in the Investigation of the Areas of Curvilinear Figures; for a Sort of Artificial Equation, containing another Equation *Eminently*. Hayes's *Fluxions*, p. 97.

EMIR, a Title of Dignity, or Quality, among the *Turks* and *Sarazens*; attributed to such as are Relations, or Descendants of their great Prophet *Mahomet*.

The *Emirs* are held in high Veneration; and have alone the Privilege of wearing a *Green Turban*. See TURBAN.

On the Borders of the Holy Land were several *Emirs*, Soveraign Princes; as the *Emir* of *Gaza*, and the *Emir Terabea*, over whom the Grand Seignior had but little Authority.

The *Emir Haga*, or Prince Conductor of the Pilgrims to *Mecha*, is Bashaw of *Jerusalem*, &c.

This Title, at first, was only given to the Caliphs: In *Persia* they were also call'd *Emir Zadeh*, q. d. Princes Son: Whence, by Abbreviation of *Emir*, they form'd Mir, and of *Emir Zadeh*, Mirza. See CALIPH.

In after Times, when the Caliphs had assumed the Title of Sultans; that of *Emir* remain'd to their Children, as that of *Cæsar* among the *Romans*. In Succession of Time, the same Title of *Emir* came to be attributed to all, who were

were judg'd to descend from *Mahomet* by his Daughter *Fathimah*, and who wear the *Green Turban*. See TURBAN.

EMIR, is also a Title, which being joyn'd to some other Word, frequently denotes an Office, or Employ.

As the *Emir al Omera*, Commander of Commanders; who, in the Time of the Caliphs, was Chief of the Councils and Armies.

The Name *Emir* is also applied, by the *Turks*, to all Viziers, and Bashaws or Governours of Provinces. See BASHAW, *&c.*

Add, that *Emir Akhor*, vulgarly *Imrahor*, is Master, or Chief of the Equeries to the Grand Seignior: *Emir Alem*, vulgarly *Miralem*, Standard-Bearer, and Director of all the Standards of the Empire, with the Music, &c. *Emir Bazar*, the Prevot, or Superintendant of the Markets, who regulates the Prices of Provisions. *Emir al Mostemin*, or *Emir al Moumenin*, i. e. Commander of the Faithful, or the Believers, was a Title assumed by the *Almoravides* and *Almohades*, who reign'd in *Africa* and *Spain*.

The Word *Emir* is *Arabic*, where it literally signifies *Prince*. It is form'd of the Verb אמר *Amar*, which is originally *Hebrew*, and in both these Languages signifies to *say*, and to *command*.

EMISSARY, a trusty, dextrous, able Person sent, underhand, to sound the Sentiments, and Views of another; to make him some Proposal, or Overture: Or to spread Reports, watch the Actions, Motions, and Countenance of a contrary Party, or Person, in Order to make Advantages of them all.

The Leaders of Parties have Abundance of *Emissaries* employed in their Service, who inform them of what passes every where, that they may take their Measures accordingly. The Pope and the Chevalier have their *Emissaries* in *England*.

The Word is form'd of the *Latin e*, and *mitto*, I send out.

EMISSARY *of a Gland*, or its *excretory Duct*, is the common Conduit, Canal, or Pelvis, in which all the little secretory Canals of a Gland do terminate. See GLAND.

EMISSION, the Act of throwing or driving a Thing, particularly a Fluid, from within, outwards.

The Term is chiefly applied among us to the Expulsion, or Ejaculation of the Seed; See EJACULATION. Tho', we also say, the Antients took Vision to be perform'd by the *Emission* of Visual Rays from the Eye. See VISION.

It is also used Morally: Thus, the Civil Death of a Religious is reckon'd from the Day of the solemn *Emission* of Vows. See VOW.

EMMENAGOGUES, in Medicine, such Remedies as promote the *Menses*; thus call'd from εν, *in*, μην, *Month*, and αγω, *duco*, I lead; by Reason their natural Periods of flowing are once a Month. See MENSES.

Emmenagogues either act by giving a greater Force to the Blood in its Circulation, whereby its Momentum against the Vessels is increas'd; or by making it thinner, whereby it will more easily pass through any Outlets.

The former Intention is helped by Chalybeates, which give a greater Weight and Momentum to a languid, heavy Blood, and all other Substances of the like Gravity and Elasticity. And such is the Case of a Leuco-phlegmatic Habit, or as it is commonly called, the Green-Sickness, and its Cure.

But, in the latter Case, where the Blood is florid and too high; attenuating Alteratives and Detergents are the only Remedies, because fittest to render the Blood more thin, and give it such a Property, as will better carry it thro' those little Apertures, destined for its Discharge into the *Uterus*.

EMOLLIENTS, in Medicine, and Pharmacy, Remedies used to soften, and loosen, Hardnesses, or Constructions of the Belly; or those of Tumors and Swellings.

Such are *Mallows*, *Mercurialis*, *Lilly Roots*, *Althæa*, *Lin-seed*, *Butter*, *Wax*, *Gum Ammoniac*, &c. See MALACTICKS.

The Term *Emollient* is not only applied to internal Remedies, but also to other Things: A Laxative, Anodyne, and *Emollient* Clyster: An *Emollient* Emplaster, made of resolutive Unguents: An *Emollient Cataplasm*: Fresh Cherries are an *Emollient* Food; tho', when dry, they rather constringe than relax; as wanting a great Part of the Phlegm, which render'd them *Emollient*. Ripe Grapes, of Astringent, which they were before, become Laxative and *Emollient*. Hog's Grease, applied externally, is resolutive and *Emollient*.

Dr. *Quincy* defines *Emollients*, more scientifically, to be such Things as sheath and soften the Asperites of the Humours, and relax and supple the Solids at the same Time.

For it is easy to conceive how these should be both effected by the same Medicine; thus: By what Means soever, (whether in the Stomach, or any other Parts) the Juices have obtained a Sharpness, or Asperity, so as to vellicate and render uneasy the Fibres, and nervous Parts; which often happens; those Things which are smooth, soft, and yielding, cannot but wrap up their Points, and render them imperceptible; whereby they may gradually, by the proper Course of Circulation, be brought to some convenient Emunctory, without doing any Injury by the Way.

Such Sharpness of Parts, likewise, draws the Fibres into Spasms, keeps them too tense, and frequently thereby occasions Obstructions of the worst Kind.

In all such Cases, therefore, *Emollients* lubricate, and moisten the Fibres, so as to relax them into their proper Dimensions, whereupon such Disorders cease.

EMOLUMENT, is properly applied to the Profits arising daily from an Office, or Employ.

The Patent, or other Instrument, whereby a Person is preferr'd to an Office, gives him a right to enjoy all the Dues, Honours, Wages and *Emoluments* belonging thereto.

In our Law Books, &c. *Emolument* is used in a somewhat greater Latitude.

The Word is form'd of the Latin *Emolumentum*, which primarily signifies the Profits redounding to the Miller from his Mill, of *molo*, *molere*, to grind.

EMPALEMENT, or IMPALEMENT, a cruel kind of Punishment, wherein a sharp *Pale*, or Stake, is run up the Fundament and thro' the Body.

We find mention of *Impaling* in *Juvenal*: It was frequently practised in the Time of *Nero*; and continues to be so in *Turkey*.

The Word comes from the French *Empaler*, or the Italian *Impalare*; or rather they come all alike, from the Latin *Palus*, a Stake, and the Preposition *in*, in, into.

EMPALEMENT, in Botany, the outmost Part of the Flower of a Plant, encompassing the Foliation of the Attire. See FLOWER.

It is compounded of the three general Parts of all Plants, the Skin, the Cortical, and the ligneous Bodies, each *Empaler* being (whether consisting of one or more Pieces) as another Leaf, and designed to be a Guard, and a Band to the Flower, where it is weak and tender; and therefore such Plants as have Flowers, with a firm and strong Basis, as Tulips, *&c.* have no *Empalement*, nor need any. See CALYX.

EMPANELLING, in Law, signifies the Writing, and entring the Names of a Jury into a Parchment, Schedule, or Roll of Paper by the Sheriff, which he hath summoned to appear for the Performance of such public Service, as Juries are employed in. See PANEL and JURY.

EMPARLANCE, in Law, a Desire, or Petition in Court, of a Day to pause, or consider what is best to be done.

The Civilians call it *Petitio Judiciarum*. *Kitchin* mentions Imparlance *general* and *special*: The first seems to be only that made in one Word, or in general Terms: *Emparlance Special*, is where the Party requires a Day to deliberate; adding these Words, *Salvis omnibus Advantagiis tam ad Jurisdictionem Curiæ, quam ad breve & Narrationem.*

Briton uses it for the Conference of a Jury upon a Cause committed to them. See IMPARLANCE.

EMPASMA, in Pharmacy, a Powder thrown, or sprinkled, over the Body, to correct some ill Smell thereof, or to prevent unnecessary Sweats.

The Word is form'd from the *Greek*, ἐμπάσσειν, *to sprinkle.*

EMPASTING, a Term used in Painting, for the laying on of Colours, thick and bold; or applying several Lays of Colours, so as they may appear thick. See COLOURING.

A Painting is said to be well *Empasted* with Colours, when the Colours are bestow'd plentifully, or it is well fed and saturated with Colours.

The Term is also used, when the Colours are laid distinct and asunder; and not soften'd, or lost in each other. This Head is not painted: It is only *Empasted*.

It is form'd of the French *Empaster*, which has the same Signification, of *Paste*, or *Pâte*, Paste.

EMPEROR, *Imperator*, a Title which, among the antient *Romans*, only signified a General of an Army: But, afterwards, it came to denote an absolute Monarch, or a supreme Commander of an *Empire*; A *Roman Emperor*, &c.

In Strictness, the Title *Emperor* does not, cannot, add any Thing to the Rights of Soveraignty: Its Effect is, only to give Precedence, and Preheminence above other Soveraigns; and as such, it raises those invested with it, to the Top of all Human Greatness.

The *Emperors*, however, pretend, that the *Imperial* Dignity is more eminent than the Regal; but the Foundation of such Prerogative does not appear: 'Tis certain the greatest, most antient, and absolute Monarchs, as those of *Babylon*, *Persia*, *Assyria*, *Egypt*, *Macedonia*, &c. were called by the Name of Kings in all Languages, both Antient and Modern. See KING.

'Tis disputed whether or no *Emperors* have the Power of disposing of the Regal Title: 'Tis true, they have sometimes taken upon them to erect Kingdoms; and thus it is, that *Bohemia* and *Poland* are said to have been rais'd to the Dignity: Thus, also, the Emperor *Charles the Bald*, in the Year 877, gave Provence to *Boson*, putting the Diadem on his Head, and decreeing him to be called King; *Ut more priscorum* Imperatorum *Regibus videretur Dominari*.

Add, that the late Emperor *Leopold*, erected the Ducal *Prussia* into a Kingdom, in Favour of the Elector of *Brandenburgh*; but several of the Kings of *Europe* refused, for some Time, to acknowledge him in that Capacity: Tho' by the Treaty of *Utrecht*, in 1712, they all came in.

In the *East*, the Title, and Quality of *Emperor* are more frequent than among us: Thus the Soveraign Princes of *China*, *Japon*, *Mogol*, *Persia*, &c. are all *Emperors* of *China*, *Japon*, &c.

In the *West*, the Title has been a long Time restrain'd to the Empire of *Germany*. The first who bore it was *Charlemagne*, who had the Title *Emperor* confer'd on him by Pope *Leo* III, tho' he had all the Power before.

In the Year 1723, the Czar of *Muscovy* assumed the Title of *Emperor of all Russia*; and procured himself to be recognized as such by most of the Princes and States of *Europe*.

The Authority of the *Emperor* of *Germany*, over the States of the Empire, consists, 1°. In presiding at the *Imperial* Dyets, and in having a negative Voice therein: So that his Vote alone can prevent all the Resolutions of the Dyet. 2°. In that all the Princes, and States of *Germany*, are obliged to do him Homage, and swear Fidelity to him, 3°. That he, or his Generals, have a Right to command the Forces of all the Princes of the Empire, when united together. 4°. That he receives a Kind of Tribute from all the Princes and States of the Empire, call'd the *Roman Month*. For the rest, there is not a Foot of Land, or Territory, affected to his Title.

The Kings of *France* were also call'd *Emperors* at the Time when they reign'd with their Sons, whom they associated to the Crown: Thus, *Hugh Capet*, having associated his Son *Robert*, took the Title of *Emperor*; and *Robert*, that of King. Under which Titles they are mention'd in the History of the Council of *Rheims*, by *Gebert*, &c. King *Robert* is also called *Emperor* of the *French* by *Helgau* of *Fleury*. *Louis le Gros*, upon associating his Son, did the same. In the first Register of the King's Charters, *Fol. 166.* are found Letters of *Louis le Gros*, dated in 1116, in Favour of *Raymond* Bishop of *Maguelonne*, wherein he styles himself, *Ludovicus Dei Ordinante Providentia Francorum* Imperator *Augustus*.

The Kings of *England* had likewise, antiently, the Title of *Emperors*; as appears from a Charter of King *Edgar*: *Ego* Edgarus *Anglorum Basileus Omniumque Regum Insularum Oceani quæ* Britanniam *circumjacent*, &c. Imperator & *Dominus*.

Add, that we say, the King of *England*, *Omnem habet Potestatem in Regno suo quam* Imperator *vendicat in Imperio*: Whence the Crown of *England* has been long ago declared in Parliament to be an *Imperial* Crown.

EMPERESS, *Imperatrix*, the Feminine of *Emperor*; applied either to an *Emperor's* Wife, or to a Woman who rules singly over an Empire, with all the Authority of an *Emperor*: As at this Time the *Emperess* of *Russia*.

EMPERESS, is also used, in the antient *French* Poetry, for a particular Kind of Rhime, thus denominated by Way of Excellence. See RHIME.

The *Rime Emperiere* was a Sort of Crown'd Rime, wherein the Syllable that made the Rime, was immediately preceded by two other like Syllables, of the same Termination; which made a Kind of Echo, called the triple Crown; and which, to the Shame of the Nation, (as some of their late Authors express it) their best antient Poets took for a wonderful Beauty and Excellence.

Fa. Mourgues, in his Treatise of *French* Poetry, gives us an Instance very proper to give us a Contempt of the miserable Taste of that Antiquity, which knew no Way of Expressing, that the World is impure, and subject to change, so admirable, as by saying,

Qu' es tu qu'un Immonde, Monde, onde.

EMPHASIS, in Rhetoric, &c. a Force, Stress, or Energy, in Expression, Action, Gesture, &c.

This Orator speaks with a World of *Emphasis*; all his Words have an *Emphasis*. What greater Punishment, says *de la Bruyere*, than to hear indifferent Verses rehears'd with all the *Emphasis* of an ill Poet?

The Word is *Greek*, ἔμφασις.

EMPHATICAL, in Rhetoric. See EMPHASIS.

EMPHATICAL is also used by the antient Philosophers, to express those apparent Colours, (as they call them) which are often seen in Clouds before the Rising, or after the Setting of the Sun, or those in the Rainbow, &c. See COLOUR.

These, because they are not permanent and lasting, they will not allow to be true Colours. But, since these *Emphatical* Colours are Light, modified chiefly by Refraction, and with a Concurrence of Reflections, and some other accidental Variations; and being the proper Objects of Sight, and capable as truly to affect it, as other permanent Colours are: There is no Reason for excluding them from the Number of true and genuine Colours; since all other Colours are only Modifications of Light as these are. See LIGHT.

EMPHRACTIC, in Pharmacy, the same with *Emplastic*. See EMPLASTIC.

The Word is form'd from the *Greek*, ἐμφράττω, *I stop*.

EMPHYSEMA, in Medicine, a windy swelling, or bloating of the whole outer Habit of the Body; like that in the Parts of divers Animals, when blown up, after they are kill'd. See TUMOR.

The Wind, or Air, which is the Matter of the *Emphysema*, is lodged under the Cutis, and principally in the *Cellulæ Adiposæ*.

Hence the Seat of the *Emphysema*, or the Place wherein the Wind is chiefly lodg'd, is in the Adipose Cells, under the Skin, covering the Thorax: The ordinary Occasion is some Wound in the Thorax.

Mons. *Littre* accounts for it thus: When a Person is wounded in the Breast, there enters Air in at the Wound; now, it may happen, either from the Narrowness of the Wound, or the Flesh's closing again readily, or some other Cause, that the Air thus admitted, cannot readily get out again, at least not all of it: And thus Air comes to be inclosed in the Capacity of the Breast.

Now, at every Inspiration, the Lungs are to fill this Capacity, by their swelling with the Air naturally received. But here they cannot swell without pressing upon the other extraneous Air: The Consequence of which is, that it obliges it to slip between the Interstices of the fleshy Fibres, and perhaps to enter the little Oscula of the minutest Veins or Lymphaticks.

Immediately, another Force comes to take Place, contrary to that of Inspiration; *viz.* Expiration: In this, the Breast contracting it self, presses the extraneous Air still more than the Lungs had done in their Dilatation: And the two opposite Moments or Actions conspire to the same Effect.

The Air, thus continually impell'd, will be propagated along the Passages it first open'd it self, till at Length it meets and becomes collected in some Place. Now this Place will be the *Cellules* of the fat, rather than any where else, by Reason of the Thinness, and Flexibility of their Membranes; and as the Air came from within the Cavity of the Breast, it will be in the Fat that covers the Breast, under the Skin, rather than elsewhere, that the windy Tumor, or *Emphysema* will lie.

Now, such Tumor cannot be very considerable, as only form'd by the Air receiv'd in at a Wound: But if we suppose the Wound to have pierced the Substance of the Lungs, then beside the Air taken in by the Wound, there will be Part of that taken by Inspiration; so much as was contain'd in the *Bronchiæ*, or *Vesiculæ*, thus perforated, or open'd, escaping into the Cavity of the Breast, and driven along with the former, into the Flesh. And as a fresh Quantity of this is supplied every Moment, there will be a continual Accession, so long as the Wound of the Lungs remains open.

Hence, an *Emphysema* from a Wound in the Lungs, sometimes possesses the whole Habit; the Air being carried to the several Parts of the Body by Circulation.

The Word is *Greek*, ἐμφύσημα, which signifies the same Thing.

EMPHYTEOSIS, or EMPHYTEUSIS, in the Civil and Canon Law, the letting out of poor barren Lands for ever, or at least for a long Term of Years, on Condition of cultivating, meliorating, or mending them; and paying a certain yearly Consideration.

Emphyteoses are a Kind of Alienations, differing from Sales, in that they only transfer the *Dominum utile*, the Benefits of the Ground; not the Property, or Fee simple.

Among the *Romans* they were at first temporary; afterwards perpetual.

The

The Word is form'd of the *Greek*, ἐμφύτευσις, which signifies a *Graft*, and by Metaphor, a *Melioration*, Amendment: For as we only graft Trees to mend them; so a Man only alienates his Land by *Emphyteosis*, on Condition of amending it.

The 20th Canon of the Council of *Carthage*, prohibits the Bishops seizing the Church's *Emphyteoses*, out of the Hands of private Persons, unless they have been three Years without paying Rent.

EMPIRE, the Territory, or Extent of Land under the Command, and Jurisdiction of an *Emperor*. See EMPEROR.

The *Roman Empire*; the *Empire* of the *East*; the *Empire* of the *West*, or the *Western Empire*; the *Empire* of the Great Mogul, &c.

Tacitus observes of *Galba*, that all the World would have thought him worthy the *Empire*, had he never been Emperor.

Antiquaries distinguish between the Medals of the *upper* and *lower Empire*. The curious only value those of the upper *Empire*, which commences with *Cæsar*, or *Augustus*; and ends in the Year of Christ 260.

The *lower Empire* comprehends near 1200 Years, reckoning as low as the Destruction of *Constantinople*, in 1453. They usually distinguish two Ages, or Periods, of the lower *Empire*: The first beginning where the upper ends, *viz.* with *Aurelian*, and ending with *Anastasius*, including 200 Years: The second beginning with *Anastasius*, and ending with the *Paleologi*, which is 1000 Years.

EMPIRE, used absolutely, and without any Addition, or *The Empire*, signifies the *Empire* of *Germany*, call'd also, in Juridical Acts and Laws, the *Holy Roman Empire*; *S R I*, q. d. *Sacrum Imperium Romanum*; which is what we otherwise call the *Germanic* Body.

The *Empire* had its Beginning with the IXth Century; *Charlemaigne* being created first Emperor by Pope *Leo* III. who put the Crown on his Head in St. *Peters* on *Christmas-Day* in the Year 800.

Authors are at a Loss under what Form of Government to range the *Empire*: Some will have it a Monarchic State, by Reason all the Members thereof are obliged to ask the Investiture of their States of the Emperor, and to take an Oath of Fidelity to him.

Others, will have it a Republic, or Aristocratic State, by Reason the Emperor cannot resolve, or determine any Thing, without the concurring Suffrages of the Princes: Adding, that if they require Investiture from, and swear Fealty to, him, 'tis only as Head of the Republic, and in the Name of the Republic, and not in his own: Just, as at *Venice*, every Thing is transacted in the Name of the Doge. See DOGE.

Lastly, others will have the *Empire* to be a Monarcho-Aristocratic State, *i. e.* a Mixture of Monarchy and Aristocracy; for that tho' the Emperor, in many Cases, seems to act soveraignly; yet his Decrees and Resolves have no Force, in Case the States refuse to confirm them.

In fine, we should rather chuse to call it an Aristo-Democratic State; by Reason the Dyet, wherein the Soveraignty is lodged, is composed of Princes, and the Deputies of Cities; and is divided into three Orders, or Bodies, call'd *Colleges*, viz. the College of Electors, the College of Princes, and the College of Cities. See COLLEGE.

We say *Diet* of the *Empire*, *Circles* of the *Empire*, *Fiefs* of the *Empire*, *Princes* of the *Empire*, *Estates* of the *Empire*, *Members* of the *Empire*, *Capitulations* of the *Empire*, *Recessus* of the *Empire*, &c. See DIET, CIRCLE, FIEF, BAN, PRINCE, CAPITULATION, RECESSUS, &c.

The States of the *Empire* are of two Kinds, *Mediate* and *Immediate*.

The Immediate States are these who hold immediately of the *Empire*; wherein, again, there are two Kinds: The first, such as have Seats, and Voices in the Imperial Diet; the second, such as have none.

The Mediate States are those who hold of the Immediate.

The States which now compose the *Empire*, are the Princes of the *Empire*, the Counts of the *Empire*, the Free Barons of the *Empire*, the Prelates of the *Empire*, the Princesses, or Abbesses of the *Empire*, the Nobles of the *Empire*, and the *Imperial* Cities.

EMPIRIC, or EMPIRICK, a Name attributed, of all Antiquity, to such Physicians as form'd themselves Rules, and Methods, on their own Practice and Experience; and not on any Knowledge of Natural Causes, or the Study of good Authors; and who prescribed, without enquiring into the Nature of the Disease, or the Properties and Virtues of their Medicines: depending wholly on the Authority of some general experienced Remedies. See PHYSICIAN.

Medicine was almost altogether in the Hands of *Empiricks*, till the Time of *Hippocrates*; who first introduced Reason and the Use of Theory therein: And hence arose a new Sect, call'd *Theoretici*. See THEORIST.

The Word is form'd of the *Greek*, ἐμπειρικὸς, and that of ἔμπειρος, *knowing*, *able*; but, particularly, knowing and learned by Experience. The Root being πεῖρα, *Essay*, *Trial*.

Pliny, and *Celsus*, make mention of the *Empiricks*, and their Profession, which the *Greeks*, and the *Latins* after them, call *Empirice*; as attributing all to Experience, and nothing to the Authority of the Masters of the Art, or the Deductions of Reason. See MEDICINE.

Pliny relates, that the Sect of *Empiricks* had its Rise in *Sicily*: The first who profess'd it, he says, were *Apollonius* and *Glaucias*; others say, *Acron Argentinus*. They, and their Followers, made great Opposition to the dissecting of human Bodies; particularly to that practised by *Herophilus*, and *Erasistratus* on living Bodies, of Criminals condemn'd to Death. See DISSECTION.

But the Word *Empiric* is now more odious than ever; being confounded with that of *Charletan*, or Quack, and applied to Persons who practise Physic at Random, without a proper Education, or understanding any Thing of the Principles of the Art. See CHARLETAN.

Indeed, 'tis possible, the Word may be abused even on this Side of the Question; for those of the Physicians attached to the Train and Method of the Schools, the Reasonings of *Hippocrates* and *Galen*, and the Statutes of the Faculty, we all know, have been ever forward to treat those who think more freely, and are less stiffly devoted to Antiquity, Custom, and the reigning Practice, or Mode, as *Empiricks*, *Charletans*, and *Quacks*.

EMPLASTER, popularly call'd PLASTER, a Medicine, of a stiff, glutinous Consistence, composed of divers simple Ingredients, spread on Leather, or Linnen, and applied externally.

Emplasters are made up in a strong solid Body, that by remaining a long Time on the Part, the Medicinal Ingredients, they are chiefly composed of, may have Time enough to produce their Effect.

The Drugs, used to give a Body and Consistence to *Emplasters*, are usually Wax, Pitch, Gums, Fats, Litharge, and other Preparations of Lead.

There are *Emplasters* of divers Kinds, and used with divers Intentions: *Stomachic Emplasters*; *Cephalic*, *Stiptic*, *Hepatic*, *Diaphoretic*, *Resolutive*, *Detersive*, *Emollient*, *Incarnative*, *Astringent*, *Conglutinative*, &c. *Emplasters*.

The most usual *Emplasters*, are those of *Diapalma*, and *Diachylon*: The *Emplastrum Polychreston*, the *Divinum*, the *Manus Dei*, the *Magnetic*, of *Angelus Sala*. That of *Charpi*, of *Safran*, *de Ranis*, &c.

The Word is form'd from the *Greek*, ἐμπλαστῶ, or ἐμπλάσσω, *to put in a Mass*, or *to do over*: By Reason the *Emplaster* is made of divers Kinds of simple Drugs, work'd up into a thick tenacious Mass; or because it covers over the Piece of Leather, or Linnen, to be applied on the Part affected.

EMPLASTICKS, in Pharmacy, are Salves, or Medicines, which stop up, and constipate the Pores of the Parts they are applied on.

Such are Fat's, Mucilages, Wax, the Whites of Eggs, &c. They are also call'd *Emphracticks*. The Plaster is cover'd over with a very *Emplastic* Unguent, that it may stick the stronger to the Skin. *Dionis*.

The Word is form'd from the *Greek*, ἐμπλασσειν, *to stop up*.

EMPROSTHOTONOS, in Medicine, a Kind of *Tonic Convulsion*, wherein the Head is drawn forwards, till the Chin touch the Breast. See CONVULSION.

Sometimes, too, 'tis so general, that the whole Body is bent forward, and makes a Bow; and even, sometimes, a Kind of Circle, the Knees meeting the Head.

The Cause of this Disorder is a Contraction of the Anterior Muscles, particularly those of the Head, call'd *Mastoides*. See MASTOIDES.

The Word is *Greek*, composed of ἔμπροσθεν, *before*, and τόνος, *Tension*, *Stiffness*, of the Verb τείνω, *to stretch*.

EMPYEMA, in Medicine, a Collection of Pus, or purulent Matter, in the Cavity of the Breast; discharged thither upon the bursting of some Abscess, or Ulcer, in the Lungs, or Membranes, that inclose the Breast.

The *Empyema* sometimes succeeds a *Squinancy*, sometimes a *Peripneumony*, but more usually a *Pleurisy*; as being ordinarily the Effect of a *Peripneumonic* or *Pleuritic* Abscess. See PLEURISY, PERIPNEUMONY, &c.

It usually comes 15 or 20 Days after those Diseases. Sometimes, also, 'tis generated of extravasated Blood, issued out of a bursten, broken, or putrified Vein: 'Tis distinguish'd by a Difficulty of Breathing, a dry Cough, a Heaviness about the Diaphragm, a Noise, and fluctuating of the Matter upon moving; slow Fever, ruddy Cheeks, hollow

hollow Eyes, the Tips of the Fingers hot, and a Swelling of the Abdomen.

The Cure is difficult, from the Difficulty of abforbing, or evacuating fuch extravafated Matter: If Nature fhews any Endeavour to throw it off by Vomiting, or Urine, or the like, fhe muft be feconded, and affifted therein. Thus, if the Urine be purulent, adminifter Diureticks; if the Stools, Laxatives; if the Spitting, Expectorants, or even Emeticks; otherwife, Recourfe muft be had to a Paracentefis, or Tapping. See PARACENTESIS.

In Order to this, an Aperture muft be made in the Thorax, by a proper Inftrument, on the Side affected, between the *4th* and *5th*, or the *5th* and *6th* Ribs, reckoning from the loweft; and thro' this, the Pus muft be flowly drawn. See CANNULA.

There is alfo a Kind of *Spurious*, or *Baftard Empyema*, proceeding from a pituitous, or ferous Humour, brought by fome Duct, or Paffage, into the Thorax; where corrupting, it degenerates into a Matter like Pus.

An *Empyema*, in Courfe of Time, breeds a *Phthifis*. See PHTHISIS.

The Word is form'd of the *Greek*, ἐν, *in*, and πῦον, *Pus*: The Letter *ν*, being here changed into *μ*. Which is a Thing often obferved in other Languages, when the *n* happens to come, in Compofition, before the Labials *b* and *p*. Witnefs the Latin *Embaumma*, *Emblema*, *Emporium*, &c.

EMPYREUM, among Divines, is the higheft of the Heavens, wherein the Blefed enjoy the beatific Vifion; call'd alfo the *Empyrean Heaven*, and *Paradife*.

Some of the Fathers take the *Empyreum* to have been created before the Heaven we fee: St. *Bafil*, and *Eufta-thius* of *Antioch*, maintain it in exprefs Terms. Being the Abode of God, they fuppofe it muft be luminous in the higheft Degree; and are in Pain to account for the Darknefs, which our Part of the World was in, before the Creation of the Sun, &c. As judging that the infinitely vivid Luftre of the *Empyreum*, muft diffufe it felf to the greateft Depths of this lower World.

They have, therefore, Recourfe to an Hypothefis; our vifible Heavens, according to them, did the Office of a Skreen, or Curtain, and fhelter'd the Earth and Waters from the Light of the *Empyreum*. See *Fa. Souciet*, *Differt.* p. 171, 172.

The Word is form'd of ἐν, and πῦς, *Fire*, by Reafon of its Splendour.

EMPYREUMA, in Chymiftry, &c. *Smell or Tafte of Burning*; a Quality, or Change, in Bodies that have been burnt, or much fcorch'd with Fire, fenfible to the Taft and Smell; or, perhaps, it may be the foreign Matter impref's'd, or added by the Fire, and remaining on the burnt or fcorch'd Part, that gives the new offenfive Smell and Flavour.

The Term is chiefly ufed when in boiling, or diftilling any Thing, it ticks and burns to the Bottom of the Veffel, or Alembic, the offenfive Smell and Taft whereof are exprefs'd by the Word *Empyreuma*.

It is alfo ufed for the Heat remaining upon the Declenfion of a Fever.

The Word is form'd of the *Greek*, ἐμπυρεύειν, *to inflame, kindle*.

EMRODS, or rather *Hemorrhoids*. See HEMORRHOIDS.

EMULATION, a Noble Jealoufy, between Perfons of Virtue, or Learning, contending for the Superiority therein.

Plato obferves of *Emulation*, that it is the Daughter of Envy; if fo, there is a deal of Difference between the Mother and the Offfpring: The one is a Virtue, and the other a Vice. *Emulation* admires great Actions, and ftrives to imitate them; Envy refufes them the Praifes that are their Due: *Emulation* is generous, and only thinks of furpaffing a Rival; Envy is low, and only feeks to leffen him.

The Word comes originally from the *Greek*, ἄμιλλα, *Difpute, Debate*; whence the Latin *Æmulus*, and thence our *Emulation*.

EMULGENT, in Anatomy, an Epithet beftow'd on thofe Arteries, which bring the Blood to the Kidneys; and thofe Veins, which carry back what is fuperfluous thereof. See KIDNEY.

The *Emulgent* Arteries fpring from the defcending Trunk of the *Aorta*; and the *Emulgent* Veins terminate in the afcending Trunk of the *Cava*. See CAVA and AORTA.

EMULSION, in Medicine, a liquid, gentle Remedy, of a Colour, and Confiftence, refembling Milk.

It is compofed of Oleaginous Seeds, Kernels, or Fruits, pounded in a Mortar, and diffolved in diftill'd Waters, or light Decoctions; afterwards, exprefs'd, or ftrain'd and fweeten'd with Sugar, or Syrup.

Emulfions ferve to temper, dilute, and foften Acrimonies of the Breaft; to moderate the Heat of the Kidneys; foften the Sharpnefs of the Urine; and give the Patient Reft and Eafe.

The Seed of the Melon is one of the four greater cold Seeds, much ufed in *Emulfions*: The Seed of the great Gourd is alfo ufed in *Emulfions*, Broths, and Decoctions.

The Word is form'd from the Latin, *emulgere*, to milk.

EMUNCTORY, in Medicine and Anatomy, a Part of the Body deftined for the Separation of fome Humour, judg'd ufelefs, or even hurtful to the Animal; after its having circulated fome Time with the Blood. See EXCREMENT.

The Word alfo implies a Cavity, adjoyning to the Part that feparates; wherein the excrementitious Humour is collected and preferved in Readinefs for Evacuation.

The Kidneys, urinary Bladder, and milliary Glands of the Skin, are *Emunctories*: The Parotides are not properly *Emunctories*, becaufe deftined to feparate the Saliva, which is no ufelefs, or excrementitious Humour, but neceffary for the Digeftion of the Food.

Some, without much Propriety, confine *Emunctory* to the Receptacle into which the fecreted Excrement is difcharged; as the pituitous Humour of the Brain into the Noftrils; the Cerumen into the Ears; the Excrements into the Inteftines, &c. Tho' this laft has not undergone any Circulation.

The Word is form'd from the *Latin* Verb, *Emungere*, to wipe.

ENALLAGE, in Rhetoric, a Figure whereby we change, and invert the Order of the Terms in a Difcourfe; againft the common Rules of Language. See FIGURE.

The Grammarians, too, have a Kind of *Enallage*, whereby there is a Change either of a Pronoun, as when a Poffeffive is put for a Relative, e. gr. *fuus* for *ejus*; or of a Verb, as when one Mood, or Tenfe, is put for another.

The Word is derived from the *Greek*, ἐναλλαγὴ, form'd of ἐναλλάττειν, which fignifies *to change*, as well as the fimple Verb ἀλλάττειν.

ENALURON, in Heraldry, is ufed by *Guillim*, to exprefs a Bordure charged with Birds; as, with an *Enaluron of Martlets*, &c. But *Mackenzy* charges this as a Miftake on the Author, arifing from Ignorance of the *French* Tongue: *Enaluron* properly fignifies in Manner of *Orle*, or Bordure, and is applicable to a bearing of any Thing in that Form.

ENAMEL, popularly AMEL, a Kind of coloured Glafs, by the *Latins* call'd *Encauftum*, and by the French *Efmail*; ufed in *Enamelling*, and Painting in *Enamel*. See ENAMELLING, and *Painting in Enamel*.

The Bafis of *Enamel* is the fineft Cryftal Glafs, made of the beft Kali from *Alicant*, and Sand vitrified together. See GLASS.

To this Glafs are added Tin and Lead in equal Quantities, calcined by a reverbatory Fire. Such is the fundamental Compofition of *Enamel*; to which are added other metallic or mineral Matters, to give it the Colour required: As *Æs Uftum* for Green, *Crocus Martis* for Yellow, &c.

We may diftinguifh three Kinds of *Enamel*: The firft intended for the counterfeiting and imitating of pretious Stones: The fecond, for *Painting in Enamel*: And the third ufed by the *Enamellers*, Jewellers, and Goldfmiths, on Gold, Silver, and other Metals; with which laft Kind, particularly the White, it is that the Makers of the *Dutch* Ware, give the Luftre and Polifh to their Works.

The *Enamel* ufed in imitating pretious Stones, and that for Painting, is prepared by the Workmen themfelves, employ'd in thofe Arts: The reft is brought from *Venice* and *Holland*. The Compofition is the fame, in the main, in all the three Kinds: All the Difference confifts in giving it the Colour, or Tranfparency.

For that ufed in imitating pretious Stones. See PRETIOUS *Stones*.

ENAMELS *for Painting*.

The *white Enamel*, or Colour, ufed by the Painters in *Enamel*, is the fame with the common *Enamel*, ufed by *Enamellers*: Only, 'tis to be prepared by grinding, and cleanfing it with *Aqua fortis*. After which, wafhing it well in fair Water, 'tis ground, or pounded a-frefh in a Flint or Agat Mortar. The *ruddy brown*, is made with Feces of Vitriol, and Salt-Petre, or with Iron Ruft, well ground on an Agat, with Oil of Afpic. *Black*, is made of *Perigueux* well calcined, and ground with Oil of Afpic; to which is added an equal Quantity of the Goldfmiths, or *Enamellers* black. *Yellow*, is the fame with the Goldfmiths Yellow, the Compofition whereof will be given hereafter. *Blue* is made of the *Azure*, or *Lapis*, ufed by the Painters in Oil, well purified and prepared with Brandy, and expofed in a Bottle five or fix Days to the Rays of the Sun. *Vermillion Red*, is made with Vitriol calcined between two Crucibles, luted together; then wafh'd in *Aqua fortis*, and afterwards in fair Water: The Fire to be moderate, and to remain about half an Hour.

Lake

Lake Red, is composed of fine Gold, dissolved in *Aqua Regia*, with *Sal Armoniac*, or common Salt. The Dissolution being compleated, 'tis put in a Cucurbit with Spring Water, and Mercury, o'er hot Sand for 24 Hours. The Powder remaining at the Bottom of the Cucurbit, when the Water is pour'd off, is ground up with double its Weight of Flower of Sulphur, and put in a Crucible over a gentle Fire. And when the Sulphur, which takes Fire, is exhaled, the red Powder remaining, is ground up with *Rocaille*. Lastly, White Copperas calcined, makes a Colour much like the amber Colour used by the Limners.

These seven or eight Colours, or *Enamels*, serve for the Composition of all the rest, by a discrete Mixture and Combination thereof. Thus, blue and yellow make green; blue and red, Violet; and so of the rest. See COLOUR.

ENAMELS *used by the Jewellers, Goldsmiths, and Enamellers.*

These Kinds of *Enamel*, we have observed, come chiefly from *Venice* and *Holland*: They are in little thin Cakes of different Sizes; usually four Inches in Diameter, and ½ an Inch thick. Every Cake has the Maker's Mark struck on it with a Punchion. The most usual Marks are the Name *Jesus*, a Syren, Monkey, Sun, *&c.*

Those bought from *Venice* are chiefly white, Slate-Colour, sky Blue, Carnation, Yellow, Green, and a deep Blue, call'd a false *Lapis*. These seven are the Principles of all the others, which arise out of the Mixture of these. And the white, in particular, is, as it were, the Basis of all the other six principal Colours.

White is made, as already observed, of Crystal Glass, Tin, and Lead calcined by a reverberatory Fire. And this *Enamel* is used not only by the Jewellers and *Enamellers* on Metal, but also by the Painters in *Enamel*, the Makers of *Dutch* Ware, *&c.* By adding Azures thereto, it becomes a Slate Colour; by adding Copper, and *Cyprus* Vitriol, it makes a sky Blue. By *Perigueux*, a flesh Colour; and by Iron-Rust, a yellow. To make a green, they add Copper-filings, *&c.*

ENAMELLING, by the Antients call'd *Encaustice*, the Art, or Act of applying *Enamels* of various Colours, on Metals, *&c.* either in the Way of Painting, or by the Lamp. See ENAMEL.

Painting in ENAMEL, is a Method of Painting with *Enamels*, or Metal Colours, ground, reduc'd to Powder, and used, like other Colours, with a Pencil; then fused, baked again, and vitrified by Force of Fire.

The Art of *Painting in Enamel* is very antient; and appears to have been first practised on Earthen, or Potters-Ware. As early as the Age of *Porsenna* King of *Tuscany*, we hear of beautiful Vases made in his Territories, *Enamell'd* with various Figures; though far short of those afterwards made at *Faenza*, and *Castel Durante*, in the Dutchy of *Urbino*, in the Time of *Raphael*, and *Michael Angelo*. There are still some of those Vases extant in the Cabinets of Antiquaries; in all which the Design, or Drawing of the Figures, is much better than the Colouring. For they were, at that Time, only acquainted with two Colours, *viz.* black and white; either for Earthen, or Metal Works: Excepting a faint Kind of Carnation in the Faces and other Parts.

In the Time of *Francis* I. of *France*, the Art was retriev'd in that Country, particularly at *Limoges*; where there were produced Abundance of very valuable Pieces, in the Manner of the Antients, that is, well perform'd as to the Draught, and the Clairobscure, chiefly in two Colours.

There are two Ways of *Painting in Enamel*; the one with clear and transparent, and the other with thick and opake Colours.

To use the first, they are only ground up with Water: The second are ground with Oil of Aspic.

The first are laid on the Metal flat, and border'd, or edg'd, with a Rim of the Metal, to keep the Colours asunder. Tho', we have seen Pieces laid on contiguous, and without any Partition; which is very difficult to practise, by Reason the transparent Colours, in Melting, are apt to run in each other; especially in the little Works.

The Invention of opake Colours, is much later, and greatly preferable to that of transparent ones.

All Metals, however, will not equally admit both Kinds. Copper, for Instance, which bears all the opake Colours, will not bear the transparent ones: But to employ these latter upon Copper, they are forced, first, to cover it with a Lay, or Couch, of black *Enamel*, over which they lay a silver Leaf, and on this apply the other suitable Colours, that is, the Colours or *Enamels* proper for Silver, which it self does not allow of all Kinds.

Those which suit it best, are Purple, Green, Azure and Ague marin. But Gold receives all the Kinds, and Colours, both opake and transparent, perfectly well. It must be added, however, that only the finest Gold must be used herein. For the transparent Colours being laid on a base Gold, grows dim and livid; there being a Kind of Smoak that settles on it not unlike black Lead.

Of transparent *Enamels*, the hardest are the best; tho' there is a Difference even among these; some losing their Colour in the Fire, and others retaining it. As to the reds, they are only red by Accident, being only yellow when made and applied on the Gold; and becoming red in the Furnace. The best transparent Reds are those made of calcin'd Copper, Iron Rust, Orpiment, and calcin'd Gold, melted with the due Proportions of Glass.

But 'tis the Method of Painting with opake, or thick *Enamel*, to which we owe all our fine modern Pieces of *Enamel*; particularly those curious ones on Gold, representing Portraits to as much Perfection as the best Painting in Oil; and even some History Pieces: With this great Advantage, that their Beauty and Lustre never decays.

This Art we are indebted for to the *French*: Nothing of the Kind having been attempted before the Year 1630; when *Jean Toutin*, a Goldsmith of *Chasteaudun*, and a great Master in the common Way of Painting with transparent *Enamel*, first applied himself to find a Way to use thick Colours of different Teints, which should melt with Fire, yet retain their Lustre, Purity, *&c.*

Toutin succeeded in his Attempt, and having got the Secret, communicated it to his Fellow Artists; who, in their Turns, contributed to the bringing it to Perfection: The first who distinguish'd himself was *Dubie*, a Goldsmith, who wrought in the Galleries of the *Louvre*. After him came *Mortiere*, a Native of *Orleans*, who applied himself chiefly to the Painting on Rings and Watch Cases. His Disciple, *Robert Vauquer* of *Blois*, exceeded them all both in his Designs and his Colours. After him *Pierre Chartier* of *Blois*, took himself to the Painting of Flowers, wherein he succeeded to Admiration.

By this Time, the *English* were fallen into the Way; who, as is allowed by Foreigners themselves, seem to have been the first that applied it with Success to the Painting of Portraits, which was now become mightily in Vogue, in Lieu of those in Miniature.

M. *Felibien* observes, that the first, and most finish'd Portraits, and those in the finest Colours, were brought into *France* by *Petitot*, and *Bordier* from *England*: This occasion'd *Louis Hance*, and *Louis du Guernier*, two good Painters in Miniature, to attempt the like; in which the latter succeeded beyond every Body. He likewise invented several new Teints for the Carnations; and had he lived, had probably merited the Glory of carrying the Art to its last Perfection.

This Kind of Painting, to be in Perfection, must be on Plates of Gold: For Copper, beside that it emits a Fume which tarnishes the Colours, is apt to scale and crackle; and Silver turns the Whites, Yellow.

These Plates are made a little hollow on one Side, and rais'd on the other, either in a circular or oval Manner, to prevent the Gold's fretting by the Fire, and making the Colours crack and fly: Nor must they be made too thick. 'Tis sufficient they can bear the Colours; tho' 'tis usual to strengthen them all around with a Circle somewhat thicker.

The Plate being hammer'd very evenly throughout, they apply a white *Enamel* on both Sides, tho' the Design be only to paint on one. The Intent of this is to prevent any swelling and warping by the Fire: For otherwise, in large Pieces, and especially if the Colours be laid on any Thing unequally, they are apt to rise up in Puffs or Blisters. Now, this first Lay, which is white, remaining smooth and uniform, serves as a Ground for all the other Colours. The Composition of the white *Enamel*, with the other opake Colours, is already delivered under the Article ENAMEL.

The Gold Plate thus *Enamell'd* in *white*; the Draught, or Design, to be painted, must be chalked thereon; and, afterwards, the whole accurately drawn out in a ruddy brown. The Draught, or Out-line, thus finish'd, the Piece is set to the Fire, and then painted with the Colours above prescribed.

The white Ground they paint on, serves all the Colours for white. The Method being to spare the Ground from first to last, in the Places where the Lights are to be, after the same Manner as in Miniature: Tho' they have another white, to lay over the other Colours, when there is Occasion to raise them.

Add, that as the Painters in Oil re-touch their Paintings several Times, and let them dry; so in this Sort of Painting, they touch the Piece as often as they please, setting it each Time to a reverberatory Fire, and taking it away again, assoon as they perceive the *Enamel* has got its full polish.

The reverberatory Fire is made in a little Furnace, wherein there is Fire both a-top and all around; only a

void Place in the middle, where the Piece is to be put for the *Enamels* to melt. The Colours are laid on with the Tip or Point of the Pencil, as in Mignature; with this only Difference, that they use Oil of Aspic to dilute them instead of Gum Water. See MIGNATURE.

Method of ENAMELLING *by the Lamp.*

The Works of this Kind are all perform'd by the Fire of a Lamp; wherein, in Lieu of Oil, is put Horses Grease, call'd Caballin Oil.

The Lamp is of Copper, or Tin, and consists of two Parts, the Box and the Lamp: In the latter of these, which is a Kind of flat Oval, is put the Oil, and out of this rises the Wick. All the Use of the Box is to receive the Oil, which the Ebullition, occasion'd by the intense Heat, might throw abroad.

This Lamp, or even where two or three Artists work together, two or three more Lamps, are placed on a Table of a proper Height, *&c.* under which, about the middle of its Height, is a double Bellows like those of an Organ, which one of the Workmen raises and falls with his Foot, to increase and quicken the Flame of the Lamps, which is by such Means rais'd to a Degree of Vivacity almost incredible.

The Wind of the Bellows is convey'd to the several Lamps, tho' never so many, by Means of Grooves cut along the Thickness of the Table, and cover'd with Parchment, extending from the Bellows, to a Tube or Pipe placed before each Lamp. These Tubes are of Glass, and that the *Enamellers* may not be incommoded with the Heat of the Lamp, each Tube is cover'd at about six Inches Distance with a Piece of Tin, call'd a Fan, fixed in a Hole of the Table. In Works that don't take up much Time, they content themselves with a Glass Blow-Pipe, to heighten the Flame of the Lamp.

Applying their Cake of *Enamel* to the Flame of this Lamp, they draw it out into Threads inconceivably fine. Those made use of in artificial Plumes of Feathers are so very slender, that they may be wound on a Reel, like Silk or Thread.

The factitious Jeats of divers Colours, sometimes used in Embroideries, are also made of *Enamel*; and that with so much Art, that each Piece has its Hole to pass the Silk thro', wherewith it is sew'd. These Holes are made by blowing them in long Pieces, which are afterwards cut off with a proper Tool.

See the Process of drawing out the Enamel, *illustrated under the Article* DUCTILITY.

'Tis rare that the *Dutch*, or *Venetian* Enamels, are used pure: The common Way is to melt them in an Iron Ladle, with an equal Quantity of Glass or Crystal. And when the two Matters are in perfect Fusion, they draw it out into Threads of different Sizes, as Occasion requires, by taking a Quantity between two Pipe-Stopples, held in the two Hands, and removing them asunder as far as the Arms will reach. If the Thread is to be longer than the Workman can stretch, a second Person takes one of the Ends, and continues to draw it out while the first continues to keep the *Enamel* to the Flame. All the Threads drawn after this Manner are round; so that if the Nature of the Work require them to be flat, they are afterwards drawn thro' a Pair of Pinchers while yet hot. They have another Iron Instrument, in Manner of Plyers, to draw out the *Enamel* by the Lamp, when it is to be work'd, or disposed in Figures, or otherwise. Lastly, they have glass Tubes, of various Sizes, serving to blow the *Enamel* into various Figures, and preserve the necessary Vacancies therein, as also to spare the Stuff, and form the Contours.

When the *Enameller* goes to Work, he seats himself before his Lamp, with his Foot on the Treddle; and holding in his left Hand the Piece of Work he has to *Enamel*, or the Brass or Iron Wiars his Figures are to be form'd with; with his right Hand, he draws out the Thread from the *Enamel* held to the Lamp: And this with a Dexterity and Patience equally surprizing.

There is nothing but may be thus represented in *Enamel*; and there are Figures so finely finish'd of this Kind, that one would take them to have come out of the Hands of the ablest Sculptors.

ENARTHROSIS, a Kind of *Jointing*, or *Articulation*, wherein the Cavity that receives is deep, and the Bone receiv'd oblong. See DIARTHROSIS.

Such is that of the Huckle-Bone, *&c.* See ARTICULATION.

ENCÆNIA, a *Greek* Term, signifying *Restauration*, *Renovation*.

Encænia was the Name of a Feast, celebrated by the *Jews*, on the 25*th* of the Ninth Month, in Memory of the Dedication, or rather Purification, of the Temple, by *Judas Machabæus*, after its being polluted and plunder'd by *Antiochus Epiphanes*.

They had also two other *Encænia*; the Dedication of the Temple by *Solomon*; and that by *Zorobabel*, after the Return from the Captivity. See DEDICATION.

The Word is wrote in the *Greek*, ἐγκαίνια, being form'd of the Preposition ἐν and καινὸς, *new*.

In the Fathers, and Church History, we likewise meet with *Encænia*, for the Dedication of Christian Churches: St. *Augustine* assures us, that in his Time, the Use of the Word *Encænia* was even transferr'd to profane Matters; and that they call'd it *Encæniare*, when they put on a new Suit of Cloaths.

Our Translators of the Bible don't retain the Word *Encænia*, in St. *John* X. 22. where mention is made thereof: In lieu of that, they call it, *Feast of the Dedication*; which is much less proper. In Effect, it was not the Feast of the Dedication, but of the Purification, or Reconsecration of the Temple profaned.

ENCANTHIS, in Medicine, a Tumor of the *Caruncula Lachrymalis*, in the great *Canthus* or Angle of the Eye. See CARUNCLE.

It is opposed to *Rhyas*, which is a Diminution, or Consumption of the same Caruncle. See RHYAS.

The *Encanthis* is occasion'd by a Defluxion on that Part, or an Ulcer therein not readily enough dried.

The Word is *Greek*, ἐγκανθὶς, form'd of the Preposition ἐν and κανθὸς, *Corner of the Eye*.

ENCAUSTICE, the Art of *Enamelling*. See ENAMELLING.

ENCEPHALI, in Medicine, an Epithet applied to Worms generated in the Head; where they occasion violent Pains, insomuch as sometimes to produce Distraction. See WORMS.

There are four Kinds of *Encephali*; those properly so call'd, which are found in the Brain: The *Narinari*, in the Nose; *Auriculares*, in the Ears; and the *Dentales*, in the Teeth.

The *Encephali*, properly thus call'd, are rare: But there are certain Diseases wherein they swarm; and we are told of pestilential Fevers that arose wholly from them.

In one of these Fevers, the Physicians having open'd the Body of a Person it had carried off, they found a little, short, red Worm in the Head. Hereupon, they tried various Medicines to find what might destroy it: But all in vain, till *Malmsey* Wine, wherein Horse Radish had been boil'd, was applied: This was no sooner thrown on the Worm than it died. The same Remedy was afterwards tried on the Sick; and it recover'd 'em almost all. The like have also been taken out by Trepanning, and the Patient recover. See VERMES.

The Word is compounded of the Preposition ἐν, *in*, and κεφαλὴ, *Head*.

ENCEPPE, in Heraldry, denotes chain'd, or girt round the middle; as is usual with Monkeys, *&c.*

ENCHANTMENT. See MAGIC, SORCERY, and WITCHCRAFT.

ENCHASING, INCHASING, or CHASING, the Art of *Enriching*, and beautifying Gold, Silver, and other Metal Works, by some Design, or Figures represented thereon, in low Relievo.

Chasing is only practised on Hollow, thin Works; as Watch-Cases, Cane-Heads, Tweezer-Cases, or the like.

'Tis perform'd by punching or driving out the Metal to form the Figures, from with-inside, so, as there to stand out prominent from the Plane, or Surface of the Metal.

In order to this, they have a Number of fine Steel Blocks, or Puncheons, of divers Sizes: And, the Design being drawn on the Surface of the Metal, they apply the inside upon the Heads, or Tips, of these Blocks, directly under the Lines or Parts of the Figures. Then, with a fine Hammer, striking on the Metal, sustain'd by the Block; the Metal yields, and the Block makes an Indenture, or Cavity on the inside; correspondent to which, there is a Prominence on the outside, which is to stand for Part of the Figure.

Thus, the Workman proceeds to *Chase*, and finish all the Parts, by successive Applications of the Block, and Hammer, to the several Parts of the Design.

And 'tis surprizing, with what Beauty, and Justness, by this simple Piece of Mechanism, the Artists in this Kind will represent Foliages, Grottesques, Animals, Histories, *&c.*

ENCHEIRESIS, in Anatomy, the same with *Dissection*. See DISSECTION.

ENCLAVE, in Heraldry, is where one Thing is let into another; particularly where the Jointure is Square.

ENCLITICA, in the *Greek* Grammar, certain Particles which stick so closely to the preceding Word, that, as if united with it, they only seem to form one Word together.

Whence it happens, that the Word which sustains them, does generally likewise bear the Accent that governs them, and especially when the *Enclitic* is a Monosyllable.

ENCROACH-

ENCROACHMENT, or ACCROACHMENT, an unlawful gathering upon another Man: As, if two Men's Grounds lying together, the one press too far on the other: Or, a Tenant owe Two Shillings Rent Service, and the Lord exacts Three.

ENCRATITÆ, antient Hereticks, thus call'd from their making Profession of Continence, and absolutely rejecting Marriage.

The Word is form'd from the *Greek*, ἐγκρατεῖς, *Continent*.

The Founder of this Sect was *Tatian*, a Disciple of *Justin*, and one of the most learned Persons of all Antiquity. After the Death of that Martyr, he made a Separation from the Church; and soon had his Followers; who, beside the Dogma just mention'd, borrow'd a great many Things from *Saturnius*, and *Marcian*, beside several Errors which they adhered to in common with the *Gnosticks* and *Valentinians*.

They abstain'd from eating any Thing that had Life; and denied that *Adam* was saved. They look'd on such as drink Wine to be very great Sinners; and for this Reason, only made Use of Water in celebrating the Eucharist: As holding that Wine came from the Devil. To maintain this Sentiment, they produced Passages out of Scripture, where mention is made of what befel *Noah* and *Lot* when they were drunk.

They only admitted such of the Books of the Old Testament as they thought good: But in Lieu thereof, they own'd several spurious and Apocryphal Writings for Canonical and Divine. Such were the Acts of St. *Andrew*, *John* and *Thomas*.

ENCYCLOPÆDIA, the Circle, or Chain, of all Sciences and Arts. See ART and SCIENCE.

The Word is compounded of the Preposition ἐν, *in*, κύκλος, *Circle*, and παιδεία, *Science*, *Doctrine*, *Discipline*, *Learning*; the Root being παῖς, *Child*, *Infant*.

'Tis mistakenly that some derive the Word from πόνος, *a Chain*, or *Fetter*, that holds by the Feet; it being wrote in *Greek* by an αι, not an ε: Εγκυκλοπαιδεία.

The *Greeks* used the Term for the Knowledge of the seven liberal Arts, and the Possession of all Sciences. *Orbis ille Doctrinæ quem Græci* ἐγκυκλοπαιδείαν *vocant*; says *Quintilian*. They also call'd it κυκλοπαιδεία. *Vitruvius* somewhere calls it *Encyclios Disciplina*.

ENDECAGON, or HENDECAGON, in Geometry, a Figure of eleven Angles, and consequently eleven Sides. See POLYGON.

The Word is *Greek*, ενδεκαγωνος, form'd of ἕνδεκα, *Eleven*, and γωνία, *Angle*.

ENDECASYLLABUS, or HENDECASYLLABUS, a Verse consisting of Eleven Syllables. See VERSE.

Of this we have Abundance of Instances in the *Greek* and *Latin*, and still more in the *Italian* Poetry.

The *Greek* and Latin *Endecasyllabus*, is also call'd *Phaleucus*, from the Name of its Author: Tho', in *Catullus*, we have *Phaleuci*, that only contain two Syllables. See PHALEUCUS.

ENDEMICK, ENDIMIAL, or ENDEMIOUS Disease, (thus call'd from ἐν, *in*, and δῆμος, *Populus*, People) is any Disease which affects many People together, in the same Country; as proceeding from some Cause, peculiar to the Country where it reigns. See DISEASE.

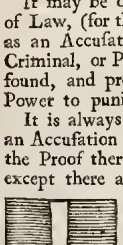
Such are the Scurvy to the *Northern* Climes, intermitting Fevers in marshy Places, &c.

ENDENTED, ENDENCHE, DENTED, INDENTED, in Heraldry, is applied to a Fess, a Pale, and other triangular Pieces, when divided alternately between two different Colours. *Coupe*, or *Endented*, with *Or* and *Azure*. See INDENTED.

ENDITEMENT, or INDICTMENT, in Common Law, is much the same as *Accusatio* in the Civil Law; tho', in some Points, it differs.

It may be defined a Bill, or Declaration made, in Form of Law, (for the Benefit of the Common-Wealth) exhibited as an Accusation of a Person, for some Offence, either Criminal, or Penal; unto the Jurors; and by their Verdict, found, and presented to be true, before an Officer having Power to punish the said Offence. See INDICTMENT.

It is always at the Suit of the King, and differs from an Accusation in this, that the Preferer is no Way tied to the Proof thereof, upon any Penalty, if it be not proved; except there appear Conspiracy. See JURY, &c.



ENDORSE, in Heraldry, an Ordinary, containing the eighth Part of a Pale. This, *Leigh* says, is never used but when a Pale is between two such: Others hold, that an *Endorse* may be bore between Birds, Fishes, Beasts, &c. Sir *J. Ferne* adds, that it shews the same Coat has been sometimes two Coats, and afterwards conjoyned within one Escutcheon, for some Mystery of Arms. He bears *Azure* an *Endorse Argent*.

ENDORSED, or ENDOSSE, in Heraldry, is where Things are bore back to back.

ENDORSING, or INDORSING, in Law, implies the Writing on the backside of a Deed, Instrument, &c. something relating to the Matters contain'd therein.

Endorsement is particularly used in Commerce for a Writing on the Back of a Bill of Exchange, by the Proprietor, or Bearer; either, thereby, to transfer it to some other, or to render it payable to the Order of some other; or to serve for an Aquittance or Receipt. The *Endorsement* is the simple Name of the Proprietor, or *Endorser*.

Note, when the *Endorsement* of a Bill of Exchange is to render it payable to another, it is call'd an *Order*. See ORDER.

To an Order, 'tis necessary the *Endorsement* be dated; and contain the Name of him who paid the Value thereof: In which Case the Bill belongs to the Person with whose Name the Order is fill'd; without any other Transfer: Without these Conditions, the Bill is judg'd to belong to the Person who *Endorsed* it.

The Bearer of a Bill of Exchange protested, has a Remedy against the *Endorsers*, for the Payment of the Rechange of the Places where the Bill was negotiated by their Order. In Case a Bill or Note is refus'd to be paid, &c. the Bearer has a Remedy against any one of the *Endorsers*, where there are several. See BILL.

ENDOWMENT, the giving, or assigning, of a Dower to a Woman. See DOWER.

The Word is also used figuratively for the setting forth, or severing, of a sufficient Portion for a Vicar, towards his perpetual Maintenance, when the Benefice is appropriated: Whence such a Vicarage, is called a Vicarage *endowed*. See VICARAGE.

ENEMA, from ἐνίημι, *immitto*, I send in; is sometimes used to express a *Clyster*. See CLYSTER.

ENÆMON, according to *Blanchard*, is a Medicine which stops or stanches the Blood: Or which, by binding, cooling, or drying, closes the Passages of the Vessels before open; or diminishes the Fluidity and Motion of the Blood. See STYPTIC.

ENÆOREMA, from ἐναείρω, *I lift up, or float*; expresses such Contents of the Urine, as float about in the middle, resembling a Cloud; and thence also call'd *Nubecula Hypostasis*. See NUBECULA and URINE.

ENERGUMENUS, a Term used by Divines, and Schoolmen, to signifie a Person *possess'd* with a Devil, or an Evil Spirit. See POSSESSION.

Tho' *Papias* says, the *Energumeni* were such as counterfeited the Actions of the Devil, performing Things which seem'd supernatural. The Council of *Orange* debars, or deprives, the *Energumeni* of the Functions of the Priesthood.

The Word is form'd from the *Greek*, ἐνεργοῦμαι, *to be agitated*, *work'd*, of εν and εργον, *Opus*.

ENERGY, an uncommon Force, or Strength, in a Discourse, a Sentence, or a Word. Thus, we say, the Words of Holy Scripture are full of *Energy*.

The Word is *Greek*, ἐνεργεία, form'd of the Preposition ἐν and εργον, *Work*, *Labour*.

We also say *Energic*, as *Energic* Style, *Energic* Terms, &c.

The same Appellation *Energici*, has been given to a religious Sect, of the Sixteenth Century, by Reason they held that the Eucharist was the *Energy*, and Virtue of Jesus Christ, not his Body, nor a Representation thereof.

ENERVATE, to destroy the Force, Use, or Office of the Nerves; either by cutting them, by weakening them with Debauchery, or by some other Violence.

Excess of Wine, and other strong, hot, spirituous Liquors, *enervate*, weaken the Nerves. When they would render a Horse useless, they *Enervate* him, or cut his Nerve.

In the Manage, *Enervating* is particularly used for the cutting two Tendons in the Side of a Horse's Head, under the Eyes, which meet on the Tip of the Nose: They *Enervate* Horses to make their Head small and lean.

The Word is also used figuratively: 'Tis no small Artifice in disputing, to be able to *Enervate*, and extenuate the Allegations of one's Antagonist. This Author has a weak, *Enervate* Style. See NERVE.

ENERVATION, a Term in the antient Anatomy, applied to the Tendons of the Recti, or direct Muscles, of the Abdomen.

The Fibres of the Recti of the Abdomen, do not go from one Extreme of the Muscle to the other, but are intersected by several Nervous Places, called by the Antients *Enervations*; tho' they be real Tendons.

Their Number is not alike in all: Some having three, others four, &c. See RECTI.

ENFANS *Perdus*, a *French* Phrase, literally implying *lost Children*, and by a little Extension, *Persons forlorn*; used

used in War, to signifie the Soldiers who march at the Head of a Body of Forces appointed to sustain them; in Order to begin an Attack, make an Assault, or force a Post. At present 'tis the Grenadiers that usually begin such Attacks. See PERDUS.

ENFILADE, a *French* Term, sometimes used in *English*. It signifies a Series, or Continuation, of several Things, disposed, as it were, in the same *Thread* or Line.

As an *Enfilade* of Rooms, of Doors, of Buildings, &c.

It is also used figuratively; as a long *Enfilade* of Stories, Examples, Narrations, &c.

The Word is form'd of the *French* Verb *Enfiler*, to *string* a Thing, which is compounded of *en*, in, and *fil*, or *filum*, Thread: *q. d.* a *Thread*, or *String*, of any Thing.

ENFILADE, in War, is applied to Trenches, and other Lines, which are *Enfiled*, i. e. in a Line, and so may be scour'd, or swept, by the Canon length-wise, or in the Direction of the Line, and render'd almost defenceless.

Care must be taken that the Lines be not *Enfiled*: On the contrary, the Covert Line must be *Enfiled*, that the Enemy may be driven out of it.

The last *Boyau*, or Gut of the Trenches, is subject to the *Enfilade*; that is, to be scour'd according to its Length.

A *Battery d'Enfilade*, is that where the Canon rase a right Line. A *Post*, or *Command d'Enfilade*, is a Height from which one may sweep a whole right Line at once. The Cannon play on the *Fosse* by *Enfilade*. The Trenches are to be driven out of the *Enfilade*, i. e. are to be carried winding.

ENFRANCHISEMENT, the Incorporating any Man into a Society, or Body politic.

For Example: He that by Charter is made Denizen of *England*, is said to be *Enfranchised*: The like understood of a Person made a Citizen of *London*, or other City, or corporate Town; by Reason he is thereby made Partaker of the Liberties appertaining to the Corporation whereof he is *Enfranchised*.

ENGASTRIMYTHUS, or ENGASTRIMANDER, a Person who speaks from, or with, the Belly; without opening the Mouth; or, if open, without stirring the Lips.

Thus call'd by the *Greeks*, from ἐν, γαστὴρ, *Belly*, and μῦθος, *Speech*; and by the Latins *Ventriloquus*, *quasi ex ventre Loquens*. See VENTRILOQUOUS.

The antient Philosphers, &c. are divided on the Subject of the *Engastrimythi*: *Hippocrates* mentions it as a Disease. Others will have it a Kind of Divination, and ascribe the Origin, and first Discipline thereof, to one *Euryclus*, whom no Body knows any Thing of.

Others attribute it to the Operation, or Possession, of an Evil Spirit: And others to Art, and Mechanism.

The most eminent *Engastrimythi*, were the *Pythia's*, or Priestesses of *Apollo*, who deliver'd Oracles from within, without any Action of the Mouth or Lips. See PYTHIA.

St. *Chrysostom* and *Oecumenius*, make express Mention of a Sort of Divine Men, call'd by the Greeks *Engastrimandri*, whose prophetic Bellies pronounced famous Oracles. See ORACLE.

M. *Schottus*, Library-Keeper to the King of *Prussia*, in a Dissertation on the Apotheosis of *Homer*, maintains, that the *Engastrimythi* of the Antients, were only Poets, who, when the Priestess could not speak in Verse, supplied the Defect, by explaining, or delivering, in Verse, what *Apollo* dictated in the Cavity, or Belly, of the Basin, that stood on the sacred *Tripod*. See TRIPOD.

Leo Allatius has an express Treatise of *Engastrimythi*, entitled, *de Engastrimytho, Syntagma*.

ENGENDRING, the Act of begetting, or producing the Kind, by Way of Generation. See GENERATION.

The Term is likewise applied to other Productions of Nature: Thus, *Meteors* are said to be *Engender'd* in the middle Region of the Air. See METEOR.

Crude Fruits *Engender* Worms. See WORMS.

The Antients believ'd that Insects were *Engender'd* of Putrefaction. See INSECT.

ENGINE, a compound Machine, or Instrument; consisting of several simple ones, as Wheels, Screws, Levers, or the like, combined together; in Order to lift, cast, or sustain a Weight, or produce some other considerable Effect, so as to save either Time, or Force. See MACHINE.

The Word is form'd of the French *Engin*, of the Latin *Ingenium*, Wit, Ingenuity; by Reason there is Ingenuity required in the Contrivance of *Engines*, to augment the Effect of moving Powers. See POWERS.

The Kinds of *Engines* are infinite: Some for War, as the *Balista*, *Catapulta*, *Scorpio*, *Aries*, &c. Others for the Arts of Peace, as *Mills*, *Cranes*, *Presses*, *Clocks*, *Watches*, *Engines* to raise Water, to extinguish Fire, &c. which see under their respective Articles MILL, CLOCK, WHEEL, PRESS, FIRE-*Engine*, &c. See also INSTRUMENT.

ENGINEER, in its general Sense, is applied to a Contriver, or Maker, of any Kind of useful Engines, or Machines. But, in its proper Sense, it denotes an Officer in an Army, or fortified Place, whose Office is to concert, and inspect Attacks, Defences, Works, &c.

An *Engineer* should be an able and expert Mathematician, particularly versed in Military Architecture and Gunnery; being often sent to view and examine the Places intended to be attack'd, to chuse out and shew the General the weakest Place, to draw the Trenches, assign the Places of Arms, Galleries, Lodgments on the Counterscarp, and half Moon; conduct the Works, Saps, Mines, &c. and appoint the Workmen their nightly Task: He also makes the Lines of Countervallation, with the Redoubts, &c. from Space to Space.

Under the new Establishment of the Office of his Majesty's Ordnance, are six *Engineers*, and four *Sub-Engineers*. See ORDNANCE.

ENGLECERIE, ENGLECHERIE, or ENGLESCHYRE, a Term of great Import to our Ancestors; tho' now obsolete: It properly signified the Quality of an *Englishman*.

Thus, if a Man were privily slain, or murther'd, he was, antiently, accounted *Francigena*, (which comprehended every Alien, especially *Danes*) till *Englecerie* was proved: *i. e.* till it was made appear that he was an *Englishman*. Bracton *Lib.* 3.

The Origin of the Custom was thus: King *Canutus* having conquer'd *England*, at the Request of the Nobles, he sent back his Army into *Denmark*; only reserving a Guard of *Danes* for his Person: And made a Law, that if any *Englishman* kill'd a *Dane*, he should be tried for the Murther; or, if he escaped, the Village where the Man was slain should be charged to pay 66 Marks into the Exchequer. After this Law, whenever a Murther was committed, it was necessary to prove the Party slain an *Englishman*, that the Penalty of 66 Marks might not be charged on the Village.

ENGLISH, or the ENGLISH *Tongue*, the Language spoke by the People of *England*; and, with some Variation, by those of *Scotland*. See LANGUAGE.

The *English* is of *Gothic*, or *Teutonic* Extraction: This was the Root, or Stock, upon which several other Dialects have been since grafted; particularly the *Latin*, and *French*. See TEUTONIC, &c.

The Language antiently spoke in our Island was the *British*, or *Welch*, which was common to the *Britains* and *Gauls*; and which still subsists, in more or less Purity, in the Principality of *Wales*, the County of *Cornwal*, the Islands and Highlands of *Scotland*, *Ireland*, and some Provinces of *France*, particularly *Bretagne*. See WELCH.

As the *Roman* Empire, extending it self towards the *Western* Parts of *Europe*, came to take in *Gaul* and *Britain*; the *Roman* Tongue became propagated therewith; all the Edicts, &c. relating to the publick Affairs, being designedly wrote in that Language.

The *Latin*, however, 'tis certain, never got so much Ground, or prevail'd so far in *England*, as in *Lombardy*, *Spain*, and the *Gauls*; partly on Account of its great Distance from *Rome*, and the small Resort of *Romans* hither; and partly, for that the entire Reduction of the Kingdom was not effected, till so late as the Empire of *Claudius*, when the Empire was on the declining Hand; and the new Province was forced to be soon deserted by its Conquerors, call'd to defend their Territories nearer Home. See LATIN.

Britain thus left naked, became an easy Prey to the *Angli*, or, *Anglo Saxons*, a strolling Nation from *Jutland* and *Norway*, who took an easy Possession thereof; much about the Time that the *Franks*, another *German* Nation, enter'd *Gaul*. The *Gauls* and *Franks*, it seems, at length, came to Terms; found Means to unite into one Nation: And thus the antient *Gaulish*, with its Mixture of *Latin*, continued the prevailing Tongue, only further intermix'd with *Francia*, or *Lingua Franca*, of their new Inmates: But the *Britains* were more constant, and determined absolutely to refuse any such Coalition; they had embraced Christianity, and their Competitors were Heathens: Rather than admit of such an Union, therefore, they chose to be shut up, with their Language, in the mountainous Parts of *Cambria*, or *Wales*.

The *English Saxons* thus left absolute Lords, changed every Thing; their own Language was now fully establish'd, and the very Name of the Country was henceforth to be *Anglo Saxon*.

The new Language remain'd, in good measure, pure and unmix'd till the *Norman* Invasion: The Attempts of the *Danes*, and the Neighbourhood of the *Britains*, indeed wrought some lesser Innovations therein; but, in the main, it preserv'd it self; for, as to the *Danes*, their Language was not much different therefrom. *Edward the*

the Confessor, however, who had lived long in *France*, might, possibly, bring in a little Mixture of the Dialect of that Country.

But *William* I, and his *Normans*, having got Possession of *England*, an Alteration was soon attempted: The Conquest was not compleat, unless the Conqueror's Language, the *French*, or *Franco Gallic*, were introduced; and accordingly all his Acts, Diploma's, Edicts, Pleadings, and other Judicial Matters, were written, *&c.* in that Tongue. See FRENCH.

But his Attempts prov'd unsuccessful; the Number of *Normans* he brought over, being very small, in comparison of the *English* with whom they were incorporated, they lost or forgot their own Language, sooner than they could make any Change in the *English*. This, however, did not hinder, but by the Endeavours of the Conqueror, Abundance of *French* Words, tho' many of them of *Latin* Original, crept into the *English*: And many *English* Words by degrees grew out of Use.

Hence, as to the Origin and Etymology of many of our Words, Dr. *Wallis* lays it down, that such Words of *German* Original as we have in common with the *French*, are to be reckoned on as our own, rather than borrowed from them; and that the old *Gaulish* Words, common to the *French* and the *Welch*, which are found in our Language, have been likewise taken from the *Welch* rather the *French*. See ETYMOLOGY.

Hence, also, the same Author accounts, why the Names of the divers Sorts of Cattle are *Saxon*, as Ox, Cow, Calf, Sheep, Hog, Boar, Deer, *&c.* And yet that their Flesh, when prepared for Food, is *French*; as Beef, Veal, Mutton, Pork, Brawn, Venison, *&c.* The *Norman* Soldiers, forsooth, not concerning themselves with Pastures, Parks, and the like Places, where such Creatures are fed and kept; so much as with Markets, Kitchins, Feasts, and Entertainments, where the Food was either prepared, sold, or eaten.

Under *Henry* II. Dr. *Swift* observes, the *French* made a still greater Progress; by reason of the large Territories he possessed on that Continent, both from his Father and his Wife, which occasioned frequent Journies thither, with numerous Retinues, *&c.* And for some Centuries after, there was a constant Intercourse between *France* and *England*, by the Dominions we possess'd there, and the Conquests we made; so that the Language, two or three hundred Years ago, seems to have had more *French* than at present.

Besides this Alteration from the Conquerors, the Language, in Process of Time, underwent divers others; and came to have numerous Words and Phrases of foreign Dialects, ingrafted into it; in lieu whereof the antient *Saxon* ones gave Way: particularly by means of Negotiations, and Commerce with other Nations; by the Marriages of Royal Families; by the Affectation of many Writers in most Ages, who are fond of coining new Words and altering the usual Forms of Speech, for the greater Delicacy; and by the Necessity of framing or borrowing new Words, according as new Things and Inventions turn up. And by such Means was the old *Anglo Saxon* converted into the present *English* Tongue.

Having traced the Rise and Progress of our Language historically; we think it may be no uncurious Amusement o represent, by actual Examples, the several successive Changes and Stages it has pass'd thro', to arrive at its present Perfection: In order to which we shall make Use of the Collections of the ingenious Mr. *Greenwood*.

From the *Saxon* Invasion in 440, we have no Memorial extant of the Language for 250 Years: The oldest *Saxon* Writing extant, is a Gloss on the Evangelists, written in the Year 700, by *Eadfride* Bishop of *Holy Island*: In which the three first Articles of the Lord's Prayer run thus.

' Uren Fader thic arth in Heofnas,	sic gehalgud
Our Father who art in Heaven,	*be hallowed*
' thin Noma, so cymeth thin Ric.	Sic thin Willa
thy Name, come thy Kingdom,	*be thy Will*
' sue is Heofnas, and in Eortho, *&c.*	
so as in Heaven, and in Earth.	

200 Years after, in the Year 900, the same was render'd thus:

' Thu ure Fader the Eart on Heofenum, si thin Nama
' gehalgod Cume, thin Rice, si thin Willa on Eorthen.
' swa, swa on Heofenum.

In the following Age it was turn'd thus in the *Saxon* Homilies, said to be translated by King *Alfred*.

' Fæder ure thu the Earth on Heofenum, si thin
' nama Gehalgod to he come thin Rice, Gewurthe
' thin willa on Eorthan swa swa on Heofnum, *&c.*

About the Year 1160, under *Henry* II. it was thus render'd by Pope *Adrian*, an *Englishman*, in Rhime.

' Ure fadyr in Heaven rich,
' Thy Name be halyed every lich,
' Thou bring us thy michell blisse:
' Als hit in Heaven y-doe
' Evar in Yearth be it also, *&c.*

About 100 Years after, in the Time of *Henry* III. it was turn'd thus:

' Fadir that art in Heaven blisse,
' Thin Helge nam it wurth the bliss,
' Cumen & mot thy Kingdom,
' Thin Holy Will be it all don
' In Heaven and in Erdh also, *&c.*

200 Years after, under *Henry* VI. it was render'd thus:

' Our Fadir that art in Hevenes, halewid be thi
' Name, thi Kingdom come to thee, be thi Will done
' in Eerthe, as in Hevene ----

An extraordinary Specimen of the *English*, as spoke in the Year 1385, Dr. *Hicks* furnishes us withal, in his *Thesaur. Liter. Septen.* which we shall the rather entertain the Reader withal, as it is on this very Subject the *English* Tongue, and contains not only the History, but the Reasons, of the Changes and Differences therein.

' As it is knowe how meny maner people beeth in this
' Lond; there beeth also so many dyvers Longages and
' Tonges. Notheles *Walsche* Men and *Scots* that beeth
' nought medled with other Nations, holdeth wel nyh hir
' firste Longage and Speche; but yif the *Scottes* that
' were sometime confederat and woned with the *Pictes*
' drawe somewhat after hir Speche; but the *Flemynges*
' that woneth in the *Weste* Side of *Wales*, haveth left her
' strange Speech, and speketh Sexonliche now. Also *Englishe* Men, they had from the bygynnynge thre maner
' Speche: Northerne, Sowtherne, and middel Speche in
' the middel of the Londe, as they come of three maner
' of Peple of *Germania*: Notheles hy Commyxtion and
' mellynge first with *Danes*, and afterwards with *Normans*, in meny the contrary Longage is apayred [corrupted]. This appayrynge of the burthe of the Tunge
' is because of tweie Thynges, oon is for Children in
' Scole agenst the Usage and Maner of all other Nations,
' beeth compelled for to leve hire own Longage, and for
' to construe hir Lessons and here Things in *French*, and
' so they haveth sethe *Normans* come first into *Engelond*.
' Also Gentlemen Children beeth taught to speke *Frensche*
' from the Tyme that they beeth rokked in here Cradel,
' and kunneth speke and play with a Childes Broche;
' and uplondische Men will likne himself to Gentilmen,
' and fondeth with great Besynesse for to speake *Frensche*
' to be told of. ---- Hit seemeth a greet Wonder how
' *Englische* Men and her own Longage and Tonge, is so
' dyverse of Sown in this oon Ilond; and the Langage
' of *Normandie* is comlynge of another Land, and hath
' oon manner soun amonge alle Men that speketh hit
' arigt in *Engelond*. --- Also of the foresaid *Saxon* Tonge
' that is deled [divided] a three, and is abide scarceliche
' with fewe uplondische Men is greet Wonder. For Men
' of the *Est*, with Men of the *West*, is, as it were, under
' the same Partie of Hevene acordeth more in sownynge
' of Speche, than Men of the *North*, with Men of the
' *South*. Therefore it is that *Mercii*, that beeth Men of
' myddel *Engelond*, as it were Parteners of the Endes,
' understondeth bettre the Side Longages *Northerne* and
' *Southerne*, than *Northerne* or *Southerne* understondeth
' either other. ---- All the Longage of the *Northumbers*,
' and specialliche at *York*, is so scharp, slitting and
' frotynge, and unschape, that we *Southerne* Men may that
' Langage unnethe understonde. I trow that that is by
' cause that they beeth nyh to strange Men and Nations,
' that speketh strongliche, and also bycause that the
' Kinges of *Engelond* wonneth alwey fer from that Cuntry, *&c.*

How the *English* stood about the Year 1400, may be seen in *Chaucer*, who refined and improved it very considerably; tho' he is charged with the Affectation of mixing too many *French*, and *Latin* Words with his *English*, and by that Means altering and corrupting the primitive Language.

In the Year 1537, the Lord's Prayer was printed according to the following Version:

' O Oure Father which arte in Heven, halowed be thy
' Name: Let thy Kingdome come, thy Will be fulfiled
' as well in Erth as it is in Heven, *&c.*

Where the Reader will obſerve the Diction almoſt brought to the preſent Standard; the Variations being principally in the Orthography.

Spencer, who lived in the ſame Age, contributed not a little to the Improvement and refining of the Tongue: He threw aſide Abundance of the outlandiſh Ornaments, and wrote a purer *Engliſh*, yet with more Elegance and Variety, than had been known before. He was ſucceeded in order, by *Shakeſpear*, *Ben. Johnſon*, Lord *Bacon*, *Milton*, *Cowley*, *Waller*, *Tillotſon*, and *Dryden*, whoſe Works are in every body's Hands; by whom the Language has been tranſmitted to us under all its preſent Advantages.

The Perfections aſcribed to the *Engliſh*, and that in a degree ſuperior to any of the other Modern Tongues, are,

1°. That it is Strong and *ſignificant*: to which our finely compounded Words, form'd on the Model of the *Greeks*, do not a little contribute.

2°. *Copious*: of which Mr. *Greenwood* gives us Inſtances in the Word *Striking*: which we have above 30 different, ſynonomous Expreſſions for; as, to ſmite, bang, beat, baſt, buffet, cuff, hit, thump, thwack, flap, rap, tap, kick, ſpurn, box, yerke, pummel, punch, *&c.* And the Word *Anger*, for which he enumerates above 40.

So we ſay, *to ſeeth* or *boil* Fleſh, *ſtew* Prunes, *poche* Eggs, *coddle* Apples, *bake* Bread; for which Expreſſions to ſeeth, ſtew, poche, coddle, and bake, the *Latins*, with all the boaſted *Copia* of the Tongue, have only one Word, *coquere*; and the *French*, as much as they abound with Terms of Cookery, not many more; the Word *Cuire*, ſerving indifferently for ſeething, boiling, baking, ſtewing and codling.

3°. Muſical and *harmonious*; in which Reſpect Mr. *Dennis* makes no Scruple to aſſert it ſuperior even to the *French*. This, which ſome may think ſtrange, he proves hence, that we have blank Verſe which is harmonious by mere Force of Numbers, and Quantity; whereas the *French* have long ago deſiſted from all Pretenſions to poetical Numbers, without the Aſſiſtance of Rhime. See QUANTITY, NUMBERS, *&c.*

It may be added on this laſt Head, from Mr. *Welſtead*, that the *Engliſh* has many Meaſures, the *Jambic* and *Trochee* for Inſtance, in common with the *Greek* and *Latin*; an Advantage ariſing from the Variation of the Accent. And that Rhime is peculiarly natural to it, varying it ſelf to the Ear with exceſſive Sweatneſs; not to mention the Cæſuras, Pauſes, Tranſpoſitions, and numberleſs other Graces, which the *Engliſh* Verſification is capable of, beyond any other living Language. See RHIME, *&c.*

Some object to the *Engliſh*, its conſiſting too much of Monoſyllables; which others make a Piece of Merit, as it argues the greater *Antiquity*, if what *Salmaſius* ſays be true: *Certum quippe eſt, linguas omnes quæ monoſyllabis conſtant cæteris eſſe antiquiores*; adding, that the *antient* Greek *abounded herein, as appears from the antient Poets, and ſuch as affected Antiquity. De Re Helleniſt.* But we have a further Advantage from our Monoſyllables; *viz. Conciſeneſs*, we being hereby enabled to expreſs more Matter in the ſame Compaſs of Letters, than any other Modern Tongue. The only Thing we ſuffer by it, is, ſomething in Point of Softneſs and Numbers; and yet we have Verſes compoſed wholly of Monoſyllables, that do not want Harmony; as that of *Creech* "Nor could the World have born ſo fierce a Flame." See MONOSYLLABLE.

Some of our later, and politer Writers, however, find wherewithal to find Fault in our Language: It ſeems it does not come up to the Softneſs, the Delicacy of the more *Southern* Languages, *France*, *Spain*, and *Italy*. It retains ſomewhat of the *Gothic* Roughneſs, of the People who framed, and introduced it; the Soil and the Climate it was planted in, not tending much to mellow and refine it.

To this Purpoſe does Dr. *Swift* talk, who accounts for the Thing hence, that the *Latin* Tongue was never in its Purity in our Iſland; and beſide, ſuch as it was, was call'd away ere it could have Time to incorporate with the Language of the Country, and ſubdue, and ſoften it: as it did in the other Provinces of *France* and *Spain*, &c. But it is to be obſerved, that, upon the whole, this, ſuppoſing it true, does not fall as an Objection againſt the Language, but the People: Our Manners are alſo leſs poliſh'd, than ſome of our Neighbours; we are not yet arrived, and may we never hereafter arrive, at that Pitch of Molleſſe, of Delicateſſe, of Soupleſſe, which we cenſure in them; and 'tis but juſt our Language correſpond with the reſt of our Character. We have ſomewhat more of the rough Virtues of human Nature unſubdued, unpoliſh'd away by Art; and when theſe are gone, we may talk as ſoftly, and as prettily, as the Diſſolute, Enervate, [Effeminate, I would have ſaid, but for the *Catachreſis*] Nations on the other Side the *Alps*, where you ſee Politeneſs in its Perfection.

But the Revd. Doctor ventures further: 'Our Language, "he affirms," is extremely imperfect; its Improvements in 'no proportion to its Corruptions; and in many Inſtances 'it offends againſt every Part of Grammar." What this ingenious Author means by offending againſt Grammar, we don't apprehend: Is it, that the *Engliſh* Tongue offends againſt the Grammar of the ſame Tongue? That were abſurd: A Language is not to be judg'd of and regulated, by any pre-conceiv'd Forms or Rules of Grammar, but the Grammar to be taken from the Language: 'Tis the Language directs the Grammar, not *vice verſa*; So that if there be any Diſagreement between them, the Fault muſt be charged on the Grammar, which is ſo far deficient. Does he mean, that it offends againſt the Grammar of the *Latin*, or *Greek*? That may well be, without any Fault; for the Grammats of all Languages widely differ.

Mr. *Welſtead* is fully of Opinion, that the *Engliſh* Language is not capable of a much greater Perfection, than it has already attain'd: We have trafficked, he obſerves, with every Country for the enriching it: The Ancients and Moderns have both contributed to the giving it Splendor and Magnificence; the faireſt Scyons that could be had from the Gardens of *France* and *Italy*, have been grafted on our old Stocks, to refine the Savageneſs of the Breed; we have laid aſide moſt of our harſh, antique Words, and retain'd few but thoſe of good Sound and Energy: The moſt beautiful Poliſh is at length given our Tongue that it will bear, without deſtroying, and altering the very Baſis and Ground-work of it: Its *Teutonick* Ruſt is worn away; and little or nothing is wanting, either of Copiouſneſs, or Harmony. He goes on to argue the Maturity and Perfection of the *Engliſh*, from another very extrinſic Principle; *viz.* By comparing the Time, and Circumſtances of the Improvements, made ſince the firſt Refiners of it; with thoſe of the *Greek*, *Latin*, *French*, and other Tongues, that confeſſedly have riſen to their Height.

Every civilized Nation, that applauded Author thinks, has its Claſſical Age; and he ſuggeſts, that the *Engliſh* are not far from it. So that what remains to be done for the *Engliſh* Tongue, ſhould not be to advance, but to fix it where it is, and prevent its Declining. There is in Effect, a Point of Perfection, which when a Language has once arrived at, it cannot exceed, tho' it may degenerate from it; and thus it happen'd to the two fineſt Languages the World has known.

It may ſeem odd to talk, with Dr. *Swift*, of fixing ſo unſtable a Thing as Language: The *Greek* Liturgies of St. *Baſil*, and St. *Chryſoſtom*, ſtill uſed in that Church, the one for Solemn, the other for Common Days, have been a long Time unintelligible to the People: So much is the vulgar *Greek* degenerated from its original Purity. *Polybius* teſtifies, that the Articles of Truce between the *Romans* and *Carthaginians*, cou'd ſcarce be underſtood by the moſt learned *Roman* Antiquaries, 350 Years after the Time of their Making. In Effect, from the Days of *Romulus*, to thoſe of *Julius Cæſar*, the *Latin* was perpetually changing; and what was wrote three hundred Years before *Tully*, was as unintelligible in his Time, as the *Engliſh* and *French* of the ſame Period are now: And theſe two have changed as much ſince *William the Conqueror*, in about 700 Years, as the *Latin* appears to have done in the like Term.

Whether our Language will decline as faſt as the *Roman* did, may admit of ſome Debate; there being many Circumſtances in the Affairs of the Nation, which contributed to that Corruption, that may not, in all Probability, find Place among us. The *French*, for theſe 50 Years paſt, has been poliſhing as much as it will bear; and appears to be now declining, by the natural Inconſtancy of that People, and the Affectation of ſome late Authors, to introduce Cant Words, which is the moſt ruinous Corruption in any Language. But without ſome ſuch Conſideration, there does not ſeem any abſolute Neceſſity, why a Language ſhou'd be perpetually changing.

We find Examples to the contrary: From *Homer* to *Plutarch*, are above a thouſand Years; and ſo long, at leaſt, Dr. *Swift* thinks, we may allow the Purity of the *Greek*: The *Grecians* ſpread their Colonies round all the Coaſts and Iſlands of *Aſia minor*, and the *Egean* Sea, where the Language was preſerv'd entire for many Ages after they themſelves became Colonies to *Rome*, and were over-run by the barbarous Nations. The *Chineſe* have Books in their Language above 2000 Years old; neither have the frequent Conqueſts of the *Tartars* been able to alter it. And the *German*, *Spaniſh*, and *Italian*, have admitted few or no Changes for ſome Ages paſt.

On

On such Considerations, that Author, with the conspiring Wishes of Numbers of others, moved the then prime Minister, the Earl of *Oxford*, to establish a Society, or Academy, for the settling, and ascertaining, the Purity of our Tongue; to set a Mark on the Improprieties which Custom has made familiar, to throw out vitious Phrases and Words, to correct others, and perhaps retrieve some others now grown obsolete, and to adjust the Orthography, Pointing, &c. See ACADEMY.

Without some such Means, he complains, that the Fame any Writer can expect will be so short and scanty, as by no Means to be a sufficient Motive to call forth, and engage a Man to exert his Genius. Our Language is chiefly confined to these two Islands; and it is hard our Authors Fame should be limited in Time as well as Place. Were it not for the Bible and Common-Prayer, we should hardly have been able to understand any Thing written a hundred Years ago.

'Tis a melancholy Reflection, that *Petrarch* still speaks good *Italian*; whereas *Chaucer*, who lived an hundred Year later, is not to be understood without a *Saxon* and *French* Glossary. And what Security has *Dryden* himself, while Things continue on their present Footing, that he shall not in a like Space of Time become as obsolete as *Chaucer* is?

Grammars, and Dictionaries, with whatever Care and Judgment they are composed, will prove but a feeble Stay to a fleeting Language, unless they have some extraordinary Sanction, and Authority. And what is to be lamented, such Writings have contributed to the Corruption almost as much as the Perfection of our Tongue. See GRAMMAR and DICTIONARY.

Dr. *Gill*, *Ben Johnson*, and *Hexham*, 'tis certain, by forcing the *English* Tongue to the *Latin* Method, have clog'd, and perplex'd it with Abundance of useless Precepts concerning Cases, Genders, and Declensions of Nouns, Tenses, Moods and Conjugations of Verbs, and other Things which our Language has nothing to do withal. Nor have even Dr. *Wallis*, *Greenwood*, &c. tho' sensible of the Fault in those others, been able wholly to keep clear of it themselves. See CASE, GENDER, NUMBER, &c.

ENGLISH { *Names*, *Mony*, &c. } See { NAME. MONY, &c.

ENGONASIS, in Astronomy, *Hercules*; one of the Northern Constellations. See HERCULES.

ENGRAFTING, GRAFTING, or GRAFFING, in Agriculture and Gardening, the Art, or Act, of inserting, or fixing, a Cyon, Shoot, or Bud, of one Tree, in the Stock of another; in order to correct and improve its Fruit. See FRUIT-*Tree*.

Or it is the Art of applying a *Graft*, or Shoot, of one Plant, to the Stock of another; in such Manner, as that the Sap passing freely thro' both, the Tree *grafted* on may produce the same Kind of Fruit with that whence the *Graft* is taken. See GRAFT.

Engrafting only differs from *Inoculation*, in that the latter is perform'd when the Sap is at the highest, in Summer; and the former e're it rises, at least, in any Quantity. See INOCULATION.

Engrafting is one of the principal Operations in Gardening, and that whereon the Goodness of the Fruit greatly depends. See GARDEN.

'Tis very extraordinary that the Seeds, or Kirnels, or Stones of a Fruit, as an Apple, Pear, Peach, Plumb, Cherry, &c. being sown, degenerate in the Ground; so, that the Tree arising from it is of another Kind, a Sort of wilding, harsher, sourer and coarser than that of the Parent Tree. To correct this, Trees thus rear'd, must be *grafted* from other better Kinds. See SEMINARY, ORCHARD, NURSERY, &c.

Apples are commonly rais'd by *Engrafting* the intended Kinds on Crab Stocks, procured by sowing the Kirnels: So are *Pears*, procured by *grafting* on the wild Pear Stock: Tho' for Dwarf, or Wall Trees, they generally chuse to *Engraft* on the Quince Stock. See DWARF, &c.

They will also do if *grafted* on the white Thorn. *Peaches* are produced by *grafting* on an Almond or Plum-Stock. Indeed, in this Fruit, it sometimes happens that the Stone sown, produces better Fruit than that from which it was taken: But this is not common; beside that the Tree in such Case, is long e're it comes to bear. *Plums* are rais'd by *Engrafting* on a Damson, or wild Plum-Stock: And *Cherries*, on the Black-Cherry, or Merry Stock, rais'd from Stones.

Our best Gardeners, likewise, *Engraft* their less kindly Trees from other better of the same Sort, to mend them; as, also, the smaller and single Flowers, as Gilliflowers, &c. from the larger and finer. *To produce Stocks for Engrafting on*. See STOCK.

The Curious furnish us with other extraordinary and anomolous Instances of *Engrafting*: As of Apples on Plane, Elder, Thorn, Cabbage-Stalk, &c. and the like of Pears, &c. Pears on Apple Trees, on Elms, &c. Cherries on the Lawrel; Coral Berries on the Plum: Beech on the Chestnut, Oak on the Elm, Gooseberry on the Currant, the Vine on the Cherry Tree, &c.

Inseritur Lauro Cerasus, *partuque Coacto*
Tingit adoptivus virginis Ora pudor. Ausonius.

Even *Daphne*'s Coyness thou dost mock,
And *weds* the *Cherry* to her Stock. *Cowley* to Mr. *Evelyn*.

——— *Mutatamque* insita mala
Ferre Pyrum, & Prunis *lapidosa rubescere* Corna.
Virgil Geor. Lib. II.

——— *Steriles* Platani, Malos *gessere Valenteis*;
Castaneæ, fagos; Ornusque *incanuit albo*
Flore Pyri; Glandemque *Sues fregere sub ulmis*. Id. ibid.

The Origin, and Invention of *Engrafting*, is differently related by Naturalists: *Theophrastus* tells us, that a Bird having swallow'd a Fruit whole, cast it forth into a Cleft, or Cavity, of a rotten Tree; where mixing with some of the putrified Parts of the Wood, and being wash'd with the Rains, it budded, and produced within this Tree, another Tree of a different Kind. This lead the Husbandman to certain Reflections, from which, soon afterwards, arose the Art of *Engrafting*.

Pliny sets the Thing in a different Light: A Countryman having a Mind to make a Palissade in his Grounds; that it might endure the longer, he bethought himself to fill up, and strengthen the Bottom of the Palissade by ramming, or wattling it with the Trunks of Ivy. The Effect of this was, that the Stakes of the Palissades taking Root, became *Engrafted* into the Trunks, and produced large Trees; which suggested to the Husbandman the Art of *Engrafting*.

The Reason, or Philosophy, of *Engrafting*, is somewhat obscure; and had not Hazard given the first Hint, all our Knowledge of Nature would never have led us to it. The Effect is ordinarily attributed to the Diversity of the Pores, or Ducts, of the *Graft*, from those of the Stock, which change the Figure of the Particles of the Juices in passing thro' them to the rest of the Tree.

Mr. *Bradley*, on Occasion of some Observations of *Agricola*, suggests something new on this Head: The Stock *grafted* on, he thinks, is only to be consider'd as a Fund of vegetable Matter, which is to be filter'd thro' the Cyon, and digested, and brought to Maturity, as the Time of Growth in the Vessels of the Cyon directs. A Cyon, therefore, of one Kind, *grafted* on a Tree of another, may be rather said to take Root in the Tree 'tis *grafted* in, than to unite it self with it: For it is visible that the Cyon preserves its natural Purity and Intent, tho' it be fed and nourish'd with a mere Crab; which is, without doubt, occasion'd by the Difference of the Vessels in the Cyon from those of the Stock: So that *Grafting* may be justly compared to Planting.

In Prosecution of this View of that ingenious Author, we add, that the natural Juices of the Earth, by their Secretion and Comminution, in passing thro' the Roots, &c. e're they arrive at the Cyon, must doubtless arrive there half elaborated and concocted; and so disposed for a more easy, plentiful, and perfect Assimulation and Nutrition; whence the Cyon must necessarily grow and thrive better and faster than if it were put immediately in the Ground, there to live on coarse Diet and harder of Digestion: And the Fruit produced, by this further Preparation in the Cyon, must be finer and further exalted, than if fed immediately from the more imperfectly prepared and alter'd Juices of the Stock.

The Cyon, to say no more, is somewhat in the Condition of the *Fœtus in Utero*, fed from the Mother's Blood: At least, 'tis in that of the Infant after Exclusion, fed with the Mother's Milk.

The Methods, or Kinds of *Engrafting* are various; as *Grafting in the Cleft*, *Grafting in the Rind*, *Whip-Grafting*, *Grafting* by Approach, *Scutcheon Grafting*, *Root Grafting*, *Re-iterated Grafting*, *Grafting on Branches*, &c.

The Apparatus, or Instruments used herein, are Saws to cut off the Head of Stocks; Knives to make Clefts; a Chissel to pare away the Wood; Clay, mix'd with Horse-Dung, to prevent freezing, and with Tanners Hair to prevent cracking; Bass Strings, or Woollen Yarn, to tie the *Grafts* with, and *Grafting* Wax. See WAX.

GRAFTING, *in the Cleft*, or *Stock*, call'd also *Slit-Grafting*, is the most antient, and ordinary Way. We have a very beautiful Description of it in *Virgil*, II. *Georg*. *v*. 78. it is chiefly used for middle sized Stocks, from one to two Inches Diameter. Its Season is the Months of *January*, *Febru-*

February, and *March*. The Method, as now practised, is thus:

The Head of the Stock being sawn, or cut off, smooth and clean; a perpendicular Cleft is made therein, nearly two Inches deep, with a strong Knife, or Chissel, as near the Pith as may be to miss it. In this Cleft, the *grafting* Chissel, or Wedge, is put to keep it open. The *Graft*, or Cyon, is prepared by cutting it a-slope, in Form of a Wedge, to suit the Cleft, only leaving a small Shoulder on each Side: And, when cut, is to be placed exactly in the Cleft, so, as that the inner Bark of the Cyon may aptly, and closely, joyn to the inner Part of the Bark, or Rind of the Stock; in the dexterous Performance of which, the chief Secret consists. If the Cleft pinch too tight, a small Wedge may be left in it to bear the Stress. And, lastly, the Cleft is cover'd over with Clay: Or rather, as M. *Gentil* advises, with Moss, or the fresh Bark of a Tree bound on with *Oster*.

The Reader, who would have this in more elegant Terms, may be furnish'd from *Virgil*.

Aut rursum Enodes Trunci resecantur, & alte
Finditur in solidum Cuneis via: deinde feraces
Plantæ Immittuntur: nec longum Tempus, & Ingens
Exiit ad Cœlum ramis felicibus Arbos,
Miraturque novas frondeis, & non sua poma.

Grafting *in the Rind*, or *Shoulder*-Grafting, called also *Slicing* and *Packing*; is practised in the latter End of *April*, or Beginning of *May*. The Method is as follows:

The Top of the Stock is cut off in a smooth, straight Place: Then the Cyon, or *Graft*, is prepared by cutting it on one Side from the Joynt, or Seam down slopewise, making the Slope about an Inch long; and observing its Bent, that so, when the Cyon is fixed to the Stock, it may stand nearly upright. At the Top of the Slope, they make a *Shoulder*, whereby it is to rest on the Stop of the Stock. The whole Slope to be plain and smooth, that it may lie even to the Side of the Stock. As to the Length of the Cyon, for a Standard Tree, it may lie about four Inches from the Shoulder; but for a Dwarf, or Wall Tree, six Inches. The Cyon prepared; the outside is applied to the West, or South West Side of the Stock, and its Length and Breadth measured thereon; which done, the Bark of the Stock is cut away to those Dimensions, that the cut Part of the Cyon may fit it. Wherein, Regard is to be had to the Bigness of the Stock, and the Thickness of the Bark, to proportion the length and breadth of the Chip thereto; otherwise the Passages of the Juice in the Stock and Cyon will not meet. Lastly, laying the Cut-Part of the Cyon on that of the Stock, they bind them together with Woollen Yarn, and cover the whole with Clay an Inch above, and as far below the Stocks Head: Working it round the Cyon, till it become sharp at Top, that the Rain may run down it.

This Method has several Advantages beyond the former: As that the Wound heals up sooner; and that, in the mean Time, it is in less Danger from the Weather; that it does less Injury to the Stocks and *Grafts*, as avoiding those severe Splittings and Pinchings: That the Bark is more easily placed in the Passage of the Sap here, than in the Cleft: That the *Graft* thrives and shoots with greater Vigour, and bears sooner in this Way than in that: And that it is practicable on smaller Stocks than the other, which must have a good Body, and Consistence, e're they can bear Cleaving.

Grafting *in the Bark*, is perform'd thus:

Prepare the Stock, and Cyon, as in *Grafting in the Rind*; but, instead of cutting the *Bark* of the Stock, slit the same on the South West Side, from the Top, almost as long as the shoap'd Part of the Cyon; and at the Top of the Slit loosen the *Bark*, with the Top of your Knife. Thrust your Instrument, made of Ivory, Silver, or the like, and form'd at the End like the slope End of the Cyon but much less, down, between the *Bark* and Wood, to make Room for the Cyon; which being put in the *Bark*, is to be so managed, as that it may fall close to the Stock, and Edges of the Cyon.

Grafting *by Approach*, call'd also *Inarching*, and *Ablactation*. See the Method thereof under the Article Ablactation.

Whip-Grafting, or *Tongue*-Grafting, is a Sort of *Grafting* in the Rind, proper for small Stocks, from an Inch Diameter to a Quarter of an Inch. Mr. *London* speaks of it as the most effectual Way of any, and that most in Use.

In this, the Stock and Cyon are to be of the same Bigness. The Cyon to be slop'd off a full Inch, or more; and the like to be done to the Stock; and so the one to be tied to the other. Otherwise, the Top of the Stock being cut off, a Shoulder is to be made in the *Graft*: And the rest to be performed as already shewn under *Grafting in the Rind*.

This Method is also improved by what they call *tipping*, or *tonguing*; which is, the making a Slit with a Knife in the bare Part of the Stock, downwards; and the like in the sloped Face of the Cyon, upwards: And then, joyning them, by thrusting one Slice into the other, till the bare Place of the Cyon cover that of the Stock.

Side-Grafting. In this, the Cyon is prepared as in *Whip-Grafting*, but the Head of the Stock is not cut off. Only, from a smooth Part on the West Side, so much of the Bark is pared off as the Cyon will cover; then slitting both Cyon and Stock, as in the last Article, they bind the two together, and close them up with Clay. At the Year's End, the Top of the Stock is cut off at the *grafted* Place, slopewise, and the Place cover'd with Clay.

Scutcheon-Grafting, is another Method of *Grafting in the Rind*, practised in *June*, *July* and *August*; when the Bark will not part from the Stock. 'Tis perform'd, by slitting the Bark of the Stock in Form of the Capital Letter T, loosening it with the Point of a Knife, and clapping in a Cyon, prepared as above. See Scutcheon.

Crown-Grafting, is when four or more *Grafts*, are placed round the Stock, between the Bark and the Rind, somewhat in the Manner of a *Crown*. This is only practised in the larger Trees, which are capable of receiving a Number of *Grafts*, and are too big to be cloven. The Method is in all Respects the same as that already deliver'd for *Grafting in the Rind*.

Root-Grafting, is a modern Invention, treated on at large by *Agricola*: Its Intention is somewhat different from the former, being for the Propagation, or Multiplication of Plants.

To perform this, take a *Graft*, or Sprig of a young Tree, which you intend to propagate; and a small Piece of the Root of another Tree of the same Kind, or very like it; or else Pieces of Roots cut off of other Trees, in transplanting; and *Whip-Graft* them together: Observing, that the two But-Ends of the *Graft* and Root be united, and that the Rind of the Root joyn that of the *Graft*. These may, afterwards, be planted out at Pleasure, and the Piece of Root will draw the Sap, and feed the *Graft*, as the Stock does the other Way.

This Way of Propagation is very easy and expeditious; Roots being more plentiful than Stocks: By this Method the Pieces of Roots of one Crab-stock, or Apple-stock, will serve for 20 or 30 Apple *Graffs*, and the like of other Trees. The same is an excellent Way for raising of tender Trees, that will hardly bear being *grafted* in the Stock. Add, that Trees thus *grafted*, bear sooner, and are more easily dwarfed, than those done any other Way. See Dwarf.

Re-iterated Grafting, or *Grafting by a double*, or *triple Incision*, is another Method mention'd by *Agricola*.

To perform this, first *graft* a good Cyon on a Stock, and cut it away to one half, or a third Part; then fix another *Graft* to it, of a better Kind; and a third to that: For still, the oftener a Tree is *engrafted*, the finer Fruit it produces.

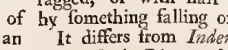
By this Method, that Author assures us, he produced Muscat Pears, that were admirable; making, at first, use of a Stock *grafted* with a Pound Pear, on which he *grafted* a Summer *Bon Chretien*; and when the Branch of this latter had shot, he *grafted* on it a Cyon of *Bergamot*; which he also cut, and *grafted* on it a Cyon of a *Muscat* Pear.

Engrafting *of Branches*, *Agricola* mentions as a very certain and profitable Operation, best practised on large, full grown, and even old Trees.

To do this, half or more of the Branches must be lopp'd off, and *Grafts* of three or four Years old be applied to them; taking Care to have Stakes, or other Things, to support them against the Wind, &c.

He adds, that by this Method, you will have, perhaps, the same Year, at least, the second or third, such a Quantity of Fruit, as the youngest and soundest Tree would hardly produce.

Engrafting *of the Small-Pox*. See Inoculation.



ENGRAIL'D, or INGRAIL'D, in Heraldry, (from the French *Grefle*, Hail) is when a Thing is represented with its Edges ragged, or with half rounds struck thereon, as if broke by something falling on it; as in the adjoyning Figure.

It differs from *Indented*, in that the Breaches there are all in strait Lines; but here Semi-circular: And from *Invected*, in that the Points of the little Arches are turn'd inwards towards the middle of the Field; which in *Invected*, are turn'd outwards. See Indented and Invected.

Spelman calls it in Latin *Imbricatus*, others *Ingrediatus*, and others *Striatus*.

EN-

ENGRAVING, or GRAVING, the Art, or Act of cutting Metals and precious Stones, and representing Figures, Letters, and other Matters thereon.

The Word is a Compound of the Preposition *in*, and the *Greek* γράφω, *I write*. Tho' *Menage*, after *Salmasius*, derives it from *cavare*, to hollow; others from the *Latin*, *graphiare*; and others from the *German*, *graben*, q. d. *Effodere*, to dig out. In *Latin* it is called *Sculptura* and *Cœlatura*.

Engraving is properly a Branch of Sculpture; tho', with us, it generally stands contra-distinguished from Sculpture; As the latter, popularly call'd *Carving*, expresses the forming of Figures, *&c.* Embossd, or in Relievo; and the latter, those indented, or *in Creux*. See RELIEVO and CREUX.

Among the *French*, the Term *Engraving*, *Graveure*, is of more Extent. It includes all Sculpture, both that perform'd with the Chissel and Knife, on Marbles and Woods, in Relievo; and that in Metals, Stones, *&c.* with the Graver, indented. See SCULPTURE.

Engraving is divided into several Branches, according to the Matters it is practised on, and the Manner of performing it. The Original Way of *Engraving* on Wood is now distinguished by the Name of *Cutting in Wood*; that on Metals with *Aqua Fortis*, is called *Etching*; that by the Knife, Burnisher, Punch, and Scraper, *Mezzotinto*; that on Stones, for Tombs, *&c. Carving* or *Stone cutting*; and lastly, that perform'd with the Graver on Metals, as Copper, Brass, Steel, Silver, *&c.* as also on precious Stones, Crystals, *&c.* retain alone the primitive Denomination of *Engraving*. See CUTTING *in Wood*, ETCHING, CARVING, and MEZZO TINTO.

Engraving is an Art, for the greatest Part, of Modern Invention; having its Rise no earlier than the *16th* Century. The Antients, 'tis true, practised *Engraving* on pretious Stones and Crystals, with very good Success; and there are still some of their Works remaining, equal to any Production of the later Ages. But the Art of *Engraving* on Plates, or Blocks of Wood, to afford Prints, or Impressions, was not known till after the Invention of painting in Oil.

The Discovery is ascribed to *Maso Finiguerra*, a Goldsmith of *Florence*; who having used to take Impressions of every thing he cut, in Clay; and to cast melted Sulphur in this Mould; at length hit on a Way of taking the Impressions thereof on Paper, by smearing this Figure of Sulphur with Oil and Lamp-black.

The Secret soon got Abroad, and coming to the Hands of *Albert Durer* and *Lucas*, they greatly improved it, and began to *Engrave* on Wood and Copper, in which they succeeded to Admiration. See PRINT.

ENGRAVING *in Copper*, is employ'd in representing divers Subjects, as Portraits, Histories, Landskips, Foliages, Figures, Buildings, *&c.* either after Paintings, or Designs made for the Purpose.

It is perform'd either with the *Graver*, or with *Aqua Fortis*.

For the first, there needs but little *Apparatus*, and few Instruments. The Plate you work on being well polish'd, is cover'd over with a thin Skin of Virgins Wax, and on this, the Draught, or Design, done in black Lead, red Chalk, or other ungum'd Matter is laid; and rubb'd down for the Wax to take off. The Design thus transferr'd upon the Wax, is traced thro' on the Copper, with a Point or Needle: Then heating the Plate, and taking off the Wax, the Strokes remain; to be follow'd, heighten'd, *&c.* according to the Tenor of the Design, with the *Graver*, which is to be very sharp, and well temper'd.

In the Conduct of the *Graver*, consists all the Art; for which there are no Rules to be given; all depending on the Habitude, Disposition, and Genius of the Artist.

The other Instruments are, a *Cushion*, or Sand-Bag, to lay the Plate on, to give it the necessary Turns and Motions: A *Burnisher*, round at one End, and usually flattish at the other, to rub out Slips and Failures, soften the Stroaks, *&c.* A *Scraper*, to pare off the Surface, on Occasion: And a *Rubber* of black Cloth, or Hat, to fill up the Strokes, that it may appear how the Work proceeds.

ENGRAVING *in Copper with* Aqua Fortis. See ETCHING.

ENGRAVING *on precious Stones*, consists in representing Figures or Devices, either in Relievo, or Indented, on divers Kinds of hard, polish'd Stones. See PRECIOUS *Stones*.

The Art of *Engraving* on precious Stones, is one of those wherein the Ancients excell'd; there being divers antique Agats, Cornelians, and Onyx's, which surpass any Thing of that Kind the Moderns have produced. *Pyrgoteles* among the *Greeks*, and *Dioscorides* under the first Emperors of *Rome*, are the most eminent Engravers we read of: The former was so esteem'd by *Alexander*, that he forbad any body else to *Engrave* his Head: And *Augustus*'s Head, *Engraven* by the latter, was found so beautiful, that the succeeding Emperors chose it for their Seal.

All the polite Arts having been buried under the Ruins of the *Roman* Empire, the Art of *Engraving* on Stones met the same Fate. It was retriev'd in *Italy*, at the Beginning of the *15th* Century; when one *John* of *Florence*, and after him *Dominic* of *Milan*, perform'd Works of this Kind no Way to be despised.

From that Time, such Sculptures became common enough in *Europe*, and particularly in *Germany*, whence great Numbers were sent into other Countries; but they came short of the Beauty of those of the Ancients; especially those on precious Stones; for as to those on Crystal, the *Germans*, and after their Example, the *French*, &c. have succeeded well enough.

In this Branch of *Engraving*, they make Use either of the Diamond, or Emery. The Diamond, which is the hardest, and most perfect of all precious Stones, is only cut by it self, or with its own Matter. See DIAMOND, *&c.*

The first Thing, is to cement two rough Diamonds to the Ends of two Sticks, big enough to hold them steady by, in the Hands; and to rub or grind 'em against each other, till they be brought to the Figure desired. The Dust, or Powder, rub'd off, serves afterwards to polish 'em; which is perform'd with a Kind of Mill, that turns a Wheel of soft Iron. See LAPIDARY.

The Diamond is fix'd in a Brass Dish, and thus apply'd to the Wheel, which is cover'd with Diamond Dust, mix'd up with Oil of Olives: And when the Diamond is to be cut facet-wise, they apply first one Face, than another, to the Wheel.

Rubies, Saphirs, and Topazes, are cut and form'd the same Way, on a Copper Wheel; and polish'd with *Tripoli*, diluted in Water. See EMERY.

As to Rubies, Emeralds, Hyacinths, Amethists, Grenats, Agats, and other of the softer Stones, they are cut on a Leaden Wheel, moisten'd with Emery and Water, and polish'd with *Tripoli*, on a Pewter-Wheel. *Lapis*, Opal, *&c.* are polish'd on a Wooden Wheel. See WHEEL.

To fashion and *Engrave* Vases of Agat, Crystal, *Lapis*, or the like, they have a Kind of Lathe, like that of the Pewterers; excepting, that whereas the latter is to hold the Vessels, which are to be wrought with proper Tools; the former generally holds the Tools, which are turn'd by a Wheel, and the Vessels held to 'em to be cut and *Engraved*, either in Relievo, or otherwise: Remembring from Time to Time, to moisten the Tools with Diamond Dust and Oil; or, at least, Emery and Water.

To *Engrave* the smaller Works of any of these Stones, when polish'd; such as Medals, or Seals, *&c.* they use a little Iron Wheel, the two Ends of whose Axes are receiv'd within two Pieces of Iron placed upright, as in the Turners Lathe; to be brought closer, or set further apart, at Pleasure. At one End of one of the Axes, are fitted the proper Tools, being kept tight by a Skrew. Lastly, the Wheel is turn'd by the Foot; and the Stone applied by the Hand to the Tool; and thus shifted and conducted as Occasion re u ires.

The Tools are generally of Iron, sometimes of Brass. As to their Form, it is various, but generally bears some Resemblance to Chissels, Gouges, *&c.* Some have small round Heads like Buttons; others, like Ferrels, to take the Pieces out; others, flat, *&c.* These Tools are not applied directly against the Stone; but, as it were, sidewise; thus weating, and, as it were, grinding off the Substance. And still, whether it be Figures, or Letters, or Characters, the Manner of Application is the same. The Tools, as above observed, are to be frequently moisten'd with Diamond Dust, and Oil of Olives. When the Stone is *Engraven*, they polish it on Wheels of Brushes, made of Hogs Bristles and *Tripoli*. For the larger, and less delicate Works, they have Copper, or Pewter Tools, on purpose to polish the Ground, or plain Parts, with *Tripoli*, &c. which they apply after the same Manner, as those wherewith the *Graving* is perform'd.

ENGRAVING *on Steel*, is chiefly employ'd in cutting Punches, Matrices, and Dies, proper to strike Coins, Medals, and Counters. See COINAGE.

The Method of *Engraving*, with the Instruments, *&c.* are the same for Coins, as for Medals and Counters: All the Difference consists in their greater, or less Relievo; the Relievo of Coins being much less considerable than that of Medals; and that of Counters still less than that of Coins. See MEDAL.

The *Engraver* in Steel usually begins with Punches, which are in Relievo, and serve for making the Creux, or Cavities of the Matrices, and Dies. Tho', sometimes, he begins immediately with the Creux; but 'tis only when the intended Work is to be cut very shallow. The first

Thing is to design his Figures; then he moulds 'em in white Wax, of the Size and Depth required: And from this Wax he graves his Punch.

This Punch, is a Piece of Steel, or at least of Iron and Steel mix'd; on which, ere they temper, or harden it, the intended Figure, whether a Head, or a Reverse, is cut, or chissel'd in Relievo. The Instruments used in this *Graving* in Relievo, which are much the same as those wherewith the finishing of the Work, in Creux, is effected, are of Steel. The Principal are *Gravers* of divers Kinds, Chissels, Flatters, *&c.* When the Punch is finish'd, they give it a very high Temper; that it may the better bear the Blows of the Hammer, wherewith it is struck, to give the Impression to the Matrice. See PUNCHION.

What they call *Matrice*, or *Matrix*, is a Piece of good Steel of a Cubic Form, call'd also *Dye*; whereon, the Relievo of the Punch is struck in Creux. It is call'd Matrix, because in the Cavities or Indentures thereof, the Coins, or Medals, seem form'd, or generated, as Animals are in the Matrix of their Mother. To soften this Steel, that it may more easily take the Impression of the Punch, they make it red-hot; and after striking the Punch thereon in this State, they proceed to touch up, or finish the Strokes and Lines, where, by Reason of their Fineness, or the too great Relievo, they are any Thing defective; with some of the Tools abovementioned. See MATRIX.

The Figure thus finished, they proceed to *Engrave* the rest of the Medals, as the Mouldings of the Border, the engrail'd Ring, Letters, *&c.* All which, particularly the Letters and Engrailment, are perform'd with little Steel Punches, well temper'd, and very sharp. Add, that as they sometimes make Use of Punchions, to *Engrave* the Creux of the Matrix; so, on some Occasions, they make Use of the Creux of the Matrix, to *Engrave* the Relievo of the Punch.

To see, and judge of the *Engraving* in Creux; divers Means have been devised to take the Impressions therefrom, as the Work proceeds. Sometimes they make Use of a Composition of common Wax, Turpentine, and Lamp-black; which always retaining its Softness, easily takes the Impression of the Part of the *Graving* it is applied to. But this only serving to shew the Work piece-meal, they have had Recourse to other Ways, to shew the whole Figure. The first, by pouring melted Lead on a Piece of Paper, and clapping the Matrice thereon: The second, with melted Sulphur, managed the same Way: And the third, proper only where the *Graving* is shallow, by laying a Piece of soft Paper on the *Graving*, and over the Paper a Leaf of Lead; when, giving two or three Blows with a Hammer on the Lead, the Paper takes the Impression of the Work.

When the Matrix is quite finish'd, they temper it, rub it well with Pumice-stone, and clean out the Stone again with a Hair-Brush; and lastly, polish it with Oil and Emery. In this Condition it is fit for the Mill, to be used to strike Coins, Medals, *&c.* See COINING.

After the like Manner, are the Matrices for casting of Printing Letters, *Engraven*. See *Letter* FOUNDERY.

ENGRAVING *of Seals, Stamps, Punchions, Marking Irons, Gilding Irons*, and other Matters, for Goldsmiths, Pewterers, Book-binders, *&c.* either in Relievo, or Indenture, is perform'd after the Manner last described. See SEAL, *&c.*

ENGRAVING *in Wood*. See CUTTING *in Wood*.

ENGROSSING, the Writing a Deed over fair, and in proper Characters.

In the Way of Trade, *Engrossing* signifies the Buying up any Commodity in the Gross; Forestalling the Market. See FORESTAL and MONOPOLY.

ENGUICHE, in Heraldry; is applied to the great Mouth of a hunting Horn, when it has a Rim of a different Colour from the Horn it self.

ENGYSCOPE, a Machine, better known under the Name of *Microscope*. See MICROSCOPE.

ENHARMONIC, the last of the three *Genera*, or Kinds of Music. See GENERA.

The *Enharmonic* Genus, is said to have been thus called by Reason of its superior Excellence; Tho' wherein that consists, says Mr. *Malcolm*, we don't see. It was by all acknowledged so difficult, that few could practise it.

The several *Genera* are divided into Diastems, upon which the Differences depend: Those of the *Enharmonic* are the *Diesis* and *Ditonum*: Those of the *Chromatic*, the *Hemitonium* and *Triemitonium*; and in the *Diatonic*, the *Hemitonium*, or *Limma*, and the *Tonus*.

But under these general Names, which distinguish the *Genera*, there are several different Intervals, or Ratio's, which constitute the *Chroai*, or *Colores Generum*, or Species of *Enharmonic*, *Chromatic*, and *Diatonic*. See DIATONIC, and CHROMATIC.

ENHERITANCE. See INHERITANCE.

ENIGMA, or ÆNIGMA, *Riddle*, a Proposition put in obscure, ambiguous, and generally contradictory Terms, to puzzle, or exercise the Wit, in finding out its meaning. Or, an obscure Discourse, covering some common, and well known Thing, under remote and uncommon Terms.

The Word is *Greek*, Αἴνιγμα, literally importing *dark, knotty Discourse*, form'd of αἰνίττεσθαι, *obscure innuere*, to hint a Thing darkly. The *Latins* call it *Scirpus*: The *Hebrews*, חידה.

Fran. Junius defines an *Ænigma* to be an obscure Parable, or Allegory; and makes two Kinds: The one *greater*, rendering the Sentence more intricate and knotty, by a Multitude of Words; the other *lesser*, consisting of only one or two remote Words, or Allusions; as in *Isaiah*, C. XI. 1. where *Jesus Christ* is call'd נצר, *surculus*, Rod, Branch. See PARABLE.

Fa. Bouhours, in the Memoirs of *Trevoux*, defines an *Enigma*, a Discourse, or Painting, including some hidden meaning, which is proposed to be guess'd. *Painted Enigma's*, are Representations of the Works of Nature, or Art, conceal'd under human Figures, drawn from History, or Fable. Thus *Jesus Christ*, in the middle of the Doctors, represents the Bible, *&c.* A *Verbal Enigma* is a witty, artful and abstruse Description of any Thing. *Bouhours*.

Fa. Menestrier, has given us a learned Treatise of *Enigma's* and *Enigmatical* Figures.

The Use of *Enigma's* was very great among the *Egyptians*. That People, *Gale* observes, cover'd their Doctrines, both of divine, human, and natural Things, under such Disguises: Thus some of the Stars, *Clemens Alexand. Strom.* 5. notes were, on Account of their oblique Motions, liken'd to Serpents, the Sun to a Crocodile, a Ship, *&c.*

Gale thinks they might borrow the Customs from the *Hebrews*, among whom, 'tis certain, the *Enigmatic* Way was not less in Use. Witness *Samson*'s Riddle, *Judg.* XIV. 12, 13. *I will now put forth a Riddle to you*, &c. חידה *i. e.* according to *Vatable*, an *Enigmatical* Problem. The LXX render it, περίβλημα. *Out of the Eater came forth Meat, and out of the Strong came forth Sweetness.* Whereby *Eater* and *Strong*, is meant a Lion; and by *Meat*, Honey. *Solomon* is said to have been particularly skilful in the Solution of *Ænigma's*. Joseph. *Antiq. Lib.* V. *C.* 2. *Clemens* assures us, that the *Egyptians* placed Sphynges before their Temples; to intimate that the Doctrines of God and Religion were *Ænigmatical* and Obscure. See PARABLE, HIEOROGLYPHIC, EMBLEM, SYMBOL, FABLE, *&c.*

ENIXUM *Sal*, among the Chymists, a Kind of Neutral Salt, being neither Acid nor Alcalious, but participating of both.

Such is common Salt, Nitre, Allum, Vitriol, *&c.* See SAL.

ENMANCHE, in Heraldry, is when a Chief has two Lines drawn from the middle of the upper Edge, to the Sides, the Depth of half the Chief; The two Lines including an obtuse Angle, the Point whereof, is the Centre of the Top of the Chief.

The Heralds conceive this, as bearing some Resemblance to *Sleeves*; whence the Etymology of the Word, from the French *Manche*, Sleeve. It differs from *Chappe*, where the Lines come from the Top to the Bottom of the Chief.

ENNEADECAETERIS, in Chronology, a Cycle, or Period of Nineteen Solar Years. See CYCLE.

Such is the Lunar Cycle invented by *Meton*, at the End whereof the Moon returns to the same Point, from which it departed. Whence the *Jews*, *Athenians*, and other Nations, who were minded to accommodate the Lunar Months to the Solar Year, made Use of the *Enneadecaeteris*; allowing to seven of the Years 13 Months a piece, and to the rest 12.

The *Jewish* ENNEADECAETERIS is properly a Cycle of 19 Lunar Years, beginning from *Molad Tohu*, and returning again and again; whereof, every 3d, 6th, 8th, 11th, 14th, 17th, and 19th, are Embolismic, or of 383 Days, 21 Hours a-piece; the rest common, or of 354 Days, 8 Hours a-piece. See YEAR.

Consequently, the *Jewish Enneadecaeteris* is 6939 Days. See EMBOLISMIC.

The Word is *Greek*, ἐνεαδεκαετηρίς, form'd of ἐννέα *nine*, δέκα *ten*, and ἔτος *Year*.

ENNEAGON, in Geometry, a Figure of Nine Angles, and Nine Sides. See POLYGON.

The Word is form'd of ἐννέα *Nine*, and γωνία *Angle*.

In Fortification, *Enneagon* is a Place with Nine Bastions. See FORTIFIED *Place*.

ENNEATICAL *Days*, are every Ninth Day of a Sickness; which some imagine naturally occasions a great Alteration, either for better or worse. See CRITICAL *Days*.

ENNEA-

ENNEATICAL *Tears*, are every Ninth Year of a Man's Life. See CLIMACTERIC.

ENORMOUS, something excessively, or immensely, big. Thus we say, the *Colossus* of *Rhodes* was of an *Enormous* Stature.

The Word is form'd of the Privative *e* and *norma*; Rule q. d. void of, or contrary to Rule, or Measure, *contra normam*. In the corrupt Ages of Latinity, they used *innormis* and *inormis*.

In the Civil *Jurisprudence*, *Lesio Enormis*, *Enormous* Damage, is that which exceeds half the Value of the Thing sold. And this gave Room for the Rescission of the Contract. See RESCISSION.

ENQUEST, or INQUEST, is taken for an Inquisition of a Jury, by hearing of Witnesses. See INQUEST.

This is the most usual Trial, in all Causes, both Civil and Criminal, within this Realm. In Civil Causes, after Proof is made on either Side, of so much as each Party thinks good for himself; if the Doubt be in the Fact, it is referr'd to the Discretion of Twelve indifferent Men, impanelled by the Sheriff for that Purpose; and as they bring in their Verdict, so Judgment passeth; for the Judge saith, *The Jury finderh the Fact thus.*

For the *Enquest* in Criminal Causes. See JURY.

ENS, *Being*, in Metaphysicks, is applied, in its most general Sense, to every Thing that the Mind any Way apprehends, and whereof it affirms, denies, proves, or disproves any Thing.

This, other Philosophers call *Cogitabile*, and *Intelligibile*; and the Logicians, *Thema*.

ENS, in a less general Sense, signifies something that is, or exists, some Way further than in being conceiv'd, or being capable of being conceiv'd in the Mind.

This is particularly call'd, *Ens positivum*, or *reale*, positive, or real Being. In Opposition to which stands *Non Ens*.

ENS, in its proper, or restrain'd Sense, is that to which there are real Attributes belonging; or that which has a Reality, not only out of the Intellect, but in it self.

This is what is properly meant by *Res*, *Thing*; and what we otherwise call *Ens reale*, and also *Substance*. See SUBSTANCE.

ENS *rationis*, is that which depends on the Mind; or which exists only in the Imagination.

Of this they distinguish three Kinds: *Ens rationis effectivum*, which is done, or produced by the Mind; as Knowledge: *Ens rationis subjectivum*, which is received into the Mind; as Science: And *Ens rationis objectivum*, which is represented by the Mind; as a Golden Mountain.

Which last, if it have no other Manner of Being, *i. e.* if it be represented so as it does not, or cannot be, it is what we most properly call *Ens rationis*.

The Generality of School Philosophers, and the Peripateticks among the rest, assert, that there are of these *Entia rationis objectiva*. Others deny, there are, or can be any such Thing.

ENS, or *ens primum*, among the Chymists, is the efficacious Part of any natural mixt Body, whether Animal, Vegetable, or Fossile; wherein, all the Qualities or Virtues of the Ingredients of the mixt, are comprehended in a little Compass. See ESSENCE.

Paracelsus pretends to have been able to separate the *Ens primum* from Bodies, and with it to effect prodigious Things towards the Renovation, and Restoration of Youth: But his Processes are so obscurely deliver'd, that Nobody has been induced to try 'em.

Mr. *Boyle* gives us a Process from M. *le Fevre*, whereby the *Ens primum*, or Essence of Balm, is easily obtain'd: He adds, that the Effects of an *Ens* of Balm, thus drawn, are no Ways inferior to those of *Paracelsus*; and instances in a special Friend of his, who, upon taking it only for a Fortnight, the Nails of his Hands and Feet fell off, and were succeeded by a Set of new ones; Which convinced him so far of its Efficacy, that he left off taking it himself: But giving some of it to an old Woman of 70 Years of Age, who served in the House, it produced the *Menses* again; and that so copiously, as wonderfully to startle the Woman.

Upon giving a little of it to an old Hen, her Feathers began to moult on the sixth Day, and she grew stark naked; but ere a Fortnight was over, she had others in their Room, fairer, and better colour'd than the former.

The Relation is odd enough; yet considering the Hands we have it from, and how easily the Thing is tried, 'tis much no body has yet attempted to prosecute it. The Process is thus:

Having gather'd, *e. gr.* some Balm, or other fitting Plant, at the proper Season and Time; beat it into a Pulp in a Marble Mortar, and putting it into a Bolt-Head hermetically seal'd, digest it 40 Days in a Dunghill, or other analogous Heat. This done, take out the Matter which will now be more liquid than before, and separating from it the Dregs, or grosser Parts, digest it anew in a gentle Bath; that the remaining grosser Parts may also subside: Filtrate it, and add to it the fix'd Salt, drawn from the former Dregs, dried and calcined. To the Liquor thus prepared, add equal Parts of the Liquor of good Sea-Salt well purified, and melted, and then let it run *per deliquium*. Lastly, seal up the Mixture in a Bolt-Head; and expose it to the Sun six Weeks longer. At the End of which Term, the *Ens primum* of the Plant will be found swimming on the Liquor, in a liquid, transparent Form, sometimes of a green, and sometimes a reddish Colour, according to the Plant used.

ENS *Veneris*, or *Flower of Venus*, a chymical Preparation from Vitriol, first published by Mr. *Boyle*. See VITRIOL.

It is held a Specific in the Rickets, and is much commended in nervous Cases, obstinate Cachexies, Loss of Appetite, and Obstructions of all Kinds.

It is had by subliming equal Parts of the Powder of *Cyprus* Vitriol, (calcined till it is of a dark Colour) and of Sal Ammoniac, into the Form of yellow Flower.

It has its Name from the Particles of Copper therein, carried away from the Vitriol.

ENSCONCED. See INSCONCED.

ENSEMBLE, a *French* Term, sometimes used in our Language. The Word is an Adverb, and literally signifies *together*, or *one with another*; being form'd of *in* and *simul*.

Hence, in Architecture, we say *the Ensemble*, or, *tout Ensemble*, of a Building, to signifie the whole Work, or Composition, consider'd together, and not in parts; and sometimes also to signifie the relative Proportion of the Parts to the whole. All these Pieces of Building make a fine *Ensemble*.

In Sculpture, we say, To judge well of a Work, a Statue, *&c.* one must first examine, whether the *Ensemble* be good.

In Painting, we frequently use the Phrase, *tout Ensemble*: The *tout Ensemble* of a Painting, is the Harmony resulting from the Distribution of the several Objects or Figures, whereof it is composed. This Painting is very good, taking it separately: But the *tout Ensemble* is naught.

ENSIFORMIS *Cartilago*. See CARTILAGO *Ensiformis*.

ENSIGN, in the Military Art, a *Banner*, or *Colours*, under which the Soldiers are ranged, according to the different Companies, or the different Parties they are of. See BANNER.

The *Chinese Ensigns*, are Horses Tails: Those of the *Europeans*, are Pieces of Taffaty, with divers Figures, Colours, Arms, and Devises. *Xenophon* tells us, that the *Ensign*, bore by the *Persians*, was a Golden Eagle on a white Flag: The *Corinthians* bore the winged Horse, or *Pegasus*, in theirs: The *Athenians* an Owl: The *Messenians*, the *Greek* Letter M: The *Lacedemonians* the A.

The *Romans* had a great Diversity of *Ensigns*; the Wolf, Minotaur, Horse, Boar, and at length the Eagle, where they stopp'd: This they first assumed under the second Year of the Consulate of *Marius*. See EAGLE.

A Military *Ensign*, on a Medal of a *Roman* Colony, denotes it a Colony peopled with old Soldiers.

ENSIGN, is also used for an Officer in the Infantry, who bears the *Ensign*, or Colours; by the *Latins* call'd *Signifer*, and *Vexillifer*.

He has the Charge of the *Ensign* in Combats; and if he be kill'd, the Captain is to take it in his Stead. The *Ensign* is under the Command of the Lieutenant, and in his Absence supplies his Post.

ENTABLATURE, or ENTABLAMENT, in Architecture, by *Vitruvius* and *Vignola* call'd *Ornament*, is that Part of an Order of Column which is over the Capital; comprehending the *Architrave*, *Frize*, and *Corniche*. See ARCHITRAVE, FRIZE, and CORNICHE.

The *Entablature* is also called the *Trabeation*: It is different in the different Orders: Indeed it consists of the three grand Parts, or Divisions above-mentioned, in all; But those Parts consist of a greater, or less Number of particular Members, or Sub-divisions, as the Orders are more or less rich. See ORDER.

Vignola makes the *Entablature* a Quarter of the Height of the whole Column, in all the Orders. See COLUMN.

In the *Tuscan* and *Doric*, the *Architrave*, *Frize*, and *Corniche*, are all of the same Height. See TUSCAN and DORIC.

In the *Ionic*, *Corinthian*, and *Composite*, the whole *Entablature* being 15 Parts; 5 of them are allow'd for the *Architrave*, 4 for the *Frize*, and 6 for the *Corniche*. See IONIC, CORINTHIAN, *&c.*

ENTABLATURE, or ENTABLAMENT, is also used for the last Row of Stones on the Top of the Wall of a Building, whereon the Timber and the Covering rest.

The

The Word is form'd of the Latin *Tabulatum*, or *Intabulamentum*.

As it is frequently made to project beyond the Naked of the Wall to carry off the Rain, some Authors call it in Latin *Stillicidium*, or Drip. Such an *Entablament* does not bear far enough out: It lets the Water fall on the Foot of the Wall.

ENTAIL, in Law, signifies Fee Tail, or Fee *Entail'd*, i. e. abridg'd, curtail'd, or limited to certain Conditions. See FEE and TAIL.

For the Docking of an Entail. See DOCKING and RECOVERY.

ENTE, in Heraldry. The Term literally implies *Engrafted*; and is used by the foreign Heralds to express a Method of Marshalling, little known among us.

Yet we have an Instance of it in the fourth grand Quarter of his Majesty's Royal Ensign; whose Blazon is, *Brunswic* and *Lunenburgh* impaled with antient *Saxony*, Ente *in pointe*.

ENTELECHIA, a *Greek* Term, by which *Aristotle* defines *the Soul*; and which not occurring in any other Author, has given the Criticks and Philosophers infinite Perplexity to discover its meaning.

Hermolaus Barbarus, is even said to have consulted the Devil about it; after which, in his Paraphrase on *Themistius*, whether from the Devil or himself we know not, he renders it by *Perfectihabia*, which is not a whit the clearer.

Cicero, whose Interpretation should be preferable to that of any Modern, defines *Entelechia* (*Tuscul. q. L.* I. *C.* 1.) to be *a certain, continued, and perpetual Motion*: Whence it should appear that *Aristotle* took the Soul for a Mode of the Body; a *continuous Motion* being doubtless a Mode of Body. See BODY.

The common *Peripateticks* hold *Entelechia* to signify *Act*; and under it, suppose the Form of the Compound, or Animal, to be understood: Accordingly, they define it any Act, whether Substantial or Accidental, considered as capable of performing some Operation in the Body.

Others of them define it to be a substantial Act, whereby a Thing is, what it is, in Substance.

Lastly, others of the *Peripateticks*, and those the latest, agree that the *Act* of *Entelechia*, whereby *Aristotle* meant to explain the Nature of the Soul, either signifies some Mode of the Body, as Motion, or nothing at all. And thus the *Peripatetic* Notion comes round to that of *Cicero*.

ENTENDEMENT, in Law, the true Meaning, Intent, or Signification of a Word, Sentence, Law, *&c.* See INTENDMENT.

ENTERFERING, in the Menage. See CUTTING.

ENTERRMENT, or INTERRMENT, the Act of *Interring*, i. e. of Burying, or laying a deceas'd Person in the Ground. See BURIAL and FUNERAL.

The Kings of *England* are *Enterr'd* at *Westminster*, those of *France* at *Dennis*, &c.

The Excommunicated are not to be *Enterr'd* in Holy, *i. e.* in Consecrated Ground. The Antients did not *Inter* their Dead: They burnt them, as the *Indians* do at this Day. See BURNING.

The Custom of Burning the Dead, ceas'd among the *Romans* under the Empire of the *Anthonines*; long before the Christians were allow'd to *Interr* in Churches, which was even prohibited Kings and Emperors. The *Abassinians*, in Lieu of *Interring* their Dead, shut them up in the Bodies of Trees, dug hollow for this Purpose.

The Gardeners *Interr*, or earth up Sellery, Endive, and Lettice, to blanch, or whiten, and make them the tenderer.

To *Interr* wild Stucks in Ditches, is what *Columella* calls *deponere, seminare Scrobibus*. There are some Trees, as Willows, Olives, *&c.* which grow very well, by *Interring* their Truncheons, *i. e.* by cutting a Truncheon, or Piece off at both Ends, and planting it in the Ground: Which is what the *Latins* call, *Inhumare taleas, taleis serere*.

ENTEROCELE, in Medicine, a Descent of the Intestines. See DESCENT.

The *Enterocele* is a Kind of *Hernia*, or Rupture, wherein the Intestines, particularly the *Ilion*, fall into the Groin, or the Scrotum. See HERNIA.

The next Cause of the *Enterocele*, is the Relaxation, or Extension, of the lower Part of the *Peritonæum*, wherein the Intestines are contain'd: The remote Causes are great Lifts, too violent Exercises, great Coughs, frequent Vomiting, much Crying, *&c.* Whence it is that Children are much subject thereto.

There are two Kinds of *Enterocele*; the *Perfect*, which happens when the Intestine falls into the Scrotum; and the *Imperfect*, when it only falls into the Groin.

The Remedy is chiefly by External Applications, as Trusses and Boulsters.

The Word is form'd of the *Greek*, ἔντερον, *Intestine*; and κηλη, *Tumor*.

ENTERO-EPIPLOCELE, a Kind of Rupture; wherein the Intestines, and *Epiploon*, or Caul, fall together into the Scrotum; whence the Appellation *Entero-epiplocele*. See HERNIA.

The Causes are the same as those of the *Enterocele*.

ENTERO-EPIPLOMPHALUS, a Kind of *Exomphalus*, wherein the Intestines, and *Epiploon*, or Caul, bunch out at the Navel. See EXOMPHALUS.

The Word is composed of ἔντερον, *Intestine*, επιπλοον, *Caul*, and ὀμφαλὸς, *Umbilicus*, *Navel*.

ENTERO-HYDROMPHALUS, in Medicine, a Kind of *Exomphalus*, wherein, beside a displacing and bunching out of the Intestine, there is a deal of watery Humours collected along with it.

The Word is form'd of the *Greek*, ἔντερον, *Intestine*, and ὀμφαλὸς, *Navel*.

ENTEROLOGY, from ἔντερον, *intestinum*, a Gut; and λογος, *Sermo*, a Discourse; is properly a Treatise of the Bowels; tho' the Word is generally understood to include the Contents of the three Cavities, Head, Breast, and Belly.

ENTEROMPHALUS, in Medicine, a Kind of *Exomphalus*, consisting in the Intestines being put out of their Place, and occasioning a Tumor. See EXOMPHALUS.

The Word is form'd of the *Greek* ἔντερον, *Intestine*, and ὀμφαλὸς, *Umbilicus*.

ENTERPLEDE, in Law, to discuss, or try a Point incidently falling out, before the principal Cause can be determined.

E. gr. Two Persons being found Heirs to Land, by two several Offices in one County; the King is brought in Doubt, to which of 'em Livery ought to be made. Before Livery, therefore, they must *Enterplede*, that is, formally try between themselves which is the right Heir.

ENTHUSIASM, a prophetic, or poetic Rage, or Fury, which transports the Mind, enflames and raises the Imagination, and makes it think and express Things extraordinary and surprizing.

M. *de Piles* defines *Enthusiasm* to be a Transport of the Mind, whereby it is led to think and imagine Things in a sublime, surprising, and yet probable Manner.

The sublime, he thinks a necessary Ingredient in the Definition; as being the proper Effect and Production of *Enthusiasm*. *Enthusiasm*, he adds, contains the sublime; as the Trunk, the Branches. See SUBLIME.

The Word is derived from the *Greek* ἔνθεος, or, ἔνθης, a Man animated in an extraordinary Manner with the Spirit of God, in whom God is, whom God animates, εν ὦ Θεος.

Whence, the Verb ἐνθυσιάζω, or ἐνθυσιαω, and the Noun ενθυσιασμὸς, *Enthusiasm*; and ενθυσιαστης, *Enthusiast*, a Person subject to *Enthusiasm*.

This is the *Enthusiasm* felt in Poetry, Oratory, Music, Painting, Sculpture, *&c.* But this *Enthusiasm* which belongs to the Works of Art, is very different from that attributed to the Sybils and Priestesses of the Oracles, and Heathen Gods; which was little else but Fanaticism, and consisted principally in Grimace, and Contorsions of the Body.

There is a Degree of Assent, says Mr. *Lock*, which, with some Men, has the same Authority, as either Faith or Reason; and that is *Enthusiasm*; which laying by Reason, would set up Revelation without it; whereby, in Effect, it takes away both Reason and Revelation, and substitutes in the Room of it, the ungrounded Fancies of a Man's own Brain, and assumes them for a Foundation both of Opinion and Conduct.

Immediate Revelation being a much easier Way for Men to establish their Opinions, and regulate their Conduct by, than the tedious Labour of strict Reasoning; it is no Wonder, that some have been very apt to pretend to it, especially in such of their Actions and Opinions, as they cannot account for by the ordinary Methods of Knowledge, and Principles of Reason.

Hence we see, that in all Ages, Men, in whom Melancholy has mixed with Devotion, or whose Conceit of themselves, has raised them into an Opinion of a greater Familiarity with God, than is allowed others; have often flattered themselves with the Persuasion of an immediate Intercourse with the Deity, and frequent Communications from the Divine Spirit.

Their Minds being thus prepared, whatever groundless Opinion comes to settle it self strongly upon their Fancies, is an Illumination from the Spirit of God; and whatsoever odd Action they find in themselves an Inclination to do,

do, that Impulse is concluded to be a Call, or Direction, from Heaven, and must be obeyed. See INSPIRATION.

This we take to be properly *Enthusiasm*, which, tho' rising from the Conceit of a warm, or over-weaning Brain, works, where it once gets Footing, more powerfully on the Persuasions and Actions of Men, than either Reason, or Revelation, or both together; Men being most forwardly obedient to the Impulses they receive from themselves.

When Men are once got into this Way of immediate Revelation, of Illumination without Search, and Certainty without Proof, Reason is lost upon 'em; They are above it: They see the Light infused into their Understandings, and they cannot be mistaken; like the Light of bright Sun-shine, it shews it self, and needs no other Proof but its own Evidence: They feel the Hand of God moving them within, and the Impulses of the Spirit, and cannot be mistaken in what they feel. But of this Seeing and Feeling, is it a Perception of an Inclination to do something, or of the Spirit of God moving that Inclination? These are two very different Perceptions, and shou'd be carefully distinguished. See REVELATION.

If they know the Thing to be a Truth, they must do it, either by its own Self-Evidence, or by the rational Proofs that make it out to be so: If they know it to be a Truth, either of these two Ways, they in vain suppose it to be a Revelation: For thus all Truths, of what Kind soever, that Men uninspired, are enlightned with, come into their Minds. If they say, they know it to be true, because it is a Revelation from God, the Reason is good; but then it will be demanded, how they know it to be a Revelation from God? If they say, by the Light it brings with it; they should consider, whether this be saying any more, than that it is a Revelation, because they believe it to be true; for all the Light they speak of, is but a strong Perswasion of their own Minds, that it is a Truth; which is a very unsafe Ground to proceed on, either in our Tenets or Actions. True Light in the Mind, is nothing else but the Evidence of the Truth of any Proposition: And, if it be not self-evident, all the Light it can have, is from the Clearness of those Proofs upon which it is received. See EVIDENCE.

God, when he makes the Prophet, doth not unmake the Man: He leaves his Faculties in their natural State, to enable him to judge of his Inspirations, whether they be of divine Original, or no. If he would have us assent to the Truth of any Proposition, he either evidences that Truth by the usual Methods of natural Reason, or else makes it known to be a Truth which he would have us assent to by his Authority; and convinces us, that it is from him, by some Marks, which Reason cannot be mistaken in.

The Holy Men of God, who had Revelations from God, had something else besides internal Light of Assurance in their own Minds, to testifie to them, that it was from God. They had outward Signs to convince them, of the Author of those Revelations. And when they were to convince others, they had a Power given them to justifie the Truth of their Commission from Heaven; and by visible Signs to assert the divine Authority of the Message they were sent with. *Moses* saw the Bush burn without being consumed, and heard a Voice out of it. God, by another Miracle, of his Rod turn'd into a Serpent, assured him likewise of a Power to testifie his Mission, by the same Miracle repeated before them to whom he was sent. See MIRACLE.

ENTHUSIAST, literally signifies a Person addicted to *Enthusiasm*. But the Word is usually understood in an ill Sense.

It was applied by the Antients, to a Sect of Hereticks, call'd also *Massalians* and *Euchites*; who, as *Theodoret* expresses it, were denominated *Enthusiasts*, by reason that being possessed by the Devil, they believed themselves divinely inspired. See MASSALIANS.

Among us, *Enthusiast* is of the like Import with *Fanatic*; and is applied to the Quakers, the antient Anabaptists, and modern Prophets, from their Pretences to extraordinary Lights, Revelations, Visions, Impulses, *&c.* from Heaven. See QUAKER, ANABAPTIST, *&c.*

ENTHYMEME, in Logic, an Argument consisting only of two Propositions, an Antecedent, and a Consequent deduced from it. See ARGUMENT.

Aristotle calls it, the *Rhetorical*, or *probable Argument*; and the Schools, also, the *imperfect Syllogism*, in Contradistinction to the perfect, which consists of three Propositions, and is call'd the *dialectical Argument*. See SYLLOGISM.

It must be observed, however, that the *Enthymeme* is really a perfect Syllogism in the Mind, and only imperfect in the Expression, by reason one of the Premisses is suppress'd, as being too clear and obvious, and easily supplied by the Understanding of those with whom we discourse.

Thus, *In every right lined Triangle, the three Angles are equal to two right ones; and consequently, 'tis so in an Isosceles:* Is an *Enthymeme*; the Proposition that *an Isosceles is a right lined Triangle*, being omitted, as being sufficiently known and granted.

The *Enthymeme* is the most simple and elegant of all Argumentations, being what a Man, in arguing closely, commonly makes, without attending at all to the Form thereof. Thus, that Verse remaining of *Ovid*'s Tragedy, entitled, *Medea*, contains an *Enthymeme*: *Servare potui, perdere an possim rogas?* I was able to save you; consequently, Cou'd have destroy'd you. All the Beauty wou'd have been lost, had all the Propositions been express'd; the Mind being displeas'd with a Rehearsal of what is no ways necessary.

Sometimes, also, the two Propositions of an *Enthymeme*, are both included in a single Proposition; which *Aristotle* calls, an *Enthymematical Sentence*; and gives this Instance thereof, *Mortal do not bear an Immortal Hatred.* The whole *Enthymeme* wou'd be, *Thou art Mortal, let not, therefore, thy Hatred be Immortal.*

The Word is derived from the *Greek*, ἐνθύμημα, of the Verb ἐνθυμέομαι, *to think, conceive*, which is a Compound of ἐν and θυμός, *in the Mind.*

ENTIRE *Tenancy*, in Law, is contra-distinguished to *several Tenancy*; and signifies a sole Possession in one Man; whereas the other denotes a joynt, or common one, in several. See TENANT.

ENTITATIVELY, *Entitatively*, implies an Abstraction, or Retrenchment, of all the Circumstances, from a Thing under Consideration. Thus, a Thing is said to be taken, or consider'd, *Entitatively*, or *secundum Entitatem*, when consider'd nakedly and precisely, according to what it is in it self, without any Thing extrinsic. See ABSTRACTION.

E. gr. Peter, Entitively taken, is *Peter*, as a Thing, a Substance, a Body, *&c.* without any Regard to his being a Lord, a Husband, Learned, *&c.*

ENTITY, in the School Philosophy, a physical *Ens*, or Being, consider'd according to what it is in its physical Capacity. See ENS.

Some Dealers in Distinction, give us several Kinds of *Entities*. In its proper Sense, they apply it to a Multitude of dissimilar Parts; such is the *Entity* of a House, of the World, *&c.* In a more limited Sense, they apply it to a Multitude of similar Parts, such is the *Entity* of Water, Heat, *&c.* And, in its general Sense, to any Reality, as the *Entity* of God, of Angels, *&c.*

But this is mere Subtlety; perhaps *Entity* were best defined the Actual Essence, or Existence, of any thinking Thing. See ESSENCE.

ENTOYER, or ENTOIRE, in Heraldry, is used to express a Bordure, charged entirely with Things without Life. See BORDURE.

ENTRAILS, the Intestines, or Guts, of an Animal. See INTESTINES.

Poison leaves its chief Marks in the Entrails. See POISON.

In Embalming they take out the Entrails. See EMBALMING.

Menage derives the Word from the Latin *Enteralia*, form'd of the *Greek*, ἔντερον, *Intestine.*

ENTRAILS, is also used, in a more general Sense, for the *Viscera*, or all the Parts contain'd in the Bodies of Animals. See VISCERA.

The *Aruspicina* of the Antients, was employ'd in considering the *Entrails* of Victims, as the Heart, Lungs, Liver, *&c.*

ENTRY, or ENTRANCE, in its general Sense, a Door, Gate, Passage, *&c.* thro' which to *Enter*, or arrive within a Place. See DOOR, GATE, *&c.*

ENTRY, in Book-keeping. See BOOK-KEEPING.

ENTRY, in Commerce, a Duty, or Impost, laid on Commodities imported into a State, either by Land or Sea.

The Duties of *Entry*, are paid according to a Tariff settled for that Purpose. Where the Duty of *Entry* of any Commodity, is not fix'd by the Tariff; it is paid by Estimation, *i. e.* in Proportion to what some other Commodity, of nearly the same Quality and Value, uses to pay. See DUTY, IMPORTATION, EXPORTATION.

ENTRY, is also a solemn Reception, or Ceremony perform'd by Kings, Princes, Embassadors, Legates, *&c.* upon their first *Entering* a City, or upon their Return from some Triumph and Expedition.

ENTRY, in Law, signifies the taking Possession of Lands, or Tenements. See POSSESSION.

Entry is also used for a Writ of Possession. See INGRESSU.

The *Writs of Entry*, says *Britton*, savour much of the Right of Property. Some, *e. gr.* are to recover Customs, and Services; and in these are contain'd the two Words, *solet* and *debet*: Such are the Writs *Quo jure, Rationabilibus Divisis, Rationabili Estoverio*, &c.

In the Plea of *Entry* there are three Degrees: First, where a Man demandeth Lands or Tenements, of his own Seisin, after the Term is expired. The Second is, where one demandeth Lands or Tenements, let by another after the Term is expired. The Third, where one demandeth Lands or Tenements of that Tenant, who had Entry by one, to whom some Ancestor of the Plaintiff did let for a Term now expired; according to which Degrees, the Writs for Remedy are varied

Beside which, there is a fourth Form, without Degrees, and in Case of a more remote Seisin, to which the other three Degrees do not extend. The Writ in the second Degree, is call'd a *Writ of Entry in le per*: In the third, *In le per & cui*: And in the fourth, without Degrees, a *Writ of Entry in le post*; that is, after Disseisin, made by such a one to such a one. And if a *Writ of Entry* be conceiv'd out of the right Cause, so that one Form is brought for another, it is abatable. In these four Degrees are comprehended all Manner of Writs of *Entry*, which are without Certainty and Number.

A *Writ of Entry* differeth from an Assize, because it lieth for the most Part against him who enter'd lawfully, but holdeth against Law; whereas an Assize lieth against him, who unlawfully disseized: Yet, sometimes, a *Writ of Entry* lieth upon an Entrusion. See ASSIZE.

ENTRIES, amongst Hunters, are those Places, or Thickets, thro' which Deer are found lately to have passed; by which Means their Bigness or Size is guessed at, and then the Hounds, or Beagles, are put to them for the View.

ENTRUSION, or INTRUSION, in Law, a violent, or unlawful Entrance into Lands, or Tenements, void of a Possessor; by a Person who has no Right to them.

E. gr. When a Man steps into Lands, the Owner whereof lately died, e're the right Heir, either by himself, or any other, hath taken Possession, it is Intrusion.

Intrusion and Abatement, are sometimes taken for the same Thing: Tho' there is a Difference. See ABATEMENT. See also DISSEISIN.

ENVELOPE, in Fortification, is a Mount of Earth, sometimes raised in the Ditch of a Place, and sometimes beyond it; being either in Form of a simple Parapet, or of a small Rampart border'd with a Parapet.

These *Envelopes* are made, where one would only cover the weak Places with single Lines; without any Design of advancing towards the Field, which cannot be done but by Works which require a great deal of Breadth; such as Horn-Works, Half-Moons, &c.

These *Envelopes* are sometimes called *Sillons*, *Contregards*, *Conserves*, *Lunettes*, &c.

ENVIRONNE, in the *French* Heraldry, is when a Lion, or other Figure, is *Environ'd*, or encompass'd round with other Thing.

Environne with so many *Bezants*, &c. *in Orle.*

ENUMERATION, *Numbering*, a particular Account, or Detail of several Things. See NUMERATION.

God deffies *Abraham*, in Scripture, to *Enumerate* the Stars: At the Time of our Saviour's Birth, *Augustus Cæsar* had commanded an *Enumeration* to be made of all the World, or rather of all the People under his Empire. Tho' several able Authors are of Opinion that the Census, Tax, or *Enumeration*, mention'd by St. *Luke*, did not extend to the whole Empire, but only to the People of *Judea*. See *Perizonius de Censu Judaico*: And *Berger de Viis Militaribus.*

At *Rome*, it was an usual Thing to have an *Enumeration* of all the Families: The first was under *Servius Tullius*, when the Men amounted to 80 Thousand. *Pompey*, and *Crassus*, made another when they reach'd to 400 Thousand. That of *Cæsar* did not exceed 100 Thousand: So that the Civil Wars must have destroy'd 300 Thousand *Roman* Citizens. Under *Augustus*, in the Year 725, the *Roman* Citizens, throughout the Empire, were number'd at 4 Million 63 Thousand. In the Year of *Rome* 746, the Citizens being number'd again, were found 4 Millions, 2 Hundred 33 Thousand. In the Year 766, being the last Year of *Augustus*'s Reign, that Prince, together with *Tiberius*, made another *Enumeration* of the Citizens of *Rome*, when they were found 4 Millions 137 Thousand Persons. *Claudius* made a new Computation, in the Year of Christ 48, when, as *Tacitus* relates it, the *Roman* Citizens throughout the whole Empire, amounted to 6 Millions 964 Thousand; tho' others represent the Number as considerably greater.

A very curious, rare, yet indisputable Medal of *Claudius*, never yet made public, expresses the precise Number in this List made by *Claudius*, which was call'd *Ostensio*, to be 7 Millions of People fit to bear Arms, beside all the Soldiers on Foot in the Armies, which amounted to 50 Legions, 57 Cohorts, and 60 Soldiers.

After this *Enumeration* we find no more till that of *Vespasian*, which was the last.

ENUMERATION, in Rhetoric, a Part of the Peroration, wherein the Orator, collecting the scatter'd Heads of what has been delivered throughout the whole, makes a brief, and artful Rehearsal, or Recapitulation thereof. See PERORATION.

ENUMERATION *of the Parts*, in Rhetoric, is what we more usually call *Distribution*. See DISTRIBUTION.

ENUNCIATION, a simple Expression, or Declaration of a Thing, in Terms either of Affirmation, or Denial.

The Schoolmen usually distinguish three Operations of the Understanding, Apprehension, *Enunciation*, and Reasoning. See MIND, OPERATION, &c.

ENUNCIATION, among the Logicians, is the same as a *Proposition*. See PROPOSITION.

ENVOICE. See INVOICE.

ENVOY, a Person deputed, or sent purposely to negotiate some particular Affair with a foreign Prince, or Republic. See MINISTER.

Those sent from the Courts of *England*, *France*, &c. to *Genoa*, the Princes of *Germany*, and other petty Princes and States, don't go in Quality of Embassadors, but of *Envoys*.

Add, that those sent from one great Prince, or State, to another; as from the King of *England* to the Emperor, &c. When the Affair they go upon is not very solemn and important, have frequently no other Character but that of *Envoys*. See EMBASSADOR.

Envoys are either *Ordinary*, or *Extraordinary*. See EXTRAORDINARY, &c.

Both Kinds enjoy the Protection of the Law of Nations, and all the Privileges of Embassadors; only differing from them in this, that the same Ceremonies are not perform'd to them.

The Quality of *Envoy* Extraordinary, *Wicquefort* observes, is very modern; more modern than that of Resident: The Ministers invested therewith, at first, took on them most of the Airs of Embassadors; but they have since been taught otherwise.

In the Year 1639, the Court of *France* made a Declaration, that the Ceremonies of conducting *Envoys* Extraordinary to their Audience in the Kings and Queen's Coaches, with divers others, should no longer be practised to *Envoys*.

S. *Justiniani*, the first *Envoy* Extraordinary from *Venice*, after that Regulation offer'd to cover, in speaking to the King; but it was refused him. And the King of *France* himself declared, that he did not expect his *Envoy* Extraordinary at the Court of *Vienna*, should be regarded any otherwise than as an ordinary Resident. Since which Time, those two Kinds of Ministers have been treated alike. *Wicquefort.*

ENURNY, is the Herald's Term, for a Bordure of a Coat of Arms being charged with any Kind of Beasts.

ENVY. See PLEASURE and PAIN.

EOLIC, or, more properly, ÆOLIC, in Grammar, is a Dialect of the *Greek* Language. See ÆOLIC and DIALECT.

EOLIC, in Music, one of the Modes of the antient Music. See MODE.

The *Æolic* Mode was found fittest for *Lyric* Verses; as having a peculiar Sweetness and Gravity. It was the Sol of *G re Sol ut.*

The *Sub-Æolic*, or *Hypo-Æolic*, had the same Effects with the *Æolic*. It was the *re* of *de Sol re*; and began a Diatessaron lower than its natural authentic Mode.

EOLIPILE, in Hydraulicks. See ÆOLIPILE.

EON, or ÆON, a *Greek* Term, signifying *Seculum*, Age; attributed by *Valentine*, a *Heresiarch* of the IId Century, to his God, and all the Productions thereof. See ÆON.

Valentine, refining on those who had preceded him in this Way, produced a long Genealogy of a Number of *Æons*, or *Æones*: The first, and most perfect, be particularly denominates Πρῶν, *Proon*, that is, *pre-existent*; beside other Names, the most usual whereof was that of *Bythos*, Βύθος, *Depth*.

This *Bythos* continued long alone with Ἔννοια, *Ennoia*, Thought; whom *Valentinus* also call'd Χάρις, *Grace*, and Σιγὴ, *Silence*. At length, *Bythos* with *Sige*, produced *Nous*, Νοῦς, *Understanding*, and Ἀλήθεια, *Truth*, her Sister. *Nous* begot two *Eons*; *Logos*, Λόγος, *Word*, and *Zoe*, Ζωὴ, *Life*: Which two begot two others, *Anthropos*, Ἄνθρωπος, *Man*, and Ἐκκλησία, *Church*. And these eight *Æons* were the Chief of all the rest.

The *Word*, Λόγος, and *Life*, Ζωὴ, begot ten other *Æons*: *Man* and the *Church* begot twelve more; among whom were the *Paraclete*, *Faith*, *Hope*, *Charity*, the *Perfect*, Τέλειος, and *Wisdom*, Σοφία. And thus were the 30 *Æons* made up, which all together made the *Pleroma*, Πλήρωμα, or spiritual and invisible *Plenitude*.

These

These 30 *Eons*, the *Valentinians* hold to have been figured by the thirty Years of our Saviour's private Life. See VALENTINIAN.

EPACTS, in Chronology, the Excesses of the Solar Month above the Lunar Synodical Month; and of the Solar Year above the Lunar Year, or 12 Synodical Months: Or of several Solar Months, above as many Synodical Months; and several Solar Years above as many Dozens of Synodical Months.

Whence, the *Epacts* are either *Annual* or *Menstrual*.

Menstrual EPACTS, are the Excesses of the Civil, or Calendar Month, above the Lunar Month. See MONTH.

Suppose, *e. gr.* it were New Moon on the first Day of *January*: Since the Lunar Month is 29 Days $12^h\ 44'\ 3''$; and the Month of *January* contains 31 Days: The Menstrual *Epact* is 1 Day $11^h\ 15'\ 57''$.

Annual EPACTS, are the Excesses of the Solar Year above the Lunar. See YEAR.

Hence, as the *Julian* Year is 365 Days 6 Hours, and the *Julian* Lunar Year 354 Days $8^h\ 48'\ 38''$; the annual *Epact* will be 10 Days $12^h\ 11'\ 22''$; that is, nearly, 11 Days. Consequently, the *Epact* of 2 Years, is 22 Days; of 3 Years, 33 Days; or rather 3, since 30 Days make an *Embolismic*, or Intercalary Month. See EMBOLISMIC.

Thus, the *Epact* of 4 Years are 14 Days, and so of the rest: And thus, every 19th Year, the *Epact* becomes 30 or 0; consequently the 20th Year the *Epact* is 11 again: And so the Cycle of *Epacts*, expires with the Golden Number, or Lunar Cycle of 19 Years, and begins again with the same, as in the following Table.

Gold. Numb.	*Epacts.*	*Gold. Numb.*	*Epacts.*	*Gold. Numb.*	*Epacts.*
1	XI	7	XVII	13	XXIII
2	XXII	8	XXVIII	14	IV
3	III	9	IX	15	XV
4	XIV	10	XX	16	XXVI
5	XXV	11	I	17	VIII
6	VI	12	XII	18	XIX
				19	XXX

Again, as the New Moons are the same, that is, fall on the same Day every 19 Years, so the Difference between the Lunar and Solar Year, is the same every 19 Years. And because the said Difference is always to be added to the Lunar Year, in Order to adjust, or make it equal to the Solar Year; hence the said Difference respectively belonging to each Year of the Moon's Cycle, is called the *Epact of the said Year*, that is, the Number to be added to the said Year to make it equal to the Solar Year; The Word being form'd from the *Greek*, ἐπάγω, *induco, intercalo*.

Upon this mutual Respect, between the Cycle of the Moon, and the Cycle of the *Epacts*, is founded this Rule for finding the *Epact* belonging to any Year of the Moon's Cycle. Multiply the Year given of the Moon's Cycle into 11; if the Product be less than 30, it is the *Epact* sought; if the Product be greater than 30, divide it by 30, and the Remainder of the Dividend is the *Epact*: For Instance, I would know the *Epact* for the Year 1712, which is the third Year of the Moon's Cycle. Wherefore 3 is the *Epact* for 1712: For $11 \times 3 = 33$, and 33 being divided by 30, there is left 3 of the Dividend for the *Epact*. See CYCLE.

By Help of the *Epact* may be found what Day of any Month in any Year the New Moon falls on, thus: To the Number of the Month, from *March* inclusively, add the *Epact* of the Year given; if the Sum be less than 30, subtract it out of 30; if greater, subtract it out of 60; and the Remainder will be the Day, whereon the New Moon will fall.

If the New Moon be fought for in the Month of *January* or *March*, then nothing is to be added to the *Epact*; if for *February* or *April*, then only 1 is to be added.

For Example: I would know what Day of *December* the New Moon was on *A. D.* 1711, the *Epact* whereof is 22. By the aforesaid Rule, I find it will be *December* the 28th; for $22 + 10 = 32$, and $60 - 32 = 28$. See MOON.

The Day whereon the New Moon falls, being thus found, it is easy to infer from thence what the Age of the Moon is on any Day given.

However, there is a peculiar Rule commonly made use of to this Purpose, which is this: Add the *Epact* of the Year, the Number of the Month, from *March* inclusively, and the given Day of the Month all into one Sum, which if it be less than 30, shews the Age of the Moon; if it be greater than 30, divide it by 30, and the Remainder of the Dividend shews the Age of the Moon, or how many Days it is from the last New Moon: This Method will never err a whole Day.

For Instance: What was the Age of the Moon on *December* 31st, *A. D.* 1711? By this Rule, I find, that the Moon will then be three Days old; that is, it will then be three Days from the last new Moon. For, $22 + 10 + 31 = 63$, and 63 being divided by 30, there will remain of the Dividend, 3. And this exactly agrees to the other foregoing Rule, whereby it was found that the New Moon was on *December* 28. 1711.

It must be observed, that as the Cycle of 19 Years, anticipates the new Moons by one Day in 312 Years; the same Cycle of *Epacts* will not always hold: The Moon's Anticipation lessening the several *Epacts* by one, every 312 Years.

To have the *Epacts*, therefore, point out the New Moons perpetually; that *Epact* given in the Calendar is not sufficient; but all the 30 *Epacts* should be bestowed throughout the whole Year, that the Calendar may exhibit all the Cycles of *Epacts*. See CALENDAR.

And, again, that as in 300 *Gregorian* Years, there is one Bissextile Year dropp'd; the New Moons are thus thrown on the following Day. Consequently, by the Moon's post-position there is one added to every *Epact*. See GREGORIAN.

EPANORTHOSIS, in Rhetoric, a Figure, whereby the Orator revokes and corrects something before alledg'd, as too weak; and adds something stronger, and more conformable to the Passion he is agitated by. See CORRECTION.

Such, *e. gr*, is that of *Cicero* for *Cœlius*: *O Stultitia! Stultitiam ne dicam*, an *Impudentiam Singularem*. Oh Folly! Folly shall I call it, or rather intolerable Impudence? And in the first *Catalinarian*: *Quamquam quid loquor! Te ut ulla res frangat? Tu ut unquam te corrigas? Tu ut ullam fugam meditere? Tu ut ullum exilium cogites? Utinam tibi istam Mentem Dii Immortales donarent.*

Thus also *Terence*, in the *Heautontimorumenos*, introduces his old Man *Mendemus*, saying,

Filium Unicum Adolescentulum
Habeo. Ah! quid dixi habere me? Imo habui, Chreme,
Nunc habeam nec ne, incertum est.

The Word is *Greek*, ἐπανόρθωσις, form'd of ὀρθός, *Right, Straight*, whence ὀρθόω, *I straighten*, ἀνορθόω, ἐπανορθόω, *I redress, straighten, correct*, and ἐπανόρθωσις, *Correction*. The *Latins* call it *Correctio*, and *Emendatio*.

EPAULE, or ESPAULE, in Fortification, the *Shoulder* of the Bastion; or the Angle made by the Face and Flank; whence that Angle is often called the *Angle of the Epaule*. See BASTION and SHOULDER.

The Word is pure *French*, and literally signifies *Shoulder*.

EPAULEMENT, in Fortification, a Side-Work hastily thrown up, to cover the Canon, or the Men.

It is made either of Earth thrown up, of Bags of Earth, Gabions, or of Fascines and Earth, of which latter make, the *Epaulements* of the Places of Arms, for the Cavalry, behind the Trenches are.

EPAULEMENT, is also used for a Demi-Bastion, consisting of a Face and Flank, placed at the Point of a Horn- or Crown-Work. Also, for a little Flank, added to the Sides of Horn-Work, to defend them when too long. Also for the Redoubts made on a right Line, to fortifie it. And, lastly, for a Square Orillon, which is a Mass of Earth almost square, faced and lined with a Wall, and designed to cover the Canon of a Casement.

EPENTHESIS, in Grammar, the Addition, or Insertion of a Letter, whether a Vowel, or Consonant, in the Middle of a Word; as *Religio* for *Religio*. See FIGURE.

The Word is *Greek*, ἐπένθεσις, form'd of ἐπί, ἐν, and τίθημι, *q. d.* ἐπενθέμι, *infero, immitto*.

EPHA, a dry Measure in Use among the *Hebrews*. See MEASURE.

The *Epha* was the most ordinary Measure they used; and that whereby the rest were regulated. 'Tis commonly supposed that the *Epha*, reduced to *Roman Modius*, contain'd four *Modii* and a half. Now the *Roman Modius* of Grains, or Flower, contain'd 20 *Libræ*, or Pounds; consequently the *Epha* weigh'd 90 Pounds. Dr. *Arbuthnot* reduces the *Epha* to 3 Pecks, 3 Pints, *Engl.*

The Hospitality of *Gideon* is prais'd for baking an *Epha* of Flower for a single Angel. Which might have served 45 Men a whole Day; the usual Portion allow'd the Workmen being two Pound of Bread *per Diem*.

EPHEMERA, in Medicine, an Epithet applied to something that only lasts one Day; particularly to a *Fever*, which terminates in the Compass of a Day, *i. e.* to an Access of a Fever which returns no more, called by *Galen*, ἐφήμερος πυρετός, *Febris Ephemera*, and also *Diaria*. See FEVER.

The

The Word, and the following one, *Ephemerides*, are form'd of the Prepofition ἐπὶ, *de*, *fuper*, *apud*, *ob*, *in*, *præter*, in *Englifh*, of, on, at, for, in, by, near; and ἡμέρα, *Dies*, Day.

EPHEMERA, on EPHEMERON, in Natural Hiftory, an Animal that only lives five Hours: Within the Term whereof it is born, grows, and extends its Members, appears young, breeds Eggs, eafts Seed, grows old, and dies.

Ariftotle, who gives the firft Account thereof, in his Book *de Animal.* gave it the Name ἐφημερον, becaufe its Life was bounded within the Day. *Aldrovandus*, *Jonfton* and *Clufius*, furnifh us Accounts of the *Ephemeron*; and above all, *Swammerdam*, in an exprefs Work *de Ephem. Vitæ*.

He calls it *Ephemera*, *Hemerobios*, and in Latin *Diaria*.

The *Ephemeron* is of the winged, or fly Kind; and appears ufually about St. *John*'s Tide. It is born about Six a Clock in the Evening, and dies about Eleven.

It muft be obferved, however, that e're it affumes this Figure, it has lived three Years under that of a Worm, in a clay Cell, or Cafe.

It never eats from the Time of its Change to its Death; nor is it furnifh'd with the Parts neceffary for the Reception and Concoction of Food. Its Change feems intended merely for the Sake of Generating and Multiplying its Kind.

Its Life is fumm'd up in a few Words. In the Beginning, it fheds his clay Coat; which done, and the poor little Animal thereby render'd light and agile, it fpends the reft of its fhort Life in frifking over the Waters. During which, the Female drops her Egg on the Waters, and the Male his Sperm on them, to impregnate them. Thefe Eggs, thus impregnated, defcend to the Bottom of the Water by their own Gravity, and are hatch'd by the Warmth of the Sun into little Worms, which make themfelves Cafes in the Clay, and feed on the fame without any Need of parental Care: Till the Time of their Change, or Metempfychofis come.

EPHEMERA, is alfo applied among Botanifts, to a Kind of Flowers, which open, and expand themfelves at Sun-Rifing, and wither and fade away again at his Setting. Such are the *Dent de lion*, vulgarly Dandelion, and divers others.

The Travellers into *Arabia* tell us of feveral *Ephemeron Trees*, which grow every Day, from Morn to Noon, and then difappear; tho' 'tis not known, whether they wither away entirely, or fink back into the Sands among which they grow.

EPHEMERIDES, or EPHEMERIS, in Aftronomy, Tables calculated by Aftronomers, fhewing the prefent State of the Heavens for every Day, at Noon; that is, the Places wherein all the Planets are found, at that Time. See PLANET, PLACE, and TABLE.

'Tis from thefe Tables, that the Eclipfes, Conjunctions, and Afpects of the Planets, are determined; Horofcopes, or Celeftial Schemes conftructed, &c. See CALENDAR.

The *Ephemerides* of *Origan*, *Kepler*, *Argoli*, *Heckerus*, *Mezzaracchis*, *Wing*, *de la Hire*, *Parker*, &c.

Sig. *Caffini* has made *Ephemerides* of the *Sidera Medicæa*, or *Satellites* of *Jupiter*, which are of good Ufe in determining the Longitude. See SATELLITE, ECLIPSE.

EPHETA, in Antiquity, a Magiftrate among the *Athenians*.

The *Ephetæ* were inftituted by King *Demophon*, to take Cognizance of Murthers committed by Accident: Their Number was 100, whereof 50 were *Athenians*, and 50 *Argians*. They were not admitted to the Poft till upwards of 60 Years of Age.

Draco extended their Authority. *Ubo Emmius*, *de Rep. Athen.* fays, he transferr'd Part of the Jurifdiction of the *Areopagites* upon 'em.

EPHIALTES, in Medicine, a Difeafe, by the *Englifh* call'd the *Night-Mare*, and the Latins *Incubus*; chiefly affecting Perfons afleep, when laid on their Back, and having the Stomach loaded with Food of difficult Digeftion. See INCUBUS.

In this State they are oppref's'd, as it were, with a huge Weight on the Breaft, and imagine fome Spectre, or Demon, ftopping their Breath.

This Difeafe does not arife, as was antiently imagined, from grofs Vapours filling the Ventricles of the Brain: But rather from a too great Repletion of the Stomach, which hinders the Motion of the Diaphragm, and of Confequence, the Dilatation of the Breaft neceffary for Infpiration. See RESPIRATION.

Etmuller obferves, that they are but rarely affected with this Diforder who ufe a laudable Diet, and fup fparingly: lying on the Side, with the Head pretty high, generally prevents it.

The *Arabs* call it, the *Nocturnal Epilepfy*, becaufe, when habitual, it ufually degenerates into the Epilepfy, being the ufual Forerunner thereof, efpecially in young People. In old, it frequently terminates in an Apoplexy. See EPILEPSY, &c.

Menjoitius accounts for its being moft ufual in Boys, from their being too voracious, and eating more than they can digeft. *Aurelianus* affures us, it has kill'd feveral; adding from *Silimachus*, that there was a contagious, or epidemic *Incubus* at *Rome*, which over-run Numbers like a Plague.

EPHIPPIUM, in Anatomy, a Part of the *Sphenoides*, call'd alfo *Sella Equina*, and *Sella Turcica*. See SELLA *Equina*.

EPHOD, a Sacerdotal Garment, in Ufe among the antient *Jews*.

The *Ephod* is fuppofed to have been a Kind of Linnen Alb, or Surplice, by the *Latins* call'd *Super-humerale*: But 'tis very hard to fay precifely what it was; And there is Room enough for the Interpreters to be divided about it.

The only Point they are agreed upon is, that it was an upper Garment wore over all the reft, immediately under the Pectoral, or Breaft-plate. Some hold it had Sleeves; others deny it. The Generality agree it was very fhort, tho' fome hold, that it hung down to the Feet behind.

There were two Kinds of *Ephods*; the one, common to all who affifted in the Temple; being only made of common Linnen, mention'd in the I*ft* Book of *Samuel*, ii. 18. The other, peculiar to the High-Prieft, mention'd *Exod.* xxviii. 6, 15. to be made of Gold, of blue, and of Purple, of Scarlet, and fine twined Linnen, with cunning Work; Having two Shoulder Pieces, with a curious Girdle of the fame Matter, whereon were two Onyx's, with the Names of the Children of *Ifrael* engraven thereon.

It is alfo exprefs'd, in the II*d* Book of *Samuel*, vi. 14. that upon the Removal of the Ark of the Covenant from the Houfe of *Obed Edom*, that Prince danced for Joy, girded with a Linnen *Ephod*; whence fome Authors have concluded, that the *Ephod* was alfo a Regal Garment on folemn Occafions.

The Word אפד *Ephod*, is derived from אפד *Aphad*, a *Hebrew* Word, fignifying *to cloath*.

EPHORI, Magiftrates eftablifhed in ancient *Sparta*, to balance, and check the Power and Authority of the Kings; as, at *Rome*, there were Tribunes created to controul the Power of the Confuls. See TRIBUNE.

Lycurgus, being fenfible that a perfect Underftanding between the Prince and the People, was the Bafis and Foundation of both their Happinefs; To maintain that good Underftanding, eftablifh'd *Ephori*, or Infpectors, as a Kind of Mediators, who fhould have an Eye to the Meafures and Conduct of both Sides, and preferve fo equal a Ballance between 'em, that the Regal Power fhou'd never decline into Severity and Tyranny; nor the Liberty of the People run into Licenfe and Rebellion.

The Authority of the *Ephori* was very great: On certain Occafions, they expell'd, and even put to Death, the Kings; and abolifhed, or fufpended the Power of the other Magiftrates; calling 'em to Account at Pleafure. *Agefilaus*, in the Height of all his Conquefts, which even ftruck Terror on the great King of *Perfia*; ftopp'd, and turn'd back, out of Deference to the *Ephori*, when they recall'd him. Some Authors deny, that the *Ephori* were eftablifh'd by *Lycurgus*.

The Word is form'd of the *Greek* εφορεω, *intueri*, form'd of the Prepofition ἐπὶ, and the Verb ὁρᾶν, *to fee*; whence ἔφορος, *Infpector*.

EPIBATERIAN, a Compofition of Poetry, in Ufe among the ancient *Greeks*.

When any Perfon of Condition and Quality, return'd Home after a long Abfence, or Journey, into another Country; he call'd together his Friends, and Fellow-Citizens, and made 'em a Speech, or rehears'd them a Copy of Verfes, wherein he return'd folemn Thanks to the Immortal Gods, for his happy Return, and ended with an Addrefs, by way of Compliment, to his Fellow-Citizens.

This Copy of Verfes, is what the *Greeks* call Επιβατηριον, *Epibaterium*, of ἐπιβαίνω, *I return*. At going away, they had another, call'd *Apobaterium*. See APOBATERIUM.

EPIC *Poem*, call'd alfo EPOPEA; an heroick Poem; or a Poem relating fome great and fignal Tranfaction of a Hero. See HERO, &c.

Such is the Iliad and Odyffee of *Homer*, the Æneid of *Virgil*, the *Gierufalemme* of *Taffo*, and the Paradife loft of *Milton*; which are the principal Poems of the *Epic* Kind. See ILIAD, ÆNEIN, &c.

The *Epic* Poem, is more accurately and fcientifically defined, by that excellent Critic, Fath. *Boffu* in an exprefs Treatife on that Subject, to be a Difcourfe invented with Art,

Art, to form the Manners by Instructions, disguised under the Allegory of an important Action, related in Verse, in a probable, entertaining, and surprizing Manner. See POEM.

The *Epopea* is distinguished from the Comedy, in that the Action of the latter is not *important*, nor is it *related* by the Poet, but acted by the Persons introduced for that Purpose; which Circumstance, likewise, distinguishes it from a Tragedy. See COMEDY and TRAGEDY.

Nor is it a philosophical Poem, as that of *Lucretius*, on the Creation of Sir *R. Blackmore*; nor a Treatise of Agriculture, or the like, as the Georgicks of *Virgil*; those Poems nor being intended to form the Manners: beside, that the Instructions they contain are naked, simple, and direct, without any Disguise, or Allegory. Which second Circumstance likewise distinguishes it from a Treatise of Morality, wrote in Verse: Or a simple History in Verse, as the *Pharsalia* of *Lucan*; the Punic War of *Silius*; or the Civil Wars of *Sam. Daniel*; add, that its being confined to *one important Action*, distinguishes it from a Poem which relates all the Actions of a Person's Life; as the *Theseid* and *Achilleid* of *Statius*, which are what we properly call *Heroic Poems*. See HEROIC.

Mon. *de la Motte*, indeed, in his Controversy with Madam *Dacier*, on the Subject of *Homer*, maintains, that the whole Life of a Hero, may justly be made the Subject of an *Epic* Poem; and even, that the *Lutrin* of Mon. *Boileau*, might pass for an *Epic Poem*: But he seem'd, afterwards, to return to the common Sentiment. In effect, the Question is not as to the Sense, which may be affected to the Words *Epic Poem*, but the Sense which Custom has actually affected to 'em.

If we had only Regard to the Etymology of the Word *Epic*, (of ἔπος, *Verse*; *Poetry*, from ἔπω, *dico*, *I speak*, *relate*) all Poems wherein the Poet speaks, or rehearses Things himself, without making the Persons of his Poem speak, except at second hand, as he relates what they spoke on this or that Occasion, wou'd be *Epic* Poems; and so, there's not an Epigram, Sonnet, or Madrigal, but wou'd come under this Denomination. But this were wild.

In Effect, the Term *Epic* Poem, is only attributed to a Composition, whose Subject is great, instructive, and serious; that only comprehends one single principal Event, to which all the rest refer; which principal Action is to be terminated in a certain Space of Time, ordinarily about a Year. 'Tis true all this is arbitrary; but the Sense of all Words is so too: And in Matters of Language we must always be guided by Custom.

If M. *de la Motte* had only pretended, that one might make a fine, instructive Poem, on the whole Life of a Hero; or an agreeable, and diverting Poem, on some humorous Adventure; all the World would have been of his Side. But 'tis enough that Custom has not thought good to apply the Term *Epic*, either to Subjects of too much Extent, and that are stuff'd with too many Incidents no wise connected together; nor to burlesque Poems, as the *Batrachomyamachia* of *Homer*; the *Secchia Rapita* of *Tassoni*; the *Defaite de Dulot*; the *Lutrin* of *Boileau*; the *Hudibras* of *Butler*; the *Rape of the Lock* of Mr. *Pope*; or the *Dispensary* of Dr. *Garth*. See BURLESQUE.

The *Epic* Poem, then, as appears from what was above observed, bears a Relation, or Analogy, to four Things; History, Morality, Fable, and Poetry: To History, as both of 'em relate one or more Actions; but then, the Actions of History are singular; so that the *Epopea* is no History, nor Kind of History. See HISTORY.

To Moral Philosophy, as both of them consist of Instructions for forming the Manners; but the Action and Allegories distinguish it herefrom. See MORALITY.

But it relates entirely to Poetry and Fable, as being strictly a Poem, and a Fable. See POETRY and FABLE.

The Nature of the *Epic* Poem, is finely drawn by the great Critic abovementioned: The *Epic* Poets, says Father *Bossu*, have done that with Regard to Morality, which the ancient Heathen Divines did with Regard to the Divinity. The too great Diversity of divine Actions and Perfections, so very disproportionate to our Comprehension, obliged the latter to divide a single Idea of a simple Essence, God, into several Persons; to whom they attributed several Names, *Jupiter*, *Juno*, *Neptune*, &c. See GOD.

And, on the contrary, the Nature of moral Philosophy, which never prescribes Rules for particular Things, lead the Poets to collect into one single Idea, one and the same Person, and one apparently singular Action, whatever of that Kind was found in different Persons, and different Actions.

Thus *Aristotle*, Ου σχαλεται ἡ Ποιησις ονοματα, &c. Poetry, says he, teaches moral Philosophy, not by relating only, in manner of an Historian, what *Alcibiades*, for instance, did or suffer'd; but by proposing what some Person, named as the Poet thinks fit, wou'd, probably, or necessarily have done on the like Occasion. And thus it is that he shews either the unhappy Consequences usually attending imprudent Schemes, or ill Actions; or the Reward of good Actions, and the Satisfaction resulting from a Design laid in Virtue, and conducted with Prudence. So that in the *Epic* Poem, according to *Aristotle*'s Sentiment, the Persons and Actions, however named, are all feign'd, allegorical, and universal, not historical and singular.

But the Poets thus taking on 'em the Office of Moral Philosophers, did not cease to be Divines. On the contrary, their Morality it self frequently obliges them to introduce the Deity into their Works; as the Knowledge, Fear, and Love of God, are the first and most solid Foundations of all Morality. The Presence of the Divinity, and the Care so august a Personage was supposed to have of the Action, obliged the Poet to make the Action great and important, and to have it transacted by Kings and Princes. The same likewise obliged 'em to think and speak, in a manner elevated above the common Pitch of Men; and equal, in some measure, to the Dignity of the divine Persons introduced. To which End serves the poetical and figurative Language, with the Majesty of Heroic Verse. Add, that as so much of the divine and miraculous might ruin the Probability, they were hereby obliged to have Recourse to several Rules to maintain the same. See MACHINE.

Thus much the Poets were driven to by the Substance of the Things they had chose for the Matter of their Poems and Instructions. The Manner of delivering 'em usefully and methodically, obliged 'em to several other Rules. See UNITY, EPISODE, &c.

The *Epic* Poem is intended more for the Manners and Habitudes, than for the Passions. These latter rise all at once, and their Violence is but of short Duration; but the Habitudes are more calm, and impress'd, or quitted more leisurely. Consequently, the *Epic* Action con'd not be included in the Space of a Day, as that of the Theatrical. A longer Time was necessary than is required for Tragedy, which is altogether for the Passions.

This Distinction has introduced a World of Difference between Tragedy and *Epic* Poetry. The Tragic Violence requires a more lively and animated Representation, than a mere Recital. Accordingly, it is wholly thrown into Action, and the Poet never speaks at all, as he does in the *Epopea*, where there are no Actors.

See further of the Nature of the *Epic* Poem under FABLE.

For its Matter, see ACTION. For its Form, see NARRATION. See also MANNERS, CHARACTER, MACHINES, &c.

EPICARPIUM, in Medicine, a Kind of Remedy, usually in Form of a Cataplasm, or Plaister, consisting of sharp, penetrating Ingredients, as Garlic, or Onion, Spiders-Web, Hellebore, Camphor, Treacle, &c. applied round the Wrist, at the Beginning of the Access of a Fever, to prevent the same.

The Word is form'd of the *Greek* ἐπὶ, *super*, *on*, and καρπὸς, *Carpus*, *Wrist*.

EPICEDION, in the *Greek* and *Latin* Poetry, a Poem, or poetical Composition, on the Death of a Person.

At the Obsequies of any Man, there were three Kinds of Discourses usually made: That rehears'd at his *Bustum*, or Funeral Pile, was call'd *Nenia*; that engraven on his Tomb, *Epitaph*; and that spoke in the Ceremony of his Funeral, *Epicedion*. See NENIA and EPITAPH.

We have two beautiful *Epicedions* in *Virgil*; that of *Euryalus*, and that of *Pallas*.

The Word is *Greek*, form'd of ἐπί, *upon*, and κήδεσθαι, *to perform Funerals*, to do the last Office to any one, of κῆδος, *cura*, *care*.

EPICOENE, in Grammar, a Term applied to Nouns, which, under the same Gender and Termination, mark, indifferently, two Kinds, or Sexes. See GENDER.

Such, in *Latin*, is *Aquila*, *Vespertilio*, &c. which signifie equally, a Male or Female Eagle, or Bat.

Grammarians distinguish between *Epicœne* and *Common*: A Noun is said to be common of two Kinds, when it may be joyned either with a Masculine, or a Feminine Article; and *Epicœne*, when it is always joyn'd to some one of the two Articles, and yet signifies both Genders.

EPICERASTICKS, in Medicine, are Remedies, which by their emplastic Virtue, or temperate Moisture, soften the Acrimony of an Humour, and assuage the painful Sensation of the Part irritated or afflicted: Such are the Roots of Althæa, Mallows, Liquorice; Leaves of Lettice, Mallows, Nenuphar, Purslain; the Seeds of Flax, Poppy, &c.

The Word is form'd of ἐπὶ and κεράννυμι, *tempero*, I moderate, correct.

EPICHEREMA, in Logic, an Argumentation, consisting of four, or more Propositions; some whereof are Proofs of others.

Thus, that Oration of *Cicero* for *Milo*, may be reduced to the *Epicherema*. Those who Way-lay a Man to kill him, 'tis lawful for him to kill; as is allowed by the Laws of Nature and Nations, and by the Practice of the best Men: But *Clodius* Way-laid *Milo* with that View; as appears from his forming an Ambuscade before his Country House, and from his Provision of Weapons, Soldiers, &c. Therefore it was lawful for *Milo* to kill *Clodius*. See SORITES.

EPICOLIC *Regions*, from ἐπὶ, *supra*, upon, and *Colon*, the Gut so called; a Name given by Dr. *Glisson*, to that Space, on both Sides, over the Colon. See COLON.

EPICUREANS, a Sect of antient Philosophers, who adhere to the Doctrines and Opinions of *Epicurus*. See EPICUREANISM.

The *Epicureans* have, in all Ages, been decried for their Morals, and their Attachment to the Pleasures of Sense: Several Authors, particularly, *Cicero* among the Antients, and *Gassendus* among the Moderns, have endeavoured to vindicate them from this Charge; by shewing that the Pleasure wherein their Master *Epicurus* places the *Summum bonum*, or supreme Happiness of this Life, was not any sensual, or brutal Pleasure, but a Contentment, and Tranquillity of Mind, exempt from all tumultuary Passions, &c.

This Opinion seems just, and well grounded; but, without entering into the Question, which *Gassendus*, *Du Rondel*, and others have exhausted; 'tis certain, that in the common Use of the Word, *Epicurean* constantly signifies a Debauchee, an indolent, soft, effeminate Person, who only consults his Pleasure, without concerning himself with any Thing serious.

In Effect, there were always two Kinds of *Epicureans*; the Rigid and Remiss: The Rigid *Epicureans*, were those strictly attach'd to the Sentiments of *Epicurus*, who placed all their Happiness in the pure Pleasures of the Mind, resulting from the Practice of Vertue. The Remiss *Epicureans*, taking the Words of that Philosopher in a gross Sense, placed all their Happiness in Pleasures of the Body, in Eating, Drinking, Loving, &c. The former Kind, who were the genuine *Epicureans*, call'd the other the Sophists of their Sect.

The *Epicureans* take their Name from the Chief of their Sect, *Epicurus*, whom some, however, deny to be the Author of the Philosophy he taught; charging him with Retailing for Physicks, the Doctrine of *Democritus*; and for Ethicks, that of *Aristippus*.

Be this as it will, he was an *Athenian*, and the Son of *Neocles*; born in the 109th Olympiad, and consequently 342 Years before Christ. He began to form his School at *Mitylene* and *Lampsachus*, about the 32d Year of his Life; tho' he afterwards remov'd to *Athens*, where he philosophized chiefly in his Garden: And died of the Stone at 72 Years of Age.

EPICUREANISM, or EPICUREAN *Philosophy*, the Doctrine, or System of Philosophy, maintain'd by *Epicurus*, and his Followers. See EPICUREANS.

The noble Poet *Lucretius*, who has given us a beautiful System of *Epicureanism* in fine *Latin* Verse, prefers its Father *Epicurus*, above all other Philosophers, whom, he makes no Scruple to say, he obscured, as much as the Sun does the other Stars. 'Tis said he first taught Grammar; till upon reading *Democritus*'s Books, he began to apply himself to Philosophy.

From *Democritus* he learnt the Doctrine of Atoms, or Corpuscles, which he afterwards made the Basis of his Physicks. *Clem. Alexand.* Strom. 6. advances, that *Epicurus* stole his chief Doctrines from *Democritus*. But, 'tis certain, he greatly improved and illustrated them. *Diog. Laertius* assures us, he compos'd an infinite Number of Volumes.

This Philosophy consisted of three Parts: *Canonical* κανονικὸν, *Physical* φυσικὸν, and ἠθικὸν, *Ethical*; which he explain'd briefly in three Epistles.

The first, as *Laertius* relates, was about the Canons, or Rules of Judging; wherein, rejecting the Use of Logic, he establish'd the Senses, Passions, and Anticipations, as the Criterions, or Judges of Truth. See CRITERION, SENSE, &c.

In the second, he laid down Atoms, Space and Gravity, as the first Principles of all Things. The Universe he taught, consisted of Atoms, or Corpuscles, of various Forms, Magnitudes and Weights, which having been dispersed at Random thro' the immense Inane, or Space, fortuitously concurred into innumerable Systems, or Worlds, which were thus form'd, and afterwards, from Time to Time, increas'd, changed, and dissolved again, without any certain Cause, or Design; without the Intervention of any Deity, or the Intendance of any Providence. See ATOM and CORPUSCLE.

Not that he denied the Existence of a God: On the contrary, he asserted it; but thought it beneath the Majesty of the Deity to concern it self with human Affairs: *Laertius* assures us, he held him, τὸ μακάριον, καὶ ἀφθαρτον, ὅτι αὐτὸ πεπραγματα ἔχει ὅτι ἄλλω παρεχεῖ, *A Blessed, Immortal Being, having no Affairs of his own to take Care of, and above taking Care of those of others.* See CORPUSCULAR, SPACE, GRAVITY, ELEMENT, &c.

As to *Ethicks*; his first Principle, or the supreme Felicity of Man, he held, was Pleasure. Which some, as already observed, understand of Mental, and others of Carnal Pleasure. See EPICUREANS.

EPICYCLE, in the antient Astronomy. As the Astronomers have invented an Eccentric Circle, to solve the apparent Irregularity of the Planets, and their different Distances from the Earth; they have likewise invented a little Circle to solve the Stations, and Retrogradations of the Planets. This little Circle which they call *Epicycle*, has its Centre in the Circumference of another greater, which is the Eccentric of a Planet. See ECCENTRIC.

In this Eccentric, the Centre of the *Epicycle* moves; carrying with it the Planet fix'd in its Circumference, the Centre of the Planet, all the Way, moving regularly along the Circumference of the *Epicycle*, when downwards, according to the Order of the Signs, and when upwards, contrary to it.

The highest Point of the *Epicycle* is call'd the *Apogee*, and the lowest the *Perigee*. See APOGEE and PERIGEE.

The great Circle, in whose Circumference the Centre of the *Epicycle* is plac'd, is call'd the *Deferent of the Epicycle*, as carrying the *Epicycle* along with it. See DEFERENT.

Thus, the Moon is supposed to move in an *Epicycle*, whose Centre is in the Orbit of the Earth, according to the Hypothesis of *Copernicus*: But in that of *Ptolomy*, who supposed the Heavens solid, the *Epicycle* was a Sphere, which revolved with the Moon, of the Thickness allowed its Heaven or Orbit; and which, sometimes shew'd it higher, and sometimes lower. See *Ptolemaic* SYSTEM.

'The Astronomers, who deny the Motion of the Earth; 'in Order to render the Phænomena of the Motions of the 'Planets more consistent with the Motion of the Sun, 'have affix'd the Orbit of the Earth, as an *Epicycle*, to 'the Orbit of the Planets: So that the Planet should 'proceed in an *Epicycle*, while it is carried through its 'Orbit round the Sun: But this is far from answering 'their Expectations.' *Wolf. Elem. Math.* T. II. p. 501.

'*Ricciolus*, tho' a zealous Enemy of the Motion of the 'Earth, con'd not make any Astronomical Tables that 'should but tolerably agree with Observation, without 'supposing the Earth to move; not, tho' he called in all 'the foreign and forced Assistances of changeable *Epicycles*, 'liable to continual Increase and Decrease, and variously 'inclined to the Ecliptic.' *De Chales Astron. Reform.* Lib. X. *C.* 1. f. 353, &c.

The Word is form'd of the *Greek*, επι, and κυκλος, *Circle*, q. d. a Circle on a Circle.

EPICYCLOID, in Geometry, a Curve generated by the Revolution of a Point of the Periphery of a Circle, along the Convex, or concave Part of another Circle. See CURVE.

A Point of the Circumference of a Circle, proceeding along a Plane, in a right Line, and at the same Time revolving on its Centre, describes a *Cycloid*. See CYCLOID.

And the generating Circle, if in lieu of moving on a right Line, it move along the Circumference of another Circle, whether equal or unequal; the Curve described by any Point in its Circumference is called an *Epicycloid*.

If the generating Circle proceed along the Convexity of the Periphery, it is called an *upper*, or *Exterior Epicycloid*: If along the Concavity, a *lower*, or *Interior Epicycloid*.

In an *Epicycloid*, the Part of the Circle, the generating Point moves along, is called the *Base of the Epicycloid*: Thus in *Tab. Geom. Fig.* 58. D B is the *Base* of the *Epicycloid*, V its *Vertex*; V B its *Axis*; D P V half of the *Exterior Epicycloid*, made by the Revolution of the *Semi-circle* V L B, (which is called the *Generant*) along the Convex Side of the Base, D B: As D P U is the *Interior Epicycloid*, formed by the Generant's revolving along the Concave Side of the Base.

The Length of any Part of the Curve, which any given Point in the revolving Circle has described, from the Time it touched the Circle whereon it revolved, is demonstrated to be double the versed Sine of half the Arch, which all that Time touched the quiescent Circle, as the Sum of the Diameters of the Circles, to the Semi-diameter of the quiescent Circle: Provided the revolving Circle moves upon the Convex Side of the quiescent Circle; but, if upon the Concave Side, as the Difference of the Diameters, to the Semi-diameter.

Dr. *Halley* gives us a general Proposition for measuring all *Cycloids* and *Epicycloids*; thus: The Area of a *Cycloid*, or *Epicycloid*, either primary, or contracted, or prolate, is to the Area of the generating Circle; and also the Area of the Parts, generated in those Curves, to the Areas of analagous Segments of the Circle: As the Sum of double the Velocity of the Centre, and Velocity of the

circular Motion, to the Velocity of the circular Motion. The Demonstration hereof, See in *Phil. Transact.* N° 218.

EPIDEMIA, or EPIDEMIC *Disease*, is sometimes used for a catching, or contagious Disease; communicable from one to another: Such as the Plague, Pox, Scorbutus, &c.

Epidemic Disease, however, is more properly, and usually, understood of a general or spreading Disorder, as a Plague, arising from some Corruption, or Malignity in the Air, which seizes great Number of People in a little Time.

The Word is form'd of επι and δῆμος, *Populus*, People; such Diseases running among all Kinds of People, of whatever Age, Sex, Quality, &c. as arising from a common or general Cause. Whence the *Latins* call them *Populares Morbi*, popular Diseases; in Opposition to those call'd *Sporadici*, which are only here and there, as arising from private, or particular Causes. See SPORADIC.

EPIDEMIA, in Antiquity, Feasts of *Apollo* at *Delphos*, and *Miletus*; and of *Diana* at *Argos*. See FEAST.

These Feasts bore the Name *Epidemia*, by Reason those Gods were imagin'd to be present on those Days among the *People*. Accordingly, on the last Day of the *Epidemia*, they sang Hymns, call'd ἀπωτερμπικὸς, to bid them adieu, and set them forwards on their Journey.

As those Gods could not be every where, and yet were honour'd in Abundance of different Places; there were Times allow'd them to pass from one Place to another to receive the Vows of their Adorers. See *Scaliger, Poet.* L. III. *C.* 114.

EPIDERMIS, in Anatomy, the *Cuticula*, or Scarf-skin. See CUTICLE.

Some hold the *Epidermis* to be form'd of the Excrements of the *Dermis*, or Skin: *Hippocrates* is of Opinion, it is engender'd by Cold; as, on Blood, Broth, or the like, when cold, we see a Pellicle form'd.

But 'tis now past doubt, that it is produced at the same Time, and after the same Manner with the other Parts; it being found in *Fœtus's* of all Ages, in the Womb: It has neither Veins, Arteries, nor Nerves; whence it is insensible.

The Word is form'd of the *Greek*, επι, *on, over*, and δέρμα, *Skin*.

EPIDIDYMIS, in Anatomy, a little, round Body, on the Back of each Testicle; call'd also *Parastata*. See PARASTATA.

The Word is form'd of the *Greek*, ἐπὶ, and διδύμος, *Twin, Testicle*.

EPIGASTRIC *Region*, is a Name given to the upper Part of the Abdomen, or Belly; reaching from the *Cartilago Xyphoides*, almost to the Navel. See REGION.

It is divided into three Parts: The Sides, or lateral Parts, call'd *Hypochondria*; and the middle, the *Epigastrium*. See HYPOCHONDRIA, &c.

There are also two *Epigastric* Veins, and as many Arteries. The Arteries are Branches of the Iliac External Arteries: The Veins discharge themselves into the Iliac External Veins.

EPIGASTRIUM, in Anatomy, the middle Part of the *Epigastric* Region; or, according to others, the interior Part of the lower Venter, or Abdomen. See EPIGASTRIC.

The Word is form'd of the *Greek*, ἐπὶ and γαστὴρ, *Belly*.

EPIGLOTTIS, in Anatomy, the Cover or Lid of the *Larynx*. See LARYNX.

The *Epiglottis* is a thin, moveable Cartilage, in Form of a Leaf of Ivy, or a little Tongue, and therefore likewise call'd *Lingula*; serving to cover the Cleft, or Rima of the *Larynx*, call'd *Glottis*. See GLOTTIS.

The Word is form'd of ἐπὶ and γλῶσσα, or γλῶττα, *Tongue*.

Galen takes the *Epiglottis* to be the principal Organ, or Instrument, of Voice; serving to vary, modulate, and render it harmonious. See VOICE.

Its Base, which is pretty broad, is in the upper Part of the *Cartilago Scutiformis*, and its Point, or Tip, turn'd towards the Palate. It is only shut by the Weight of the Piece in swallowing; but not so exactly, but that a Crum, or a Drop, sometimes escapes thro' it into the *Trachea*. See TRACHEA, &c.

EPIGRAM, in Poetry, a short *Poem*, or Composition in Verse, treating of one only Thing, and ending with some Point, or lively, ingenious Thought. See POEM.

The Word is form'd of the *Greek*, ἐπίγραμμα, *Inscription*, of ἐπιγράφειν, *to inscribe*, or make an *Inscription*.

Epigrams, in Effect, properly signify *Inscriptions*, and derive their Origin from those Inscriptions placed by the Antients on their Tombs, Statues, Temples, triumphal Arches, &c. See INSCRIPTION.

These, at first, were only simple Monograms; afterwards, increasing their Length, they made them in Verse, to be the more easily retain'd: *Herodotus*, and others, have preserved us several of them.

Such little Poems retain'd the Name *Epigrams*; even after the Design of their first Institution was varied, and People began to use them for the relating of little Facts, and Accidents, the Characterizing of Persons, &c.

The *Greeks* confine their *Epigrams* to a very narrow Compass: For tho', in the Anthology, we here and there meet with a very long one; ordinarily, they don't exceed six, or, at most, eight Verses. The *Latins* were not always so scrupulous, and the Moderns much less, as to these Bounds.

M. *le Brun*, in the Preface to his *Epigrams*, defines an *Epigram* a little Poem, susceptible of all Kinds of Subjects, and ending with a lively, just, and unexpected Thought: Which are three Qualifications essential to the *Epigram*; particularly the first and last of them, *viz.* Brevity and the Point, or Close of the *Epigram*.

To attain Brevity, only one Thing is to be aim'd at in the Poem, and that to be pursued in the conciest Terms possible. Authors are much divided, as to the Length the *Epigram* is to be confined to: The ordinary Limits are from two to twenty Verses; tho' we have Instances, both among the Antients and Moderns, where they extend to fifty. But still it is allow'd that the shorter the better, and more perfect, as it partakes more of the Nature and Character of this kind of Poem.

The Point is a Quality much insisted on by the Criticks, who require the *Epigram* constantly to close with something poignant, and unexpected, to which all the rest of the Composition is only preparatory. Others there are, who exclude the Point, and require the Thought to be equably diffused throughout the whole Poem, without laying the whole Stress on the Close: The former is usually *Martial's* Practice, and the latter that of *Catullus*. Which is the most beautiful and perfect Manner, is disputed by a third Class of Criticks.

The Greek *Epigrams* have scarce any Thing of the Point, or Briskness, of the *Latin* ones: Those collected in the Anthology, have most of them a certain Air of Easiness and Simplicity, attended with something just and witty: Such as we find in a sensible Peasant, or a Child that has Wit. They have nothing that bites, but something that tickles. Tho' they want the Salt of *Martial*, yet to a good Taste they are not insipid; except a few of them, which are quite flat and spiritless. However, the general Faintness, and Delicacy of the Pleasantry in them, has given Occasion for *a Greek Epigram*, or *Epigram a la Grecque*, to be the Denomination for an *Epigram* void of Salt or Sharpness.

'Tis principally the Point that characterises the *Epigram*, and distinguishes it from the *Madrigal*. See POINT.

In the modern Versification, as observed by *Fa. Bouhours*, the *Epigram* and *Madrigal*, are distinguish'd by the Number of Verses, and the Close. 1°. By the Number of Verses, which in the Modern *Epigram* does not go beyond eight, nor in the Modern *Madrigal*, comes short of six: And, 2dly, In that the Close, or Fall of the *Epigram*, has always something more lively and studied than that of the *Madrigal*. See MADRIGAL.

The *Epigram* is the lowest, and least considerable of all the Productions of Poetry; and 'tis rather an Effect of good Luck, than of Art, to succeed therein. The Finesse, and Subtlety of the *Epigram*, M. *Boileau* observes, should turn on the Words, rather than the Thought; which seems very little to the Credit of this Kind of Composition, as it reduces it to the Nature of the Pun, or Equivoque. *Fa. Bouhours* confirms the Hint, in adding, that the Equivoque is what usually shines the most in the *Epigram*.

One great Beauty of the *Epigram*, is to leave something for the Reader to guess, or supply. Nothing pleases the Mind so much, as to find something of it self in the Objects presented it; nor does any Thing disgust it more than to preclude it from shewing and exercising a Faculty it values it self for. *Segrais*.

Mons. *Z. L. M.* the Author of a new Collection of French *Epigrams*, in the Year 1720, has a deal of good Observations on the Nature of *Epigram*. He defines it an ingenious Thought delivered in a few Verses; and conceives it as a Generical Name, including under it divers Kinds of short, lively Poesies, as the *Sonnet*, *Rondelay*, *Madrigal*, and little *Tales* which only turn on some merry Thought. Epitaphs and Inscriptions, he thinks, may be also used, reduced to the Head of *Epigrams*. See SONNET, RONDELAY, &c.

The *Epigram* admits of great Variety of Subjects: Some are made to Praise, and others to Satyrize, which last are much the easiest; ill Nature serving instead of Point and Wit. *Boileau's Epigrams*, are all Satyrs on one or another. Those of *des Reaux*, are all made in Honour of his Friends. And those of Mad. *Scudery*, are so many Eloges. The *Epigram* being only a single Thought, it would be ridiculous to express it in a great Number of Verses;

Verses; it must have its Unity like the *Drama*. The Comedy has an Action for its Subject; and the *Epigram* a Thought. See UNITY.

EPIGRAPH, an Inscription on a Building, to signifie its Use, Occasion, the Time when, and the Persons by whom, it was built.

The Word is *Greek*, and signifies *Superscription*.

EPILEPSY, in Medicine, a Convulsion, either of the whole Body, or some of its Parts; attended with a Deprivation of the Senses and Understanding; and returning from Time to Time in Fits, or Paroxysms. See CONVULSION.

The Patient seized herewith, falls instantly and suddenly down; or, rather, throws and precipitates himself violently to the Ground. When down, he grinds his Teeth, foams at Mouth, and frequently shakes his Head; his Arms, Legs, Neck, Back, *&c.* either becoming rigid, or variously distorted. And as all the Parts are in a violent Contraction, there is frequently an involuntary Flux of Urine, Seed, and fecal Matter. After some Time he returns to himself; only retaining a Head Ache, Heaviness, Wearinesses of their Limbs, *&c.*

Etmuller more accurately distinguishes the Disease into three Degrees: The first, or lowest, is much the same with the highest Degree of a Vertigo. See VERTIGO.

In the second, there arise various Agitations and Gesticulations; and the Senses, both external and internal, either remaining, or being transported into a Delirium; they dance, sing, laugh, weep, talk idly, shreek, and beat their Breasts. Sometimes they remember all after the Fit is over, and sometimes nothing at all.

In the third Degree, which alone is ordinarily call'd the *Epilepsy*, they lose the Use both of Reason and Sense; fall, or fling themselves down, foam, grind their Teeth, and bite their Lips, with the other Circumstances above related. Those affected with the second Degree, are usually held for *possess'd by the Devil.*

The Cause of this Disease, *Boerhave* attributes to too much Action of the Brain, on the motory Nerves, and none on the sensitive ones. Some are pleas'd to account for it, from the Abundance of sharp Humours mixing with the animal Spirits, and giving them extraordinary and irregular Motions, and Directions; Whence arises its Distinction from a Syncope, and Apoplexy, which take away all Motion as well as Sense. See SYNCOPE and APOPLEXY.

The *Epilepsy* is either *Idiopathic*, or *Sympathetic:* It is Idiopathic, when it arises meerly from a Disorder of the Brain, or Spirits: And sympathetic, when it is preceded by some other Disease which brings it on.

The *Epilepsy* sometimes hangs many Years to a Person, without much Danger: Tho' when its Paroxysms return fast, it renders the Patient more or less paralytic, delirious, or stupid. In young People there is Hopes of its going off about the Time of Puberty. *Hippocrates* observes, that when it seizes a Person after 25 Years of Age, it lasts for Life; but this does not always hold.

The Cure is very difficult: The principal *Anti-epileptricks* are, the Roots of Pæony, Leaves of the Lilly of the Valley, Seeds of Rue, Mistetoe of the Oak, or Hazle, Box-wood, Spirit of black Cherries, Spirit of human Blood, human Secundines, human Cranium, Tooth of the Sea-Horse, Castoreum, Peacocks Dung, Camphor, Salt, and Oil of Amber.

To recover a Person in a Fit, Tobacco Smoak, or that of burnt Feathers, is recommended. *Barbette* above all Things directs the Flowers and Spirits of Sal Ammoniac against this Disease; *Crato*, native Cinnabar. Sir *John Colbatch* has an express Treatise on the Misteto of the Oak, to shew it a Specific in this Disease. Elks Claws have long had the Reputation of the same. See each Remedy, its Pretensions, *&c.* under its proper Term in this Work, as MISLETO, ELKS *Claws*, *&c.*

M. *Poupart*, from a Dissection of an *Epileptic* Person, wherein, immediately under the *Dura Mater*, was found a deal of white, thick, viscid *pituita*, glued, and, as it were, incorporated with the Membrane; thinks, that this might be the Cause of the Disease; The excessive Quantity of such thick Lympha, loading the Brain, and obstructing its Motions. The first Cause, he judges, might be the Spongeousness of the *Dura Mater*, which imbibed the Serosities of the Brain.

He adds, that he knows an *Epileptic* Person, who, upon the first Approach of his Disorder, rubs his Forehead with his Hand, and bends his Head as far backward as he can, resting it against a Wall; and by that Means secures himself against the Convulsion. 'Tis probable, that by this he gives a Motion to the Lympha, and drives it from the Place which before it disturb'd.

The Word *Epilepsy* is form'd of the *Greek*, ἐπιλαμβάνεται, *to surprize, grasp hold of one*, by reason the Disease seizes and overcomes the Senses, so that the Patient seems as if dead.

In *English* it is usually call'd the *Falling Sickness*, by reason People fall down when attack'd therewith. The *Latins* call it *Comitialis Morbus*, by reason when any body was seiz'd therewith in a *Comitia*, or Assembly of the *Roman* People, they presently broke up the Assembly, as deeming it an unhappy Presage. See COMITIALIS.

Some call it the *Morbus Sacer*, as supposing it sent by way of immediate Punishment from God. Others, the *Morbus Caducus*, others *Herculeus*, *Sonticus*, *Lues Deifica*, &c.

EPILOGUE, EPILOGUS, in Oratory, *&c.* The Peroration, or last Part of a Discourse, or Treatise; wherein there is ordinarily made a Recapitulation of the principal Matters deliver'd therein. See PERORATION.

The Word is form'd of the *Greek* ἔπιλογος, of the Verb ἐπιλέγω, *I say after*, the Epilogue being the End, or Conclusion of a Discourse.

EPILOGUE, in dramatic Poetry, a Speech address'd to the Audience, when the Play is over, by one of the principal *Personæ*, or Actors therein; containing usually some Reflections on certain Incidences in the Play, particularly those of the Part of the Person who speaks it.

In the modern Tragedy, the *Epilogue* has usually somewhat of Pleasantry; intended, we suppose, to compose the Passions rais'd in the Course of the Representation, and send away the Audience in good Humour; tho' how far that Design is good and laudable, will bear some Dispute. See TRAGEDY.

An ingenious Author in the *Spectator*, compares it to a merry Jig on the Organ, after a good Sermon, to wipe away any Impressions that might have been made thereby, and send the People away just as they came.

In Effect, tho' the *Epilogue*, in this Sense, may seem an Abuse; yet has it the Countenance of Antiquity: The *Romans* had something of the same Nature, tho' under another Name. Their *Exodium* was a Kind of Farce, brought on the Stage when the Tragedy was over; *ut quidquid Lacrymarum ac tristitiæ cepissent ex Tragicis affectibus, hujus spectaculi risus detergeret*, says the Scholiast of *Juvenal.*

The *Epilogue* is but of modern Date, much later than the Prologue. See PROLOGUE.

Many, indeed, have taken the *Exodium* of the antient *Greek* Drama, for an *Epilogue*; by reason *Aristotle* defines it, to be a Part rehearsed after the Chorus had sung for the last Time: But, in Reality, it was of a quite different Nature. The *Exodium* was the last of the four Parts of a Tragedy; containing the unravelling and Catastrophe of the Plot, and answering to our last, or fifth Act. See EXODIUM.

EPINICION, a Term in the *Greek* and *Latin* Poetry. It has two different Significations among the Ancients. 1°. A Feast, Ceremony, or Rejoycing, on Occasion of a Victory obtain'd. 2°. A Poem, or Composition, on the same Subject.

Scaliger treats expresly thereof in his Poeticks, *L.* I. *c.* 44.

The Word is form'd from the *Greek* νικη, *Victory.*

EPIPHANY, in Antiquity, the *Feast of Kings.* A double Festival, of the first Rank, solemnized on the *6th* of *January*, *New-Years-Day*, in Honour of the Appearance of *Jesus Christ* to the Three Kings, or *Magi*, who came to adore and bring him Presents. See FEAST.

The *Feast of Epiphany*, now held in Honour of the Adoration of the *Magi*, had, at its first Institution among the *Greeks*, a different Object, *viz.* Our Saviour's Birth; and was call'd *Theophany*, and *Epiphany*, that is, Appearance, and Manifestation of God.

Pope *Julius*, who reign'd from the Year 337, to 352, was the first who taught the Church to distinguish the Feasts of the Nativity, and *Epiphany*. *Papebroch. paral. ad Conat.* p. 23. *Act. SS. Maii. T.* VII. See NATIVITY.

The Word in the Original *Greek*, Ἐπιφάνεια, signifies *Appearance*, or *Apparition*; and was applied, as some Criticks will have it, to this Feast, on Account of the Star which appeared to the *Magi*. St. *Jerom*, and St. *Chrysostom*, take it for the Day of our Saviour's Baptism, when he was declared to Men by the Voice, *Hic est filius meus dilectus, in quo mihi complacui.* This is my beloved Son, in whom I am well pleased. And accordingly it is still observed by the *Cophtæ* and *Ethiopians* in that View. See *Ludolph. Hist. Ethiop. Lib.* XXI. *c.* 2.

Others contend, that the Feast of *Christmas*, or the Nativity of our Saviour, was held in divers Churches on this same Day; which had the Denomination *Epiphany*, or Appearance, by reason our Saviour first appear'd on Earth on that Day. And it must be allow'd, that the Word is used among the antient *Greek* Fathers, not for the Appearance of the Star to the *Magi*, but for that of our Saviour to the World. In which Sense, St. *Paul* uses the Word *Epiphania*, in his Second Epistle to *Timothy*, *c.* i. v. 10.

Add,

Add, that the *Armenians*, to this Day, celebrate the Feast of the Nativity, on the Day of *Epiphany*, according to the Practice of the ancient Church; which some *Romish* Missionaries have impertinently censured 'em for, not knowing that the *Epiphany*, originally, and properly, was the Nativity of our Saviour.

Ammianus Marcellinus makes mention of this Feast, *Lib.* XXI. *c.* 2. and observes that it was held in *January*. Upon which Passage, *Valesius* in his Notes, endeavours to shew, that the Historian meant by *Epiphany*, the Feast of the Nativity.

The Heathen Writers used the Word *Epiphania* in the like Sense, *viz.* to express the Appearance of their Gods on Earth. And the Christians, after their Example, applied it, in the general, to express any Appearance, or Manifestation of the Deity.

EPIPHONEMA, in Rhetoric, a Figure of Speech. See FIGURE.

The *Epiphonema* is a sententious Kind of Exclamation, frequently added after a Narrative, or Rehearsal, of any Thing remarkable; containing, usually, a lively, close Reflection, on the Subject there spoke of.

Such is that of St. *Paul*, when, after discourfing of the Rejection of the *Jews*, and the Vocation of the *Gentiles*, he cries out:

Oh the Depth of the Wisdom and Knowledge of God!

Such also is that of *Lucretius*, after relating the Story of *Agamemnon*'s sacrificing his Daughter *Iphigenia*:

Tantum Religio potuit suadere malorum —

Such, lastly, is that of *Virgil*, upon Occasion of *Juno*'s persecuting *Æneas*:

— *Tantæne animis Cœlestibus Iræ!*

Which M. *Boileau* has imitated in,

Tant de fiel entre il en l' Ame des Devots?

And Mr. *Pope* in,

And dwells such Rage in softest Bosoms then?
And lodge such daring Souls in little Men?

EPIPHORA, in Medicine, a Disease of the Eyes; consisting in a preternatural Defluxion of Rheum, or the Matter of Tears; accompanied, frequently, with Heat, Redness, and Twitching. *Pitcairn* calls it a Kind of Catarrh of the Glands of the Eye.

The internal Causes of the *Epiphora*, or *Rheum in the Eyes*, are a Relaxation of the Glands of the Eyes, and a too great Acrimony, or Sharpness of the serous Humour separated thereby; which fretting and vellicating the Eye, draws an unusual Quantity of Blood and Lympha thereto; by which, at length, the Cheek becomes excoriated, *&c.* Children are most liable to it, from the frequent Use, and straining of the Glands of the Eye in Crying.

The external Causes of the *Epiphora*, are sharp Dusts, Steams, *&c.* entring the Eye, and irritating the same. A too cold and sharp Air has frequently the like Effect. Children are most liable to it.

An inveterate *Epiphora* frequently degenerates into a *Fistula Lacrymalis*.

The Cure of the *Epiphora*, is, 1°. By causing a Revulsion, or Derivation, of the peccant Humour, to some other Part, as by Venæsection, Cupping, Blistering, or Catharticks. 2°. By correcting its Acrimony by proper Remedies. And, 3°. By applying Astringents externally. *Lapis Calaminaris* is much commended.

The Word is *Greek*, form'd of ἐπιφέρομαι, *I am drawn.*

EPIPHYSIS, in Anatomy, is a lesser Bone, adhering, or growing to another, by simple Contiguity. See BONE.

The Substance of the *Epiphyses* is rare and lax; in young Children it is merely cartilaginous; but hardens as they grow in Age, and, at length, becomes quite bony.

'Tis commonly laid down, that there is no regular Articulation between the *Epiphysis* and the Bone; tho' 'tis certain, that there is a reciprocal Admission of the Heads, or Extremities of each, into the Cavities of the other. See ARTICULATION.

There are some Bones that have no *Epiphyses* at all, as the lower Jaw: Others have no less than five, as the *Vertebræ*. The Design of adding *Epiphyses* to Bones, was, to supply their Defects, and render them longer and bigger at the Extremes.

The Word is form'd of the *Greek*, ἐπι, *on*, *upon*, and φυειν, *to grow*, *adhere*. It is also called *Appendix*, *Additamentum*, *Adnascentia*, &c.

EPIPHYSES *Vermiformes*, are two Eminences of the *Cerebellum*, shaped like Worms, which keep open the Passage from the third to the fourth Ventricle.

In dilating the third Ventricle of the Brain, we perceive four Eminences, two upper, and two bigger, call'd orbicular Protuberances; and two lower, and less, call'd *Epiphyses* of the orbicular Protuberance. *Dionis.*

EPIPLASMA, the same with *Cataplasma*. See CATAPLASM.

EPIPLOCELE, in Medicine, a Kind of *Hernia*, or Tumor, occasion'd by the Descent of the *Epiploon*, or Caul, into the *Scrotum*. See HERNIA. See also ENTERO-*Epiplocele*.

EPIPLOIC, or EPIPLOIDES, a Term applied to the Arteries and Veins, distributed through the Substance of the *Epiploon*, or Caul. See EPIPLOON.

EPIPLOIS *Dextra*, is a Branch of the Celiack Artery, which runs thro' the right Side of the inner, or hinder Leaf of the Caul. See CELIAC.

EPIPLOIS *Sinistra*, is a Branch of the Celiack Artery, which is bestowed on the lower and left Side of the Caul. See CELIAC.

EPIPLOIS *Postica*, is a Branch of the Celiack Artery, springing out of the lower End of the *Splenica*, and running to the hinder Leaf of the Caul.

EPIPLOMPHALUS, in Medicine, a Species of *Exomphalus*, or Navel-Rupture; being a Tumor, or Swelling of the Part, occasion'd by the *Epiploon*'s bearing too hard against it. See EXOMPHALUS.

The Word is compounded of the *Greek* ἐπίπλοον, and ομφαλὸς.

EPIPLOON, in Anatomy, a fatty Membrane, spread over the Intestines, and entering even into the Sinuosities thereof; call'd also the *Omentum*, and popularly the *Caul*. See OMENTUM.

The Word is form'd of the *Greek*, ἐπιπλέειν, *to swim*, by reason it seems to float on the Intestines.

EPIPLOSARCOMPHALUS, in Medicine, a Sort of Tumor, of the *Exomphalous* Kind. It is form'd of the *Epiploon*, and the Flesh. See EXOMPHALUS.

The Word is compounded of the three *Greek* Words, ἐπίπλοον, *Epiploon*, σὰρξ, *Flesh*, and ομφαλὸς, *Umbilicus*, Navel.

EPISCOPACY, the Quality of *Episcopal* Government; or that Form of Church Discipline, wherein Diocesan Bishops are establish'd, distinct from, and superior to Priests or Presbyters. See BISHOP, HIERARCHY, *&c.*

Episcopacy and *Presbytery*, have been alternately established and abolished in *Scotland*. See PRESBYTERY.

EPISCOPACIDE, the Crime of murdering a Bishop by one of his own Clergy.

By the Laws of *England*, the same Obedience is due from a Clergyman to his Bishop, as from a Child to his Father: And therefore the Offences of *Episcopacide* and Parricide are made equal, *viz.* Petty-Treason. See TREASON.

EPISCOPAL, something that belongs to a Bishop. See BISHOP.

The *Episcopal Government*, is the Government of a Diocese, wherein one single Person, legally Consecrated, presides over a whole Clergy, or a whole Church, in Quality of Head, or Super-intendent thereof; conferring Orders, and exercising a Sort of Jurisdiction. See DIOCESE.

The *Presbyterians* reject the *Episcopal* Establishment, and condemn the *Episcopal* Order as a human Institution, the mere Result of Pride and Ambition. See PRESBYTERIANS.

Among the *Episcopal* Functions, the principal is that of making frequent Visitations of the Diocese. See VISITATION.

The Word is form'd of the *Latin*, *Episcopus*, Bishop; derived from the *Greek*, ἐπισκεπτεσθαι, *inspicere*, to inspect, whence ἐπίσκοπος, *Inspector*, Bishop; who is to watch over the Flock committed to his Care.

EPISCOPALIA, is sometimes used in the same Sense with *Pontificalia*. See PONTIFICALIA.

It is also used to denote Synodals, or customary Payments, due to the Bishops from the Clergy of his Diocese; call'd also *Onus Episcopale*.

EPISCOPALIANS, a Name given to those who retain to the Church of *England*, and particularly to the Ecclesiastical Hierarchy, such as it was in the *Romish* Church, before the Reformation; who affect the Discipline of Bishops, Priests, Canons, the Office, or Liturgy, *&c.* and retain the greatest Part of the Canon Law, with the Decretals of the Popes, more closely than the Catholicks themselves of several Countries. Tho', as to Matters of Doctrine, or Faith, they agree in most Points with the Calvinists, or Reformed.

In *Scotland*, the principal Diſſenters are the *Epiſcopalians*. Lay *Epiſcopalians* enjoy all the ſame Civil Privileges with thoſe of the Eſtabliſh'd Church. They are under no Reſtrictions; tied to no Teſts; but are imploy'd in all Places of Truſt, upon taking the Oaths to the Government. But the *Epiſcopal* Miniſters are liable to ſeveral penal Laws; the greateſt part of 'em being Nonjurors. *Chamberlain.*

EPISCOPUS *puerorum*. It was an ancient Cuſtom for ſome Layman, about the Feaſt of Epipbany, to plait his Hair, that he might ſeem to have the Tonſure, and to put on the *Epiſcopal* Garments; and then to exerciſe a Shew of Juriſdiction, and do ſeveral ludicrous Actions: For which Reaſon he was call'd the *Biſhop of the Boys*. This Cuſtom obtain'd among us, long after ſeveral Conſtitutions were made to aboliſh it.

EPISODE, is commonly conceiv'd to be a ſeparate Incident, Story, or Action, which an Hiſtorian, or Poet, inſerts and connects with his principal Action; to furniſh out the Work with a greater Diverſity of Events; tho', in Strictneſs, all the particular Incidents, whereof the Action or Narration is compoſed, are call'd *Epiſodes*.

From the *Greek*, ἐπὶ, and ᾠδὴ, *Carmen*, *Verſe*.

EPISODE, EPISODIUM, in dramatic Poetry, was the ſecond part of the ancient Tragedy. See TRAGEDY.

The Origin and Uſe of *Epiſodes*, is admirably deſcribed by M. *Hedelin*, and Fa. *Boſſu*. Tragedy, in its Original, being only a Hymn ſung in Honour of *Bacchus*, by ſeveral Perſons, who made a Kind of Chorus, or Conſort of Muſic, with Dancing, and the like; to diverſify the Repreſentation a little, and divert the Audience, they bethought themſelves at length to divide the Singing of the Chorus into ſeveral parts; and to have ſomething rehears'd in the Intervals.

At firſt, a ſingle Perſon, or Actor, was introduced, then two, then more; and what the Actors thus rehearſed, or entertain'd the Audience withal, being ſomething foreign, or addiriona to, or beſide, the Song of the Chorus, and no neceſſary part thereof, was call'd Επεισόδιον, *Epiſode*.

And hence Tragedy came to conſiſt of four parts, the *Prologue*, *Epiſode*, *Exode*, and *Chorus*.

The *Prologue* was all that preceded the firſt Entrance of the Chorus. See PROLOGUE.

The *Epiſode*, all that was interpoſed between the Singings of the Chorus.

The *Exode*, all that was rehearſed after the Chorus had done ſinging. See EXODIUM.

And the *Chorus*, was the Grex, or Company that ſung the Hymn. See CHORUS.

And as this Recitation of the Actors was in ſeveral parts, and inſerted in ſeveral places; it might either be conſider'd together, as a ſingle *Epiſode*, conſiſting of ſeveral parts; or each part might be call'd a diſtinct *Epiſode*.

Theſe ſeveral *Epiſodes* in the ſame Tragedy, might either be taken from ſo many different Subjects; or from the ſame, divided into a proper Number of Recitations, or Incidents.

To conſider only the firſt Occaſion, and Inſtitution, of theſe foreign, or additional pieces; it appears no ways neceſſary that they ſhou'd all be taken from one and the ſame Subject: Three or four Recitations of different Actions, no-wiſe related, or connected to each other, won'd eaſe the Actors, and amuſe the People, in the Intervals of the Chorus as well as if they were all ſo many parts of the ſame Action. By degrees, what was at firſt only an Addition to the Tragedy, became the principal part thereof. Then, the ſeveral Pieces, or *Epiſodes*, began to be conſider'd as one ſingle Body, which were not to have parts, or Members of different Nature, and independent of each other.

The beſt Poets took the Thing in this Light, and drew all their *Epiſodes* from the ſame Action; which Practice was ſo fully eſtabliſh'd in *Ariſtotle*'s Time, that he lays it down as a Rule. Thoſe Tragedies wherein this Unity and Connection was not obſerved, he calls *Epiſodic Pieces*. See EPISODIC.

EPISODE in *Epic* Poetry. The Term *Epiſode*, by being tranſplanted from the Stage to the *Epopea*, did not change its Nature. All the Difference *Ariſtotle* makes between the Tragic and Epic *Epiſodes*, is, that the latter are more ample than the former. See EPIC.

Ariſtotle uſes the Word in three different Senſes: The firſt taken from the Enumeration already made, of the parts of the Tragedy, *viz. Prologue*, *Chorus*, *Epiſode*, and *Exode*. Whence it follows, that in Tragedy, every Thing is *Epiſode*, that is none of the other parts: So that as among us, there are Tragedies, without either *Prologue*, *Chorus*, or *Epilogue*, the *Tragic Epiſode* includes the whole Tragedy: Conſequently, the *Epic Epiſode* muſt be the whole Poem, in like manner. All there is to retrench from it being the Propoſition, and Invocation, which ſtand in lieu of the *Prologue*. In this Senſe, the *Epopea* and Tragedy, have each only one *Epiſode*; and if the Parts, or Incidents, be ill connected together, the Poem will be *Epiſodic* and defective.

But further, as all that was ſung in the Tragedy, was call'd the *Chorus*, in the ſingular Number; yet this Singularity did by no means prevent every Part or Diviſion of the ſame from being call'd a *Chorus*, without making ſeveral *Chorus's*: So 'twas with the *Epiſode*: Each Incident, and part of the Fable and Action, is not only a part of the *Epiſode*, but an *Epiſode* it ſelf.

The Term *Epiſode*, therefore, in this Senſe, ſignifies every part of the Action expreſs'd in the Plan, or firſt Draught of the Fable; as the Abſence and Wanderings of *Ulyſſes*, the Diſorders in his Family, and his Preſence which retriev'd every Thing.

Ariſtotle furniſhes us with a third Kind of *Epiſode*; in ſhewing, that what is contain'd and expreſs'd in the firſt Plan of the Fable is *proper*, and that all the reſt is *Epiſode*.

By proper, he means what is abſolutely neceſſary; and by *Epiſodes*, what in one Senſe are neceſſary, and in another not; ſo that the Poet is at Liberty to uſe, or let 'em alone.

Thus, *Homer*, having made the firſt Draught of the Fable of his Odyſſee, was not at Liberty to make *Ulyſſes* abſent from his Country, or not. His Abſence was eſſential; and therefore *Ariſtotle* ranks it among the Things he calls *proper*. But he does not beſtow that Appellation on the Adventures of *Antiphale*, *Circe*, the *Syrens*, *Scylla*, *Carybdis*, &c. The Poet was at Liberty to have left theſe alone, and choſen others in their Room; ſo that they are *Epiſodes*, diſtinct from the firſt Action, to which they are not immediately neceſſary. Indeed, in one Senſe, they may be ſaid to be neceſſary: For *Ulyſſes*'s Abſence being neceſſary, it follows, that not being in his own Country, he muſt be ſomewhere elſe. If therefore the Poet was at Liberty, not to have uſed thoſe particular Adventures above mention'd; yet he was not at Liberty not to have uſed any: But if he had omitted thoſe, he muſt neceſſarily have ſubſtituted others in their Room. Otherwiſe, he won'd have omitted a part of the Matter contain'd in his Plan, and his Poem had been defective.

This third Senſe, therefore, of the Word *Epiſode*, comes to the ſecond: All the Difference between them, is, that what we call *Epiſode*, in the ſecond Senſe, is the Ground, or Plan of the *Epiſode* in the third: And that the third adds to the ſecond, certain Circumſtances which are only probable, and not neceſſary; as the Places, Princes, and People, among whom *Ulyſſes* was caſt by *Neptune*.

It muſt be added, that in an *Epiſode* in the third Senſe, the Incident, or *Epiſode* in the firſt Senſe, whereon it is grounded, is to be extended and amplified; otherwiſe, an eſſential part of the Action and Fable, does not become an *Epiſode*. Laſtly, 'tis in this third Senſe that we are to underſtand that Precept of *Ariſtotle*, not to make the *Epiſodes*, till after the Names of the Perſons have been cho'en. *Homer* won'd not have ſpoke of the Fleet and Ships as he has done; if, in lieu of the Names of *Achilles*, *Agamemnon*, and *Iliad*, he had choſe thoſe of *Aaraſtus*, *Capaneus*, and *Thebaid*. See FABLE.

Upon the whole, the Term *Epiſode*, in the Epic Poem, as uſed by the Father of the Criticks, *Ariſtotle*, does not ſignifie any foreign, or accidental Adventure; but the whole Narration of the Poet, or a neceſſary and eſſential part of the Action and Subject, amplified with probable Circumſtances.

Thus, *Ariſtotle* enjoins, that the *Epiſode* be not added to the Action, or fetch'd from elſewhere; but be a part of the Action; and never uſes the Word *adding*, in ſpeaking of *Epiſodes*, tho' it occurr'd ſo naturally to his Interpreters that they have generally uſed it in their Tranſlations and Comments. He does not ſay, that after laying the Plan, and chuſing the Names, the Poet is to *add the Epiſodes*; but uſes a Derivative of the Word *Epiſode*, επεισοδοῦν, as if in *Engliſh* we ſhou'd ſay, *Epiſodify* his Action.

Add, that to ſhew the different Extenſion of the Tragedy and *Epopea*, that is, how the one becomes longer than the other; he does not ſay, that there is but little *Epiſode* in Tragedy; but more accurately, that the *Epiſodes* of Tragedy are ſhort and conciſe; whereas the *Epopea* is lengthen'd out and extended by 'em. In one Word, the taking Vengeance of the wicked People in *Ulyſſes*'s Court, as expreſs'd in a few Words by *Ariſtotle*, in his Plan of the Odyſſee, is a ſimple proper Action, neceſſary to the Subject. It is no *Epiſode*, but the *baſis*, and, as it were, *ſtamen* of an *Epiſode*. And this ſame Puniſhment explain'd and open'd, with all the Circumſtances of Time, Place, and Perſons, is no ſimple and pro-

proper Action, but an Action *Episodified*, or a real *Episode*; which, tho' at the Discretion of the Poet, is yet necessary and proper to the Subject.

From what has been said, we may venture to define *Episodes* to be necessary Parts of the Action, extended and fill'd up with probable Circumstances. Now, an *Episode* is only a Part of an Action; and not a whole Action. And this Part of the Action, which is the Basis, or Ground of the *Episode*, must not, when *Episodified*, retain any Thing of the Simplicity which it had when first express'd in general, in the Plan of the Fable.

Aristotle rehearsing the Parts of the Plan of the *Odysse*, says expressly, that they are proper; and by that, distinguishes them from *Episodes*. Thus, in the *Oedipus* of *Sophocles*, the ceasing of the Plague at *Thebes* is no *Episode*. 'Tis only the Ground, and Matter of an *Episode*, which the Poet might have used, had he pleased. And *Aristotle*, observing that *Homer*, in the *Iliad*, had taken but few Things for his Subject, but that he had used *Abundance of his Episodes*, intimates, that the Subject contains in it self Abundance of *Episodes*, which the Poet may use, or let alone, at Pleasure. That is, it contains the Grounds, or Stamina thereof, which may either be left in their general and simple Brevity, as *Seneca* has done the ceasing of the Plague; or may be extended and unfolded, as the same Author has done the Punishment of *Oedipus*.

The Subject of a Poem is lengthen'd two Ways: Either, by the Poets making use of a great many of his *Episodes*; or by amplifying, and giving a great Extent to every one. By this latter Method, chiefly, it is, that the *Epic* Poets lengthen their Poems much beyond the *Dramatic*. It must be added, that there are certain Parts of an Action, which, of themselves, don't naturally present or afford more than one *Episode*; such as the Death of *Hector*, of *Turnus*, or the like: Whereas, there are other Parts of the Fable more copious and fertile, and which oblige the Poet to make divers *Episodes* on each; tho' laid down in the first Plan, with as much Simplicity as the rest: Such are the Battels of the *Trojans* and *Grecians*; the Absence of *Ulysses*; the Wanderings of *Æneas*, &c. For *Ulysses*'s Absence so many Years from his own Country, required his Presence elsewhere; and the Design of the Fable was to throw him into several Dangers, and different Countries.

Now each Peril, and each new Country, furnish'd an *Episode*, which the Poet might use if he pleas'd.

The Result of the whole is, that *Episodes* are not Actions, but Parts of Actions; that they are not added to the Action and Matter of the Poem, but that they make that Action and Matter themselves, as the Members make the Body: That, of Course, they are not to be fetch'd from elsewhere, but rais'd from the Ground, or Fund of the Action: That they are not united, and connected with the Action, but with one another: That all the Parts of an Action are not so many *Episodes*, but only such as are amplified, and extended with particular Circumstances: And, lastly, that their Union with each other, is necessary in the Ground of the *Episode*, and probable in the Circumstances thereof. See Action.

EPISODIC, in Poetry. A Fable is said to be *Episodic*, when it is swell'd with unnecessary *Incidents*; and its Episodes are not necessarily, nor properly connected with each other. See Episode.

Aristotle lays it down, that those Tragedies are most defective, whose *Episodes* have no Connection, or Dependance, on each other; which he calls *Episodic*, q. d. superabundant in *Episodes*; by Reason so many little *Episodes* can never compose one whole one; but necessarily remain in a vicious Plurality. See Fable.

The most simple Actions are most subject to this Irregularity; in that, having fewer Incidents and fewer Parts than others, they afford less Matter. An unwary Poet would sometimes have consumed his whole Stock in the first, or second Time that his Actors appear'd between the Chorus's: and be driven to a Necessity of looking out for other Actions, to supply the remaining Intervals. *Arist. Poem.* C. 9.

The first *French* Poets did the like: To fill each Act, they took so many different Actions of a Hero; which had no other Connection between them, but that they were done by the same Person. *Bossu* p. 106.

If an *Episode* be used, the Names and Circumstances whereof are unnecessary, and whose Ground and Subject is no Part of the Action, that is of the Matter of the Poem; such an *Episode* renders the Fable *Episodic*. This Irregularity is discover'd, when one may take away a whole *Episode*, without substituting any Thing in its Room; and yet leave no Chasm, or Defect in the Poem. The History of *Hypsipile*, in *Statius*'s *Thebaid*, affords an Instance of these faulty *Episodes*. If the whole Story of that illustrious Nurse were retrench'd, the Sequel of the principal Action would be the better for it. Nor would any Body imagine he had forgot any Thing, or that there was any Member of his Action wanting. *Bossu*.

EPISPASTIC, in Medicine, a Remedy, which being externally applied, draws or attracts the Humour to the Part; call'd also an *Attractive*. See Attractive.

Of *Epispasticks* there are some which act very gently, and others with a deal of Violence. Those of the latter Kind swell, and bloat the Skin, make it Red, and even raise Blisters thereon. See Vesicatory.

The principal simple *Epispasticks* are *Pellitory*, *Garlic*, *Mustard*, *Onions*, *Yeast*, *Goose-dung*, and that of *Pidgeons*, *Cantharides*, &c.

The Word is *Greek*, form'd of ἐπὶ and σπάω, *traho*, *I draw*.

EPISTATES, in Antiquity, a Commander, or Person, who has the Direction and Government of a People.

The Term is of considerable Use, in speaking of the antient Government of *Athens*; where the *Epistates* was the Senator in Command for that Day, or whose Turn it was to preside that Day.

The Constitution was this: The ten Tribes of *Athens*, elected every Year by Lot, each of them fifty Senators; which made a Senate of five Hundred. Every Tribe had the Precedence in its Turn, and surrender'd it again, successively, to another. The fifty Senators in Office were call'd *Prytanes*; the particular Place where they assembled *Prytoneum*; and the Term, or Duration, of their Office, *viz.* thirty five Days, *Prytania*. During these thirty five Days, ten, of the fifty *Prytanes*, presided weekly, under the Name of *Proedres*. And of these *Proedres*, there was one to preside each Day of the Week, under the Title of *Epistates*.

No Person was allow'd to hold this Office more than once in his whole Life; lest he should fall too much into the Taste of Dominion. The Senators of all the other Tribes still voted, according to the Order the Lot had given them; but the *Prytanes* alone convened the Assemblies; the *Proedres*, laid the Business before them; and the *Epistates*, took their Votes and Opinions.

It must be added, that of the ten *Proedres*, of each Week, there were but seven that could preside, each his Day, in Quality of *Epistates*. The ten *Proedres* elected the seven *Prytanes*. See Prytanes.

The Word is derived from the *Greek*, ἐπὶ, *super*, over, and ἵστημι, *sto*, I stand.

EPISTEMONARCH, a Dignitary in the *Greek* Church.

The *Epistemonarch* was appointed to watch over the Doctrines of the Church; and to inspect, or survey every Thing relating to the Faith, in Quality of Censor thereof.

His Office answer'd pretty much to that of *Magister sacri Palatii* at *Rome*.

The Word is derived from the *Greek*, ἐπίσταμαι, *scio*, I know, of ἐπιστήμη, *Science*, *Knowledge*, and ἀρχὴ, *Command*, *Precedence*.

EPISTLE, a Letter missive. See Letter.

The Term *Epistle* is now scarce used, but for Letters wrote in Verse; and Letters *Dedicatory*. See *Epistle* Dedicatory.

In speaking of Letters wrote by Moderns, or rather, in the modern Languages, we never use the Word *Epistle*. Thus, we say, the Letters, not *Epistles*, of the Cardinal *d' Ossat*; of *Voiture*, of *Balzac*, of *Howel*, of *Farquhar*, &c. But those wrote by the Antients, or rather in the Antient Languages, we call *Epistles*: As the *Epistles*, not Letters, of *Cicero*, *Pliny*, *Seneca*, *Busbequius*, *Launoy*, &c. Of St. *Augustin*, St. *Jerome*, &c. The *Epistles* of St. *Paul*, St. *Peter*, St. *John*, &c. to the *Romans*, *Corinthians*, &c.

The Word is form'd of the *Greek*, ἐπιστέλλω, *mitto*, I send.

EPISTOLARY, a Term chiefly used in the Phrase *Epistolary Style*. See Style.

The Word is, sometimes, also applied to Authors who have wrote *Epistles* or Letters: The principal *Epistolary* Authors, are *Sidonius Apollinaris*, *Tully*, the younger *Pliny*, *Seneca* the Philosopher, *Petrarch*, *Politian*, *Busbequius*, *Erasmus*, *Lipsius*, *Muret*, *Ascham*, *Milton*, *Petau*, *Launoi*, *Sarau*, *Balzac*, and *Voiture*.

EPISTOMIUM, in Hydraulicks, a *Plug*, or Instrument by the Application whereof, an Aperture may be open'd, and shut again at Pleasure.

EPISTROPHEUS, from ἐπιστρέφω, *converto*, I turn about; the same with *Cardo*. See Cardo.

EPISTYLE, in the antient Architecture, a Term used by the *Greeks*, for what we call *Architrave*, viz. a Massive of Stone, or Piece of Wood, laid immediately over the Capital of a Column. See Architrave.

The

The *Epistyle* is the first, or lowest Member of the *Entablature*. See ENTABLATURE.

The Word is derived from the *Greek*, ἐπὶ, *super*, upon, and στῦλος, *Column*.

EPITAPH, a Monumental Inscription, in Honour, or Memory, of a Defunct; or an Inscription engraven, or cut, on a Tomb, to mark the Time of a Person's Decease, his Name, Family, and usually some Eloge of his Vertues, or good Qualities. See MONUMENT, TOMB, &c.

The Style of *Epitaphs*, especially those composed in *Latin*, is singular. See LAPIDARY *Style*.

At *Sparta*, *Epitaphs* were only allowed to People who died in Battel. *Boxhornius* has made a Collection of *Epitaphs*, not very ample, but exceedingly well chosen. *Fa. Labbe*, has likewise given a Collection of the like Kind, in *French*; entitled, *Tresor des Epitaphes*. *Cambden* has done something in the same Way in our English *Epitaphs*. An *Epitaph* is said to be yet wanting to the Duke of *Marlborough*'s Monument; tho' a Premium of 500 Pounds was offer'd by his Dowager, to him that should compose one worthy of the Hero deceas'd.

In *Epitaphs*, the dead Person is sometimes introduced, by Way of *Prosopopœia*, speaking to the Living; of which we have a fine Instance, worthy the *Augustan* Age, wherein the dead Wife thus bespeaks her surviving Husband.

Immatura peri: sed tu felicior, Annos
Vive tuos, Conjux optime, vive meos.

The Word comes from ἐπὶ, *upon*, and τάφος, *Sepulcher*. See SEPULCHER.

The *French* have a Proverb, *Menteur comme une Epitaph*: He lies like an *Epitaph*; in Allusion to the Eloges ordinarily contain'd therein, which are not always over just.

EPITAPH, is also applied to certain Eloges, either in Prose or Verse, composed without any Intent to be engraven on Tombs.

In the Collection of Epigrams, we have Abundance of such *Epitaphs*; some of them ludricrous and satyrical. See EPIGRAM.

For a Specimen, we shall here add a very beautiful *Epitaph*, composed by Mr. *Cowley*, on himself, to be put on a little Country House, whither he retreated from the Court and Town, to spend his last Days.

Hic, O Viator, sub Lare parvulo,
Couleius *hic est Conditus, hic jacet*
Defunctus humani laboris
Sorte, supervacuaq; Vita;
Non indecora pauperie *nitens,*
Et non inerti nobilis otio,
Vanoq; dilectis popello,
Divitiis, animosus *hostis*.
Possis ut illum dicere mortuum,
En terra jam nunc quantula *sufficit?*
Exempta sit curis, Viator,
Terra sit illa levis, precare.
Hic sparge flores, *sparge breves* Rosas;
Nam vita gaudet Mortua floribus;
Herbisq; odoratis corona
Vatis adhuc cinerem Calentem.

EPITASIS, in the antient Poetry, the second Part, or Division of a Dramatic Poem; wherein, the Plot, or Action, proposed, and enter'd upon, in the first Part, or *Protasis*, was carried on, heighten'd, warm'd, and work'd up, till it arrived at its State, or Height, call'd the *Catastasis*. See PROTASIS, and CATASTASIS.

This Division is laid aside in the Modern Drama; in Lieu whereof, our Plays are divided into *Acts*. See ACT.

The *Epitasis* might, ordinarily, take up about our second or third Act. See TRAGEDY.

The Word is pure *Greek*, ἐπίτασις, of ἐπιτείνω, *Intendo*, I heighten.

EPITASIS, in Medicine, is sometimes used for the Increase, or Growth, and heightening of a Disease; or a Paroxysm of a Disease, particularly a Fever. See STATE.

EPITHALAMIUM, in Poetry, a *Nuptial Song*; or a Composition, usually in Verse, on Occasion of a Marriage between two Persons of Eminence.

The Topicks it chiefly insists on, are the Praises of Matrimony, and of the Married Couple; with the Pomp and Order of the Marriage Solemnity. It concludes, with praying to the Gods for their Prosperity, their happy Offspring, &c. *Catullus* exceeded all Antiquity, in his *Epithalamiums*; and the Cavalier *Marino*, all the Moderns.

The Word is form'd of ἐπὶ and θαλαμος, *Bride-Chamber*.

EPITHEME, EPITHEMA, in Pharmacy, a Kind of *Fomentation*, or Remedy, of a liquid, spirituous Liner; applied externally upon the Regions of the Heart, or Liver; to strengthen and comfort the same, or to correct some Intemperature. See FOMENTATION.

There are two Kinds of *Epithems*; the one *Liquid*, and the other *Solid*: The *Liquid Epithem* is a Fomentation of a more spirituous Nature than the rest; the *Solid*, is a Mixture of Conserves, Treacle, Confections, and Cordial Powders, generally spread on a Piece of Scarlet, or Leather.

The Word is form'd of the *Greek*, ἐπὶ, *upon*, and τίθημι, *pono*, I put.

EPITHET, a Noun Adjective, expressing some Quality of a Substantive to which it is joyn'd. See ADJECTIVE.

As, a *fruitful* Vine, a *stately* Pile, an *Echoing* Vault, &c.

Epithets, are Engines of mighty Use and Conveniency among the Poets and Orators; who supply in *Epithets*, what they want in Things. Card. *Perron* even blames *Homer* on the Head of *Epithets*; observing, that he frequently hooks in *Epithets*, without any Sense, or Significancy at all, to help out his Measures; and that he equips every Hero with an *Epithet*, not according to the Exigence of the Case, but the Measure of the Verse.

The Word is form'd of ἐπὶ, *upon*, and θέσις, *positio*, putting.

EPITHET, is also used for a *Sur-name*, or second Appellation. See SUR-NAME.

Epithets, were antiently bestow'd very frankly, either on Account of any Defects of the Body, or Mind: The Kings themselves, were not exempted from them. Hence, those *Epithets* so frequent in History; as Henry *Long-shanks*, Edward *Iron-sides*, Richard *Crook-back*, John *Lack-land*, &c.

Nor have the *French* used their Kings any better: Witness their Charles *the simple*, Louis *the lazy*, *faineant*, Ludovicus *nihil faciens*; Pepin *the short*; Louis *the Stammerer*, *le Begue*.

EPITHYME, a Medicinal Plant, of a very extraordinary Nature and Figure. Its Seed is very small, from which arise long Threads like Hairs, which soon perish, as well as the Root, unless they meet with some neighbouring Plant, both to sustain and feed them.

The *Epithyme* grows indifferently on all Kinds of Herbs; and, of Consequence, the Kinds thereof are infinite: To which Writers usually attribute the particular Virtues of the Plants they grow on.

The most known of these Plants, and those most used in Medicine, are such as grow on Thyme; which are the proper *Epithymes*; and those on Flax. There are two Kinds in the Shops; the one from *Venice*, the other from *Candia*: They have both an Aromatic Taste, but that of *Venice* the strongest.

Their Use is to strengthen the Parts, and prevent Obstructions of the Viscera, &c.

EPITOME, an Abridgment, or Reduction, of the principal Matters of a larger Book, into a little Compass. See ABRIDGMENT.

The *Epitome* of *Baronius*'s Annals is done by *Sponde*: *Bermer* has made an *Epitome* of the Philosophy of *Gassendus*.

'Tis a popular Objection against the *Epitomizing* of Authors, that it frequently occasions the Loss of the Originals. Thus the Loss of the Historian *Trogus Pompeius*, is attributed to his Epitomizer *Justin*; and the Loss of a great Part of *Livy* to *Lu. Florus*.

The Word is *Greek*, ἐπιτομὴ, form'd of ἐπιτέμνειν, *resecare*, to retrench, abridge, or cut off.

EPITRITUS, a Foot of the antient *Latin* Verse, consisting of four Syllables. See FOOT.

Grammarians reckon four Species of *Epitrites*: The first compounded of *an Jambus* and *Spondee*, as *Salutantes*. The second of a *Trochee* and *Spondee*, as *Concitati*. The third of a *Spondee* and *an Jambus*, as *Comunicans*. And the fourth of a *Spondee* and *Trochee*, as *Incantare*.

EPITROPE, in Rhetoric, a Figure of Speech, by the *Latins* call'd *Concessio*; whereby the Orator grants something which he might deny; that, by this Shew of Impartiality, he may the more easily be granted what he requires, in his Turn. See FIGURE.

This Figure is frequently invidious: Let them extol his Probity; I acquiesce and am ready to be silent: But when they propose him for a Pattern of Wit, my Spleen is rais'd, &c.

EPITROPUS, a Kind of Judge, or rather Arbitrator, which the *Greek* Christians, under the Dominion of the *Turks*, elect, in the several Cities, to terminate the Differences that arise among them; and avoid carrying them before the *Turkish* Magistrates.

There are several *Epitropi* in each City: Mons. *Spon*, in his Travels, observes, that at *Athens* there are Eight, taken out of the several Parishes, and call'd *Vecchiardi*, i. e.

i. e. old Men. But *Athens* is not the only Place where there are *Epitropi*. They are in all the Islands of the *Archipelago*.

Some *Latin* Authors of the V*th* Century, call *Epitropi*, those who more anciently were call'd *Villici*, and since *Vidames*. See VIDAME.

In Times still earlier, the *Greeks* applied the Term ἐπιτροπος, in the same Sense as the *Latins* did *Procurator*, viz. for a Commissioner, or Intendant: Thus the Commissioners of Provisions in the *Persian* Army, are call'd by *Herodotus*, and *Xenophon*, *Epitropi*; and in the New Testament, Ἐπίτροπος, is the Intendant of a House, render'd in the vulgate *Procurator*.

EPLOYE, in Heraldry. An Eagle *Eploye*, is what in *English* we more usually call an *Eagle display'd*, or *Spread Eagle*. See DISPLAY'D and EAGLE.

EPOCHA, or *Æra*, in Chronology, a Term, or fix'd Point of Time, whence the Years are number'd, or accounted. See YEAR.

The Word is form'd of the *Greek*, ἐποχὴ, *inhibitio, repressio*, of ἐπιχειν *to sustain, stop*; by reason the *Epocha* defines, or limits a certain Space of Time. See TIME.

Very different *Epochs*, or *Epocha's*, obtain in different Nations; and no wonder: for there being no astronomical Consideration to render one preferable to another, their Constitution is purely arbitrary.

That principally regarded among Christians, is the *Epocha* of the Nativity, or Incarnation of JESUS CHRIST; that of the Mahometans, the *Hegira*; that of the Jews, *&c.* the *Creation of the World*; that of the ancient Greeks, the *Olympiads*; that of the *Romans*, the *Building of the City*; that of the ancient *Persians* and *Assyrians*, the *Epocha* of *Nabonassar*, &c.

The Doctrine and Use of *Epocha's*, is of very great Extent in Chronology. See CHRONOLOGY.

To reduce the Years of one *Epocha* to those of another, *i. e.* to find what Year of one, corresponds to a given Year of another; a Period of Years has been invented, which commencing before all the known *Epocha's*, is, as it were, a common Receptacle of them all, call'd the *Julian Period*. To this Period all the *Epocha's* are reduced, *i. e.* the Year of this Period, whereon each *Epocha* commences, is determined. All that remains, therefore, is to add the given Year of one *Epocha*, to the Year of the Period corresponding with its Rise; and from the same to subtract the Year of the same Period corresponding to the other *Epocha*. The Remainder is the Year of that other *Epocha*. See JULIAN PERIOD.

The EPOCHA *of Christ*, or *our Lord*, is the *vulgar Epocha* throughout *Europe*; commencing from our Saviour's Nativity, *December* 25; or rather, according to the usual Account, from his Circumcision, the 1*st* of *January*; but particularly in *England*, from the Incarnation, or Annunciation of the Blessed Virgin, on the 25*th* of *March*; Nine Months prior to the Nativity. See NATIVITY, CIRCUMCISION, ANNUNCIATION, *&c.*

Now, the Year of the *Julian* Period whereon *Christ* was born, and circumcised, is usually computed to be the Year 4713; consequently, the first Year of the Æra of *Christ*, corresponds to the Year 4714 of the *Julian* Period.

Hence, 1°. If to any given Year of *Christ*, you add 4713, the Sum will be the Year of the *Julian* Period corresponding thereto. *E. gr.* if to the present Year 1725, be added 4713, the Sum 6438, is the present Year of the *Julian* Period.

2°. On the contrary, subtracting 4713, from any given Year of the *Julian* Period, the Remainder is the current Year of *Christ*, *e. gr.* From the Year of the *Julian* Period 6438, subtracting 4713, the Remainder is the Year of *Christ* 1725.

In Effect, the *Epocha* of *our Lord*, serves not only for the Computation of the Years elapsed since the *Epocha* commenced; but even of those before it.

Now, to find the Year of the *Julian* Period, corresponding to a given Year before *Christ*; subtract the given Year from 4714; the Remainder is the correspondent Year required. Thus, *e. gr.* the Year before *Christ* 752, is the Year 3956 of the *Julian* Period. On the contrary, subtracting the Year of the *Julian* Period from 4714, the Remainder is the Year before *Christ*.

The Author of the vulgar *Epocha*, or Way of computing from *Christ*, is an Abbot of *Rome*, one *Dionysius Exiguus*, by Nation a *Scythian*; who flourish'd under *Justinian*, about the Year 507: Tho' *Dionysius* borrowed the Hint from *Panodorus* a *Greek* Monk. Till his Time, the Generality of Christians computed their Years, either from the Building of *Rome*, or according to the Order of the Emperors and Consuls, and the other Ways in Use with the People they lived among.

This Diversity occasioning a great Distraction between the Churches of the *East* and *West*; *Dionysius*, to compose the same, first proposed a new Form of the Year, with a new general Æra, which in a few Years Time was generally admitted.

Dionysius began his Account from the Conception, or Incarnation, popularly call'd Lady-Day, or the Annunciation: Which Method still obtains in the Dominions of *Great Britain*, and there only; so that the *Dionysian*, and *English Epocha*, is the same. In the other Countries of *Europe*, they reckon from the 1*st* of *January*; except in the Court of *Rome*, where the *Epocha* of the Incarnation still obtains for the Date of their Bulls.

It must be added, that this *Epocha* of *Dionysius* is charged with a Mistake: The common Opinion is, that it places our Saviour's Nativity a Year too late; or, that he was born the Winter preceding the Time prescribed by *Dionysius* for his Conception.

But, the Truth is, the Fault lies on *Beda*, who misinterpreted *Dionysius*, and whose Interpretation we follow; as has been shewn by *Petavius*, from *Dionysius*'s own Epistles. For *Dionysius* began his Cycle from the Year of the *Julian* Period 1712; but his *Epocha* from the Year 1713, wherein the vulgar Æra supposes *Christ* to have been incarnate.

The Year, therefore, which according to the vulgar *Epocha* is the 1*st* Year of *Christ*; according to *Dionysius*'s Æra, is the 2*d*. So that the present Year, which we call 1725, shou'd, in Justice, be 1726. Tho' some Chronologists, instead of one Year, will have the Error two.

To this vulgar Æra, as a sure, fix'd Point, Chronologers use to reduce all the other *Epocha's*; tho' there is not one of 'em but what is controverted: So much Uncertainty there is in Time. We shall exhibit 'em as reduced to the *Julian* Period.

EPOCHA *of the Creation*, or *Orbis conditi*, according to the Computation of the *Jews*, call'd also the *Jewish Epocha*, is the Year of the *Julian* Period 953; answering to the Year before *Christ* 3761; and commences on the 7*th* Day of *October*.

Hence, subtracting 952 Years from any given Year of the *Julian* Period, the Remainder is the Year of the *Jewish Epocha*, corresponding thereto. Thus, *e. gr.* the present Year being the 6438*th* Year of the *Julian* Period; it is the 5486*th* Year of the *Jewish Epocha*, or since the Creation of the World.

This *Epocha* is still in Use among the *Jews*.

The EPOCHA *of the Creation*, used by the *Greek* Historians, is the Year before the *Julian* Period 787; answering to the Year before *Christ* 5500.

Hence, to any given Year of the *Julian* Period, adding 787; the Sum gives the Year of this *Epocha*. *E. gr.* 6438 being the present Year of the *Julian* Period; 7390 is the present Year of this *Epocha*, or the Age of the World, according to this Computation.

The Author of this *Epocha*, is *Julius Africanus*, who collected it from the Historians. But when it came to be admitted into civil Use, 8 Years were added to it; that so, every Year thereof divided by 15, might exhibit the Indiction, which the *Eastern* Emperors used in their Charters and Diploma's.

The *Epocha of the Creation* used by the later *Greeks*, and *Russians*, is the Year 795, before the *Julian* Period; or the Year 5509 before *Christ*; commencing from the 1*st* Day of *September*. Tho' the *Russians*, having lately admitted the *Julian* Calendar, begin their Year from the 1*st* of *January*.

Hence, adding 795, to the Year of the *Julian* Period, the Sum gives the Year of this *Epocha*. Thus, *e. gr.* the *Julian* Period of the present Year being 6438; the present Year of this *Epocha*, i. e. the Years from the Creation, on this Footing, are 7233. Again, from the present Year 7233, subtracting 5508; the Remainder is the Year of the common Æra 1725.

This Æra was used by the Emperors of the *East*, in their Diplomata, *&c.* And thence also call'd the *Civil Æra of the Greeks*. In Reality, it is the same with the *Epocha* of the *Constantinopolitan* Period; whence some call it the *Epocha of the Period of Constantinople*. See PERIOD.

The *Alexandrian* EPOCHA *of the Creation*, is the Year 780, before the *Julian* Period; answering to the Year before *Christ* 5494; and commencing on the 29*th* Day of *August*.

Hence, adding 5493, to the present Year of *Christ* 1725; the Sum, 7218, gives the present Year of this *Epocha*; or Years elapsed since the Creation, according to this Computation.

This *Epocha* was first concerted by *Panodorus*, a Monk of *Egypt*, to facilitate the Computation of *Easter*; whence, some call it, *Greek Ecclesiastical Epocha*.

The *Eusebian* Epocha *of the Creation*, is the Year of the *Julian* Period 486; answering to the Year before *Christ* 4228; and commencing in Autumn.

Hence, subtracting 486, from the *Julian* Period of the present Year 6438; or adding 4428 to the present Year of *Christ*, the Result 5953, is the present Year of this *Epocha*.

This *Epocha* is used in *Eusebius*'s *Chronicon*, and the *Roman* Martyrology. See Creation.

Epocha *of Olympiads*, is the Year of the *Julian* Period 3938: answering to the Year 776, before *Christ*; and the Year 2985 from the Creation; commencing at the Full Moon next the Summer Solstice. And each *Olympiad* containing four Years.

This *Epocha* is very famous in ancient History: It was used principally by the *Greeks*, and had its Origin from the *Olympic* Games, which were celebrated at the Beginning of every fifth Year. See Olympiad.

Epocha *of the Building of* Rome, or *Urbis conditæ*, U.C. is the Year of the *Julian* Period 3961, according to *Varro*; or 3962, according to the *Fasti Capitolini*; answering to the Years before *Christ* 753, or 752, and beginning on the 21*st* of *April*.

Hence, if the Years of this *Epocha* be fewer than 754, subtracting 'em from 754, or 753; you have the Year before *Christ*. And, on the contrary, if they be more than 745, adding 'em to the same, the Sum is the Number of Years since *Christ*. Lastly, adding the Year before *Christ*, to 753, or 752; the Sum will give the Year of this *Epocha*, or the Time since the Building of *Rome*. Thus, *e. gr.* the present Year 1725, according to *Varro*, is the Year of *Rome* 2488.

Epocha *of Nabonassar*, is the Year of the *Julian* Period 3967; answering to the Year before *Christ* 747; commencing on the 26*th* Day of *February*.

This Æra takes its Denomination from its Instituter, *Nabonassar* King of *Babylon*; and is that used by *Ptolomy* in his Astronomical Observations, by *Censorinus* and others.

Diocletian Epocha, or Epocha *of Martyrs*, is the Year of the *Julian* Period 4997, answering to the Year of *Christ* 283; call'd *Æra of Martyrs* from the great Number of Christians, who suffer'd Martyrdom under the Reign of that Emperor.

The *Abyssinians*, among whom 'tis still used in all Ecclesiastical Computations, call it the *Years of Grace*. Tho' they don't reckon their Years in a continued Series from this *Epocha*. But when the *Dionysian* Period of 534 Years is expired, they begin their Computation afresh from 1, 2, &c.

Epocha *of the Hegira*, or *Mahometan* Epocha, is the Year of the *Julian* Period 5335, answering to the Year of *Christ* 622. It commences on the 16*th* of *July*, the Day of *Mahomet*'s Flight from *Mecca* to *Medina*.

This *Epocha* is used by the *Turks* and *Arabs*, and even all who profess the *Mahometan* Faith: It was first introduced by *Omar*, the third Emperor of the *Turks*. The Astronomers, *Alfraganus*, *Albategnius*, *Alphonsus*, and *Ulugh Beigh*, refer *Mahomet*'s Flight to the 15*th* of *July*; but all the People who use the *Epocha*, agree to fix it on the 16*th*. See Hegira.

Epocha *of the Seleucides*, used by the *Macedonians*, is the Year of the *Julian* Period 4402; answering to the Year before *Christ* 312. See Seleucides.

Yezdegerdic, or *Persian* Epocha, is the Year of the *Julian* Period 5345; answering to the Year of *Christ* 632, and commencing on the 16*th* of *June*.

This *Epocha* is taken from the Death of *Yezdegerdis*, the last King of *Persia*, slain in Battle by the *Sarazens*.

Julian Epocha, or *Epocha* of *Julian* Years, is the Year of the *Julian* Period 4668; answering to the Year before *Christ* 45.

This *Epocha* had its Origin from the Year of the Reformation of the Calendar under *Julius Cæsar*; call'd the *Year of Confusion*. See Year.

Spanish Epocha, is the Year of the *Julian* Period 4676; answering to the Year before *Christ* 38.

Actiac, or *Actian* Epocha, is the Year of the *Julian* Period 4684, answering to the Year before *Christ* 30. Commencing on the 29*th* Day of *August*. See Actiac.

Other memorable *Epocha*'s are, that of the *Deluge*, in the Year of the Creation 1656: The Birth of *Abraham* in 2039: The *Israelites Exodus* or Departure out of *Egypt*, in 2544: The Building of the *Temple* of *Jerusalem*, in 2023: And the *Destruction* of the same in the Year of *Christ* 70: The taking of *Constantinople* by the *Turks*, in 1453, &c.

EPODE, in Poetry. In the *Lyric* Poetry of the *Greeks*, the *Epode* is the third Part, or End of the Ode: Their Ode, or Song, being divided into Strophe, Antistrophe, and *Epode*. See Ode.

The *Epode* was sung by the Priests, standing still before the Altar, after all the Turns and Returns of the Strophe and Antistrophe. See Strophe.

The *Epode* was not confined to any precise Number, or Kind of Verses; as the Strophe and Antistrophe were. See Strophe, &c.

But when the Ode contain'd several *Epodes*, Strophes, &c. they were all alike.

As the Word *Epode*, then, properly signifies the End of the Song; and as in Odes, what they call'd the *Epode*, finish'd the Singing: It became customary, as M. *Dacier* shews, for a little Verse, which being put after another, closed the Period, and finish'd the Sense which had been suspended in the first Verse, to be call'd *Epode*, ἐπῳδὴ.

And hence it is, that the VI*th* Book of *Horace*'s Odes is entitled *Liber Epodon*, Book of *Epodes*, by reason the Verses thereof are all alternately long and short; and that the short one, generally, tho' not always, closes the Sense of the long one.

But the Signification of the Word is extended still further; *Epode* being become a general Name for all Kinds of little Verses, that follow one or more great ones, of what Kind soever they be: And, in this Sense, a Pentameter is an *Epode*, after an Hexameter, which in Respect thereof is a Pro-ode.

EPOMIS, in Anatomy, the upper Part of the Shoulder, reaching up to the Neck. See Shoulder.

Some Authors apply the Word *Epomis* to the upper Part of the *Os Humeri*: But the ancient *Greek* Physicians only use it for the muscular, or fleshy Part, placed as abovementioned.

The Word is *Greek*, Ἐπωμὶς, which signifies the same Thing.

EPOPEA, Epos, in Poetry, is strictly the History, Action, or Fable, that makes the Subject of an *Epic* Poem. See Action and Fable.

In the common Use of the Word, however, *Epopea* is the same with *Epic* Poem it self: In which Sense it is defined, a Discourse invented with Art, or a Fable agreeably imitated from some important Action; and related in Verse, in a probable and surprizing Manner; with a View to form the Manners, &c. See Epic *Poem*.

The Word is derived from the *Greek*, ἔπος, *Carmen*, *Verse*; and ποιέω, *facio*, *I make*.

EPULO, in Antiquity, a Minister of Sacrifice among the *Romans*. See Sacrifice.

The Pontifices not being able to attend all the Sacrifices perform'd at *Rome*, to so many Gods as were adored by the People; appointed three Ministers, whom they called *Epulones*, by reason they conferr'd on 'em the Care and Management of the *Epula*, Feasts in the solemn Games and Festivals.

To them belong'd the ordering and serving the sacred Banquet, offer'd on such Occasions to *Jupiter*. They wore a Gown border'd with Purple, like the Pontifices. Their Number was at length augmented from Three to Seven, and afterwards by *Cæsar* to Ten.

Their first Establishment was in the Year of *Rome* 558, under the Consulate of *L. Furius Purpureo*, and *M. Claudius Marcellus*.

EPULOTICKS, in Medicine, dry, astringent Remedies, proper to cicatrize, or incarnate Wounds and Ulcers. See Incarnative, Cicatricive.

Such are Emplasters of Cerus, and Diapalma; the Unguent Pompholix, &c.

The Word is form'd of the *Greek*, ἐπὶ, *super*, and ἕλη, *Cicatrix*, *Eschar*. Whence the Verb ἐπουλόω, *cicatricem*, *infero*.

EPULUM, in Antiquity, *Banquet*, a holy Feast prepared for the Gods. See Feast.

The Statues of the Gods were commonly laid upon a Bed, and were served as if they had been very hungry; to perform which, was the Function of the Ministers of Sacrifice, hence called *Epulones*. See Epulo.

EQUABLE *Motion*, is that whereby the moveable Body proceeds with the same continued Velocity; neither accelerated nor retarded. See Motion.

EQUAL, a Term of Relation between two or more Things of the same Magnitude, Quantity, or Quality.

Wolfius defines *Equals* to be those Things which may be substituted for each other, without any Alteration of Quantity. 'Tis an Axiom in Geometry, that two Things which are *Equal* to the same third, are *Equal* to each other. And again, if to, or from *Equals*, you add or subtract *Equals*, the Remainders will be *Equal*. See Equality.

Equal *Circles*, in Geometry, are those whose Diameters are *Equal*. See Circle.

Equal *Angles*, are those whose Sides are inclined alike to each other; or that are measured by similar Parts of their Circles. See Angle.

Equal *Figures*, are those whose Area's are *Equal*; whether the Figures be similar or not. See Figure.

The Segments of a Sphere, or Circle, are of an *Equal Concavity*, or *Convexity*, when they have the same Ratio, or Proportion to the Diameters of the Spheres, or Circles whereof they are Parts. See Segment.

Equal *Solids*, are those which comprehend, or contain each as much as other; or whose Solidities and Capacities are *Equal*. See Solid.

Equal *Hyperbola's*, are those whose Ordinates to their indeterminate Axes, are *Equal* to each other; taken at *Equal* Distances from their Vertices. See Hyperbola.

Equal *Numbers* } See { Number.
Equal *Hours* } See { Hour.

Equal *Geometrical Ratio's*, are those whose least Terms are similar *aliquot*, or *aliquant* Parts of greater. See Ratio.

Equal Arithmetical Ratio's, are those wherein the Difference of the two less Terms, is *Equal* to the Difference of the two greater. See Ratio.

In Opticks, we say, that Things seen under *Equal Angles*, are *Equal*. *Equal* Parts of the same Interval, or Magnitude, if unequally distant from the Eye, appear unequal. *Equal* Objects, and at *Equal* Distances, only the one placed directly, and the other obliquely, seem unequal; and that placed directly, the bigger. See Vision.

EQUALITY, in Astronomy. The *Circle of Equality*, or the *Equant*, is a Circle used in the *Ptolomaic* Astronomy, to account for the Eccentricity of the Planets, and reduce them more easily to a Calculus. See Equant.

In Geometry, the *Ratio*, or *Proportion of* Equality, is that between two equal Numbers, or Quantities.

Proportion of Equality *evenly ranged*, or *ex Æquo ordinata*, is that wherein two Terms in a Rank, or Series, are Proportional to as many Terms in another Series, compared to each other in the same Order, *i. e.* the first of one Rank to the first of another; the second to the second, &c.

Proportion of Equality *evenly disturbed*, call'd also *ex Æquo Perturbata*, is that wherein more than two Terms of a Rank, are proportional to as many Terms of another Rank, compared to each other, in a different and interrupted Order; *viz.* The first of one Rank to the second of another; the second to the third, &c.

Equality, in Algebra, is a Comparison of two Quantities, that are equal both really and representatively, *i. e.* both equal in Effect and Letters: And *Equation*, is a Comparison of two Magnitudes, equal in Effect, but unequal in Letters, to render them equal.

Equality, in Algebra, is usually denoted by two parallel Lines, as =: Thus, $2 + 2 = 4$, *i. e.* 2 *Plus* 2, are equal to 4.

This Character was first introduced by *Hariot*. *Des Cartes*, and some after him, in Lieu thereof use ∞: Thus, $2 + 2 \infty 4$, so $z - y = b + c$, signifies that z *minus* y, is equal to b *plus* c.

From an Equation, we arrive at an *Equality*, by changing one Letter into another, whereby the two Members of the Equation, *i. e.* the two Quantities compared together, and connected by the Sign of *Equality*, are render'd Equal.

Thus, in the Equation $aax = bcd$; supposing $x = \frac{bcd}{aa}$, we change x into $\frac{bcd}{aa}$, and by this Substitution arrive at the *Equality* $bcd = bcd$.

In the Solution of a Numerical Problem, to be render'd rational; if there be only one Power to be equall'd to a Square, or other higher Power; it is call'd *simple Equality*.

When there are two Powers to be equall'd, each to a Square, it is call'd *double Equality*, &c.

Diophantus has given us a Method for double *Equalities*, and *Fa. Billy*, another for *triple Equalities*, in his *Diophantus* and *Redivivus*.

EQUANT, or Æquant, in Astronomy, a Circle, imagined by Astronomers, in the Plane of the Deferent, or Eccentric; for the regulating and adjusting of certain Motions of the Planets. See Deferent.

EQUATION, or Æquation, in Algebra, an Expression of the same Quantity, in two different, that is, dissimilar, but *Equal* Terms or Denominations. As when we say, $2 \cdot 3 = 4 + 2$; that is, twice three is equal to four and two. See Quantity.

Stifelius defines *Equation* to be the Ratio of Equality, between two Quantities differently denominated: As when we say 3 Shill. = 36 Pence. Or 50 Shill. = 2 Lib. 10 Shill. = 600 Pence, = 2400 Farth. Or, $b = d + e$. Or, $12 = \frac{a - P}{5}$, &c.

Hence, the Reduction of two heterogeneous, or dissimilar Quantities to the same Value, *i. e.* to an Equality, is called the *bringing them to an Equation*.

The Character, or Sign of an *Equation*, is = or ∞. See Character.

The Resolving of Problems, by Means of *Equations*, is the Business of Algebra. See Algebra.

The *Terms of an Equation*, are the several Quantities, or Parts, of which an *Equation* is composed; connected together by the Signs + and −. Thus, in the *Equation* $b + c = d$; the Terms are b, c and d. And the Tenor of the *Equation* is, that some Quantity, represented by b, is equal to two others represented by c and d. See Terms *of Equations*.

The *Root of an* Equation, is the Value of the unknown Quantity in the *Equation*. E. gr. if $a^2 + b^2 = x^2$; the Root will be $\sqrt{(a^2 + b^2)}$. See Roots *of Equations*.

Equations are divided with Regard to the Powers of the unknown Quantities, into *Simple*, *Quadratic*, *Cubic*, &c.

A *Simple* Equation, is that wherein the unknown Quantity is only of one Dimension, or the first Power. As, $x = (a + b) : 2$. See Simple *Equation*.

A *Quadratic* Equation, is that wherein the unknown Quantity is of two Dimensions, or the second Power. As, $x^2 = a^2 + b^2$. See Quadratic *Equation*.

A *Cubic* Equation, is that wherein the unknown Quantity is of three Dimensions. As $x^3 = a^3 - b^3$, &c. See Cubic *Equation*.

If the unknown Quantity be of four Dimensions, as $x^4 = a^4 - b^4$, the *Equation* is call'd a *Biquadratic*; if of 5, a *Surdefolid*, &c. See Power.

Equations are consider'd two Ways: Either, as the ultimate Conclusions we arrive at in the Solution of Problems; or as Means, by the Help whereof, we arrive at those final Solutions. See Solution and Problem.

An *Equation* of the first Kind, consists only of one unknown Quantity, intermix'd with other known Quantities. Those of the latter Kind, consist of several unknown Quantities, which are to be compared, and connected together, till out of them all arise a new *Equation*, wherein the one unknown Quantity sought, is mix'd with the known. To get the Value of which unknown Quantity, the *Equation* is generally turn'd, and transform'd various Ways, till it be brought as low, and render'd as simple as possible.

The Doctrine and Practice of *Equations*; that is, the Solution of Questions by *Equations*, consists of several Steps, or Parts, *viz.* 1°. The denominating of the several Quantities, or expressing them in proper Signs, or Symbols. 2°. The bringing the Quantities thus denoted to an *Equation*. 3°. The reducing that *Equation* to its lowest and simplest Terms. To which 4°. may be added the constructing of the *Equation*, or representing it in Geometrical Lines: We proceed to each in its Order.

With Regard to the *first*; a Question, or Problem, being proposed; we conceive the Thing sought, or required, as already done: And accordingly note, or express it by one of of the Vowels, as *a*, or more usually, by one of the last Letters the Alphabet, *x* y or z; noting the other known Quantities, by the Consonants, or the beginning Letters of the Alphabet, *b*, *c*, *d*, &c. See Quantity, Character, Species.

The Question being thus stated in Species; it is consider'd whether, or no, it be subject to any Restrictions, *i. e.* whether it be determinate, or no; which is found by these Rules.

1°. If the Quantities sought, or required, be more than the Number of *Equations* given, or contain'd in the Question; it is indeterminate, and capable of innumerable Solutions. The *Equations* are found, if they be not expresly contain'd in the Problem it self, by the Theorems of the Equality of Quantities.

2°. If the *Equations* given, or contain'd in the Problem, be just equal in Number with the unknown Quantities; the Question is determinate, or has one only Solution.

3°. If the unknown Quantities be fewer than the given *Equations*, the Question is yet more limited, and sometimes discovers it self impossible, by some Contradiction between the *Equations*. See Determinate, &c.

To bring Questions to Equations.

Now, *to bring a Question to an Equation*, that is, to bring the several mediate *Equations*, to one final one; the principal Thing to be attended to, is to express all the Conditions thereof, by so many *Equations*. In order to which, it is to be consider'd, whether the Propositions, or Sentences, wherein it is expressed, be all of them fit to be noted in Algebraic Terms; as our Conceptions use to be in *Latin*, or *Greek* Characters. And if so, as is generally the Case in Questions about Numbers, or abstract Quantities; then let Names he given both to the known and unknown Quantities, as far as Occasion requires: And thus the Drift of the Question may be couch'd, as we

may

may call it, in the *Algebraical Language*. The Conditions, thus translated to Algebraic Terms, will give as many *Equations* as are necessary to solve it. To illustrate this by an Instance: Suppose it required to find three Numbers, in continual Proportion, whose Sum is 20, and the Sum of the Squares 140; putting x, y, z, for the Names of the three Numbers sought, the Question will be translated out of the Verbal to the Symbolical Expression, thus:

The Question in Words.	*In Symbols.*
Required three Numbers, on these Conditions.	x, y, z?
That they be continually proportional.	$x : y :: y : z$, or $xz = yy$
That the Sum be 20.	$x + y + z = 20$.
And the Sum of their Squares 140.	$xx + yy + zz = 140$.

Thus, is the Question brought to these *Equations*, viz. $xz = yy$, $x + z + y = 20$, and $xx + yy + zz = 140$, by the Help whereof, x, y, and z, are to be found.

The Solutions of Questions are, for the most Part, so much the more expedite and artificial, by how much the unknown Quantities, you have at first, are the fewer. Thus, in the Question proposed, putting x for the first Number, and y for the second, $\frac{yy}{x}$ will be the third Proportional; which being put for the third Number, bring the Question into *Equations* as follows.

The Question in Words.	*Symbolically.*
There are sought three Numbers in continual Proportion. - - -	x, y, $\frac{yy}{x}$?
Whose Sum is 20. - - - -	$x + y + \frac{yy}{x} = 20$.
And the Sum of their Squares 140. - - - - - - - - -	$xx + yy + \frac{y^4}{xx} = 140$.

You have therefore the *Equations* $x + y + \frac{yy}{x} = 20$, and $xx + yy + \frac{y^4}{xx} = 140$, by the Reduction whereof, x and y are to be determined.

Take another Example: A Merchant increases his Estate annually by a third Part, abating 100 *L.* which he spends yearly in his Family; and after three Years he finds his Estate doubled. *Query*, What is he worth? To resolve this, it must be observed, that there are (or lie hid) several Propositions, which are all thus found out and laid down.

In English.	*Algebraically.*
A Merchant has an Estate. —— ——	x
Out of which the first Year he expends 100 *l.*	$x - 100$.
And augments the rest by one Third. ——	$x - 100 + \frac{x-100}{3}$, or $\frac{4x-400}{3}$
And the second Year he expends 100 *l.* —	$\frac{4x-400}{3} - 100$, or $\frac{4x-700}{3}$
And augments the rest by one Third. ——	$\frac{4x-700}{3} + \frac{4x-700}{9}$, or $\frac{16x-2800}{9}$
And so the third Year he expends 100 *l.* —	$\frac{16x-2800}{9} - 100$, or $\frac{16x-3700}{9}$
And by the rest gains likewise one Third.	$\frac{16x-3700}{9} + \frac{16x-3700}{27}$, or $\frac{64x-14800}{27}$
And he becomes at length twice as rich as at first.	$\frac{64x-14800}{27} = 2x$.

Therefore the Question is brought to this *Equation*, $\frac{64x-14800}{27} = 2x$, by the Reduction whereof you will find $x = 14800$.

x. *Viz.* Multiply it into 27, and you have $64x - 14800 = 54x$; subtract $54x$, and there remains $10x - 14800 = 0$, or $10x = 14800$; and dividing by 10, you have $x = 1480$. So that the Value of his Estate at first was 1480 *Lib.*

It appears then, that to the Solution of Questions about Numbers, or the Relations of abstract Quantities; there is scarce any Thing more required, but to translate 'em out of the common, into Algebraic Language; *i. e.* into Characters, proper to express our Idea's of the Relations of Quantities. Indeed, it may sometimes happen, that the Language wherein the Question is stated, may seem unfit to be rendred into the Algebraical; tho' by making a few Alterations therein, and attending to the Sense, rather than the Sound of the Words, the Translation becomes easy enough. The Difficulty here results merely from the Difference of Idioms, which is as observable between most Languages, as between the common and symbolical.

However, to render the Solution of such Problems a little more easy and familiar, we shall add an Example or two thereof.

1°. *Given, the Sum of two Numbers* a, *and the Difference of their Squares* b; *to find the Numbers themselves.* Suppose the lesser, x; the other will be $a - x$; and their Squares xx and $aa - 2ax + xx$: Whose Difference, $aa - 2ax$ is call'd b. Consequently, $aa - 2ax = b$. Whence, by Reduction, $aa - b = 2ax$. Or $\frac{aa-b}{2a}$ $(= \frac{1}{2}a - \frac{b}{2a}) = x$.

E. gr. Suppose the Sum of the Numbers, or a, to be 8, and the Difference of their Squares, or b, 16: Then will, $\frac{1}{2}a - \frac{b}{2a}(= 4 - 1) = 3 = x$. And $a - x = 5$. Therefore the Numbers are 3 and 5.

2°. *To find three Quantities* x, y, *and* z; *the Sum of each Pair whereof is given.* Suppose the Sum of the Pair x and y be a; that of x and z, b: and that of y and z, c. To determine the three Numbers required, x, y, and z; we have three *Equations* $x + y = a$; $x + z = b$; and $y + z = c$: Now, to exterminate two of the unknown Quantities, *e. gr.* y and x; take away x, both from the first and second *Equations*; and we shall have $y = a - x$ and $z = b - x$. Which Values being substituted for y and z in the third *Equation*; there will arise $a - x + b - x = c$; and by Reduction $x = \frac{a+b-c}{2}$. Having found x the former *Equations*, $y = a - x$ and $z = b - x$ will give y and z.

Thus, *e. gr.* If the Sum of the Pair x and y be 9; of x and z, 10; and of y and z, 13: Then, in the Values x, y and z, write 9 for a, 10 for b, and 13 for c; and you will have $a + b - c = 6$; and consequently x $(= \frac{a+b-c}{2})$ $= 3$, y $(= a - x) = 6$ and z $(= b - x) = 7$.

3°. *To divide a given Quantity into any Number of Parts, so as that the greater Parts shall exceed the least by any given Differences.* Suppose A a Quantity to be divided into four such Parts, the first and smallest whereof is x; the Excess of the second Part above this, b, of the third, c, and the fourth, d: Then will $x + b$ be the second Part, $x + c$ the third, and $x + d$ the fourth: The Aggregate of all which $4x + b + c + d$ is equal to the whole Line a. Now, taking away from each, $b + c + d$, and there remains $4x = a - b - c - d$ or $x = \frac{a-b-c-d}{4}$.

Suppose, *e. gr.* a Line of 20 Feet, to be divided into 4 Parts, in such manner, as that the Excess of the second above the first may be 2 Feet, of the third, 3 Feet, and of the fourth 7 Feet. Then the four Parts will be x $(= \frac{a-b-c-d}{4}$ Or $\frac{20-2-3-7}{4}) = 2$, $x + b = 4$, $x + c = 5$, and $x + d = 9$. And after the same Manner, may a Quantity be divided into a greater Number of Parts on the same Conditions.

4°. *A Person disposed to distribute a little Money among some Beggars; wants Eight Pence, of Three Pence for each of 'em: He therefore gives 'em Two Pence a-piece, and has Three Pence left: The Number of Beggars is required.* Let the Number of Beggars be call'd x; and the Person want Eight Pence of giving 'em all $3x$. Consequently he has $3x - 8$; out of which he gives $2x$ Pence; and the remaining Pence are 3. That is $x - 8 = 3$ or $x = 11$.

5°. *The Power or Strength of one Agent being given; to determine how many such Agents will produce a given Effect* a, *in a given Time* b. Suppose the Power of the Agent such, as that it may produce the Effect c, in the Time d; then, as the Time d, is to the Time b, so is the Effect c, which the Agent can produce in the Time d, to the Effect it can produce in the Time b, which accordingly will be $\frac{bc}{d}$ Then, as the Effect of one Agent $\frac{bc}{d}$ is to the joynt Effect of 'em all a; so is that one Agent, to all the Agents. Consequently the Number of Agents will be $\frac{ad}{bc}$.

Thus, *e. gr.* If a Clerk, or Writer, in 8 Days Time, transcribe 15 Sheets; how many such Clerks are required to transcribe 405 Sheets in 9 Days? *Ans.* 24. For if 8 be substituted for d, 15 for c, 405 for a, and 9 for b, the Number $\frac{ad}{bc}$ will become $\frac{405 \times 8}{9 \times 15}$ That is $\frac{3240}{135}$ or 24.

5°. *The Powers of several Agents being given; to determine the Time* x, *wherein they will joyntly perform a given Effect* d. Suppose the Powers of the Agents, A, B, C, such as that in the Times e, f, g, they would produce

duce Effects a, b, c, respectively: And these, in the Time x, would produce Effects $\frac{ax}{e}$, $\frac{bx}{f}$, $\frac{cx}{g}$. Consequently $\frac{ax}{e} + \frac{bx}{f} + \frac{cx}{g} = d$, and by Reduction $x = \frac{d}{\frac{a}{e} + \frac{b}{f} + \frac{c}{g}}$.

Suppose, *e. gr.* three Workmen cou'd finish a certain Work, on such and such Times, *viz.* A once in three Weeks, B thrice in eight Weeks, and C five Times in twelve Weeks: And it is required, in what Time they will finish it together? Here, the Powers of the Agents A, B, C, are such as in the Times 3, 8, and 12, respectively produce Effects 1, 3, 5; and it is enquired in what Time they will produce the Effect, 1. For a, b, c, d, e, f, g, write 1, 3, 5, 1, 3, 8, 12; and there will come out $x = \frac{1}{\frac{1}{3} + \frac{3}{8}} + \frac{5}{12}$ or $\frac{3}{9}$ of a Week, that is, 6 Days, $5\frac{1}{3}$ of an Hour; the Time they will finish it in together.

6°. *Given, the specific Gravities of a Mixture, and of the several Ingredients thereof; to find the Proportion of the Ingredients therein.* Suppose e the specific Gravity of the Mixture A + B; a that of A, and b that of B: Since the absolute Gravity, or Weight, is compounded of the Bulk of the Body, and its specific Gravity; a A will be the Weight of A; B b that of B; and e A + e B the Weight of the Aggregate A + B. Consequently, a A + b B = e A + e B; and therefore a A − e A = e B − bB or e − b. a − e :: A. B.

Thus, *e. gr.* suppose the specific Gravity of Gold to be as 19, that of Silver as $10\frac{1}{3}$, and that of K. *Hiero*'s Crown as 17; then will 10. 3 (:: e − b. a − e :: A. B) :: the Bulk of Gold in the Crown, to the Bulk of Silver: Or 190. 31 (:: 19 × 10. $10\frac{1}{3}$ × 3 :: a × e − b. b × a − e) :: The Weight of the Gold in the Crown, to the Weight of the Silver, and 221. 31 :: the Weight of the Crown to the Weight of Silver.

To bring Geometrical Problems to EQUATIONS.

Geometrical Questions, or those relating to continued Quantities, are sometimes brought to *Equations*, after the same manner as Arithmetical ones. So that the 1*st* Rule to be here prescribed is, to observe every Thing directed for the Solution of Numerical Problems.

Suppose, *e. gr.* it were required, *to cut a right Line, as* A B, (*Tab. Algebra. Fig.* 6.) *in mean and extreme Proportion in* C; that is, so as that B E, the Square of the greatest Part, shall be *Equal* to the Rectangle B D, contain'd under the whole and the least Part.

Here supposing A B = a and C B = x; then will AC = a − x; and xx = a into a − x. An *Equation*, which by Reduction gives $x = -\frac{1}{2}a + \sqrt{\frac{5}{4}aa}$.

But 'tis very rare, that Geometrical Problems are thus brought to *Equation*; as being generally found to depend on various complex Positions, and Relations of Lines; so that, here, some further Artifice, and certain special Rules, will be required, to bring 'em to Algebraic Terms. Indeed, 'tis very difficult to prescribe any Thing precise in such Cases: Every Man's own Genius should be the Rule of his Procedure.

Something, however, shall be said in the general, for the Sake of such as are nothing versed in such Operations; and that principally from Sir *I. Newton*.

Observe then, 2°. That Problems concerning Lines related to each other in any definite manner, may be variously stated, by supposing different Quantities, the *Quæsita*, or Things sought, from different *Data*: Yet still, with whatever Date and *Quæsita* the Question is proposed, its Solution will arise after the very same manner, without the least Alteration of any Circumstance, except in the imaginary Species of Lines, or the Names whereby the *Data* are distinguish'd from the *Quæsita*.

Suppose, *e. gr.* the Question were about an *Isosceles* Triangle, B C D, (*Fig.* 7.) inscribed in a Circle; whose Sides, BC, BD, and Base CD, were to be compared with the Diameter of the Circle A B. Here, the Question may be either proposed, of the investigating the Diameter, from the given Sides and Base; or of investigating the Base, from the Sides and Diameter given. Or, lastly, of finding the Sides, from the Base and Diameter given: And propose it under which Form you will, it will be brought to an *Equation*, by the same Algebraic Series.

Thus, if the *Diameter* be sought, I put A B = x, C D = a, and B C, or B D = b. Then, drawing A C, as the Triangles A B C and C B E are similar; A B : B C :: B C : B E, Or xx : b :: b : B E. Wherefore B E = $\frac{bb}{x}$ and C E = $\frac{1}{2}$ C D or $\frac{1}{2}$ a. And, by reason the Angle C E B is a right Angle, C E q + B E q = B C q, that is, $\frac{1}{4}aa + \frac{b^4}{xx} = bb$. Which *Equation* being reduced, gives the Diameter required, x. Again,

If the Base be sought, I put A B = c, C D = x, and B C, or B D = b. Then, drawing A C, as the Triangles ABC and CBE are similar; A B : B C :: B C : B E, or c : b :: b : B E. Wherefore B E = $\frac{bb}{c}$. And C E = $\frac{1}{2}$ C D or $\frac{1}{2}x$. And since the Angle C E B is right, C E q + B E q = B C q; that is, $\frac{1}{4}xx + \frac{b^4}{cc} = bb$; an *Equation*, which reduced, gives the Basis sought, x.

Lastly, If the Side B C, or B D, were sought, I put A B = c; C D = a, and B C or B D = x. Then, drawing A C, the Triangles A B C, and C B E, being similar; we have A B : B C :: B C : B E; or c : x :: x : B E. Wherefore, B E = $\frac{xx}{c}$. And C E = $\frac{1}{2}$ C D or $\frac{1}{2}$ a; And the Angle C E B being right C E q + B E q = B C q. That is $\frac{1}{4}aa + \frac{x^4}{cc} = xx$. An *Equation*, which by Reduction, gives x required.

Thus is the *Calculus* for arriving at the *Equation*, as well as the *Equation* it self; the same in all the Cases; except that the same Lines are design'd by different Letters, according as they are *Data*, or *Quæsita*. Indeed, as the *Data*, or *Quæsita* differ, there arises a Difference in the Reduction of the *Equation* found: But no Difference in the *Equation* it self. So that we need make no Difference between given and sought Quantities; but are at Liberty to state the Question with such *Data* and *Quæsita*, as we think most favourable to the Solution of the Question.

3°. A Problem, then, being proposed, compare the Quantities it includes; and, without making any Difference between *Data* and *Quæsita*, consider what Dependances they have of each other; that you may learn which of 'em will, by Composition, give the rest. In the doing of which, it is not necessary you shou'd at first contrive, how some may be deduced out of others, by an Algebraic *Calculus*; It suffices you remark in the general, that they may be deduced by some direct Connection.

Thus, *e. gr.* If the Question be about the Diameter of a Circle, A D (*Fig.* 8.) and three Lines A B, B C, and C D, inscribed in a Semi-circle; whereof, the rest being given, B C is required: It is evident at first Sight, that the Diameter A D, determines the Semi-circle; as also, that the Lines A B, and C D, by Inscription, determine the Points B and C, and consequently B C required, and that by a direct Connection. Yet does not it appear how B C is deduced from the same *Data*, by any analytical *Calculus*.

4°. Having consider'd the several Manners, wherein the Terms of the Question may be explain'd and decompounded; chuse some of the synthetic Methods; assuming some Lines as given, from which there is the most easy Access, or Progression to the rest, and to which the Regression is the most difficult. For, tho' the *Calculus* may be carried on divers Ways, yet must it begin with these Lines. And the Question is more readily solved, by supposing it to be of these *Data*, and some *Quæsitum* readily flowing from 'em; than by considering the Question as 'tis actually proposed.

Thus, in the Example already given, if from the rest of the Quantities given, it were required to find A D; perceiving that this cannot be done synthetically; yet that if it were so done, I cou'd proceed in my Ratiocination on it in a direct Connection from one Thing to others; I assume A D as given, and begin to compute as if it was given indeed, and some of the other Quantities, *viz.* some of the given ones, as A B, B C, or C D, were sought. And thus, by carrying on the Computation, from the Quantities assumed to the others, as the Relations of the Lines to one another direct, there will always be obtained an *Equation* between two Values of some one Quantity; whether one of those Values be a Letter set down as a Representation, or Name, at the Beginning of the Work for that Quantity; and the other, a Value of it found out by Computation: or whether both be found by Computation made different Ways.

5°. Having thus compar'd the Terms of the Question in general, there is further Thought and Address required, to find the particular Connections, or Relations of the Lines, fit for Computation. For, what to a Person who does not so throughly consider them, may seem immediately, and by a very near Relation, connected together; when we come to express that Relation Algebraically, are often found to require a longer Circuit; and shall even oblige you to begin your Schemes a-new, and carry on your Computation Step by Step; as may appear by finding B C, from A D, A B, and C D. For you are only to proceed by such Propositions, or Enunciations, as can be fitly represented in Algebraic Terms, whereof there are

ſeveral ariſe from *Eucl.* Ax. 19. Prop. 4. Book 6. and Prop. 47. *Lib.* I. Elem.

To facilitate this Diſcovery, of the Relations of the Lines in the Figure, there are ſeveral Things that contribute; as firſt, the Addition and Subſtraction of Lines; ſince from the Values of the Parts, you may find the Values of the whole; or from the Value of the whole, and one of the Parts, you may obtain the Value of the other Part. Secondly, by the Proportionality of Lines; ſince, as above ſuppoſed, the Rectangle of the mean Terms, divided by either of the Extremes, gives the Value of the other; or, which is the ſame Thing, if the Values of all four of the Proportionals are firſt had, we make an Equality (or *Equation*) between the Rectangles of the Extremes and Means. But the Proportionality of Lines is beſt found out by the Similiarity of Triangles; which, as it is known by the Equality of their Angles, the Analyſt ought in particular to be converſant in. In Order to which, 'twill be neceſſary he be Maſter of *Euclid*, Prop. 5, 13, 15, 29, and 32, *Lib.* I. and of Prop. 4, 5, 6, 7, 8, *Lib.* VI. and of the 20, 21, 22, 27, and 31, *Lib.* III. To which may be added, the 3d Prop. *Lib.* VI. or the 36th and 37th Prop. *Lib.* III. Thirdly, the Calculus is promoted by the Addition, or Subſtraction of Squares, *viz.* in right angled Triangles, we add the Squares of the leſſer Sides, to obtain the Square of the greater; or from the Square of the greater Side, we ſubſtract the Square of one of the leſſer, to obtain the Square of the other. On which few Foundations, if we add to them Prop. 1. of the VIth *Elem.* when the Buſineſs relates to Superficies, and alſo ſome Propoſitions taken out of the 11th and 12th of *Euclid*, when Solids come in Queſtion; the whole analytic Art, as to right-lined Geometry, depends. Indeed, all the Difficulties of Problems may be reduced to the ſole Compoſition of Lines out of Parts, and the Similiarity of Triangles; ſo that there is no Occaſion to make Uſe of other Theorems; becauſe they may all be reſolved into theſe two, and conſequently into the Solutions that may be drawn from them.

6°. To accommodate theſe Theorems to the Solution of Problems, the Schemes are oft times to be farther conſtructed, by producing out ſome of the Lines, till they cut others, or become of an aſſigned Length; or by drawing Lines parallel, or perpendicular from ſome remarkable Point; or by conjoyning ſome remarkable Points; as alſo, ſometimes, by conſtructing them after other Methods, according as the State of the Problems, and the Theorems, which are made uſe of to ſolve it, ſhall require.

As for Example: If two Lines that do not meet each other, make given Angles, with a certain third Line; perhaps we produce them ſo, that when they concur, or meet, they ſhall form a Triangle, whoſe Angles, and conſequently the Ratio of their Sides, ſhall be given; or if any Angle is given, or be equal to any one, we often complete it into a Triangle given in Specie, or ſimilar to ſome other, and that by producing ſome of the Lines in the Scheme, or by drawing a Line ſubtending an Angle. If the Triangle be an oblique-angled one, we often reſolve it into two right-angled ones, by letting fall a Perpendicular. If the Buſineſs concern multilateral, or many ſided Figures, we reſolve them into Triangles, by drawing diagonal Lines, and ſo in others; always aiming at this End, *viz.* that the Scheme may be reſolved either into given, or ſimilar, or right angled Triangles.

Thus, in the Example propoſed, draw the Diagonal B D, that the Trapezium A B C D, may be reſolved into the two Triangles, A B D a right angled one, and B D C an oblique-angled one, (*Figure* 8.) Then reſolve the oblique-angled one into two right-angled Triangles, by letting fall a Perpendicular from any of its Angle B C or D, upon the oppoſite Side; as from B upon C D, produced to E, that B E may meet it perpendicularly. But ſince the Angles B A D, and B C D, make in the mean while two right ones, (by 22 Prop. 3 *Elem.*) as well as B C E and B C D, the Angles B A D, and B C E are perceived to be equal; conſequently the Triangles B C E, and D A B to be ſimilar. And ſo the Computation (by aſſuming A D, A B, and B C, as if C D were ſought) may be thus carried on, *viz.* A D and A B, (by Reaſon of the right-angled Triangle A B D) give you B D. A D, A B, B D and B C, (by Reaſon of the ſimilar Triangles A B D, and C E B) give B E, and C E. B D, and B E, (by Reaſon of the right-angled B E D) give E D: and E D — E C gives C D. Whence there will be obtain'd an *Equation* between the Value of C D ſo found out, and the ſmall Algebraic Letter that denotes it. We may alſo (and for the greateſt Part it is better ſo to do, than to follow the Work too far in one continued Series) begin the Computation from different Principles, or at leaſt promote it by divers Methods to one and the ſame Concluſion; that at length there may be obtained two Values of any the ſame Quantity; which may be made equal to one another. Thus, A D, A B, and B C, give B D, B E, and C E as before; then C D + C E, gives E D; and laſtly, D B and E D (by Reaſon of the right-angled Triangle B E D) give B E.

7°. Having concerted your Method of Procedure, and drawn up your Scheme; give Names to the Quantities that enter the Computation, (that is, from which aſſumed the Values of others are to be derived, till you come to an *Equation*) chuſing ſuch as involve all the Conditions of the Problem, and ſeem accommodated before others to the Buſineſs, and that ſhall render the Concluſion (as far as you can gueſs) more ſimple, but yet not more than what ſhall be ſufficient for your Purpoſe: Wherefore, don't give new Names to Quantities, which may be denominated from Names already given. Thus, of a whole Line given, and its Parts, of the three Sides of a right-angled Triangle, and of three or four Proportionals, ſome one of the leaſt conſiderable we leave without a Name; becauſe its Value may be deriv'd from the Names of the reſt. As in the Example already brought, if I make A D = x, and A B = a, I denote B D by no Letter, becauſe it is the third Side of a right-angled Triangle A B D, and conſequently its Value is $\sqrt{xx - aa}$. Then if I ſay, B C = b, ſince the Triangles D A B, and B C E are ſimilar, and thence the Lines A D, A B :: B C, C E proportional, to three whereof, *viz.* to A D, A B, and B C, there are already Names given; for that Reaſon I leave the fourth C E without a Name, and in its Room I make uſe of $\frac{ab}{x}$ diſcover'd from the foregoing Proportionality. And ſo if D C be called c, I give no name to D E, becauſe from its Parts D C, and C E, or c and $\frac{ab}{x}$, its Value $c + \frac{ab}{x}$ comes out.

8. By this Time, the Problem is almoſt reduced to an *Equation*. For after the aforeſaid Letters are ſet down for the Species of the principal Lines, there remains nothing elſe to be done, but that out of thoſe Species, the Values of other Lines be made out, according to a preconceived Method; till after ſome foreſeen Way they come to an *Equation*. And there is nothing wanting in this Caſe, except that by Means of the right-angled Triangles B C E and B D E, I can bring out a double Value of B E, *viz.* B C q — C E q $\left(\text{or } bb - \frac{aabb}{xx}\right) =$ B E q; as alſo B D q — D E q $\left(\text{or } xx - aa - cc - \frac{2abc}{x} - \frac{aabb}{xx}\right) =$ B E q. And hence (blotting out on both Sides $\frac{aabb}{xx}$) you ſhall have the *Equation* $bb = xx - aa - cc - \frac{2abc}{xx}$; which being reduced, becomes $x^2 = +aa + bbx + 2abc + cc$. as before.

9°. For the Geometry of Curve Lines: We uſe to denote them, either by deſcribing them by the local Motion of right Lines, or by uſing *Equations* indefinitely expreſſing the Relation of right Lines diſpoſed in Order, according to ſome certain Law, and ending at the Curve Lines. See CURVE.

The Antients did the ſame by the Sections of Solids, but leſs commodiouſly. The Computations, which regard Curves, deſcribed after the firſt Manner, are performed as above directed: Thus, ſuppoſe A K C (*Fig.* 9.) a Curve Line, deſcribed by K, the vertical Point of the Square A K φ, whereof one Leg A K, freely ſlides thro' the Point A given in Poſition, while the other K φ of a determinate Length is carried along the right Line A D, alſo given in Poſition; and it is required to find the Point C, in which any right Line C D, given alſo in Poſition, ſhall cut this Curve: Draw the right Lines A C, C F, which may repreſent the Square in the Poſition ſought, and the Relation of the Lines (without any Difference, or Regard, of what is given or ſought, or any Reſpect had to the Curve) being conſidered; you perceive the Dependency of the others upon C F, and any of theſe four, *viz.* B C, B F, A F, and A C, to be ſynthetical; two whereof you aſſume, as C F = a, and C B = x; and Beginning the Computation from thence, you preſently obtain B F = $\sqrt{aa - xx}$, and A B = $\frac{xx}{\sqrt{aa - xx}}$, by Reaſon of the right Angle C B F; and that the Lines B F, B C :: B C, A B are continual Proportionals. Moreover, from the given Poſition of C D, A D is given, which therefore call b; there is alſo given the Ratio of B C to B D, which ſuppoſe as d to e, and you have B D = $\frac{ex}{d}$, and A B = $b - \frac{ex}{d}$.

Therefore $b - \frac{ex}{d} = \frac{xx}{\sqrt{aa - xx}}$, an *Equation* which (by ſquaring

ſquaring its Parts, and multiplying by $aa - xx$) will be reduced to this Form.

$$x^4 = \frac{2bdex^3 - bbdd + aaee\,xx - 2aabdex + aabbdd.}{dd + ee}$$

Whence, laſtly, from the given Quantities a, b, d, and e; x may be found by Rules given hereafter; and at that Interval, or Diſtance x or BC, a right Line drawn parallel to AD, will cut CD in the Point ſought C.

If, inſtead of Geometrical Deſcriptions, we uſe *Equations* to denote the Curve Lines by; the Computations will thereby become as much ſhorter and eaſier, as the gaining of thoſe *Equations* can make them. Thus, ſuppoſe the Interſection C, of the given Ellipſis ACE, *Fig.* 10. with the right Line CD given Poſition, ſought: To denote the Ellipſis, take ſome known *Equation* proper to it, as $rx - \frac{r}{q}\,xx = yy$, where x is indefinitely put for any Part of the Axis Ab, or AB, and y for the Perpendicular be, or BC, terminated at the Curve; and r and q are given from the given Species of the Ellipſis. Since therefore CD is given in Poſition, AD will be alſo given, which call a; and BD will be $a - x$; alſo the Angle ADC will be given, and thence the Ratio of BD to BC, which call 1 to e; and BC (y) will be $= ea - ex$, whoſe Square $eeaa - 2eeax + eexx$, will be equal to $rx - \frac{r}{q}\,xx$. And thence by Reduction there will ariſe $xx = \frac{2aaeex + rx - aaee}{ee + \frac{r}{q}}$, or $x = \frac{aee + \frac{1}{2}r \pm e\sqrt{ar + \frac{rr}{4ee} - \frac{aar}{q}}}{ee + \frac{r}{q}}$. Add, that tho' a Curve be denominated by a Geometrical Deſcription, or by a Section of a Solid, yet thence an *Equation* may be obtained, which ſhall define the Nature of the Curve, and conſequently all the Difficulties of Problems propoſed about it, may be reduced hither. Thus, in the former Example, if AB be called x, and BC, y, the third Proportional BF will be $\frac{yy}{x}$, whoſe Square, together with the Square of BC, is equal to CFq, that is, $\frac{y^4}{xx} + yy = aa$; or $y^4 + xxyy = aaxx$. And this is an *Equation*, by which every Point C, of the Curve AKC, agreeing or correſponding to any Length of the Baſe (and conſequently the Curve itſelf) is defined; and from whence conſequently you may obtain the Solutions of Problems propoſed concerning this Curve.

After the ſame Manner almoſt, when a Curve is not given in Specie, but propoſed to be determined, you may feign an *Equation* at Pleaſure, that may contain its general Nature; and aſſume this to denote it, as if it was given, that from its Aſſumption you ſome Way arrive at *Equations*, by which the Aſſumptions may be determined.

What remains of the Doctrine and Practice of *Equations*, relates to their *Reduction* to the loweſt and ſimpleſt Terms, the better to come at the Value of the unknown Quantity in the *Equation*; and their Geometrical *Conſtruction*.

For the *Reduction of* EQUATIONS. See REDUCTION *of Equations*.

Extraction of the Roots of EQUATIONS. See EXTRACTION *of the Roots of Equation*.

Conſtruction of Equations. See CONSTRUCTION *of Equations*.

EQUATION *of Time*, in Aſtronomy, the Difference between mean and apparent Time; or the Reduction of the apparent unequal Time, or Motion of the Sun, or a Planet, to Equable and mean Time or Motion. See TIME and MOTION.

Time is only meaſured by Motion; and as Time, in it ſelf, flows ever equably; to meaſure it, ſuch a Motion muſt be uſed as is equable, or which always proceeds at the ſame Rate.

The Motion of the Sun, is what is commonly uſed for this Purpoſe; as the moſt eaſy to be obſerved: Yet it wants the great Qualification of a Chronometer. In Effect, the Aſtronomers find that the Sun's apparent Motion is no Ways equal: That he now and then ſlackens his Pace, and afterwards quickens it again. Conſequently equal Time cannot be meaſured thereby. See SUN.

Hence, the Time which the Sun's Motion ſhews, call'd the *apparent Time*, becomes different from the true and equable Time, wherein all the Celeſtial Motions are to be eſtimated, and accounted.

This Inequality of Time is thus accounted for: The Natural, or Solar Day is meaſured, not, properly, by one entire Revolution of the Equinoctial, or 24 Equinoctial Hours; but by the Time which paſſes while the Plane of a Meridian paſſing thro' the Centre of the Sun, does, by the Earth's Converſion round its Axis, return again to the Sun's Centre: Which is the Time between one Mid-day and the next. See DAY and MERIDIAN.

Now, had the Earth no other Motion but that round its Axis; all the Days would be preciſely equal to each other, and to the Time of the Revolution of the Equinoctial: But the Caſe is otherwiſe; for while the Earth is turning round its Axis, it is likewiſe proceeding forward in its Orbit. So that when a Meridian has completed a whole Revolution from the Sun's Centre, its Plane has not yet arrived at the Sun's Centre again: As will appear from the Figure.

Let the Sun be S, (*Tab. Aſtronom. Fig.* 50.) and let AB be a Portion of the Ecliptic: Let the Line MD, repreſent any Meridian, whoſe Plane produced, paſſes thro' the Sun when the Earth is in A. Let the Earth proceed in its Orbit, and in making one Revolution round its Axis, let it arrive at B; then, will the Meridian MD be in the Poſition md parallel to the former MD; and conſequently has not yet paſſed thro' the Sun, not have the Inhabitants under that Meridian, yet had their Mid-day. But the Meridian dm, muſt ſtill proceed with its angular Motion, and deſcribe the Angle dBf e're its Plane can paſs thro' the Sun. See EARTH.

Hence it appears, that the Solar Days are all longer than the Time of one Revolution of the Earth round its Axis.

However, were the Planes of all the Meridians perpendicular to the Plane of the Earth's Orbit; and did the Earth proceed with an equal Motion in its Orbit; the Angle dBf would be equal to the Angle BSA, and the Arches Af and AB be ſimilar: Conſequently, the Times would be always equal; the Arch AB, and the Angle dBf, of the ſame Quantity; all the Solar Days equal to each other; and the apparent and real Time agree.

But, as it is, neither of thoſe is the Caſe: For the Earth does not proceed in its Orbit with an equable Motion, but in its Aphelion, deſcribes a leſs Arch, and in its Perihelion a greater, in the ſame Time; beſide, that the Planes of the Meridians, are not perpendicular to the Ecliptic, but to the Equator. Conſequently, the Time of the Angular Motion dBf, which is to be added to the entire Revolution in order to make a whole Day, is not always of the ſame Quantity.

The ſame will be found, if, ſetting aſide the Conſideration of the real Motion of the Earth, we conſider the apparent Motion of the Sun in lieu thereof; as being what we meaſure Time by.

On this Principle we obſerve, that the Day not only includes the Time of one Converſion of the Globe on its Axis, but is increas'd by ſo much as anſwers to that Part of the Sun's Motion, performed in that Time. For when that Part of the Equinoctial, which, with the Sun, was at the Meridian yeſterday at Noon, is come thither again to Day; it is not yet Noon; the Sun not being now at the Place where he yeſterday was, but gone forward near a Degree more or leſs. And this Additament above the 24 Equinoctial Hours is upon a double Account unequal.

1°. In that the Sun, by Reaſon of his Apogee and Perigee, does not at all Times of the Year diſpatch an equal Arch of the Ecliptic in one Day; but greater Arches near the Perigæum, which is about the middle of *December*; and leſſer nearer the Apogæum, which is about the middle of *June*.

2°. In that tho' the Sun ſhould always move equably in the Ecliptic, yet equal Arches of the Ecliptic do not in all Parts of the Zodiac, anſwer to equal Arches of the Equator, by which we are to eſtimate Time; by Reaſon ſome Parts thereof, as the two Solſtitial Points, lie nearer to a parallel Poſition to the Equinoctial than others, *e.gr.* thoſe about the Equinoctial Points, where the Ecliptic and Equinoctial interſect. Whereupon an Arch of the Ecliptic, near the Solſtitial Points, anſwers to a greater Arch of the Equinoctial, than an Arch equal thereto near the Equinoctial Points.

The apparent Motion of the Sun to the Eaſt, then, being unequal; the natural and apparent Days are no Ways proper to be applied to meaſure the Cœleſtial Motions, which have no Dependance on that of the Sun.

And hence Aſtronomers have been obliged to invent other Days for the Uſe of their Calculations: Thoſe others are equal; and a mean between the ſhorteſt and longeſt of the unequal ones.

Theſe are had by conſidering the Number of Hours in the whole Revolution of the Sun in the Ecliptic, and dividing the whole Time into as many Equal Parts as there are Hours, 24 of which conſtitute the Day: And this Reduction of the Days conſtitutes the *Equation of natural Days*.

Conſe-

Consequently, computing those Motions according to the equal Time, it is necessary to turn that Time back again into apparent Time, that they may correspond to Observation: On the contrary, any Phenomena being observed, the apparent Time thereof must be added to equal Time, to have it correspond with the Times mark'd in the Astronomical Tables.

As we don't know of any Body in Nature that moves equably; yet such a Motion is alone proper to measure equal Days and Hours: It has been thought fit to imagine some Body, *e. gr.* a Star, moving in the *Equator*, Eastward; and never quickening, or slackening its Pace, but going thro' the *Equator*, in precisely the same Time, as the Sun finishes his Period in the Ecliptic.

The Motion of such a Star will represent equal Times; and its diurnal Motion in the *Equator*, will be 59′ 8″; the same as the mean, or equated Motion of the Sun in the Ecliptic. Consequently, the mean or equable Day, is determined by the Arrival of this Star at the Meridian; and is equal to the Time wherein the whole Circumference of the *Equator*, or 360°, pass the Meridian, and 59′ 8″ more. Which Addition of 59′ 8″ remaining always the same, these *mean* or *equated Days* will be constantly equal.

Since then the Sun goes unequally Eastwards with respect to the *Equator*; it will sometimes arrive at the Meridian sooner than this imaginary Star, and sometimes later: The Difference is the Difference between true and apparent Time: Which Difference is known by having the Place of the imaginary Star in the *Equator*; and the Point of the *Equator* which comes to the Meridian with the Sun. For the Arch intercepted between 'em, being converted into Time, shews the Difference between equal and apparent Time; which, as before, is call'd the *Equation of Time*.

The *Equation* of Time then, may be defined the Time that flows while the Arch of the *Equator* intercepted between the Point determioing the right Ascension of the Sun, and the Place of the imaginary Star, passes the Meridian: Or, as *Tycho*, and, after him, *Street*, state it, the Difference between the Sun's true Longitude, and his right Ascension.

To Equate *Solar Days*, that is, *to convert apparent into mean Time, and mean into apparent Time.*

1°. If the Sun's right Ascension be equal to his mean Motion, the imaginary and true Sun will pass the Meridian at the same Time: Consequently, the true coincides with the apparent Time.

2°. If the right Ascension be greater than the mean Motion, subtract the latter from the former; and turning the Difference into Solar Time, either subtract it from the apparent Time, to find the mean Time: or add it to the mean Time to find the apparent.

3°. Lastly, if the right Ascension be less than the mean Motion, subtract the former from the latter, and turning the Difference into Solar Time, either add it to the apparent Time, to find the mean Time; or subtract it from the mean to find the apparent.

This Method of *Equation* obtains, if the *Calculus* be progressive; if it be Retrograde, that is, if the Time be reckon'd backwards, the Operation must be just the Reverse.

This Doctrine of the Inequality and *Equation* of natural Days, is not only of Use in Astronomical Computations, but also in the adjusting and directing of Clocks, Watches, and other Time Keepers: Hence we see, why a Pendulum, or other Movement, which measures equal Time, does not keep Pace with the Sun, which measures apparent Time; but is sometimes before, and sometimes later than the same. Whence, such Automata and Sun-Dials, are found almost perpetually at Variance. See Clock and Dial.

The Variations of the two Kinds of Time, are exhibited in the following Table, for every Day throughout the Year. 'Tis borrowed from Mr. *Flamsteed*; one Part of whose Praise it is, that he was the first who fully demonstrated and clear'd this Inequality of Natural Days: Tho' others, and even *Ptolomy*, had a partial Notion of it.

The Use of the Table is obvious: A Clock, or Watch, that is to be kept to true or equal Time, must be so many Minutes and Seconds faster or slower than a Sun-Dial, as is assign'd in the Table, for the respective Day: Or, if you would have it go by the Sun-Dial, it goes well, if it gains or loses each Day the Number of Minutes and Seconds in the Table.

A Table of the Equation of Natural Days, with the Regulation of a Movement by the same.

DAYS.	January.		February.		March.		April.		May.		June.		July.		August.		Sept.		Oct.		Nov.		Dec.	
	W. too fast.		W. too fast.		W. too fast.		W. too fast.		W. too slow.		W. too slow.		W. too fast.		W. too fast.		W. too slow		W. too slow.		W. too slow.		W. too slow.	
	Min.	Sec.	Min.	Sec.	Min.	Sec.	Min.	Sec.	Min.	Sec.	Min.	Sec.	Min.	Sec.	Min.	Sec.	Min.	Sec.	Min.	Sec.	Min.	Sec.	Min.	Sec.
1	8	59	14	48	10	08	0	48	4	07	1	03	4	43	4	30	3	48	13	14	15	23	5	2
2	9	21	14	47	9	51	0	32	4	09	0	51	4	51	4	20	4	08	13	28	15	15	5	13
3	9	43	14	45	9	34	0	16	4	11	0	39	4	58	4	10	4	28	13	42	15	06	4	44
4	10	04	14	42	9	17	0	* 01	4	12	0	27	5	05	3	59	4	49	13	55	14	56	4	15
5	10	24	14	38	8	59	0	* 14	4	12	0	15	5	11	3	48	5	10	14	08	14	45	3	46
6	11	44	14	33	8	41	0	29	4	11	0	* 02	5	17	3	36	5	31	14	20	14	33	3	17
7	11	03	14	28	8	23	0	44	4	10	0	*11	5	22	3	24	5	52	14	31	14	20	2	48
8	11	21	14	22	8	05	0	58	4	08	0	24	5	27	3	11	6	13	14	42	14	06	2	18
9	11	39	14	16	7	47	1	12	4	06	0	37	5	31	2	58	6	34	14	52	13	52	1	48
10	11	56	14	09	7	29	1	25	4	04	0	50	5	35	2	44	6	54	15	02	13	37	1	18
11	12	12	14	01	7	11	1	38	4	01	1	03	5	38	2	30	7	14	15	11	13	21	0	48
12	12	28	13	53	6	53	1	50	3	57	1	16	5	41	2	16	7	34	15	19	13	04	0	* 18
13	12	43	13	44	6	35	2	02	3	52	1	29	5	43	2	01	7	54	15	26	12	40	0	* 12
14	12	57	13	34	6	16	2	14	3	47	1	42	5	43	1	46	8	14	15	32	12	28	0	42
15	13	10	13	24	5	57	2	25	3	41	1	54	5	46	1	30	8	34	15	38	12	09	1	12
16	13	22	13	13	5	38	2	36	3	35	1	06	5	46	1	34	8	54	15	43	11	50	1	42
17	13	34	13	02	5	19	2	46	3	29	2	18	5	45	0	57	9	14	15	48	11	30	2	11
18	13	45	12	50	5	00	2	56	3	22	2	30	5	44	0	40	9	33	15	52	11	09	2	40
19	13	55	12	38	4	41	3	05	3	15	2	42	5	42	0	25	9	52	15	55	10	47	3	09
20	14	04	12	25	4	22	3	13	3	07	2	54	5	40	0	* 05	10	11	15	58	10	25	3	38
21	14	12	12	12	4	03	3	21	2	58	3	05	5	38	0	* 13	10	30	16	00	10	02	4	7
22	14	19	11	58	3	44	3	28	2	49	3	16	5	35	0	31	10	48	16	01	9	38	4	35
23	14	25	11	43	3	25	3	35	2	40	3	27	5	31	0	50	11	06	16	01	9	14	5	3
24	14	31	11	28	3	07	3	41	2	30	3	38	5	27	1	09	11	24	16	00	8	49	5	30
25	14	36	11	13	2	49	3	46	2	20	3	49	5	22	1	28	11	41	15	58	8	24	5	37
26	14	40	10	57	2	31	3	51	2	10	3	59	5	16	1	48	11	58	15	56	7	58	6	24
27	14	43	10	41	2	13	3	55	2	00	4	09	5	10	2	08	12	14	15	53	7	52	6	50
28	14	46	10	25	1	55	3	59	1	49	4	18	5	03	2	28	12	30	15	49	7	05	7	16
29	14	48			1	38	4	02	1	38	4	27	4	56	2	48	12	45	15	44	6	38	7	41
30	14	49			1	21	4	05	1	27	4	35	4	48	3	08	13	00	15	38	6	10	8	5
31	14	49			1	04			1	15			4	39	3	28			15	31			8	20

Watch too Fast so far as the two Stars

Watch too Slow so far as the two Stars

Watch too Fast as far as the two Stars

Watch too Slow as far as the two Stars

Equation *of the Centre*, call'd also *Prostaphæresis*, and *total Prostaphæresis*; is the Difference between the true and mean Place or Motion of a Planet; or the Angle made by the Lines of the true and mean Place or Motion; or, which amounts to the same, between the mean and equated Anomaly. See Prostaphæresis.

The Motions of the Sun and Moon, are affected with various Inequalities; whence arises a Necessity of so many *Equations*. See Moon, *&c.*

From these Inequalities, the Moon's Place became exceeding difficult to be determined; to remove which Difficulty, is the great Design of Sir *Isaac Newton*'s new Theory

Theory of the Moon; wherein we are furnish'd with *Equations* for all the Inequalities of the mean Motion. The principal are,

Annual EQUATIONS *of the mean Motion of the Sun and Moon, and of the Apogee and Nodes of the Moon.* The Annual *Equation* of the mean Motion of the Sun, depends on the Eccentricity of the Earth's Orbit round the Sun, which is 16 $\frac{11}{12}$ of such Parts, whereof the Earth's mean Distance from the Sun is 1000: Hence its Denomination of *Equation of the Centre*. This, when greatest, is 1 Deg. 56′ 20″. The greatest *Annual Equation of the Moon's mean Motion* is 11′ 49″: That of *her Apogee* 20′: And of *her Node* 9′ 30″.

Which four Annual *Equations* are always mutually proportional one to another: Wherefore, when any of them is at the greatest, the other three will also be greatest; and when any one lessens, the other three will also be diminished in the same Ratio.

The Annual *Equation* of the Sun's Centre being given, the three other corresponding Annual *Equations* will be also given; and therefore a Table of that will serve for all. For if the Annual *Equation* of the Sun's Centre be taken from thence, for any Time, and be called P, and let $\frac{1}{10}$ P (*Tab. Astronomy Fig.* 51.) = Q, Q + $\frac{1}{60}$ Q = R, $\frac{1}{6}$ P = D, D + $\frac{1}{30}$ D = E, and D − $\frac{1}{60}$ D = 2 F; then shall the Annual *Equation* of the Moon's mean Motion for that Time be R, that of the Apogee of the Moon will be E, and that of the Node F.

Only observe, that if the *Equation* of the Sun's Centre be required to be added; then the *Equation* of the Moon's mean Motion must be substracted, that of her Apogee must be added, and that of the Node subducted. And on the contrary, if the *Equation* of the Sun's Centre were to be subducted, the Moon's *Equation* must be added, the *Equation* of her Apogee subducted, and that of her Node added.

There is also an *Equation of the Moon's mean Motion*, depending on the Situation of her Apogee in Respect of the Sun; which is greatest, when the Moon's Apogee is in an Octant with the Sun; and is nothing at all, when it is in the Quadratures, or Syzygies. This *Equation*, when greatest, and the Sun in *Perigæo*, is 3 Min. 56 Seconds. But if the Sun be in *Apogæo*, it will never be above 3 Min. 34 Seconds. At other Distances of the Sun from the Earth, this *Equation*, when greatest, is reciprocally as the Cube of such Distance. But when the Moon's Apogee is any where but in the Octants, this *Equation* grows less, and is mostly at the same Distance between the Earth and Sun, as the Sine of the double Distance of the Moon's Apogee, from the next Quadrature or Syzygy, to the Radius. This is to be added to the Moon's Motion, while her Apogee passes from a Quadrature with the Sun to a Syzygy; but is to be substracted from it, while the Apogee moves from the Syzygy to the Quadrature.

There is, moreover, another *Equation of the Moon's Motion*, which depends on the Aspect of the Nodes of the Moon's Orbit with the Sun: And this is greatest, when her Nodes are in Octants to the Sun, and vanishes quite, when they come to their Quadratures or Syzygies. This *Equation* is proportional to the Sine of the double Distance of the Node from the next Syzygy, or Quadrature; and at greatest, is but 47 Seconds. This must be added to the Moon's mean Motion, while the Nodes are passing from their Syzygies with the Sun, to their Quadratures with him; but substracted while they pass from the Quadratures to the Syzygies.

From the Sun's true Place take the *equated* mean Motion of the Lunar Apogee, as was above shewed; the Remainder will be the Annual Argument of the said Apogee. From whence the *Eccentricity of the Moon*, and the *second Equation* of her Apogee may be compared.

EQUATOR, or ÆQUATOR, in Astronomy, and Geography, a great moveable Circle of the Sphere, equally distant from the two Poles of the World, or having the same Poles with those of the World. See CIRCLE.

Such is the Circle D A, (*Tab. Astronom. Fig.* 52.) its Poles being P and Q.

It is call'd the *Equator*, by Reason when the Sun is therein, the Days and Nights are *Equal*; whence also it is call'd the *Equinoctial*; and when drawn on Maps, and Planispheres, the *Equinoctial Line*, or simply the *Line*. See EQUINOCTIAL.

Every Point of the *Equator* is a Quadrant's Distance from the Poles of the World; whence it follows, that the *Equator* divides the Sphere into two Hemispheres, in one of which is the Northern, and in the other Southern Pole. See HEMISPHERE.

By the Passages, or Transits of Arches of the *Equator* over the Meridian, its equal or mean Time is estimated: Hence we have frequent Occasion for the Conversion of Degrees of the *Equator* into Time; and, again, for the Re-conversion of Parts of Time into Parts of the *Equator*.

For Performance whereof, we subjoyn the following Table; wherein are exhited the Arches of the *Equator*, which pass the Meridian in the several Hours, Minutes, &c. of *Equated*, or mean Time. See EQUATION *of Time*.

Conversion of Parts of the *Equator* into Time, and *vice versa*.

Deg. of *Equat.*	Hours.	I	Hours.	Deg. of *Equat.*	Hour. Min.	Deg. of *Equat.*	I
Min.		II			Sec.		II
Sec.	II	III			Third.		III
Third.	III	IV			Fourth		IV
1	0	4	1	15	1	0	15
2	0	8	2	30	2	0	30
3	0	12	3	45	3	0	45
4	0	16	4	60	4	1	0
5	0	20	5	75	5	1	15
10	0	40	6	90	6	1	30
15	1	0	9	135	10	2	30
30	2	0	12	180	20	5	0
60	4	0	15	225	30	7	30
90	6	0	18	270	40	10	0
180	12	0	21	315	50	12	30
360	24	0	24	360	60	15	0

The Use of the Table is obvious; suppose, *e. gr.* it were required to turn 19° 13′ 7″ of the *Equator* into Time: Against 15 Deg. in the first Column, we have 1ʰ 0′ 00″: Against 4 Deg. we have 16′ 0″: Against 10 Minutes, 40″; against 3 Minutes, 12″ 0‴: Against 5 Seconds, we have 0″ 20‴; and against 2 Seconds, 8‴: Which added together, give 1ʰ 16′ 52″ 28‴.

Again, suppose it were required to find how many Degrees, Minutes, &c. of the *Equator*, answer to 23 Hours 25 Min. 17 Sec. and 9 thirds. Against 21ʰ in the fourth Column of the Table you have 315°: Against 2 Hours, 30°: Against 20′, 5°: Against 10 Sec, 2′ 30″: Against 5 Sec. 1′ 15″ 0″: Against 2 Sec. 30″ 0‴; against 6 Thirds, 0″ 45‴: Which added together give 351° 19′ 17″ 15‴.

The Elevation, or Altitude of the EQUATOR, is an Arch of a Vertical Circle, intercepted between the *Equator* and the Horizon. The *Elevation of the Equator*, with that of the Pole, is always equal to a Quadrant. See ELEVATION.

EQUERY, or ECURY, a grand Stable, or Lodge for Horses, furnish'd with all the Conveniencies thereof; as Stalls, Manger, Rack, &c.

Some hold that Stable, in Propriety, relates only to Bullocks, Cows, Sheep, Hogs, &c. And *Equery* to Horses, Mules, &c.

A *simple Equery*, is that provided for one Row of Horses: A *double Equery* is that provided for two, with a Passage in the middle, or two Passages; the Horses being placed Head to Head: As in the little *Equery* at *Versailles*.

Under *Equery* is sometimes also comprehended the Lodgings, and Apartments, of the *Equeries*, Grooms, Pages, &c.

The Word is form'd from the French *Escurie*, which signifies the same Thing. Some, again, derive *Escurie* from the Latin *Scuria*, which is not only a Place for Beasts to be put up in, but also a Grange, or Barn. But a more probable Derivation is from *Equile*, a Stable for Horses, of *Equus*, Horse.

EQUERRY, *Escuyer*, is also an Officer, who has the Care and Management of the Horses of a King, or Prince.

Of these *Equeries*, there are a great Number in the King of *France*'s Service: As the *Grand Ecuyer*, call'd absolutely *Monsieur le Grand*; one of the principal Offices of the Crown, and a Branch of that of Constable; answering to the Master of Horse among us. He has the chief Intendance and Direction of the great and little *Ecurie*, and disposes of all the vacant Posts therein: the *first great Ecuyer of the great Ecurie*, who has the Command thereof in the Absence of the *Grand Ecuyer*: The *first Ecuyer of the little Equeries* call'd absolutely *Monsieur le Premier*: *Ecuyer Cavalcadeur*, who commands the *Equery* of Horses for a Prince's own Riding: *Ecuyer de Main*, who not only directs the *Ecurie*, but also attends his Master in walking, &c. call'd also Gentlemen-Ushers, and *Chevaliers d' Honneurs*: *Ecuyer Trenchant*, the King's Carver and Server: *Ecuyer Bouche*, who ranges the Dishes and Plates on the Table: *Ecuyer de Cuisine*, &c.

EQUERIES are particularly used among us, for Officers of the King's Stables; who when his Majesty goes Abroad, ride in the leading Coach; are in Waiting one at a Time monthly, and have a Table with the Gentlemen Ushers during the Time.

They used to tide on Horse-back by the Coach-Side, when the King travelled; but that being more expensive to them, than necessary to the Sovereign, it has been discontinued. There are Six of them, and their Salary is 300*l. per Annum* each.

The *Equeries* of the Crown Stable have that distinct Appellation, as being imployed in managing and breaking the Saddle Horses, and preparing them for the King's Riding.

One of them is, or always should be, in close Waiting at Court; and when his Majesty rides, holds the Stirrup, whilst the Master of the Horse, or one of the *Equeries*, in his Absence, assists in mounting him; or when his Majesty rides, they usually attend him. They are two, and their Salary is 256*l. per Annum* each.

EQUES *Auratus*, is used to signifie a Knight Batchelor; call'd *Auratus*, because anciently none but Knights might gild or beautify their Armour, or other Habiliments of War, with Gold. See KNIGHT.

However, in Law, this Term is not used; but instead of it *Miles*; and sometimes *Chevalier*. See MILES, CHEVALIER, *&c.*

EQUESTRIS, EQUESTRIAN, a Term rarely used, but in the Phrase *Equestrian Statue*, which signifies a Statue representing a Person mounted on Horseback. See STATUE.

The *Fortuna Equestris*, in ancient *Rome*, was a Statue of that Goddess on Horseback.

We sometime also say, *Equestrian Column*. See COLUMN.

And *Equestrian Order*, which signified, among the *Romans*, the Order of Knights, or *Equites*. See KNIGHT.

The Word is form'd of the Latin, *Eques*, Knight, Horseman; of *Equus*, Horse.

EQUIANGULAR, or ÆQUIANGULAR, in Geometry, is applied to Figures whose Angles are all equal. See ANGLE.

A *Square* is an *Equiangular* Figure. See SQUARE.

All equilateral Triangles are also *Equiangular*. See EQUILATERAL.

When the three Angles of one Triangle, are severally equal to the three Angles of another Triangle; the Triangles are also said to be *Equiangular*. See TRIANGLE.

EQUICULUS, *Equuleus*, or *Equus minor*, a Constellation of the Northern Hemisphere. See EQUULEUS.

EQUICRURAL, or EQUICRURAL *Triangle*, is what we more usually call an *Isosceles*. See ISOSCELES.

EQUIDIFFERENT, or ÆQUIDIFFERENT, in Arithmetic. If in a Series of three Quantities, there be the same Difference between the first and second, as between the second and third, they are said to be *continually Equidifferent:* But if in a Series of four Quantities, there be the same Difference between the first and second, as between the third and fourth, they are said to be *discretely Equidifferent*. Thus, 3, 6, 7, and 10, are discretely *Equidifferent*; and 3, 6, and 9, continually *Equidifferent*.

EQUIDISTANT, or ÆQUIDISTANT, in Geometry, a Term of Relation between two Things, which are every where at an equal, or the same, Distance from each other. See DISTANCE.

Thus parallel Lines are said to be *Equidistant*, as they neither approach nor recede.

Parallel Walls are *Equidistant* from each other. See PARALLEL.

EQUILATERAL, or ÆQUILATERAL, is applied to any Thing whose Sides are all equal. Thus, an *Equilateral Triangle*, is that whose Sides are all of equal Length. In an *Equilateral* Triangle, all the Angles are likewise equal. See TRIANGLE.

All regular Polygons, and regular Bodies, are *Equilateral*. See POLYGON.

An EQUILATERAL *Hyperbola*, is that wherein the conjugate Axes, as A B, and D E, are equal. (*Tab. Conick's Fig.* 20.)

Hence, as the Parameter is a 3*d* Proportional to the conjugate Axes, it is also equal thereto. Consequently, in the Equation $y^2 = bx + hx^2$: a, make b = a; And the Equation $y^2 = ax + x^2$, defines the Nature of an *Equilateral Hyperbola*. See HYPERBOLA.

EQUILIBRIUM, or ÆQUILIBRIUM, in Mechanicks, a Term implying an exact Equality of Weight between two Bodies, compared with each other. See WEIGHT.

Thus, we say a Balance is in *Equilibrio*; when the two Ends are so exactly pois'd, that neither of 'em ascends or descends, but both retain their parallel Position to the Horizon. From which Circumstance the Word is originally taken; as being a Compound of *æquus*, equal, and *libra*, Balance.

Whence we frequently use the Word *Balance* in lieu thereof. See BALANCE.

The *Equilibrium* of Fluids makes a considerable Part of the Doctrine of Hydrostaticks. See FLUID.

The Term *Equilibrium*, is also used figuratively on other Occasions. A Painter must take Care to observe the *Equilibrium* of his Figures, *i. e.* to dispose 'em well on their Center of Gravity, that they mayn't seem ill supported, or ready to tumble.

Thus, *e. gr.* if one Arm be moving forward, the other must be proportionably backward to poise the Figure.

In a Picture, there should be an *Equilibrium* between one Part and another: That is, the Objects are to be distributed so, as to balance, and contrast each other; and not too many, *e. gr.* be crowded on one Side, and the other left bare. — Peace is never well secured, unless the Neighbouring States are in *Equilibrio*.

EQUIMULTIPLE, in Arithmetic and Geometry, is applied to simple Magnitudes, when multiplied equally, *i. e.* by equal Quantities, or Multiplyers. See MULTIPLICATION.

Thus, taking A as many Times as B; or multiplying 'em equally, there will still remain the same *Ratio* between the Magnitudes thus multiplied, as between the primitive Magnitudes before Multiplication.

Now, those Magnitudes, thus equally multiplied, are call'd *Equimultiples* of the original ones A and B: Whence we say, that *Equimultiples* have the same *Ratio* as the simple Quantities. See RATIO.

In Arithmetic, we generally use the Term *Equimultiples* for Numbers which contain equally, or an equal Number of Times, their *Submultiples*.

Thus 12 and 6 are *Equimultiples* of their *Submultiples* 4 and 2; inasmuch as each of them contains its *Submultiple* three Times. See SUBMULTIPLE.

EQUINOCTIAL, or ÆQUINOCTIAL, in Astronomy, a great and immoveable Circle of the Sphere, under which the *Equator* moves in its diurnal Motion. See SPHERE.

The *Equinoctial*, or *Equinoctial Line*, is ordinarily confounded with the *Equator*; but there is a Difference: the *Equator* being moveable, and the *Equinoctial* immoveable; and the *Equator* drawn about the Convex Surface of the Sphere, but the *Equinoctial* on the Concave Surface of the *magnus Orbis*. See EQUATOR.

The *Equinoctial* is conceiv'd, by supposing a Semi-diameter of the Sphere, produced thro' a Point of the *Equator*, and there, by the Rotation of the Sphere about its Axis, describing a Circle on the immoveable Surface of the *primum Mobile*.

Whenever the Sun, in his Progress thro' the Ecliptic, comes to this Circle, it makes equal Days and Nights all around the Globe; as then arising due East, and setting due West, which he never does at any other Time of the Year. See DAY.

And hence the Denomination, from *æquus*, and *nox*, Night; *quia æquat diem nocti*. See DAY and NIGHT.

The *Equinoctial*, then, is the Circle which the Sun describes, or appears to describe, at the Time of the *Equinoxes*; that is, when the Length of the Day is every where equal to that of the Night; which happens twice *per Annum*. See EQUINOX.

EQUINOCTIAL, in Geography. See EQUATOR.

People who live under this Circle, by Geographers and Navigators call'd the *Line*, have their Days and Nights constantly equal. And at Noon, the Sun is in their *Zenith*, and casts no Shadow. See ASCII.

From this Circle, is the Declination, or Latitude of Places, accounted in Degrees of the Meridian. See LATITUDE, *&c.*

EQUINOCTIAL *Points*, are the two Points wherein the Equator and Ecliptic intersect each other. The one, being in the first Point of *Aries*, call'd the *Vernal*; and the other in the first Point of *Libra*, call'd the *Autumnal Point*. See POINT.

EQUINOCTIAL *Colure*, is that passing thro' the *Equinoctial* Points. See COLURE.

EQUINOCTIAL *Dial*, is that whose Plane lies parallel to the *Equinoctial*. See DIAL.

EQUINOX, or ÆQUINOX, in Astronomy, the Time when the Sun enters one of the *Equinoctial* Points.

That when he enters the *Vernal* Point is particularly denominated the *Vernal*; and that in the *Autumnal* Point, the *Autumnal Equinox*. See EQUINOCTIAL *Points*.

The *Equinoxes* happen when the Sun is in the *Equinoctial* Circle; when, of Consequence, the Days are equal to the Nights throughout the World, which is the Case twice

twice a Year; *viz.* About the 10*th* of *March*, and the 12*th* of *September*; the first of which is the *Vernal*, and the second the *Autumnal Equinox*.

As the Sun's Motion is unequal, that is, sometimes swifter, and sometimes slower; (from the Causes already explain'd under the Article EQUATION) it comes to pass, that there are about Eight Days more from the *Vernal*, to the *Autumnal Equinox*, than from the *Autumnal* to the *Vernal*: The Sun spending more Time in travelling thro' the Northern, than the Southern Signs.

According to the Observations of M. *Cassini*, the Sun is 186 d. 14 h. 53′. in the Northern Signs; and only 178 d. 14 h. 56. in the Southern. The Difference of which is 7 d. 23 h. 57′.

The Sun being continually advancing forwards in the Ecliptic, and gaining a Degree every Day; he makes no Stay in the *Equinoctial* Points, but the Moment he arrives in 'em, leaves 'em.

Of Course, therefore, tho' the Day the Sun enters the *Equinoctial* Point, is call'd the *Equinox*, as being reputed equal to the Night; yet is not it precisely so, unless the Sun enter the *Equator* at Mid-day. For if the rising Sun should enter the *Vernal Equinox*, at setting, he will have departed from it, and have got Northwards about 12′: Consequently, that Day will be somewhat longer than 12 Hours, and the Night proportionably shorter.

The Time of the *Equinoxes*, i. e. the Moment in which the Sun enters the *Equator*, is found by Observation; the Latitude of the Place of the Observer being given.

Thus, in the *Equinoctial* Day, or near it, take the just Meridian Altitude of the Sun; if this be equal to the Altitude of the *Equator*, or the Complement of the Latitude, the Sun is that very Moment in the *Equator*. If it be not equal, the Difference is the Sun's Declination. The next Day observe the Meridian Altitude as before, and find his Declination: If the Declination be of different Kinds, *viz.* the one North, and the other South, the *Equinox* has happen'd in the Interval of Time between 'em. Otherwise, the Sun has either not enter'd the *Equinoctial*, or had pass'd it at first. From these two Observations, a Trigonometrical *Calculus* gives the Time of the *Equinox*.

It is found by Observation, that the *Equinoctial* Points, and all the other Points of the Ecliptic, are continually moving backward, or *in Antecedentia*, that is, Westward. This retrogade Motion of the *Equinoctial* Points, is that famous and difficult Phenomenon, call'd the *Precession of the Equinoxes*. See PRECESSION *of the Equinox*.

EQUIPAGE, a Ship's Crew; or the Officers, Soldiers, Sailors, and other Persons, that man and manage the same; with the Arms, Provisions, Merchandizes, *&c.* wherewith it is loaded. See SHIP, *&c.*

The Sailors that are to work and manage a Ship, are regulated by the Number of Lasts it may carry; each Last making two Tun.

The *Equipage* of a *Dutch* Ship, from 40 to 50 Lasts, is 7 Sailors and a Swabber; from 50 to 60 Lasts, the *Equipage* consists of 8 Men and a Swabber; and thus increases at the Rate of one Man for every 10 Lasts; so that a Ship of 100 Lasts has 12 Men, *&c.*

English and *French* Crews, are usually stronger than *Dutch*; but always about the same Proportion.

EQUIPPE, in Heraldry, expresses a Knight equipp'd, *i. e.* arm'd at all Points.

EQUIPOLLENCE, in Logic, is when there is an Equivalence between two or more Terms, or Propositions; *i. e.* when they signify one and the same Thing, tho' they express it differently. Such Propositions, *&c.* are said to be *Equipollent*. See EQUIVALENT.

EQUITY, is Justice, or Right, mitigated and temper'd by the Consideration of particular Circumstances; or a Correction, or Moderation of the Severity of some Law; or a Temperament, which, without being unjust, abates the Rigour of some just Law. See LAW.

This is what the *Greeks* call ἐπιείκεια. The utmost Severity of a good Law, is frequently contrary to Justice; it should always have *Equity* for its Rule and Guide. *Summum jus, sæpe summa injuria.*

The Foundation of *Equity*, is not that there is any Mistake in the Law; but that the Law was laid down universally; when as all Circumstances cou'd not be consider'd, or taken in under one Law.

Equity, therefore, is not so much a Correction of a Law, as an Amendment; nor yet so properly an Amendment of the Law it self, as of the Opinion arising from its being ill understood, or ill applied.

In this it is distinguished from a *Dispensation*, which takes away the Obligation of the Law in some particular Case; whereas a Correction does not take away any Thing of the Obligation, but only shews in what Sense it is to be taken, lest there should be imagin'd any Obligation, where there is none.

For an Instance, suppose it an express Law, that *the City being now beset with an Enemy, the Gates be all shut*; and suppose it fall out, that the Enemy is then in pursuit after some of the Citizens by whom it is defended; so that it would be highly prejudicial thereto, not to open 'em the Gates: *Equity* here decrees the Gates to be open'd, contrary to the express Word of the Law.

Thom. Aquin. proposes another Instance: Suppose it Law, that whoever refuses to restore what had been committed in Trust to him, shall pay a grievous Mulct; and suppose some Person refuse to restore a Sword left with him, to a Mad-man. This Case is comprehended in the Sense and Intendment of the Law, tho' not in the Words thereof. And the Legislator himself, if he were present, would except it. *Equity*, therefore, must here step in, to correct or supply the Defects of the Judge, and acquit the Man of the Mulct.

In this View, *Equity* is of two Kinds, and those of contrary Effects: The one abridges, and takes from the Letter of the Law; and the other enlarges, and adds thereto.

The first is defined, the Correction of a Law, made generally in that Part wherein it fails: As, suppose an Act made, That whosoever does such a Thing, shall be a Felon, or suffer Death; yet if a Madman, or an Infant, who hath no Discretion, do the same, he shall neither be a Felon, nor suffer Death.

The other is defined an Extension of the Words of the Law, to Cases unexpress'd, which yet have the same Reason; so that, when one Thing is enacted, all other Things, which are of the like Degree, are so too.

Thus in the Statute which ordains, That in Action of Debt against Executors, he that doth appear by Distress shall answer; doth extend, by *Equity*, to Administrators; for such of them as shall appear first by Distress, shall answer by the *Equity* of the said Act: *Quia sunt in equali genere.*

EQUITY is also used for the Virtue of Justice. See JUSTICE.

EQUITY, in our Laws, *&c.* is frequently used for the Court of Chancery, where Controversies are supposed to be determined, according to the exact Rules of *Equity* and Conscience, by mitigating the Rigour of the Common Law. See CHANCERY.

Æquitas sequitur Legem, is an old Maxim in Law, but from the great Increase of Suits in Chancery, some have thought fit to give it this Construction, That in all Causes after a Man has been at Law, he must go into *Equity*.

EQUIVALENT, is understood of something that is equal in Value, Force, or Effect to another. See EQUALITY.

Equivalence is of various Kinds, in *Propositions*, in *Terms*, and in *Things*.

Equivalent Terms are, where several Words that differ in Sound, have yet but one and the same Signification; as *Every Body was there*, and no Body was absent; *Nihil non* and *omne*.

Equivalence in Things, is either moral, physical, or statical. *Moral*, as when we say, that the commanding, or advising a Murther, is a Guilt *Equivalent* to that of the Murtherer: *Physical*, as when a Man, who has the Strength of two Men, is said to be *Equivalent* to two: And *Statical*, whereby a less Weight becomes of equal Force with a greater, by having its Distance, or the like, increas'd.

EQUIVOCAL, EQUIVOQUE, is applied to an Expression that is dubious and ambiguous; or that may have several Senses, one true, and another false. See EQUIVOCATION.

EQUIVOCAL, ÆQUIVOCUM, EQUIVOQUE, in Logic, by the *Greeks* call'd *Homonymum*, is any Word which under one Sense exhibits several Idea's, or is adapted to different Conceptions.

As the Word *Emperor*, which is both the Name of a Dignity, the proper Name of a Person, and the Name of a Plant. So also the Latin *Gallus*, which stands indifferently for a Cock, and a *Frenchman*.

In which Cases one Word denotes divers Conceptions, one Word divers Things. Whence that common Definition of *Equivocal* in the School, *quorum nomen est commune, Ratio vero Essentiæ secundum illud Nomen diversa.*

The Philosophers have distinguished *Equivocals*, into *Active* and *Passive*; or into *Equivoca*, *Equivocantia*, and *Equivocata*.

Equivoca Equivocantia, or those that denominate and signify Things, are Words common to several Things in a very different Signification, *i. e.* to several Things which have a similar Essence, correspondent to the similar Denomination.

tion. *E. gr.* The Word *Taurus*, which ſtands for a Sign, a Mountain, and an Animal; and in one ſignifies a lowing Animal; in another, a Heap of Stones and Earth; and in the third, a Conſtellation, or Syſtem of Stars.

Equivoca Equivocata, or thoſe that are called, or denominated; are the Things ſignified by ambiguous Names, *e. gr.* a Sign, a Mountain, and an Animal. Which laſt Species of *Equivocals* alone, *Ariſtotle* ſeems to have had in View in his Definition, which agrees to theſe, and theſe only.

EQUIVOCATION, the uſing a Term, or Expreſſion, that has a double Signification. See EQUIVOCAL.

Equivocations are Expedients to ſave telling the Truth, and yet without telling a Lye for the Matter. The Fathers are great Patrons of *Equivocations*, and mental Reſervations; holding, that the Uſe of ſuch Shifts, and Ambiguities, is in many Caſes allowable.

St. *Auguſtin*, particularly, is reproach'd with endeavouring to vindicate *Iſaac* for ſaving his Wife from a Crime, by an *Equivocation: Tacuit aliquid veri, & non dixit aliquid falſi.* To advance a dubious Propoſition, knowing it will be underſtood in a Senſe different from that you give it in your Mind, is an *Equivocation*, in Breach of good Faith and Sincerity. See TRUTH, FALSHOOD, *&c.*

EQUIVOCATION, or EQUIVOCAL, in Moral Theology, is ſtrictly underſtood of a Term, or Phraſe, with two different Significations; the one common, and obvious; the other more unuſual, and remote; the latter of which being underſtood by the Speaker, but the former by the Hearers, they conceive ſomething different from one another.

Of this we have an Inſtance in St. *John*, Chap. 11. where our Saviour is repreſented as ſaying, *Lazarus ſleepeth:* For the Diſciples taking the Word *Sleeping* in the uſual Signification, concluded that *Lazarus*, whom they had been told was ſick, began to take Reſt, and would ſoon recover; but *Jeſus*, taking the Words in a leſs, direct, and uſual Signification, meant that *Lazarus* was dead.

When the *Equivoque* conſiſts of ſeveral Words, 'tis properly call'd an *Amphibology:* Of which we have an Inſtance in St. *John*, Chap. 2. *Deſtroy this Temple*, ſays Jeſus Chriſt, ſpeaking to the Jews, *and I will raiſe it again in three Days.*

The Uſe of *Equivoques* has been greatly diſputed among the modern Caſuiſts: Many grave Authors deny that it is allowable to uſe them on any Occaſion whatever. Their Reaſon is, that an *Equivoque* is to all Intents and Purpoſes the ſame with a Lye. See FALSHOOD.

Others, on the contrary, particularly *Cabuſſot*, a Divine famous among the Prieſts of the Oratory, hold a World of Difference between an *Equivocation* and a Lye; maintaining that it is ever criminal to uſe a Lye; but that there are ſome Occaſions where an *Equivocation* may be uſed innocently: And ſuch, in Effect, is the Sentiment of St. *Thomas*, St. *Anthonin*, St. *Raymond*, and eſpecially St. *Auguſtin*, as *Fa. Cabuſſot* ſeems to have demonſtrated. *Lib.* IV. *Theor. de Prax. Jur. Can. Edit. Lugd.* 1685. Cap. 4.

EQUIVOCAL *Generation*, is a Method of producing Animals and Plants, not by the uſual Way of Coition between Male and Female, but I know not what plaſtic Power, or Virtue in the Sun, *&c.* See GENERATION.

Thus Inſects, Maggots, Flies, Spiders, Frogs, *&c.* have uſually been ſuppoſed to be produced by *Equivocal Generation*, i. e. by the Heat of the Sun warming, agitating and impregnating the Duſt, Earth, Mud, and putrified Parts of Animals.

This Method of Generation, which we alſo call *ſpontaneous*, was commonly aſſerted and believed among the antient Philoſophers: But the Moderns, from more and better Obſervations, unanimouſly reject it, and hold that all Animals, nay and Vegetables too, are *Univocally* produced, that is, by Parent Animals, and Vegetables of the ſame Species and Denomination. See UNIVOCAL *Generation.*

'Twere a Thing one would imagine ſufficient to diſcredit the *Ariſtotelian*, or rather the *Egyptian Doctrine of Equivocal Generation*, to ſee Flies, Frogs, Lice, *&c.* to be Male and Female; and accordingly to engender, lay Eggs, *&c.*

To imagine that any of thoſe Creatures could be ſpontaneouſly produced, eſpecially in ſo romantic a Manner, as in the Clouds, as they particularly thought the Frogs were, and that they dropp'd down in Showers of Rain, were, certainly, highly unphiloſophical.

Yet ſome, even to this Day, credit the raining of Frogs; and, among the reſt, the very curious and learned Dr. *Liſter*, ſeems inclined to the Opinion: Inſtancing in Frogs, found on the Leads of the Lord *Aſton*'s Gatehouſe at *Tixal* in *Staffordſhire*, which he imagines came there by ſome ſuch Means. But we may make a Judgment of this, and a hundred the like Reports to be met with in conſiderable Authors, from ſome other the like Relations that have been better inquired into. Such are ſeveral Reports of the raining of *Millet-ſeed*, *Wheat*, *Whitings*, *&c.* An Account of which, with the Grounds of the Deceit, ſee under RAIN and SHOWER.

The Doctrine of *Equivocal Generation* we call an *Egyptian* Doctrine, as having, in all Probability, had its Riſe in *Egypt*, to ſalve the Hypotheſis of the Original Production of Men, and other Animals, out of the Earth, by Help of the Sun's Heat. To prove which, the *Egyptians*, as *Diodorus Siculus* obſerves, produce this Obſervation; that about *Thebes*, when the Earth is moiſten'd by the *Nile*, and afterwards impregnated by the intenſe Heat of the Solar Rays, an innumerable Swarm of Mice do come forth: Whence he infers, that all Kinds of Animals might equally have aroſe out of the Earth at the Beginning of Things. And from theſe, Biſhop *Stillingfleet* takes the other Writers and Adherents, to the Doctrine of *Equivocal* Generation, *Mela*, *Pliny*, *Ovid*, *&c.* to have borrow'd the Hypotheſis, without enquiring into its Truth. *Derham's Phyſ. Theol.* Lib. IV. *C.* 15.

EQUULEUS, among the Antients, was an Inſtrument of Torture, or Puniſhment; being a Kind of *Wooden-Horſe*, made with very ſharp Ridge, or Back, widening much in its Deſcent. See PUNISHMENT.

The Criminal being ſeated on the Ridge, Weights were hung to his Feet, to make his Seat more painful.

This Puniſhment is ſtill retain'd in Cittadels and Armies; where the Soldiers of the Garriſon, *&c.* are condemn'd to the *Wooden-Horſe*, for divers Offences.

Hieronymus Magius, when a Priſoner among the *Turks*, wrote an expreſs Treatiſe *de Equuleo*; and another of Bells; merely, as 'tis ſaid, from his Memory, without any Aſſiſtance of Book. *Sigonius* has another Treatiſe on the ſame Subject.

EQUULEUS, in Aſtronomy, a Conſtellation of the Northern Hemiſphere. See CONSTELLATION.

The Stars in the Conſtellation *Equuleus*, in *Ptolomy's* Catalogue are 4; in *Tycho's* 4; in Mr. *Flamſteed* Catalogue 10.

The Longitudes, Latitudes, Magnitudes, *&c.* whereof are as follows.

Stars in the Conſtellation EQUULEUS.

Names and Situations of the Stars.	Sign.	Longit. ° ′ ″	Latitude. North. ° ′ ″	Magnit.
	♒	14 12 57	20 32 56	5
		15 59 37	23 02 36	6
		16 02 30	21 16 01	6
		16 25 37	21 38 31	6
Preced. of two in the Mouth.		19 06 24	25 13 12	4
5				
		19 07 07	25 06 52	6
Subſeq. of the ſame.		20 07 30	24 46 57	4
Preced. of two in the Head.		18 47 48	20 09 09	4
		20 51 05	21 42 53	6
Subſeq. in the ſame.	♒	21 07 02	21 03 06	4

EQUULEUS, in the Arts and Manufactures. See HORSE.

ERADICATIVE, in Medicine. An *Eradicative Cure* is that which takes away the Cauſe, or Root of the Diſtemper; in which Senſe it ſtands oppoſed to *palliative*; which relieves for a Time, but not going to the Cauſe of the Diſorder, does not prevent its Return. See CURE.

The Word is a Compound of *e* out, and *radix* Root.

ERANARCHA, a publick Officer among the ancient *Greeks*, whoſe Buſineſs was to preſide over, and direct the Alms and Proviſions made for the Poor.

The *Eranarcha* was properly the Adminiſtrator, or Commiſſioner of the Poor: When any Perſon was reduced to Poverty, taken Captive, or had a Daughter to marry, which he could not effect for Want of Money, *&c.* this Officer call'd an Aſſembly of Friends and Neighbours, and taxed each according to his Means and Eſtate, to contribute towards his Relief. This is what we learn from *Corn. Nepos*, in his Life of *Epaminondas.*

The Word is form'd of the *Greek* ἔρανος, *Alms*, *Contribution*, and ἀρχὴ, *Command.*

ERASED, in Heraldry, expreſſes any Thing violently torn off from its proper Place.

It is uſed in Contra-diſtinction to *Couped*, which ſignifies a Thing clean cut off. The Family of *Card* bears *Ermine*, a *demy Lion rampant* eraſed, *Azure*, *&c.*

ERASTIANS, a religious Sect, or Faction, that aroſe in *England* during the Time of the Civil Wars.

They were thus call'd from their Leader *Tho. Eraſtus*; whoſe diſtinguiſhing Doctrine it was, that the Church had no Right to diſcipline, that is, no regular Power to excommunicate, exclude, cenſure, abſolve, decree, or the like.

ERECT,

ERECT *Flowers*, are such as grow upright, without hanging or reclining the Head. See FLOWER.

ERECT *Vision*. See VISION.

ERECT { *Direct* / *Declining*, &c. } *Dials*. See DIAL.

ERECTION, the Act of raising, or elevating a Thing, in a right Line. See ELEVATION.

The *Erecting* a Perpendicular on a Line given, is a popular Problem in Geometry. See PERPENDICULAR.

The Term is also used figuratively: As, the *Erection* of a Marquisate into a Dutchy; Bishopricks can only be *Erected* by the King. It was antiently the Practice to *erect* Statues to great Men. See STATUE.

Cato, the Censor, being ask'd why a Statue was not *Erected* him? I had rather, says he, hear the Question made, than hear it ask'd why a Statue was *Erected* me.

ERECTION, is particularly used in Medicine, for the State of the Penis, when swell'd, and distended by the Action of the Muscles, call'd *Erectors*, or *Erectores*. See PENIS and ERECTOR.

There is also an *Erection of the Clitoris*, perform'd by Muscles provided for that Purpose. See CLITORIS, &c.

An Alternation of *Erection*, and Flaccidity in the Penis, Dr. *Drake* observes, is of absolute Necessity: The first to the Performance of its Office; the second for the Security of the Part. Without an *Erection* it were impossible to emit and lodge the Seed where it ought to be; and with a constant one, almost as impossible to secure the Part from external Injuries. — To say nothing of the Loss of Instigation, which must be a necessary Consequence of constant *Erection*. See PRIASPISMUS.

The *Erection* of the Penis, consists in a Distention of its *Corpora Cavernosa*, by an extraordinary Quantity of Blood pent up therein. See CAVERNOSA.

That the Blood is the Matter which distends the Penis in *Erection*, is evident from Abundance of Experiments; tho' the most convincing is that of firmly tying the Penis of an Animal (as has been frequently done to a Dog) in *Coitu*; wherein, nothing has been found but Blood to distend it. Hence, in the Bodies of Criminals, that hang long after Death, the Penis becomes erected; the Blood, in that Position, falling to the inferior Parts, and stopping there.

By blowing into the Blood Vessels after Death, the Penis becomes *Erected*. This was first discover'd by Mr. *Cowper*, upon viewing its Veins, after he had distended 'em with Wind; whence it plainly appear'd, that the external Trunks pass'd, some under its Skin only, and some over the *Ossa pubis*: Beside, that a vast Number of other Veins on the *Dorsum penis*, unite and empty themselves into one Trunk, call'd *Vena penis*, which passes immediately under a transverse Ligament of the *Ossa pubis*, which is compress'd by the Approximation of the *Dorsum penis*, to the Ligament of the *Pubis*. This Application of the *Dorsum penis* is effected by its *Musculi Directores*, pulling down the *Crura* of the *Corpora Cavernosa Penis*, which are tied up at their Juncture in the Body of the *Penis*, to the *Os pubis*, by the *Ligamentum Suspensorium*. Now, this cannot happen to the cavernous Body of the *Urethra*, by Reason there is no Bone, whose Position can give Rise to a Ligament, which can have that Effect on its Veins: Wherefore, the *Musculi Accelatores*, embracing the Veins of the Bulb do that Office, tho' not so effectually as in the *Penis* it self.

Accordingly, the Glans is not always perfectly distended with the *Penis*, and soonest becomes flaccid on an *Erection*. See GLANS.

The Blood, by such Means, being precluded from its Return, the *Corpora Cavernosa* must of Necessity become distended, if we consider their Structure above-mentioned, with Respect to the Veins. The Arteries, which before were flaccid, have now their Trunks also distended, and do more plentifully import Blood into the *Corpora Cavernosa*.

But since it is absolutely necessary some Part of the detain'd Blood should be still passing off, lest it become grumous, and unfit for a Reflux; the *Venæ preputii* communicate with those of the *Penis* it self; whereby Part of the Blood may be return'd from the *Penis* during its *Erection*, and give Way to a fresh Supply from the Arteries, and preserve the Circulation uninterrupted. See CIRCULATION.

ERECTOR *Clitoridis*, in Anatomy, a Pair of Muscles arising from the Protuberances of the *Ischium*, and inserted into the spongious Bodies of the *Clitoris*; which they serve to erect in Coition. See CLITORIS.

ERECTOR *Penis*, a Pair of Muscles arising fleshy from the Protuberances of the *Ischium*, below the Beginning of the cavernous Bodies of the Yard, into whose thick Membranes they are inserted.

Their Use is to pull the Yard towards the *Os pubis*, whereby its greatest Vein is compress'd, and the refluent Blood denied its Passage under those Bones; which makes it swell. See ERECTION.

EREMITE. See HERMIT.

ERICTHONIUS, in Astronomy, a Constellation, the same as *Auriga*. See AURIGA.

ERIDANUS, in Astronomy, a Constellation of the Southern Hemisphere. See CONSTELLATION.

The Stars in the Constellation *Eridanus*, in *Ptolomy*'s Catalogue are 30: In *Tycho*'s 19: In Mr. *Flamsteed*'s 68: The Longitudes, Latitudes, Magnitudes, &c. whereof are as follow.

Stars in the Constellation ERIDANUS.

Names and Situations of the Stars.	Sign.	Longit. ° ′ ″	Latitude. South. ° ′ ″	Magnit.
First from the Turn of the River to the Breast of Cetus.) A Second.	♈	27 43 50	32 46 03	4
First in the River before the Breast of Cetus.)		28 17 41	35 32 44	4
	♉	4 24 50	24 33 38	3
	♈	28 40 53	38 43 48	6
5	♉	7 23 04	18 42 23	6
	♈	28 59 23	38 33 16	6 7
	♉	7 31 58	19 10 52	6
Preced.		6 02 44	23 45 20	5 6
Middle.		6 26 39	23 54 37	6
Second before the Breast of *Cetus*.		6 52 09	23 57 16	5
10				
Third of those following Turn of Riv.		0 25 00	39 00 01	3 4
Inform. within the last Sinus.		0 11 14	44 45 01	3
Third before the Breast of *Cetus*.		9 29 25	25 57 22	3
		9 35 13	26 19 46	6
		5 06 42	39 09 28	6
15				
Fourth behind the Turn of the River.		5 45 03	38 32 17	4
		14 30 20	23 22 27	4 5
Fourth before the Breast of *Cetus*.		13 35 20	27 46 30	3
Fifth behind the Turn.		9 51 32	39 28 14	4
Preced. of two Informes over the Riv.		17 39 24	18 26 20	5
20				
		12 08 57	35 40 15	5 6
		17 06 37	24 08 18	5
Fifth before the Breast of *Cetus*,		16 30 56	28 46 16	3
		19 11 36	20 27 17	5
		19 30 50	19 38 34	6
25				
Subseq. and more South.		16 37 28	31 09 15	4
Sixth behind the Turn.		13 04 15	41 53 09	4
More South. but contiguous to this,		13 00 52	42 34 32	6
		20 18 16	24 42 25	7
		20 16 20	25 00 38	5 6
30				
Subseq. Inform. over the River.		21 17 38	22 45 43	4 5
Eighth behind the Turn.		14 31 20	43 40 50	5
In the second Bend of the River;	♈	19 31 34	33 13 35	3
		22 32 24	21 47 28	5
Ninth beyond the Turn.		16 38 37	43 30 44	4
35				
		24 40 24	27 29 56	6
North. of two beyond the first Bend.		25 05 51	27 30 00	3 4
Next before the second Bend.		25 00 50	30 57 28	5
South. beyond the first Bend.		26 07 45	28 13 03	4
Preced. of two beyond the 2d Bend.		18 07 00	53 58 54	5
40				
Preced. in the first Bend.		28 59 47	25 01 01	5
Subseq. beyond the second Bend.		20 06 13	54 33 15	5
	♊	1 15 15	20 11 27	5 6
		1 53 24	21 43 53	5 6
		1 12 38	28 24 50	5
45				
		1 00 31	29 53 52	4
Subseq. in the first Bend.		2 29 15	25 08 39	4
		3 35 35	20 54 06	5 6
North. in the 2d Bend toward the *West*.	♉	25 08 20	50 56 43	4
Small one contiguous to the Subseq.	♊	2 59 03	24 20 37	6
50 (in the 1st Bend.				
South. in the second Bend.	♉	25 32 21	51 51 01	3
	♊	0 56 10	36 01 48	3 4
		0 23 41	41 25 03	3 4
		3 33 10	30 49 18	6
		3 45 58	30 28 21	6
55				
Preced. before the first Bend.		5 00 53	25 24 13	4
		3 11 25	30 01 49	5 6
		3 36 38	38 27 13	6
		4 07 47	38 24 20	6
Middle before the first Bend.		6 43 03	27 50 40	5
60				
Small one contiguous to it.		7 43 46	27 30 49	6
		7 59 51	32 49 13	6
		7 41 00	35 04 52	6
Subseq. before the first Bend.		8 53 02	29 48 30	5
That next the Rise of the River.		10 41 18	27 16 56	6
65				
North. in the Rise of the River towards *Orion*'s Leg.)		10 57 20	27 53 48	3
		11 15 23	27 17 50	6
South in the Rise of the River.	♊	10 52 55	31 34 10	4

FRIGENS *Penis*. See ERECTOR *Penis*.

ERMINE, in Heraldry, a white Field, or Fur, powder'd, or interspersed with black Spots. See FUR.

It is supposed to represent the Skin of an Animal, of the same Denomination; which some will have a *Water Rat*, others a *Mustela*, or Sort of *Weazle*, and others an *Armenian* Mouse. In Effect, there is no Animal whose Skin naturally corresponds to the Herald's *Ermine*.

The Animal is Milk white; and so far is it from Spots, that the Tradition has it, he will rather die, or be taken, than sully its Whiteness. Whence its symbolical Use.

But white Skins having for many Ages been used for the Linings of the Robes of Magistrates, and great Men; the Furriers, at length, to add to their Beauty, used to sew Bits of the black Tails of those Creatures upon the white Skins; to render them the more conspicuous. Which Alteration was introduced into Armoury.

The Sable Spots in *Ermine* are not of any determinate Number, but may be more or less, at the Pleasure of the Painter or Furrier.

ERMINES, is used by some *English* Writers for the Reverse of *Ermine*, i. e. for white Spots on a black Field; but on what Foundation no body can tell; for the *French*, from whom we have our Heraldry, have no such Term; but call this black powder'd with white, *Contre Ermine*; as denoting the Counter, or Reverse of *Ermine*; which is white powder'd with black.

ERMINEE. A *Cross* ERMINEE, is a Cross composed of four *Ermine* Spots, placed in that Figure. See CROSS.

It must be observ'd, that the Colours in such Arms are not to be express'd; by reason, neither the Cross, nor the Arms, can be of any Colour but white and black.

Colombiere blazons it *quatre queues de' Hermine en Croix*. The Editor of *Guillin* describes it thus; A Cross of four *Ermines*; or, as I think more properly, of four *Ermine* Spots in Cross. 'Tis the Coat of *Hurston* in *Cheshire*.

ERMINITES, shou'd seem a diminutive of *Ermines*, and naturally to signifie little *Ermines*; but 'tis otherwise. *Erminites* expresses a white Field pouder'd with black; only every Spot has a little red Hair therein.

Some Authors use the Word *Erminites*, for a yellow Field pouder'd with black; which the *French* express much better by *or semée d'Ermines de Sable*.

EROSION, in Medicine, the Act of sharp, acid Fluids, or Humors, gnawing and tearing off Parts from the Flesh, and other Substances. Arsenic, and other Poisons, make *Erosions* in the Intestines. See CORROSION.

EROTIC, is applied to any Thing which has a Relation to the Passion of Love. See PASSION.

In Medicine, we particularly use the Phrase *Delirium Eroticum*, for a Kind of Melancholy contracted thro' Excess of Love. See MELANCHOLY.

Tho', among the several Species of Pulses, there be no amorous Pulse, that is, no Pulse peculiar to that Passion; yet we can certainly discover where the Disorder is *Erotic*, by the beating of the Pulse, which, in that Case, is changeable, unequal, turbulent and irregular. Speak to the Patient of the Person he loves, and his Pulse instantly changes, becoming higher and quicker: And the Minute you change the Conversation, the Pulse is lost again, and is disturb'd a-new. See PULSE.

The Word is derived from the *Greek*, ἔρως, *Love*; whence ἐρωτικὸς.

ERRANT, in Law, the same with *Itinerant*, attributed to Judges that go the Circuit: To Bayliffs at large, &c. See JUSTICE, BAILIFF, &c.

ERRATA, a List at the Beginning or End of a Book, containing the Faults that have escaped in the Impression, and, sometimes, even in the Composition, of the Work. See PRINTING.

Lindenberg has an express Dissertation on Typographical *Errata*, *de Erroribus Typographicis*; wherein he observes, that there is no Book exempt from 'em, not even the Sacred Books. He sets himself to enquire into all the Causes thereof; and proposes Means to prevent 'em. But he advances nothing on that Article, but what is either common or impracticable. The Authors, Compositors, and Correctors of the Press, he says, must do their Duty; who disputes it? Each Author must have his own Printing-Press at Home, as *Calixtus* and *Opitius* had; who can do it?

Fa. *Hardouin*'s Book on Medals, might be entitled the *Errata of the Antiquaries*; and the Critiques on History by *Perizonius*, the *Errata of the ancient Historians*. In the same Sense, M. *Bayle*'s Dictionary might be call'd the *Errata* of *Moreri*.

ERRATIC, in Astronomy, an Epithet applied to the Planets, which are call'd *Erratic*, or wandering Stars, in Contra-distinction to the fix'd Stars. See PLANET.

There is also a Kind of Fever call'd *Erratic*. See FEVER.

ERRHINA, ERRHINES, in Medicine, are Remedies taken by the Nose, to enliven the Spirits, stop Bleeding, &c. but principally to purge the Humidities of the Head.

Of these, some are taken in *Powders*, as Betony, Tobacco, Marjoram, Iris, white Hellebore, *Euphorbium*, &c.

Others in a *liquid* Form, made of the Juice of Marjoram, Sage, Beet, Cyclamen, Iris, &c.

Others in Form of *Liniments*, incorporated with *Unguent. Rosat.*

Others, *solid*, form'd like Pyramids, to stop Bleeding at the Nose; composed of Armenian Bole, *Terra sigillata*, Mastic, human or Hogs-Blood dried, &c.

Such *Errhina* as are dry, and made up in Powders, are properly call'd *Sternutatories*. The Moderns sometimes call 'em *Caput purgia*. See STERNUTATORY.

The Word is derived from ἐν, *in*, and ἐς, *Nose*.

ERROUR, or ERROR, a Mistake of the Mind, in giving Assent to a Thing or Proposition which is not true. See FALLACY.

Some Philosophers define *Error* an Act of the Mind, whereby Things that should be joyn'd, are separated; or, Things that should be separated, are joyn'd: Or a wrong Judgment, disagreeing with the Things whereon it is pass'd. See JUDGMENT.

Error stands in Opposition to *Truth*, which consists in an Agreement between the Proposition, and the Thing whereof it is affirmed or derived. See TRUTH.

However, a bare Failure, or Non-attainment of Truth, does not constitute *Error*; that being common both to *Ignorance* and *Doubting*. See IGNORANCE and DOUBTING.

Error only stands distinguished from *Falsehood*, in that the former is in the Mind, and the latter in the Proposition. See FALSEHOOD.

The great Origin of all *Error*, i. e. of believing that to be true, which is false, is a *Liberty*, or Power in the human Mind, of giving its Assent to Idea's or Propositions, that are obscure, as if they were perspicuous and plain. See LIBERTY.

Particular Causes of Error are, 1°. An Inadvertency, or Negligence, in passing Judgment, without using or attending to the Means proper to assist the Judgment. As if a Person should attempt to judge of the Height of the Pole, without proper Instruments, or Observations: Or determine about Nations without knowing their History.

2°. Ignorance, in not having informed the Understanding by Study and Application; or furnish'd it with the Idea's that have an immediate Relation to the Matter in hand.

3°. Impatience of the Labour and Fatigue, of going thro' a long Chain of Reasons and Arguments; or of waiting for a necessary Number of Experiments: with a Fondness for the Opinion of being *knowing*; and a Prejudice for, or against, some particular Person, Sect, &c.

4°. The fallacious Rules of Probability, and Opinion. See PROBABILITY and OPINION.

5°. Interest, which makes us incline to believe those Things true, from which we are like to derive Advantage.

6. Authority: Education: and vulgarly receiv'd Opinions, imbibed ere we were qualified for judging. See FAITH.

Against all which, there is this one general Rule or Caution laid down, by Fa. *Mallebranch* and others, *viz.* Never to give our full Assent to any Proposition, unless the Evidence for it be so strong, as that we can no longer with-hold it, without incurring the secret Reproaches of our own Reason.

Mr. *Lock* reduces the Causes of all our *Errors* to these four, *viz.* 1°. Want of Proofs. 2°. Want of Ability to use 'em. 3°. Want of Will to use 'em. And, 4°. Wrong Measures of Probability.

F. *Mallebranch* considers five Occasional Causes of *Error*, or rather five different Kinds of *Errors*, accommodated to the different Manners we have of perceiving Things. 1°. *Errors* of *Sense*. 2°. Of the *Imagination*. 3°. Of the *Understanding*. 4°. Of our *Inclinations*. And 5°. Of the *Passions*. See SENSE, IMAGINATION, UNDERSTANDING, INCLINATION, and PASSION.

ERROUR, in Law, is generally understood of a Fault, or Oversight, either in Pleading, or in Process: Upon either of which is brought a Writ, by way of Remedy; call'd a *Writ of Error*; and in Latin, *de Errore Corrigendo*. See WRIT.

Fitzherbert defines a Writ of *Error* to be, that which lies to redress false Judgment given in any Court of Record,

cord, having Power by Charter, or Prescription to hold Plea of Debt or Trespass of above xx *Sh.*

There is also a *Writ of Error* for reversing a Fine, *&c.*

ERUCTATION, *Belching*, the same as Ructation. See Ructation.

ERUDITION, Learning, or Knowledge; and chiefly that of Antiquity. See Learning.

The *Scaligers* were Men of deep *Erudition:* The Writings of Mon. *Launoy*, a Priest of the Oratory, are full of *Erudition.*

Mr. *Lock* says, 'tis of more Use to fill the Head with Reflections, than with Remarks of *Erudition.* If the Mind be not just and right, Ignorance is better than *Erudition*, which only produces Confusion and Obscurity: St. *Evremond.* M. *Balzac* calls a Heap of *Erudition* ill-chosen, the Luggage of Antiquity.

ERUGINOUS, or Æruginous, some Thing partaking of, or like to the Rust of Brass, or Copper. See Rust and Ærugo.

ERUPTION, a bursting forth, or Exclusion of something before cover'd, or conceal'd.

The *Eruption of Pustles* in the Small-Pox, ordinarily begins on the 4*th* Day. See *Small* Pox.

In the Inoculated Kind, the *Eruption* does not begin till the 9*th* Day. See Inoculation.

The *Eruption* of Vulcano's, or Burning Mountains, is frequently the Effect, and Issue, of Earthquakes. See Vulcano and Earthquake.

The *Eruptions* of Mount *Etna*, and *Vesuvius*, are observed to be somewhat periodical: They are of two Kinds; the one less violent, happening once in 2 or 3 Months, and lasting usually three or four Days, without much Damage to the adjacent Country.

The other more furious, and of longer Continuance, happening to Mount *Vesuvius* about once in 80 Years. The last, in 1632, was so violent, that, by the best of his [*S. Peccacio*'s] Observations, it cast the Rocks three Miles into the Air. Mr. *Hartop* in Philosoph. Transact. N°. 202.

M. *Oldenbourg* gives us an Historical Account of the several *Eruptions* of Mount *Etna*, recorded in Authors. The first whereof we have any credible Account, was at the Time of the Expedition of *Æneas*, described by *Virgil*, *Æneid. Lib.* III. The 2*d*, described by *Thucydides*, was 476 Years before *Christ:* In the Time of *Roman* Consuls there were 4: Another in *Cæsar*'s Time, so fierce, that *Diodorus* assures us, the Ships near the Island of *Lipara* were burnt with the extreme Heat of the Water: Another under *Caligula:* Another at the Time of the Martyrdom of St. *Agatha*, said to have been stopp'd at her Intercession: Another in the Year 812: Several between the Years 1160 and 1169: Others in 1284, 1329, 1408, 1444, 1536, 1633, 1650. *Phil. Transact.* N°. 48.

Another extraordinary *Eruption* happen'd in 1669, particularly described in the same Transactions, N°. 51. It was preceeded for the Space of 18 Days, with a dark thick Sky, Thunder, Lightning, and frequent Concussions of the Earth: The Place of the *Eruption* was 20 Miles from the old Mouth.

The Matter here yielded, was a Stream, or River of Metals and Minerals, render'd liquid by the Fierceness of the Fire, and boiling up, and gushing forth, as Water does at the Head of some great River; till, having run in a full Body for a Stone's Cast, or more, the Extremity thereof began to crust and curdle, and turn'd, when cold, into hard, porous Stones, call'd *Sciarri*, as resembling huge Cakes of Sea-Coal, full of a fierce Fire. These came rolling and tumbling over one another, and where they met a Bank, Wall, Building, *&c.* would fill up, and swell over; by their Weight bearing down any common Building, and burning up what was combustible. The Progress of this Inundation was at the Rate of a Furlong a Day; which it continued for 15 or 20 Days; running, at first, into the Sea, but afterwards into the City of *Catania*; in its Course, it overwhelm'd 14 Towns and Villages, containing three or four thousand Inhabitants. The Noise of the *Eruption* at the Mouth was heard 60 Miles.

Dr. St. *Clair*, in the *Philosop. Transact.* gives an Account of a constant *Eruption* of Fire, on one Side of one of the *Appenines*, between *Bologna* and *Florence:* A Spot of Ground 3 or 4 Miles in Diameter, he observes, incessantly sends up a Flame, rising very high, without Noise, Smoak, or Smell; tho' it gives a very great Heat. In great Rains it sometimes intermits, but re-kindles with greater Vigour and Heat. Within 3 or 4 Yards of it, he adds, there grows Corn. The Flame he conjectures to arise from a Vein of Bitumen, or Naphtha. There are three other such Fires on the same Hills.

ERYSIPELAS, in Medicine, call'd also *Sacer Ignis*, and St. *Anthony's Fire*, a Disease of the Skin.

Its Seat is any Part of the Body, but principally the Face: It shews it self in a ruddy Inflammation of the Part, with a little Swelling of the same; an intense Pain, and a Croud of little Pustles, which, as the Inflammation increases, grow into *Vesiculæ.* See Skin.

The Disease spreads it self a-pace; shifting from one Place to another, with a Fever attending it. It attacks the Patient all at once, and chiefly when out in the Air; whence the Country People call it *blasting*, *Sideratio.*

Dr. *Quincy* accounts for the *Erysipelas*, from a too sizy Blood, which obstructing the Capillaries, occasions Inflammations: Others, from a too sharp and bilious Blood, which, on Account of its great Subtilty, occasions no sensible Tumor; but spreads, or diffuses it self in Length and Breadth. Its Colour, tho' red, generally inclines towards a yellow, on Account of the Mixture of Bile; and always the more of the Bile, the more dangerous the Disease.

There is another Species of *Erysipelas*, tho' less usual than the former; most commonly arising from a too copious drinking of spirituous Liquors. It begins with a Fever, after which there is an universal Eruption of Pustles, almost over the whole Body, much like those after the stinging of Nettles, and sometimes rising into *Vesiculæ.* At going off, they leave an intolerable Itching, and as often as scratch'd return again.

Etmuller gives it as the distinguishing Character of an *Erysipelas*, that when press'd very lightly by the Finger, there follows a white Spot, which presently after becomes red again; which does not happen in an ordinary Inflammation, unless when violently press'd. Scorbutic People are most subject to this Disease.

'Tis disputed, whether Purging be good in the *Erysipelas: Sydenham* recommends it the next Day after Bleeding. *Etmuller* cautions us against 'em both; and recommends Diaphoreticks. Dr. *Friend* observes, that in the last Stage of an *Erysipelas* of the Head, attended with a Coma, Delirium, *&c.* unless Catharticks will do good, the Case is desperate. All unctuous, astringent, and cold Applications, externally, are dangerous, and sometimes make the *Erysipelas* degenerate into a Gangrene.

The Word is form'd of the *Greek*, ἑρύειν, *trahere*, to draw; and πελας, *prope*, by reason it withdraws it self towards the Skin: Whence *Galen* calls it the *Passio Cutis.*

The *Erysipelas* is either simple, or attended with an Ulcer.

ERYTHROIDES, in Anatomy, the first of the proper Membranes that inclose the Testicles. See Testicle.

It is interspersed with fleshy Fibres, derived to it from the Cremaster Muscle, which make it appear reddish.

And whence its Name from the *Greek*, ἐρυθρὸς, *red*, and εἶδος, *form.*

ESCALADE, or Scalade, a furious Attack upon a Wall, or a Rampart; carried on with Ladders, to mount by; without proceeding in Form, breaking Ground, or carrying on Works to secure the Men. See Scalade.

ESCALOP-*Shells*, a frequent bearing in Coat Armour; proper, say our Heralds, for such as have distinguish'd themselves by Naval Exploits. Azure, three *Escalop*-Shells Or, by the Name of *Mallet.*

ESCAMBIO, was anciently a License granted any one for the making over a Bill of Exchange to another beyond Sea. See Exchange.

For, by Stat. 5 *Rich.* II. no Person might exchange, or return Money beyond Sea, without the King's License.

ESCAPE, in Law, is either *voluntary*, or *negligent.*

Voluntary, is when one arrests another for Felony, or other Crime, and afterwards lets him go; in which *Escape*, the Party that permits it, is by Law guilty of the Fault, committed by the Person who *Escapes*; be it Felony, Treason, or Trespass.

Negligent *Escape* is, when one is arrested, and afterwards *Escapes* against his Will that arrested him; and is not pursued by fresh Suit, and taken again, before the Party pursued hath lost Sight of him.

ESCARTELE', in Heraldry, *Quarter'd*, or *Quarterly.* See Quarter'd, *&c.*

ESCHAR, in Chirurgery, a hard Crust, or Scab, form'd on the Flesh, by means of a hot Iron, or a Caustic Medicine, or some sharp, corrosive Humour within.

The Caustic Stone, or *Lapis Infernalis*, produces a round *Eschar* in the Place where it has burnt. See Escharotic, Caustic, and Cautery.

The Word is derived from the *Greek*, ἐσχάρα, *Crust*, or *Scab.* Some Authors derive it from ἐς and καίω, *I burn*; but this comes with some Difficulty, by reason καίω is wrote with a κ; and ἐσχάρα with a χ.

ESCHAROTICKS, Medicines, which being applied externally, produce *Eschars*, or Scabs, by burning the Flesh. See Eschar.

Such are the *Lapis Infernalis*, red precipitate, *&c.* these are also call'd *Caustick.* See Caustic.

The Word is derived from the *Greek* ἐσχάρα. See Eschar.

ESCHEAT,

ESCHEAT, in Law, signifies any Lands, or other Profits, that fall to a Landlord within his Mannor, by way of Forfeiture, or the Death of his Tenant dying without Heir general or special, or leaving his Heir within Age, and unmarried.

The Civilians call such Forfeitures *Bona Caduca*; and in the same Sense as we say the *Fee* is *Escheated*, they say *feudum aperitur*.

The Word *Escheata* sometimes also signifies a lawful Inheritance descending on the Heir. But then, it is usually distinguished by the Addition of *Recta*, as *Recta Escheata*.

Escheat, is also used for the Place or Circuit within which the King, or other Lord, hath *Escheats* of his Tenants.

And sometimes for a Writ, lying where the Tenant having Estate of Fee Simple, in any Lands or Tenements holden of a superiour Lord, dies seiz'd, without Heir general, or special: In which Case, the Lord brings this Writ against him that possesses the Lands, after the Death of his Tenant; and thereby recovers the same in lieu of his Services.

ESCHEATOR, an Officer, who anciently took Care of the King's *Escheats* in the County, and certified them into the Exchequer, or Chancery. See Escheat.

He was appointed by the Lord Treasurer; held his Office only for one Year; nor cou'd any Person be *Escheator* above once in three Years. But this Office having its chief Dependance on the Court of Wards, is now out of Date.

ESCHEQUER. See Exchequer.

ESCHEVIN, or ECHEVIN, in the *French* and *Dutch* Polity; a Magistrate, elected by the Inhabitants of a City, to take Care of their common Concerns, the good Order, Conveniency, and Decoration of the City.

At *Paris*, there is a *Prevot*, and four *Eschevins*; in most other Cities, a *Maire*, or Mayor, and *Eschevins*.

In *Languedoc*, *Province*, and *Dauphine*, they are call'd *Consuls*: At *Toulouse*, *Capitouls*: And *Jurats* at *Bourdeaux*.

Anciently, the *Eschevins* were Assessors, and Counsellors, of the Comites, or Judges of Cities: On which Account they were call'd in some Places, *Pairs*, *Pares*: They even took Cognisance of petty Causes themselves.

Du Cange observes, that the Judges, and their Assessors, who were chose by the Inhabitants, were call'd *Scabini*, *Echevins*, and their College, *Scabinagium*, or *Eschevinage*. He adds, that some Authors call 'em *Paciurii*, by reason their Office and Jurisdiction extended to the securing Peace in their City and *Banlieue*, call'd *Pax Villæ*.

The *Eschevins* are also frequently what the *Ediles* were at *Rome*, the *Sheriffs* at *London*, and the Magistrate call'd *Potestas*, in the petty Cities of *Italy*. The *Greeks* call him ἀρχεύμων, &c.

In *Holland*, the *Eschevins* judges of all Civil Affairs at first Hand. They also take Cognizance of criminal Affairs, and if the Criminal confess himself guilty, they can see their Sentence executed without Appeal. They can even give the Torture.

The Number is not the same in all Cities: At *Amsterdam* there are Nine, at *Rotterdam* Seven, *&c.*

ESCHRAKITES, or ESRAKITES, a Sect of Philosophers among the *Mahometans*, who adhere to the Doctrines and Opinions of *Plato*.

The *Eschrakites*, or *Mahometan Platonists*, place their highest Good and Happiness in the Contemplation of the Divine Majesty; despising the gross Imaginations of the *Alcoran* touching Paradise.

They are very careful in avoiding Vice, preserve an equal and easy Temper, love Music, and divert themselves with composing little Poems, or spiritual Songs.

The *Scheies*, or Priests, and the chief among the Preachers of the *Imperial* Mosques, are *Eschrakites*.

The Word is derived from the *Arabic* שרק *Scharaka*, which in the Fourth Conjugation אשרק *Aschraka*, signifies *to shine, glitter like the Sun*: So that *Eschrakite* seems to import *Illumined*.

ESCHYNOMENOUS *Plants*, are the sensitive Plants; that is, such as upon approaching 'em shrink back, and contract their Leaves. See Sensitive *Plant*.

ESCLAIRCISSEMENT, a *French* Term, which we see retain'd in some late *English* Writers.

The Word properly signifies the Act, or Effect of *clearing a Thing*, or rendering it more *bright and transparent*; being form'd from the Verb *Esclaircir*, to clear, *&c.*

But it is chiefly used in a figurative Sense, for an Explication of an Obscurity, or Difficulty. *Esclaircissement* of the Dialogues of the Gods: The *Esclaircissement* of difficult Passages in the Bible, is only had from similar Passages, or Passages of the like Kind occurring in other Places.

ESCLATTE', in Heraldry, is applied to a Thing violently broke.

Thus a Bend, or other Partition, *Esclatte*, is represented torn, or broke off like a Piece of a ruin'd Wall; or rather, a Shield broke and shatter'd with the Stroke of a Battle Ax, *&c.*

ESCORT, a *French* Term, sometimes used in *English* Authors.

An *Escort* is a *Convoy*, or Company of armed Men, attending some Person or Thing, in a Journey or Voyage, to defend or secure it from Insults. See Convoy.

A Supply was sent to the Camp before *Arras*, with an *Escort* of 1200 Men. In Times of War, Merchant Vessels seldom stir much abroad without an *Escort* of Men of War. People that travel in *Turky*, generally take Janissaries to *Escort* them.

After the Victory, the General sent the Prisoners under a strong *Escort* into the neighbouring Towns. See Convoy.

Some derive the Word from the Latin *Cohors*.

ESCOUADE, is usually the third Part of a Company of Foot. See Company.

It is divided so for mounting of Guards, and for the more convenient relieving one another: It is equivalent to a *Brigade* of a Troop of Horse. See Brigade.

ESCRITOIRE. See Scritoire.

ESCROL, or Scroll, in Heraldry, a long Slip, as it were, of Parchment, or Paper, whereon a Motto is placed. See Motto.

Leigh observes, that no Person, under the Degree of a Knight, might, long after King *Henry* V, place his Crest on a Wreath, as is now usually done, but only on an *Escrol*.

ESCU, or ECU, the *French* Crown, of 60 *Sols*, or 3 *Livres*. See Crown, Livre, *&c.* See also Coin.

The *Escu* was thus called by Reason the Escutcheon, or Arms of *France*, which they call *Escu*, was struck thereon. See Shield, Helmet, Escutcheon.

ESCUAGE, or Scutage, an antient Kind of Knight's Service, call'd also *Service of the Shield*; the Tenant holding by which, was obliged to follow his Lord to the *Scottish*, or *Welsh* Wars, at his own Expence. See Capite.

He who held a whole Knight's Fee, was bound to serve with Horse and Arms for 40 Days: And he who held half a Knight's Fee, 20 Days. See Service.

The same Term *Escuage*, is also used for a Sum of Mony, paid by such as held by this Tenure, when they neither attended the Wars, nor provided another in their Room.

Escuage, was also a reasonable Aid, demanded by the Lord of his Tenants, who held of him in Knight's Service.

Concesserunt Domino Regi ad Maritandam filiam suam de omnibus qui tenent de Domino Rege in Capite de singlis Scutis 20 *solidos solvendos*, Matth. Paris, *Anno* 1242.

ESCULENTS, are Plants for Food, as Artichokes, Carrots, Turnips, Parsnips, Cabbages, Colliflowers, *&c.* See Plant, Salade, *&c.*

ESCURIAL, by the *Spaniards* wrote Escorial, a Term that occurs pretty frequently in our Gazettes, and Journals of News.

Escurial, is originally a little Village in *Spain*, situate in the Kingdom of *Toledo*, seven Leagues to the West of *Madrid*, and nine to the East of *Avila*; on the Side of a Chain of Mountains, call'd by some the *Carpentain*, or *Carpentanian* Mountains, and by others the *Pyreneans*; as being a Branch of the *Pyranean* Ridge.

Here, King *Philip* II. built a stately Monastery of the Order of St. *Jerom*; held by the *Spaniards* for one of the Wonders of the World; and call'd *the Escurial*.

Fa. *Francisco de los Padros*, in a Description thereof, entituled, *Description breve del Monasteria de S.* Lorenzo *el real del* Escorial, *&c.* assures us it was built by that Prince in Memory of the Battle of S. *Quintin*, gain'd on the Day of S. *Lawrence*, *Lorenzo*, a famous *Spanish* Saint, and at his Intercession.

The King and Queen have their Appartments therein; the rest being possess'd by the Monks. Whence, many of the great Transactions of that Court, are dated from the *Escurial*.

It has a very fine Church, to which *Philip* IV. built a beautiful Chappel, call'd the *Pantheon*, wherein the Kings and Queens of *Spain*, who leave any Posterity, are Enterr'd. The rest being laid in another Vault of the same Church, together with the Infanta's and other Princes. See Pantheon.

ESCUTCHEON, or Scutcheon, in Heraldry, the Shield, Coat, or Field, whereon the Bearing, or Arms of any Person is represented. See Shield, Coat *of Arms*, &c.

The Word *Escutcheon* is form'd of the French *Escusson*, and that from the Latin *Scutum*, Shield; which was what Arms were originally bore on, e're ever they came on

on Banners; and ſtill, wherever they are placed, 'tis on ſomething repreſenting the Form of a Shield.

The Latin *Scutum*, no doubt, came originally from the Greek *Scutos*, Leather, wherewith the Shields were uſually cover'd. See SHIELD.

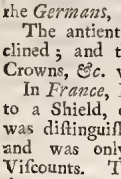
On theſe Shields was always ſome particular Mark, Badge or Symbol painted: Which was the Original of Armoury. See ARMS.

The *Eſcutcheon* is of a Square Figure, excepting for the Bottom Part, which is uſually a little rounded, ending with a Point in the middle.

Till within a few Hundred Years, the *Eſcutcheons* of the *French* and *Engliſh* were triangular: Thoſe of the *Spaniards*, are ſtill quite round at Bottom without any Point: Thoſe of the *Italians*, are Oval: And thoſe of the *Germans*, in Form of Cartouches.

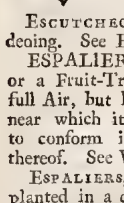
The antient *Eſcutcheons* were generally couch'd, or inclined; and they only began to place them upright, when Crowns, *&c.* were put over them by Way of Creſt.

In *France*, Eſcuſſon, *Eſcutcheon*, was formerly reſtrain'd to a Shield, or Coat, pointed at Bottom; by which it was diſtinguiſh'd from the *Eſcu*, which was quite Square, and was only allowed to be bore by the Counts and Viſcounts. Thoſe of inferior Quality were confined to the *Eſcuſſon*, or pointed *Eſcu*.



The ſeveral Parts, and Points of the *Eſcutcheon*, have their ſeveral Names: The Point D, for Inſtance, is the *Dexter chief Point*; C the *middle Chief*; and S the *ſiniſter Chief Point*: H is the *Honour Point*; F the *Feſſe Point*; N the *Nombril Point*; *d* the *Dexter* Baſe, B the *Middle*, and *s* the *Siniſter* Baſe Point.

The *Eſcutcheon* is diverſely denominated, according to its Diviſions. It is call'd *dexter'd*, when the perpendicular Line that divides it, is to the right of a third Part of the *Eſcutcheon*: *Siniſter'd*, when on the left: *Tierced in Pal*, when it is double, and divides the whole *Eſcutcheon* into three equal Parts: *Paled*, when increas'd to the Number of ſix, eight, or ten. A Horizontal Line makes the *Chief*, when at one third Part from the Top: The *Plein*, when at a third from the Bottom: And when double, in the middle, at an equal Diſtance from both Extremes, it makes the *Feſs*, and the *Tierced* in Feſs: When 'tis multiplied, it denominates it *feſſed*: When there are 8, or 10 equal Spaces, *Burrelle*: A Diagonal from the Dexter of the Chief to the Siniſter of the Point makes it *tranche*; the contrary, *double*. If it be doubled at equal Diſtances, the firſt makes *bande*, and the *tierce* in Bend; and the other *barre*, or *tierce* in Bar: Increaſing the Number of the firſt makes *bande* and *cottice*; and increaſing that of the ſecond, *barre* and *traverſe*.



ESCUTCHEON *of Pretence*, is an *Inſcutcheon*, or little *Eſcutcheon*, which a Man, who hath married an Heireſs, and hath Iſſue by her, may bear over his own Coat of Arms; and in it the Arms of his Wife: and the ſurviving Iſſue will bear both Coats Quarterly. See PRETENSE.

ESCUTCHEON, and ESCUTCHEON-GRAFTING, in Gardening. See ENGRAFTING.

ESPALIER, in the *French* Gardening, a *Wall-Tree*; or a Fruit-Tree which is not left to grow at Liberty in full Air, but has its Branches nail'd or faſten'd to a Wall, near which it is planted; and thus growing, it is made to conform it ſelf to the flat, tho' unnatural, Figure thereof. See WALL *Tree*.

ESPALIERS, in our Gardening, are Rows of Trees, planted in a curious Order round the Outſide of a Garden, or Plantation, for the general Security thereof, from the Violence and Injury of the Winds; or elſe only round ſome Part of a Garden, for the particular Security of a Plantation of Orange Trees, Lemon Trees, Myrtles, and other tender Plants; or, laſtly, for the bounding of Borders, Walks, Avenues, *&c.* See GARDEN, *&c.*

Eſpaliers are now come into mighty Uſe, with Reſpect to the firſt of theſe Intentions: In Effect, 'tis found by Experience, that the beſt Brick, or Stone Walls, are not of themſelves ſufficient Security to Fruit-Trees, from the Ravages of blighting Winds. See WALL.

The Reaſon may be, that being built cloſe and compact, they repel the Winds, and by that Means damage the tender Plants, that lie within the Reach of the Repulſion. But theſe *Eſpaliers* ſerve to deaden the Violence of the Winds, ſo as the tender Greens, or Plants, encompaſſed by them, reſt ſerene and quiet.

Thus, if the *Eſpaliers*, for Inſtance, be of Spruce Holly or Yew, they give Way to the Force of tempeſtuous Winds, beating againſt them, without occaſioning any Reſilition thereof.

Meſſ. *London*, and *Wiſe*, direct them to be planted at ſome Diſtance, without the outmoſt Bounds, or Walls of Gardens, *&c.* Two, or three Rows of Trees, they think ſufficient, from 18 or 20 to 25 Foot a-part. And as to the Method, or Order, of diſpoſing the Trees, the moſt commodious is where the middle Row makes every where Equilateral Triangles with the extreme Rows, in the following Manner.

* * * * * * *
* * * * * * * *
* * * * * * *

The Trees recommended for making, or planting, theſe *Eſpalier* Fences, are the Elm, Lime, Beech, *Scotch* Fir, Oak, Pine and Sycamores; but particularly the two firſt. For the Method of Planting 'em. See PLANTING, TRANSPLANTING, *&c.*

As for *Eſpalier Hedges*, or Hedge Rows, for Defence of tender Greens, and Plants from deſtructive Winds in the Summer Seaſon: If there be Occaſion to uſe them the firſt or ſecond Year after they are planted; a ſubſtantial Frame of Wood muſt be made, ſeven or eight Foot high, with Poſts and Rails. And to this *Eſpalier* Frame, muſt the ſide Boughs of the young Trees be tied, to cauſe the *Eſpalier* to thicken the ſooner.

As to the Form of ſuch an *Eſpalier*, it muſt be oblong, running North and South.

Theſe *Eſpaliers* may be planted of Apples, Pears, Holly, Laurel, Lime, Maple, white-Thorn, Yew, *&c.*

To prevent the Diſorders that might befal *Eſpalier* Fruit Trees when in Bloſſom, Mr. *Bradley* mentions a nurſery Man at *Brentford*, who having moſt Sorts of Fruit in *Eſpaliers*, has portable Hedges made of Reeds in Frames, which he ſets both at the Back, and Front of his *Eſpaliers*, as he ſees Occaſion.

ESPAULE, ESPAULEMENT, *&c.* in Fortification. See EPAULE, EPAULEMENT, *&c.*

ESPLANADE, in Fortification, call'd alſo *Glacis*, a Part ſerving the Counterſcarp, or cover'd Way, for a Parapet; being a Declivity, or Slope of Earth, commencing from the Top of the Counterſcarp, and loſing it ſelf inſenſibly in the Level of the Campaign. See GLACIS.

ESPLANADE, alſo ſignifies the Ground which has been levell'd from the *Glacis* of the Counterſcarp, to the firſt Houſes; or the vacant Space between the Works and the Houſes of the Town.

The Term is alſo applied in the general for any Piece of Ground render'd flat or level, which before had ſome Eminence that incommoded the Place. See TALUT.

ESPOUSALS. See MARRIAGE.

ESQUADRILLE, } See { QUADRIL.
ESQUADRON, } { SQUADRON.

ESQUINANCY, in Medicine, a Diſeaſe call'd alſo *Angina*, *Squinancy*, and popularly *Quinzy*. See ANGINA, SQUINANCY, *&c.*

ESQUIRE, a Title of Nobility, next below that of *Knight*, and above that of a ſimple *Gentleman*. See NOBILITY, KNIGHT, and GENTLEMAN.

The Origin, both of the Name and the Thing, *Eſquire*, is very dark and intricate: The *Engliſh* Denomination is confeſſedly borrowed from the French *Eſcuyer*; and that from the Latin *Scutum*, Shield, as ſome will have it; or as others, from *Scutarius*, or *Scutiger*, Shield-Bearer, or from *Scuria*, Stable, or *Equiſo*, Groom.

So many different Ideas of the Formation of the Word, have given riſe to as many about their Office; unleſs, perhaps, the latter have given Occaſion to the former.

Paſquier in his *Recherches*, L. II. *C.* 15. maintains the Title of *Eſquire*, Eſcuyer, Scutarius, to be very antient. From the Time of the Declenſion of the *Roman* Empire, he obſerves, there were two extraordinary Kinds of Soldiery, in the *Roman* Army; the one call'd *Gentiles*, and the other *Scutarii*.

Ammian. Marcellin L. XIV. *C.* 7. and *L.* XVI. *C.* 4. ſpeaks of theſe *Scutarii* as Men of redoubted Proweſs; and even deem'd invincible. 'Tis added, that *Julian* the Apoſtate ſet a mighty Value on thoſe Troops, when he was in the *Gauls*: And hence, probably, it was, that the *Gauls*, or perhaps, only the *Franks*, finding the braveſt among the *Roman* Forces were call'd *Gentiles*, and *Scutarii*, gave the like Names to the boldeſt and braveſt among themſelves; ſuch, according to that curious Antiquary, is the Origin of *Eſquires*.

ESQUIRE, however, afterwards came to be uſed in a ſomewhat different Senſe; *viz.* for a *Gentleman* who attended a Knight in the Wars, and on other military Occaſions; bearing the Shield, *Scutum*, before him: Whence *Scutarius*, *Scutiger*, or *Scutifer*; as alſo his Launce, and other Weapons: Whence his other *Latin* Appellation, uſual among us, *Armiger*, q. d. Armour-Bearer.

And hence it is, that in all our antient Romances, the Hero is constantly attended by a gentle, and trusty *Squire*.

After all, the most probable Derivation of *Escuyer*, is not from *Escu*, *Scutum*, as is the common Opinion, but from *Equus*; and these *Esquires* were originally what the *Latins* call *Equisones*, and had the Care and Intendance of the Equeries, or Stables only. See EQUERY.

Be this as it will, the Title *Esquire*, Armiger, as now establish'd among us, is the next below that of Knight, *Eques*. They who bear this Title, are all younger Sons of Noblemen, and the eldest Sons of such younger Sons; the eldest Sons of Knights, and their eldest Sons successively; the four *Esquires* of the King's Body; and *Esquires* created by the King, by putting about their Necks a Collar of S S's, and bestowing on them a Pair of Silver Spurs. Lastly, divers others in the superior public Offices, are reputed *Esquires*, or equal to *Esquires*; as Sheriffs of Counties, Serjeants at Law, Justices of Peace, Mayors of Towns, Councellors at Law, Batchellors of Divinity, Law, Physic, *&c.* tho' none of them are really so: Lastly, the Chiefs of some antient Families are likewise *Esquires* by Prescription.

ESQUISSE, in the *French* Painting, a Term signifying the first slight sketch, or draught of a Picture; the first Thought of a Design drawn hastily with a Crayon, or in Colours on Paper, Canvas, or the like; in Order to be finish'd, and painted or engraven afterwards. See DESIGN.

He had not the Trouble of making a finish'd, and correct Design; but went to work upon the *Esquisse*.

The Word is form'd of the Italian *Schizzo*, a Splash; by Reason an *Esquisse* of a Painting only represents, as it were, Splashes, or Dabs of Colours.

ESSART, or ASSART. See ASSART.

To *Essart*, is to grub up, or extirpate Bushes, Trees, old Roots, Stumps, or the like; in Order to fit the Ground for Tillage.

Du Cange derives the Word from some of the barbarous *Latin* Words, *Exartus*, *Exartum*, *Exartes*, *Essartum*, *Assartum*, *Sartum*, and *Sartus*; which all signifie a Forest cut down or dug up: Tho' *Spelman* derives it from the Latin *Exertum*, torn up, or unrooted. Others, from *sarrire*, to weed. And others, lastly, from *exaro*, to plow, whence *exarare* and, by Contraction, *Exartum*.

In our antient Law Books, *Exartum facere in Sylva*, is to *Essart* a Place in a Forest.

ESSAY, a Trial, or Experiment, to prove whether a Thing be of the requisite Quality, or Goodness. See SPECIMEN.

The Word is also used for an Attempt, or Tentative, to learn whether or no a Thing will succeed. *Essays* of Machines should be made in large; 'tis not enough they succeed in little. See MACHINE.

In Monasteries, *Essay* is particularly used for a Trial which a Person makes of the Monastic Life, in a secular Habit. This *Essay* is of one, two, and in some Monasteries, of three Months. The *Essay* is not reckon'd in the Noviciate. See PROBATION.

Some Authors derive the Word from the Latin *Examen*.

ESSAY, or ASSAY, or simply SAY, in Coinage, *&c.* is a Proof, or Trial, made by the Cuppel, or Test, of the Fineness, or Purity of the Gold or Silver to be used in the Coining of Mony, *&c.* or that have been used therein. See COINING.

There are two Kinds of *Essaying*; the one before Metals are melted, in Order to bring them to their proper Fineness; the other after they are struck, to see that the Species be Standard.

For the first *Essay*; the *Essayers* use to take fourteen or fifteen Grains of Gold, and half a Drachm for Silver; if it be for Mony: and eighteen Grains of the one, and a Drachm of the other, if for other Occasions.

As to the second *Essay*, 'tis made of one of the Pieces of Mony already coin'd, which they cut in four Parts.

Method of ESSAYING *Gold.*

The *Essayer* having weigh'd the Gold he intends to make the Trial in, very exactly, and noted down the Weight; adds twice as much fine Silver thereto; tho' this should be in Proportion to the Fineness the Gold seems to be of; the basest Gold requiring the least Silver. The Gold and Silver thus weigh'd, and mix'd, are wrapp'd up in a Piece of Paper, to prevent their losing any Thing of their Weight, which would disturb the Accuracy of the *Essay*.

While the *Essayer* is weighing his Matters, a reverberatory Fire is lighted in a Furnace, furnish'd with a Muffler, and a Cuppel, or Test, set therein to heat. This done, a little Bullet of Lead is put in the Cuppel, of a Weight proportionable to the Quantity and Quality of the Gold to be *Essay'd*. When the Lead is well melted, and appears very clear and bright; they put in the Gold and Silver, and let it fuse and seeth till it appear of an Opal Colour, and have fix'd it self, in a little Lump, to the Bottom of the Cuppel.

This done, the Cuppel is left to cool in the Furnace it self; after which the Lump is separated very exactly from the Place where it stuck to the Vessel; and stretch'd, or hammer'd on the Anvil; heating it again and again, on the Coals, to promote the stretching.

When sufficiently hammer'd, they roll it up in Form of a Cornet, or Coffin, and thus put it in a Glass Matrass, capable of containing four Spoonfuls of Water; and having added to it a Quantity of *Aqua fortis*, well corrected, that is, mix'd with near one third of the Quantity of River Water, they boil it over a Wood Fire, till such Time as the *Aqua fortis* yields no more red Fumes.

This first Water being pour'd off, and the Cornet left alone at the Bottom of the Matrass, they fill the Matrass again, but with pure *Aqua fortis*; which, after boiling, is pour'd off in its Turn, at such Time as the Fumes are become white. This done, they fill up the Matrass with River Water, to wash the Cornet.

When wash'd, they put it dry in a Crucible, with a Cover over it, and heat it till it become of a Cherry Colour.

This done, the *Essay* is finish'd; and there remains nothing but to weigh it against the same Weight of fine Gold, as was used at first, before the *Essay*. For by Comparing the first Weight of the Gold, e're it was put in the Fire, and the *Aqua fortis*, with what it retain'd after it had thus undergone the Test; they judge, from the greater, or less Loss it has sustain'd, of the Quantity of Alloy mix'd with it.

Method of ESSAYING *Silver.*

The Process is much the same as in Gold; only less difficult, and shorter. The Silver is weigh'd, as before; and the same Furnace, and Muffler, the same Fire, the same Cuppel used. Add, that Lead is likewise put in the Cuppel, proportioned to the Quantity and Quality of the Silver to be *Essay'd*.

The Lead being well melted, and clear, the Silver is put in; and after it is brought to an Opal Colour, and fix'd in a Lump at the Bottom of the Cuppel, which happens in about half an Hour: They let it cool, and cleanse it, and lastly, weigh it again, as in Gold: And from its Diminution, estimate the Quantity of Alloy.

ESSAYING *of Lead.*

The *Essay* of Gold and Silver being perform'd by Means of Lead; 'tis of the utmost Importance, the Lead be free of any Mixture of either of the two Metals: Otherwise the *Essay* will be false; by reason the Gold and Silver mix'd with the Lead, will not evaporate like other Kinds of Alloy, but unite with the Metal under *Essay*.

To prevent this Disorder, and assure the Operation, there is no way but to *Essay* the Lead it self.

This *Essay* is performed in the same Furnace, and with the same Cuppels, as those of Gold and Silver: But the Process is incomparably more simple. All here required, when the Cuppel is heated, being, to put in the Piece of Lead to be *Essay'd*. If this Lead evaporate entirely, 'tis fit for the Purpose. On the contrary, if there remain any little Grain of Silver, *&c.* at the Bottom, it must be set aside. See LEAD.

ESSAY, in Matters of Learning, is a peculiar Kind of Composition; whose Character is to be free, easy, and natural; not tied to strict Order, or Method, nor work'd up and finish'd, like a formal System.

The Matter of an *Essay* is supposed to consist principally of sudden, occasional Reflexions, which are to be wrote much at the Rate, and in the Manner a Man thinks; sometimes leaving the Subject, and then returning again, as the Thoughts happen to arise in the Mind.

At least, this has hitherto been the Practice; and *Montague*, who has got no small Reputation by this Way of Writing, seldom keeps many Lines to the Subject he proposes: Tho' it is our Opinion, that my Lord *Bacon* is a better Pattern in the *Essay* Kind.

Mr. *Lock*, however, and a few other Authors use *Essay* in a severer Sense: The *Essay of human Understanding*, every Body knows is a regular, artful, labour'd Work.

ESSAY-*Master*. See MINT.

ESSE, in the School Philosophy, is used in the same Sense with *Essence*; principally for that which is actual, or actually existing. See ESSENCE.

From *Esse* arises *Essatum*, a barbarous Term now almost obsolete, signifying that which is endued with *Essence*, or Nature; or effected with the Virtue or Efficacy of another. Some distinguish *Esse* into *real* and *intentional*; and again into *Essatum* and *Volitum*. See ESSENCE.

The Word is pure *Latin*, being the Infinitive of the Verb *Sum*, I am; whence *Esse*, to be.

ESSENCE,

ESSENCE, that which conſtitutes, or determines the Nature of a Thing; or which is abſolutely neceſſary for its being what it is. See NATURE.

In Philoſophy, the *Eſſence* of a Thing is defined to be that whereby a Thing is diſtinguiſhed from every other Thing.

The *Carteſians* hold the *Eſſence of Matter* to conſiſt in Extenſion; and on that Principle, deny that there is any ſuch Thing as Mere Space, or Vacuity: But the *Hypotheſis* is falſe, as is ſhewn under the Articles MATTER, SPACE, VACUITY, PLENUM, *&c.*

Gaſſendus, and moſt of the Corpuſcular Philoſophers, hold the *Eſſence* of Matter to conſiſt in Solidity, or Impenetrability, or Reſiſtance, or, more adequately, in a ſolid Impenetrability reſiſting the Touch; which, it muſt be allow'd, of all the Properties of Matter, ſeems to have the faireſt Title. See EXTENSION, BODY, SOLIDITY, IMPENETRABILITY, *&c.*

The School Philoſophers give us two Significations of the Word *Eſſence*; the firſt denotes the whole *Eſſential* Perfection of a Being, and conſequently its Entity, with all its intrinſic, or *Eſſential*, and neceſſary Attributes taken together. In which Senſe, *Eſſence* may be defined to be *all that whereby a Thing is, and is what it is.* In which Caſe, the *Eſſence* of a Thing, is to the Thing it ſelf, what Humanity, *e. gr.* is to Man.

The ſecond Signification of *Eſſence*, is that whereby it denotes the principal, and moſt intimate of all the Attributes of a Thing; or that which agrees to every ſuch Thing, and ſuch alone, and that always, and in ſuch manner, as that the Mind, with all its Attention, cannot perceive any Thing prior thereto. By which, *Eſſence* is diſtinguiſh'd from the *Eſſential Attributes*, i. e. from ſuch as flow from its *Eſſence*, or firſt Attribute. Thus, the *Eſſence* of the human Mind is commonly ſuppoſed to conſiſt in the Power of Thinking; by reaſon all its other Perfections ſeem to pre-ſuppoſe this; but this pre-ſuppoſes none. And thus, the Powers of underſtanding, doubting, aſſenting, willing, *&c.* do all flow from the Power of Thinking; and cannot exiſt without it, tho' this may without any of them.

It muſt be allow'd, however, that the *Eſſential* Properties of a Thing do ſo cloſely cohere, nay, and inhere in the *Eſſence* it ſelf, that 'tis ſcarce poſſible to diſtinguiſh the one from the other. Hence, what ſome urge, that ſetting aſide all the Attributes and Properties of a Thing, and what remains is its *Eſſence*; is a mere Chimera. For ſet aſide, *e. gr.* from the Mind, the Powers of underſtanding and willing, with the reſt of its Attributes: and what will there remain to call its *Eſſence*?

'Tis greatly diſputed in the Schools, whether the *Eſſences* of created Things be Eternal: Or, whether the *Eſſences*, as well as the Exiſtences, had their Origin in Time? The *Carteſians* hold, that the *Eſſences* of Things depend abſolutely on the free concurring Will of God.

ESSENCE, in Medicine and Chymiſtry, is the pureſt and moſt ſubtle Part of a Body, extracted from the ſame, by means of Fire. See EXTRACT.

Of theſe there are a great Variety, drawn from Flowers, Fruits, *&c.* uſed on Account of their agreeable Smells, Taſts, *&c.* by the Apothecaries, Perfumers, *&c.*

The principal are *Eſſence of Roſemary: Of Turpentine: Of Anis: Of Cloves: Of Cinnamon*; and *of Citron.*

The *Eſſences* commonly ſold by the Perfumers, are only the Oils of Ben, and of bitter Almonds; to which they give the Smell of certain Flowers, or Spices, as Violets, Jaſſemin, Cinnamon, *&c.*

The *Eſſences* to be drunk, or mix'd with Liquors, are of a more elaborate Compoſition: The moſt uſual and beſt, is prepared with the Spirit of Wine, Cloves, Cinnamon, Mace, Long Pepper, and Coriander: The whole being put up in a very cloſe Veſſel, is expoſed to the Sun for ſix Weeks, or two Months, during the Day-time, and in the Night ſet on the Fire.

In Winter they uſe the Fire alone: This *Eſſence* being exceedingly ſtrong; 'tis frequently uſed only to give a Strength to other weaker Liquors. After the ſame manner may the *Eſſences* of Amber, Muſc, *&c.* be drawn.

The *Eſſences* of odoriferous Flowers, to give a fine Smell to Liquors, are drawn by laying *Strata*, or Lays of the Flowers, and of Sugar, alternately, in a proper Veſſel, and leaving 'em to infuſe in a Cellar for 24 Hours; and after that as long by the Sun; and laſtly, ſtraining or percolating the whole thro' a Sieve, without ſqueezing the Flowers.

ESSENI, or ESSENES, or ESSÆANS, an ancient Sect among the *Jews*. See SECT.

Joſephus making mention of the ſeveral Sects among his Countrymen; diſtinguiſhes three; *viz.* the Phariſees, Sadducees, and *Eſſeni*: Which laſt he prefers to the two former, as to their manner of Life. He aſſures us, further, that they were *Jews* by Original; from which it ſhould appear, that S. *Epiphanius* was miſtaken, in ranking 'em among the *Samaritans.*

In Effect, the *Eſſeni* appear to have been true Pythagorian Philoſophers, in every Thing that related to their manner of Living. For they greatly affected Solitude and Retirement, and all Converſation with Women, to devote themſelves more entirely to the contemplative Life.

The *Eſſeni* ſeem to have been among the *Jews*, what the moſt retired and auſtere Monks are, or were, among the Chriſtians; which was what gave them their Denomination of Ἰουδαῖοι ἀσκηταί, *Aſcetic Jews.* See ASCETIC.

Many Catholic Writers have even deduced the Origin of Monks from 'em: Building, principally, on what *Philo* relates of 'em, who divides 'em into two Branches or Sects: The one who married, and the other who lived in Cœlibate. See MONK and CELIBATE.

Joſephus ſeems likewiſe to have had an Eye to theſe two Sorts of *Eſſeni*. *Serrarius*, who has wrote very amply on the Subject, follows *Philo*, in making two Claſſes of *Eſſeni*: The firſt, are thoſe whom he calls *Practici*, and who lived in Community: The ſecond, thoſe call'd *Theoretici*, who lived in Solitude, and led a Life of pure Contemplation. He adds, that *Joſephus* only makes mention of the firſt; paſſing, untouch'd, over the contemplative Kind, whom *Philo* calls *Therapeutes*, and who were principally found in *Egypt*. See THERAPEUTÆ.

Grotius will have the *Eſſeni* the ſame with the ancient חסידים *Haſidim*, or *Haſidæi*, thus call'd, according to *Philo*, from their ſingular Piety, Humility, and Devotion. Among theſe, *Gale* obſerves, it was, that the *Hebrew* Philoſophy chiefly flouriſh'd. *Porphyry, de Abſtinent.* is very prolix in his Praiſes of the *Eſſeni*; Εἰσὶ τοίνυν οἱ Ἐσσαῖοι, Ἰουδαῖοι μὲν τὸ γένος, φιλάλληλοι, &c. He repreſents 'em as Deſpiſers of Pleaſure, Riches, Glory, and Delicacy, *&c.* and ſtrenuous Retainers to Continency, Auſterity, Study, *&c.* They decline Marriage; and adopt and educate other Peoples Children in Religion and Philoſophy. They are all on a Level, hold every Thing in common, neither buy nor ſell, *&c.* By long Habits, they arrived at ſuch a Degree of Patience, that *Porphyry* aſſures us, Flames and Tortures had nor the leaſt Effect on 'em. They ſcorn'd to intreat their Tortorers; nor ever ſhed a Tear; but would ſmile under all their Agonies, *&c.* As to their Learning, *Philo Judæus*, in his Treatiſe, *That every good Man is free*, tells us, that they deſpiſed Logic, as uſeleſs to the acquiring of Virtue: Phyſics, they left to the Sophiſts and Diſputers, as judging it to tranſcend the human Faculties; and apply'd themſelves wholly to Morality. *Gale, Eſſenor. Char. ap. Philoſ. Gener.* p. 29.

Euſebius holds, that the *Eſſeni*, call'd *Therapeutæ*, were real Chriſtians, or *Jews* converted by St. *Mark*, who had embraced this Kind of Life. *Scaliger*, on the contrary, maintains, that theſe *Therapeutæ* were no Chriſtians, but real *Eſſeni*; who made Profeſſion of *Judaiſm*. However, he allows the two Kinds of *Eſſeni* abovementioned. But *Valeſius*, in his Notes on *Euſebius*, abſolutely rejects any ſuch Diſtinction: He denies, that the *Therapeutæ* were any real *Eſſeni*; and that, chiefly, on the Authority of *Philo* himſelf, who never calls 'em *Eſſeni*, and who places the *Eſſeni* in *Judæa* and *Paleſtine*; whereas the *Therapeutæ* were ſpread throughout *Greece*, *Egypt*, and other Countries.

ESSENTIAL, ſomething that is neceſſary to conſtitute a Thing, or that has ſuch a Connexion with the Nature and Reaſon of a Thing, that it is found, or ſuppoſed, wherever the Thing it ſelf is. See ESSENCE.

Thus, it is eſſential to God to be juſt. Mr. *Lock* has overturn'd that great Principle of the *Carteſians*, that *Thinking is eſſential to the Soul.* See THINKING.

The Heart, Brain, and Spinal Marrow, are Parts ordinarily ſuppoſed *Eſſential* to Life, or without which Life cannot be; yet we have Inſtances in Natural Hiſtory, of Childrens being found, and alive, without almoſt any of thoſe Parts. See BRAIN, *&c.*

ESSENTIAL *Properties*, are ſuch as neceſſarily depend on, and are connected with, the Nature and *Eſſence* of any Thing, ſo as to be inſeparable from it: in Diſtinction from accidental. See PROPERTY.

ESSENTIAL *Oils*, are ſuch as are really in a Plant, and drawn from it by Diſtillation, in an Alembic, with Water; in Contra-diſtinction to thoſe made by Inſolation. See OIL.

ESSENTIAL *Salts*, are ſuch as will cryſtallize in the Juice or Infuſion of a Plant; in Diſtinction from thoſe made by *Incineration.* See SALT.

ESSOIN, in Law, an Excuſe for him that is ſummon'd to appear and anſwer to an Action real, or to perform Suit

Suit to a Court Baron. It is equivalent to *Excusatio* among the Civilians.

The Causes that serve to *Essoin*, are divers; yet may be reduced to five Heads: The first is, *Essoin de ultra mare*, when the Party is beyond Sea: The second, *De terra sancta*, when on an Expedition in the Holy Land: The third, *de malo venendi*, when he is infirm of Body, and cannot come; which is also call'd, the *Common Essoin*: The fourth, *Essoin de malo lecti*, when the Defendant is sick a-bed: The fifth, *de servitio Regis*, when he is in the King's Service. *Horn* mentions several other *Essoins* touching the Service of the King Celestial.

The Word is form'd of the French, *Essoinie*, i. e. *Causarius miles*, he that has his Presence forborn upon any just Cause, as Sickness, or other Impediment.

ESSOINS and PROFFERS. See PROFFER.

ESSORANT, in Heraldry, a Term used to express a Bird standing on the Ground with the Wings expanded, as if it had been wet, and were drying it self.

ESTANDARD. See STANDARD.

ESTATE, in Law, the Title, or Interest a Man hath in Lands or Tenements.

Estate is either simple or conditional: *Estate simple*, call'd also *Fee simple*, is where a Man by Deed Indented, enfeoffs another in Fee, reserving to him and his Heirs a Yearly Rent; with this Proviso, that if the Rent be behind, *&c.* it shall be lawful for the Feoffer and his Heirs, to enter. See FEE.

Estate Conditional, or upon Condition at Law, is such, as hath a Condition annexed to it, tho' it be not specified in Writing. *e. gr.* If a Man grant to another, by his Deed, the Office of Park-Keeper for Life: this *Estate* is upon *Condition in Law*, viz. If the Park-Keeper shall so long well and truly keep the Park.

ESTATE, or simply STATE, the Empire, Kingdom, Provinces, or Extent of Lands under any one Government or Dominion.

The *Estates* of the Grand Seignior, of the King of *Spain*, &c. are very extensive: Those of the King of *France* are compact, and well peopled. *Italy* is canton'd out into a great Number of petty *Estates*.

Ministers of Estate, Secretaries of Estate, &c. See MINISTER, SECRETARY, *&c.*

ESTATE is particularly applied to the several Ranks, or Classes, of a People assembled together, for the concerting of Measures, reforming Abuses, or composing the Disturbances of a State.

In *England*, the Three *Estates*, viz. King, Lords, and Commons, meet ordinarily in Parliament.

In *France*, the *Estates* consist of the Churchmen, the Noblesse, and the Third *Estate*.

Some will have these Assemblies of *Estates* to be a very ancient Constitution: All we know is, that there were general Assemblies held in the *Gauls*, before *Cæsar*'s Conquest. But then the People, or third *Estate*, had no Share in 'em. Under the Ist and IId Race of the *French* Kings, there were also solemn Convocations, call'd *Parliaments*; but it was only the great Lords of the Realm that were call'd to 'em. See PARLIAMENT.

ESTATES *General*. } See { STATES *General*, &c.
ESTATES *of Holland*. }

ESTERLING, or EASTERLING. See STERLING.

ESTETE, in Heraldry, is used by the *French* to signify a Beast whose Head has been, as it were, torn off by Force; and consequently the Neck left rough and rugged: In Contra-distinction to *deffait*, or *decapite*, where the Neck is left smooth; as if the Head had been cut off. See DEFFAIT.

ESTHER, a Canonical Book of the Old Testament.

The *Book of Esther*, is denominated from a celebrated *Jewish* Captive of that Name, in *Persia*, whose Beauty prefer'd her to the Bed of *Ahasuerus*, and the Throne of *Persia*; And who, in that Quality, saved her Compatriots the *Jews*, from the Death, to which *Ahasuerus* had doom'd 'em, by the Councils of his Favourite *Haman*: The History of which Transaction makes the Subject of the Book of *Esther*.

The Criticks are divided about the Author of this Book: *S. Epiphanius*, *S. Augustin*, and *Isidore*, attribute it to *Ezra*; But *Eusebius* will have it of a later Date. Some ascribe it to *Joachim*, High-Priest of the *Jews*, and Grand-son of *Josedek*. Others will have it composed by an Assembly, or Synagogue of the *Jews*, to whom *Mordecai* wrote Letters, informing 'em of what had happen'd, *Esth.* IX. 29.

But the Generality of Interpreters, both *Hebrew*, *Greek*, *Latin*, &c. ascribe the Book to *Mordecai* himself: *Elias Levita*, in his *Mass. hamum.* Præf. 3. mentions this Sentiment as unquestionable.

'Tis chiefly founded on the Passage, Ch. IX. Ver. 20. where it is said, *That Mordecai wrote these Things, and sent Letters unto all the Jews, that were in all the Provinces*, &c. 'Tis also supposed, that Queen *Esther* her self, might have some Share therein; it being express'd in the same Chapter, Ver. 29. that *Esther* and *Mordecai* wrote a second Letter with the King's Authority, to ordain the solemnizing a Yearly Feast, call'd *Purim*, that is, Days of Lots, in Commemoration of the *Jews* being deliver'd from the Lots, or Sortes, whereby they had been condemned.

Some will have this Book to be only Deuterocanonical. Others contend for its being Canonical, as far as Chap. X. Ver. 3. inclusive; and all the rest Deuterocanonical. Of this Sentiment are S. *Jerom*, *De Lyra*, *Dionysius* the *Carthusian*, *Cajetan*, and others. The Council of *Trent* turn'd the Scale for its being Canonical throughout: so that the Matter is determined for the Catholic Countries.

But as to the Protestants, they retain to the old Opinion, and only admit it as far as the 3 & Verse of the X*th* Chapter. See DEUTEROCANONICAL.

ESTIVAL, or ÆSTIVAL *Solstice*. See SOLSTICE.

ESTOILEE'. A *Cross Estoilee*, is a Star with only four long Rays, in manner of a Cross; and accordingly broad in the Centre, and terminating in sharp Points. See CROSS.

ESTOPPEL, in Law, an Impediment, or Bar of Action growing from a Man's own Act, who hath, or otherwise might have had his Action. See BAR.

Goddard defines an *Estoppel* to be a Bar, or Hindrance, to one to plead the Truth; and extends it not to the Impediment given by his own Act only, but anothers also.

There are three Kinds of *Estoppel*, viz. by *Matter of Record*; by *Matter in Writing*; and by *Matter in pais*.

The Word is form'd of the French, *Estouper*, *oppilare*, *obstipare*.

ESTOVERS, in Law, is used by *Bracton*, for that Sustenance, which a Man committed for Felony, is to have out of his Lands, or Goods, for himself and his Family, during Imprisonment.

In Stat. 6. *Edw.* I. it is used for an Allowance in Meat or Clothes. In Stat. *West.* it is also used for certain Allowances of Wood, to be taken out of another Man's Woods.

In this last Sense *Estovers* comprehends *House-bote*, *Hay-bote*, and *Plow-bote*: So that if a Man hath in his Grant these general Words, *de Rationabili Estoverio in Boscis*, &c. he may thereby claim all three.

In some Mannors, the Tenants have Common of *Estovers*; that is, necessary Botes out of the Lord's Wood. See ALIMONY.

ESTRADE, a *French* Term, literally signifying a public Road, or High-way. Hence the Military Phrase, *Battre l'Estrade*, to *Beat the Estrade*, that is, to send Scouts, or Horsemen, to get Intelligence, to learn the Dispositions of the Enemy, and inform the General of every Thing like to fall in the Way. An Army never marches, without sending *Batteurs d' Estrade* on every Side.

The Word is form'd of the Italian *Strada*, Street, or Road, which is derived from the Latin *Strata*, a paved Street. Some derive it from *Estradiots*, who were Cavaliers anciently employ'd in *beating the Estrade*.

ESTRADE is also us'd, for a little Elevation in the Floor of a Room, frequently encompass'd with an Alcove, or Rail, for the placing a Bed in; and sometimes, as in *Turkey*, only cover'd with fine Carpets, to receive Visitors of Distinction in. See ALCOVE.

ESTRANGEL, in the *Syriac* Grammar. The *Estrangel*, or *Estrangelus Character*, is a particular Species, or Form of *Syriac* Letters; serving as the Majuscule Letters of the *Syriac* Language.

Abraham Ecchellensis takes the *Estrangel* Character, for the true, ancient, *Chaldee* Character. And 'tis certain, the *Abyssinians*, who call themselves *Chaldeans*, still occasionally use the *Estrangel* Character; if we may credit *Hottinger* in his *Thesaur. Philol.* p. 286. Bishop *Walton*, in his *Prolegomena*, gives us an *Estrangel Alphabet*.

ESTRAY, signifies any tame Beast found within any Lordship, and not owned by any Man; in which Case, being cried, according to Law, in the Market adjoyning, if it be not claimed by the Owner in a Year and a Day, it is then the Lord's of the Soil where found.

ESTREAT, in Law, is used for the true Copy, or Duplicate, of an original Writing: For Example, of Amerciaments, or Penalties, set down in the Rolls of a Court, to be levied by the Bailiff, or other Officer, of every Man for his Offence.

Clerk of the ESTREATS. See CLERK.

ESTREPEMENT, in Law, an impoverishing, or making of Land barren, by continual Plowing and Sowing; without due Manuring, Rest, and other Husbandry.

The Word is also used, for any Spoil made by the Tenant for Life, upon any Lands, or Woods, to the Prejudice of him in Reversion; as the cutting down of Trees, or

or lopping them further than the Law allows, &c. Stat. *Edu.* VI.

The Word is derived from the French, *Estropier*, to maim; or the Latin, *extirpare*.

ESTREPEMENT, is also a Writ which lies in two Cases; the one, when a Man having an Action depending, (wherein the Demandant is not to recover Damages as a Writ of Right, *dum fuit infra ætatem*, &c.) sues, to inhibit the Tenant from making Wast during the Suit.

The other is for the Demandant who is adjudged to recover Seisin of the Land in Question, and before Execution, for fear of Waste to be made ere he can get Possession, sues out this Writ.

ESULA, a medicinal Root. The *Esula*, is properly the Bark of a little reddish Root, which produces green, narrow, milky Leaves. It grows chiefly in *France*. 'Ere they use it, 'tis infused in Vinegar: After which, they draw Extracts from it, used in the Dropsy.

ESURINE *Salts*, are such as are of a fretting, eating, or corroding Nature; which chiefly abound in Places near the Sea-side, and where great Quantity of Coal is burnt: As appears from the speedy rusting of Iron in such Places. See SALT.

ETAPPE, in War, the Allowance of Provisions and Forage made to the Soldiers, upon March thro' a Kingdom or Province, to or from Winter Quarters.

Hence, he that contracts with the Country, or Territory, for furnishing the Troops in their March, is called ETAPPIER.

ETCHING, a Method of Engraving on Copper; wherein the Lines, or Strokes, instead of being cut with a Tool, or Graver, are eat with Aqua fortis. See ENGRAVING.

Etching was invented much about the same Time with *Engraving* on Copper, properly so call'd; by *Alb. Durer*, and *Lucas*. It has several Advantages over that Art; as, that it is done with more Ease and Expedition; that it requires fewer Instruments; and even, that it represents divers Kinds of Subjects better, and more agreeably to Nature, as Landskips, Ruins, Grounds, and all small, faint, loose, remote Objects, Buildings, &c.

The Method of *Etching* is thus: The Plate being well polish'd, is heated over the Fire; and when hot, cover'd over with a peculiar *Ground*, or Varnish. When cold again, the Ground is blacken'd with the Smoak of a Candle; and on this Ground, thus blacken'd, the Back of the Design, or Draught, is laid.

This done, the Design remains to be calk'd, or transfer'd upon the Plate; which is more easily effected, than in the common Graving; for the Back of the Design having been before rubb'd over with red Chalk, nothing remains but to trace over all the Lines and Strokes of the Draught with a Needle or Point; which pressing the Paper close down to the Ground, occasions the Wax therein to lay hold of the Chalk, and so bring off the Marks of the several Lines: So as at length, to shew a Copy of the whole Design in all its Correctness.

The Draught thus calk'd, the Artist proceeds to draw the several Lines, and Contours with a Point, thro' the Ground, upon the Copper.

To finish his Work, he makes use of Points of divers Sizes, or Bignesses; and presses on them sometimes more strongly, and sometimes more lightly, according as the several Parts of the Figures, &c. require more or less Strength or Boldness: Some of the Points being as fine as Needles, for the tender, Hair strokes, and the remoter, fainter Objects; and others again, as big as Bodkins, made oval-wise, for the deeper Shadows, and the Figures in the Front of the Work.

Things thus prepared, a Rim, or Border of Wax, is rais'd round the Circumference of the Plate, and *Aqua fortis* pour'd on; which, by the said Border, is kept from running off at the Edges.

The Ground being impenetrable to that corrosive Water, the Plate is defended from it every where but in Lines, or Hatches, cut thro' it with the Points; which, lying open, the Water passes thro' them to the Copper, and eats into the same, to the Depth required: Which done, it is pour'd off again.

Of *Etching* Grounds, it must be observed, there are two Kinds; the one *soft*, and the other *hard*. There are also two Kinds of *Aqua fortis*: The one *White*, which is only used with the soft Ground, and is applied as above directed: The other *Green*, made of Vinegar, Common Salt, *Sal Ammoniac* and Verdegrease. This is used indifferently with either Kind of Ground: Its Application is somewhat different from that of the *White*.

Without making any Border, they pour it on the Plate, which is placed for that Purpose a little inclined; and as the Water runs off, it is received in a Vessel placed underneath. This they repeat, pouring it again and again, till it has eaten deep enough.

Add, that the *Aqua fortis*, of which Kind soever it be, must not continue equally long, or be pour'd equally often, on all the Parts of the Design. The remote Parts must be bitten more slightly, than those nearer to the View.

To manage this, they have a Composition of Oil and Grease, wherewith they cover the Parts that are to be bitten no further. Or else they lay the Composition on as a defensitive at first, and take it off again when they find proper. In Effect, they are every now and then covering and uncovering this or that Part of the Design, as Occasion requires; the Conduct of the *Aqua fortis* being one of the principal Concerns in the whole Art, and that on which the Effect of the whole very much depends. The Operator is also to be very attentive to the Ground, that it don't fail, or give Way, in any Part, to the Water; and where it does, to stop up the Place with the Composition aforesaid.

Lastly, it is to be remember'd, that a fresh Dip of *Aqua fortis* be never given, without first washing out the Plate in fair Water, and drying it at the Fire.

The *Aqua fortis* having done its Part, the Ground is taken off, and the Plate wash'd and dried; after which nothing remains but for the Artist to examine it with his Graver in his Hand, to touch it up, and heighten it, where the *Aqua fortis*, &c. has miss'd.

ETERNITY, an Attribute of God, whereby the Duration of his Existence is conceiv'd incommensurable with Time, and exclusive of Beginning, Progress, Ending, &c. See GOD, TIME, &c.

Authors are terribly straighten'd for a proper and just Definition of *Eternity*. That of *Boethius de Consol. Philos. L.* V. Pr. 6. viz. *Interminabilis vitæ, tota simul & perfecta possessio*, i. e. *a perfect Possession of a whole endless Existence all together, or at once*, tho' retain'd by S. *Thomas*, and others, is Faulty in divers Respects.

Censorinus, de Die Natal. defines *Eternity*, by *Infinite Duration*; that is, Duration which has always been, and always will be. — Others, more fully describe it by a Duration that exists all together, without any Flux, or Succession of Parts, prior, or posterior to each other: Where, the Word *Duration*, taken abstractedly, imports no more than the Perseverance of a Thing in Existence; the τὸ *durare*, being here opposed to the τὸ *cessare*, in Existendo.

But soften the Word *Duration* how you will, it is scarce conceiveable, but by conceiving a Quantity thereof; nor a Quantity, without conceiving a Succession. — Others, therefore, define *Eternity* by a *perpetuum nunc*, a *perpetual now*; or a *nunc semper stans*, an *ever-standing now*: But neither are these unexceptionable; the Words *perpetuum*, and *semper-stans*, importing an obscure Sort of Duration. See DURATION.

ETESIAN *Winds*. See WINDS.

ETHER. See ÆTHER.

ETHERIAL *Oil*, a Name the Chymists give to high rectified Oils, which differ little from inflammable Spirits; such are Oil of Turpentine, &c. See OIL, SPIRIT, &c.

ETHICKS, ETHICA, a Term originally *Greek*, ἠθικὴ, applied to the Doctrine of *Morality*, or *Moral Philosophy*. See PHILOSOPHY.

Gale makes *Ethicks* only the first Part, or Branch of Moral Philosophy, *viz.* that which regards private Persons, or in a private Capacity. See MORAL.

The Word is form'd from ἦθος, ἤθη, *Mores*, Manners; by Reason the Scope, or Object thereof, is to form the *Manners*. See MANNERS.

Now, by *Manners*, is here meant a Way, or Manner of Living, confirm'd by Custom, or Habit; or certain Habitudes of doing; or Actions which are often repeated: Which, if they be according to right Reason, the *Morals*, or *Manners*, are said to be *Good*; otherwise *Evil* and vitious. See GOOD and EVIL.

Hence, the Object of *Ethicks*, is the Exercise of right Reason, in all our Affairs, Actions and Circumstances; or it is Man himself consider'd as dirigible, and to be conducted according to Reason: And the End of *Ethicks*, is to make him good and happy. For that if a Man conduct himself, according to right Reason, in all the Circumstances of his Actions, Affairs and Relations, he will arrive at the highest Pitch of Moral Perfection and Beatitude.

Whence, *Ethicks* may be defined a right Manner of thinking, in order to attain human Felicity; or a Discipline whereby Man is directed to conduct his Will, and the Actions thereof, so as to live well and happily. See WILL.

The principal, nay, the only Topicks thereof, are Happiness and Manners; whence arise two Parts, or Branches of *Ethicks*; the first on moral Happiness, consider'd as the End; and the second on Moral Virtues, or good

Manners, as the Means to arrive thereat. See HAPPINESS, VIRTUE, &c.

ETHICOPROSCOPTES, in Antiquity, the Name of a Sect.

Damascenus, in his Treatise of *Heresies*, tells us, that the Denomination *Ethicoproscoptes* was given to such as err'd in Matters of Morality, and Things relating to Practice, that were to be done, or be avoided, &c. who blamed Things laudable, and good in themselves, or recommended or practised Things Evil. Which shews, that they were no particular Sect.

The Word is form'd of the *Greek*, ἦθος, *Manners*, and προσκόπτω, *offendo*, I offend.

ETHMOIDAL, ETHMOIDALIS, in Anatomy, one of the *Sutures* of the Human Cranium. See SUTURE.

The common Sutures are those which separate the Bone of the Cranium from those of the Cheeks; and are four: The Transversal, *Ethmoidal*, Sphenoidal, and Zygomatical. See CRANIUM.

The *Ethmoidal* takes its Denomination from its turning round the *Os Ethmoides*. See ETHMOIDES.

ETHMOIDES, in Anatomy, a Bone situate in the middle of the Basis of the Fore-head, or Os frontis, and at the Top of the Root of the Nose; filling almost the whole Cavity of the Nostrils. See NOSTRILS.

It has its Name from ἠθμός, *Cribrum*, Sieve, and εἶδος, *Form*; because all spongeous and cribrous.

By its cribrous Part it is joyn'd to the Head; by the spongeous Part, to the Cavity of the Nostrils; and by the plain and broad Part, to the Orbits of the Eyes.

In the cribrous Part is an Apophysis, which jets out, in a Point, into the Cavity of the Skull; call'd, from its Figure, *Crista Galli*, or Cock's Comb. From its under Side, there goes a thin Bone, which divides the Cavity of the Nostrils into two, call'd the *Vomer*. It is perforated by a Number of small Holes, thro' which the Fibres of the olfactory Nerves pass to the *Processus Mamillares*.

J. Philip Ingrassias, a *Sicilian*, who flourish'd about the Year 1546, was the first who gave a just Account of the Structure of the *Os Ethmoides* or *Cribrosum*. See NOSE.

ETHNARCHA, ETHNARCH, a Governour, or Commander of a Nation. See TETRARCH.

There are some Medals of *Herod* I. surnamed the *Great*, on one Side whereof is found ΗΡΩΔΟΥ, and on the other ΕΘΝΑΡΚΟΥ, q. d. *Herod the Ethnarch*: Now, after the Battel of *Philippi*, we read that *Anthony* passing over into *Syria*, constituted *Herod* and *Phasael* his Brother, Tetrarchs, and in that Quality committed to them the Administration of the Affairs of *Judea*. Jos. Ant. *L.* XIV. C. 23. *Herod* therefore had the Government of the Province before ever the *Parthians* enter'd *Syria*, or before *Antigonus*'s Invasion, which did not happen till six or seven Years after *Herod* was Commander in *Galilee*. Jos. *L.* XIV. C. 24, 25.

Consequently, *Herod* was then truly *Ethnarch*; for he can be no otherwise denominated: So that it must have been in that Space of Time that the Medals were struck which only give him this Title. Which Medals are a Confirmation of what we read in History of the Government that Prince was intrusted withal e're he was rais'd to the Royalty.

Josephus gives *Herod* the Appellation of Tetrarch, in lieu of that of *Ethnarch*; but the two Terms came so near to each other, that it was very easy to confound them together. See TETRARCH.

Tho' *Herod* the *Great* left by Will, to *Archelaus*, all *Judea*, *Samaria*, and *Idumea*; yet, *Josephus* tells us, he was then only call'd *Ethnarch*.

The Word is *Greek*, form'd of ἔθνος, *Nation*, and ἀρχή, *Command*.

ETHNOPHRONES, in Antiquity, the Name of a Sect. See SECT.

The *Ethnophrones*, or *Paganizers*, were Hereticks of the VIIth Century, who made a Profession of Christianity, but joyn'd thereto all the Ceremonies and Follies of Paganism, as Judiciary Astrology, Sortileges, Auguries; and other Divinations.

And hence their Denomination; from ἔθνος, *Nation*, and φρὴν, *Thought*, *Sentiment*, q. d. whose Thoughts, or Sentiments were still Heathen or Gentile.

They practised all the Expiations of the Gentiles, held all their Feasts, observed all their Days, Months, Times, and Seasons. See *Damascenus*, L. *Hæres.* N. 94.

ETHOPOEIA, or ETHOPEA, in Rhetoric, call'd also ETHOLOGY, and vulgarly *Picture*, or *Portrait*; is a Draught, or Description, expressing the Manners, Passions, Genius, Temper, Aims, &c. of another Person.

Such is that beautiful Passage in *Salust*, in his *Bellum Catilinarium*, wherein he gives us a Picture of *Catiline*: *Fuit magna vi & animi & Corporis sed Ingenio malo pravoque huic*, &c. 'He had an uncommon Strength both 'of Body and Mind; but an ill turn'd, and wicked Disposition. When a very Boy, his great Pleasure was in 'intestine Broils, Rapine, Slaughter, and civil Discord. 'His Body was form'd to undergo Fasting, Cold, and 'Watching, beyond all Belief. His Mind was daring, deceitful and various; and could imitate, or accommodate 'it self to any Body: He was extremely covetous of 'other People's Goods, and profuse of his own withal. 'His Lusts and Desires were very high; his Stock of 'Eloquence considerable; but his Discretion scarce any.'

The *Ethopœia* is divided into *Prosographia*, and *Ethopœia*, properly so call'd; the former of which is a Picture of the Body, Countenance, Make, Dress, Gait, &c. and the latter of the Mind.

The Word is of *Greek* original, being form'd of ἦθος, *mos*, *consuetudo*, and ποιέω, *facio*, *fingo*, *describo*. *Quintilian*, L. IX. *C.* 2. calls this Figure *Imitatio morum alienorum*; and in *Greek*, μίμησις, *Imitation*.

ETYMOLOGY, that Part of Grammar, which considers, deduces, and explains the Origin and Derivation of Words; in order to arrive at their first and primary Signification. See GRAMMAR.

The Word is form'd of the *Greek*, ἔτυμος, *verus*, true, and λέγω, *dico*, I speak; whence λόγια, *Discourse*, &c. and thence *Cicero* calls the Etymology, *Notatio*, and *Veriloquium*: Tho' *Quintilian* chuses rather to call it *Originatio*.

In all Ages there have been People curious in *Etymologies*: *Varro* has wrote on the *Etymology* of the *Latin* Words; and we have a Greek *Etymologicon*, under the Name of *Nicas*.

The *Etymologies* of our *English* Words have been deduced from the *Saxon*, *Welsh*, *Walloon*, *Danish*, *Latin*, *Greek*, &c. by *Somner*, *Cambden*, *Verstegan*, *Spelman*, *Casaubon*, *Henshaw*, *Skinner*, *Junius*, &c. See ENGLISH.

Those of the *French* and *Italian* Words, by *Menage*, in what he calls his *Origines*: *Henry Stephens*, *Tripot*, *Borel*, &c. have also laboured on the French *Etymologies*. *Guichard*, and Fa. *Thomassin*, have carried the *Etymologies* of Abundance of *French* Words as high as the *Hebrew*. *Postel* had the same Design before them.

We have a Latin *Etymologicon* of *Gerard Vossius*, another of *Martinius*, &c. *Octavio Ferrari*, has an *Etymology* of the *Italian* Tongue: And *Bernard d'Aldretta*, another of the *Spanish*.

Fa. Dom. Pezron, Abbot of *Charmoye*, and Priest of the *Sorbonne*, has traced up to the *Celtic* Language the *Etymologies* of Abundance of *Greek*, *Latin*, *German*, *French*, and other Words, used by *Plato*, *Servius*, *Donatus*, and other *Latin* Authors without knowing their true Origin, and *Etymology*, for Want of being acquainted with the Roots of the *Celtic* Tongue, from which Abundance of *Greek*, *Latin*, &c. Words are derived. But it must be added, that his *Etymologies* are frequently so far fetch'd, that one can scarce see any Resemblance, or Correspondence at all.

A strict, and sollicitous Enquiry into *Etymologies*, is no frivolous, and impertinent Design; but has considerable Uses. Nations, who value themselves on their Antiquity, have always look'd on the Antiquity of their Language as one of the best Titles they cou'd plead. For the *Etymologist*, by seeking the true, and original Reason of the Notions and Ideas attach'd to each Word, and Expression, may often furnish an Argument of Antiquity from the Vestigia, or traces remaining thereof; and from the Indices still subsisting in the present Use of the Words, compared with the antient Uses.

Add, that *Etymologies* are necessary for the thorough Understanding of a Language: For, to explain a Term precisely, there seems a Necessity of recurring to its first Imposition, in Order to speak justly and satisfactorily thereof. The Force and Extent of a Word is generally better conceiv'd, and enter'd into, when a Person knows its Origin and *Etymology*.

'Tis objected, however, that the Art is arbitrary, and built altogether on Conjectures and Appearances; and the *Etymologists* are charged with deriving their Words from where they please. But the Science is certainly real, and as regular as divers others; having its proper Principles, and Method.

It must be own'd, indeed, that it is no easy Matter to return into the antient *British*, and *Gallish* Ages; to follow, as it were by the Track, the divers imperceptible Alterations a Language has undergone from Age to Age. A sober *Etymologist* has need of all the Lights he can come at, to conduct and bring down Words variously disguis'd

guis'd in their Passage, and remark all the Changes that have befallen them. And as those Alterations have sometimes been owing to Caprice, or Hazard, 'tis easy to take a mere Imagination, or Conjecture, for a regular Analogy; so that 'tis nothing strange the Public should be prejudiced against a Science which seems to stand on so precarious a Footing.

EVACUANTS, in Medicine, Remedies proper to expel, or carry off any ill, peccant, or redundant Humor in the animal Body; by the proper Ways or Emunctories. See EVACUATION.

Of *Evacuants*, there are divers Kinds, distinguish'd according to their various Humours and Emunctories. See HUMOR and EMUNCTORY.

Some, *e. gr.* carry off their Matters by *Stool*, call'd *Purgatives*, or *Catharticks*. See PURGATIVES, *&c.* Others by *Urine*, call'd *Diureticks*. See DIURETICKS. Others by *Perspiration*, call'd *Diaphoreticks*. See DIAPHORETICKS. Others by *Sweat*, call'd SUDORIFICKS. Others by the Mouth, call'd *Vomitories*, or EMETICKS. Others by the salival Glands, as SIALIOGOGUES: And others, lastly, by the *Menses*, as MENAGOGUES and ARISTOLOCHICKS.

EVACUATION, in Medicine, a Diminution of the animal Fluids, in Order to a Discharge of some morbid, or redundant Matters therein; or, only, for the Sake of thinning, attenuating, and promoting the Motion and Circulation thereof. See EVACUANTS.

The Matter of a Disease, or what is prescribed by Art to remove or ease it, is *Evacuated* two Ways.

1°. By the natural Emunctories, or Out-lets of the Skin; the Nostrils, Mouth, Fauces, Oesophagus, Ventricle, Intestines, Bladder, and Urethra.

And 2°. By artificial Outlets, made either in the Blood Vessels; as by *Phlebotomy*, *Arteriotomy*, *Scarifications*, and *Leaches*. See PHLEBOTOMY and SCARIFICATION, *&c.* Or, in the Lymphatic Vessels; as by CAUSTICKS and VESICATORIES. Or, lastly, in both, as by *Issues*, *Setons*, *Ulcers*, *Fistula's*, &c. See ISSUE, SETON, FISTULA, *&c.*

Hence, the first Distinction of *Evacuants* is derived from the different *Emunctories*; and the 2d, from the Diversity of Matter *evacuated* thro' them.

Most of the Chronical Diseases, the Infirmities of old Age, and the short Periods of the Lives of *Englishmen*, Dr. *Cheyne* observes, are owing to Repletion. This is evident from hence; that *Evacuation* of one Kind or another, is nine Parts in ten of their Remedy: For not only Cupping, Bleeding, Blistering, Issues, Purging, Vomiting and Sweating, are manifest *Evacuations*, or Drains, to draw out what has been superfluously taken down; but even Abstinence, Exercise, Alteratives, Cordials, Bitters, *&c.* are but several Means to dispose the gross Humours, to be more readily *evacuated* by insensible Perspiration. *Essay on Health.*

For the Periodical *Evacuations* of Women. See MENSES.

For the *Evacuations* of Women after Delivery. See LOCHIA.

The Term is likewise used in the Art of War: To *Evacuate a Place*, is to make the Garrison quit, or march out of it, in order for another Power to take Possession of it, or to make Room for another Garrison.

EVANGELISTS, the inspired Authors of the Gospels. See GOSPEL.

The Name *Evangelists* was likewise given, in the antient Church, to such as preach'd the Gospel here and there; without being attach'd to any particular Church. In which Sense, some Interpreters think it is, that St. *Philip*, who was one of the seven Deacons, is call'd the *Evangelist*, in 21st Chapter of the *Acts of the Apostles*, Ver. 8.

Again, St. *Paul* writing to *Timothy*, Ep. 2. *C.* IV. *v.* 5. bids him do the Work of an *Evangelist*. The same Apostle, *Eph.* IV. 11. ranks the *Evangelists* after the Apostles and Prophets.

Hence, Monf. *Tillemont* takes the Liberty to use the Word in the same Sense. 'Most of those who then embraced the Faith, being fill'd with the Love of a holy 'Philosophy, began to distribute their Goods to the Poor, 'and after that went into divers Countries to do the Office 'of *Evangelists*, to preach Christ to such as had not yet 'heard of him, and to furnish them with the sacred Wri'tings of the Gospel.'

The Word is derived from the *Greek*, ευαγγελιον, form'd of εὖ, *bene*, well, and αγγελος, *Angel*, *Messenger*.

O suaves Epistolas tuas uno tempore mihi datas duas! quibus Evangelia *quæ reddam nescio; deberi quidem plane fateor.* Cic. *ad* Attic.

EVANID. A Name some Authors give to those Colours which are not of very long Duration; as those in the Rain-bow, in Clouds before and after Sunset, *&c.* See COLOUR, *&c.*

Evanid are the same with those otherwise call'd *Fantastical*, and *Emphatical Colours*: See FANTASTICAL, *&c.*

EVANTES, in Antiquity, the Priestesses of *Bacchus*; thus call'd, by Reason, in celebrating the *Orgia*, they ran about as if distracted, crying *Evan*, *Evan*, *Ohe Evan!* See BACCHANTES.

EVAPORATION, in Philosophy, the Act of exhaling the Humidity of a Body; or of dissipating it in Fumes or Vapour. See VAPOUR.

Common Salt is form'd, by evaporating all the Humidity in the Salt-Water, or Brine; which *Evaporation* is either perform'd by the Heat of the Sun, as in the Salt-Works by the Sea Coast, *&c.* or by Means of Fire, as in the Salt Springs, *&c.* See SALT.

By the Observations of Monf. *Sedileau* it appears, that what is rais'd in Vapour, exceeds that which falls in Rain. See RAIN.

Tho' the *Evaporation* of Liquids is generally look'd on as an Effect of the Heat, and the Motion of the Air; yet Monf. *Gauteron*, in the *Memoirs de l'Academ des Scien.* An. 1705. shews, that a quite opposite Cause may have the same Effect; and that Liquids lose a deal more of their Parts in the severest Frost, than when the Air is moderately warm. In the great Frost of the Year 1708, he found, that the greater the Cold, still the more considerable the *Evaporation*; and that Ice it self lost full as much as the warmer Liquors that did not freeze. See FROST.

Dr. *Halley* furnishes us with some Experiments of the Quantity, or Measure of the *Evaporation* of Water. — The Result is contain'd in the following Articles:

1°. That Water salted to about the same Degree as Salt Water, and exposed to a Heat equal to that of a Summer's Day, did, from a circular Surface of about Eight Inches Diameter, *Evaporate* at the Rate of 6 Ounces in 24 Hours. Whence, by a Calculus, he finds, that the Thickness of the Pellicle, or Skin of Water *Evaporated* in two Hours, was the 53*d* Part of an Inch: But, for a round Number, he supposes it only a 60*th* Part; and argues thence, that if Water as warm as the Air in Summer, evaporates the Thickness of one 60*th* Part of an Inch in two Hours, from its whole Surface; in twelve Hours it will exhale one tenth of an Inch. Which Quantity, he observes, will be found abundantly sufficient to furnish all the Rains, Springs, Dews, *&c.* See SPRING, *&c.*

In Effect, on this Principle, every 10 Square Inches of the Surface of the Water, yields in Vapour, *per diem*, a Cubic Inch of Water; and each Square Foot half a Wine Pint; every Space of 4 Foot Square, a Gallon; a Mile Square, 6914 Tons; and a Square Degree, suppose of 69 *English* Miles, will *Evaporate* 33 Millions of Tons. See RIVER, *&c.*

2°. A Surface of Eight Square Inches, *Evaporated*, purely by the natural Warmth of the Water without either Wind or Sun, in the Course of a whole Year, 16292 Grains of Water, or 64 Cubic Inches; consequently, the Depth of Water thus *Evaporated* in one Year amounts to 8 Inches. But this being much too little to answer the Experiments of the *French*, who found, that it rain'd 19 Inches of Water in one Year at *Paris*; or those of Mr. *Townley*, who found the Annual Quantity of Rain in *Lancashire*, above 40 Inches: He concludes, that the Sun and Wind contribute more to *Evaporation*, than any internal Heat, or Agitation of the Water. See RAIN.

3°. The Effect of the Wind is very considerable, on a double Account. For the same Observations shew a very odd Quality in the Vapours of Water, *viz.* that of adhering and hanging to the Surface that exhaled 'em, which they clothe, as it were, with a Fleece of vaporous Air; which once investing the Vapour, it thenceforwards rises in much less Quantity. Whence, the Quantity of Water lost in 24 Hours, when the Air was very still from Winds, was very small; in proportion to what went away when there was a strong Gale of Wind Abroad to dissipate the Fleece, and make Room for the Emission of Vapour: And this, even tho' the Experiment was made in a Place as close from the Wind as could be contrived.

Add, that this Fleece of Water hanging on the Surface of Waters in still Weather, is the Occasion of very strange Appearances, by the Refraction of the Vapour's differing from, and exceeding that of common Air. Whence every Thing appears rais'd, as Houses like Steeples, Ships as on Land above the Water, the Land rais'd, and as it were lifted from the Sea, *&c.*

4°. The same Experiments shew, that the *Evaporations* in *May*, *June*, *July*, and *August*, which are nearly equal, are about three Times as great as those in the Months of *November*, *December*, *January*, and *February*.

EVAPORATION, in Pharmacy, an Operation by which the more aqueous and volatile Parts of Liquids are spent, or drove away in Steam; so as to leave the remaining Part stronger, or of a higher Consistence than before.

Evapo-

Evaporation is properly the setting a Liquor over a gentle Heat, to carry off the most fluid and volatile Parts, without lessening the Quantity of the other Matter the Liquor is impregnated withal.

Evaporation differs from Exhalation, in that the former is practised on moist Things, and the latter on dry. See EXHALATION.

To *Evaporate ad Cuticulam*, to a *Pellicle*. See CUTICULA and PELLICLE.

EVATES, a Branch, or Division of our old Philosophers the Druids. See DRUID.

Strabo distributes the Philosophers among the *Britains* and *Gauls*, into three Sects. Βάρδοι, *Bards*, Οὐάτεις, *Evates*, and Δρυΐδαι, *Druids*. He adds, that the *Bardi* were Poets and Musicians; the *Evates*, Priests and Naturalists; and the *Druids*, Moralists as well as Naturalists.

But *Marcellinus*, Lib. 15. *Vossius* Philos. Lect. l. 2. and *Hornius* Hist. Philosoph. l. 2. c. 12. reduce 'em all to two Sects, *viz. Bardi* and *Druides*.

And, lastly, *Cæsar*, lib. 6. comprehends 'em all under the Name of *Druids*.

The *Evates*, or *Vates*, of *Strabo*, might probably be what other Authors, and particularly *Ammian. Marcellin.* calls *Eubages*. But M. *Bouche*, in his *Hist. de Provence*, L. II. c. 2. distinguishes between 'em. The *Vates*, he says, were such as took Care of the Sacrifices, and other Ceremonies of Religion; and the *Eubages*, those who spent the Time in the Search and Contemplation of the great Mysteries of Nature. See EUBAGES.

EUBAGES, an Order of Priests, or Philosophers, among the ancient *Celtæ* or *Gauls*.

Chorier takes the *Eubages* to be the same with the *Druids*, and *Saromidæ* of *Diodorus*: Others take the *Eubages* to be the same whom *Strabo* L. IV. p. 197. calls Οὐάτεις, *Evates*, or *Vates*: On which Principle there were Room to conjecture, that the Word should be wrote Ουάσεις, it being easy to mistake a Γ for a T. See EVATES.

Be this as it will, the *Eubages* appear to have been different from the *Druids*. See what has been shewn under the Article DRUID.

EUCHARIST, *Eucharistia*, the Sacrament of the Supper; or a Communication of the Body and Blood of *Christ*, under the Species, or Figures of Bread and Wine. See COMMUNION, SACRAMENT, SPECIES, TRANSUBSTANTIATION, CONSUBSTANTIATION, *&c.*

The Word in its Original *Greek*, Ευχαριστια, literally imports *Thanksgiving*; being form'd of ευ, *bene*, well, and χαις, *gratia*, Thanks.

EUCHITES, or EUCHETES, a Sect of ancient Hereticks, thus call'd, by reason they pray'd without ceasing; imagining that Prayer alone was sufficient to save 'em. See PRAYER.

Their great Foundation, were those Words of St. *Paul*, Epist. I. to the *Thessalon.* C. 5. V. 17. *Pray without ceasing.*

The Word is form'd of the *Greek*, Ευχὴ, *Prayer*; whence Ευχαται, the same with the Latin *Precatores*, Prayers. They were also call'd *Enthusiasts* and *Messalians*. See ENTHUSIAST.

St. *Cyril* of *Alexandria*, in one of his Letters, takes Occasion to censure certain Monks in *Egypt*, who, under Pretence of resigning 'emselves wholly to Prayer, led a lazy, scandalous Life. The Orientals, however, lay a further Charge on the *Euchites*, or *Messalians*. See MESSALIANS.

EUCHOLOGUS, EUCHOLOGUE, a *Greek* Term, signifying, literally, a *Discourse on Prayers*; being form'd of ἐυχὴ, *Prayers*, and λογος, *Discourse*.

The *Euchologus* is properly the *Greek* Ritual, wherein is prescribed the Order and Manner of every Thing relating to the Order and Administration of their Ceremonies, Sacraments, Ordinations, *&c.*

Fa. *Goar* has given us an Edition of the *Greek Euchologue* in *Greek* and *Latin*, with Notes, at *Paris*.

EUCHRASY, from ευ, *bene*, good, and χρασις, *Temperamentum*, Constitution, is an agreeable, well proportion'd Mixture of Qualities; whereby a Body is said to be in good Order, that is, in a good State of Health. See TEMPERAMENT.

EUDOXIANS, a Party, or Sect of Hereticks, of the IV*th* Century; denominated from their Leader *Eudoxius*, Patriarch of *Alexandria* and *Constantinople*, a great Defender of the *Arian* Doctrine.

The *Eudoxians*, then, adhered to the Errors of the *Arians* and *Eunomians*; maintaining, that the Son was created out of Nothing; that he had a Will distinct and different from that of the Father, *&c.* See ARIANS and EUNOMIANS.

EVECTION, is used by some Astronomers for the *Libration* of the Moon. See LIBRATION.

EVEN *Number*, is that which may be divided into two equal Parts, or Moieties. See NUMBER.

EVENLY *even* Number, is which is exactly divisible by an *Even* Number taken an *Even* Number of Times; such is 32; since divisible by eight, taken four Times.

EVENLY *odd*, is that which an *Even* Number measures by an *Odd* one; as 30, which is measured by 6, taken five Times.

EVERGETES, a *Greek* Term, signifying *Benefactor*; being form'd of εὐ, *bene*, well, and ἔργον, *opus*, Work.

It is still retain'd in our Language, by Way of Addition, or Epithet, given to several Princes, or Kings of *Syria* and *Egypt*, who succeeded *Alexander*. Thus we say, *Ptolomy Evergetes* King of *Egypt*; *Antiochus Evergetes* King of *Syria* ascended the Throne 139 Years before *Christ*.

EVER-GREENS, or *Perennials*, such Plants as continue their Verdure, Leaves, *&c.* all the Year. See PLANT, *&c.*

Of these, our Gardeners reckon twelve, fit for *English* Air, *viz.* the *Alaternus*, *Arbutus*, *Bay-Tree*, *Box-Tree*, *Holley*, *Juniper*, *Laurus tinus*, *Phylirea*, *Pyracantha*, or *Ever-green Thorn*, *Italian green Privet*, and the *Yew-Tree*.

EVIDENCE, a Quality in Things whereby they become visible and apparent to the Eyes, either of the Body, or the Mind. See KNOWLEDGE.

The Schoolmen distinguish *Evidence*, into *formal* and *objective*.

Formal *Evidence*, is the Act of the Intellect, consider'd as clear and distinct.

Objective *Evidence*, consists in the Clearness and Perspicuity of the Object; or it is the Object itself, so constituted, as that it may be clearly and distinctly known.

Others divide *Evidence* into *Moral*, *Physical*, and *Metaphysical*.

A Thing is said to be *morally Evident*, so far as I have a distinct Notion, or Knowledge thereof, by unexceptionable Witnesses. *Physically*, so far as natural Sense and Reason pointing out any Thing, convinces one thereof. *Metaphysically*, when I enter so fully and clearly into the Essence of any Thing, that nothing can be clearer.

Evidence, is the essential and infallible Character, or Criterion of Truth; and is that, in Effect, which with us constitutes Truth. See TRUTH.

If *Evidence* should be found in Propositions that are false, we shou'd be compell'd into Error; since the Assent we give to *Evidence* is necessary. Whence wou'd follow this impious Position, that God who made us, is the Author of our Errors, as he has constituted us so, as to put us under a Necessity of falling into 'em. See ERROR.

It may be added, that as we necessarily love Truth, and hate Error, it seems inconsistent with the Nature of a beneficent Being, to form us with a Love of what we could not obtain, or not know whether we did obtain it or not: Beside that, if we should err in Things that are *Evident*, as well as in those that are not so, we should sometimes find Contradictions in *Evident* Propositions, as we commonly do in Things that are obscure.

Evidence therefore must be allow'd the Mark of Truth; and those Things must be allow'd true, which carry with 'em such a Degree of *Evidence*, as obliges us to assent to 'em. Whatever we see *Evidently* agreeable to the Things whereof we speak, that we must acknowledge to be true. See FAITH, OPINION, VERISIMILITUDE, *&c.*

The *Epicureans* allow of no other *Evidence* but that of Sense; or that arising from Sense, (it being a fundamental with them, that Sense is the first and primary Criterion of all Truth) See FALSHOOD and FALLACY.

By *Evidence* of Sense, they mean that Species, or Image, exhibited by the Sense, or Phantasie; which, when all Impediments to a just judging, as Distance, Motion, Medium, *&c.* being removed, cannot be contradicted, or gain-say'd. Wherefore, the Question being put, whether or no a Thing be such as it appears; the Answer is not to be given, till it have been tried and examined all the Ways, and by all the Senses that it can be an Object of. See SENSE, CRITERION, EPICUREANS, *&c.*

EVIDENCE, in Law, is any Proof, be it Testimony of Men, Records, or Writings: It is thus call'd, because the Point in Issue is hereby made *Evident* to the Jury. See TESTIMONY, WITNESS, *&c.*

Sir *Tho. Smith* restrains *Evidence* to authentic Writings of Contracts, written, seal'd, and deliver'd. *De Rep. Angl.* Lib. II.

EVIL, *Malum*, in Ethicks, a Privation, or Absence of some proper, or necessary Good; or some due Measure, or Degree thereof. See GOOD.

The Schoolmen deny, that any thing is every way *Evil*; and restrain all *Evil*, to be only so, *quoad hoc*;

as

as the Thing wants this, or that Degree of a certain Quality, necessary to constitute it, in that respect, good. There is nothing *Evil*, say they, without some Good in it wherein the *Evil* resides as in its Subject; for, as it is a Being, and as every Being depends on the Supreme Being, it cannot but be good, as flowing from the Supreme Good.

Evil is either Natural or Moral; between which there is this Relation, that Moral *Evil* produces Natural.

Moral Evil, is defined a Deviation from right Reason, and consequenrly from the Will and Intendment of the Great Legislator, who gave us that as a Rule: This the Philosophers call *Inhonestum* and *turpe*, as staining the Image of God, and sullying our original Beauty; likewise *malum culpæ*.

Natural Evil, is a Want of something necessary to the *bene esse*, or Perfection of a Thing, or to its answering all its Purposes. Such are Defects of the Body, Blindness, Lameness, Hunger, Diseases, Death.

This Species of *Evil* is denominated *triste*, *injucundum*, *noxium*; and *malum pœnæ*.

Again, *Evil* is either such *in it self*, as Envy, Impiety, *&c.* or, *to another*; as Meat, which in it self is good, may be *Evil* to a Man on Account of some Disease; as Wine to a Feverish Person, *&c.*

Thus far the Schools have gone in the Nature and Reason of Moral and Natural *Evil*: A late excellent Author sets the Thing in another Light, and furnishes a much finer, more adequate Theory of Moral Good and *Evil*. *Inquir. into the Origin of our Idea's of Beauty and Virtue.*

Moral Evil, according to this Philosopher, denotes our Idea of a Quality apprehended in Actions which excite Aversion and Dislike towards the Actor, even from Persons who receive no Disadvantage thereby: As Moral Goodness denotes our Idea of a contrary Quality which procures Approbation and Love towards the Actor, even in Persons unconcern'd in its natural Tendency.

This Notion supposes an universally acknowledged Difference of Moral Good and *Evil*, from Natural. Moral Good, we all know, procures Love towards those we apprehend possess'd of it: Whereas Natural Good does not. How differently, for instance, are we affected towards those we suppose possess'd of Honesty, Faith, Generosity, *&c.* when we expect no Benefit from those Qualities: And those possess'd of the natural Goods, as Houses, Lands, Gardens, Health, Strength, *&c.* So, whatever Quality we apprehend morally *Evil*, raises our Hatred towards the Person in whom we observe it; as Treachery, Cruelty, Ingratitude, *&c.* Whereas we love and pity many exposed to natural *Evils*, as Pain, Hunger, Sickness, *&c.*

The Origin of these different Idea's of Actions, has greatly puzzled the Moralists: The Generality make Self-Interest, or Self-Love, the Source of 'em all: We approve the Virtue of others, as it has some small Tendency to our Happiness, either from its own Nature, or from this general Consideration, that a Conformity to Nature and Reason is in the general advantageous to the whole, and to us in particular: And, on the contrary, disapprove the Vice of others, as tending at the long Run to our particular Detriment.

Others suppose an *immediate natural Evil*, in the Actions call'd *Vicious*; that is, that we are determined to perceive some Deformity or Displeasure from such Actions, without reflecting on any Disadvantage that may any way redound to us from the Action; and that we have a secret Sense of Pleasure accompanying such of our own Actions as are call'd virtuous, wheo we expect no further Advantage from 'em: But then they add, that we are excited to perform those Actions, even as we purchase or purchase Pictures, Statues, Landskips, *&c.* from Self-Interest, to obtain the Pleasure which accompanies the Action.

But the Author just mention'd has shewn the Mistake: Some Actions, he proves, have to Men an immediate Goodness, and others an *immediate Evil*, i. e. We perceive Pleasure in some, and Pain in others, and are determined to love, or hate the Doers, without any View of natural Advantage, without any View to future Rewards or Punishments, or even without any Intention to obtain the sensible Pleasure of the Good; but from a very different Principle, *viz.* an internal moral Sense, or a natural Determination of the Mind, to receive amiable, or disagreeable Idea's of Actions, when they shall occur to our Observation, antecedently to any Opinions of Advantage or Loss to redound to our selves from 'em; even as we are pleas'd with a regular Form, or an harmonious Composition, without any Knowledge of Mathematicks, or seeing any Advantage in that Form or Composition, different from the immediate Pleasure. See Sense, Good, Virtue and Vice, Benevolence.

Evil, or *Kings*-Evil, in Medicine, a Disease by the Physicians call'd *Strumæ*, and *Scrophulæ*, consisting of scirrhous Tumours, arising most commonly about the Neck, but sometimes also on the other glandulous Parts, as the Breasts, Arm-pits, Groin, *&c.* See Strumæ and Scrophulæ.

The Kings of *England* and *France*, have, of a long Time, pretended to the Privilege of Curing the *Kings-Evil* by *Touching*. See Touching.

The Right, or Faculty, 'tis said by some, was originally inherent in the *French* Kings; and those of *England* only claim'd it, as an Appendage, or Appurtenant to that Crown, to which they laid a Claim. Tho' some of our own Monkish Writers set the Thing on a different Footing; and will have it to have been practised by our Kings, as early as *Edward the Confessor*; which Opinion the ingenious Mr. *Becket* has abundantly overthrown.

Raout de Pruelles, addressing his Translation of St. *Augustin, de Civitate Dei*, to *Charles* V. of *France*, says expressly, *Vos Devanciers, & vous avez telle Vertu & Puissance que vous est donnee & attribuee de Dieu que vous faites Miracles en votre Vie, telles, si grandes & si apertes que vous Garisses d'une tres horrible Maladie ques' appelle* les Escrouelles [*i. e.* the Kings-Evil] *de laquelle nul autre Prince terrien ne peut garir hors vous.*

Steven de Conti, a Religious of *Corbie*, who lived in the Year 1400, and wrote a History of *France* still preserved in MS. in the Library of St. *Germains des prez*, describes the Practice of Touching for the *Evil*. After the King had heard Mass, a Vessel of Water was brought him, and his Majesty having put up his Prayers before the Altar, *touch'd* the diseased Part with his right Hand, and wash'd it with the Water.

Matthew Paris will have S. *Louis* the first who practised it: Others contend, that King *Robert* was the first who was gifted this Way. 'Tis certain, we find no mention of any such Prerogative, before the Kings of the 11*th* Century, when that Prince reign'd. Fa. *Daniel*, Hist. *de France*, T. I. *p.* 1032.

Polydore Virgil strains hard to prove the same Virtue in the Kings of *England*; but to little Purpose. *Favyn Hist. de Navarre*, 1062.

The Continuer of *Monstrelet*, observes, that *Charles* VIII. touch'd several Sick Persons at *Rome*, and cured 'em, *dont ceux des Italies*, says he, *voyant ce Mystere ne furent onques si emerveillez.*

The same Virtue, we know not on what Grounds, is commonly attributed to a Seventh Son, born without any Daughter between: As also to the Chiefs of certain particular Families; particularly, the Eldest Person of the House of *Aumont* in *Burgundy*.

EULOGY, Eulogia, in Church-History. — When the *Greeks* have cut a Loaf, or Piece of Bread, to consecrate it, they break the rest into little Bits, and distribute it among the Persons who have not yet communicated, or send it to Persons that are absent; and these Pieces of Bread are what they call *Eulogies*.

The *Latin* Church has had something of the like Kind, of a great many Ages; and 'twas thence arose the Use of their Holy Bread.

The Name *Eulogy*, was likewise given to Loaves, or Cakes, brought to Church by the Faithful, to have them bless'd.

Lastly, the Use of the Term, pass'd hence to mere Presents made a Person, without any Benediction. See the Jesuit *Gretser*, in his Treatise *de Benedictionibus & Maledictionibus*, L. II. C. 24, 25, *&c.* where he treats of *Eulogies* throughly.

From a Passage in *Bollandus*, on the Life of S. *Melaine*, C. 4. it appears, that *Eulogies* were not only of Bread, but any Kinds of Meats bless'd and hallowed for that Purpose. Add, that almost every body bless'd and distributed *Eulogies*: Not only Bishops and Priests, but even Hermits, tho' Laymen, made a Practice of it. Women also would sometimes send *Eulogies*, as appears from the Life of S. *Waulry*, C. III. n. 14. in the *Bollandists. Acta Sanct. Jan.* T. I. p. 20.

The Wine sent as a Present, was also held an *Eulogy*. *Bollandus* remarks further, that the Eucharist it self was call'd *Eulogy*. *Act. Sanct. Jan.* T. II. p. 199.

The Word is *Greek*, Ευλογια, form'd of ευ, *bene*, well; and λέγω, *dico*, I say, speak, q. d. *Benedictum*.

EUNOMIANS, a Sect of Hereticks, denominated from *Eunomius*, Bishop of *Cyzicus*, who, in the IV*th* Century, maintain'd most of the Errors of *Arius*, and added others to 'em; as, particularly, that he knew God, as well as God knew himself. See Arians.

He re-baptized such as had already been baptized in the Name of the Trinity: He had dissembled his Errors for some Time, but having at length made a Discovery, he was expell'd his See.

The *Arians* endeavour'd to have put him into that of *Samosata*, but could not effect it: In lieu thereof, the Emperor *Valens* restored him to *Cyzicus*.

EUNOMIOEUPSYCHIANS, a Sect of Hereticks of the IV*th* Century. See HERESY.

The *Eunomioeupsychians*, mention'd by *Nicephorus*, L. XII. C. 30. are the same with those call'd *Eutychians* by *Sozomen*, L. VII. C. 17. The Author whereof, according to *Sozomen*, was an *Eunomian*, named *Eutychus*, and not *Eupsychius*, as *Nicephorus* has it: And yet this latter Writer only copies *Sozomen* in this Passage; so that it is past doubt, they both speak of the same Sect. But on whose Side the Error lies, is not easy to decide: *Valesius* durst not undertake to shew it; but contented himself to mark the Difference in his Notes on *Sozomen*, as Fa. *Fronton* has done on *Nicephorus*.

EUNUCH, EUNUCHUS, a Term applied, in the general, to all who have not the Faculty of Generating, either thro' Imbecility, or Frigidity; but particularly to such as have been *castrated*, or have lost the Parts necessary thereto. See CASTRATION.

In *England*, *France*, &c. *Eunuchs* are never made but on Occasion of some Diseases, which render such an Operation necessary; but in *Italy*, they make *Eunuchs*, for the Sake of preserving the Voice; and, in the *East*, they make *Eunuchs* to be Guards, or Attendants on their Women.

Great Numbers of Children, from one to three Years of Age, are yearly castrated in *Italy*, to supply the Opera's and Theaters, not only of *Italy*, but other Parts of *Europe*, with Singers: Tho' 'tis not one in three, that after having lost their Virility, have a good Voice for a Recompence.

Tavernier assures us, that in the Kingdom of *Boutan* in the *East-Indies*, there are every Year made Twenty Thousand *Eunuchs*, and sold thence into other Countries.

The Seraglio's of the *Eastern* Emperors, are chiefly serv'd, and guarded by *Eunuchs*. And yet we have very good Testimonies, that the rich *Eunuchs* in *Persia* and other Countries, keep Seraglio's for their own Use.

By an Arret of the grand Chamber of *Paris* in 1665, it is adjudged, that an *Eunuch* could not marry, not even with the Consent of the Woman and all the Parties on both Sides.

Claudian has a very severe Satyr against the *Eunuch Eutropius*, who had been Elected Consul of *Rome*. He represents him as an uld Woman, dress'd up in the Honours of the Consulate.

The Story of *Origen* is notorious: That learned and pious Father, upon a too literal Interpretation of that Passage in St. *Matthew*, C. XIX. ver. 12. where mention is made of, *Eunuchs so born from their Mothers Womb*; --- *Eunuchs who were made so of Men*; --- *And Eunuchs who made themselves Eunuchs for the Kingdom of Heaven*: Castrated himself.

In the Council of *Nice*, those were condemned, who, out of an indiscreet Zeal and to guard themselves from sensual Pleasures, should make 'emselves *Eunuchs*: Such as thus mutilated their Bodies, were excluded from Holy Orders; witness *Leontius* Bishop of *Antioch*, who was deposed for having practised this Cruelty on himself. And the Bishop of *Alexandria* excommunicated two Monks, who had follow'd his Example on Pretence of securing 'emselves from the impetuous Motions of Concupiscence. Several of the Emperors made very severe Prohibitions against the making of *Eunuchs*, or castrating one's self.

The Word is derived from the *Greek*, εὐνοῦχος, *Eunuch*; form'd of εὐνὴν ἔχει, *Lecti curam habet*, q. d. *Guardian*, or *Keeper of the Bed*.

In the III*d* Century, there was even a Sect of Hereticks form'd, call'd *Eunuchs*, *Eunuchi*; as having the Folly or Madness, to castrate not only those of their own Persuasion, but even all they could lay Hands on. They took their Rise from the Example of *Origen*, who, upon a Misunderstanding of our Saviour's Words in St. *Matthew*, made himself an *Eunuch*, by cutting off the Part, as some say; or, as others, particularly S. *Epiphanius*, Hæres. 58. by the Use of certain Medicines. These Hereticks were also call'd *Valesians*. See VALESIANS.

EVOLVENT, in Geometry, a Term some Writers use for the Curve resulting from the *Evolution* of a Curve; in Contra-distinction to the *Evolute*, which is the first Curve supposed to be open'd, or *Evolved*. See EVOLUTE.

The *Evolute* always both touches and cuts the *Evolvent* at the same Time: The Reason is, that it has two of its infinitely small Sides in common with the *Evolvent*, or rather exactly placed on two equal Sides thereof. One of 'em within side that of the *Evolvent*, i. e. on the concave Side thereof; and the other, on the convex Side of its correspondent Side: So that the *Evolute* touches the *Evolvent* in two Points; whence, instead of being a Tangent, it is said to *Osculate* the *Evolvent*, and hence it is also call'd *Osculator*, and *Circulus Osculator*. See OSCULUM.

There is one, and but one *Osculator*, to each Point of the *Evolvent*; but to the same Point there are an Infinity of other Circles, which only touch, and don't Osculate. The *Osculator* and the *Evolute* make no Angle in the Place where they touch and cut: Nor can any Curve Line be drawn between; as there may betwixt a Tangent and a Curve. See *Angle of* CONTACT.

EVOLUTE, EVOLUTA, in the higher Geometry, a Curve, first proposed by Mr. *Huygens*; and since, much studied by the later Mathematicians. See CURVE.

The *Evolute* is a Curve, supposed to be *evolved*, or open'd; and which in opening, describes other Curves.

To conceive its Origin and Formation the better; suppose a flexible Thread, wound exactly over the Convexity of any Curve, as A B C G, (*Tab. Geometry Fig.* 20.) and suppose the Thread fix'd in G, and every where else at Liberty, to A. Now, beginning to unwind the Thread from the Point, and continuing it to G, and throughout keeping it tight on the Curve Surface A B C G; when the Thread is become quite straight, and is only a Tangent, F G, to the Curve in the Point G; 'tis evident the Extremity A, in its Progress to G, has described another Curve Line A D E F.

Here, the first Curve A B C G is call'd the *Evolute*: Each of its Tangents B D, C E, &c. comprehended between it, and the Curve A D E F, is call'd a *Radius of the Evolute*; or *Radius Osculi*, or *Radius Osculator* of the Curve A D E F, in each Point D, E, &c. And the Circles whereof the Osculators B D, C E, &c. are *Radii*, are call'd *Circuli Osculatores* of the Curve A D E F, in D, E, &c. And lastly, the new Curve, resulting from the *Evolution* of the first Curve, begun in A, is call'd the *Curve of Evolution*, or *Curve described by the Evolution*.

The Radius of the EVOLUTE, then, is the Part of the Thread comprized between any Point where it is a Tangent to the *Evolute*, and the correspondent Point, where it terminates on the new Curve. Which Appellation *Radius* is the more proper, as one may actually consider this Part of the Thread in every Step it takes, as if it described an Arch of an infinitely small Circle, making a Part of the new Curve, which thus consists of an infinite Number of such Arches, all described from different Centres and different *Radii*.

Every Curve, therefore, may be conceiv'd as form'd by the *Evolution* of another. And we are to find that whose Evolution that form'd it, which amounts to the finding of the Radius of the *Evoluta* in any Point. For, as it is always a Tangent to the generating Curve, it is properly no more than one of its infinitely small Parts, or Sides prolonged; and all its Sides, whose Position is determined of Course, is no more than the generating Curve it self.

The same Thread is also called *Radius Curvedinis*, or *Radius Osculi*, by Reason a Circle described hereby, from the Centre C, is said to *Osculate* or kiss it; as both touching and cutting at the same Time, *i. e.* touching both the inside and the out. See OSCULATION.

Hence, 1°. The *Evolute* B C F, (*Fig.* 21.) is the Place of all the Centres of the Circle that *Osculate* the Curve described by the Evolution A M I. 2°. When the Point B, falls on A, the Radius of the *Evolute* M C, is equal to the Arch B C; or to the Aggregate of A B, and the Arch B C. 3°. Since the Element of the Arch M m, in the Curve described by Evolution, is an Arch of a Circle described by the Radius C M; the Radius of the *Evolute* C M is perpendicular to the Curve A I. 4°. Since the Radius of the *Evolute* M C, is always a Tangent to the *Evolute* B C F; Curves of Evolution may be described thro' innumerable Points, if only Tangents be produced in the several Points of the *Evolute*, till they become equal to their correspondent Arches.

The finding of the *Radii of Evolutes*, is a Thing of great Importance in the higher Speculations of Geometry; and even, sometimes, is of Use in Practice, as the Inventor of the whole Theory, *Huygens*, has shewn in applying it to the Pendulum. *Horol. Oscill.* Part III. — The Doctrine of the *Oscula of Evolutes*, is owing to M. *Leibnitz*; who first shewed the Use of *Evolutes* in the measuring of Curves.

To find the Radius of the *Evolute* in the divers Kinds of Curves, with Equations to the *Evolutes*. See *Wolf. Elem. Math.* Tom. I. *p.* 524, &c. *sequent.* Or the *Infinim. Petites of Monf. le Marquis de l' Hôpital.*

Since, the Radius of an *Evolute* is equal to an Arch of an *Evolute*, or exceeds it by some given Quantity; all the Arches of *Evolutes* may be rectified geometrically, whose *Radii* may be exhibited by geometrical Constructions; whence we see why an Arch of a Cycloid is double

double its Chord: The Radius of the *Evolute* being double the same; and the *Evolute* of a Cycloid, being it self a Cycloid. See RECTIFICATION, CYCLOID, &c.

Mons. *Varignon* has applied the Doctrine of the Radius of the *Evolute* to that of Central Forces; so that having the Radius of the *Evolute* of any Curve; one may have the Value of the Central Force of a Body which moving in that Curve, is found in the same Point where that Ray terminates: Or reciprocally, having the Central Force given, the Radius of the *Evolute* may be determined. *Hist. de l' Acad. Roy. des Sciences.* An. 1706.

Imperfect EVOLUTE. Mons. *Reaumur* has given a new Kind of *Evolute* under this Denomination. Hitherto, the Mathematicians had only consider'd the Perpendiculars let fall on the Points of the Convex Side of the Curve: If other Lines, not perpendicular, were drawn upon the same Points, provided they were all drawn under the same Angle, the Effect would be the same; that is, the oblique Lines would all intersect within the Curve, and by their Intersections, form the infinitely small Sides of a new Curve, whereof they would be so many Tangents.

This Curve would be a Sort of *Epicycloid*, and would have its Radii; but, an *imperfect* one, since the Radii are not perpendicular to the first Curve. *Hist. de l'Acad.* &c. *An.* 1709.

EVOLUTION, in Geometry, the unfolding, or opening, of a Curve, and making it describe an *Evolute*.

For the Nature of *Evolution*. See EVOLUTA.

The Equable *Evolution* of the Periphery of a Circle, or other Curve, is such a gradual Approach of the Circumference to Rectitude, as that all its Parts do meet together, and equally evolve, or unbend; so that the same Line becomes successively a less Arc, of a reciprocally greater Circle, till at last they change into a straight Line. In *Philos. Transact.* N°. 260. a new Quadratrix to the the Circle, is found by this Means, being the Curve described by the equable *Evolution* of its Periphery.

EVOLUTION is also used for the Extraction of Roots out of Powers, in which Sense it is directly contrary to *Involution*. See EXTRACTION.

EVOLUTION, in the Art of War, is a Term applied to the divers Figures, Turns, and Motions, made by a Body of Soldiers, in ranging them in Form of Battle, or in changing their Form; either in the Way of Exercise, or when in actual Engagement.

'Tis by the *Evolutions*, that the Form, and Posture of a Batallion, Squadron, &c. are changed; either to make good the Ground they are upon, or to possess themselves of another, that they may attack the Enemy, or receive an Onset more advantageously.

The *Military Evolutions*, are *Conversions*, *Countermarches*, or *Wheelings*, *Doublings* of Rank or File, &c. See CONVERSION, &c.

Fa. *Hoste*, a Jesuite in 1697, printed a Treatise of *Naval Evolutions*, in Folio: — By *Naval Evolutions*, he means the Motions made by a Fleet, Squadron, or Naval Armament, in order to put themselves into a proper Arrangement, or Situation, for attacking the Enemy, or defending themselves with the most Advantage.

The Word is Latin, *Evolutio*, form'd of the Preposition *e*, out, and *volvo*, I roll or wind, *q. d.* an *unwinding*, or *unrolling*.

EUPHONY, EUPHONIA, in Grammar, an Easiness, Smoothness, and Elegancy of Pronunciation. See PRONUNCIATION.

The Word is *Greek*, form'd of εὖ, *bene*, well; and φωνὴ, *Vox*, Voice.

Quintilian calls the *Euphonia*, *Vocalitas*; Scaliger, *facilis pronunciatio*.

The *Euphonia* is properly a Kind of Figure, whereby we suppress a too harsh Letter, or convert it into a smoother, contrary to the ordinary Rules. There are Examples enough in all Languages.

EUPHORBIUM, or EUPHORBIA, in Pharmacy, a Kind of Gum, brought from *Africa*, in little roundish Pieces, whitish when new, and yellowish when old, very sharp to the Taste, but void of Smell. See GUM.

The principal Use of *Euphorbium*, is external; being a great Ingredient in divers resolutive Plasters, as well as in Tincture, and Powder for stopping of Gangrenes, cleansing of foul Ulcers, and exfoliating carious Bones.

Internally used, 'tis a Purgative, but so violent a one, that 'tis almost out of Doors, as tearing off the necessary Mucus or Covering of the Stomach and Bowels, and occasioning Dysenteries. Yet we are told the *Africans* use it very commonly; tho' they first quench its Fire in Purslain Water.

Its Powder is a violent Sternutatory, and to be used very cautiously, and never alone, but mix'd with a small Quantity of some other Powder, to guard against its intolerable Heat.

The Gum we call *Euphorbium*, is form'd of the Juice of a Tree, or rather Plant, of the same Name, pretty frequent in *Mauritania*; tho' the Species of the Tree, or Plant, has been greatly controverted. The Generality of our latest Botanists, make it a ferulaceous Plant; and Mr. Professor *Hermannus* calls it the *Tithymalus Mauritanus Aphyllos Angulosus & Spinosus*. Hort. *Acad. Lug. Batav.* 598.

It has no Leaves; but in Lieu thereof puts forth along its Stem a Kind of long prickly Eyes, or Buds. Which Buds, it is, that yield that gummy Juice, call'd *Euphorbium Officinarum*.

Some Authors will have it, that the Gum is drawn from the Plant by Incision; others, on the contrary, say it oozes spontaneously: The Juice, we are told, is so very subtile, and penetrating, that the Person who taps the Tree, is forced to stand at a good Distance, and make the Incision with a long Pike; otherways it gets to the Brain, and occasions dangerous Inflammations. It oozes out in great Abundance, and is gather'd in a Sheep's Skin, wrapp'd round the Tree.

Pliny tells us, that the first Discovery of *Euphorbium* is attributed to *Juba* King of *Lybia*, who denominated it from *Euphorbius* his Physician, Brother of *Musa*, Physician to *Augustus*.

Etmuller assures us, that the Plant, which yielded the *Euphorbium* of the Antients, is now unknown to us; but if we go by *Pliny*'s Description, the Plant call'd *Schadida Calli* in the *Hortus Malabaricus*, must be the antient *Euphorbium*. This Discovery is owing to *Commelinus*, Bourguemaister of *Amsterdam*, and Professor of Botany.

EUPHORY, signifies the same as *Euchrasy*. See EUCHRASY.

EUPSYCHIANS. See EUNOMIOEUPSYCHIANS.

EURIPUS, in Hydrography: The Word, originally and properly, signifies a certain Streight of the Sea, between *Bœtia*, and the *Negropont*; where the Currents are so strong, that the Sea is said to Ebb and flow seven Times a Day; in which Place, as the Story commonly goes, *Aristotle* drown'd himself, out of Chagrin, for not being able to account for so unusual a Motion.

But *Euripus* has since become a general Name for all Streights, where the Water is in great Motion and Agitation.

The antient Circus's had their *Euripi*, which were no other than Pits, or Ditches, on each Side the Course; into which it was very dangerous falling with their Horses and Chariots, as they run their Races.

The Term was also applied by the *Romans*, in Particular, to three Canals, or Ditches, which encompassed the Circus on three Sides; and which were fill'd occasionally, to represent *Naumachia*, or Sea Battles.

The same People call'd their smallest Fountains, or *Jets d' Eau*, Canals in their Gardens, *Euripus's*; and their largest, as Cascades, &c. Niles.

The Word is derived from the *Greek*, εὖ, *facilé*, easily, and εὐπίπτειν, *præcipitari*.

EURUS,
EURO-*Auster*. } See WINDS.
EURO-*Notus*.

EURYTHMY, EURYTHMIA, in Architecture, Painting, and Sculpture; a certain Majesty, Elegance, and Easiness appearing in the Composition of divers Members, or Parts of a Body, Building, or Painting; and resulting from the fine Proportions thereof. See PROPORTION.

The Word is *Greek*, and signifies literally a Consonance, or fine Agreement, or as we may call it, a Harmony of all the Parts; being compounded of εὖ, *well*, and ῥυθμὸς, *Rythmus*, a Cadence, or Agreement of Numbers, Sounds, or the like Things. See RYTHMUS.

Vitruvius ranks the *Eurythmia* among the essential Parts of Architecture: He describes it as consisting in the Beauty of the Construction, or Assemblage of the several Parts of the Work, which render its Aspect, or whole Appearance graceful: *E. gr.* when the Height corresponds to the Breadth, and the Breadth to the Length, &c.

'From these three Ideas, (or *Designs*, viz. *Orthography*, 'Scenography, and *Profile*) it is, that the same *Eurythmy*, 'Majestica, and *Venusta Species Edificii*, does Result; 'which creates that agreeable Harmony between the se- 'veral Dimensions; so as nothing seems disproportionate, 'too long for this, or too broad for that, but corresponds 'in a just and regular Symmetry, and Consent of all the 'Parts with the whole.' *Evelyn's Account of Archit.* &c. See SYMMETRY.

EUSEBIANS, a Denomination given to the Sect of *Arians*, on Account of the Favour and Countenance, which *Eusebius* Bishop of *Cæsarea* shew'd, and procured for them at their first Rise. See ARIANS.

EUSTA-

EUSTATHIANS, a Name given to the Catholicks of *Antioch*, in the IVth Century; on Occasion of their Refusal to acknowledge any other Bishop beside S. *Eustathius*, deposed by the *Arians*.

The Denomination was given them during the Regency of *Paulinus*, whom the *Arians* substituted to S. *Eustathius*, about the Year 330, when they began to hold their Assemblies apart.

About the Year 350, *Leontius* of *Phrygia*, call'd the *Eunuch*, who was an *Arian*, and was put in the See of *Antioch*, desired the *Eustathians* to perform their Service in that Church; which they accepting, the Church of *Antioch* serv'd indifferently both the *Arians* and *Catholicks*.

This, we are told, gave Occasion to two Institutions, which have subsisted in the Church ever since: The first was Psalmody in two Choirs; but, M. *Baillet* thinks, that if they instituted an alternate Psalmody between two Choirs, 'twas between two *Catholic* Choirs; and not by Way of Response to an *Arian* Choir. The second was the Doxology, *Glory be to the Father, and the Son, and the Holy Ghost*. See DOXOLOGY.

This Conduct, which seem'd to imply a Kind of Communion with the *Arians*, gave great Offence to Abundance of Catholicks, who began to hold separate Meetings; and thus form'd the Schism of *Antioch*. Upon this, the rest, who continu'd to meet in the Church, ceas'd to be call'd *Eustathians*, and that Appellation became restrain'd to the Dissenting Party.

S. *Flavianus*, Bishop of *Antioch* in 381, and one of his Successors, *Alexander* in 482, brought to pass a Coalition, or Re-union, between the *Eustathians* and the Body of the Church of *Antioch*, described with much Solemnity by *Theodoret*, Eccl. *L.* III. *C.* 2.

EUSTATHIANS, was also a Sect of Hereticks, in the IVth Century; denominated from their Author *Eustathius*, a Monk so foolishly fond of his own Profession, that he condemn'd all other Conditions of Life.

He excluded married People from Salvation; prohibited his Followers from praying in their Houses; and obliged them to quit all they had, as incompatible with the Hopes of Heaven.

He drew them out of the other Assemblies of the faithful, to hold secret ones with him; and made them wear a particular Habit: He appointed them to fast on *Sundays*; and taught them that the ordinary Fasts of the Church were needless, after they had attained to a certain Degree of Purity, which he pretended to. He shew'd a World of Horror for Chappels built in Honour of Martyrs, and the Assemblies held therein.

Several Women, seduced by his Reasons, forsook their Husbands, and Abundance of Slaves deserted their Masters Houses. He was condemn'd in the Year 342, at the Council of *Gangres*, in *Paphlagonia*.

EUSTYLE, in Architecture, a Kind of Edifice, where the Pillars are placed at a most convenient Distance one from another; the Intercolumniations being all just two Diameters and a Quarter of the Column; except those in the middle of the Face before and behind, which are three Diameters distant. See INTERCOLUMNIATION.

The *Eustyle* is a Medium between the *Pycnostyle* and *Araeostyle*. See PYCNOSTYLE, *&c.*

The Word is *Greek*, being form'd of εὖ, *bene*, well, and στύλος, *Column*.

Vitruvius, L. III. *C.* 2. observes, that the *Eustyle* is the most approved of all the Manners of Intercolumniation; and that it surpasses all the rest, in Convenieney, Beauty, and Strength.

EUTYCHIANS, ancient Hereticks, denominated from *Eutyches* the Archimandrite, or Abbot of a Monastery at *Constantinople*. See HERETIC.

The Aversion *Eutyches* bore to the Heresy of *Nestorius*, threw him into another Extreme, not less dangerous than that he so warmly opposed; tho' some Passages in St. *Cyril*, which rais'd the Unity of the Person of *Jesus Christ* very high, contributed, likewise, to his Delusion.

At first he held, that the *Logos*, Word, brought his Body down with him from Heaven: which was a near Approach to the Heresy of *Apollinarius*: And tho' he afterwards testified the contrary in a Synod at *Constantinople*, wherein he was condemned; yet he could not be brought to acknowledge, that the Body of *Jesus Christ* was consubstantial with ours.

In Effect, he did not seem quite steady, and consistent in his Sentiments; for he appear'd to allow of two Natures, even before the Union; which was apparently a Consequence he drew from the Principles of the Platonic Philosophy, which supposes a Pre-existence of Souls; accordingly, he believed that the Soul of *Jesus Christ* had been united to the Divinity before the Incarnation; but then he allow'd no Distinction of Nature in *Jesus Christ*, since his Incarnation.

See the Dissertation of Fa. *Hardouin*, *de Sacramento Altaris*, wherein that Jesuit endeavours to unfold all the Sentiments of the *Eutychians*.

This Heresy was at first condemned in a Synod held at *Constantinople*, by *Flavian* in 448: Was re-examined, and fulminated in the General Council of *Chalcedon* in 451. The Legates of Pope *Leo*, who assisted thereat, maintain'd, that it was not enough to define that there were two Natures in *Jesus Christ*, but insisted strenuously, that to remove all Equivocation, they must add these Terms, without *being changed, or confounded, or divided*.

But this Decree of the Council of *Chalcedon*, at which assisted upwards of 630 Prelates, did not stop the Progress of *Eutychianism*: Some Bishops of *Egypt*, who had attended at the Council, upon their Return, proclaimed openly, that St. *Cyril* had been condemned, and *Nestorius* acquitted therein: Which occasioned great Disorders; several Persons, under Pretence of contending for the Sentiments of St. *Cyril*, making no Scruple of weakening the Authority of the Council of *Chalcedon*.

The Heresy of the *Eutychians*, which made a very great Progress throughout the *East*, at length became divided into several Branches. *Nicephorus* makes mention of no fewer than twelve: Some call'd *Schematici*, or *Apparentes*, as only attributing to *Jesus Christ*, a Phantom, or Appearance of Flesh, and no real Flesh: Others, *Theodosians*, from *Theodosius* Bishop of *Alexandria*: Others, *Jacobites*, from one *James*, *Jacobus*, of *Syria*; which Branch establish'd it self principally in *Armenia*, where it still subsists. See JACOBITES.

Others were call'd *Acephali*, q. d. without Head, and *Severians*, from a Monk call'd *Severus*, who seiz'd on the See of *Antioch* in 513. See ACEPHALI and SEVERIANS.

These last were subdivided into Five Factions, *viz. Agnoetes*, who attributed some Ignorance to *Jesus Christ*: Followers of *Paul*, Μελανιῶν, that is, *the Black*; *Angelites*, thus call'd from the Place where they assembled. *Adrites* and *Conovites*, with divers others.

EUTYCHIANS, were also a Sect half *Arian*, half *Eunomian*; which arose at *Constantinople*, in the IV*th* Century.

It being then a Matter of mighty Controversy among the *Eunomians* at *Constantinople*, whether or no the Son of God knew the last Day and Hour of the World; particularly with Regard to the Passage in the Gospel of St. *Matthew*, C. XXIV. Ver. 36. Or rather that in St. *Mark*, XIII. 31. where 'tis express'd, that *the Son did not know it, but the Father only*: *Eutychius* made no Scruple to maintain, even in Writing, that the Son did know it: Which Sentiment displeasing the Leaders of the *Eunomian* Party, he separated from 'em, and made a Journey to *Eunomius*, who was then in Exile.

That Heretick acquiesced fully in *Eutychius*'s Doctrine, that the Son was not ignorant of any Thing the Father knew, and admitted him to his Communion: *Eunomius* dying soon after, the chief of the *Eunomians* at *Constantinople*, refused to admit *Eutychius*; who, upon this, form'd a particular Sect of such as adhered to him, call'd *Eutychians*.

This same *Eutychius*, with one *Theophronius*, as was said in *Sozomen*'s Time, were the Occasions of all the Changes made by the *Eunomians* in the Administration of Baptism; which consisted, according to *Nicephorus*, in only making one Immersion, and not doing it in the Name of the Trinity, but into the Death of *Jesus Christ*.

Nicephorus calls the chief of this Sect, not *Eutychius*, but *Eupsychius*, and his Followers EUNOMIOEUPSYCHIANS.

EWRY, an Office in the King's Houshold, where they take Care of the Linen for the King's own Table; lay the Cloth, and serve up Water in Silver *Ewers* after Dinner; whence the Office hath its Name.

EXACERBATION, the same as *Paroxysm*. See PAROXYSM.

EXACTION, in Law, is a Wrong done by an Officer, or one pretending to have Authority, in taking a Reward or Fee, for that which the Law allows not.

The Difference between *Exaction* and Extortion consists in this, that Extortion is where the Officer takes more than his Due: And *Exaction*, where he wrests a Fee or Reward, when none is due. See EXTORTION.

EXAGGERATION, in Rhetoric, a Figure whereby we enlarge, or heighten Things; making them appear more than they really are, whether as to Goodness, Badness, or other Qualities.

The Word is form'd of the Latin, *Exaggero*, I exaggerate; which is a Compound of *ex*, and *agger*, a Mound, or Elevation of Earth.

EXAGGERATION, in Painting, is a Method of representing Things, wherein they are charged too much, or marked too strong; whether in respect of the Design, or the Colouring.

Ex gge-

Exaggerating differs from *Caricatouring*, in that the latter preverts, or gives a Turn to the Features, &c. of a Face, which they had not; whereas the former only improves, or heightens upon what they had.

The latter is a Kind of Burlesque on the Objects, and is generally meant to ridicule. The former is generally an exalting, or enlivening of the Beauties of the Object. See CARICATOURING.

The Painter is obliged to have Recourse to an *Exaggeration of Colours*, both on Account of the Surface of his Ground, the Distance of his Work; and of Time, and the Air which diminish and weakens the Force of the Colours. But this *Exaggeration* must be conducted in such manner, as not to put the Objects out of their natural Characters. *De Piles.*

EXAGON, EXACHORD, EXAMILION, &c. } See { HEXAGON. HEXACHORD. HEXAMILION, &c.

EXALTATION, *Elevation*, is chiefly used in a figurative Sense, for the raising, or advancing a Person to some Ecclesiastical Dignity; and particularly, the Papacy.

The Term *Exaltation*, is in some measure appropriated to the Pope, and expresses his Inauguration, Coronation, taking of Possession, and the Beginning of his Pontificate. See POPE.

EXALTATION *of the Cross*, EXALTATIO CRUCIS, is a Feast of the Church, held on the 14*th* of *September*, in Memory, as is generally supposed, of this, that the Emperor *Heraclius* brought back the true Cross of *Jesus Christ* on his Shoulders, to the Place on Mount *Calvary*, from which it had been carried away fourteen Years before, by *Cosroe* King of *Persia*, at his taking of *Jerusalem*, under the Reign of the Emperor *Phocas*. See CROSS.

The Cross was deliver'd up, by a Treaty of Peace made with *Siroe*, *Cosroe's* Son. — The Institution of this Feast is commonly said to have been signalized by a Miracle; in that *Heraclius* could not stir out of *Jerusalem* with the Cross, while he had the Imperial Vestments on, enrich'd with Gold and precious Stones; but bore it with Ease in a common Dress.

But long before the Empire of *Heraclius*, there had been a Feast of the same Denomination observed both in the *Greek* and *Latin* Churches, on Occasion of what our Saviour said in St. *John* XII. 32. *And I, if I be* exalted, or *lifted up, will draw all Men unto me.* And again, in Ch. VIII. ver. 28. *When they shall have* Exalted, or *lift up the Son of Man, then shall ye know that I am he.* Fa. *Du Soulier* assures us, that M. *Chastelain* was of Opinion, this Feast had been instituted, at least at *Jerusalem*, 240 Years before *Heraclius*.

The Feast of the Dedication of the Temple built by *Constantine*, was held, says *Nicephorus*, on the 14*th* of *September*, the Day the Temple had been consecrated on, in the Year 335; and this Feast was call'd, *the Exaltation of the Cross*, by reason it was a Ceremony therein, for the Bishop of *Jerusalem* to ascend a high Place built by *Constantine* for that Purpose, in manner of a Pulpit, call'd by the *Greeks*, the *Sacred Mysteries of God*, or *the Holiness of God*; and there hoist up the Cross for all the People to see it.

EXALTATION, in Physicks, is the Act, or Operation of elevating, purifying, subtilizing, or perfecting any natural Body, its Principles and Parts; as also the Quality, or Disposition, which Bodies acquire by this Operation. See MATURATION and PURIFICATION.

'Tis this *Exaltation* of the sulphureous Part in the Straw-berries, that gives them their agreeable, vinous Taste. *Lemery.* — A gentle and temperate Heat of the Body, *Exalts* and disengages the most volatile Parts of our Food, and dispose 'em for Nutrition.

The Term *Exaltation*, is peculiarly affected by the Chymists and Alchymists, who imagining it to have some extraordinary Emphasis, are using it at every Turn. Most sulphureous Matters, much *Exalted*, are observed to be of a red Colour.

EXALTATION, in Astrology, is a Dignity which a Planet acquires in certain Signs, or Parts of the Zodiac; which Dignity is supposed to give 'em an extraordinary Virtue, Efficacy, and Influence.

The opposite Sign, or Part of the Zodiac, is call'd the *Dejection* of the Planet. See DEJECTION.

Thus, the fifteenth Degree of *Cancer*, is the *Exaltation* of *Jupiter*, according to *Albumazar*, by reason it was the Ascendant of that Planet at the Time of the Creation: That of the Sun, is in the 19*th* Degree of *Aries*; and its Dejection in *Libra*: That of the Moon, is in *Taurus*, &c. *Ptolomy* gives the Reason hereof in his first Book *de Quadrup.*

EXAMEN, or EXAMINATION, an exact and careful Search, or Inquiry; in Order to discover the Truth, or Falshood, of a Thing.

The Way of Authority is, without Comparison, more easy, and better proportion'd to the Reach and Capacity of simple Man, than the Way of Discussion and *Examen. Nicole.*

Such a Person had his House robb'd; and has made a severe *Examination* of all his Domesticks, to find out the Criminal. A Student stands a rigorous *Examination* to be admitted to a Degree of Master, Batchelor, Doctor, &c. See DEGREE.

Self EXAMINATION, is a Point much insisted on by Divines, and particularly the antient Fathers, by Way of Preparation, or Introduction, to Repentance. S. *Ignatius* reduces it to five Points, *viz.* 1°. A returning of Thanks to God for his Benefits. 2°. A Begging of Grace and Light to know and distinguish our Sins. 3. A running over all our Actions, Occupations, Thoughts and Words; in Order to learn what has been offensive to God. 4°. A Begging of Pardon, and conceiving a sincere Sorrow for having displeased him. And 5°. A making a firm Resolution not to offend him any more, and taking the necessary Precautions to preserve us from it.

EXAMINERS, in Chancery, are two Officers, whose Business is to *examine*, on Oath, the Witnesses produced on both Sides; upon such Interrogatories as the Parties to the Suit do exhibit for the Purpose. See CHANCERY.

EXAMPLE, in Rhetoric, &c. is defined an imperfect Kind of Induction, or Argumentation; whereby it is proved that a Thing which has happen'd on some other Occasion; will happen again on the present one; from the Similitude of the Cases.

As, the Wars of the *Thebans*, against their Neighbours the *Phocians*, was ruinous; consequently, that of the *Athenians* against their Neighbours, will likewise be ruinous.

EXANTHEMA, in Medicine, an *Eruption*, or *Efflorescence* on the Skin. See ERUPTION, &c.

Exanthemata are of two Kinds: The one only a discolouring of the Skin; such are the Measles, the purple Spots in malignant Fevers, &c. — The other are little Eminences, or *Papillæ*, standing out from the Skin, not unlike Pustles, only smaller. See MEASLES, &c.

The Word is form'd of the *Greek*, ἐξάνθεω, *Effervesco*, *Efflorescо*, I flower, or work out.

EXARCH, EXARCHUS, in Antiquity, a Name given, by the Emperors of the *East*, to certain Officers sent into *Italy*, in Quality of Vicars, or rather *Præfects*, to defend what Part of *Italy* was yet under their Obedience, particularly the City of *Ravenna*, against the *Lombards*, who had made themselves Masters of the greatest Part of the rest.

The Residence of the *Exarch* was at *Ravenna*; which City, with that of *Rome*, were all that was left the Emperors.

The first *Exarch* was the Patrician *Boethius*, famous for his Treatise, *de Consolatione Philosophiæ*; appointed in 568 by the younger *Justin*. The *Exarchs* subsisted about 185 Years; and ended in *Eutychius*; under whose *Exarchate*, the City of *Ravenna* was taken by the *Lombard* King *Astulphus*, or *Astolphus*.

Fa. *Papebroch*, in his *Propylæum ad Acta Sanct. Maii*, has a Dissertation on the Power and Office of the *Exarchus* of *Italy*, in the Election and Ordination of the Pope.

The Word is form'd from the *Greek*, ἔξαρχος, *Chief*, *Commander*, and particularly in the Factions of *Italy*.

Homer, *Philo*, and other antient Authors, give the Name *Exarch* to the *Choragus*, or Master of the Singers, in the antient Chorus's; or he who sung first: The Word ἄρχω, or ἄρχομαι, signifying equally to *begin*, and to *command*. See CHORAGUS.

The Emperor *Frederic* created *Heraclius* Archbishop of *Lyons*, a Descendant of the illustrious House of *Montboissier*; created him, we say, *Exarch* of the whole Kingdom of *Burgundy*: A Dignity, till that Time, unknown any where but in *Italy*, particularly in the City of *Ravenna*. Menestrier *Hist. de Lyons.*

EXARCH *of a Diocese* was, antiently, the same Thing with *Primate*. This Dignity was inferior to the Patriarchal, yet greater than the Metropolitan. See PRIMATE.

EXARCH, is also an Officer still subsisting in the *Greek* Church. See GREEK.

The Modern *Exarch* is a Kind of Deputy, or Legat *a latere* of the Patriarch; whose Office it is to visit the Provinces allotted him, in order to inform himself of the Lives and Manners of the Clergy; take Cognizance of Ecclesiastical Causes, the Manner of celebrating Divine Service, the Administration of the Sacraments, particularly Confession; the Observance of the Canons, Monastical, Discipline, Affairs of Marriages, Divorces, &c. But above all, to take Account of the several Revenues, which the Patriarch receives from several Churches; particularly, as to what regards the collecting the same.

The *Exarch*, after having greatly enrich'd himself in his Post, frequently rises to the *Patriarchate* himself. See PATRIARCH.

EXARCH, is also used, in the *Eastern*-Church Antiquity, for a General, or Superior over several Monasteries: The same that we otherwise call *Archimandrite*; being exempted, by the Patriarch of *Constantinople*, from the Jurisdiction of the Bishops; as are now the Generals of the *Romish* Monastic Orders. See GENERAL, &c.

In 493, *Sebas* was establish'd *Exarch*, or Chief of all the *Anchorites* within the Territory of *Jerusalem*. *Du Bois*.

EXARCH was also a military Dignity. See *Du Cange*.

EXARTICULATION, a *Dislocation* of some of the jointed Bones; or a Breach of Articulation. See DISLOCATION.

EXCALCEATION, the Act of putting off the Shoes. See SHOE.

Among the *Hebrews*, there was a particular Law, whereby a Widow, whom her Husband's Brother refused to marry, had a Right to summons him into a Court of Justice; and upon his Refusal, might *discalceate* him, *i. e.* pull off one of his Shoes, and spit in his Face: Which were both Actions of great Ignominy among that People.

The House of the Person who had undergone them, was thenceforward call'd the House of the *Discalceated*.

EXCAVATION, the Act of hollowing, or digging a Cavity; particularly in the Ground.

The *Excavation* of the Foundations of a Building, by the *Italians* call'd *Cavastione*, is settled by *Palladio* at a sixth Part of the Height of the whole Building. Unless there be Cellars under Ground, in which Case he would have it somewhat more. See FOUNDATION.

The Word is Latin, *Excavatio*, form'd of *ex* and *cavus* hollow, or *Cavea*, a Pit, &c.

EXCELLENCY, a Quality, or Title of Honour, given to Ambassadors, and other Persons, who are not qualified for that of *Highness*; as not being Princes; and yet are to be elevated above the other inferior Dignities. See QUALITY.

In *England* and *France*, the Title is now peculiar to Embassadors; but very common in *Germany* and *Italy*. Those it was first affected to, were the Princes of the Blood, of the several Royal Houses; but they quitted it for that of Highness, upon several great Lords assuming *Excellency*. See HIGHNESS.

The Embassadors have only bore it since the Year 1593, when *Henry* IV. of *France* sent the Duke *de Nevers*, Embassador to the Pope; where he was first complemented with *Excellency*. After that, the same Appellation was given to all the other Embassadors residing at that Court: From whence the Practice spread thro' the other Courts. See EMBASSADOR.

The Embassadors of *Venice* have only had it since the Year 1636, when the Emperor and King of *Spain* consented to allow it them.

The Embassadors of Crown'd Heads, dispute the giving that Title to the Embassadors from the Princes of *Italy*; where the Practice is not establish'd.

The Court of *Rome* never allow the Quality of *Excellency* to any Embassador who is a Churchman; as judging it a secular Title.

The common Rules and Measures of *Excellency* are a little varied with Respect to the Court of *Rome*. — The Embassadors of *France*, at *Rome*, anciently gave the Title *Excellency* to all the Relations of the Pope then reigning; to the Constable *Colonne*, to the Duke *de Bracciano*, and the eldest Sons of all those Lords; as also the Dukes *Savelli*, *Cesarini*, &c. But they are now more reserved in this Respect; tho' they still treat all the *Roman* Princesses with *Excellency*.

The Court of *Rome* in their Turn, and the *Roman* Princes, bestow the same Title on the Chancellor, Ministers, and Secretaries of State, and President of the Soveraign Courts in *France*; the Presidents of the Councils in *Spain*; the Chancellor of *Poland*; and those in the first Dignities of other States, if they be not Ecclesiasticks.

The Word *Excellency*, was antiently a Title of Kings and Emperors; accordingly, *Anastasius* the Library-Keeper, calls *Charlemaign*, His *Excellency*. The same Title is still given to the Senate of *Venice*; where, after saluting the Doge under the Title of *Serenissimo*, the Senators are addressed to under *Your Excellencies*. The *Liber Diurnus Pontif. Rom.* gives the Title *Excellency* to the Exarchs and Patricians. See TITLE.

The *Italians* and *French* have improved on simple *Excellency*; and made *Excellentissimus*, *Excellentissimo*, which has been bestowed on certain Popes, Kings, &c.

EXCEPTION, a Reserve; or something set aside, and not included in the Rule. See RULE.

'Tis become proverbial, that there is no Rule, but has its *Exceptions*; intimating, that it is impossible to comprehend all the particular Cases under one and the same Maxim. 'Tis dangerous following the *Exception*, preferably to the Rule.

EXCEPTION, in Law, is a Stop, or Stay to an Action. See ACTION.

The Term is used indifferently both in the Civil, and Common Law; and in each, *Exceptions* are divided into *Dilatory* and *Peremptory*. See DILATORY and PEREMPTORY.

Exception, in a general Sense, includes all the Kinds of Defence, or Vindication, which a Person, against whom a Process is brought, makes use of to prevent, or retard its Effect. See PLEA, &c.

The Civilians reckon three Kinds of *Exception*; viz. *Declinatory*, whereby the Authority of the Judge, or Court, is disallowed; *Dilatory*, intended to defer, or prevent the Thing from coming to an Issue; and *Peremptory*, which are proper and pertinent Allegations, founded on some Prescription that stands for the Defendant; as Want of Age, or other Quality in the Party; or other Matter, that may be decided without entering into a full Discussion of the Merits of the Cause.

EXCEPTIVE *Propositions*, are those wherein something is affirm'd of a whole Subject, abating some one of the Parts thereof, which is *excepted* by a Particle, thence call'd an *Exceptive* Particle, or Particle of *Exception*. See PROPOSITION.

Thus, all the Sects of the antient Philosophers, except the *Platonists*, held God to be Corporeal. Covetousness is inexcusable in Respect of every Thing, but Time.

EXCESS, is distinguish'd into *Natural* and *Moral*: The first, is a Part whereby one Quantity is greater than another. — Thus, we say, this Line is longer than that; but the *Excess* is inconsiderable.

The latter, is an Intemperance, or going beyond the just Bounds and Measures prescribed to any Thing: Thus, we say, *Excess* in Wine, Women, &c. is prejudicial to the Health.

EXCHANGE, a *Permutation*, or an Agreement; whereby one Thing is truck'd or given for another. See PERMUTATION.

The first Commerce carried on among Men, was by *Exchange*; People furnishing each other mutually with what Things they wanted: But such *Exchanges* were clogg'd with two considerable Difficulties. 1°. On Account of the unequal Values of Commodities: And, 2°. In that every Body had not just what might accommodate him he would *Exchange* withal. See COMMERCE.

To remove these Inconveniencies, Money was invented for a common Medium, and instead of *Exchanging*, Buying and Selling, was introduced. See MONEY.

Yet there are Nations among whom the Primitive Way of *Exchange* still obtains: And even among the most civilized People, there are frequent Occasions, wheron they have Recourse to this Method. — Such, for Instance, is the Trade of several Cities of the *North*, and *Baltic* Sea, where the French *exchange* their Wines and Brandies for Woods, Metals, Hemps and Furs.

The Commerce of Bills of *Exchange* is, it self, a pure trading by *Exchange*; a Truck of Money for Money; of Money, for Instance, which I have here at *London*, for what a Merchant, or Banker, has at *Venice*, *Rome*, *Amsterdam*, or *Constantinople*. In this Sense.

EXCHANGE properly denotes the Business, or Trade of Money, carried on between one Place and another, by Means of Bills of *Exchange*; i. e. by giving Money in one City, and receiving a Bill to entitle you to receive the Value in another City. See *Bill of* EXCHANGE.

EXCHANGE, is also used for the Profit, which a Merchant, Negotiant, or Broker, receives for a Sum of Money paid, and for which a Bill of *Exchange* is drawn payable in some other Place, and by some other Person; for the Interest of his Money, or the Salary and Reward of his Negociation.

This Profit is exceeding various; being sometimes 2, sometimes 3, 4, or even 10 and 15 *per Cent.* according as the Alloy of the Species differs, or as Money is more or less plentiful, or Bills of *Exchange* more or less scarce in the Places. This Kind of *Exchange* is ordinarily call'd *Real Exchange*, and sometimes *Mercantile* and mixt *Exchange*. See PAR.

The Price of *Exchange* is regulated according to the Course of the Place where the Bill is drawn, or that of the Place where the Remittance is to be made: Some pretend that 'tis the City of *Lyons* gives the Law, or Rule, for the Price of *Exchange* to most of the other Cities of *Europe*.

The Word *Exchange*, according to some, is derived from that perpetual Alteration observ'd in the Price of this *Exchange*, which is sometimes higher, and sometimes lower; there being sometimes somewhat to get, and sometimes to lose thereby; and sometimes nothing to be either got or lost: As is the Case when the *Exchange* is at Par.

From

From this Diversity in the Price of *Exchange*, arises that common Proverb, *The Exchange and the Wind are often changing.*—But the more natural Way of deriving the Word *Exchange*, is from this, that a Man here *exchanges* his Money for a Bill; or that he *changes* present Money for absent Money; or changes his Debtor.

Exchange is not to be look'd on as a *Loan*; from which it differs, in that in the one, the Risque, or Danger, lies on the Person who borrows; and in the other, on him who lends. It likewise differs from *Interest*, in that *Exchange* is not paid in proportion to the Time, which Interest is. See INTEREST and LOAN.

EXCHANGE, is also used in divers Places for the Due, or Profit, allow'd for the changing of one Sort, or Species, of Money for another. ---- This is particularly call'd *Small Exchange*, *Natural Exchange*, *Pure Exchange*, &c.

EXCHANGE, is sometimes also used for the *Agio*, or Profit, allowed for the Monies advanced in any one's Behalf. See AGIO.

EXCHANGE, is also a public Place, in most considerable Cities, wherein the Merchants, Negotiants, Agents, Bankers, Brokers, Interpreters, and other Persons concern'd in Commerce, meet, on certain Days, and at certain Times thereof; to confer, and treat together of Matters relating to *Exchanges*, Remittances, Payments, Adventures, Assurances, Freightments, and other Mercantile Negotiations both by Land and Sea.

In *Flanders*, *Holland*, and several Cities of *France*, these Places are call'd *Bourses*; at *Paris* and *Lyons*, *Places de Change*; and in the Hanse Towns, *Colleges of Merchants*. See BURSE.

These Assemblies are held with so much Exactness, and Merchants and Negotiants are so indispensably required to attend at them; that a Person's Absence alone, makes him be suspected of a Failure or Bankrupcy. See BANKRUPT.

The most considerable *Exchanges* in *Europe*, are that of *Amsterdam*; and that of *London*, call'd the *Royal Exchange*. See ROYAL *Exchange*.

That of *Antwerp* was little inferior to either of them; till the Port of that City was render'd impracticable by the *Hollanders*, to bring the Commerce thereof to themselves.

Even in the Time of the antient *Romans*, there were Places for the Merchants to meet, in most of the considerable Cities of the Empire. The Bulk at *Rome*, in the Year of the City 259, 459 Years before our Saviour, under the Consulate of *Appius Claudius*, and *Publius Servilius*, was call'd *Collegium Mercatorum*; whereof we have still some Remains, call'd by the modern Romans *Loggia*, the Lodge; and now, usually, the Place of St. *George*. See COLLEGE.

EXCHANGE, in Law, is the Compensation which the Warrantor must make the *Warrantee*, Value for Value, if the Land warranted be recovered from the *Warrantee*, Bracton. *L.* II. See WARRANTY.

The King's EXCHANGE, is the Place appointed by the King for *Exchange* of Plate, or Bullion for the King's Coin. These Places have formerly been divers; but now there is only one, *viz.* that of the Tower of *London*, joyn'd with the Mint. See MINT.

Bill of EXCHANGE, is a Writing given by a Merchant, or other Negotiant, to procure a Sum of Money to be paid the Bearer thereof, in some distant Place; in Consideration of a like Sum paid the Writer, by the Person in whose Behalf the Bill is drawn. See BILL *of Exchange*.

What we call *Rechange*, is the Due, or Premium of a second *Exchange*, when a Bill is protested. See RECHANGE.

EXCHANGE-*Brokers*, are Persons who make it their Business to know the Alteration of the Course of *Exchange*, to inform Merchants how it goes, and to notify to those who have Money to receive or pay beyond Sea, who are proper Persons for the *Exchanging* and doing thereof. See BROKER.

When the Matter is accomplished, that is, the Money paid, they have for Brokage 2 Shillings *per* 100 Pound Sterling.

But of late, the Humour of gaining, and dealing in Stocks, hath so prodigiously increased the Number of Persons who act as Brokers, that their Business, and their Pay, is very uncertain.

EXCHANGERS, are those who return Money beyond Sea, by Bills of *Exchange*, &c. call'd antiently also *Excambiators*, and since Remitters. See EXCAMBIATOR.

EXCHEQUER, or simply, CHEQUER, a *Chess-Board*; or a Frame divided into 64 Squares, of two Colours, whereon to play at Draughts, Chess, &c.

The Word is form'd from the French *Eschequier*, which signifies the same Thing. See CHESS.

Hence, Trees are said to be planted *Ex-chequer*-wise, in *Quincuncem*, when disposed so as to form divers Squares representing a *Checquer*.

EXCHEQUER, is also a Chamber, or Apartment in *West-minster-Hall*, consisting of two Parts; the *Court of Exchequer*, and the *lower Exchequer*.

The *Court of* EXCHEQUER, is a Court, wherein are tried all Causes relating to the King's Treasury, or Revenue; as, touching Accounts, Disbursements, Customs, Fines, &c. See TREASURY.

It consists of Seven Judges, *viz.* the Lord Treasurer, the *Chancellor of the Exchequer*, the Lord Chief *Baron*, and three other *Barons of the Exchequer*, with one Cursitor Baron. See CHANCELLOR, &c.

The Lord Chief Baron is the principal Judge of the Court. See BARONS *of the Exchequer*.

The Court of *Exchequer* is divided into two: The one *of Law*, the other *of Equity*.

All Judicial Proceedings according to Law, are styled, *coram Baronibus* only: But the Court of Equity held in the *Exchequer Chamber*, is *coram Thesaurario, Cancellario, & Baronibus*; before the Treasurer, Chancellour, and Barons.

For a long Time after the Conquest, there sate in the *Exchequer*, both Spiritual and Temporal Barons of the Realm: But of later Times, there have sat in their Places other Judges, who, tho' no Peers of the Realm, yet retain the original Denomination.

The common Opinion of our Historians is, that this Court was erected by *William the Conquerour*, soon after his having obtain'd the Kingdom; and that it took its Form from the *Echequier*, or *Scaccarium*, establish'd in *Normandy* long before that Time. In Effect, the two *Exchequers* have this in common, that the *Norman* was the Supreme Court of that Dutchy, or a general Assize whereat all the great Lords attended, to judge finally of all Concerns of the greatest Importance; and was ambulatory: And that the *English Exchequer* was a Court of the highest Jurisdiction; that the Acts thereof were not to be examined by any of the ordinary Courts; that it was the Repository of the Records of all the other Courts; and that it was to be held in the King's Court, and before him; and that it was concerned in the Prerogative, as well as the Revenue of the Crown.

The immediate Profits of the Crown, as of Franchises, Lands, Tenements, Hereditaments, Debts, Duties, Accounts, Goods, Chattels, all Disbursements, Seizures, and Fines, imposed on the Subject, &c. are within the Jurisdiction of the *Exchequer*. And the King's Attorney may exhibit Bills, for any matter concerning the King in Inheritance or Profits; so also may any Person, who finds himself aggrieved in any Cause prosecuted against him on Behalf of the King, or any Patent by Grant of the King, exhibit his Bill against the King's Attorney, &c. to be relieved by Equity. See COURT, KING, &c.

To this Court belong two Offices, the King's Remembrancer's Office, and the Lord Treasurer's Remembrancer. See REMEMBRANCER.

Authors are divided about the Origin of the Denomination of this Court, *Exchequer*. *Du Cange* is of Opinion, it came from a *Chequer*-wrought Carpet, covering the great Table in that Court; or from the Pavement of the Court, which was *Chequer*-wise: Others, from the Accomptants in this Office using *Chequers*, or Chess-Boards, in their Computations: *Nicod*, from the Court's being composed of different Qualities, as the Pieces or Partitions in a Chess-Board: Others, by reason People pleaded here, ranged, as it were, in Battle array, as they do at Chess. *Menage*, after *Pithou*, &c, derives the Word from the German, *Schicken, to send*; by reason this Court succeeded the Commissioners call'd in ancient Titles, *Missi Dominici*. *Spelman*, &c. derives it from *Schatz*, which signifies, Treasure: Whence *Polydore Virgil* also writes it, *Scattarium*, instead of *Scaccharium*. Lastly, *Somner* derives it from *Schaen*, to ravish; which, according to him, is the Character of the Treasury.

The *Lower* EXCHEQUER, call'd also the *Receipt of the Exchequer*, is the Place wherein the King's Revenue is receiv'd and disbursed. See REVENUE and TREASURY.

The principal Officers whereof are, the *Lord Treasurer*, a *Secretary of the Treasury*, a *Chancellor of the Exchequer*, two *Chamberlains of the Exchequer*, an *Auditor of the Receipts of the Exchequer*, four *Tellers*, a Clerk of the *Pells*, an Usher of the *Receipt*, a *Tally Cutter*, &c. See LORD TREASURER, CHANCELLOR *of the Exchequer*, SECRETARY, CHAMBERLAIN, TELLER, PELLS, TALLY, &c.

Black Book of the EXCHEQUER, is a Book under the keeping of the two Chamberlains of the *Exchequer*; said to have been composed in 1175, by *Gervais* of *Tilbury*, Nephew of King *Henry* II. and divided into several Chapters.

Herein is contain'd a Description of the Court of *England*, as it then stood, its Officers, their Ranks, Privileges,

leges, Wages, Perquisites, Power, and Jurisdiction; the Revenues of the Crown, both in Money, Grain, and Cattel.

Here we find, that for One Shilling, as much Bread might be bought, as would serve a hundred Men a whole Day; that the Price of a fat Bullock was only Twelve Shillings; and a Sheep, Four, *&c. Larrey*, P. I. *p.* 394. See also DOOMSDAY-*Book*.

EXCISE, a Duty, or Imposition, charged on Beer, Ale, Cyder, and other Liquors made for Sale, within the Kingdom of *England*, *Wales*, and Town of *Berwick* upon *Tweed*. See DUTY.

The Duty of *Excise*, was first granted to King *Charles* II. by Act of Parliament, in the Year 1660; during the Life of that Prince: It has been since continued and augmented by divers Parliaments, under the several succeeding Princes, and extended to *Scotland*. --- This Duty, as it now stands, on strong Beer and Ale, is at the Rate of 4*s.* and 9*d. per* Barrel; and upon small Beer 1*s.* 6*d.*

Now, Brewers being allow'd for Leekage of Beer, 3 Barrels in 23; and of Ale, 2 in 22; the neat *Excise* of a Barrel of strong Beer amounts to 4*s.* 1*d.* and $\frac{3}{23}$; of a Barrel of Ale, 4*s.* 3*d.* 3*q*; and of a Barrel of small Beer, 1*s.* 1*d.* 1*q.* $\frac{14}{15}$.

The *Excise* is one of the most considerable Branches of the King's Revenue. --- It was formerly farmed out: But is now managed for the King by Seven *Commissioners*, who sit in the *General Excise Office*, receive the whole Product of the *Excise* of Beer, Ale, and other Liquors, and Malt, collected all over *England*, and pay it into the Exchequer. See EXCHEQUER.

Their Salary is 800*l. per Annum* each, and they are obliged by Oath, to take no Fee, or Reward, but from the King only. From the Commissioners of *Excise* there lies an Appeal to Five others, call'd *Commissioners of Appeals*. See COMMISSIONER.

The Number of Officers imploy'd in this Branch of the Revenue, is very great. Beside the Commissioners abovementioned, and their subordinate Officers, as Registers, Messengers, *&c.* There is an *Auditor of the Excise*, with his Clerks, *&c.* A Comptroller with his Clerks: A *Register*; *Secretary*; *Sollicitor*, *Cashier*; *Teller*; *Clerk of Securities*; *House-Keeper*; *Door-Keeper*; an *Accompt ant for the Imprest Money*; *General Gauger*; *General Accomptants, with their Assistants*; *Messengers*; a *Clerk for Stationary Wares*; *Examiners*; *Clerks for Supervisors Diaries*; *Accomptants*, *Examiners*, &c. for the *London* Distillery, Vinegar, Cyder, *&c. Examiners* for Malt; General and other *Surveyors* of the *London Brewery*; with *Assistants*, and other Officers, to the Number of an hundred: *General* and other *Surveyors of the London Distillery*, with other Officers, to the Number of 40; a *Collector*, and *Surveyor*, of *imported Liquors*; with a Land Surveyor at the Custom-House, *&c.*

The Yearly Salaries of all the Officers io the *Excise* Office, as computed by Mr. *Chamberlayne*, amounts to 23650*l.*

Beside which, there are in the Country fifty *Collectors*; and one hundred and fifty *Supervisors*; with a great Number of inferiour Officers, call'd *Gaugers*, or *Excisemen*; which may make the Number of Persons imploy'd in this Revenue about 2000.

The *Excise* on Beer, Ale, and other exciseable Liquors, even during a Time of War, is computed to amount to 1100000*l. per Annum*, and is collected from above 30000 People.

The Duty on Malt, with the additional Duty on Cyder, *&c.* amount to betwixt 6 and 7 hundred thousand Pound *per Annum*; and are collected from more Hands than the former.

And yet the whole Charge of the managing all these Duties, does not amount to Twenty Pence *per* Pound; which, considering every Thing, is esteem'd an Exactness and Frugality, not to be parallel'd in any Revenue levied in any other Country.

The Rates, with the neat Produce of the several Impositions of *Excise*, are as follow:

	L.
1°. A Duty of 2*s.* 6*d. per* Barrel, whereof 15*d. per* Barrel during his Majesty's Life; and the other 15*d.* hereditary; appropriated to the Civil Government, after a Deduction of 3700*l. per* Week for Annuities. Neat Produce	269837
2°. A Duty of 9*d. per* Barrel, granted 4 *Will.* and *M.* for 99 Years, commencing *Jan.* 1692. charged with 124866*l. per Ann.* for Annuities, and 7567*l. per Ann.* on Survivorship. Neat Produce - - - - -	150106
3°. Another 9*d. per* Barrel perpetual, 5 *W.* and *M.* for Payment of 100000*l. per Ann.* to the Bank, as also several Annuities on Lives. Neat Produce - - - - -	150094
4°. Another 9*d. per* Barrel, for 16 Years, continued 4 *Ann.* from *May* 1713. for 95 Years, for paying 140000*l. per Ann.* on Million Lottery Tickets; with Annuities of 99 Years, *&c.* Neat Produce 159898; --- which, with some additional Duties granted in a later Act may amount to - - - - -	184898
5°. A Duty on Low Wines, and Spirits of the first Extraction, continued to the 24*th* of *June* 1710. Neat Produce - - -	25267
6°. The *Excise* on Ale and Beer in *Scotland*, is farm'd at - - - -	33500
Total	*L.* 1006102

EXCLAMATION, in Rhetoric, a Figure, wherein, by raising the Voice, and using an Interjection, either expressly or understood, we testify an uncommon Warmth and Passion of Mind; and express the Magnitude of the Thing.

Such is, O Heavens! O Earth! *&c.* such is that of *Cicero* against *Catiline*, O Times! O Manners! This, the Senate knows, the Consul sees: And yet he lives. Lives, said I? Nay, and comes into the Senate!--- Or that for *Cælius*, *Proh Dii Immortales! Cur interdum in hominum sceleribus maximis aut connivetis, aut præsentis fraudis pœnas in diem reservatis! Oh præclarum, custodem, ovum, ut aiunt, Lupum!*

In *English*, the Interjections O! or Oh! Alas! or, Good God! are generally adjoyn'd in an *Exclamation*. In *Latin* they use *O! Heu! Eheu! Ah! Vah! Pro Superi! Pro Superum atque Hominum fidem*: Sometimes, however, the Interjection is understood, as, Wo is me! *Miserum me! Hoccine sæculum.* See INTERJECTION.

EXCLUSION, is that whereby a Thing is *Excluded*, i. e. shut out, or set aside.

As, a Crown imports an *Exclusion* from the Papacy: He appointed a Stranger his Heir, in *Exclusion* of all his own Relations.

Great Efforts were made towards the Close of the Reign of K. *Charles* II. to pass a *Bill of Exclusion*, for setting aside the Duke of *York*, the King's Brother, on Account of his being a Papist.

EXCLUSIONS, in Mathematicks, the *Method of Exclusions*, is a Way of coming at the Solution of Problems (in numerical Cases), by previously ejecting, or *excluding* out of Consideration, such Numbers, as are of no Use in solving the Question; whereby, of consequence, the Process may be regularly and judiciously abbreviated. See SOLUTION.

EXCLUSIVE, is sometimes used adjectively, for the Force, or Power of *Excluding*: as a Patent carries with it an *Exclusive* Privilege. See PRIVILEGE.

Soveraign Princes have *Exclusive* Voices in the Election of Popes, *&c.*

Sometimes it is also used adverbially: as Marriage is allow'd to the first Day of Lent, *Exclusive*; i. e. *Ash-Wednesday* is not comprized in the Permission. ---- He sent him all the *Gazettes*, from N°. 195, to N°. 300, *Exclusive*; i. e. all between those two Numbers, which themselves were excepted.

EXCLUSIVE *Propositions*, are those wherein the predicate so agrees with its Subject, as to agree with no other. See PROPOSITION.

Thus; Virtue alone makes Nobility: Nothing else renders a Man truly noble.

EXCOMMUNICATION, an Anathema, or Ecclesiastical Censure, and Punishment; whereby a Heretic is cut off from the Society of the Faithful; or an obstinate Sinner from the Communion of the Church, and the Participation of the Sacraments. See CENSURE and ANATHEMA.

The Power of *Excommunication* properly belongs to the Bishop; but he may delegate it to any grave Priest, with the Chancellor. See BISHOP.

Every *Excommunication* should be preceded by three public Admonitions, two Days, at least, distant from each other: But this is to be understood of *Excommunications* imposed by the Ecclesiastical Judge; for those imported by the Law, are incurr'd to all Intents and Purposes the Moment the Action is committed.

These latter are call'd *Excommunications* by the Canon, or *latæ sententiæ*: And are so very numerous, that it would be difficult, even for the best Canonists, to give an exact List of 'em: There are 50 in the *Clementines*; 20 in the Bull *in cœna Domini*, &c.

Rebuffe on the Concordat, reckons up 60 Penalties accruing upon *Excommunication*.

Excommunication is founded on a natural Right which all Societies have, of excluding out of their Body, such as violate the Laws thereof.

Excommunication is either *major* or *minor*, i. e. *greater* or *less*: The first, which is that understood when we say, simply, *Excommunication*, separates, or cuts off the Delinquent from all Communion and Fellowship with other Chri-

Christians; disables him from defending his Rights, bringing an Action at Law, &c. The second, or lesser, only excludes from the Communion of the Lord's Supper.

The greater *Excommunication*, call'd also *ab homine*, is when a Prelate, or his Deputy, *Excommunicates* any Man personally, and interdicts him all Society with the Faithful, all Use of Sacraments, &c.

The lesser *Excommunication* is incurr'd *pleno jure*, by having any Communication with a Person *Excommunicated* in the greater *Excommunication*. And this too imports a Privation of Communion, but not an Interdiction from entering the Church, nor having Commerce with the Faithful.

Anciently, the *Excommunicated* were obliged to procure Absolution from their Bishop, and make Satisfaction to the Church in forty Days Time; otherwise they were compell'd to it by the secular Judge, by a Seizure of their Effects, Imprisonment of their Persons, &c. In *France* they were allow'd a whole Year.

By an Edict of S. *Louis*, in the Year 1228. Vassals, Tenants, &c. were dispensed, or freed from the Oath of Fidelity, Homage, &c. they had taken to their Lords, or Superiours, till they had made their Submission.

In *Spain*, to this Day, a Person who is not absolved from his *Excommunication* in a Year's Time, is deem'd a Heretic. See HERETIC.

There was a Time, when the People were fully convinced, that the Bodies of *Excommunicated* Persons, unless they were first absolved, could not rot, but remain'd entire for several Ages, a horrible Spectacle to Posterity; as is attested by *Matthew Paris*, and other Writers. And the *Greeks* are still of the Opinion; and affirm, they have infinite Proofs thereof; as is shewn by *Du Cange*, from the Testimony of a vast Number of Authors.

By the Laws, an *Excommunicated* Person was not to be buried, but the Body flung into a Pit, or cover'd with a Heap of Stones; which was call'd *imblocare corpus*.

In the ancient Church, there were divers Degrees of *Excommunication*: In Effect, *Excommunication* did not always import an Interdiction of the Sacraments; but frequently, a Separation, or Kind of Schism between the several Churches, or a Suspension of spiritual Communication between the Bishops.

But, afterwards, the Occasions of *Excommunications* growing more frequent, they began to use it with less Circumspection and Reservedness.

In the IX*th* Century, the Ecclesiasticks were continually making Use of these spiritual Weapons, to repel any Violences, or Affronts, offer'd them; and Time and Familiarity rendering them more and more obdurate, they proceeded, by degrees, to Rigours unknown to Antiquity; as the *Excommunicating* of whole Families, or Provinces; the prohibiting the Exercise of all Religion therein; and even accompanying the *Excommunications* with horrible Ceremonies, and direful Imprecations.

In the X*th* and XI*th* Centuries, the Severity against the *Excommunicated* was carried to its Pitch: No body might come near them, not even their own Wives, Children, or Servants: They forfeited all their natural and legal Rights and Privileges; and were excluded from all Kind of Offices. Thus was an *Excommunicated* King, reduced to the Condition of a private Man.

By thus stretching the Power of the Church to Extravagance, they render'd it contemptible. *Gregory* VII. temper'd it a little; exempting the Wives and Children of *Excommunicated* Persons, from *Excommunication*; and allowing them to converse with them.

To render the *Excommunicated* still more odious, the Priest was obliged to stop, and break off divine Service, if an *Excommunicated* Person enter'd the Church. Nothing of which Aversion is any where discover'd in the Primitive Church.

At present we have but little of the Terror or Respect of our Fore-fathers, for *Excommunication*; and 'tis even judg'd, and proclaim'd an Abuse, whenever impertinently employ'd.

Thus, the Official of *Thoulouse* having *Excommunicated* the Officers of the *Senechaussee* of *Tholouse*, on Occasion of their refusing to deliver up a Prisoner; the Official was condemn'd to take off, and revoke the *Excommunication*. 'Tis judg'd an Abuse to fulminate an *Excommunication* against a King, or Kingdom, or the Officers thereof, for any Thing relating to the Discharge of their Offices.

The Form of *Excommunication* in the *Romish* Church, as related by *Fevret*, is to take lighted Torches, throw them on the Ground with Curses and Anathema's, and trample them out under Foot to the ringing of the Bells.

— *Auctoritate Dei patris omnipotentis & filii, & Spiritus Sancti, & beatæ Dei Genetricis Mariæ, Omniumq; Sanctorum*, Excommunicamus, *Anathematizamus, & a limitibus Sanctæ Matris Ecclesiæ sequestramus illos Malefactores, N. Consentaneos quoq; & participes & nisi resipuerint, & ad satisfactionem venerint sic extinguetur lucerna eorum ante viventem in sæcula sæculorum. Fiat: Amen: Amen: Amen*: Ex Emendat. Leg. Will. Conquest.

We have now none of this Folly; the Sentence is gravely read, and the Person remains *Excommunicated* without further Ceremony.

Peter of *Blois* assures us, that in *England* it was anciently the Practice, only to *Excommunicate* such as had kill'd an Ecclesiastick; whereas they were put to Death who had kill'd a Lay-man. — But the Reason was, they held *Excommunication* a greater Punishment than Death.

We have Instances of Bishops, who have pronounced formal *Excommunications* against Caterpillars, and other Insects, after a formal, Juridical Process against them, wherein those Animals were allow'd an Advocate and Proctor, to defend their Cause. See EXORCISM.

Fevret relates divers Instances of such *Excommunications*, both against Rats and Mice, for infecting a Country; and other Animals. See the Form of these *Excommunications* in that Author.

In the ancient Church there were two different Kinds of *Excommunication* in Use: The one call'd *Medicinal*, whereby Persons convicted of a Crime by their own Confession, were removed from Communion: The other call'd *Mortal*, was fulminated against Rebels, who persisted obstinately in their Errors and Impieties.

The Power of *Excommunicating* was lodg'd in the whole Church in general: That is, the Bishops and Priests had the Administration thereof, by and with the Consent of the People; which was practised even in St. *Cyprian*'s Time. But afterwards, they ceased to consult the People about the Matter: The Bishop and Clergy arrogated the whole Power to themselves. Recourse, however, might be had to a Synod of the Province, to judge of the Validity of an *Excommunication*.

It frequently happen'd, that Churches *Excommunicated* each other, that is, broke off the Communication that was between them. In which Case, *Du Pin* observes, it might be dubious, which of the two Parties was *Excommunicated* and cut off from the Body of the Church.

EXCOMMUNICATION was also in Use among the *Jews*; who used to expel from their Synagogue, such as had committed any grievous Crime. See the Gospel according to St. *John*, IX. 22. XII. 42. XVI. 2. And *Joseph. Antiq. Jud.* L. IX. C. 22. and L. XVI. C. 2.

The *Essenì*, when *Excommunicated*, durst not so much as receive Food at any Person's Hand, for Fear of violating their Oath, but contented themselves to live on Herbs; insomuch that they frequently perish'd, and dy'd for Want. See *Joseph. de Bello*, L. II. C. 12.

Goodwin, in his *Moses* and *Aaron*, distinguishes three Degrees, or Kinds of *Excommunication* among the *Jews*. The first, he finds intimated in St. *John*, IX. 22. The second in St. *Paul*, Epist. 1. Cor. V. 5. And the third, in the 1*st* Ep. to *Corinth*. XVI. 22.

The Rule of the *Benedictins*, gives the Name *Excommunication*, to the being excluded from the Oratory, and the common Table of the House, in our Inns of Court call'd *Discommoning*. This was the Punishment of such Monks as came too late.

EXCOMMUNICATION, or a being secluded, or cut off from a Participation in the Mysteries of Religion, was also in Use under Paganism.

Such as were thus *Excommunicated*, were forbid to assist or attend at the Sacrifices, or to enter within the Temples; and were afterwards deliver'd over to the Demons and Furies of Hell, with certain Imprecations; which was call'd among the *Romans*, *Diris devovere*.

The *Druids* among the ancient *Britains* and *Gauls*, likewise, made Use of *Excommunication* against Rebels; and interdicted the Communion of their Mysteries, to such as refused to acquiesce in their Judgments. See DRUID.

EXCOMMUNICATO *Capiendo*, a Writ directed to the Sheriff, for the Apprehension of one who standeth obstinately *Excommunicated* forty Days; for such an one not seeking Absolution, hath, or may have, his Contempt certified into the Chancery; whence this Writ issues for laying him up, without Bail, or Main-prize, until he conform himself. See WRIT.

EXCOMMUNICATO *Deliberando*, is a Writ to the Under-Sheriff, for the Delivery of an *Excommunicate* Person out of Prison; upon Certificate of the Ordinary, of his Conformity to the Ecclesiastical Jurisdiction.

EXCOMMUNICATO *Recipiendo*, is a Writ whereby Persons *Excommunicated*, being for their Obstinacy committed to Prison, and unlawfully deliver'd thence before they have

have given Security to obey the Authority of the Church, are commanded to be sought for, and laid up again.

EXCORIATION, the Act of rasing, or tearing off the Skin from any Part of the Body. — He had a grievous *Excoriation* behind, with riding Post. — We also say, an *Excoriation* in the Throat, &c. when the Membrane that covers, or lines it, is tore by the Acrimony of a Humour, a Medicine, or the like; which is ordinarily the Case in what we call a *sore Throat*.

The Word is Latin, *Excoriatio*, form'd of *ex* and *corium*, Skin, Leather, &c.

EXCORTICATION, the stripping off the *Cortex*, or Bark, from any Thing; call'd also *Decortication*. See Bark and Decortication.

EXCREMENT, what is evacuated, or *excreted*, out of the Body of an Animal, after Digestion; being what in other Respects is superfluous and prejudicial thereto. See Excretion.

Chauvin defines *Excrement*, to be all that Matter taken in by way of Food, which cannot be assimilated; and which, of Consequence, not growing or adhering to the Body, wanders about thro' the laxer, and more patent Parts thereof, till it be ejected.

The Urine and Fæces or fecal Matter, are the *great Excrements*, expell'd from the Bladder and the Intestines, by Stool, &c. See Urine, Fecal *Matter*, &c.

The Matter of insensible Perspiration is also an *Excrement*, and a more considerable one than either of the others. See Perspiration.

Among *Excrements*, are likewise ordinarily rank'd, divers Humours and Matters, separated from the Blood by the several Strainers, or Emunctories of the Body, tho' far from being useless; and serving divers valuable Purposes of the OEconomy. Such are Cerumen, or Ear-wax; the Mucus of the Nose; *Lachrymæ*, or Tears; Saliva, Bile, Lympha, Menses, Lochia, &c. See Cerumen, Mucus, Tears, Saliva, Bile, Menses, &c.

Some hold Ambergrease an *Excrement* of the Whale; others, an *Excrement* of the Sea. See Ambergrease.

All Foods have two Parts, the one Nutritious, the other *Excrementitious*. See Food.

Excrement, is also attributed, by way of Analogy, to Plants.

Thus Gums, divers Juices, Balms, &c. issuing spontaneously from their respective Trees, are sometimes call'd *Excrements*. See Gum, &c.

EXCRESCENCE, in Chirurgery, a superfluous, or unnecessary Piece of Flesh, or other Matter, growing on certain Parts of the Bodies of Animals, contrary to, or beyond the ordinary Structure and Disposition of Nature.

Such are Wens, Warts, &c. Such also are the Woman's Horns now shewn in *London*; a parallel Case to which, see in the Philosoph. Transact. N°. 297.

Natural, or customary *Excrescences*, as those of Bones, &c. are call'd by Physicians *Apophyses*. See Apophysis.

The Word is form'd of the Latin, *ex*, and *cresco*, I grow; *q. d.* something that grows from, or out of another.

EXCRETION, in Medicine, the Act whereby Nature expels, or ejects out of the Body, some Humour that is useless, or even hurtful thereto. See Excrement.

Most Crises are effected by *Excretion*; as Fluxes of Blood, and Urine, Sweats, Vomitings, Loosenesses, &c. See Flux, &c.

The Word is form'd of the Latin, *excernere*, to excern, separate.

EXCRETORY, in Anatomy, a Term applied to certain little Ducts, or Vessels, making Part of the Structure, or Composition of Glands. See Gland.

The *Excretory Ducts* are the Tubes thro' which the Humours separated in the several Glands, are emitted, or discharged out of the Gland, into some convenient Receptacle, or Emunctory. See Secretion and Emunctory.

A capillary Artery, to which a capillary Vein is joyn'd; with an *Excretory* Duct, convolved, or wound together, make up the Body of the Glands, the Organs of Secretion. The *Excretory* Ducts spring from the Extremities of the Arteries and Veins, and carry off a Liquor separated from the Blood. *Drake*.

The Lymphatick Glands, have either Lymphæducts, for their *Excretory Ducts*, or Lacteal Vessels, as in the Mesentery. *Id.*

The Muscles of those two Bones being contracted, they compress the Bag, and squeeze out the Liquor thro' two *Excretory* Ducts, terminating in the two Gums of the great Teeth of the Viper. *Lemery*.

EXCURSION, in Astronomy. See Elongation.

Circles of Excursion, are Circles parallel to the Ecliptic, at such Distance from it, as is capable of bounding, or comprehending the greatest Digressions, or Excursions, of the Planets from the same; which is commonly fix'd at 10 Degrees. See Circle.

EXEAT, in Church Discipline, a pure *Latin* Term, used for a Permission, which a Bishop grants a Priest to go out of his Diocese; or an Abbot, to a Religious, to go out of his Monastery.

The Word is also used in several Great Schools, for Leave given a Scholar, or Student, to go out. His Master has given him an *Exeat*.

EXECUTION, the Act of *Executing*, i. e. of accomplishing, finishing, or atchieving any Thing, to be done.

The *Execution* of a Testament; of a Law; of a Treaty; of a Building, &c.

The Term is particularly used in the *French* Music, for the Manner of Singing, or *Performance*: As to the Manner of Singing, call'd in *France*, *Execution*; no Nation may, with any Probability, dispute it with the *French*. If the *French*, by their Commerce with the *Italians*, have gain'd a bolder Composition; the *Italians* have made their Advantage of the *French*, in learning of them a more polite, moving, and exquisite *Execution*. St. *Evremond*.

Execution, in common Law, signifies the last Performance of an Act: As of a *Fine*, of a *Judgment*, &c.

That of a Fine, is the obtaining of actual Possession of Things contained in the same by virtue thereof; which is either by Entry into the Lands, or by Writ. See Fine and Possession.

There are two Sorts of *Executions*, one final, another with a *Quousque*, as only tending to an End.

An *Execution final*, is that which maketh Money of the Defendant's Goods, or extendeth his Lands, and delivers them to the Plaintiff; for this the Party accepteth in Satisfaction: and this is the End of the Suit, and all that the King's Writ commandeth to be done.

The other Sort, with a *Quousque*, is that which only tends to an End; and is not final, as in the Case of a *Capias ut Satisfaciendum*, &c.

This is not final, but the Body of the Party is to be taken, to the Intent and Purpose to satisfie the Plaintiff; and his Imprisonment is not absolute, but till he doth satisfie: so that the Body is but a Pledge for the Debt.

Military Execution, is the Pillage, or plundering of a Country by the Enemies Army. — The Towns and Villages of the Province were required to pay Contribution, on Penalty of Military *Execution*. See Contribution.

EXECUTIONE *facienda*, a Writ commanding *Execution* of a Judgment. — *Executione facienda in Withernamium*, lies for taking his Cattle, who had formerly convey'd out of the County the Cattle of another.

EXECUTOR, a Person nominated by a Testator, to take Care to see his Will, or Testament, *Executed* or performed; and his Substance disposed of according to the Tenor of the Will. See Testament.

An *Executor* is either *universal*, as having the Charge and Disposal of the whole; or, only *particular*, entrusted with some particular Branch thereof.

An *Executor* should be seiz'd of all the Moveables of the deceas'd during one Year; at the End whereof he is to account for them. To the Validity of a Testament, 'tis not necessary there be an *Executor* nominated therein. The Testaments made in *Latin* in the XIV*th* Century, call *Executors*, *Provisores Testamentarii*.

Executor *de son tort*, or, of his own Wrong, is he who takes on him the Office of an *Executor* by Intrusion, not being constituted thereto by the Testator, or deceased, nor authorized by the Ordinary to administer. How far he shall be accountable to the Creditor, see Stat. 43 *Eliz.*

EXECUTORY, that which has, or carries with it a sufficient Authority for being *executed*. — A Contract is only *Executory*, when it is in Form, and seal'd. The Great Seal of *England* is *Executory* throughout the whole Island. See Seal.

EXEDRÆ, among the Ancients, were Places wherein the Philosophers, Sophists, Rhetors, &c. used to hold their Conferences and Disputes.

M. *Perrault* is of Opinion, they were a Sort of little Academies, where the Men of Learning met together.

Budeus rather thinks, that what the Ancients call'd *Exedræ*, might answer to what we call Chapters in the Cloisters of Monks, or Collegiate Churches.

The Word is pure *Greek*, ἐξέδρα.

EXEGESIS, a Term sometimes used by the Learned, to signifie *Explication*.

Several Interpreters of the Bible are of Opinion, that in three Passages of Scripture, where we meet with *Abba Pater*, two Words the first *Syriac*, and the second *Greek* or *Latin*, but both signifying the same Thing; the second is only an *Exegesis* of the first.

The

The Word *Exegesis* is also used for a whole Discourse by way of Explication, Comment, or *Eclaircissement* on any Thing.

Exegesis *Numerosa*, or *Linealis*, signifies the Numeral or Lineal Solution, or Extraction of Roots, out of adfected Equations; first invented by *Vieta*. *Ozanam* calls it *la Rhetique*. See Extraction *of Roots*.

EXEGETES, among the *Athenians*, were Persons learn'd in the Laws of the *Juris consulti*; whom the Judges us'd to consult in capital Causes.

The Word is *Greek*, Ἐξηγητὴς, form'd of ἐξεγέομαι, *I explain*.

EXEGETIC, a *Greek* Term, form'd of ἐξεγέομαι, which, among other Things, signifies to *explain, interpret*, &c. Whence we say *Exegetic Notes*, an *Exegetic Comment*, &c.

Vieta, the Author of what we call the new Algebra, introduced several *Greek* Names into his Method; such were *Thetic, Zetetic, Exegetic* or *Exegetica*, &c.

In this Sense, *Exegetic* is either a Substantive Feminine; or an Adjective, under which is understood *part*, as the *Exegetic* Part of Algebra. See Algebra.

The *Exegetica* in Algebra, is the Art of finding, either in Numbers, or Lines, the Roots of the Equation of a Problem, according as the Problem is either Numerical, or Geometrical. See Root and Equation.

EXEMPLAR, a Model, or Original, to be imitated, or copied. See Model, *&c.*

Exemplar is also the Idea, or Image, conceiv'd, or form'd in the Mind of the Artist, whereby he conducts his Work: Such is the Idea of *Cæsar*, which a Painter has in his Mind when he goes to make a Picture of *Cæsar*. The *Exemplar* is ordinarily number'd among the Causes. See Cause.

EXEMPLIFICATION *of Letters patent*, an *Exemplar*, or Copy of Letters Patent, made from the Inrolment thereof; and seal'd with the Great Seal of *England*. See Patent.

Such *Exemplifications* are as effectual to be shew'd, or pleaded, as the Letters Patent themselves: Nothing but Matter of Records are to be *Exemplified*. See Record.

EXEMPTION, a Privilege, or Dispensation, whereby a Person is excepted out of some general Rule. See Privilege, *&c.*

Exemption is particularly applied to Churches, Chappels, and Monasteries which have a Privilege given them by the Popes, or Princes, whereby they are *Exempted* from the Jurisdiction of the Bishop, or Ordinary. See Chappel, Ordinary, *&c.*

The Council of *Constans* revoked all *Exemptions*, to restore to the general Law, weaken'd and diminish'd by a Relaxation of several Ages, its ancient Force and Vigour; and make it every where obtain in all its Latitude.

The first *Exemptions* granted to Monks were only for the Liberty of Electing their Abbot, independently on the Bishop; and not to screen them from the regular Jurisdiction of the Bishops. The Pretence for these *Exemptions* was, that the Bishops abused their Authority, and exacted extravagant Dues on the Monasteries in their Dependance. But the real Cause was, rather, that the Monasteries, being fallen from the Severity of their Rules, did not care for Inspectors so near at Hand, and therefore sollicited *Exemptions* at *Rome*.

As this was to derogate from the common Laws, the Popes were a good while very reserved in the Point; and seldom granted them, but with the Consent of the Bishops themselves. But, by degrees, the Popes began to assume a Power of granting such *Exemptions* at Pleasure; and made their Account of the Indulgence of the Bishops, who were not sufficiently apprehensive of all the Consequences. Accordingly, they favour'd whole Orders with the Privilege of *Exemption*, as the *Cistercians, Dominicans, Carthusians, Jesuits*, &c.

Things, at length, were brought to such a pass, that there was a Necessity for putting a Check to *Exemptions*; accordingly, the Council of *Trent* prohibited, and declar'd them null for the future; confirming only such as were well founded, on legal Concessions from the Holy See.

EXERCISE, a Repetition of any Operation, for the strengthening or retaining of a Habit. See Habit.

Thus, we use *Exercise* of the Body, for the acquiring, or maintaining of Health; as it contributes both to the Expulsion of the Excrements, and preserving the Tone, and Spring of the Solids. See Health.

People who live a sedentary Life, and do not use *Exercise*, are liable to Defluxions, which bring on other Disorders. Games of Hazard are to be discountenanced, and those of *Exercise* to be promoted. See Games.

Exercise and Quiet make one of the Physicians Non Naturals. See Non-Naturals.

Labour, or *Exercise*, Dr. *Cheyne* observes, is indispensibly necessary to preserve the Body any Time in due Plight. Let what Diet will be pursued, however adjusted both in Quantity and Quality, let whatever Evacuations be used to lessen the Malady, or any *Succedaneum* be proposed to prevent the ill Effects; still, our Bodies are so made; and the Animal Oeconomy now so contrived, that without due Labour and Exercise, the Juices will thicken, the Joints will stiffen, the Nerves will relax, and on these Disorders, Chronical Diseases, and a crazy old Age, must ensue. *Essay of Health*, p. 90. — Of all the *Exercises* that are or may be used for Health, as *Walking, Riding* a Horseback, or in a Coach; *Fencing, Dancing, Bowling, Digging, Pumping, Ringing*, &c. Walking is the most Natural, and would be the most useful, if it did not spend too much of the Spirits of the weakly. But now *Riding* is certainly the most manly, the most healthy, and less laborious and expensive of Spirits than any. *Id.* p. 94, *&c.* — Those Organs of the Body that are most used, always become strongest; so that we may strengthen any weak Organ by *Exercise*: Thus the Legs, Thighs and Feet of Chairmen; the Arms and Hands of Watermen; the Backs and Shoulders of Porters, grow thick, strong and brawny by Time and Use. 'Tis certain also, that speaking strong and loud, will strengthen the Voice, and give Force to the Lungs. *Id.* p. 96. — To the Asthmatic, therefore, and those of weak Lungs, I would recommend talking much and loud; walking up easy Ascents, *&c.* To those of weak Nerves, and Digestion, Riding on Horseback: To those troubled with the Stone; riding over rough Causeways in a Coach: To those troubled with Rheumatic Pains, playing at Billiards, Cricket, or Tennis: To those of weak Arms or Hams, playing at Tennis or Foot-ball: To those of weak Backs, or Breasts, ringing a Bell, or working at the Pump. Walking through rough Roads, even to Lassitude, will best recover the Use of the Limbs to the Gouty; tho' Riding will best prevent the Disease. But the Studious, the Contemplative, the Valetudinary, and those of weak Nerves, must make *Exercise* a Part of their Religion. — A Condition necessary to render *Exercise* as beneficial as may be, is that it be used on an empty Stomach. — Under the Head of *Exercise*, Cold-Bathing, and the Flesh-Brush, come also to be recommended. — *Id.* — *Ibid.* p. 103, 104, *&c.* See Cold-Bathing and Flesh-Brush.

Exercises, in the Plural, is particularly understood of what is taught young Gentlemen in the Academies of the Ecuyers at *Paris*, &c. As Riding the great Horse, Dancing, Fencing, Vaulting, drawing Fortifications, *&c.* — This young Nobleman went thro' all his *Exercises* with great Applause. See Academy, *&c.*

Exercise, in the Art of War, is the ranging a Body of Soldiers in Form of Battle, and making them practise the several Motions and military Evolutions, with the divers Management of their Arms, *&c.* to make, or keep them expert thereat against Occasion.

This is what *Vegetius*, and other *Latin* Writers call *Meditatio*.

EXÆRESIS, or Exheresis, in Chirurgery, an Operation whereby something foreign, uselefs, and even pernicious, is taken from the human Body.

The *Exæresis* is perform'd two Ways: By *Extraction*, when something formed in the Body is drawn out of the same: And by *Detraction*, when something is taken away, that had been introduced into the Body from without. See Lithotomy, *&c.*

The Word is *Greek*, ἐξαίρεσις, which signifies the same Thing.

EXERGUM, among Medallists, a little Space, around or without the Work or Figures of a Medal; for an Inscription, Cypher, Device, Date, or the like, to be put thereon. See Medal, Legend, *&c.*

The Word is derived from the *Greek*, ἐξ and ἔργον, *Opus*, Work.

EXFOLIATION, in Chirurgery, the scaling of a Bone; or its rising and separating in Leaves, or Laminæ. See Bone.

Any Part of the Surface of the Cranium that has been bored, is liable to *Exfoliation*. The Use of the Cephalic Powders avails nothing for promoting the *Exfoliation*: *Dionis*. The Wound must not be stopp'd too much, but the Bone left at Liberty to recover it self, which it sometimes does, without *Exfoliating*, particularly in Children. See Trepanning.

The Word is compounded of the Latin *ex* and *folium*, Leaf.

EXFOLIATIVE. — An *Exfoliative* Trepan, is a Trepan proper to scrape, and at the same Time pierce, a Bone, and so to *exfoliate*, or raise several Leaves, or Flakes, one after another.

The Use of the *Exfoliative* Trepan is very dangerous; as being apt to shake and disorder the Head.

EXHA-

EXHALATION, a Fume, or Steam, *exhaling*, or issuing from a Body, and diffusing it self in the Atmosphere. See Effluvia.

The Terms *Exhalation* and *Vapour*, are ordinarily used indifferently; but the more accurate Writers distinguish them: Appropriating the Term *Vapour* to the moist Fumes rais'd from Water, and other liquid Bodies; and *Exhalation* to the dry ones emitted from solid Bodies; as Earth, Fire, Minerals, Sulphurs, Salts, &c. See Vapour.

In this Sense, *Exhalations* are dry, subtile Corpuscles, or Effluvia, loosen'd from hard terrestrial Bodies, either by the Heat of the Sun, or the Agitation of the Air, or some other Cause; and emitted upwards to a certain Height of the Atmosphere, where mixing with the Vapours, they help to constitute Clouds, and return back again into Dews, Mists, Rains, &c. See Atmosphere, Cloud, Rain, &c.

Nitrous, and sulphureous *Exhalations* are the chief Matter of Thunder, Lightning, and divers other Meteors generated in the Air. See Thunder, &c.

Sir *Isaac Newton* takes true and permanent Air to be form'd from the *Exhalations* rais'd from the hardest and most compact Bodies. See Air.

EXHAUSTED *Receiver*, a Glass, or other Vessel, applied on the Plate of the Air-Pump, and the Air extracted out of the same, by the working of the Engine. See Receiver, Air-Pump, &c.

Things placed in an *Exhausted Receiver*, are said to be *in Vacuo*. See Vacuum.

EXHAUSTIONS, in Mathematicks. — The *Method of* Exhaustions, is a Way of proving the Equality of two Magnitudes, by a *Reductio ad absurdum*; shewing, that if one be supposed either greater or less than the other, there will arise a Contradiction. See Reduction.

The *Method of Exhaustions*, is of frequent Use in the antient Mathematicians, as *Euclid*, *Archimedes*, &c. See Method.

It is founded on what *Euclid* saith in his tenth Book, *viz.* That those Quantities whose Difference is less than any assignable Quantity are equal: For if they were unequal, be the Difference never so small, yet it may be so multiplied, as to become greater than either of them; if not so, than it is really nothing.

This he assumes in the Proof of *Prop.* 1. of Book X. which imports, that if from the greater of two Quantities, you take more than its half, and from the Remainder more than its half, and so continually, there will at length remain a Quantity less then either of those proposed.

On this Foundation they demonstrate, that if a regular Polygon of infinite Sides be inscribed in, or circumscribed about, a Circle, the Space, which is the Difference between the Circle and the Polygon, will, by Degrees, be quite exhausted, and the Circle equal to the Polygon. See Circle, Quadrature, Polygon, &c.

EXHEREDATION, or Exhæredation, in the Civil Law, with us ordinarily call'd *Disinheriting*, is the Father's excluding his Son from inheriting his Estate. See Disinheriting.

There are fourteen Causes of *Exheredation* express'd in *Justinian*'s Novel: Without some one of which Causes, he decrees the *Exheredation* null, and the Testament inofficious, *Testamentum inofficiosum*, as the Civilians call it. See Testamant.

Indeed, by the antient *Roman* Law, the Father might pronounce *Exheridation* without any Cause; but the Rigour of this Law was restrain'd, and moderated by *Justinian*. See Heir.

EXHIBIT, in Law. When a Deed, Acquittance, or other Writing, is in a Chancery Suit exhibited to be proved by Witness; and the Examiner writes on the Back, that it was shew'd to such a one, at the same Time of his Examination: This is call'd an *Exhibit*. See Exhibition.

EXHIBITION, a producing, or shewing of Titles, Authorities, and other Proofs of a Matter in Contest.

The Parties have *exhibited* their Titles and Pretensions before the Arbitrators.

Antiently, they used the Phrase *Exhibition* of a Tragedy, Comedy, or the like; but now we say *Representation* in Lieu thereof. See Representation.

EXHUMATION, the Act of digging up a Body interr'd in holy Ground, by the Authority of the Judge. See Interment.

In *France*, the *Exhumation* of a dead Body is order'd upon Proof that he was kill'd in a Duel. --- A Parson has a Right to demand the *Exhumation* of the Body of one of his Parishioners, when interr'd out of the Parish, without his Consent. See Burial.

The Word is compounded of the Latin *ex*, out of, and *humus*, Ground.

EXIGENCE, or Exigency, that which a Thing requires, or which is suitable thereto.

The Criminals were remitted back to the Judges, to be punish'd according to the *Exigency* of the Case.

EXIGENT, in Law, a Writ that lies where the Defendant in a personal Action cannot be found, nor any Thing of his within the County, whereby to be attach'd, or distrain'd. See Writ, Attach, &c.

It is directed to the Sheriff, ordering him to proclaim and call the Party five County Days successively, and charge him to appear under Pain of Out-lawry.

The same Writ also lies in an Indictment of Felony, where the Party indicted cannot be found.

It is call'd an *Exigent*, by Reason it *exigit*, i. e. *exacts* or requires the Party to appear, or be forthcoming, to answer the Law. If he appear not at the last Days Proclamation, he is said to be *quinquies exactus*, and then is out-law'd. See Out-lawry.

EXIGENTERS, are four Officers of the Court of Common Pleas, who make all *Exigents* and Proclamations, in all Actions where the Process of the Out-lawry lies. See Exigent.

Antiently, the making of Writs of *Supersedeas* upon such *Exigents* as were made in their Offices, did likewise belong to them: But this Branch of Business was taken from them under King *James* I. and committed to a particular Officer in the Court of Common-Pleas, created by Patent. See Supersedeas.

EXILE, *Banishment*. See Banishment.

Among the *Romans*, the Word Exile, *Exilium*, properly signified an Interdiction, or Exclusion from Water and Fire; the necessary Consequence of which was, that the interdicted Person must betake himself into some other Country, since there was no living without Fire and Water.

Thus, *Cicero ad Herenn.* observes, that the Form of the Sentence did not express *Exile*, but only *Aquæ & Ignis Interdictio*. See Interdiction.

The same Author remarks, that *Exile* was not properly a Punishment, but a voluntarily flying, or avoiding the Punishment decreed: Exsilium *non esse Supplicium sed perfugium, portusq; Supplicii.* Pro Cæcinna.

He adds, that there was no Crime among the *Romans*, as among other Nations, punish'd with *Exile*; but *Exile* was a Recourse People flew voluntarily too, to avoid Chains, Ignominy, Starving, &c.

The *Athenians* frequently sent their Generals, and great Men into *Exile*, out of Envy of their Merits, or Distrust of their too great Authority. A perpetual *Exile* is a Civil Death, and imports Confiscation.

Exile, is sometimes also used for the *relegating* a Person into a Place, whence he is obliged not to stir without Leave. See Relegation.

The Word is derived from the Latin *Exilium*, or from *Exul*, a banish'd Person; and that, probably, from *Extra-solum*, out of his Native Soil.

Figuratively, we use the Phrase honourable *Exile* for an Office, or Employment, which obliges a Man to reside in some remote, or disagreeable Place. Under the Reign of *Tiberius*, remote Employments were a Kind of mysterious *Exiles*. — A Bishopric, or even a Lord Lieutenancy, in *Ireland*, is sometimes deem'd a Kind of *Exile*. A Residence, or Embassy, in some barbarous Country, is a Sort of *Exile*.

EXINANITION, the same as *Evacuation*. See Evacuation.

EXISTENCE, that whereby a Thing has an actual *Essence*; or that whereby a Thing is said *to be*, *esse*; See Essence and Esse.

This Notion of *Existence*, is applicable not only to a created, but an uncreated Substance. --- But it must be added, that the *Existence* of created Substances, and especially Corporeal ones, implies a Respect to Place, Time, and even an Efficient Cause; whence the Schoolmen generally define it; *That whereby a Thing is formally and extrinsically without, or beyond its Causes, and this here, and now.*

Existence, and Essence, come very near the Nature of each other: In Effect, they only differ in that we have different Manners of conceiving the same Thing.

For, 1°. Essence is usually explain'd either by the first, noblest, and radical Attribute of the Thing, *e. gr.* That of Body, by Extension; that of Mind, by thinking, &c. or by the specifying of all the intrinsic Attributes: And *Existence*, by the specifying of all Place, and all Time, as in that of God; or by the specifying of some definite Place, and Time, together with the Causes; as in the Creatures.

2°. The Foundation, and Occasion of this Distinction, is this; that Essence belongs to the Question, What is it? *Quid est?* But *Existence* to the Question, Is it? *An est?*

3°. *Existence* necessarily presupposes Essence, and cannot be conceiv'd without it: But Essence may be conceiv'd without *Existence*; in that Essence belongs equally to Things that are in *Potentia*, and in *Actu*: But *Existence*, only

only to those in *Actu*. Note, however, that this does not obtain in God; about whose Nature and Essence the Mind cannot think, without conceiving his *Existence*.

We have divers Ways of arriving at the Knowledge of the *Existence* of Things. — Our own *Existence* we know by Intuition; the *Existence* of a God, by Demonstration: And that of other Things by Sensation.

As for our own *Existence*, we perceive it so plainly, that it neither needs, nor is capable of any Proof. I think, I reason, I feel Pleasure and Pain: Can any of these be more evident to me than my own *Existence*? If I doubt of all other Things, that very Doubt makes me perceive my own *Existence*, and will not suffer me to doubt of that. If I know I doubt, I have as certain a Perception of the Thing doubting, as of that Thought which I call Doubt. Experience then convinces us, that we have an intuitive Knowledge of our own *Existence*, and an internal, infallible Perception that we are. In every Act of Sensation, Reasoning or Thinking, we are conscious to our selves of our own Being, and in this Matter come not short of the highest Degree of Certainty. See CARTESIANISM.

As to our Knowledge of the *Existence* of a God; tho' he has given us no innate Ideas of himself, yet having furnish'd us with Faculties of Sense, Perception and Reason, we can never want a clear Proof thereof. See GOD.

The Knowledge of the *Existence* of other Things, *i. e.* of external Objects, Bodies, a World, *&c.* we only have by Sensation; for there being no necessary Connexion of real *Existence* with any Idea a Man hath in his Memory; nor of any other *Existence* but that of God, with the *Existence* of any particular Man; no particular Man can know the *Existence* of any other Being, but only, when by actually operating upon him, it makes it self be perceived by him. The having the Idea of any Thing in our Mind, no more proves the *Existence* of that Thing, than the Picture of a Man evidences his Being in the World; or the Visions of a Dream make a true History. It is therefore the actual receiving of Ideas from without, that gives us notice of the *Existence* of other Things, and makes us know that something doth *exist* at that Time without us, which causes that Idea in us, tho' we neither know, nor consider how it doth it.

This Notice which we have by our Senses of the *existing* of Things without us, tho' it be not altogether so certain as Intuition and Demonstration, yet deserves the Name of Knowledge, if we persuade our selves, that our Faculties act and inform us right, concerning the *Existence* of those Objects that affect them. See KNOWLEDGE.

Now besides the Assurance of our Senses themselves, that they do not err in the Information they give us of the *Existence* of Things without us, we have other concurrent Reasons: As 1°. It is plain those Perceptions are produced in us, by exterior Causes affecting our Senses, because those that want the Organs of any Sense, never have the Ideas belonging to that Sense produced in their Minds. 2°. Because we find we cannot avoid the having those Ideas produced in our Minds: When our Eyes are shut, we can at Pleasure recal to our Mind the Ideas of Light, or the Sun, which former Sensations had lodged in our Memories; but if we turn our Eyes towards the Sun, we cannot avoid the Ideas, which the Light or the Sun then produces in us; which shews a manifest Difference between those Ideas laid up in the Memory, and such as force themselves upon us, and we cannot avoid having. Besides, there is no Body who doth not perceive the Difference in himself between actually looking upon the Sun, and contemplating the Idea he has of it in his Memory; and therefore he hath certain Knowledge, that they are not both Memory or Fancy. Thirdly, Add to this, that many Ideas are produced in us with Pain, which we afterwards remember without the least Offence: Thus, the Pain of Heat or Cold, when the Idea of it is receiv'd in our Minds, gives us no Disturbance; which when felt, was very troublesome; and we remember the Pain of Hunger, Thirst, Head-ach, *&c.* without any Pain at all, which would either never disturb us, or else constantly do it, as often as we thought of it, were there nothing more but Ideas floating in our Minds, and Appearances entertaining our Fancies, without the real *Existence* of Things affecting us from abroad. 4°. Our Senses, in many Cases, bear Witness to the Truth of each others Report, concerning the *Existence* of sensible Things without us: He that doubts, when he sees a Fire, whether it be real, may feel it too, if he pleases, and by the exquisite Pain may be convinced, that it is not a bare Idea or Phantom.

Such is Mr. *Lock*'s Demonstration of the *Existence* of External Bodies.

The ingenious Mr. *Berkeley* has a quite different System. External Bodies, he contends, have no *Existence* but in a Mind perceiving them; that is, they only *exist*, quatenus they are perceiv'd; there *Existere* is *percipi*. They have no *Existence*, nor Shadow of *Existence* out of our Minds. And of this he has given us what he and some others account a Demonstration. See BODY, EXTERNAL *World*, &c.

As to the *Existence* of Spirits, Mr. *Lock* allows, that our having Ideas of them, does not make us know, that any such Things do *exist* without us; or that there are any finite Spirits, or any other spiritual Beings, but God. We have ground from Revelation, and several other Reasons, to believe with Assurance, that there are such Creatures; but our Senses being not able to discover them, we want the Means of knowing their particular *Existence*: For we can no more know that there are finite Spirits really *Existing* by the Idea we have of such Beings, than by the Ideas any one has of Fairies, or Centaurs, he can come to know that Things answering to those Ideas do really *exist*.

EXIT, properly expresses the Departure of a Player from off the Stage, when he hath acted his Part. — The Word is also used in a figurative Sense to express any Kind of Departure.

EXITUS, in Law, *Issues*; or, the yearly Rents, or Profits of Lands or Tenements. See ISSUE.

EX-*mero motu*, are formal Words used in the King's Charters, and Letters patent; signifying that he does what is contain'd therein *Of his own Will and Motion*. — The Effect of these Words is to bar all Exceptions that might be taken to the Instrument, by alledging that the Prince, in passing such Charter, was abused by false Suggestion.

EXOCATACOELUS, in Antiquity, a general Denomination, under which were included several grand Officers of the Church at *Constantinople*; as the *Grand Oeconomus*, *Grand Sacellarius*, *Grand Master of the Chappel*, *Grand Scevophylac*, or Keeper of the Vessel, *Grand Cartophylax*, *the Master of the little Chappel*, and the *Protecdicus*, or first Defender of the Church.

The *Exocatacœli*, were of great Authority: In public Assemblies they had the Precedence of Bishops; and in the Patriarchate of *Constantinople*, did the Office of Deacons; as the Cardinals originally did in the Church at *Rome*. Accordingly, in the Letter of *John* IX. to the Emperor *Basil Leo*, they are call'd *Cardinales*. See CARDINAL.

At first they were Priests; but some Patriarch of *Constantinople*, whom *Codin* does not mention, would have them for the future to be no more than Deacons. The Reason was, that being Priests, each of them had their several Churches, wherein they were to officiate on all the grand Festival Days; so that it unhappily fell out, the Patriarch on the most solemn Days was deserted by all his chief Ministers. See DEACON.

The Criticks are not at all agreed about the Origin of their Name *Exacatacœli*: *Junius*, in his Edition of *Codin*, breaks the Word into two, and reads ἐξ Κατακοιλῶν, q. d. *Six Catacœli*; but this Reading, tho' authorized by several MSS. is faulty; the Generality of Copies only making one Word: Beside that they are call'd *Exacatacœli*, even when there were only five of them. The same *Junius* derives *Catacœlus* hence, that these Officers dwelt in the Valleys, κατὰ τὰς κοιλάδας.

Pet. Gregor. Tolosan, takes the Word to have been form'd from κατακυλέω, *permulceo*, *suavitate Animum delinio*: But *Gretser* rejects this Etymology, as without any Foundation. In Lieu thereof, he proposes another Conjecture, tho' with a good deal of Timidity: He reads ἐξωκατακοίτης, instead of ἐξωκοιτακοίλας, as if they were thus called by Reason they lodged, or lived out of the Patriarchal Palace.

Fa. *Goar* rejects this Opinion, and had rather they should read ἐξωκατακελλας, as intimating they were thus call'd in Opposition to the *Syncellus*, who lay in the Patriarch's Apartment, which the rest did not; but he is far from being of the Opinion that Officers of so much Eminence, should take their Denomination from a Thing which testifies a Want of a Privilege. He chuses, therefore, to imagine that all the inferior Priests were call'd Κατακοιλοι, *Catacœli*, q. d. People of a low Condition; and that their Superiors were call'd *Exocatacœli*, q. d. People out of the Number of *Katacœli*, or above them.

Upon the whole, however, he adheres to the Sentiment of *G. Corefius*, who says, that the Patriarchal Palace and the Apartments of the *Syncellus*, and the Monks in the Patriarch's Service, were in a very low Part of the City, which with Regard to the rest seem'd a Valley or Pit; and that the Offices above mentioned had their several Houses, or Palaces, ἔξω, out of the Valley: Whence the Name *Exocatacœli*.

The Opinion of M. *du Cange* is the last we shall name: He derives the Appellation from their being above the Level, or Rank of the other Clerks; and seated at Church, *&c.* in more

 honour-

honourable Places rais'd for that Purpose by the Patriarch's Sides: These two last Systems are the most probable.

EXOCIONITÆ, Exocionites, in Church Antiquity. --- *Meursius* tells us, that there was a Monastery at *Constantinople* call'd *Exocionium*; and that the first who were call'd *Exociones*, were the Monks thereof: But this is a Mistake.

'Twas the *Arians* who were first call'd *Exocionites*; by Reason, when expell'd the City by *Theodosius* the Great, they retired into a Place call'd *Exocionium*, and there held their Assemblies. *Justinian* gave the Orthodox all the Churches of the Hereticks, excepting that of the *Exocionites*. Cedrenus. See Arian.

The Word is derived from ἐξακιόνιον, or ἐξωκιόνιον, the Name of the Place abovementioned.

Codin, in his *Origines*, says, that the *Exocionium* was a Place encompassed with Walls, built and adorn'd by *Constantine*; and that without the Circumference of this Wall, there was a Column, with a Statue of that Emperor, whence the Place took its Name, *viz.* from ἔξω, *without*, and κίων, *Column*.

Gothefrid holds, that *Theodoret* is mistaken, in saying that the *Arians* were call'd *Exocionites*, or *Exacionites*, from the Name of the Place where they assembled; and takes the Name to be the same with that of *Exouconitians*, which was attributed to the *Arians*, by Reason they held that the Son was made out of nothing, ἐξ οὐκ ὄντων. But a mere Conjecture of *Gothefrid* is not sufficient to make us set aside the Authority of so able a Person as *Theodoret*.

EXODE, or Exodium, in the antient *Greek* Drama, was one of the four Parts or Divisions of Tragedy. See Tragedy.

The *Exodium*, according to *Aristotle*, was so much as was rehearsed after the Chorus had ceas'd to sing for the last Time; so that *Exodium* with them, was far from being what the Epilogue is with us, as several People have imagined it was. See Epilogue.

The *Exodæ* was so much of the Piece as included the Catastrophe and unravelling of the Plot; which Catastrophe, *&c.* in Pieces regularly composed, always begun after the last singing of the Chorus; answering nearly to our 4th and 5th Acts. See M. *Dacier's* Comment. on *Aristotle's Poeticks*, p. 166. See also the Articles Catastrophe, Chorus, *&c.*

Among the *Romans*, the *Exodium* was a different Thing; 'twas pretty nearly what Farces are with us. After the Tragedy was over, came a Pantomime on the Stage, call'd the *Exodiarius*, who by his Grimace, Jesting, and Buffoonry, diverted the People, composed their Minds, and wiped away the Tears with the Tragic Spectacle had occasion'd to be shed.

This was his Office, as related by the antient Scholiast of *Juvenal*: Exodiarius, *apud Veteres in fine Ludorum intrabat, quod ridiculus foret, ut quidquid Lacrymarum atque Tristitiæ coepissent ex tragicis Affectibus, hujus Spectaculi Risus detergeret.*

Such was the original Intention of the *Exodium*, but it afterwards degenerated into a bitter, malicious Kind of Raillery.

Vigenere on *T. Livy*, says the *Exodium* consisted of certain humorous, drolling Verses, rehearsed by the Youth at the End of the *Fabulæ Atellanæ*, and answering to our Farces. --- In another Place, the same Author says, that the *Exodes* were a Kind of Interludes, in the Intervals, between the Acts, partly Fable and Pleasantry, partly Music, *&c.* to give Time both for the Spectators and Actors to recover Breath.

The Passage in *Livy*, whence he takes the Notion, is *Lib.* VII. *Dec.* I. *Ridicula intexta Versibus, quæ Juventus inter se more Antiquo jactare cæpit eaque conserta sunt fabulis potissimum Attellanis.* So also *Juvenal*,

> *Urbicus* Exodio *risum movet Attellanæ*
> *Gestibus Antonoes.*

The Word is form'd from the *Greek*, ἔξοδος, *going out*, or even *Digression*, going *aside*, out of the Way; of ἐξ and ὁδὸς, *Road*. Festus, *Lib.* V. calls it *Exitus*: Varro, τάφη μανίπτα. — The same Author uses the Phrase *in Exodium Vitæ*.

Exodium, in the Septuagint, signifies the End, or Conclusion of a Feast. See Feast.

In Particular, it is used for the Eighth Day of the Feast of Tabernacles, which, 'tis said, had a special View to the Commemoration of the *Exodus*, or Departure out of *Egypt*. Tho' there is nothing of it expressed in Scripture.

The *Hebrew* Text calls the Day עצרת which the Seventy tender ἐξόδιον.

Exodium, was also the Name of a Song, sung at the Conclusion of a Meal.

EXODIARY, Exodiarius, in the antient *Roman* Tragedy, was a Droll, or Mime, who appear'd on the Stage, when the Tragedy was ended, and perform'd what they call'd the *Exodium*, or Conclusion of the Shew; to divert the Company. See Exodium.

EXODUS, the second of the five Books of *Moses*. See Pentateuch.

The Word in its original *Greek*, Ἔξοδος, literally imports a *going out*, or *Journey*; and was applied to this Book, by reason the History of the *Israelites* Passage out of *Egypt* is related therein. Beside this, it contains the Story of what was transacted in *Egypt*, from the Death of *Joseph*, to the Delivery of the *Jews*; as well as what pass'd in the Wilderness, and particularly at Mount *Sinai*, to the building of the Tabernacle.

The *Hebrews* call it *Veelle Semoth*, signifying, *& hæc nomina*; *These are the Names*; which are the initial Words of the Book: For the same reason as they call *Genesis*, *Bereshith*, q. d. *in principio*, *in the Beginning*. See Genesis.

EX *Officio*. --- By a Branch of a Statute of 1 *Eliz.* the Queen, by her Letters Patents, might authorize any Persons, *&c.* to administer an Oath *Ex Officio*; whereby the supposed Offender was forced to confess, accuse, or clear himself of any criminal Matter, *&c.*

But this Branch relating to this Oath, is repealed by 17 *Car.* I. *cap.* II.

EXOMOLOGESIS, a Term little used but in speaking of the ancient Rites of Repentance; whereof the *Exomologesis* was a Part. See Confession.

It signifies *Confession*; being pure *Greek*, ἐξομολόγησις, form'd of ἐξομολογέω, *I confess*.

Some of the Ancients, and particularly *Tertullian*, *de pænit.* C. 9. uses the Word in a greater Latitude, as comprehending the whole of Repentance: A public *Exomologesis* was never commanded by the Church for secret Sins; as may be seen in the Capitularies of *Charlemaign* and the Canons of divers Councils.

EXOMPHALUS, in Medicine, a Generical Name for divers Disorders.

Exomphalus expresses all Kinds of Ruptures, or Tumors, happening in the *Umbilicus*, or Navel. See Rupture.

Authors distinguish three Kinds of *Exomphali*; the first are, Tumors, or Swellings of the solid Parts, whereof there are three Varieties, denominated from the several Parts affected, as the *Enteromphalus*, *Epiplomphalus*, and *Entero-epiplomphalus*: The second are, Tumors form'd by Collections, or Gatherings of Humours, of which there are four Varieties, distinguish'd by the particular Humours they are form'd of, as the *Hydromphalus*, *Pneumatomphalus*, *Sarcomphalus*, and *Varicomphalus*: The third are those compounded of both the other, *viz.* the *Entero hydromphalus*, and *Epiplosarcomphalus*. See each Species under its several Heads, Enteromphalus, *&c.*

EXORCISM, Prayers, or Conjurations, wherewith to *exorcise*, i. e. drive out Devils from Persons possess'd, purify unclean Creatures, or preserve from Danger.

Exorcisms are of great Use in the *Romish* Church: Their Prelates, *&c.* are frequently *Exorcising* Demoniacal Persons. The Priests make the Holy Water, by *Exorcising* common Water a certain Number of Times.

The *Exorcism* is a Part in most of their Consecrations. See Exorcist.

It must be allow'd, the Use of *Exorcisms* is almost as ancient as the Church: Recourse was had to such Machines, to drive away Diseases both of Men and Beasts, to expel and destroy Vermine, and other Animals, noxious to the Earth, and the Fruits thereof.

M. *Thiers*, in his *Traite des Superstitions*, gives divers Formula's of such *Exorcisms*; and quotes, particularly, the Instance of St. *Grat*, who, by Means of *Exorcisms*, obtain'd of God, the Favour, that there should be no Rat found in the Country of *Aosti*, nor three Miles around the same.

The same Author is of Opinion, that such *Exorcisms* may be still used to good Purpose, against Rats, Mice, Locusts, Caterpillars, Storms, *&c.* But in order to perform any Thing of this Kind, he observes, a Man must have the proper Quality and Character, and be approv'd of by the Church; and must likewise use Words and Prayers authoriz'd thereby; otherwise, his *Exorcisms* will be damnable Superstitions.

Exorcisms had anciently another and further Purpose, being applied by way of Trial, or Purgation, to extort the Truth from the accused. See Purgation.

The *Exorcism*, in this Sense, was a Sort of Bread conjured and *Exorcised* for the Purpose: And the Opinion,

nion was, that if the Person were criminal, he could not swallow the Bread.

This, it seems, was a frequent Practice in the Time of our *Edward* III. and the Bread thus *Exorcised*, was said to be *Corsned*. *Lindenbrock* gives Instances of *Exorcisms* with Barley Bread, and others with Cheese. And hence, probably, might arise that popular Imprecation, May this Bread choak me, if I tell a Lye. See ORDEAL, JUDICIUM *Dei*, &c.

The Word is derived from the *Greek*, ἐξορκίζειν, *adjurare, conjurare*, to adjure, or conjure.

In most Dictionaries, *Exorcism* and Conjuration are used as synonymous: But, in Reality, *Conjuration* is only a Part of the *Exorcism*; and the *Exorcism* the Ceremony entire. — The Conjuration is properly the Formula, whereby the Devil is commanded to come forth, *&c.* See CONJURATION.

EXORCIST, in the *Romish* Church, a Priest, or tonsured Clerk, who has receiv'd the four lesser Orders, one of which is that of *Exorcist*. See ORDER.

The Term is likewise applied to a Prelate, who actually *Exorcises* a Person possess'd. See EXORCISM.

'Tis a Dispute among Divines, whether ever the *Greeks* had properly any such Order, as that of *Exorcist*: Fa. *Goar*, in his Notes on the *Greek* Euchologue, has made it very probable they had, from several concurring Passages in St. *Dionysius*, and St. *Ignatius Martyr*.

The Ordination of *Exorcists* is perform'd in the Time of Mass: Their principal Office being to expel Devils, the IV*th* Council of *Carthage*, Can. 7. appoints, that in the Ordination of *Exorcists*, the Bishop putting the Book of *Exorcisms* in their Hands, shall say these Words, *Receive it, and keep it in Remembrance, and have Power to lay Hands on Energumeni, whether Baptized, or Catechumens*; which Form still obtains.

M. *Fleury* mentions certain People among the *Jews*, who travell'd round the Country, making Profession of driving out Devils by Invocations, which they pretended had been taught them by *Solomon*: These were also call'd *Exorcists*. See *Joseph. Antiq. Jud.* L. VIII. C. 2. *Origen. Tract.* XXXV. in *Matth.* XXVII. 63.

EXORDIUM, in Oratory, *&c.* the Preamble, or Beginning of a Discourse, or Speech; serving to prepare the Audience, and introduce the Matter in Hand: Call'd also the *Prologue*, *Prælude*, and *Proem*. See PROLOGUE, *&c.*

Cicero defines *Exordium*, a Part of an Oration, whereby the Minds of the Audience are duly prepar'd for what remains to be said: — The *Exordium* is a Part of principal Importance, and to be labour'd with extraordinary Care; whence *Tully* calls it, *difficilima pars Orationis*. See ORATION.

The Word is form'd of the Latin, *Ordiri*, to begin; or by a Metaphor from the Weavers, who are said *ordiri telam, ourder, begin*, or *warp* a Web, by disposing and ordering the Threads in a certain Manner for the future Work.

Exordiums are of two Kinds: either just, and formal; or vehement and abrupt. In the first, the Audience is prepared and conducted, by due and easy Steps: In the second, the Orator, as if seiz'd with some sudden Passion, breaks out upon his Audience at once. Such is that *Exordium* of *Isaiah*, *Hear, Oh Heavens, and give Ear, Oh Earth*. Or that of *Cicero* against *Catiline*, *Quousq; tandem abutere patientia nostra Catilina?*

Abrupt *Exordiums* are the most suitable, on Occasions of exceeding Joy, Indignation, or the like; tho' we have Instances of Panegyricks of the greatest Orators, begun abruptly without any such Occasions: Such is that of *Gorgias*, who began his Eloge of the City and People of *Elis*, with ὦλις πολις εὐδαιμων, *Elis, beata civitas*: Or that of *Greg. Nazianzen*, in Praise of *Athanasius*, Ἀθανασιον ἐπαινῶν αρετὴν ἐπαινέσομαι, *Athanasium laudans virtutem laudabo*. Abrupt, hasty *Exordiums*, were more of the Taste and Manner of the *Greeks* than the *Latins*.

The Requisites in an *Exordium*, are, 1°. *Propriety*, whereby the *Exordium* becomes of a-piece with the whole Discourse, and matches it, as a Part does a whole; so as that it could not be accommodated to any other, or perhaps a contrary Occasion. The ancient Orators were very defective in this Point: Their *Exordiums* had frequently nothing in common with the Subject.

2°. *Care*, Accuracy, and Magnificence, as being the Part most minded, and most exposed to Shew. Thus *Tully, Vestibula, aditusq; ad causam facias illustres.*

3°. *Modesty*, or an ingenuous Bashfulness, which recommends the Orator exceedingly to the Favour of his Audience. This is what *Cicero* extols so much in *L. Crassus*, *Fuit enim in L. Crasso pudor quidam, qui non modo non obesset ejus Orationi, sed etiam probitatis commendatione prodesset*. The same *Tully* owns, of himself, that at the Beginning of his Orations, he trembled every Limb, and his whole Mind was in a Flutter.

And, 4°. *Brevity*, not amplified, or swell'd with a Detail of Circumstances, or a long Circuit of Words: Such as that must be of the Lawyer, who being to speak of a Difference between two Neighbours, deduced his *Exordium* from *Adam*.

The *Exordium* appears an essential Part of an Oration: Tho', anciently, in the *Areopagus*, *Julius Pollux* tells us, they spoke without any *Exordium*, any Passions, and any Peroration, or Epilogue. The like is said to have been done by *Xenophon*, who begins thus, *Darius & Parisatis duos habuere filios*.

EXOSTOSIS, from ἐξ and ὀστέον, *Os*, a Bone; is any unnatural Protuberance of a Bone; frequent in Venereal Cases: Or rather, it is a Swelling, occasion'd by a Bone's being out of its natural Place, or Position. See BONE.

EXOTIC, a Term properly signifying *foreign*, or extraneous, *i. e.* brought from a remote, strange Country: In which Sense we sometimes say *Exotic* or barbarous *Terms*, or *Words*, &c.

But *Exotic* is chiefly applied to Plants which are Natives of Foreign Countries, particularly those brought from the *East* and *West-Indies*; and which do not naturally grow in *Europe*.

The Generality of *Exoticks*, or *Exotick* Plants, do not thrive in *England*, without some peculiar Culture. They require the Warmth of their own Climates; whence the Use of hot-Beds, Glass Frames, Green-Houses, *&c.* The Green-House is properly a Conservatory of *Exoticks*. See GREEN-HOUSE.

The Word is derived from the *Greek*, ἔξω, ἐξωθεν, *extra*; whence ἐξωτικὸς.

Dr. *Lister* has a Discourse in the Philosoph. Transact. on *Exotic Diseases*, i. e. Such Diseases as are never bred among us, but brought from Time to Time by Infection from other Countries. Such, according to this Author, are, 1°. The *Plague*, which is properly a Disease of *Asia*, where it is Epidemic. 2°. The *Small-Pox*, which is an *Oriental* Disease, and not known to *Europe*, or even *Asia minor*, or *Africa*, till a Spice Trade was open'd to the remotest Part of the *Indies*; whence it originally came, and where it still rages more cruelly than among us. 3°. The *Griping of the Guts*, which he takes for a Disease peculiar to the *West-Indies*, and yearly receiv'd from thence. For this, he adds, is a quite different Disease from the *Tormina Ventris* of the Ancients; and is scarce ever known in the mid-land Countries, or far in the North of *England*.

EXPANSION, in Metaphysicks, expresses the Idea we have of lasting, or persevering Distance; *i. e.* of Distance, all the Parts whereof exist together. See DISTANCE.

EXPANSION, in Physicks, is the dilating, stretching, or spreading out of a Body; whether from any external Cause, as the Cause of Rarefaction; or from an internal Cause, as Elasticity. See DILATATION, RAREFACTION, ELASTICITY.

Bodies naturally *Expand* by Heat, beyond their Dimensions when cold; whence their specific Gravities are different, at the different Seasons of the Year. See SPECIFIC *Gravity*.

Air compressed, or condensed, assoon as the compressing, or condensing Force is removed, *Expands* it self by its Elastic Power, to its former Dimensions. See AIR.

But this may seem a less accurate Notion of *Expansion*; which some Authors restrain to an Increment of the natural, or ordinary Dimensions of a Body, by the mere Action of Heat. See HEAT.

Dr. *Halley* found by Experiment, that Water *Expands* it self by one twenty sixth part of its Bulk, when made to boil: But a moderate Heat does not induce any sensible *Expansion* at all. — Mercury, with a very gentle Heat, *Expands* it self one seventy fourth part of its ordinary Dimensions. See WATER, *&c.*

Spirit of Wine, with a Heat less than that of boiling Water, *Expanded* it self by one twelfth part of its Bulk; and then fell a boiling. The most sensible *Expansion* of Water, is by Freezing. Mr. *Boyle*, in his *Hist. of Cold*, assures us, that Ice takes up one twelfth part more Space than Water. See FREEZING.

Dr. *Gregory*, in his *Astron.* p. 407. proves, that a Globe of our Air, of an Inch Diameter, if it were removed to the Distance of a Semi-diameter of the Earth, would *Expand* it self so, as to fill all the planetary Region, as far as, nay, far beyond, the Sphere of *Saturn*.

EX *parte*, i. e. *partly*, or of *one part*, is thus used in the Court of Chancery: A joint Commission is that wherein both Plaintiff and Defendant joyn; A Commission *Ex parte*, is that taken out and executed by one Party only.

EX-

EXPECTANT-*Fee*, in Law, differs from Fee simple; Thus, *e. gr.* Lands being given to a Man and his Wife, in frank Marriage, to hold to them and their Heirs: In Case they have Fee-simple. If it be given to them, and the Heirs of their Body, *&c.* they have *Fee-Expectant.* See FEE.

EXPECTATIVE, a Hope founded on a Promise of obtaining the next Benefice that shall become vacant, or a Right to the Reversion of the next.

Expectative Graces, *Gratiæ Expectativæ*, call'd also Preventions, were Bulls frequently given by the Popes, or Kings, for future Benefices: The Bishops were exceedingly mortified with them; by reason they encroach'd on their Privileges. Besides that such *Expectatives* are odious, as they induce People to wish for the Death of others. See PREVENTION.

The Use of *Expectatives* is very ancient, tho' it was not near so frequent in the first Ages, as at present. Originally they were no more than simple Requests made on the Part of Kings, or Popes, which the Bishops consented to with the more Willingness, as they only presented to them Persons fit to serve the Church. But the frequent Exercise of this Privilege, made it at length be deem'd a Matter of Obligation and Necessity. See PRÆMUNIRE.

The Council of *Trent* annull'd all *Expectatives*; but those Canons were never admitted in *France*; where the Right of conferring *Expectative* Graces, is look'd on as one of the Regalia.

EXPECTORATION, the Act of evacuating, or bringing up of Phlegm, or other Matters, out of the Lungs; by Coughing, Hawking, Spitting, *&c.* See LUNGS.

Expectoration eases the Lungs of the viscid, or putrid Matters, which obstruct its Vessels, and straitens the Breast.

EXPEDITATION, in the Forest Laws, signifies a cutting out the Ball of a Dog's Fore-feet, for the Preservation of the King's Game. See FOREST and GAME.

Every one that keeps any great Dog not *expeditated*, forfeits three Shillings and Four Pence to the King. In Mastiffs, not the Ball of the Feet, but the three Claws, are to be cut to the Skin. *Instit.* P. 4. pag. 308. *Nullos dominicos canes, Abbatis & Monachorum* expeditari, *Cogat. Chart.* Hen. 3. *Et sint quieti de* Espedimentis *Canum. Ex mag. Rot. Pip. de Ann.* 9. Ed. 2.

This *Expeditation* was to be performed once in every three Years; and was done to every Man's Dog who lived near the Forest, and even the Dogs of the Foresters themselves.

EXPEDITION, a military Enterprize. Such were the *Expedition* of *Cyrus* against *Xerxes*; of *Alexander* into the *Indies*; the *Expedition* of *Xerxes* against *Greece*, was unhappy. *Cæsar* himself, in the middle of his *Expeditions* in the *Gauls*, composed two Books of the Analogy of Words.

The *Expeditions* for the Recovery of the Holy Land, were call'd *Croisades*. See CROISADE.

EXPENSIS *militum levandis*, is a Writ directed to the Sheriff, for levying Allowance for the Knights of Parliament. See PARLIAMENT.

EXPERIENCE, a Kind of Knowledge acquired by long Use, without any Teacher.

Experience consists in the Idea's of Things we have seen, or read, which the Judgment has reflected on, to form it self a Rule, or Method.

Authors make three Kinds of *Experience*: The 1°. is the simple Use of the external Senses, whereby we perceive the Phænomena of natural Things, without any direct Attention thereto, or making any Application thereof.

The 2°. is, when we premeditately, and designedly, make Trials of various Things, or observe those done by others; attending closely to all the Effects and Circumstances.

The 3°. is, that preceded by a Fore-knowledge, or, at least, an Apprehension of the Event; and which determines whether the Apprehension were true or false. Which two latter Kinds, especially the third, are of great Service in Philosophy. See EXPERIMENT.

EXPERIMENT, in Philosophy, a Trial of the Effect or Result of certain Applications, and Motions of natural Bodies; in Order to discover something of the Laws and Relations thereof, or to ascertain some Phænomeoon, or its Cause.

The Schoolmen define *Experiment*, a Comparison of several Things before observed by the Senses, and retain'd in the Memory; in some one similar convenient Instance.

The Nature of *Experiment*, therefore, according to them, consists in comparing several Things by one Act; whence they distinguish two Things in every *Experiment*, the one *material*, viz. the several Idea's remember'd; the other *formal*, viz. the comparing of these Idea's in the Mind.

This will be illustrated by an Example: A Physician gives a Quantity of Rhubarb to ten several Persons, and remembers each of them: Now, coming afterwards to compare the several Remembrances together, and finding the Effect of the Exhibition of Rhubarb to be the same in all, *viz.* A Purging: This is an *Experiment* of Rhubarb.

The making of *Experiments*, is grown into a Kind of form'd Art; and we now abound in Systems of *Experiments*, under the Denomination of *Courses of experimental Philosophy*. *Sturmius* has made a curious Collection of the principal Discoveries and *Experiments* of the present Age, under the Title of *Collegium Experimentale*. The Chymists chuse to call their *Experiments*, by way of Distinction, or Eminence, *Processes*, or *Operations*. See PROCESS.

EXPERIMENTAL *Philosophy*, by the *Greeks* call'd Εμπειρια, *or* Εμπειρικη, is that which proceeds on *Experiments*; or which deduces the Laws of Nature, and the Properties and Powers of Bodies, and their Actions upon each other, from sensible *Experiments* and Observations.

Experiments are of the last Importance in Philosophy; and the great Advantages the modern Physicks have above the Ancient, is chiefly owing to this, that we have a great many more *Experiments*, and that we make more Use of the *Experiments* we have.

Their Way of Philosophizing was, to begin with the Causes of Things, and argue to the Effects and Phænomena; ours, on the contrary, proceeds from *Experiments* and Observations alone.

My Lord *Bacon* first paved the Way for the new Philosophy, by setting on Foot the making of *Experiments*. His Method has been prosecuted with laudable Emulation by the Academy *del Cimento*, the Royal Society, Royal Academy at *Paris*, Mr. *Boyle*, Sir *Is. Newton*, and many others.

In Effect, *Experiments*, within these 50 or 60 Years, are come into such Vogue, that nothing will pass in Philosophy, but what is founded on *Experiment*, or confirm'd by *Experiment*, &c. So that the new Philosophy is almost altogether *Experimental*. See PHILOSOPHY.

Indeed, the Ancients, whatever we commonly say to the contrary, seem to have thought as well of the *Experimental* Way, as the Moderns. *Plato* misses no Occasion of speaking of the Advantages of the εμπειρια; and as to *Aristotle*, his History of Animals may bear Witness for him. *Democritus*'s great Business was to make *Experiments*; and even *Epicurus* himself owes Part of his Glory to the same Cause. *Plato* calls it, in respect to its Subject, ευκαιρια, Subtlety of Sense.

Yet there are those, even among the Learned, who conceive of *Experiments* in a different Manner.

Dr. *Keill* allows, that Philosophy has receiv'd very considerable Advantages from the Makers of *Experiments*; but complains of their Disingenuity, in too often wresting and distorting their *Experiments*, and Observations, to favour some darling Theories they had espoused. But this is not all: M. *Hartsoeker*, in his *Recueil de plusieurs pieces de physique*, undertakes to shew, that they who imploy themselves in the making of *Experiments*, are not properly Philosophers, but, as it were, the Labourers, or Operators of Philosophers, who work under them, and for them, furnishing them with Materials to build their Conjectures upon.

The learned M. *Dacier*, in the Beginning of his Discourse on *Plato*, at the Head of his Translation of the Works of that Philosopher, deals still more severely with the Makers of *Experiments*. He breaks out with a Sort of Indignation, at a Tribe of idly curious People, whose Philosophy consists in making *Experiments* on the Gravity of the Air, the Equilibrium of Fluids, the Loadstone, *&c.* and yet arrogate to themselves the noble Title of Philosophers.

EXPERIMENTUM *Crucis*, is a Capital, leading, or decisive Experiment; thus call'd, either as, like a *Cross* or Post of Directions placed in the meeting of several Roads, it guides and directs Men to the true Knowledge of the Nature of the Thing they are enquiring after: Or, as it is a Kind of Torture, whereby the Nature of the Thing is as it were extorted by Violence. See CRUCIS.

EXPIATION, the Act of *Suffering* the Punishments adjudged to a Man's Crimes, and thus paying off and discharging the Guilt.

The *Romanists* hold, that Souls, after Death, are sent to Purgatory, to *expiate*, or atone for their Sins. See PURGATORY.

The Word is also applied to *Sacrifices* offered to the Deity, to implore his Mercy and Forgiveness. See SACRIFICE.

The Feast of EXPIATION, among the *Jews*, call'd by our Translators the *Day of Atonement*, was held on the X th Day of the 7 th Month of the *Jewish* Year, answering to our *September*. It was instituted by God himself, *Levit.* XXIII. 27, *&c.* On that Day, the High-Priest, the Figure or Type of Jesus Christ, confess'd his Sins;

Sins; and after several Ceremonies, made an Atonement for all the People to wash them from their Sins.

Expiation, among the Heathens, was a Purification used for effacing, or abolishing of a Crime.

It was practised with divers Ceremonies: The most usual was *Ablution*. See Ablution.

Expiations were perform'd for whole Cities, as well as particular Persons.

After the young *Horatius* had been absolved by the People from the Murther of his Sister; he was further purified by the several *Expiations* prescribed by the Laws of the Pontifices for involuntary Murthers. *Halicarnass.*

EXPILATION, in the Civil Law, the Act of *Withdrawing*, or diverting any Thing belonging to an Inheritance, before any Body had declared himself Heir thereof.

This made a peculiar Species of Theft: For there cou'd not properly be a Theft in taking a Thing not possess'd by any Body; or ere the Inheritance was accepted.

For this Reason, the *Roman* Legislature introduced the Action of *Expilation*, for the Punishment of this Crime.

EXPIRATION, in Medicine, that Motion in an Animal, whereby the Air, inspired into the Lungs, is expell'd, or thrust out of the same, and the Cavity of the Breast contracted. See Lungs.

Respiration consists of two alternate Motions, or Actions of the Lungs, corresponding to those of a Pair of Bellows; *Inspiration*, whereby the Air is drawn in; and *Expiration*, whereby 'tis driven out again. See Respiration.

By Means of this Alternation, the Circulation of the Blood, and the Motions of the Heart are maintain'd. See Circulation and Heart.

Expiration, is also used figuratively, for the End of a Term of Time granted, agreed on, or adjudged.—'Tis not above eight Days, till the *Expiration* of the Term of his Imprisonment. The Term of such a Bill of Exchange is *expired*, i. e. it is fallen due. See Bill.

EXPLICIT, in the Schools, something clear, distinct, formal, and unfolded.— The Will, Intention, &c. is said to be *Explicit*, when 'tis fully explain'd, in proper Terms; and *implicit*, when 'tis only learnt by Deductions and Consequences.

The *Jews* had not all an *Explicit* Knowledge of Jesus Christ, but they had at least an implicit one.

Such a Testator has declared his Will *explicitly*, i. e. in formal Terms; there is no need to have Recourse to Explications.

EXPLOSION, in Physicks, the Action of a Thing that drives another out of the Place it before possess'd.

The Term is chiefly used for the going off of Gun-Powder, and the Expulsion of the Ball, Shot, or the like Consequent thereon. See Gun-Powder.

Hence the Word comes likewise to be figuratively used to express such sudden Actions of other Bodies, as have some Resemblance thereto; as those which ferment with Violence, immediately upon their Mixture, and occasion a crackling Sound.

Some Writers have likewise applied it to the Excursions of the Animal Spirits, and instantaneous Motions of the Fibres, arising without the Direction of the Mind; but the Term then becomes too figurative to express any determinate Idea, so as really to inform the Understanding.

EXPOLITION, in Rhetoric, a Figure, whereby we explain the same Thing in different Phrases and Expressions, in order to shew it more fully.

Expolition was the favourite Figure of *Balzac* — A Man, but moderately versed in the Style of Scripture, will perceive that this is no more than an *Expolition*; that is, a Figure whereby the sacred Author explains the same Thing in different Terms. The Scriptures are full of such Figures; and I scarce think there is any one more ordinary. *Souciet.*

EXPONENT, in Arithmetic, or Exponent *of a Power*, the Number which expresses the Degree of the Power; or which shews how often a given Power is to be divided by its Root, ere it be brought down to Unity. See Power.

Thus the *Exponent* of a Square Number is 2; of a Cube 3: The Square being a Power of the second Degree; the Cube of the third, &c.

Exponent, is also used in Arithmetic, in the same Sense with *Index*, or *Logarithm*.

Thus a Series of Numbers in Arithmetical Progression, being placed under another Series in Geometrical Progression, are call'd the *Exponents*, Indices, or Logarithms thereof. See Index.

E. gr. In the two Progessions,

Geom. 1, 2, 4, 8, 16, 32, 64, 128, 256, 512

Arith. 0, 1, 2, 3, 4, 5, 6, 7, 8, 9

0 is the *Exponent*, Index, or Logarithm, of the first Term 1; 5 that of the *6th.* 32, &c.

Hence, Unity is to the *Exponent* of the Power, as the Logarithm of the Root, to the Logarithm of its Power: Consequently, the Logarithm of the Power is had, by multiplying the Logarithm of the Root by its *Exponent*; and the Logarithm of the Root is had, by dividing the Logarithm of the Power by its *Exponent*. See Logarithm.

Exponent *of a Ratio*, is the Quotient arising upon a Division of the Antecedent by the Consequent.— Thus, in the Ratio 3 to 2, the *Exponent* is $1\frac{1}{2}$; and the *Exponent* of the Ratio 3 to 2, is $\frac{2}{3}$. See Ratio.

Hence, 1°. If the Consequent be Unity, the Antecedent is the *Exponent* of the Ratio. *E. gr.* The *Exponent* of the Ratio 4 to 1, is 4. And again: The *Exponent* of a Ratio is to Unity, as the Antecedent to the Consequent.

2°. Since, in a rational Ratio, the *Exponent* of the Ratio is had by dividing a rational Number by another rational; the *Exponent* of a rational Ratio, is a rational Number.

EXPONENTIAL *Calculus*, or *Calculus* Exponentialis, is the Method of differencing *Exponential* Quantities, and of summing up the Differentials of *Exponentials*. See Calculus.

Exponential *Curve*, is that defined by an *Exponential Equation* — Transcendental Curves partake both of the Nature of Algebraic and Transcendent ones; Of the former, because they consist of a finite Number of Terms, tho' those Terms themselves are indeterminate; and of the latter, because they cannot be Algebraically constructed. See Curve.

Exponential *Equation*, is that wherein there is an *Exponential* Quantity; call'd also a *Transcendental Equation*, and by some, a *Geometrical Irrational*. See Equation, Transcendental, &c.

Exponential *Quantity*, is a Power whose *Exponent* is an indeterminate, variable, or flowing Quantity. See Quantity.

Exponential Quantities are of several Degrees and Orders; when the *Exponent* is a simple indeterminate Quantity, it is call'd an *Exponential* of the first or lowest Degree.

When the *Exponent* it self is an *Exponential* of the first Degree, then the Quantity is an *Exponential* of the second Degree.

Thus z^y is an *Exponential* of the first Degree, because the Quantity y is a simple flowing Quantity. But z^{y^x} is an *Exponential* Quantity of the second Degree; because y^x is an *Exponential* of the first Degree. So also $z^{y^{y^x}}$ is an *Exponential* of the third Degree, the *Exponent* y^{y^x} being one of the second.

EXPORTATION, in Commerce, the Act of sending Commodities out of one Kingdom into another. See Commerce.

The Merchandizes yearly *Exported* from *England* are immense. — The principal Articles are Corn, Cattle, Cloth, Iron, Lead, Tin, Leather, Coal, Hops, Flax, Hemp, Hats, Malt Liquors, Fish, Watches, Ribbands, &c.

The Woollen Manufacture alone, yearly *Exported*, is computed to amount to 2000000 Pound Sterling; and Lead, Tin, and Coals, 500000 Pound. See Woollen.

Wool, Fullers Earth, &c. are contraband Goods, *i. e.* prohibited to be *exported*. See Contraband.

For the Duties of *Exportation*. See Duty.

EXPOSING, the setting a Thing to publick View.

Perjury, Forgery, Libelling, false Weights and Measures, are punish'd, by *Exposing* the Criminal in the Pillory, to the Derision of the People. See Pillory.

In the *Romish* Church, the Sacrament is said to be *Exposed*, when 'tis shewn in public, uncover'd, on Festival Days, and during the Time of plenary Indulgences.

The Term is also used with a further Latitude: Thus, we say, 'tis prohibited to *Expose* false, or clipp'd Money.

Children are sometimes *Exposed* in the Streets; *i. e.* are left in the Streets, with Design to be lost. — Such a House stands very high, and has a delicious Prospect, but it is *exposed* to all the Four Winds. Such a City being on the Frontiers, and not fortified, is *Exposed* to the Insults of every Party of Forces.

EXPOSITION, the Act of *Exposing*. — But the Term has a further Meaning; being likewise applied to the Interpretation, or Explication of an Author, or a Passage therein.

Thus we say, an *Exposition* of the 39 Articles, of the Lord's Prayer, &c. In which Sense we do not say *Exposing*, but *Expounding*. See Exposure.

EXPOSITOR, or Expository, a Title some Writers have given to a little Kind of Dictionaries, or Vocabularies,

faries, *expounding*, or explaining the Meaning of the hard Words of the Language. See DICTIONARY and VOCABULARY.

EXPOSURE, or EXPOSITION, in Gardening, the Aspect, or Situation of a Garden, Wall, Building, or the like, with respect to the Sun, Winds, *&c.* See GARDEN.

There are four regular Kinds of *Exposures*, viz. *East*, *West*, *North*, and *South*. But it must be observed, that among Gardeners, these Terms signifie just the contrary to what they do among Geographers.

The Gardeners, in Effect, do not give the Names *East*, *West*, &c. to the Places where the Sun is; but to those whereon he shines; and they consider the Manner wherein he shines, whether as to the whole Garden, or some one of its Sides.

If they find, that the Sun at its Rising, and during the first half of the Day, continues to shine on one Side of a Garden or Wall; they call that an *Eastern Exposure*, or *East Wall*, &c. And if the Sun begin to shine later, or end sooner, 'tis not a proper *Eastern Exposure*.

For the same Reason, they call the *West*, the Side the Sun shines on in the latter half of the Day, *i. e.* from Noon to Night. And accordingly, the *South*, or *South Exposure*, is the Place whereon he shines, from about Nine a Clock in the Morning, till Night; or which, in the general, he shines longest on in the whole Day; and the Part he shines least on, is the *North*, or *Northern Exposure*; at what Hour soever it begin or end, being usually from 11 a Clock to 1.

Such is the Gardeners Language with Regard to the *Exposures*, and particularly those of Walls; by which we are let into the Signification of this or the like Expressions, usual among them.--- My *East* Wall proves, hits, or thrives better, than my *West*. My *East* Fruit Trees have had fewer Showers than my *West*, &c.

The *Eastern* and *Southern Exposures* are, by common Consent of all Gardeners, the two principal; and have a considerable Advantage above the rest. A *West Exposure* is not much amiss; at least, 'tis better than a *Northern* one, which is the worst of all. Each has its Inconveniencies.

The *Eastern*, commencing differently at different Seasons of the Year, and ending about Noon, subjects the Trees, *&c.* to the *N. E.* Winds, which wither the Leaves and new Shoots, blow down the Fruit, *&c.* beside that it has little Benefit of Rains, which come mostly from the *West*. Yet does the Reverend Mr. *Lawrence* judge, the *East* better than the *West* Wall, for all Kinds of Fruit: Not that it has more Hours of Sun, or that there are any peculiar Virtues in the *Eastern* Rays, but because the early Rays of the Sun do sooner take off the cold chilly Dews of the Night.

M. *Gentil* recommends the *Eastern Exposure*, as best for all Kinds of Peaches; adding, that they ripen soonest, grow bigger, are better colour'd, and of a finer Taste than in any other: But Mr. *Carpenter* restrains the Rule to the early and middle Sorts: For the backward, he rather chuses a *Southern*, or *South East Exposure*; which is best for all late Fruits; because the Influence of the Sun is strongest, and continues longest therein.

The *Western*, accounted from half an Hour past 11, till Sun-set, is backwarder than an *Eastern* one by 8 or 10 Days; but it has this Advantage, that it receives little Damage from the Frosts, which melt before the Sun comes to shine upon the Fruit, and fall off like Dew, without doing any Prejudice: So that it may bear Apricocks, Peaches, Pears, and Plums. But it is incommoded with *North West* Winds in the Spring, as also the Autumn Winds, which blow down a deal of Fruit.

The *Northern Exposure* has less Sun than the *West*; yet is it not without its Advantages. In the Northerly Parts of *England*, it bears little else but Pears, Cherries, and Plums. But in the warmer Parts it serves for Apricocks, which have the Advantage of continuing later, than in any other *Exposure*, besides being free from Insects.

The *Southern Exposure*, accounted from about 9 till 4, is recommended for Peaches, Pears, Grapes, and Plums.

EXPRESS, something that is precise, in formal Terms, or for some particular Design.

I told him as much in *Express* Terms: He gave me a Commission *Express*: He had *Express* Orders. A Courier was dispatch'd *Express*.

We also say, somewhat abusively, to send an *Express*, meaning a Courier. See COURIER.

EXPRESSED *Oils*, are such as are procured from Bodies, only by pressing; as the Oils of Olives, Almonds, and the like. See OIL and EXPRESSION.

EXPRESSION, in Medicine, Chymistry, *&c.* the Act of *Expressing*, or extracting the Juices of Plants, Fruits, and other Matters, by squeezing, wringing, or pressing them in a Press. See PRESS.

After having let the Herbs infuse their due Time, their Juice must be drawn by *Expression* in a Linen Cloth, or under a Press. See INFUSION.

EXPRESSION, the Manner of delivering, or conveying a Man's Ideas to another.

The Simplicity of the *Expression*, leaves the Grandeur, or Littleness of the Thought, to be perceiv'd.

Expression is particularly used for the Elocution, Diction, and Choice of Words in a Discourse. --- 'Tis not enough a Poet, or Orator, have fine Thoughts, he must likewise have a happy *Expression*. Defects in the *Expression* ordinarily arise from Defects in the Imagination. Abundance of the Beauties of the ancient Writers, are attach'd either to an *Expression* peculiar to their Language; or to Relations, which not being so familiar to us as to them, do not give us the same Pleasure. *De la Motte*.

EXPRESSION, in Painting, the natural and lively Representation of the Subject, or of the several Objects intended to be shewn. See PAINTING.

The *Expression* consists principally in representing the human Body, and all its Parts, in the Action suitable to it; in exhibiting in the Face, the several Passions proper to the Figures; and observing the Motions they impress on the other external Parts. See ALTITUDE.

The Term *Expression*, is ordinarily confounded with that of Passion: But they differ in this, that *Expression* is a general Term, implying a Representation of an Object, agreeably to its Nature and Character, and the Use, or Office it is to have in the Work; and Passion, in Painting, is a Motion of the Body, accompanied with certain Dispositions, or Airs of the Face, which mark an Agitation in the Soul. So that every Passion is an *Expression*; but not every *Expression* a Passion. See PASSION.

The Laws, or Rules of Expression *in Painting*.

Expression, we have said, is a Representation of Things according to their Character; and may be consider'd either with respect to the *Subject* in general; or to the *Passions* peculiar thereto.

I. With regard to the *Subject*, 'tis to be observed, 1°. That all the Parts of the Composition are to be transform'd, or reduced, to the Character of the Subject; so as they may conspire to impress the same Sentiment, Passion, or Idea: Thus, *e. gr.* in a Representation of Joy and Peace, every Thing is to appear calm and agreeable; of War, turbulent, and full of Terror, *&c.*

2°. In Order to this, if any Circumstance occur in History, or Description, that would invert, or take from the Idea; it must be suppressed; unless essential to the Subject.

3°. To this End, the History, or Fable, is to be well studied in the Authors who describe it, in Order to conceive its Nature and Character truly, and impress it strongly on the Imagination; that it may be diffused and carried thro' all the Parts of the Subject. See ACTION, FABLE, *&c.*

4°. A Liberty to be taken of chusing favourable Incidents, in order to diversifie the *Expression*; provided they be not contrary to the principal Image of the Subject, or the Truth of History. See EPISODE.

5°. The Harmony of the *tout Ensemble* to be particularly regarded, both with regard to the Actions, and the Light and Colour. See CLAIR *obscure*.

6°. The Modes and Customs to be observed; and every Thing made conformable to Time, Place, and Quality. See CUSTOM.

7°. The three Unities of Time, Place, and Action, to be observed: That is, nothing to be represented in the same Picture, but what passes at the same Time, and may be seen at the same View.

II. With regard to the particular *Passions* and *Affections* of the Subject; the Rules are, 1°. That the Passions of Brutes are few and simple, and have almost all an immediate Respect, either to Self-Preservation, or the Propagation of the Kind: But, in Men, there is more Variety; and accordingly, more Marks and *Expressions* thereof. Hence, Man can move his Eye-brows, which, in Brutes, are immoveable: And can likewise move the Pupil every way, which Brutes cannot.

2°. Children, having not the Use of Reason, act much on the Footing of Brutes; and *express* the Motions of their Passions directly, and without Fear or Disguise.

3°. Tho' the Passions of the Soul, may be *express'd* by the Actions of the Body; 'tis in the Face they are principally shewn; and particularly in the Turn of the Eye, and the Motion of the Eye-brows.

4°. There are two Ways of lifting up the Eye-brows, the one at the middle, which likewise draws up the Corners of the Mouth, and argues pleasant Motions: The other, at the Point next the Nose, which draws up the middle of the Mouth, and is the Effect of Grief and Sadness.

5°. The

5°. The Passions are all reducible to Joy and Sadness; each of which is either simple, or mix'd and passionate.

6°. Simple Joy causes a Dilatation of all the Parts: The Eye-brows rise in the middle, the Eyes half open, and smiling, the Pupil sparkling and moist, the Nostrils a little open, the Cheeks full, the Corners of the Mouth drawn a little upwards, the Lips red, the Complexion lively, the Forehead serene.

7°. Passionate Joy proceeding from Love, shews the Forehead smooth and even, the Eye-brows a little elevated on the Side the Pupil is turn'd to, the Eyes sparkling and open, the Head inclined towards the Object, the Air of the Face smiling, and the Complexion ruddy: --- That proceeding from Desire, shews it self by the Body, the Arms extended towards the Object, in uncertain and unquiet Motions.

8°. Simple Sadness, is *Express'd* by the Body being cast down, the Head carelessly hanging aside, the Forehead wrinkled, the Eye-brows rais'd to the midst of the Fore-head, the Eyes half shut, the Mouth a little open, the Corners downwards, the under-Lip pointing and drawn back, the Nostrils swell'd, and drawn downwards. --- That mix'd with *Fear*, causes the Parts to contract and palpitate, the Members to tremble and fold up, the Visage to be pale and livid, the Point of the Nostrils elevated, the Pupil in the middle of the Eye, the Mouth openest at the Sides, and the under-Lip drawn back. --- In that mix'd with *Anger*, the Motions are more violent, the Parts all agitated, the Muscles swell'd, the Pupil wild and sparkling, the Point of the Eye-brows fix'd towards the Nose, the Nostrils open, the Lips big and press'd down, the Corners of the Mouth a little open and foaming, the Veins swell'd, and the Hair erect. --- That with *Despair*, resembles the last, only more excessive and disorder'd.

9°. The Hand has a great Share in the *Expression* of our Sentiments and Passions: The raising of the Hands conjoyn'd --- towards Heaven, *expresses* Devotion: Wringing the Hands, Grief: Throwing them towards Heaven, Admiration: Fainting, and dejected Hands, Amazement and Despair: Holding the Hands, Idleness: Holding the Fingers indented, musing: Holding forth the Hands together, Yielding and Submission: Lifting up the Hand and Eye to Heaven, calling God to Witness: Waving the Hand from us, Prohibition: Extending the right Hand to any one, Pity, Peace, and Safety: Scratching the Head, Thoughtfulness and Care: Laying the Hand on the Heart, solemn Affirmation: Holding up the Thumb, Approbation: Laying the Fore-finger on the Mouth, bidding Silence: Giving with the Finger and Thumb, *parce dare*: And the Fore-finger put forth, the rest contracted, *Monstrari & dicier hic est*.

10. The *Sex* of the Figure to be regarded; and Man, as he is of a more vigorous and resolute Nature, to appear in all his Actions freer and bolder than Women, who are to be more reserved and tender.

11. So also the *Age*, the different Stages whereof incline to different Motions both of Body and Mind.

12. The *Condition*, or Honours, a Person is invested withal, renders their Actions more reserved, and their Motions more grave; contrary to the Populace, who observe little Conduct or Restraint; giving themselves, for the most part, up to their Passions; whence their external Motions become rude and disorderly.

Lastly, in *Spirits* we must retrench all those corruptible Things, which serve only for the Preservation of Life, as Veins, Arteries, *&c.* only retaining what may serve for the Form and Beauty of the Body. --- In *Angels*, particularly, as being symbolical Figures, we are to mark out their Offices and Virtues, without any Draught of sensual Passions; only appropriating their Characters to their Functions of Power, Activity, and Contemplation.

EXPULSION, the Act of driving a Man by Force out of a City, Community, or the like.

Milton is upbraided by one of his Antagonists, Archbishop *Bramhall*, with his *Expulsion* from the University of *Oxford*; but he shews it a groundless Suggestion. --- Mr. ..... was expell'd from *Cambridge*, on Suspicion of Heresy. --- *Expulsion* out of Parliament, *&c.*

Expulsion, is also used in Medicine, for the Act of driving a Thing out with Violence, from the Place it was in.

The *Uterus* has the chief Office in the *Expulsion* of the *Fœtus*: If the *Expulsion* of the *Fœtus* happen within seven Days after Conception, 'tis call'd a false Birth. See Foetus, Delivery, *&c.*

EXPURGATION, in Astronomy, is used by some Authors, for the State or Action of the Sun; wherein, after having been Eclipsed and hid by the Interposition of the Moon, it begins to appear again: But the later Astronomers do all call this, *Emersion*, not *Expurgation*. See Emersion.

EXSICCATION, in Chymistry, *&c.* the Act of drying, or evaporating the Moisture of a Thing. See Evaporation.

The Word is *Latin*, form'd of *ex*, and *siccus*, dry.

EXSUDATION, the Act of sweating out --- in which manner Gums, Balsams, *&c.* are produced from Trees. See Gum and Balm.

EXTANT, something still subsisting, or in being.

'Tis but part of the History of *Livy*, of the Writings of *Cicero*, *Cæsar*, &c. that are *Extant*; the rest are lost. We have nothing *Extant* of *Socrates*; tho' he wrote a great deal.

EXTASY, a Rapture, or Removal of the Mind out of its natural State and Situation: Or, a Transport, whereby a Person is hurried out of himself, and the Office of his Senses suspended.

In Ecclesiastical History, we read of divers Monkish Saints being in *Extasies* for several Days successively. --- St. *Paul*'s being taken up into the Third Heaven, was what we call an *Extasy*.

Extasy, in Medicine, is a Disease much like a Catalepsy, only differing in this, that the Cataleptic Patient has no Perception of what passes in his Paroxysm, nor any Remembrance thereof when 'tis over; whereas the *Extatic* is taken up with a very lively Idea, or Imagination, which he remembers afterwards.

In an *Extasy*, there must be an unusual Tension of the Fibres of the Sensory, as in most Deliriums, *&c.* See Phrenzy, Mania, Melancholic, *&c.*

EXTENDING, in a Legal Sense, signifies the valuing of Lands and Tenements, of one bound by Statute, *&c.* and who hath forfeited his Bond, to such an indifferent Rate, as that by the Yearly Rent, the Obligator may, in Time, be fully paid his Debt. See Extent.

EXTENSION, in Physicks, that whereby a Thing is constituted long, broad, or deep, *&c.* See Body.

Extension is usually described, as consisting *in the Situation of Parts, beyond Parts*; which some Authors cavil withal, as holding that we can conceive absolute *Extension*, without thinking of any Relation of Parts.

If a Man consider the Distance between two Bodies, abstractedly, and without having Regard to the Bodies that fill that Interval, it is call'd *Space*: And when he considers the Distance between the Extremes of a solid Body, it is call'd *Extension*. See Space.

Extension is frequently confounded with *Quantity* and *Magnitude*; and, for what we can perceive, without much Harm: The Thing signified by them all appearing to be the same. Unless we admit a Distinction made by some Authors, that the *Extension* of a Body is something more absolute; and its Quantity and Magnitude more respective, or implying a nearer Relation to much and little. See Quantity, Magnitude, Bulk, *&c.*

EXTENSOR, in Anatomy, a Name common to divers Muscles, serving to *extend*, or stretch out the Parts; and particularly the Hands and Feet: Such are the

Extensor *Carpi Ulnaris*, call'd also *Cubitæus internus*, a Muscle, which coming from the internal Protuberance of the *Humerus*, and passing tendinous under the *Ligamentum Annulare*, is inserted into the upper Part of the Bone *Metacarpium*, which answers to the little Finger. This, and the *Ulnaris flexor*, moving together, draw the Hand side-wise towards the *Ulna*.

Extensor *Carpi Radialis*, call'd also *Radiæus Externus*, and *Bicornis*, is really two distinct Muscles. The first arises from above the external Protuberance of the *Humerus*; and the second from the lowermost Part of the external Protuberance. They both lie along the external Part of the *Radius*, and passing under the annular Ligament, one is inserted into the Bone of the *Metacarpus*, that sustains the Fore-finger; and the other to that which sustains the Middle-finger. These two extend the Wrist.

Extensor *communis digitorum manus*, arises from the external Protuberance of the *Humerus*, and at the Wrist divides into three flat Tendons, which pass under the annular Ligament, to be inserted into all the Bones of the Fore, Middle, and Ring-finger.

Extensor *primi internodii pollicis*, arises from the upper and external Part of the *Ulna*, and passing obliquely over the Tendon of the *Radius externus*, is inserted near the second Joint of the Thumb.

Extensor *secundi internodii pollicis*, arises from the upper and internal Part of the *Radius*, and is inserted into the upper Part of the second Bone of the Thumb.

Extensor *tertii internodii pollicis*, arises from the *Ulna*, a little below the first Extensor, and is inserted into the third Bone of the Thumb.

Extensor *indicis*, comes from the middle and external Part of the *Ulna*, and passing under the annular Ligament, is inserted into the third Bone of the Fore-finger, where it joins the *Extensor Communis*.

Extensor *minimi Digiti*, arises from the external Protuberance of the *Humerus*, and from the upper Part of the *Ulna*; and passing under the annular Ligament, is inserted into the third Bone of the little Finger.

Extensor *Pollicis*, arises from near the upper half of the *Perone* forwards, and passing under the annular Ligament, is inserted into the last Bone of the great Toe.

Extensor *digitorum Pedis longus*, is a Muscle derived from the fore Part of the upper Epiphysis of the *Tibia*, and growing tendinous about the middle thereof, runs in four Tendons under the annular Ligament, to the third Bone of every Toe, except the *Pollex*.

Extensor *digitorum pedis brevis*, comes from the exterior and fore Part of the *Calcaneum*, and goes to the second Joint of the Toes.

Extensor *pollicis Pedis longus*, rises large and fleshy from the fore Part of the *Fibula*, a little below its upper Process; whence, passing under the annual Ligament, it is inserted into the upper Part of the second Bone of the great Toe.

Extensor *pollicis Pedis brevis*, springs fleshy from the fore Part of the *Os Calcis*, and after a short Belly, is contracted into a slender Tendon; which running obliquely over the upper Part of the Foot, is inserted into the second Bone of the *Pollex*.

EXTENT, in Law, hath three Significations; sometimes it denotes a Writ, or Commission to the Sheriff, for the valuing of Lands and Tenements: Sometimes the Act of the Sheriff upon this Writ. And sometimes the Estimate, or Valuation of Lands, *per proprios Viros*. Fleta, *Lib.* 2. See Extending.

EXTENUATION, the Act of diminishing, or lessening, the Force of a Thing.

Thus, in Medicine, we say, Fevers, Agues, long Abstinences, *&c.* occasion great *Extenuations* or Emaciations.

Extenuation, is also a Figure in Rhetoric, opposite to the Hyperbole. The *Greeks* call it λιτότης.

External *Polygon*, } See { Polygon.
External *Talus*, } See { Talus, *&c.*

EXTERMINATION, the Act of *Extirpating*, or totally destroying a People, Race, Family, *&c.*

The *Jews* have been *Exterminated* out of *Portugal*; the *Moors* out of *Spain*; the *Albigenses* out of *France*, &c. *Philip* the Fair of *France*, to be revenged on the *Knights Templars*, took a Resolution in 1307, to *Exterminate* them. See Templar.

The Word is Latin, form'd of *ex* and *terminus*, Boundary.

EXTERNAL, or Exteriour, a Term of Relation, applied to the Surface, or out-side of a Body; or that Part which appears, or presents, to the Eye, Touch, *&c.* In which Sense it is exposed to *Internal*, or *Interior*. See Internal.

External Medicines are also call'd *Topicks*. See Topic.

The Senses are divided into *External*, which are those whereby we perceive Ideas, or Perceptions of *External* Objects; as *Seeing*, *Hearing*, &c. and *Internal*. See Senses.

External, is also used to express any Thing that is without-side a Man, or that is not within him, and particularly in his Mind. In this Sense, we say *External Objects*, &c. See Object.

The Existence of an *External World*, i. e. of Bodies, and Objects, out of the Mind, is a Thing has been greatly call'd in Question of late. See Matter, Body, World, *&c.*

'Were it possible for Bodies, *i. e.* solid, figured, *&c.* 'Substances to exist without the Mind, corresponding to 'those Ideas we have of *External* Objects, yet how were 'it possible for us to know it? Either we must know 'it by Sense, or Reason: As for our Senses, by them 'we have only the Knowledge of our Sensations or Ideas: 'They do not inform us that Things exist without 'the Mind, or unperceiv'd, like those which are perceiv'd. 'It remains, therefore, that if we have any Knowledge 'at all of *External* Things, it must be by Reason, in'ferring their Existence from what is immediately per'ceiv'd by Sense. But how shall Reason induce us to 'believe the Existence of Bodies without the Mind, when 'the Patrons of Matter themselves deny that there is any 'necessary Connection betwixt them and our Ideas. In 'Effect, 'tis granted on all Hands, and what happens in 'Dreams, Phrenzies, Deliriums, Extasies, *&c.* puts it be'yond Dispute, that we might be affected with all the 'Ideas we have now, tho' there were no Bodies existing 'without, resembling them. Hence, it is evident, the Sup'position of *External* Bodies is not necessary for the 'Production of our Ideas.' *Berkeley's Princ. of Human Knowledge*, p. 59.

'Granting the Materialists their *External* Bodies, they 'by their own Confession, are never the nearer knowing 'how our Ideas are produced; since they own them'selves unable to comprehend in what Manner Body can 'act upon Spirit; or how it is possible it should imprint 'any Idea in the Mind. Hence, the Production of Ideas, 'or Sensations, in our Minds, can be no Reason why 'we should suppose Matter, or Corporeal Substances; 'since that is equally inexplicable with or without the 'Supposition. In short, tho' there were *External* Bodies, 'tis impossible we should ever come to know it; and if 'there were none, we should have the same Cause to 'think there were that we now have.' *Id. ibid.* p. 60, 61.

'Try, whether you can conceive it possible for a Sound, 'or Figure, or Motion, or Colour, to exist without the 'Mind, or unperceiv'd. This may perhaps convince you, 'that what you contend for, is a downright Contradiction. '—I am content to put the whole upon this Issue: If 'you can but conceive it possible for one extended, move'able Substance, or, in general, for any one Idea to exist 'otherwise than in a Mind perceiving it; I shall readily 'give up the Cause. *Id. ibid.* p. 63.

'It is worth while to reflect a little on the Motives 'which induced Men to suppose the Existence of material 'Substance; that so, having observed the gradual ceasing 'and Expiration of those Motives, we may withdraw the 'Assent grounded on them. First, Therefore it was thought 'that Colour, Figure, Motion, and the rest of the sensible 'Qualities, did really exist without the Mind; and 'for this Reason, it seem'd necessary to suppose some 'unthinking Substratum, or Substance, wherein they did 'exist, since they could not be conceiv'd to subsist by 'themselves. Afterwards, in Process of Time, Men being 'convinced that Colours, Sounds, and the rest of the sen'sible secondary Qualities had no Existence without the 'Mind; they stripp'd this Substratum of these Qualities, 'leaving only the primary ones, Figure, Motion, *&c.* 'which they still conceiv'd to exist without the Mind, 'and consequently to stand in need of a material Sup'port. But having shewn above, that none, even of these, 'can possibly exist otherwise than in a Spirit, or Mind, 'which perceives them, it follows, that we have no longer 'any Reason to suppose the Being of Matter.' *Id. Ibid.* p. 118, 119. See Quality.

This System, Mr. *Lock* endeavours to set aside, and to prove the Existence of *External Bodies*.—His Arguments see under the Article Existence.

External *Angles*, are the Angles of any right-lined Figure form'd without it, when all the Sides are severally produced. See Angle.

These are all, taken together, equal to four right Angles.

Particularly, in a Triangle, the *External* Angle e, (*Tab. Geometry Fig.* 76.) is equal to both the internal and opposites ones z and y. See Triangle.

External *Ear*, } See { Ear.
External *Rights*, } See { Right.
External *Beauty*, } See { Beauty.

EXTERNUIS *Auris*, in Anatomy, a small Muscle coming from the Side of the *Meatus Auditorius*, to the short Process of the *Malleus*; serving to draw the Handle thereof downwards, and so to relax the *Membrana Tympani*. See Tympanum and Malleus.

EXTINCTION, the Act of *Extinguishing*, or destroying Fire or Light.

Boerhaave denies, that there is properly any such Thing as extinguishing of Fire. 'Tis a Body *Sui generis*, of an immutable Nature, and we can no more extinguish, or destroy it, than create it. See Fire.

The *Aristotelians* account for the *Extinction* of Fire from the Principle of Contrariety; thus, say they, Water puts out Fire, by Reason the Qualities of Water are contrary to those of Fire; the one being cold, and moist, and the other, hot and dry. But how far this will go, may appear hence, that Fire is extinguished by hot Water as readily as cold; nay by Oil, Earth, *&c.* See Antiperistasis.

Some of the Moderns offer two more plausible Causes of *Extinction*, viz. *Dissipation*, as when the next, immediate Fuel of the Flame, is dispersed and blown off by too forcible a Wind: And *Suffocation*, when it is so compress'd, as that its free Motion cannot be maintain'd; as happens upon throwing Water, *&c.* thereon. See Fuel.

Extinction, in Chymistry and Pharmacy, is when a Metal, Mineral, or the like Body, after having been heated red hot in the Fire, is plunged in some Fluid; either to soften and temper its Acrimony, as the Tutty made of Pearl; or to communicate its Virtue to the Liquor, as Iron or Steel in Water; or, lastly, to give it a Temper, as in the *Extinction* of Steel in Water, or other Preparation. See Temper.

EXTINGUISHMENT, in Law, is used for a *Consolidation*. See Consolidation.

E. gr. If a Man, having a yearly Rent due to him out of my Lands, afterwards purchase the same Lands; both the Property and Rent becoming Consolidated, or United in one Possessor, the Rent is said to be *extinguish'd*.

So, where a Man has a Lease for Years, and afterwards buys the Property, there is a *Consolidation* of the Property, and an *Extinguishment* of the Lease. See CONSOLIDATION.

So also if there be Lord, Mesn, and Tenant, and the Lord purchase the Tenancy, the Mesnalty is *extinct*.

EXTIRPATION, the Act of pulling up, or destroying a Thing to the very Roots. — Dogs Grass is a Weed very difficult to *Extirpate*.

Among the Prayers of the *Romish* Jubilee, there is one for the *Extirpation* of Heresy.

The Word is form'd of the Latin *ex* and *stirps*. But its chief Use is in a figurative Sense.

EXTIRPATION, is also used in Chirurgery, for the cutting off any Part entirely; as a Wen, *&c.* or the eating it away, as a Wart, *&c.* by corrosive Medicines.

EXTISPEX, in Antiquity, an Officer who viewed, and examined the Entrails of Victims; in order to draw Presages therefrom as to Futurity. See SACRIFICE.

This Kind of Divination, call'd *Extispicium*, was mightily in Vogue throughout *Greece*, where there were two Families, the *Jamides* and *Clytides*, consecrated, or set a-part, peculiarly for it.

In *Italy*, the first *Extispices* were the *Hetrurians*; among whom, likewise, the Art was in great Repute. *Lucan* gives us a fine Description of one of these Operations in his First Book.

The Word is form'd from the Latin *exta* and *spicere*, of *spicio*, I view, consider.

EXTORTION, in Law, an illegal Manner of wresting any Thing from a Man, either by Force, Menace, or Authority.

Thus, *e. gr.* if an Officer, by terrifying, or spunging another on Pretence of his Office, takes more than his ordinary Fees, or Dues, he commits, and is indictable for *Extortion*.

So also the Exacting of unlawful Usury, winning by unlawful Games, and, in fine, all taking of more than is justly due by Colour or Pretence of Right, as excessive Tolls in Millers, excessive Prices of Ale, Bread, Victuals, Wares, *&c.* comes under *Extortion*. See EXACTION.

Crompton says, that Wrong done by any Man, is properly a Trespass, but excessive Wrong is *Extortion*; which is most properly applicable to Sheriffs, Mayors, Bailiffs, and other Officers, who, by Colour of their Office, greatly oppress and wrong the King's Subjects, by taking excessive Rewards, or Fees, for executing their Office.

EXTRA *Judicial*, in Law, is when Judgment is given in a Cause, or Case, not depending in that Court where such Judgment is given, or wherein the Judge has not Jurisdiction.

EXTRA *Parochial*, what is out of the Bounds of any Parish; or privileged, and freed from the Duties of a Parish. See PAROCHIAL.

EXTRACT, in Pharmacy, the purest, and finest Part of a Vegetable, or other Body, separated from the coarser, by dissolving and digesting it with a proper Menstruum; and afterwards reduced into a thick, moist Consistence by a Distillation, or Evaporation of the Humidity of the Menstruum. See EXTRACTION.

EXTRACT, in Matters of Literature, *&c.* is used for some Matter, Doctrine, Passage, or the like taken from a Book, or Register.

The Journals, *Nouvelles*, *Bibliotheques*, *Memoires*, and other Monthly or Quarterly Accounts of the Affairs of Learning, consist principally of *Extracts* of the most material Passages, Doctrines, *&c.* found in the several Books, publish'd in that Time. See JOURNAL.

EXTRACTING, an artful drawing out of the Juices, Virtues, and Qualities of a natural Body. See EXTRACTION.

There are divers Ways of *Extracting* the Virtues of Vegetables, Minerals, *&c.* by *Pression*, *Infusion*, *Lotion*, *Calcination*, *Distillation*, *Cohobation*, and other Operations taught in Chymistry and Pharmacy. See PRESSION, *&c.*

EXTRACTION, in Pharmacy and Chymistry, an Operation, whereby Essences, Tinctures, *&c.* are drawn from natural Bodies. See EXTRACT.

Some will have *Extraction* to signify any Solution made by Menstruums: But, in Strictness, there is this Difference; that in *Solution* the Menstruums absorb the whole Substance of the Body, but in *Extraction* they carry off only certain Part of it: And in this Sense, Camphire is dissolved in Spirit of Wine, but Jalap is more properly said to be *extracted*; for the Resin is only taken out by the Menstruum, the other Particles being left untouch'd. See SOLUTION and DISSOLUTION.

Extraction does also frequently signify such an Inspissation, or thickening of a Solution, as that when a certain Quantity of the Menstruum is drawn off, reduceth the remaining Mixture to the Consistence of Honey; as in the *Extracts* of Saffron, Gentian, and the like.

Extracts are chiefly made from Vegetables, and require different Menstruums, according to the different Nature of the Plants; especially in Gummous Kind: For such as are mucilaginous, as *Gum Arabic*, and *Tragacanth*, &c. are not easily dissolved but in aqueous Liquors; whereas, on the other Hand, resinous Gums, as *Galbanum*, *Scammony*, &c. must have burning Spirits to dissolve them. See GUM.

There are others again of a middle Nature, which may be dissolved in either Sort of Menstruums, tho' not so easily in one as the other. See GUMMO *Resin*.

Thus Aloes, and Rhubarb, which are something resinous, are better made into *Extracts* with Spirit of Wine, than Water: But Plants, which abound less with Resin, such as Hellebore, *&c.* are more commodiously *extracted* with Water. — To perform *Extraction* therefore aright, a proper Menstruum is necessary, and one which is as near a-kin as possible to the Body to be *extracted*. See MENSTRUUM.

EXTRACTION, in Chirurgery, an Operation whereby some foreign Matter, formed in the Body, contrary to the Order of Nature, is drawn out of the same.

Such is the *Extraction of a Stone*, formed in the Bladder, or in the Kidneys, *&c.* See STONE. See also LITHOTOMY.

Extraction belongs to the *Exæresis*, as a Species to its Genus. See EXÆRESIS.

EXTRACTION, or *Descent*, in Genealogy, is the Line, Stem, Branch, or Family which a Person is descended from. See DESCENT.

In some military Orders, Chapters, *&c.* a Candidate must make Proof of the Nobility of his *Extraction* ere he is admitted. See DESCENT.

EXTRACTION *of Roots*, is the Method of finding the Root of a given Number or Quantity. See ROOT.

The Square, Cube, and other Powers of a Number, or Root, are form'd by multiplying the given Number into it self a greater, or less Number of Times, as the Power required is higher or lower.

This Multiplication compounds the Powers; and the *Extraction* of the Root decompounds them again, or reduces them to their first Principles or Roots. So that the *Extraction* of the Root is to the Multiplication of the Power, what the Analysis is to the Synthesis.

Thus, 4, multiplied by 4, produces 16; which is the Square of 4, or the Factum of 4 by it self: And 16 multiplied by 4, makes 64, which is the Cube of 4, or the Factum of 4 by its Square: — Such is the *Composition of Powers*.

Again, the Square Root of 16 is 4, by Reason 4 is the Quotient of 16 divided by 4; and the Cube Root of 64 is likewise 4; by Reason 4 is the Quotient of 64 divided by the Square of 4: — Such is *the Extraction of Roots*.

Hence, to *extract the Root out of a given Power*, is the same Thing as to find a Number, *e. gr.* 4, which being multiplied a certain Number of Times into it self, produces the given Power, *e. gr.* 16 or 64. See POWER.

For the *Extraction* of Square and Cube Roots, 'tis necessary to have the Squares, and Cubes of all the Digits in Readiness; as exhibited in the following Table.

Roots	1	2	3	4	5	6	7	8	9
Square	1	4	9	16	25	36	49	64	81
Cubic	1	8	27	64	125	216	343	512	729

To Extract the Square Root *out of a given Number.*

1°. Divide the given Number into Classes, of two Figures a-piece; and include each Class between two Dots, commencing with the Place of Unites, or right Hand Figure: The Root will consist of so many Parts, or Figures, as you have Classes. — By the Way observe, it may happen that for the last Class on the left Hand there shall only be one Figure left.

2°. Then, the left Hand Class being the Square of the first Figure of the Root sought; look in the Table of Roots for the Square Root answering to that Number: Or, if that Square Number be not precisely there, to the next less Number: This Root write down for the first Figure of the Quotient: And subtract its Square from the left Hand Class. — To the Remainder, bring down the next Class toward the right.

3°. Write down the double of the Quotient Figure under the left Hand Figure of the second Class; and seek how oft this Duple is contain'd in the Figure over it; The Quotient gives the second Figure of the Root.

4°. Write the same Quotient under the right Hand Figure of the same Class; and subtract the Product of the whole Number underwritten, multiplied by the last Figure of the Root, from the Number over it, as in Division.

5°. The Operation being repeated according to the third and fourth Steps, *i. e.* the Remainder being still divided by the double of the Root as far as *extracted*, and from the Remainder, the Square of the Figure that last came out, with the Duple of that foresaid Divisor augmented thereby, being subtracted; you will have the Root required.

E. gr. To *extract* the Root of 99856, point it after the following Manner, 99856, then seek a Number, whose Square shall equal the first Figure 9, *viz.* 3, and write it in the Quotient; then having subtracted from 9, 3 × 3, or 9, there will remain 0; to which set down the Figures as far as the next Point, *viz.* 98 for the following Operation. Then, taking no Notice of the last Figure 8, say, How many Times is the double of 3, or 6, contained in the first Figure 9? Answer 1. Wherefore having wrote 1 in the Quotient, subtract the Product, of 1 × 61, or 61 from 98, and there will remain 37, to which connect the last Figures 56, and you will have the Number 3756, in which the Work is next to be carried on. Wherefore also neglecting the last Figure of this, *viz.* 6, say, How many Times is the double of 31, or 62, contain'd in 375, (which is to be guess'd at from the initial Figures 6 and 37, by taking Notice how many Times 6 is contained in 37?) Answer 6; and writing 6 in the Quotient, subtract 6 × 626, or 3756, and there will remain 0; whence it appears, that the Business is done, the Root coming out 316.

```
 : : :
99856 ( 316
9
---
098
 61
----
 3756
 3756
----
    0
```

Otherwise, with the Divisors set down, it will stand thus:

```
      . . .
      99856 ( 316
      9
      ---
   6) 98
       61
      ----
  62) 3756
      3756
      ----
         0
```

And so in others.

Again, if you were to *Extract* the Root out of 22178791: first, having pointed it, seek a Number, whose Square (if it cannot be exactly equall'd) shall be the next less Square, (or nearest) to 22, the Figures to the first Point, and you will find it to be 4. For 5 × 5, or 25, is greater than 22; and 4 × 4, or 16, is less; wherefore 4 will be the first Figure of the Root. This therefore being writ in the Quotient, from 22, take the Square 4 × 4, or 16; and to the Remainder 6, adjoin the next Figures 17, and you'll have 617; from whose Division, by the double of 4, you are to obtain the second Figure of the Root, *viz.* neglecting the last Figure 7, say, How many Times 8 is contained in 61? Answer, 7; wherefore write 7 in the Quotient, and from 617, take the Product of 7 into 87, or 609, and there will remain 8, to which join the two next Figures 87, and you will have 8875 by the Division whereof by the double of 47, or 94, you are to obtain the third Figure; in order to which say, How many Times is 94 contained in 88? Answer, 0; wherefore write 0 in the Quotient, and adjoin the two last Figures 91, and you will have 88791, by whose Division by the double of 470, or 940, you are to obtain the last Figure, *viz.* say, How many Times 940 in 8879? Answer 9; wherefore write 9 in the Quotient, and you will have the Root 4709. But since the Product 9 × 9409, or 84681, subtracted from 88791 leaves 4110, the Number 4709 is not the Root of the Number 22178791 precisely, but a little less.

```
 . . . .
22178791 ( 4709, 43637, &c.
16
----
 617
 609
 -----
   88791
   84681
   -----
    411000
    376736
    ------
     3426400
     2825649
     -------
      60075100
      56513196
      --------
       356190400
       282566169
       ---------
        73624231
```

If then it be required to have the Root approach nearer; carry on the Operation in Decimals, by adding to the Remainder two Cyphers in each Operation. Thus the Remainder 4110, having two Cyphers added to it, becomes 411000; by the Division whereof, by the double of 4709, or 9418, you will have the first Decimal Figure 4. Then having writ 4 in the Quotient, subtract 4 × 94184, or 376736, from 411000, and there will remain 34264. And so having added two more Cyphers, the Work may be carried on at Pleasure, the Root at length coming out 4709, 43637, &c.

But when the Root is carried on half Way or above, the rest of the Figures may be obtain'd by Division alone: As in this Example if you had a Mind to *extract* the Root to nine Figures, after the five former 4709,4 are *extracted*, the four latter may be had, by dividing the Remainder by the double of 4709,4.

Thus if the Root of 32976, were to be *Extracted* to five Places, in Numbers; after the Figures are pointed, write 1 in the Quotient, as being the Figure whose Square 1 × 1, or 1, is the greatest that is contain'd in 3, the Figure to the first Point; and having taken the Square of 1 from 3, there will remain 2: Then having set the two next Figures, *viz.* 29 to it, (*viz.* to 2) seek how many Times the double of 1, *viz.* 2, is contain'd in 22, and you will find indeed that it is contained more than 10 Times; but you are never to take your Divisor 10 Times, no, nor 9 Times in this Case; because the Product of 9 × 29, or 261, is greater than 229, from which it would be to be taken, or subtracted: Wherefore write only 8. And then having wrote 8 in the Quotient, and subtracted 8 × 28, or 224, there will remain 5; and having set down to this the Figures 76, seek how many Times the double of 18, or 36, is contained in 57, and you will find 1, and so write 1 in the Quotient; and having subtracted 1 × 361, or 361, from 576, there will remain 215. Lastly, to obtain the remaining Figures, divide this Number 215, by the double of 181, *viz.* 362, and you will have the Figures 59, which being writ in the Quotient, give the Root 181, 59.

```
     . . .
     32976 ( 181, 59
     1
     ---
  2) 229
     224
     ---
 36)  576
      361
      ---
362) 215 (59 &c.
```

After the same manner are Roots *Extracted* out of Decimal Numbers.—Thus the Root of 329, 76 is 18, 1595 and the Root of 3, 2976 is 1, 81595 and the Root of 0, 032976, is 0, 18159, and so on. But the Root of 3297, 6 is 57, 4247; and the Root of 32, 976 is 5, 74247. And thus the Root of 9, 9856 is 3, 16.

To Extract the Cube, *or other higher* Root, *out of a given Number.*

The *Extraction* of the Cubic Root, and of all other Roots may be comprehended under one general Rule; *viz.* Every third Figure, beginning from Unity, is first to be pointed, if the Root to be *Extracted* be a Cubic one; or every fifth, if it be a Quadrato Cubic, (or of the fifth Power) and then such a Figure is to b writ in the Quotient, whose greatest Power (that is, whose Cube, if it be a Cubick Power, or whose Quadrato-Cube, if it be the fifth Power, &c.) shall either be equal to the Figure, or Figures, before the first Point, or next less under them; and then having subtracted that Power, the next Figure will be found by dividing the Remainder augmented by the next Figure of the Resolvend, by the next least Power of the Quotient multiplied by the Index of the Power to be *Extracted*, that is, by the triple Square, if the Root be a Cubick one; or by the Quintuple Biquadrate (that is, five Times the Biquadrate) if the Root be of the fifth Power, &c. And having again subtracted the Power of the whole Quotient from the first Resolvend, the third Figure will be found by dividing that Remainder, augmented by the next Figure of the Resolvend, by the next least Power of the whole Quotient, multiplied by the Index of the Power to be *Extracted*.

Thus, to *Extract* the Cube Root of 13312053, the Number is first to be pointed after this manner, *viz.* 13312053, then you are to write the Figure 2, whose Cube is 8, in the first Place of the Quotient, as, that which is the next least Cube to the Figures 13, (which is not a perfect Cube Number) or as far as the first Point; and having subtracted that Cube, there will remain 5; which being augmented by the next Figure of the Resolvend 3, and divided by the triple Square of the Quotient 2, by seeking how many Times 3 × 4, or 12, is contained in 53, it gives 4 for the second Figure of the Quotient. But since the Cube of the Quotient

```
                 . . .
                 13312053 ( 237
Subtract the Cube 8
                 ---
      12) rem: 53 (4 or 3
Subtract Cube 12167
   1587) rem: 11450 ( 7
                 -------
                 13312053
                 Remains 0
```

24, *viz.* 13824, would come out too great to be subtracted from the Figures 13312 that precede the second Point, there must only 3 be writ in the Quotient: Then the Quotient 23 being in a separate Place multiplied by 23, gives the Square 529, which again multiplied by 23, gives the Cube 12167, and this taken from 13312, will leave 11455 which augmented by the next Figure of the Resolvend 0, and divided by the triple Square of the Quotient 23, *viz.* by seeking how many Times 3 x 529, or 1587, is contained in 11450, it gives 7, for the third Figure of the Quotient. Then the Quotient 237, multiplied by 237, gives the Square 56169, which again multiplied by 237, gives the Cube 13312053, and this taken from the Resolvend, leaves 0. Whence it is evident, that the Root sought is 237.

So, to *Extract* the Quadrato Cubical Root of 36430820, it must be pointed over every fifth Figure, and the Figure 3, whose Quadrato Cube, or fifth Power 243, is the next least to 364, *viz.* to the first Point, must be writ in the Quotient. Then the Quadrato Cube 243, being subtracted from 364, there remains 121, which augmented by the next Figure of the Resolvend, *viz.* 3, and divided by five Times the Biquadrate of the Quotient, *viz.* by seeking how many Times 5 x 81, or 405, is contain'd in 1213, it gives 2 for the second Figure. That Quotient 32, being thrice multiplied by it self, makes the Biquadrate 1048576; and this again multiplied by 32, makes the Quadrato Cube 33554432, which being subtracted from the Resolvend, leaves 2876388. Therefore 32 is the integer Part of the Root, but not the true Root; wherefore if you have a Mind to prosecute the Work in Decimals, the Remainder, augmented by a Cypher, must be divided by five Times the aforesaid Biquadrate of the Quotient, by seeking how many Times 5 x 1048576, or 5242880, is contain'd in 2876388, 0, and there will come out the third Figure, or the first Decimal 5. And so by subtracting the Quadrato Cube of the Quotient 32,5 from the Resolvend, and dividing the Remainder by five Times its Biquadrate, the fourth Figure may be obtained. And so on *in infinitum.*

```
        36430820 ( 32, 5
        243
  405 ) 1213 ( 2
        33554432
5242880 ) 2876388, 0 ( 5
```

In some Cases, 'tis convenient only to indicate the *Extraction* of a Root; especially where it cannot be had exactly. Now, the Sign, or Character, whereby Roots are denoted, is $\sqrt{}$: To which is added the Exponent of the Power, if it be above a Square. *E. gr.* $\sqrt{}^2$ denotes the Square Root. $\sqrt{}^3$ the Cube Root, *&c.*

When a Biquadratick Root is to be *Extracted*, you may *Extract* twice the Square Root, because $\sqrt{}^4$ is as much as $\sqrt{}^2\sqrt{}^2$. And when the Cubo Cubick Root is to be *Extracted*, you may first *Extract* the Cube Root, and then the Square Root of that Cube Root, because the $\sqrt{}^6$ is the same as $\sqrt{}^3\sqrt{}^2$; whence some have called these Roots, not Cubo Cubick ones, but Quadrato Cubes. And the same is to be observed in other Roots, whose Indexes are not prime Numbers.

To prove the Extraction of Roots.

1°. For a *Square Root:* Multiply the Root found by it self, and to the Product add the Remainder, if there were any: If the Sum be equal to the Number given, the Operation is just.

2°. For a *Cube Root:* Multiply the Root found by it self; and the Product, again, by the same Root. To the last Product, add the Remainder if there were any. If the Sum come out the Number first given, the Work is just.

After the like Manner may the *Extraction* of other Roots be proved.

To EXTRACT *the Roots of Equations, or Algebraic Quantities.*

The *Extraction of Roots* out of simple Algebraic Quantities, is evident, even from the Nature, or Marks of Notation it self, as — that $\sqrt{aa}$ is a, and that $\sqrt{aacc}$ is ac, and that $\sqrt{9aacc}$ is 3ac; and that $\sqrt{49a^4xx}$ is $7aax$. And also that $\sqrt{\frac{a^4}{cc}}$, or $\frac{\sqrt{a^4}}{\sqrt{cc}}$ is $\frac{aa}{c}$, and that $\sqrt{\frac{a^4bb}{cc}}$ is $\frac{aab}{c}$, and that $\sqrt{\frac{9aazz}{25bb}}$ is $\frac{3az}{5b}$, and that $\sqrt{\frac{4}{9}}$ is $\frac{2}{3}$, and that $\sqrt{\frac{8b^6}{27a^3}}$ is $\frac{2bb}{3a}$, and that $\sqrt{{}^4aabb}$ is $\sqrt{ab}$. Moreover, that $b\sqrt{aacc}$, or b into $\sqrt{aacc}$, is b into ac, or abc. And that $3c\sqrt{\frac{9aazz}{25bb}}$, is $3c \times \frac{3az}{5b}$, or $\frac{9acz}{5b}$. And that $\frac{a+3x}{c}\sqrt{\frac{4bbx^4}{81aa}}$ is $\frac{a+3x}{c} \times \frac{2bxx}{9a}$, or $\frac{2abxx+6bx^3}{9ac}$. I say these are all evident, because it will appear at first Sight, that the proposed Quantities are produced, by multiplying the Root, into themselves (as $a \times a$, aacc from ac into ac, 9aacc from 3ac into 3ac, *&c.*) But when Quantities consist of several Terms, the Business is performed as in Numbers.

Thus to *extract* the Square Root out of $aa+2ab+bb$, in the first Place, write the Root of the first Term aa, *viz.* a in the Quotient, and having subtracted its Square $a \times a$, there will remain $2ab+bb$ to find the Remainder of the Root by. Say therefore, How many Times is the double of the Quotient, or 2a, contained in the first Term of the Remainder $2ab$? I answer b, therefore write b in the Quotient, and having subtracted the Product of b into $2a+b$, or $2ab+bb$, there will remain nothing. Which shews that the Work is finished, the Root coming out $a+b$.

```
aa + 2ab + bb ( a + b
aa
0. + 2ab + bb
   + 2ab + bb
   0     0
```

And thus to *extract* the Root out of $a^4+6a^3b+5a^2bb-12ab^3+4b^4$, first set in the Quotient the Root of the first Term a^4, *viz.* aa, and having subtracted its Square $aa \times aa$, or a^4, there will remain $6a^3b+5aabb-12ab^3+4b^4$ to find the Remainder of the Root. Say therefore, How many Times is 2aa contained in $6a^3b$? Answer 3ab; wherefore write 3ab in the Quotient, and having subtracted the Product of 3ab, into $2aa+3ab$, or $6a^3b+9aabb$, there will yet remain $-4aabb-12ab^3+4b^4$ to carry on the Work. Therefore, say again, How many Times is the double of the Quotient, *viz.* $2aa+6ab$ contained in $-4aabb-12ab^3$, or which is the same Thing, say, How many Times is the double of the first Term of the Quotient, or 2aa, contained in the first Term of the Remainder $-4aabb$? Answer $-2bb$. Then having writ $-2bb$ in the Quotient, and subtracted the Product $-2bb$ into $2aa+6ab-2bb$, or $-4aabb-12ab^3+4b^4$, there will remain nothing. Whence it follows, that the Root is $aa+3ab-2bb$.

```
a⁴ + 6a³b + 5aabb − 12ab³ + 4b⁴ (aa + 3ab − 2bb
a⁴
— 6a³b + 5aabb − 12ab³ + 4b⁴
0 + 6a³b + 9aabb
    0   −4aabb − 12ab³ + 4b⁴
        −4aabb − 12ab³ + 4b⁴
        0      0      0
```

And thus the Root of the Quantity $xx-ax+\frac{1}{4}aa$ is $x-\frac{1}{2}a$; and the Root of the Quantity y^4+4y^3-8y+4 is $yy+2y-2$; and the Root of the Quantity $16a^4-24aaxx+9x^4+12bbxx-16aabb+4b^4$ is $3xx-4aa+2bb$, as may appear underneath.

```
xx − ax + ¼aa ( x − ½a
xx
0  − ax + ¼aa
   0     0

                + 16a⁴
9x⁴ − 24aa  x² − 16aab²  ( 3x² − 4aa
    + 12bb      + 4b⁴        + 2bb
9x⁴
0   − 24aa  + 16a⁴
    + 12bb  x² − 16a²b²
            + 4b⁴
    0          0

y⁴ + 4y³ − 8y + 4 ( yy + 2y − 2
y⁴
0
   4y³ + 4yy
   0 − 4yy
     − 4yy − 8y + 4
     0     0     0
```

If you would *extract* the Cube Root of $a^3+3aab+3abb+b^3$, the Operation is performed thus:

```
a³ + 3aab + 3abb + b³ ( a + b
a³
3aa ) 0 + 3aab ( b
      a³ + 3aab + 3abb + b³
      0     0     0     0
```

Extract first the Cube Root of the first Term a^3, *viz.* a, and set it down in the Quotient: Then subtracting its Cube a^3, say, How many Times is its triple Square, or 3 a a, contained in the next Term of the Remainder 3 a a b? and there comes out b; wherefore write b in the Quotient, and subtracting the Cube of the Quotient, there will remain 0; therefore a + b is the Root. After the same Manner, if the Cube Root is to be *extracted* out of $z^6 + 6z^5 - 40z^3 + 96z - 4$, it will come out $zz + 2z - 4$. And so likewise in higher Roots.

EXTRACTS, in Law. See ESTREATS.

EXTRAORDINARY, something rare and uncommon.

Extraordinary COURIERS, are those sent express on some urgent Occasion. See COURIER.

An *Embassador*, or *Envoy Extraordinary*, is such a one as is sent to treat, or negotiate some special and important Affair, as a Marriage, a Treaty, Confederacy, *&c.* or even on Occasion of some Ceremony, as Condolance, Congratulation, *&c.* See EMBASSADOR and ORDINARY.

A *Gazette*, *Journal*, or other *News-paper Extraordinary*, is that publish'd after some great and notable Event, containing the Detail, or Particulars thereof, which were not found in the ordinary Papers. — Our News Writers generally use Post-scripts, instead of *Extraordinaries*.

EXTRAVAGANTES, a Part of the Canon Law, containing divers Constitutions of the Popes, not contain'd in the Body of the Canon Law; whence the Denomination of *Extravagantes*; *Quasi extra corpus juris vagantes*. See CANON *Law*.

They are divided into two Parts: The first contains XX Constitutions of *John* XXII; and the second, other later Constitutions of the said *John* and his Successors. See CONSTITUTION.

EXTRAVASATION, in Medicine, the Act, or Motion, whereby the Blood *extravasates* it self, *i. e.* breaks out of its ordinary Vessels, the Veins and Arteries, and gathers and stagnates in some Part of the Body: The Blood that flows out of the Body, or that is drawn from it in opening a Vein, is not properly said to be *Extravasated*. See BLOOD.

Extravasated Blood always corrupts and turns into an Imposthume. See IMPOSTHUME, TUMOR, *&c.*

The ordinary Causes of *Extravasations*, are unnatural Repletions, and Distentions of the Vessels; or Lacerations, and Erosions thereof.

There is a Necessity for bleeding, to prevent the Blood's growing to such a Head as to *Extravasate*. See PHLEBOTOMY.

In Wounds of the Head, particularly, bleeding is necessary, to prevent the *Extravasation* of the Blood in the Brain.

The Term is likewise used with Regard to other Humours beside the Blood, as the Lympha, Urine, *&c.* See DROPSY.

The Gardeners likewise use it, in speaking of Gums, Juices, *&c.* oozing out of their Trees either spontaneously, or at Incisions. See GUM, BALM, *&c.*

The Word is form'd of the Latin, *extra*, without, and *vas*, vessel.

EXTREME, or EXTREAM, is applied to the last Part of any Thing; or that which finishes, and terminates it, and beyond which you cannot go.

There is no passing out of one *Extreme*, into the other, without going thro' the middle. — *Extreme* Remedies must only be had Recourse to in *Extreme* Diseases.

Some Anatomists apply the Denomination *Extreams*, or *Extremities*, to the Arms and Legs.

The Arms, or *upper Extremes*, *Superiour Extremities*, consist of 60 Bones; thirty one in each, *viz.* the *Omoplate*, *Humerus*, *Cubitus*, *Radius*, eight in the *Carpus*, four in the *Metacarpus*, and fifteen in the Fingers. See each in its Place, OMOPLATE, *&c.*

The *Lower Extremities*, or Legs, consist of sixty; thirty in each, *viz.* the *Femur*, *Rotula*, *Tibia*, *Fibula*, seven in the *Tarsus*, five in the *Metatarsus*, and fourteen in the Fingers. See LEG, FEMUR, *&c.*

EXTREMES, in Logic, are the two *Extream* Terms of the Conclusion of a Syllogism, *viz.* the Predicate and Subject. See CONCLUSION.

The Predicate, as being likewise had in the first Proposition, is call'd the *majus extremum*, greater *Extreme*; and the Subject, as being put in the second, or *minor* Proposition, is call'd the *minus Extremum*, lesser *Extreme*. See PREDICATE and SUBJECT.

They are both call'd *Extremes*, from their Relation to another Term, which is a Medium, or Mean between them. See MEDIUM.

Thus, in the Syllogism, *Man is an Animal, Peter is a Man; therefore Peter is an Animal*: The Word *Animal* is the greater *Extreme*; *Peter* the less *Extreme*; and *Man* the Medium. See SYLLOGISM.

EXTREME and *mean Proportion*, in Geometry, is when a Line is so divided, that the whole Line is to the greater Segment, as that Segment is to the other.

Or, as *Euclid* expresseth it, when the Line is so divided, that the Rectangle under the whole Line and the lesser Segment, shall be equal to the Square of the greater Segment.

The Invention of this Division is thus: Let the given Line be A B = a, (*Tab. Geometry*, *Fig.* 64.) and for the greater Segment put x, the lesser will be $a - x$. Then by the Hypothesis, $a : x : a - x \div$. Therefore $aa - ax = xx$, consequently $aa = xx + ax$. And by adding $\frac{1}{4}aa$ on each Side, to make $xx + ax + \frac{1}{4}aa$ a compleat Square, the Equation will stand thus $\frac{5}{4}aa = xx + xa + \frac{1}{4}aa$.

Now, since the latter is exactly a Square, its Root $x + \frac{1}{2}a = \sqrt{\frac{5}{4}aa}$, and by Transposition it will be $\sqrt{\frac{5}{4}aa} - \frac{1}{2}a = x$; which last Equation is a Canon to find x.

For at the Foot of A B = a, set at right Angles C B $= \frac{1}{2}a$: Then draw C A, the Square of which is equal, $AB\,q + CB\,q = \frac{5}{4}aa$. And therefore $AC = \sqrt{\frac{5}{4}aa}$; make C D = C A.

From whence C B $= \frac{1}{2}a$ being taken, as the Case requires, there remains B D $= x$; which transferr'd into A B, shall give the Point E, where A B is cut according to *Extreme* and *mean Proportion*.

This cannot be exactly done in Numbers; but if you would have it tolerably near, add together the Square of any Number, and the Square of its half, and extract as near as you can, the Square Root of the Sum; from whence taking half, the Remainder is the greater Part.

EXTREME-UNCTION, one of the Sacraments of the *Romish* Church, the fifth in Order, administer'd to People dangerously sick, by anointing them with holy Oils, and performing several Prayers over them. See UNCTION and SACRAMENT.

This Sacrament is not only in Use in the *Latin*, but also in the *Greek* Church, and throughout the *East*, tho' under another Name, and with some Difference in the Circumstances; in that the Orientals don't wait till their Sick are come to Extremity, in Order to anoint them: But the Sick generally go to Church themselves; and it is administer'd to them as often as they are indisposed. The *Greeks* taking that Direction of St. *James*, C. V. ver. 14. which is the Foundation of the Practice, in a general Sense: *Is any Sick among you? let him call for the Elders of the Church, and let them pray over him, anointing him with Oil.*

Fa. *Dandini* distinguishes two Kinds of *Unction* among the *Maronites*: The one call'd, *Unction with the Oil of the Lamp*; but this, he suggests, is not the sacramental *Unction*, ordinarily administer'd to such as are in extreme Sickness, for that the Oil is only Consecrated by a simple Priest, and that it is given to all who are present, not to the sick only, but also to the healthy, and even to the Priest himself who officiates. The other Kind of *Unction*, according to that Father, is only for the Sick; it is perform'd with Oil Consecrated by the Bishop alone, on *Holy Thursday*. And this, it seems, is their sacramental *Unction*.

But that *Unction* with Lamp Oil, is in Use not only among the *Maronites*, but throughout all the *Eastern* Church, who use it very religiously. The Truth is, they don't seem to have any other Sacrament of *Extreme Unction* beside this.

Fa. *Goar* observes, that tho' it be only a Ceremony, with regard to those in Health, it is a real Sacrament to those that are sick.

In their great Churches they have a Lamp, wherein this Oil for the Sick is preserved: This Lamp they call, Καυδήλα τε ευχέλαιου, that is, *the Lamp of Oil join'd with Prayer*; For what the *Latins* call *Extreme Unction*, the *Greeks* call, ευχέλαιον, or αγιον ελαιον, that is, *Oil with Prayer*, or *Holy Oil*.

'Tis call'd *Extreme Unction*, as being only given to Persons in *Extremity*. — In the XIII*th* Century, it was call'd the *Unction of the Sick*, and not *Extreme Unction*. For in the earlier Ages, it was given before the *Viaticum*. Which Practice, according to Fa. *Mabillon*, was not changed till the XIII*th* Century. See VIATICUM.

The Reasons he assigns for the Change are, that in that Age there arose divers mistaken Opinions, several of which we find mention'd and condemn'd in the *English* Councils. Among the rest, 'twas held, that such as had received this Sacrament, in case they recover'd, might not use the Rites of Marriage, nor eat Meat, nor go bare-footed: Whence, they chose to forbear using it till the last *Extremity*; which Practice prevail'd. See the Councils of *Worcester* and *Exeter*, in the Year 1287; that of

of *Winchester* in 1308; and Fa. *Mabillon, Acta Sanct. Benedict. Sec.* III. p. 1. The Form of *Extreme Unction* is now deprecative, as the Divines call it; formerly 'twas absolute and indicative.

EXTRINSIC, is applied in the Schools in various Senses.

Sometimes it signifies a Thing's not being of the Essence of another; in which Sense the efficient Cause, and the End or Scope of a Thing, are said to be *Extrinsic*, or *Extrinsic* Causes. See CAUSE.

Sometimes it implies a Thing's not being contain'd within the Capacity of another; in which Sense those Causes are said to be *Extrinsic*, which introduce something into a Subject from without; as when Fire introduces Heat, *&c.*

Sometimes it denotes a Thing added, or applied to another. — Thus, Accidents and Adherences are said to be *Extrinsic* to the Subject; and thus Vision is *Extrinsic* to the Wall seen. See ACCIDENT.

EXUBERANCE, in Rhetoric, *&c.* a Redundancy. See REDUNDANT.

The Word is compounded of the Latin *ex* and *uber*; plentiful, of *uber*, Udder.

EXULCERATION, in Medicine, the Act of occasioning, or producing Ulcers. See ULCER.

Thus, Arsenic *Exulcerates* the Intestines: Corrosive Humours *Exulcerate* the Skin.

The Term is sometimes also used for an Ulcer itself; but more generally for those beginning Erosions, which wear away the Substance, and form Ulcers. — *Exulcerations* in the Intestines, are Marks of Poison. See POISON.

EXUSTION, a burning with Fire; as it is used in some Operations by Surgeons. See BURNING.

EXUVIÆ, in Nat. History, the Shells, and other marine Bodies, which are found every where in the Bowels of the Earth. See EARTH, FOSSIL, DELUGE, SHELL, *&c.*

EYE, the Organ, or Part of the Body, whereby Vision is effected, *i. e.* whereby visible Objects are represented to the Mind. See VISION.

The *Eye*, or Organ of Sight, is generally divided into *Internal* and *External* Parts; or into the *Eye* properly so call'd, and the Appendages thereof.

Under the latter Class, come the *Orbit*, or Cavity wherein the *Eye* is placed; the *Supercilium*, or *Eye-brow*, whereby Sweat, and other Nuisances, are prevented falling down into it: The *Palpebræ*, or *Eye-lids*, which cover and defend it in Time of Sleep; with their *Cilia*, or Fringes of Hair, to break the too fierce Impression of the Light, and keep off Flies and Moats: And the *Canthi*, or Angles. See each Part particularly described under its proper Article, PALPEBRA, SUPERCILIUM, CILIA, ORBIT, and CANTHUS.

The *Eye*, properly so call'd, is of a globular Form, and consists of *Tunicks*, *Humours*, and *Vessels*. See TUNIC, HUMOUR, *&c.*

In some Parts it is lined with *Fat*; and it is moved with *Muscles*; which two latter are by some Anatomists, tho' somewhat inaccurately, reckon'd among the constituent Parts of the *Eye*.

The *Tunicks*, *Coats*, or *Membranes* of the *Eye* are six: *viz.* 1°. The *Adnata*, or *Conjunctiva*, covering the whole Ball of the *Eye*, except the fore-part, call'd the *Sight*; and making what we popularly call the *White* of the *Eye*: Tho' this is not reckon'd as a proper Tunic of the *Eye*. 2°. Immediately under the *Adnata*, is the *Sclerotica*, which covers the whole Globe of the *Eye*; being opake every where but in the fore-part, which covers the Sight and is transparent like Horn; which has occasion'd Anatomists to account this a distinct Membrane, the 3*d* in Number, and to denominate it the *Cornea*. The 4*th* is the *Choroides*, situate immediately under the *Sclerotica*. Its fore-part, like the former, is transparent, and therefore accounted a distinct, or 5*th* Coat, and call'd the *Uvea*. Of the Duplicature of this Part of the Tunic, is form'd a striped, variegated Circle, call'd the *Iris*, which, in different Subjects, is of different Colours, and gives the Denomination of this or that Colour to the *Eye*: In its middle is an Aperture, or Perforation, call'd the *Pupil*, or Apple of the *Eye*, about which the *Iris* forms a Ring. From the Inside of this Tunic, spring certain Fibres, which spreading round the crystalline Humour, form the *Ligamentum Ciliare*. The 6*th* Tunic, which some only make the 3*d*, is the *Retina*, so call'd, as resembling a Net, and covering only the Fund, or Bottom of the *Eye*, opposite to the Sight.

Of the three proper Tunicks, the *Sclerotica*, *Choroides*, and *Retina*; the first is derived from the *Dura Mater*, being detach'd from the Brain as an outer Coat, or Cover of the Optic Nerve, till arriving at the Ball of the *Eye*, it is there expanded into a Tunic: The second is derived from the *Pia Mater*, and transmitted likewise from the Brain, along with the Optic Nerve; the third may be said to be derived from the Brain, or *Medulla* itself, as being an Expansion of the medullary Substance of the Optic Nerve. See each Tunic described under its proper Article, CONJUNCTIVA, SCLEROTICA, CORNEA, CHOROIDES, UVEA, and RETINA. See also IRIS and PUPILLA.

The *Humours of the Eye*, inclosed between these Tunics, are three: *viz.* 1°. The *Aqueous*, a limpid, transparent Humour, situate in the fore-part of the *Eye*; immediately under the *Cornea*, and occasioning its Protuberance. 2°. The *Crystalline*, situate immediately under the *Aqueous*, behind the *Uvea*, opposite to the Pupil. 3°. The *Vitrious*, or Glassy Humour, which fills all the hind-part of the Cavity of the Globe; and is that which gives the spherical Figure to the *Eye*. On its back Part is the *Retina* spread. See each Humour under its proper Article, AQUEOUS, CRYSTALLINE, and VITRIOUS.

Some Authors finding these Humours cover'd with proper Membranes, have given distinct Names to them; as the *Aqueous*, *Crystalline*, and *Vitrious Tunics*; but these being only Productions of the other Coats abovemention'd, the Distinction is not much regarded.

The *Vessels of the Eye* are Nerves, Glands, Arteries, and Veins.

1°. The Nerves are the *Optic* Pair, which issuing thro' a Perforation in the Skull, behind the Orbit, enter the Ball of the Eye, and diffuse and lose themselves therein; the outer Coat, as already observed, going to form the *Sclerotica*, the inner to the *Choroides*; and the *Medulla* to the *Retina*. See OPTIC *Nerve*, &c.

Beside which, the *Motorii*, *Pathetici*, the first Branch of the fifth Pair, call'd *Ophthalmicus*, and the 6*th* Pairs are bestow'd on the Muscles of the *Eye*. See NERVES.

2°. On the upper part of the Ball of the *Eye*, near the lesser or outer *Canthus*, is the *Glandula Innominata*, or *Lacrymalis*, which separates the Matter of the Tears, to be discharged, by the continual Motion of the *Eye-lid*, upon the *Cornea*, to moisten it, and facilitate its Motion. The Tears falling down the *Cornea*, are stopp'd by the Edge of the under *Eye-lid*, along which they run, till they fall into two small Holes in the great Angle, one in each *Eye-lid*, call'd *Puncta Lacrymalia*, which lead to a small Bag, from the Bottom of which a small Tube arising, opens into the Nose. Between the two *Puncta*, is a Caruncle, or Eminence, which serves to separate and keep them open, and which was anciently taken for the *Glandula Lacrymalis*. See LACRYMALIS *Glandula*, *Puncta* LACRYMALIA, TEARS, *&c.*

3°. The *Eye* receives Arteries, both from the internal and external *Carotids*, and returns the Blood by Veins that go to the Jugulars. See CAROTID and JUGULAR.

The Muscles of the *Eye* are six; four of which are from their Situation call'd *Recti*, or straight Muscles; and two, *Obliqui*. The *Recti* come from several Points of the Bottom of the Orbit, and run immediately between the *Sclerotica* and *Adnata*: They derive several Denominations from their several Offices, *viz. Attollens*, or *Superbus*, which draws the *Eye* upwards: *Deprimens*, or *humilis*, which casts it down: *Adducens*, and *Potator*, which draws the *Eye* towards the Nose: And *Abducens*, or *Indignator*, which draws it the other Way towards the lesser Angle. The two oblique Muscles are, the *superior*, call'd also *Rotator*, and *Trochlearis*; and the *inferior*. See each Muscle in its proper Place, ATTOLLENS, DEPRIMENS, ADDUCENS, ABDUCENS, OBLIQUUS, TROCHLEARIS, *&c.*

The whole Structure and *Apparatus* of the *Eye* tends to this, that there be produced a distinct and vivid Collection in the Bottom of the *Eye*, directly under the Pupil, of all the Rays, which proceeding from any Point of an Object, and entering the *Eye*, penetrate the crystalline Humour; and that so many Points be painted in the Bottom of the *Eye*, as are conspicuous in an Object; that so a small Image like thereto, may be represented on the *Retina*. See RAY and RADIANT.

In order to this, the Rays from any radiant or reflecting Point, striking on the Cornea, are refracted towards the Perpendicular, and thus determined to proceed thro' the Aperture of the Pupil to the Surface of the Crystalline: While other Rays, which enter'd so obliquely as to be thrown upon the *Iris*, are reflected out again, that they may not disturb the Distinctness of the Sight; and others whose less Obliquity threw them between the *Uvea* and vitrious Humour, are extinguish'd in the Darkness thereof: So that none can be propagated thro' the vitrious, but such as passing thro' the Pupil, strike on the Crystalline. See CRYSTALLINE and REFRACTION.

In the mean Time the *Iris*, contracting by its circular, or dilating by its right Fibres, the *Pupilla* of the *Eye*; admits fewer

fewer or more Rays, as the Object is nearer or more vivid; or remoter and more languid. See PUPIL.

Now, the flatter the Figure of the *Cornea* is, the less does it collect the Rays emitted from any lucid Point; whence fewer arrive at the Crystalline, and those more diverging, unless when they come from a very remote Object: On the contrary, the rounder it is, the more of the Rays from any Point does it collect, and throw on the Crystalline; and those the more converging: Whence one great Cause of the Defects in the *Eyes* both of Old Men and Myopes.

Again, the Rays transmitted thro' the Pupil to the Crystalline, are there refracted a-new, further collected, and render'd converging; so as that those which came from the same Point of the Object, are now thrown in one Point thro' the Vitrious, upon the *Retina*; where they paint or exhibit that precise Point of the Object whence they flow'd. Accordingly, if the Crystalline be very dense, or spherical, the Focus, or the Point wherein they are united, will be too near; and if too flat, or thin, the Point will be too remote: The Effect of both which is Confusion. And hence another Cause of the Defects of *Myopes* and *Presbytæ*. See MYOPES and PRESBYTÆ.

'Tis not, however, *Myopes* and old Men alone, that would labour under these Defects, and have their Vision, in most Cases confused, as in Objects very near, or very remote, very small, or very great: But those would be the common Condition of Vision.

Distinct Vision, depending absolutely on the Union of all the Rays coming from the same Point of the Object, on the same precise Point of the *Retina*; and Rays from Objects at different Distances, being united at different Distances behind the Crystalline; it were impossible, *e. gr.* for the same *Eye* to see distinctly any two Objects differently removed from it. But Nature has made a Provision against these Defects; and that principally, by bringing the Crystalline nearer to the *Cornea*, or further from it, occasionally; which is effected two Ways, *viz.* either by compressing the Bulb of the *Eye* by the four Muscles all strongly contracted at once, which changes the Figure of the aqueous Humour, and renders the *Eye* oblong; or by the *Ligamentum Ciliare*, augmenting and diminishing the Convexity of the Crystalline, and setting it nearer or further from the *Retina*. See SEEING, SIGHT, *&c.*

As complex as the Mechanism of the *Eye* may seem, and as manifold as the Parts are which have a Relation hereto: The Justness of Vision seems to require an exact Habitude in them all. — Thus, tho' the Pupil be no substantial Part of the *Eye*, but only an Aperture of the *Uvea* almost perpetually changing its Bigness according to the different Degrees of Light the *Eye* chances to be exposed to; and therefore should seem, while this Hole remains open, to perform its Office, by giving Entrance to the incident Rays of Light: Yet Mr. *Boyle* saw a Woman, who, after a Fever, not being able to dilate the *Pupillæ* of her *Eyes*, as before, tho' they were very little narrower than ordinary; yet had she thereby almost lost her Sight. — And on the other Side, tho' a competent Wideness of the Pupil be requisite to a clear and distinct Vision, yet if its Dilatation exceeds the due Limits, there is thereby produced a considerable Distemper of Sight.

It may seem also but a slight Circumstance, that the transparent Coats of the *Eye* should be devoid of Colour; and of as little Moment, that the *Cornea* should be very smooth, provided it remain transparent: Yet when either of these Circumstances is wanting, the Sight is greatly vitiated. — Thus we see, that in the yellow Jaundice, the adventitious Colour, wherewith the *Eye* is tinged, makes the Patient think he sees many Objects yellow, which are of a contrary Colour.

It has of late been an Opinion, that tho' both *Eyes* be open, and turned towards an Object, yet only one of them at a Time is effectually employed in giving the Representation of it: So that the having of two *Eyes* should seem in some Sort a Redundance. — But Mr. *Boyle* furnishes several Considerations which invalidate this Opinion, and shew that both the *Eyes* are of Use at the same Time. — He assures us, he has found by frequent Experiment, that his two *Eyes* together, beheld an Object in another Situation, than either of them apart would do. — He adds, that he has met with a Person, who had a Cataract in his *Eye* for two or three Years, without finding any Impediment in his Sight, tho' others had, during that Time, taken Notice of a white Film that had crossed his *Eye*; till, at length, happening to rub his sound *Eye*, he was surprized to find himself in the dark: And that a very ingenious Person, who by an Accident had one of his *Eyes* struck out, told him, that for some Months after, he was apt to mistake the Situation and Distances of Things; for having frequent Occasion to pour Liquors out of one Vial into another, after this Misfortune he often spilt them, and let them run quite besides the Necks of the Vials, he thought he was pouring them directly into.

The like was related to him by another Person, who had, by a Wound, lost the use of one of his *Eyes*; viz. that for some Time after, he often, in pouring out his Wine, miss'd the Mouth of the Bottle, or Glass.

A yet more considerable Instance of this Kind, the same Author gives us, of a noble Person, who, in a Fight, had one of his *Eyes* strangely mangled by a Musket Ball, which came out at his Mouth; after which Accident, he could not well pour Drink out of one Vessel into another; but had broken many Glasses by letting them fall out of his Hand, when he thought he had given them to another, or set them down on the Table: He added, that this Aptness to misjudge of Distances and Situation, continued with him, tho' not in the same Degree, for two Years.

The comparative Structure, and Anatomy of the *Eye*, is very curious: The Situation, Number, Conformation, *&c.* of this Organ, in different Animals, being finely and wonderfully adapted to their different Circumstances, Occasions and Manners of Living.

In *Man*, and some other Creatures, an ingenious Author observes, the *Eye* is placed chiefly to look forwards; but withal so order'd, as to take in nearly the Hemisphere before it. — In *Birds*, and some other Creatures, the *Eyes* are so seated, as to take in near a whole Sphere, that they may the better seek their Food and escape Danger. — In others they are seated, so as to see behind them, or on each Side, whereby to see the Enemy pursuing them: Thus, in *Hares* and *Conies*, the *Eyes* are very protuberant, and placed so much towards the Side of the Head, that their two *Eyes* take in nearly a whole Sphere: Whereas in *Dogs*, that pursue 'em, the *Eyes* are set more forward in the Head, to look that Way more than backward.

Generally, the Head is contrived to turn this and that Way, chiefly, for the Occasions of the *Eyes*; and generally the *Eyes* themselves are moveable upwards, downwards, backwards, sidewise, for the more commodious Reception of the visual Rays. Where Nature deviates from these Methods, she always makes use of very artful Expedients to answer the same End.

Thus, in some Creatures, the *Eyes* are set out at a Distance from the Head, to be moved here and there, the one this Way, and the other that; as in *Snails* particularly, whose *Eyes* are contain'd in their four Horns, like atramentous Spots fitted to the End of their Horns, or rather to the Ends of those black Filaments, or Optic Nerves, sheath'd in the Horn. *Power*, Exper. Phil. *Obs.* 31.

And in other Creatures, whose *Eyes* or Head is without Motion, as in divers Insects; that Defect is sometimes made up by their having more *Eyes* than two; as in *Spiders*, which having no Neck, and consequently the Head being immoveable, the Defect is supplied by the Situation and Multiplicity of their *Eyes*; some having four, some six, and others eight, all placed in the forefront of the Head, which is round, like a Locket of Diamonds. The Reason Dr. *Power* gives, is, that being to live by catching so nimble, and shy a Prey as Flies, they ought to see her every Way, and so take her *per saltum*, without any Motion of the Head to discover them.

Again, Men, and most Quadrupeds, are found to have several Muscles belonging to their *Eyes*, by Help whereof they can turn them any Way, and so obvert the Organ of Sense to the Object. — But Nature not having given that Mobility to the *Eyes* of Flies, she in Recompence furnishes them with a Multitude of little protuberant Parts, finely ranged upon the Convex of their large bulging *Eyes*; so that by Means of these numerous little Studs, numberless Rays of Light are reflected from Objects placed on either Hand, above, or beneath the Level of the *Eye*, and conveniently thrown upon that Organ, to render the Objects they come from, visible to the Animal; and by the Help of a good Microscope, and a clear Light, some Hundreds of these little round Protuberances may be discover'd, curiously ranged on the Convexity of a single *Eye* of an ordinary Flesh Fly.

So *Scorpions* are found to have above an hundred *Eyes*; and *Swammendam* has observed no less than two thousand in the little Insect call'd *Ephemera*.

In other Creatures, the like Deficiency is supplied by having their *Eyes* nearly two protuberant Hemispheres, each consisting of a prodigious Number of other little Segments of a Sphere.

The *Eyes* of a *Cameleon*, Dr. *Goddard* observes, resemble a Lens, or Convex Glass, set in a versatile globular Socket,

Socket, which she turns backward and forward without stirring the Head; and ordinarily the one a contrary Way to the other.

Lastly, *Moles*, which the Antients, *Aristotle*, *Pliny*, *Alb. Magnus*, &c. supposed to have no *Eyes* at all, are now found to furnish a notable Instance of the Diversity of the Apparatus of Vision. For that Animal living altogether underground, Sight would generally be useless to it, and so tender a Part as the *Eye* troublesome. It has therefore *Eyes*, but those so exceedingly small, and withal situate so far in the Head, and cover'd so strongly over with Hair, that they cannot ordinarily be either of Service or Disservice to it. Yet, to guide and secure it a little when it chances to be above ground, *Borrichius*, *Blasius*, *Schneider*, Mr. *Derham*, and others, observe, that it can pretend, or put them forth beyond the Skin, and again draw them back at Pleasure, somewhat after the Manner of Snails.

In the *Eyes* of Nocturnal Animals is a Part not yet mention'd, *viz.* a Sort of *Tapetum* at the Bottom of the *Eye*, which gives a Kind of Radiation on the Pupil, enabling them to see and catch their Prey in the Dark. Thus Dr. *Willis*: *Hujus usus est* Oculi *pupillam quasi jubare insito illuminare* —— *quare in Felis plurimum illustris est, at Homini, Avibus & Piscibus deest. De* Animi Brutor.

He adds, that in some Persons the *Iris* has a Faculty also of darting out Light: And instances in a Man of a hot Head, who after a plentiful drinking of generous Wine, could see to read in the darkest Night. *Willis*, ibid.

The like *Pliny* tells us of *Tib. Cæsar*, that upon his first waking in the Night, he could see every Thing for a little while, as if in broad Day light. *Nat. Hist.* L. II. *C.* 37. And Dr. *Briggs* give a parallel Instance of a Gentlemen in *Bedfordshire*. Opthalm. *C.* 5. §. 12.

Frogs, beside the Parts of the *Eye* which they have in common with Men, and most Quadrupeds, have a peculiar Membrane, or Cartilage, which is not commonly perceived, wherewith they can, at Pleasure, cover the *Eye*, without too much hindring the Sight, because the Membrane is both transparent and strong; so that it may pass for a Kind of moveable *Cornea*, or occasional Safeguard to the *Eye*.

In furnishing Frogs with this strong Membrane, the Providence of Nature seems very conspicuous; for that being amphibious Creatures, designed to pass their Lives in watery Places, which for the most part abound in Plants, endowed with sharp Edges, or Points; and the progressive Motion of this Animal, being not by walking, but by leaping, if his *Eyes* were not provided with such a Case, he must either shut them, and so leap blindfolded, or by leaving them open, must run the Risk of having the *Cornea* cut, pricked, or otherwise offended: But this Membrane, like a Kind of Spectacle, covers the *Eye*, without taking away the Sight; and as soon as the Occasion for it is over, the Animal withdraws it into a little Cell, where it rests, till its Use be again required. This Membrane becomes visible, by applying the Point of a Pin, or any such sharp Thing, to the *Eye* of a Frog, whilst his Head is held steady; for to screen his *Eye*, he will presently cover it therewith, and afterwards withdraw it, upon a Removal of the suspected Danger. — And because many Birds are destined to fly among the Branches of Trees and Bushes, lest by this Means the Prickles, Twigs, Leaves, &c. should wound or offend their *Eyes*, Nature has also given them such another Kind of horny Membrane as we see in Frogs. See NICTITATING *Membrane*.

Naturalists relate Wonders of the Sharpness and Accuracy of the *Eyes* of some Animals, as the Eagle, &c. beyond those of Men. See EAGLE, &c.

Yet do those of Men seem improveable to a surprizing Degree: — Mr. *Boyle* instances in a Major of a Regiment of King *Charles* I. who being afterwards forced Abroad, ventured at *Madrid*, to do his King a Piece of Service of an extraordinary Nature and Consequence; which being there judged very irregular, he was committed to an uncommon Prison, or rather Dungeon; having no Window belonging to it, only a Hole in the Wall, at which the Keeper put in Provision, and presently closed it again on the Outside, but not perhaps very exactly. — For some Weeks this Gentleman continued utterly in the Dark very disconsolate; but afterwards he began to think he saw some little Glimmering of Light, which, from Time to Time, increased, so that he could not only discover the Parts of his Bed, and other such large Objects, but at length, amidst this deep Obscurity, cou'd perceive the Mice that frequented his Chamber, to eat the Crumbs of Bread which fell upon the Ground, and discern their Motions very well.

The Author just mention'd, in his *Observations on Vitiated Sight*, gives us some uncommon Phænomena, that regard the *Eyes*. — He furnishes several Instances of *Nyctalopias*, or People, whose *Eyes* in the Day-time were quite dark, or at least so dim, that they could hardly discern their Way; who yet, soon after Sun-set, and during Twilight, saw very clearly. See NYCTALOPIA.

This brings to mind an odd Case of an old learned Divine, who complained, that during the Day-time, his right Hand shook so much, that he could not manage his Pen; and therefore was forced to make Use of it only by Candle-Light.

But, which is yet more strange, one of these Patients who could only see by Night, cou'd distinguish some Colours, *viz.* black and white, but not others, especially red and green. The Meadows to this Person did not appear green, but of an odd, darkish Colour; and when she had a Mind to gather Violets, tho' she kneeled in the Place where they grew, she could not distinguish them by the Colour from the Grass about them, but only by their Shape or Touch.

Artificial EYE, is an Optical Machine, wherein Objects are represented after the same manner as in the natural *Eye*; of considerable Use in illustrating the manner of Vision.

Its Construction is thus: Provide two hollow Hemispheres of hard, dry Wood, well cemented together, to represent the *Ball* of the *Eye*: Let the *Anterior*, or Fore-Hemisphere, be perforated with a round Hole in C, (*Tab. Opticks*, *Fig.* 9.) to supply the Place of a *Pupil*; and therein fit a thin, plane Glass, or, which amounts to the same, a Concavo-convex Glass, to serve for the *Cornea*: In the Inside, have a short draw-Tube G, with a Lens Convex on both Sides, to do the Office of the *Crystalline* therein. In the hind, or posterior Hemisphere, fit another Draw-Tube E F, with a plain Glass therein, having its inner Surface smooth, tho' not polish'd, representing the *Retina* and *Optic* Nerve.

If now the Aperture C, be turn'd towards any Object; and the Draw-Tube F E be gradually pull'd out; you will have the Object beautifully and strongly represented in all its Colours on the *Retina*, only in an inverted Order. See VISION.

It being of no Consequence what the Figure of the inner Cavity is; any Room, or Chamber, so darken'd as only to receive Light from a single Hole, with a Glass Convex on both Sides fitted therein; will do the Office of an *Artificial Eye*, and exhibit all the Objects opposed to the Aperture; on a Wall, or a white Cloth, stretch'd at a proper Distance from the Aperture: With this Circumstance, that the less Sphere the Glass is a Segment of, the greater will the Figures appear. And this is the celebrated *Camera Obscura*. See CAMERA *Obscura*.

EYE, in Architecture is used for any round Window made in a Pediment, an Attic, the Reins of a Vault, or the like. See WINDOW.

BULLOCKS-EYE, or *Oeuil de Bœuf*, is a little Sky-Light in the Covering, or Roof, intended to illumine a Granary, or the like. The same Term is applied to the little Luthérns in a Dome, as in that at St. *Peters* at *Rome*, which has 48 in three Rows. See LUTHERN.

EYE *of a Dome*, is an Aperture at the Top of the Dome; as that of the *Pantheon* at *Rome*, or of St. *Pauls* at *London*. It is usually cover'd with a Lanthorn. See DOME.

EYE *of the Volute*, in Architecture, is the Centre of the Volute, or that Point wherein the Helix, or Spiral, whereof it is form'd, commences: Or it is the little Circle in the middle of the Volutes, wherein are found the thirteen Centres for the describing the Circumvolutions thereof. See VOLUTE.

EYE, in Agriculture and Gardening, is a little Bud, or Shoot, inserted into a Tree by Way of *Graft*. See ENGRAFTING.

The Term is also used for a Gem, or Bud, as it stands on the parent Tree. A Tree with fine, strong, healthy *Eyes*. *La. Quint.* P. I. *C.* 3. *Art.* 6. The good Branches are those which have come in the Order of Nature, and that have large *Eyes* pretty near each other. *Id.* This Branch must be cut off at the third *Eye*. Liger. See BUD, GEM, &c.

EYE, among Physicians, is frequently taken for a Hole, or Aperture. — Whence it is that the first of the big Intestines is call'd *Cæcum*, or the blind Gut, as having no *Eye*, or Perforation. — For the same Reason the Chymists call the Alembic, used in Circulation, a *blind Head*.

EYE, in Printing, is sometimes used for the Thickness of the Types, or Characters, used in Printing: Or, more strictly, it is the Graving in Relievo, on the Face, or Top of the Letter. See TYPE.

'Tis the *Eye* alone that makes the Impression; the rest, which they call the *Body*, serving only to sustain it. A big

Eye;

Eye, small *Eye*, &c. — The *Eye* of the e, is the little Aperture at the Head of that Character, which distinguishes it from the c.

EYE, is also used among Jewellers, for the Lustre and Brilliant of Pearls and precious Stones; more usually call'd the *Water*.

EYE-*lids*, EYE-*brows*, } See { PALPEBRÆ. SUPERCILIUM.

EYE-*brow* is sometimes used in Architecture, in the same Sense with List, or Fillet. See LIST and FILLET.

Bulls-EYE, in Astronomy, is a Star of the first Magnitude, in the Constellation *Taurus*; by the *Arabs* call'd *Aldebaran*.

Its Longitude, Latitude, *&c.* See among those of the other Stars in the Constellation TAURUS.

Cats-EYE, *Oculus Cati*, in Nat. History, a precious Stone; call'd also *Sun's Eye*, or *Oculus Solis*. See PRECIOUS *Stone*.

'Tis transparent, very shining, and of divers Colours, usually oblong as to Figure, and not unlike the Opal, only much harder.

'Tis found in divers Parts of the *East Indies*, but those of the Island of *Ceylon* are the most prized.

Hares-EYE, *Oculus Leprinus*, in Medicine, a Disease arising from a Contraction of the upper *Eye-lid*, which prevents its being able to cover its Part of the *Eye*. Whence the Patient is obliged to sleep with the *Eye* half open after the Manner of *Hares*.

The Physicians call it *Lagophthalmia*, a *Greek* Word signifying the same Thing; being compounded of λαγως, *Hare*, and ὀφθαλμος, *Eye*.

Goats-EYE, *Oculus Caprinus*, is when there is a white Speck on the *Cornea*; as is seen in the *Eye* of *Goats*. Physicians call it *Aigis*.

Crabs-EYES, *Oculus Cancrorum*. See CRABS-*Eyes*.

EYRE, or EIRE, in Law, signifies the Court of Justices Itinerant. See ITINERANT.

Hence Justices in *Eyre*, are those whom *Bracton* calls, *Justiciarios Itinerantes*. See JUSTICE *in Eyre*.

The EYRE *of the Forest*, is otherwise call'd *Justice Seat*; which by the ancient Customs was to be held every three Years, by the Justices of the Forest journeying up and down for that Purpose. See JUSTICE *Seat*.

The Word is form'd of the French, *Erre*, *Iter*, Journey.

EYRIE, or AYRIE, among Falconers, the Nest where Hawks sit, and hatch, and feed their Young. See NEST.

Hence a young Hawk newly taken from the Nest, is called an *Eyess*. See HAWK and FALCON.

EZECHIEL's *Reed*, or *Rod*, a Scripture Measure, computed by late Writers to amount to 1 *English* Foot, 11 Inches, $\frac{4}{3}$ of an Inch. See MEASURE.

EZRA, or ESDRAS, in Divinity.—The Books of *Ezra*, are two Books of Holy Scripture, composed by *Ezra*, or *Esdras*, the High-Priest of the *Jews* during the Captivity; and particularly about the Time when they return'd to *Palestine*, under the Reign of *Cyrus*.

The Original of the Books of *Esdras* is in *Hebrew*; and the second is particularly call'd by the *Hebrews*, and from them by the *English* Translators, *Nehemiah*.

They contain the History of the Return of that People from the *Babylonish* Captivity, and their Re-establishment in the Holy Land. They are Canonical, and are allow'd as such both by the Church and the Synagogue.

The *Canon of Ezra*, is the Collection of the Books of Scripture made by that Pontiff. See CANON.

It appears, however, that the Synagogue added other Books to *Esdras*'s Canon; witness the Book of *Ezra* it self, and that of *Nehemiah*.

F,

F

F, THE sixth Letter of the Alphabet, and the fourth Consonant. *See* Letter.

The letter F may be either consider'd absolutely and in it self; or with regard to the particular Languages where it is found. In the first view, F is placed by some Grammarians among the Mutes, like the Φ among the *Greek* Grammarians: But others give it the Quality of Semi-vowel. See MUTE, &c.

Joh. Conrad Aman, in his Dissertation *de Loquela*, divides the Consonants into single and double; and the single into hissing and explosive. Among those called *Hissing*, there are some pronounc'd by the Application of the upper Teeth to the lower Lip; and these are the f and the ph. The Reason why some account it a Semi-vowel, and *Aman* places it among the Hissers, is, that one may produce a little Sound, without any other Motion of the Organs, than what is necessary to the Pronunciation of the *F*.

This Letter is derived to us from the *Romans*, who borrowed it from the *Æolians*; for the *F* does not at all differ from the *Æolic* Digamma, or double Gamma, thus call'd as resembling two Γ's, one over the other: and the Digamma seems no other than the *Greek* Φ, which being made at three Strokes, degenerated at length into the Figure *F*; for the Letter Φ being compounded of an O, *Omicron*, with a Perpendicular drawn through it: If that Perpendicular be made first, and the O at two Strokes afterwards, *viz.* first the upper, then the under part; it will happen, especially in writing fast, that the two Parts shall not join; and even instead of two Arches of Circles, Haste and Conveniency may naturally enough make two straight Lines.

Thus it is that the transverse Stroke of the Letter Ψ, is frequently seen straight; and the Letter, in form of a Cross †. And what confirms this Transmutation of the Φ into *F* still further, is, that on the Medals of *Philip*, and the Kings of *Syria*, in the Words ΕΠΙΦΑΝΟΥΣ and ΦΙΛΑΔΕΛΦΟΥ, the *Phi* Φ is frequently seen in the Form just mentioned, *i. e.* it has no Circle or Omicron; but a-cross the Middle of the Perpendicular, is a kind of Right-line, form'd only of two Dotts, the one on the right side, and the other on the left, representing a Cross, †. Such appears to be the Origin of the Letter *F*; which, of consequence is no other than a Corruption of the *Greek* Φ: And accordingly, on the Medals of the *Falisci*, the F is ordinarily put in lieu of the *Greek* Φ; but it must be added, that tho' the *Greek* and *Latin* Letter were thus the same thing, yet the Sound was much softer among the *Latins*, than among the *Greeks*: As was long ago observ'd by *Terentianus*.

The *Romans*, for some time, used an inverted F, Ⅎ, in lieu of an V consonant, which had no peculiar Figure in their Alphabet: thus in Inscriptions we meet with TERMINAⅎIT, DIⅎI, &c. *Lipsius*, in his Comment on the Annals of *Tacitus*, L. XI; *Covarruvias*, and *Dausquius* in his Treatise of Orthography, hold, that it was the Emperor *Claudius*, who first introduced this Use of the inverted Digamma, or Ⅎ; which they call the Invention of a Letter, as being equivalent to the Invention of the Letter V. In effect, *Tacitus*, in the 4th Chapter of the said Book, and *Suetonius* in his Life of *Claudius*, c. 41. assure us, that the Emperor invented three Letters; one of which *Lipsius* shews must be the inverted *Eolic* Digamma: But, before *Claudius*, *Varro* made an Attempt to introduce the same thing, but could not succeed. All the Authority of an Emperor was necessary to make it take: Nor did it subsist long; for after *Claudius*'s Death it was thrown by again; as we are told by the same *Tacitus*; and *Quintilian* observes, it did not subsist in his time. So far is the Custom of a Language from being subject even to the Masters of the World. It may be added, that the Pronunciation of the F is almost the same with that of the V; as will be evident by attending to the manner of pronouncing the following Words, *Favour*, *Vanity*, *Felicity*, *Vice*, *Foment*, *Vogue*, &c. The *French* particularly, in borrowing Words from other Languages, usually turn the final *v* into an *f*, as Chetif of Cattivo; Neuf of Novus; Nef of Navis, &c.

In the later *Roman* Writers we find the *Latin F* and *Greek ph* frequently confounded; as in *Falanx*, for *Phalanx*: Filosophia, for Philosophia, &c. Which Abuse is still retain'd by many *French* Writers, who write Filosophie, Filippe, Epifane, &c. and even sometimes by the *English*, as in Fantasy; Filtre, &c.

F, in the Civil Law. Two ff's join'd together, signify *Digest*; See the Reason thereof under the Article DIGEST.

FAB

F, in Musick, is one of the signed Clefs or Keys, plac'd at the Beginning of one of the Lines of a piece of Musick. See CLEF.

F is the Bass-clef, and is plac'd on the fourth Line upwards. See BASS.

Indeed, the Character or Sign by which the *f* and *c* Clefs are mark'd, bear no Resemble to those Letters. Mr. *Malcolm*, thinks it were as well if we used the Letters themselves, but Custom has carried it otherwise. The ordinary Character of the F or Bass-clef is): which *Kepler* takes a deal of pains to deduce, by Corruption, from the Letter F it self. See CHARACTER.

F, in our antient Customs. He that shall maliciously strike any Person with a Weapon in Church or Church-yard, or draw any Weapon there with Intent to strike, shall have one of his Ears cut off; and if he have no Ears, he shall be mark'd on the Cheek with an hot Iron, having the Letter F, whereby he may be known for a Fray-maker or Fighter.

F, in Physical Prescriptions, stands for *Fiat*, let it be done; as F. S. A. denotes as much as *fiat secundum artem*.

F, among such as give us the numeral Value of the Letters, signifies 40, according to the Verse,

Sexta quaterdenos gerit quæ distat ab alpha

And when a Dash was added a-top, $\overline{\text{F}}$ it signified 40 thousand.

FA is one of the Notes of Music, being the fourth in rising in this order of the Gamma, Ut, re, mi, fa. See NOTE.

FABIANS, FABII, in Antiquity, a part of the Luperci. See LUPERCI, and LUPERCALIA.

Those Priests were divided into two Parts; one of which was called the *Fabians*, and the second the *Quintilians*, from their respective Chiefs. The *Fabians* were for *Romulus*, and the *Quintilians* for *Remus*. See QUINTILIANS.

FABLE, a *Tale*, or feign'd Narration, design'd either to instruct or divert: Or, *Fable*, as Mons. *de la Motte* defines it, is an Instruction disguis'd under the Allegory of an Action.

Fable seems to be the most antient way of teaching: The principal Difference between the Eloquence of the Antients, and that of the Moderns, consists, according to *Pere Bossu*, in this, that our manner of speaking is simple and proper; and theirs, full of Mysteries and Allegories. The Truth was usually disguis'd under those ingenious Inventions, call'd by way of Excellence, μυθοι, *Fabulæ*, *Fables*, that is, *Words*; as intimating that there was the same Difference between these *fabulous* Discourses of the learned, and the common Language of the People, as between the Words of Men, and the Voices of Beasts.

At first, *Fables* were only employ'd in speaking of the Divine Nature, as then conceiv'd: Whence, the antient Theology was all *Fable*. The Divine Attributes were separated as into so many Persons; and all the Oeconomy of the Godhead laid down in the feigned Relations and Actions thereof; either by reason the human Mind could not conceive so much Power and Action in a single indivisible Being; or perhaps, because they thought such Things too great and high for the Knowledge of the Vulgar. And as they could not well speak of the Operations of this Almighty Cause, without speaking, likewise of its Effects; natural Philosophy, and at length human Nature and Morality it self came thus to be veil'd under the same *fabulous* allegoric Expression; whence the Origin of Poetry, and particularly of Epic Poetry. See EPIC *Poem*.

The Criticks, after *Aphtonius* and *Theon*, reckon three kinds of *Fables*, Rational, Moral, and Mix'd.

Rational FABLES, call'd also *Parables*, are Relations of Things supposed to have been said and done by Men; and which might possibly have been said, or done, though in reality they were not. Such, in the Sacred Writings, are those of the ten Virgins; of *Dives* and *Lazarus*; the prodigal Son, &c. Of these *Rational Fables* we have likewise about a dozen in *Phædrus*. See PARABLE.

Moral FABLES, call'd also *Apologues*, are those wherein Beasts are introduced as Actors, Speakers, &c. These Moral *Fables* are also call'd *Esopic Fables*: not that *Esop* was their Inventor, for they were in use long before him, *viz.* in the times of *Homer* and *Hesiod*; but because he excell'd therein. In this kind not only Beasts, but even sometimes

Trees, Hammers, &c. are suppos'd to speak. See APOLOGUE.

Rational differs from the *Moral Fable* in this; that the former, though it be feign'd, might be true; but the the latter is impossible; as 'tis impossible for Brutes or Stocks to speak.

Mix'd FABLES, are those composed of both sorts, rational and moral; or wherein Men and Brutes are introduc'd converfing together. Of this we have a fine Instance, in *Justin* L. XXXIII. c. 4. made by a petty King, to alarm the antient *Gauls* against the *Massilians*, who arriving out of *Asia*, in *Spain*, charm'd with the Place, beg'd leave of the Inhabitants to build a City.

The Bitch and Shepherd, a Mix'd FABLE.

A Bitch big with young, beg'd of a Shepherd, a Place to lay her Whelps in; which when she had obtain'd, she further beg'd for leave to rear 'em in the same. At length, the Whelps being now grown up, depending on the Strength of her own Family, she claim'd the Property of the Place. So the *Massilians* who are now only Strangers, will hereafter pretend to be Masters of this Country.

As to the Laws of *Fable*, the principal are; *First*, That to every *Fable* there be some Interpretation annexed, to shew the moral Sense, or Design thereof. This Interpretation, if it be plac'd after the *Fable*, is called ἐπιμυθιον, or *affabulatio*; if before it, προμυθιον, *præfabulatio*. *2dly*, That the Narration be clear, probable, short and pleasant. To preserve this Probability, the manners must be express'd, and closely kept to, as in Poetry. See PROBABILITY and MANNERS.

M. de la Motte, has some fine Remarks on the Subject of *Fables*, at the Beginning of his *Fables nouvelles, dedies au Roi* 1719. A *Fable*, according to this polite Writer, is a little Epic Poem; differing in nothing from the great one, but in Extent, and in that being less confin'd as to the Choice of its Persons, it may take in all sorts at pleasure, as Gods, Men, Beasts, or Genii; or even, if occasion be, create Persons, *i. e.* personify Virtues, Vices, Rivers, Trees, &c. Thus *M. de la Motte* very happily introduces Virtue, Talent, and Reputation, as Persons making a Voyage together. See EPOPEA, and PERSONIFYING.

That Author suggests two Reasons, why *Fables* have pleas'd in all Ages and Places. The first is, that Self-love is spared in the Instruction. The 2d, that the Mind is exercised by the Allegory. Men don't love direct Precepts; too proud to condescend to those Philosophers who seem to command what they teach; they will needs be instructed in a more humble manner: They would never amend, if they thought that to amend were to obey. Add, that there is a sort of Activity in the Mind, which must be humour'd. It pleases it self in a Penetration, which discovers more than is shewn: and in apprehending what was hid under a Veil, fancies it self in some measure the Author of it. The *Fable* must always imply or convey some Truth: in other Works, Delight alone may suffice; but the *Fable* must instruct. Its Essence is to be a Symbol, and of consequence to signify somewhat more than is express'd by the Letter. This Truth should for the generality be a moral one; and a Series of Fictions conceiv'd and compos'd in this View, would form a Treatise of Morality preferable to any more direct and methodical Treatise: Accordingly, *Socrates*, we are told, had a Design to compose a Course of Morality in this way. This Truth should be concealed under the Allegory; and in Strictness, it ought not to be explain'd either at the Beginning or End.

The Truth, or Idea intended, should arise up in the Reader's Mind from the *Fable* it self. However, for the Conveniency of the less discerning Readers, it may be a good way to point out the Truth or Moral in precifer terms. To have the Moral at the End of the *Fable*, seems much better than at the Beginning: The Mind is apt to be forestall'd in the latter Case: I carry the Key all along with me, so that there is no room to exercise my Mind, in finding any thing my self.

The Image, *M. de le Motte* observes, must be *just*, and express the Thing intended, directly and without any Equivoque: It must be *one*, that is, all the Parts must be visibly accessory to one principal end; and it must be *natural*, that is, founded on Nature, or at least on Opinion.

The Writers of *Fables* are not many. If there were any before *Æsop*, his Success has quite effaced their Memory; and even occasion'd all the good Things of that kind to be ascrib'd to him. His Life, as wrote by *Planudes*, is it self a thorough *Fable*. It must be own'd to be very happily imagin'd, to make the Inventor of *Fables* a Slave, and his Master a Philosopher. The Slave has his Masters Pride, and ill Humour to deal with all, throughout. His Lessons were all contain'd in the *Fables* themselves; and the Readers were left the Pleasure of picking them out themselves.

'Tis generally allow'd among the Learned, that tho' the Matter and Invention of the *Fables* be *Æsop's*, the Turn and Expression is not. The Greek is of *Planudes*, and bad Greek it is in the Judgment of *F. Vavassor*, de *Ludicra Dict.* Some Authors will have *Socrates* the Author of the *Fables* of *Æsop*; others attribute them to *Solomon*, and others to *Homer*.

Phædrus was a Slave too, and a freed-Man; but he had the Advantage over *Æsop* in Education. He is only a Fabulist, as he translates and copies. Tho' his *Fables* be generally short, yet is he prolix, compared to his Author. His Style however is always florid, his Descriptions concise, and his Epithets suitable: He frequently adds Graces never dreamt of by the Inventor; and every where enriches the Simplicity of *Æsop* in the most delicate manner.

Philpai, another Fabulist, govern'd *Indostan* a long time under a powerful Emperor: but he was not the less a Slave; for the prime Ministers of such Princes are always more so than the meanest Subjects. *Philpai* compriz'd all his Politicks in his Fables; and accordingly his Work long continued the Book of State; or the Discipline of *Indostan*. It was translated into *Persian* and *Arabic*, and since into the modern Languages. His *Fables*, *M. de la Motte* observes, are rather famous than good: but he is the Inventor, and the Merit of Invention will always compensate for a deal of Faults. His *Fables* are often wild, and artless; and the Collection is a sort of Romantic Assemblage of Men and Genii; composed, in its kind, like *Cyrus* or *Orlando*; where the Adventures are continually thwarting and clashing with each other.

We say nothing of the *Fables* of *Gabrias*, *Babrius*, *Avienus*, *Abstemius*, &c.

Among the Moderns, we have none that deserve to be seen in the Company above-mention'd, but *Mess. de la Fontaine*, and *Motte*. The first of whom has pick'd out all the best things in *Æsop*, *Phædrus* and *Philpai*, and given them a-new in *French* with a Delicacy and Simplicity peculiar to himself, and which in the Judgment of his Country-men, sets him even above *Phædrus*.

The latter, rather than take up with what *de la Fontaine* had left, chose to be an Inventor himself. He has succeeded. His *Fables* are many of them very happy, tho' some think 'em too full of Thought and Reasoning. His Versification is infinitely more correct than that of *la Fontaine*; and more suitable to the Subject, than that of *le Noble*.

FABLE, is also us'd for the *Plot* of an Epic or Dramatic Poem; or the *Action* which makes the Subject of such Poem, or Romance. See POEM, DRAMA, EPIC and ACTION.

The *Fable*, according to *Aristotle*, is Αρχὴ, ᾗ οἷον ψυχὴ, μῦθος, the principal Part, and as it were the Soul of a Poem. It must be consider'd as the first Foundation of the Composition; or the Principle, which gives Life and Motion to all the Parts. In this Sense, the *Fable* is defined *A Discourse invented with Art, to form the Manners by Instructions disguis'd under the Allegory of an Action.*

The *Epic Fable*, according to *Bossu*, is confin'd to the *Rational* kind, *i. e.* the Actors and Persons are to be Gods and Men. And yet it admits of a deal of Latitude: it may be either grave, illustrious, and important; or low, and popular: either whole, or defective: in verse, or in prose: much episodified, or brief: rehearsed by an Author, or represented by Actors on the Scene; all which are only so many Circumstances, which do not make any Alteration in the Nature and Essence of the *Fable*.

The Characters that specify the *Epic Fable* are these: It is Rational and Probable; it imitates a whole, and an important Action; and it is long, and related in Verse. None of which Properties affect the nature of the *Fable*; or make it less a *Fable* than those of *Æsop*.

The *Fable*, according to *Aristotle*, consists of two essential Parts, *viz.* Truth, as its Foundation; and Fiction, which disguises the Truth, and gives it the Form of *Fable*. The Truth is the Point of Morality intended to be inculcated: the Fiction is the Action, or Words the Instruction is cover'd under.

To make a *Plot* or *Fable*: The first thing, according to the great Critick just mention'd, is to pitch on some moral Instruction to be exemplify'd.

E. gr. I would exhort two Brothers, or other Persons who have some common Interest to live in Amity; in order to preserve it. This is the end of the *Fable*, and the first thing I have in view. In order to this, I endeavour to impress this Maxim on their Minds, that *ill Understanding ruins Families, and all kinds of Society*. This Maxim is the Moral, or Truth which is to be the Ground of the *Fable*: which moral Truth is now to be reduc'd into Action; and a general Action to be framed from several single and real Actions of such as were ruined by ill Understanding.

Thus

Thus *e. gr.* I say, that certain Persons united together for the Preservation of something that belong'd to them in common; coming to disagree; their division left them open to an Enemy who ruin'd them. Such is the first Plan of a Fable. The Action presented by this Narration has four Conditions: It is universal, imitated, feign'd, and contains a moral Truth under an Allegory.

The Names given to the several Persons, begin to specify the *Fable*. *Æsop* uses those of Brutes.

Two Dogs, says he, appointed to watch a Flock, fall out, fight, and leave all open to the Wolf, who carries off what he pleases. If you would have the Action more singular, and render the *Fable* rational, take the Names of Men. *Pridamant* and *Orontes*, Brothers by a second Venter, were left very rich by their Father's Will: But disagreeing about the Partition of their Effects, they engaged themselves so far against each other, that they took no care of their common Interest, against *Clitander* their eldest Brother, by the first Venter; which last, artfully inflaming their Quarrel, and feigning he had no View but to some moderate Augmentation, which might he made him without pressing them; he, in the mean time, gets the Judges on his side, and the other Persons intrusted with the Affair, procures the Will to be annull'd, and becomes entituled to the whole Estate the Brothers were at Variance about.

Now, this *Fable* is rational; but the Names being feign'd, as well as the Things, and besides, the Persons being only of a private Rank, it is neither *Epic*, nor *Tragic*. However, it may be employ'd in Comedy; it being a Rule laid down by *Aristotle*, that Epic and Tragic Poets only invent Things; but Comic Poets invent both Names and Things. See Comedy, *&c.*

To accommodate this comic *Fable* more to the Mode and Taste of the Town, some *Dorinda* must be imagin'd to have been promis'd to *Clitander*; but her Father, finding him disinherited by the Will, changes his Resolution, and will have her marry one of the rich, senseless, younger Brothers, whom she despised, *&c.*

But to return. The Fiction may be so disguised with the Truth of History, that there shall not appear any Fiction at all. To effect this, the Poet looks back into History, for the Names of some Persons to whom the feign'd Action either really or probably did happen; and relates it under those known Names, with Circumstances which do not change any thing of the Ground of the *Fable*.

Thus, In the War of 1302, between King *Philip* the Fair, and the *Flemish*: The *French* Army was under the Command of *Robert*, Earl of *Artois*, as General, and *Ralph de Nesle*, his Constable. Being in the Plain of *Courtray*, in sight of the Enemy, the Constable was of Opinion it were easy to starve them; and that it was not worth while to hazard so many of the Nobles, against a vile, desperate Populace. This Advice the Earl rejected with Scorn, taxing the Constable with Cowardice and Infidelity. It shall be seen, answers the Constable, which of us two is the bravest, and the most faithful; and clapping Spurs to his Horse, led the whole *French* Cavalry precipitately to the Charge. This Precipitation, with the Dust they rais'd, prevented their seeing a large deep Ditch, behind which the *Flemish* were posted. The Cavalry therefore plunging into it, perish'd miserably; and the Infantry, astonish'd with the Loss, let themselves be cut in pieces by the Enemy. Thus may Fiction be made to consist with Truth.

As for the *Fable*, it matters but little, whether the Persons be called *Dogs*; or *Orontes* and *Pridamant*; or *Robert* of *Artois*, and *Ralph de Nesle*; or *Achilles* and *Agamemnon*.

The Epic *Fable* we shall now propose in its just Extent, under these two Names, last mention'd. It is too short for the *Epopea* in the two preceding ones. We chuse the *Fable* of the Iliad, as being the finest Plan of an Epic Poem in the World; and at the same time the most useful System of the Precepts of the Art; it being hence, that *Aristotle* was furnish'd with all his Reflexions.

In every discrete Undertaking the End is the first Thing proposed; and by this the whole Work and all its Parts are regulated: Consequently, the Design of the Epopea being to form the Manners, 'tis with this first View the Poet must begin. Now, the Philosopher dwelling on Virtues and Vices in general, the Instructions he gives, serve equally for all States and all Ages; but the Poet has a more immediate Regard to his Countrymen, and the pressing Occasions of his fellow Citizens. On this view it is that he chuses his Moral, which he is to insinuate into the People, by accommodating himself to their peculiar Customs, Genius and Inclinations. See how *Homer* has acquitted himself of all this.

He saw the *Greeks*, for whom he wrote, divided into as many States, as Cities; each thereof was a Body apart, and had its Government, independant of the rest. Yet were these different States frequently obliged to unite into one Body against their common Enemies. Here then were two sorts of Government, too different to be commodiously treated in one Poem. The Poet accordingly had Recourse to two Fables; the one for all *Greece*, consider'd as confederated together, only consisting of independant Parts: the other, for each particular State; such as they are in Time of Peace, and without the first Relation. The first is the Subject of the *Iliad*, the second of the *Odyssee*. See Iliad and Odyssee.

For the first kind of Government, all Experience agrees, that that only Thing can render it happy, and its Designs successful, is a good Understanding, and due Subordination among the several Chiefs that compose it; and that Misunderstandings, a desire of Sway, *&c.* are the inevitable Bane of such Confederacies. The best Instruction therefore that could be given them, was to set before their Eyes the Destruction of the People, and even of the Princes themselves, thro' the Ambition and Discord of these latter. *Homer* therefore, for the Ground or Moral of his *Fable*, chose this great Truth, that the Misunderstandings of Princes ruin their States. *I sing*, says he, *the Wrath of* Achilles *so fatal to the* Greeks, *and which destroy'd so many Heroes, occasioned by a Disagreement between King* Agamemnon *and that Prince.*

To enforce this Truth, he represents divers confederate States first at Variance, and unprosperous; then reconciled and victorious. All which he thus includes in one universal Action.

Several independant Princes league against a common Enemy: he whom they chuse as their Leader, affronts the bravest of all the Confederacy; upon which the offended Prince withdraws, and refuses any longer to fight for the Common Cause. This Misunderstanding gives the Enemy so much Advantage, that the Confederates are ready to relinquish the Enterprize. The disaffected Person himself becomes a Sharer in the Calamities of his Allies; one of his chief Friends and Favourites being kill'd by the Chief of the Enemies. Thus, both Parties grown wise at their own Costs, are reconciled. Upon which the valiant Prince again joining in the War, turns the Scale to his own Party, and kills the Enemy's Chief.

Such is the first general Plan of the Poem. To render this probable and more interesting, Circumstances of Time, Place, Persons, *&c.* are to be added; that is, he looks in History, or Tradition, for Persons, to whom such Action may with Truth or Probability be attributed.

He pitches on the Siege of *Troy*, and supposes the Action to have passed there. The brave, cholerick Character he calls *Achilles*; the General, *Agamemnon*; the Chief of the Enemies, *Hector*, &c. To insinuate himself unto his Readers, he accomodates himself to their Manners, Genius, Views, *&c.* And to render his *Fable* more interesting, makes his chief Persons, and those who remain'd at length victorious, to be *Greeks*, the Fathers of those very People. The Course of the Work is fill'd up, and extended with other useful Lessons and Instructions. See Episode.

That the Epopea in all its Glory is still justly and strictly a mere *Fable*, in the same Sense as the Fictions of *Æsop*'s are, is shewn by *M. Bossu*, in a Parallel between the *Fable* of the *Iliad*, and that of *Æsop* already mention'd. The moral Instruction is visibly the same in both: so is the Fiction. All the Difference lies in the Names and Qualities of the Persons.

Homer's are Kings; he calls 'em *Achilles*, *Patroclus*, *&c.* and the general Good to be preserv'd, he calls the *Greeks*. *Æsop*, after this manner, gives his Persons the Names of Beasts. The *Dogs* are confederated, the *Wolf* is their Enemy; and what *Homer* calls the *Greeks*, he calls *Sheep*. One says, that while the confederate Princes are at Variance, *Hector* rushes on the *Greeks*, and makes them pay dear for the Folly of their Soveraigns (*Delirant Reges, plectuntur Achivi*): but that the Allies, brought by Misfortunes to themselves again, re-unite, repulse *Hector*, and kill him. The other, that while the Dogs are together by the Ears, the Wolf falls on the Sheep; and that the Dogs, seeing the Havock he makes, join together, drive him away, and kill him.

The two *Fables* were capable of a still nearer Resemblance. *Homer* has extended his by long Speeches, Descriptions, Comparisons and particular Actions; and that of *Æsop* might be amplified after the like Manner, without corrupting or altering it.

There needs only to relate what Cause set the Dogs at Variance, and shew the Rise of the fatal Wrath in all its Circumstances; to make fine Descriptions of the Plain wherein the Sheep fed, and of some neighbouring Wood, where the Wolf was shelter'd: to give this Enemy Whelps to rear; make them follow their Father in search of Prey; and describe the Carnage they made at divers Expeditions: nor would the Genealogy of the Hero's be forgotten. The Wolf should boast himself a Descendant of *Lycaon*; and one of the Dogs be sprung in a direct Line from *Canicula*.

Which

Which laſt would be the proper Hero of the Poem, as being hot and apt to be enraged. He would repreſent the Perſon of *Achilles* to Admiration; and the Folly of ſome *Ajax* his Couſin, would afford a good Proof of ſo divine an Extraction. Nothing more were required to engage Heaven in the Cauſe, and divide the Gods; which, no Doubt, have as much Right in *Æſop*'s Republic, as in the States of *Homer*. Witneſs *Jupiter* taking care to give a King to the Nation of the Frogs.

The Reader has here field enough for an Epopea; if he have any thing of Fancy and Expreſſion, and do but take care to repeat, as often as *Homer* does,

Τὸν δ' ἀπαμειβόμενος προσέφη πόδας ὠκὺς.

For the Unity of the FABLE, *ſee* UNITY.

FABRICK, the Structure, or Conſtruction of any thing, particularly a Building. See BUILDING.

The Word is form'd of the Latin *Fabrica*, which originally ſignifies a *Forge*.

In *Italy*, the Word *Fabrick* is applied to any conſiderable Building. In *France* it rather ſignifies the manner of building.

FABRICK *Lands*, are Lands given towards the Maintenance, Rebuilding or Repair of Cathedrals or other Churches; mentioned in the Act of Oblivion, 12 *Car.* 2. cap. 8. See CHURCH, GLEBE, &c.

In ancient time almoſt every one gave by his Will more or leſs to the *Fabrick* of the Cathedral or Pariſh Church where he lived. See INTESTATE.

FABULOUS, denotes ſome thing that has a Relation to *Fable*. See FABLE.

Varro divides the Duration of the World into three States or Periods. The firſt, ἄδηλον, the obſcure or dark, including all the Time before the Deluge; for the Heathens had ſome faint Idea of a Deluge, and a Sort of Tradition founded therein; but knew nothing of what had paſſed before. See DELUGE.

The ſecond Period he calls the μυθικὸν, *fabulous Age*, including the Time from the Deluge to the firſt Olympiad; and making, according to *Petavius*, 1552 Years; or to the Deſtruction of *Troy*, which was 1164 Years after the Deluge, or 308 after the Delivery from *Egypt*. See AGE.

This Period is called ſometimes *Fabulous*, and ſometimes *Heroic*. The firſt, on account of the *Fables* wherein the Hiſtory and Learning of thoſe Ages are veil'd: The Second, from the Heroes, or Sons of the Gods, whom the Poets feign to have lived in thoſe Days. See HERO and HEROIC.

FACE, the Surface, or firſt Side, which a Body preſents to the Eye. See SURFACE.

Thus we ſay, *The Face of the Earth, of the Waters*, &c. *Polyhedrons* have ſeveral regular *Faces*. See POLYHEDRON.

A Die, or Cube has ſix *Faces*. See CUBE.

FACE, is particularly uſed for the Viſage of an Animal, and eſpecially of a Man; as being the only Part of the Body, that ordinarily appears bare to the Eye. The *Latins* call it *Facies*, *Vultus*, *Os*, &c. In other Animals it is ſometimes call'd *Bill* or *Beck*; ſometimes *Snout*, &c. See BILL, &c.

The great Variety obſervable in Mens *Faces*, Voices and Hand-writing, furniſhes a noble Argument of a Providence. See VOICE.

The human *Face* is call'd the *Image of the Soul*, as being the Seat of the principal Organs of Senſe; and the Place where the Ideas, Emotions, &c. of the Soul are chiefly ſet to View. Pride and Diſdain are ſhewn in the Eye-brows; Modeſty on the Cheeks, Majeſty in the Forehead, &c. 'Tis the *Face* ſhews the Sex, Age, Temperament, Health, or Diſeaſe, &c.

The *Face*, conſider'd as the Index of the Paſſions, Habitudes, &c. of the Perſon, makes the Subject of *Phyſiognomy*. See PHYSIOGNOMY.

Anatomiſts uſually divide it into two Parts, the Upper, and Lower: The Upper is the *Front*, or Fore-head; the Lower includes the *Eyes*, *Noſe*, *Ears*, *Mouth*, and *Chin*. See each Part deſcribed under its reſpective Article, EYE, NOSE, MOUTH, &c.

FACE, or *Facade*, is ſometimes uſed for the *Front* of a Building; or the Side on which the chief Entrance is: as alſo for the Side it preſents to a Street, Garden, Court, &c. And ſometimes for any Side oppoſite to the Eye. See FRONT.

FACE, in Aſtrology, is uſed for the third Part of a Sign. Each Sign is ſuppoſed to be divided into three *Faces*. The ten firſt Degrees compoſe the firſt *Face*; the ten following ones the ſecond; and the laſt ten the third. *Venus* is in the third *Face* of *Taurus*, that is, in the firſt ten Degrees thereof. See SIGN.

FACE, *Facia*, or *Faſcia*, in Architecture, is a flat Member, having a conſiderable Breadth, and but a ſmall Projecture: ſuch are the Bands of an Archdrave, Larmier, &c. See FASCIA.

FACE *of a Stone*, is the Surface or Plain of Stone, which is to lie in the Front of the Work. The *Face* is eaſily known when the Stone is ſcapled, as being always oppoſite to the Back; and the Back going rough as it comes from the Quarry.

But rough Stones, the Workmen generally chuſe to make one of thoſe Sides the *Face*, which when in the Quarry, lay perpendicular to the Horizon; and conſequently the Breaking, and not the Cleaving way of the Stone. See STONE.

FACE *of a Place*, includes the Curtain, together with the two Flanks raiſed above it, and the two *Faces* of the Baſtion, which look towards one another, and flank the Angle of the Tenaille.

FACE *of a Baſtion*, or *of a Bulwark*, is the moſt advanced Part of a Baſtion towards the Field; or the Diſtance comprehended between the Angle of the Shoulder, and the Flank'd Angle. See BASTION.

The *Face*, or Flat of a Baſtion, Ravelin, Demi-baſtion, Horn-work, Crown-work, &c. is more uſually underſtood of that Part of the Work terminated between the Angle of the Epaule, and the flank'd Angle; or between the Point of the Baſtion, and the Flank.

FACE *prolonged*, in Fortification, is that Part of a Line of Defence raſant, which is between the Angle of the Epaule or Shoulder of a Baſtion, and the Curtain; or the Line of a Defence raſant cut by the Length of the *Face*.

FACET, or *Facette*, a little *Face*, or Side of a Body cut into a great Number of Angles.

Multiplying Glaſſes are cut in *Facets*, or *Facet-wiſe*.

Diamonds are alſo cut in *Facets*, or Tables. See DIAMOND.

FACIA, in Architecture. See FASCIA.

FACIES *Hippocratica*, in Medicine, is when the Noſtrils are ſharp, the Eyes hollow, the Temples low, the Tips of the Ears contracted, the Fore-head dry and wrinkled, and the Complexion pale, or livid.

The *Facies Hippocratica* is chiefly obſerved toward the Period of Phthiſes and other Conſumptions. It is held a ſure Prognoſtick of Death.

FACTION, a Cabal, or Party, form'd in a State to diſturb the publick Repoſe.

The moſt celebrated *Factions* in the World were that of the *Guelphs* and *Gibelins*, who kept *Italy* in Alarm for many Ages; and that of the *Whigs* and *Tories* in *England*. See GUELPH, TORY, &c.

FACTION, was originally the Name given the divers Troops or Companies of Combatants in the Games of the *Circus*. Of theſe there were four, *viz.* the *Green Faction*, the *Blue Faction*, the *Red Faction*, and the *White Faction*. See CIRCUS and COLOURS.

Theſe *Factions*, with their Liveries and Badges were at length aboliſh'd. The Emulation which was at firſt between them, growing to ſuch height, that in *Juſtinian*'s Time they came to Blows.

FACTITIOUS, ſignifies any thing made by Art; in Oppoſition to what is the Produce of Nature.

Thus Cinnabar is divided into Natural and *Factitious*. See CINNABAR.

Diſtilled Waters are *Factitious* Liquors. See WATER.

De-FACTO, ſee DE-FACTO.

FACTOR, in Commerce, an Agent or Perſon who acts, and negotiates for a Merchant, by Commiſſion, call'd alſo *Commiſſioner*, and on ſome Occaſions *Broker*, and throughout the *Levant*, *Coagis*. See COMMISSIONER, BROKER, &c.

Factors are chiefly either charged with the Buying, or the Selling of Goods; or with both.

Thoſe of the firſt Kind are uſually eſtabliſhed in Places of conſiderable Manufactures, or Cities of great Trade. Their Office is to buy up Commodities for other Merchants, reſiding elſewhere; to ſee them packed, and ſend them to the Perſons for whom they were bought.

Factors of Sale, are uſually fix'd in Places where there is a great Vent. To theſe, Merchants and Manufacturers ſend their Goods to be ſold for them according to the Price and other Conditions expreſs'd in the Orders deliver'd them.

The Wages, or Allowances for ſelling, are uſually clear of all Expences, of Carriage, Exchange, Remittances, &c. excepting Poſtage of Letters, which are never ſet to Account. See FACTORAGE.

FACTORS, in Arithmetick, is a Name given to the Multiplicand and Multiplier; by reaſon they do *facere productum*, make or conſtitute the Product. See MULTIPLICATION.

FACTORAGE, ſee FACTOR, BROKAGE, &c.

The *Factorage*, or Wages, call'd alſo *Commiſſion*, is different, at different Places, and for different Voyages: at a Medium it may be fix'd at three *per Cent.* of the Value of the Goods bought; beſide the Charge of Package, which is pay'd over and above.

At *Virginia*, *Barbadoes*, and *Jamaica*, the *Factorage* is from three to five *per Cent.* and the like throughout the greateſt

greatest Part of the *West-Indies*. In *Italy* it is two and a half. In *Holland* one and a half. In *Spain*, *Portugal*, *France*, &c. two *per Cent*.

FACTORY, a Place where a considerable Number of *Factors* reside, to negotiate and officiate for their Masters or Principals. See FACTOR.

The Term is chiefly used in speaking of the *East-Indies* and other Parts of *Asia*, whither the *European* Nations send their Ships every Year, and keep Factors to buy the Commodities of the Country, and sell those brought from *Europe*.

The greatest and noblest *Factory* in the World, is that of the *English* at *Smirna*. It usually consists of 80 or 100 Persons, most of them young Gentlemen of the best Families, and frequently yoonger Sons of Peers. 'Tis a sort of Seminary of Merchants. As there is a Necessity for serving an Apprenticeship of seven Years, to be entitled to trade to the *Levant*; the Custom is for Persons of Fortune, to bind their younger Sons to some Merchant, who, in Consideration of 3 or 400 Pound Sterling agrees, after the three first Years of their Apprenticeship are expired, to send them to *Smyrna*, where they have not only the Management of their Masters Affairs, with very plentiful Allowances, but are likewise permitted to trade for themselves; whereby they are enabled to live splendidly the rest of their Apprenticeship, and at length come out the best qualified for Business of any young Persons in the World. See COMPANY.

FACTUM, in Arithmetick, The Product of two Quantities multiplied by each other. See PRODUCT and FACTOR.

FACULÆ, in Astronomy, a Name given by *Scheiner* and others after him, to certain Spots on the Sun's Disk, that appear brighter, and more lucid than the rest of his Body. See SUN.

The *Faculæ* or bright Spots differ very considerably from the *Maculæ* or dark Spots, both in Light, Colour, Figure, Magnitude and Duration. See MACULÆ.

Hevelius assures us, that *July* the 20th 1634. he observ'd a *Facula* that took up a third Part of the Sun's Diameter. And from the Observations of the same *Hevelius*, we learn, that the Maculæ frequently change into *Faculæ*; the *Faculæ* into Maculæ rarely, if ever. Some Authors even contend that all the Maculæ degenerate into *Faculæ*, e'er they quite disappear.

Huygens however, declares he was never able to discover any *Faculæ*; though the Maculæ occurr'd to him very frequently. All the Foundation he could see for the Notion of *Faculæ*, was, that in the darkish Clouds which frequently surround the Maculæ, one sometimes discerns little Points or Sparks brighter than the rest.

However, Authors after *Kircher* and *Scheiner*, have generally represented the Sun's Body full of bright, fiery Spots, which they conceive to be a sort of Volcano's in the Body of the Sun. But *Huygens*, and others of the latest and best Observers, finding that the best Telescopes discover nothing of the Matter, agree to explode the Phænomena of *Faculæ*: Their Cause, these Authors attribute to the tremulous Agitation of the Vapours near our Earth; the same as sometimes shews a little Unevenness in the Circumference of the Sun's Disk, when view'd through a Telescope. Strictly then, the Maculæ are not Eructations of Fire and Flame, but Refractions of the Sun's Rays in the rarer Exhalations, which being condensed in the Neighbourhood of that Shade, seem to exhibit a Light greater than that of the Sun. See SPOT, &c.

The Word is pure Latin, *Facula* being a Diminutive of *Fax*, Torch; and suppos'd to be here applied from their appearing and dissipating by turns.

FACULTY, a *Power*, or Ability of performing an Action. See POWER.

The Term is much used by the antient Philosophers, and still retain'd in the Schools, to explain the Actions of natural Bodies by.

Thus, to account for the Act of Digestion, they suppos'd a *Digestive Faculty* in the Stomach: To account for Motion, they imagin'd a *Motive Faculty* in the Nerves, &c. which is only a substituting of one Name of an unknown Phænomenon for another.

Yet this Practice of attributing Effects to their respective Virtues or *Faculties*, still obtains in divers Things, which our Philosophy has not yet afforded us a better Account of. Thus, say our Medicinal Writers, Senna and Rhubarb have a *Purgative Faculty*; Barberries an *Astringent Faculty*, &c. which amounts just to this, that Senna purges, and Barberries bind.

The FACULTIES or *Powers of the Soul*, are commonly reputed two, *viz.* of *Understanding* and *Willing*. See POWERS. See also UNDERSTANDING and WILLING.

A FACULTY *of an Animal Body*, is defined to be the Principle whereby the Body performs its Functions. This is usually distinguish'd with regard to the several Functions, into *Vegetative* and *Animal*.

Under the *Vegetative Faculty*, are comprehended the divers subaltern ones, whereby Nutrition and Generation are effected.

Under the *Animal Faculties*, are comprehended those relating to Sense and Motion.

The *Vegetative Faculty* then is divided into *Nutritive* and *Generative*; and the Nutritive is again subdivided into *Natural* and *Vital*.

To the first, belong the Functions of the lower Belly, relating to the Preparation of the Food; to the latter, the Actions of the Heart and Lungs, wherein Life is chiefly concern'd.

Others subdivide the Vegetative *Faculty* into *Attractive*, *Retentive*, *Concoctive*, and *Expulsive*.

The *Animal Faculties*, being those whereby an Animal perceives and moves, become divided into *Sensitive* and *Loco-motive*. See ANIMAL, VEGETATIVE, VITAL, NATURAL, &c. See also FUNCTIONS.

FACULTY is also applied in the Schools, to the divers Parts or Members of an University, divided according to the Arts or Sciences taught or profess'd therein.

There are four *Faculties* in most Universities: That of the *Arts*, which includes the Humanities and Philosophy, and which is much the most antient and extensive: The second, is that of *Theology*: The third, *Medicine*: And the fourth, *Jurisprudence*. See each under its proper Article, THEOLOGY, &c. See also UNIVERSITY.

The Degrees in the several *Faculties* in our Universities are, those of *Batchelor*, *Master* and *Doctor*. See DEGREE. See also BATCHELOR, MASTER and DOCTOR.

The *Faculty* is frequently used absolutely, and by way of Eminence for that chiefly studied or taught in that Place. Thus, the *Faculty of London* and *Montpelier* is Medicine: That of *Paris* Theology: That of *Orleans* Law, &c. See COLLEGE *of Physicians*, SORBONNE, &c.

FACULTY, as it is restrain'd from the original and active Signification to the particular Understanding in Law, is used for a Privilege or special Power granted to a Man by Favour, Indulgence, and Dispensation, to do that which by Law he cannot: As to eat Flesh upon Days prohibited; to marry without Banes first ask'd.

The *Court of* FACULTIES belongs to the Archbishop of *Canterbury*, and his Officer is called *Magister ad Facultates*. His Power is to grant Dispensations, as to marry, to eat Flesh on Days prohibited, the Son to succeed his Father in his Benefice, one to have two or more Benefices incompatible, &c.

The Office where such Dispensations are taken out, is also call'd the FACULTY-OFFICE.

FÆCAL *Matter*, a Term used by Physicians, particularly the *French*, for the *Fæces* or great Excrements of a Man, *i. e.* those discharged by Stool. See EXCREMENT.

The *Fæcal Matter* is become famous for a chymical Operation thereon, by Mons. *Homberg*, related at length in the *Mem. de l'Academie R. An.* 1711. He had a Notion suggested to him, that the *Fæcal Matter*, by Distillation, yielded an Oil clear as Water, without any Smell, and which had the Property of fixing Mercury into fine Silver. Upon this, to work he goes; and because he would have as laudable and promising a *Matter* as he could, hired four robust healthy young Fellows, whom he shut up for three Months, and agreed with them, that they should eat nothing but the finest Bread, which he supplied them withall fresh every Day, and drink the best *Champain* Wine as long as they would. After a long Process, and numerous Essays on the Excrements they made, he at length got the clear, inodorous Oil; but it had no Effect at all on Mercury, which was the great Point aim'd at.

However, missing of what he expected, he fell on something he never dreamt of, *viz.* a *Phosphorus*. The *Caput Mortuum* of the Oil, he found to have a surprizing Property of taking Fire without any Motion, or the Application of any other Fire; insomuch, that it might deserve a Place in the first Rank of Phosphori known.

The Quantity of a Pea taken out of the Matras, and laid on a Paper, or other combustible Matter, begins to smoak immediately, and sets the Paper on Fire. See PHOSPHORUS *Ardens*.

FÆCES, or FOECES, or FECES, the Dregs, Sediment, or Impurities remaining of a mixt Body, after the purer, more volatile and fluid have been separated therefrom by Evaporation, Dissolution, Decantation, Derivation, or the like.

Thus we say the *Fæces* of *Oil*, &c. Those of Wines are properly call'd *Lees*. See LEES. Those of Malt-liquors, *Grounds*. See GROUNDS.

FÆCES is particularly used in Medicine, &c. For the gross, impure Matters found at the Bottom of the Compositions and Preparations of either Pharmacy.

FÆCES, in Chymistry, denotes the Lees, Refuse, Dirt, Mud, Ordures, Impurities, Excrements and heterogeneous Matters remaining in the Alembic after the Distillation of any Body. See DISTILLATION.

What remains in the Retort, instead of *Fæces*, is properly denominated *Caput mortuum*, or *Terra damnata*. See DAMNATA TERRA, CAPUT MORTUUM.

FÆCES is also used for the Excrements of an Animal voided by Stool: See EXCREMENT.

FÆTOR, Stench. See FOETOR.

FAGGOT, or FAGOT, in Fortification. See FASEINE. *Menage* derives the Word from the Latin *Facottus*, which was form'd of the Greek φακὸς. *Nicod.* borrows it from *Fasciculus*, a Bundle: *Du Cange* from the base Latin *Fagatum*, and *fagotum*.

A *Faggot of Steel* is the Quantity of 120 *l.* weight.

In the time of Popery in these Kingdoms, *Faggot* was a Badge wore on the Sleeve of the upper Garment by such as had abjur'd Heresy; being put on after the Person had carried a *Faggot* by way of Penance to some appointed Place of Solemnity. The Leaving this Badge was sometimes construed Apostacy.

FAGGOTS, among the Military Men, are ineffective Persons, who receive no regular Pay, nor do any regular Duty, but are hired, occasionally to appear at a Muster, to fill up the Companies, and hide the real Deficiences thereof.

FAGONA, in Anatomy, a conglomerate Gland, call'd also *Thymus*. See THYMUS.

FAILLIS, in Heraldry, a *French* Term, denoting some Failure or Flaw in an Ordinary, as if it were broke, and a Splinter taken from it.

FAILURE, or FAILING, a Species of Bankrupcy; popularly call'd *Breaking*, or *Stopping Payment*. See BANKRUPT.

FAINT, *alias* FAINT-ACTION, is as much as *feign'd Action*; that is such Action, as albeit the Words of the Writ be true, yet, for certain Causes the Party has no Title to recover thereby. A false Action is that where the Words of the Writ are false. *Coke on Littl. fol.* 361. Yet sometimes the two are confounded. See ACTION.

FAIR, a publick Place, where Merchants Traders, and other Persons from divers Parts meet, on some fix'd Day of the Year, to buy and sell Commodities, and to partake of the Diversions usually accompanying such Assemblies.

FAIRS are either free, or charg'd with Tolls and Impositions.

The Privileges of *Free Fairs* consist chiefly, first, In that all Traders, &c. whether Natives, or Foreigners, are allow'd to enter the Kingdom, and are under the Royal Safeguard and Protection in coming and returning, they and their Agents, with their Goods, &c. 2ly, In that the said Persons and their Effects are exempt from all Duties, Impositions, Tolls and Servitudes. 3ly, That Merchants in going to, or returning from the *Fair*, &c. cannot be arrested, or their Goods stop'd, &c. 'Tis the Prince alone that has a Right, by his Letters Patent, to establish *Fairs*, whether *free*, or subject to Duties, and the other ordinary Laws and Penalties.

The Word *Fair* is formed of the *French Foire*, which signifies the same Thing. And *Foire* some derive from the Latin *Forum*, Market: Others from the Latin *Feriæ*, by reason *Fairs* were antiently always held in the Places where the Wakes, or Feasts of the Dedications of Churches, call'd *Feriæ*, were held. See FERIÆ.

The *Romans* call'd them *Nundinæ*. *Eric Puteanus* has a very pretty little Treatise on the *Fairs of the Romans*, *De Nundinis Romanorum*, which he calls *Nova fastorum facula*.

Several *Fairs* are held in the open Fields, or on Heaths & Commons; under Tents, Booths and Barracks erected for the Purpose, as *Sturbridge Fair*, &c. Others in Places wall'd in for the Purpose; and form'd into regular Streets, Lanes, &c. for the Occasion. As the *Fair* of St. *Laurence* at *Paris*: Lastly, others are held in the open Places and Streets of Cities, as *Bartholomew Fair*, the *Bristol Fair*, the *Fair* of St. *Germains*, &c.

FAIRS, particularly *Free Fairs*, make a very considerable Article in the Commerce of *Europe*, especially that of the Mediterranean or Inland Parts, as *Germany*, &c. where the continual Passage and Repassage of Vessels is impracticable.

The most celebrated *Fairs* in *Europe* are those, 1. of *Francfort*, held twice a Year, in Spring and Autumn: The first commencing the Sunday before Palm-Sunday, and the other on the Sunday before the eighth of *September*. Lasts 14 Days, or two Weeks, the first of which is called the *Week of Acceptance*, and the second the *Week of Payment*. They are famous for the Sale of all Kinds of Commodities, but particularly the immense Quantity of curious Books, no where else to be found, and whence the Booksellers throughout all *Europe* used to furnish themselves. Before each *Fair* there is a Catalogue of all the Books to be sold thereat, printed and dispersed, to call together Purchasers; though the Learned complain of divers unfair Practices therein; as factitious Titles, Names of Books purely imaginary, &c. beside great Faults in the Names of the Authors, and the Titles of the real Books.——2. The *Fairs of Leipsick*, which are held thrice a Year; one beginning on the first of *January*, another three Weeks after *Easter*; and a third after *Michaelmas*. They hold twelve Days a-piece, and are at least as considerable as those of *Franckfort*. 3. The *Fairs* of *Novi*, a little City in the *Milanese*, under the Dominion of the Republic of *Genoa*. There are four in the Year, commencing on the second of *February*, the second of *May*, the first of *August*, and second of *September*. Tho' the Commodities bought and sold here be very considerable; yet, what chiefly contributes to render them so famous, is the vast Concourse of the most considerable Merchants and Negotiants of the neighbouring Kingdoms for the transacting of Affairs, and settling Accounts. 4. The *Fairs* of *Riga*, whereof there are two in the Year; one on *May*, and the other in *September*. They are much frequented by the *English*, *Dutch* and *French* Ships, as also from all Parts of the *Baltick*. The best Time for the Sale of Goods at *Riga*, is during the *Fairs*. Since the Building of the famous City of *Petersbourg*, these *Fairs* have suffer'd some Diminution. 5. *Fair* of *Archangel*, during which, all the Trade Foreigners have with that City, is managed. It holds a Month, or six Weeks at most, commencing from the middle of *August*. The *Muscovite* Merchants attend here from all Parts of that vast Empire; and the *English*, *Dutch*, *French*, *Sweedish*, *Danish* and other Ships in the Port of that City, on this Occasion, ordinarily amount to three hundred. But this is no *Free Fair*, as the rest are. The Duties of Exportation and Importation are very strictly paid, and on a very high footing. 6. *The Fair of St. Germain*, one of the Suburbs of *Paris*, commencing on the third of *February*, and holding till *Easter*; tho' it is only *free* for the first fifteen Days. 7. The *Fairs of Lyons*, which Monf. *du Chesne*, in his Antiquity of Cities, would insinuate from a Passage in *Strabo*, were establish'd by the *Romans*: Tho' 'tis certain, the *Fairs*, as they now stand, are of a much later Date. There are three in the Year, each lasting twenty Days, and *free* for ever. They begin on *Easter* Monday; the 26th of *July*; and the first of *December*. 8. *Fair of Guibray*, a Suburb of the City *Falaise* in the lower *Normandy*. It is said to have been establish'd by our *William* the Conqueror, in Consideration of his being born at *Falaise*. It commences on the 16th of *August*, and holds 15 Days, *free* by Chartet, and longer by Custom. 9. *Fair of Beaucaire*, held partly in a City of that Name, in *Languedoc*, and partly in the open Country, under Tents, &c. It commences on the 22d of *July*, and only holds for three Days; yet it is the greatest and most celebrated of all the *Fairs* in that Part of *Europe*, both for the Concourse of Strangers from all Parts of the World; and for the Traffick of all kind of Goods: The Money return'd in these three Days amounting sometimes to above six Million of Livres.

The *Fairs of Porto-bello*, *Vera Crux*, and the *Havana*, are the most considerable of all those in *America*. The two first last as long as the Flota and Gallions continue in those Parts; and the last is open'd as soon as the Flota or Gallions arrive there upon their Return for *Spain*; this being the Place where the two Fleets join. See FLOTA, and GALLIONS.

FAIR *Pleading*. See BEAU-PLEADER.

FAIRY, a Term frequently occurring in antient Traditions and Romances, denoting a kind of Genii, or imaginary Deities, conversant on Earth, and distinguish'd by abundance of fantastical Actions and Offices, either good or evil.

The *Fairies* are a peculiar species of Divinities, that have but little Relation to any of those of the antient *Greeks* and *Romans*; unless perhaps to the *Larvæ*. See LARVÆ. Tho' others, and with Reason, won't have them rank'd among *Gods*; but suppose them an intermediate kind of Beings, neither Gods, nor Angels, nor Men, nor Devils.

They are of Oriental Extraction, and seem to have been invented by the *Persians* and *Arabs*, whose History and Religion abounds with Tales of *Fairies* and Dragons. The *Persians* call them *Peri*, and the *Arabs Ginn*, having a peculiar Country, which they suppose them to inhabit, call'd *Ginnistan*, and by us *Fairy Land*. Our great Countryman *Spencer*'s Master-work, the *Fairy Queen*, is an Epic Poem under the Persons and Characters of *Fairies*.

Naude, in his *Mascurat* derives the Origin of our Fables of *Fairies*, from those of the *Parcæ* of the Antients; and supposes both the one and the other to have been a kind of Envoys, or Interpreters of the Will of Heaven to Men. But then, by *Fairies* he means a sort of Witches, famed for foretelling future Events, by means of some Communication with the Genii above-mentioned. The silly superstitious Notions of the Antients, he observes, were not near so formidable as ours; nor their Hell and Furies any thing comparable to our Devils. Accordingly, in lieu of our Hags and Witches, who do nothing but ill, and are employ'd in the lowest, basest Offices, they had a sort of finer Goddesses, call'd by *Latin* Authors *Albas Dominas*, who scarce did any thing but good, and took Pleasure in noble, honourable Deeds:

Deeds: Such were their *Lamia*; and Nymph *Egeria*; from whom the later fairy Queens, *Morga*, *Alcina*; *Fata Manto* of *Ariosto*, *Gloriana* of *Spencer*, and other Machines in *English* and *French* Fable were, no doubt, deriv'd. Some of them are usually made to attend the Births of young Princes and Cavaliers, to inform them of their Destiny, as was antiently done by the *Parcæ*, witness *Hyginus*, c. 171, and 174.

But with *Naudæ*'s Leave, the Antients were not without Witches, as wicked as our own; witness the *Canidia* of *Horace* Epod. IV. Od. V. & Satyr L. I. 10. Nor did the *Fairies* succeed the *Parcæ*, or even *Venificæ* of the Antients; but rather the *Nymphæ*: for such were *Lamia* and *Egeria*. See NYMPH, PARCÆ, *&c.*

FAIRY *Circle* or *Ring*, is a Phænomenon pretty frequent in the Fields, *&c.* being a kind of Round, suppos'd, by the Vulgar, to be trac'd by the *Fairies* in their Dances.

There are two kinds; one of them seven or eight Yards in Diameter, containing a round bare Path, a Foot broad, with green Grass in the Middle: The other, of divers Bignesses; being incompass'd with a Circumference of Grass, much fresher and greener than that in the Middle.

Mr. *Jessop* and Mr. *Walker*, in the Philos. Transact. ascribe them to the Lightning; which is confirm'd by their being most frequently produc'd after Storms of that kind; as well as by the Colour and Brittleness of the Grass's Roots, when first observ'd. 'Tis no Wonder that Lightning, like all other Fires, moves round, and burns more in the Extremity than the Middle.

According to those Gentlemen, the second Kind of Circle arises originally from the first: The Grass burnt up by the Lightning, using to grow the more plentifully afterwards.

Other Authors have asserted, that these *Fairy* Rings are form'd by Ants; by reason those Insects are sometimes found travelling in Troops therein.

FAITH, in Philosophy, call'd also *Belief*, is that Assent we give to a Proposition advanc'd by another, the Truth of which Proposition we don't immediately perceive, from our own Reason or Experience, but believe it discover'd and known by the other: Or, *Faith* is a Judgment or Assent of the Mind, the Motive whereof is not any intrinsick Evidence, but the Authority or Testimony of some other, who reveals, or relates it. See REASON.

Hence, as there are two Kinds of Authorities or Testimonies; the one of God, and the other of Man; *Faith* becomes distinguish'd into *Human*, and *Divine*.

Divine FAITH is that founded on the Authority of God; or 'tis that Assent we give to what is affirm'd by God. The Object of this *Faith* is Matters of Revelation. See REVELATION.

Human FAITH is that whereby we believe what is told us by Men: The Object hereof is Matter of human Testimony and Evidence. See TESTIMONY, and EVIDENCE.

Faith again, may be distinguish'd into *implicit*, and *scientific*.

Implicit or *blind* FAITH is that whereby we give our Assent to a Proposition advanc'd by another, of whose Knowlege and Veracity we have no certain and evident Reason or Proof; and this is only *Opinion* under another Name. See OPINION.

Scientifical or *seeing* FAITH, is that by which we give our Assent to a Proposition advanc'd by one who can neither deceive, nor be deceiv'd; which may be properly refer'd to *Science* or *Knowledge*. See KNOWLEDGE.

Divine Faith, cæteris paribus, is stronger than human. When we are fully convinc'd that any Proposition comes from God, *Faith* becomes Assurance, or Science; it being an Ingredient in our Idea of God, that he can neither deceive, nor be deceiv'd: But when there is any Doubt, whether the Proposition is declared by God, or whether he has commanded that we should believe such a Thing; the *Faith* can be no stronger, or weaker than the *Reasons* on which it is founded: Divine *Faith* therefore, may either be strong, weak or none at all.—Again, the Reasons or Motives of believing Men, may be of such Weight and Force, that being perfectly understood, they may equal a mathematical Evidence: And then the human *Faith* is scarce inferior to the Divine; there being, as it were, an equal Necessity of giving our Assent on each Side. See CREDIBILITY *of human Testimony*.

Hence it is easily observ'd, that all our *Faith* or Belief has its Foundation on Reason, which cannot deceive us, if we make a due Use of our Liberty, and do not acquiesce, till it necessarily compels us. See LIBERTY, and JUDGMENT.

Strictly, and philosophically speaking, no Man can have what we call a *Divine Faith*, but a Prophet, to whom God has immediately spoken. See PROPHET, and PROPHECY.

All our present religious *Faith* is really *human*, as depending on the secondary Testimony of Men; of whose Veracity however, we have the strongest Proofs. The Prophets, or those to whom God immediately revealed his Will, believ'd him, for that they knew he could not deceive. We, at this Day, believe them, or rather their Writings, for other Reasons, *viz.* the same which oblige us to believe all undoubted Histories. See REVELATION.

FAITH, in Theology, is the first of the Theological Virtues, or Graces. See GRACE.

Faith, in this Sense, is a Gift of God, whereby we are led to give a firm Assent to the Truths he has reveal'd to his Church: Or, *Faith* is a Gift or Impression, which leads us to give our Assent to certain Things relating to God, his Nature, Attributes, Worship, Truth, *&c.* The Evidence of which Things, we do not see and understand clearly enough, to have given our Assent on the common Footing of Reason, and Necessity. See REVELATION, and TRUTH.

St. *Paul* defines *Faith* the Substance or Support of Things hoped for, and the Evidence of Things not seen. The Life of *Faith* consists in serving God without knowing him in any sensible manner. *Nicole*.

Beside the two Species of *Faith*, human and divine; the Romanists make a third, or intermediate Kind, call'd

Ecclesiastical FAITH, which is the Assent, orthodox Persons give to certain Events decided by the Church, and propos'd to be believed of all: As when she declares that such a Book contains heretical Doctrine: That such a Person is in Heaven, *&c.* This Term, *Ecclesiastical Faith*, was first introduc'd by Mr. *Perefixe*, to distinguish the *Faith* whereby we believe Matters of Divine Revelation, from those of Ecclesiastical Determination.

Confession of FAITH, is a *Creed* or Formula containing all those Articles, the Belief whereof is esteemed necessary to Salvation. See CREED, and SYMBOL.

FAITH *and Homage*, in the Feudal Law. See FEALTY.

FAKIR, or *Faquir*, a kind of Dervice, or Mahometan Religious, who travels the Country, and lives on Alms: Or rather, as *d'Herbelot* observes, *Fakir* and Dervice are the same thing.

The *Turks* and *Persians* use the Name *Dervice* for any poor Person, whether he be so out of Necessity, or Choice: And the *Arabs* apply *Fakir* in the same Sense. Whence, in some Countries of Mussulmanism, the Religious are call'd *Dervices*; and in others, particularly throughout the States of the great *Mogul*, *Fakirs*. See DERVICE.

The *Fakirs* sometimes travel singly, and sometimes in Companies. When they go in Companies, they have a Superior, who is distinguish'd by his Habit. Each *Fakir* bears a Horn, which he blows at his Arrival in any Place, as also at his Departure; and a kind of Scraper or Trowel, to scrape the Earth in the Place where he sits or lies down. When they go together, they divide their Alms equally amongst them; give what is left every Night to the Poor, and never reserve any thing for the Morrow.

There are also a kind of idolatrous *Fakirs*, who follow much the same Trade. D. *Herbelot* reckons in the *Indies* eight hundred thousand Mahometan *Fakirs*; and twelve hundred thousand idolatrous ones: To say nothing of divers extraordinary Species of *Faquirs*, particularly *Penitents*; whose Mortification and Penance consists in very odd Observances. Some, *v. gr.* remain Night and Day for many Years in certain uneasy Postures. Others never sit or lay down to sleep, but sustain themselves by a Rope, hung down for the Purpose. Others bury themselves in a Ditch, or Pit, for nine or ten Days without eating or drinking. Others keep their Arms lifted up to Heaven, so long, till they cannot let them down again, if they would. Others lay Fire on their Heads, and burn the Scalp to the very Bone. Others roll themselves naked on Thorns. *Tavernier*, &c.

Another Class of *Fakirs*, retire unto Mosques, live on Alms, and devote themselves to the Study of the Law, the reading of the Alcoran, *&c.* to fit themselves for *Moulas* or Doctors.

People of Quality sometimes assume the Character and Quality of *Fakirs*: And the famous *Orangzeb* himself, e'er he ascended the Throne, gave out, that he intended to commence *Fakir*.

The Word *Fakir* is *Arabic*, and signifies a poor Person. It is form'd of the Word פקר, *fakara*, to be in want.

FALCATED, one of the Phases of the Plants, popularly call'd *Horned*. See PHASES.

The Astronomers say the Moon, or any Planet appears *Falcated*, when the enlighten'd Part appears in form of a Sickle, or Reaping-hook, by the *Latins* call'd *Falx*.

The Moon is *Falcated*, whilst she moves from the Conjunction to the Opposition, or from New Moon to Full; from Full to a New again, the enlighten'd Part appears gibbous, and the dark *Falcated*. See MOON.

FALCON, or *Faucon*, a Bird of Prey, of the Hawk-kind, superior to all others for Goodness, Courage, Docibility, Gentleness, and Nobleness of Nature. See HAWK.

The *Falcon* or *Falcon Gentle*, is both for the Fist, and the Lure: Its Feet are yellow, its Head black, and Back spotted. In the Choice, observe that the Head be round, the

the Beak thick and short, the Neck long, the Shoulders broad, Thighs long, Legs short, Feet large, the Feathers of the Wings slender, Pounces black, &c.

The *Falcon* is excellent at the River, Brook, and even Field; and flies chiefly at the larger Game, as Wild-goose, Kite, Crow, Heron, Crane, Pye, Shoveler, &c.

It must be added, that the Name *Falcon* is retrain'd to the Female; for as to the Male *Falcon*, 'tis much smaller, weaker, and less courageous than the Female, and therefore denominated *Tassel*, or *Tiercelot*.

John de Janua, and several others, take the Name *Falcon* to have been occasion'd by its crooked Talons, or Pounces, which resemble a *Falx* or Sickle. *Giraldus* derives it *a falcando*, because it flies in a Curve.

As in the Course of this Work, the several Terms of Falconry are explain'd, it may be here necessary to say something in the general, of the Management and Discipline of the *Falcon*, as being the Foundation of the Art of *Falconry*. For the rest, the Reader may have Recourse to the Heads HAWK, and HAWKING.

When a young *Falcon* is first taken, she must be *seel'd*; and the Seeling at length gradually slacken'd, that she may be able to see what Provisions are brought her. Her Furniture is to be Jesses of Leather, maild Leashes, with Buttons at the End, and Bewets. Beside, a small round Stick hanging in a String to stroke her frequently with al; which, the oftener 'tis done, the sooner and better will she be man'd: Two Bells on her Legs, that she may be the more readily found, or heard when she stirs, scratches, &c: And a Hood rais'd, and bofs'd over her Eyes. Her Food to be Pidgeons, Larks, and other live Birds, of which she is to eat twice or thrice a Day, and till she be full gorged. When the Falconer is about to feed her, he must hoop and lure, that she may know when to expect it. Then unhooding her gently, he gives her two or three Bits, and putting her Hood on again, gives her as much more; but takes care she is close seeled, and after three or four Days lessens her Diet. At going to bed, he sets her on a Pearch by him, that he may awake her often in the Night; continuing to do so, till she grow tame and gentle. When she begins to feed eagerly, he gives her Sheepsheart; and now he begins to unhood her by Day, but it must be done far from Company: Feeds her and hoods her again; and feeds her as before, but takes care not to fright her with any thing, when he unhoods her; and if he can, reclaims her without over-watching. The *Falcon* must be born continually on the Fist, till she be throughly manned, and induced to feed in Company: For two or three Days give her wash'd Meat, and then Plumage, according as you esteem her foul within; if she cast, hood her again, and give her nothing till she gleam after her Casting: But when she has gleamed and cast, give her a little hot Meat in Company; and towards Evening let her plume a Hen's Wing, likewise in Company: Cleanse the Feathers of her Casting, if foul and slimy: If she be clean within, give her gentle Casting; and when she is well reclaimed, manned, and made eager and sharp set, you must venture to feed her on the Lure.

But three things are to be consider'd before your Lure be shew'd her. 1. That she be bold and familiar in Company, and not afraid of Dogs and Horses. 2. Sharp-set and hungry, having regard to the Hour of Morning and Evening when you would lure her. 3. Clean within, and the Lure well garnish'd with Meat on both Sides. When you intend to give her the Length of a Lease, you must abscond your self: She must also be unhooded, and have a bit or two given her on the Lure, as she sits on your Fist. That done, take the Lure from her, and so hide it that she may not see it: When she is unseeled, cast the Lure so near her, that she may catch it within the Length of her Leash; and as soon as she has seiz'd it, use your Voice as Falconers do, feeding her upon the Lure on the Ground.

After having lur'd your *Falcon*, in the Evening give her but little Meat; and let this Luring be so timely, that you may give her Plumage, &c. next Morning on your Fist: When she has cast and gleamed, give her a little beaching of warm Meat: About Noon, tye a Creance to her Lease, go into the Field, there give her a bit or two upon the Lure, and unseel her; if you find she is sharp-set, and has eagerly seiz'd on the Lure, let a Man hold her, to let her off to the Lure; then unwind the Creance, and draw it after you a good way, and let him who has the Bird, hold his Right-hand on the Tassel of her Hood readily to unhood her, as soon as you begin to lure; to which if she come well, stoop roundly upon it, and hastly seize it, let her cast two or three bits thereon. That done, unseize, take her off the Lure, and deliver her again to the Person that held her; and going further off the Lure, feed her as before; and so daily farther and farther off the Lure. Afterwards, you may lure her in Company, but do not fright her: And having us'd her to the Lure on foot, do it also on Horse-back; which may be sooner accomplish'd, by causing Horsemen to be about you, when you lure her on Foot: 'Tis also sooner done, by rewarding her upon the Lure on Horse-back among Horsemen. And when she is grown familiar this way, let somebody a-foot hold the Hawk, and he that is on Horse-back, must call, and cast the Lure about his Head, while the Holder takes off the Hood by the Tassel; and if she seize eagerly on the Lure without fear of a Man or Horse, then take off the Creance, and lure at a greater Distance, Lastly, if you would have her love Dogs as well as the Lure, call Dogs when you give her Plumage. See BATHING, ENSEAMING, &c.

FALCON, FALCONET, } in Gunnery { See FAUCON, and FAUCONET.

FALCONER, a Person who brings up, tames, tutors, and manages Birds of Prey; as *Falcons*, Hawks, &c. See FALCONRY.

The Grand Seignior usually keeps six thousand *Falconers* in his Service.

The *French* King has a *Grand Falconer*, which is an Office dismembred from that of Great Hunt, Grand Veneier. The Historians take notice of this Post as early as the Year 1250.

One great Business of the *Falconer*, is to consider the Quality and Mettle of his Birds, to know which to fly early, and which late. He must also be busy and cleanly in freeing them of Lice, Nits, and Vermine. Every night after flying, he should give his Bird Casting; nor must he forget to water her, unless she have been bath'd. After this, she must be put in a warm Room, having a Pearch with a Candle burning by her; where she is to sit unhooded, that she may prune and pick her self. Next Morning she should be weather'd, &c.

FALCONRY, or FAUCONRY, the Art of taming, managing, and tutoring Birds of Prey, particularly *Falcons* and *Hawks*; and employing them with Advantage in the Pursuit of *Game*, call'd also HAWKING.

The Word is form'd of *Falco*, *Falcon*, or *Faucon*, the Bird of most Use and Esteem in this kind of Sport. See FALCON.

Falconry, as now practic'd, was unknown among the *Greeks* and *Romans*. All their Writings don't furnish so much as a proper Name to call it by: So far are they from teaching us the Terms. 'Tis the *French* Language alone, that has particular Words for all the Parts of *Falconry* and Hunting; and from them most of our Terms, as well as what we know of the Art it self, are borrow'd.

The Writers of Reputation on *Falconry*, are *Desparon*, *Franchiere*, *Tardif*, *Artelouche*, *Dalagona*, and *Latham*. *M. de S. Martha* has put the Principles of the Art into fine *Latin* Verses, in his *Hieracosophon, sive de re accipitraria, libri tres*.

FALDAGE, an antient Privilege, which several Lords reserved to themselves of setting up Sheep-folds, or Pens, in any Fields within their Manors, the better to manure them; and this not only with their own, but with their Tenants Sheep.

This was also term'd *Secta Faldæ*; and in some old Charters *Fold-soca*; and in some Places a *Fold-course*, or *Free-fold*.

FALL, *Descent*, in Physicks, the Tendency of any heavy Body towards the Center of the Earth. See DESCENT.

Gallileo first discover'd the Ratio of the Acceleration of *falling* Bodies, *viz.* That dividing the whole Time of falling into equal Parts, the Body will *fall* thrice as far in the second Moment, as in the first; five times as far in the third; sev'n times in the fourth, &c. and so on in the Order of the uneven Numbers. See ACCELERATION.

For the Cause of the FALL *of Bodies*, see GRAVITY.

For the Laws of the FALLING *Bodies*, see DESCENT.

Water-FALL, see CATARACT.

FALL, is also us'd in a moral Sense; as the *Fall* of *Adam*. See ORIGINAL SIN: The *Fall* of the *Roman* Empire, &c.

Authors contend, that *Plato* had a Notion of the *Fall* of *Adam*, which he had learnt from *Moses*. *Euseb. de Præparat. Evangel. L.* 12. *c.* 11. quotes a Fable in *Plato's Sympos.* wherein he finds the whole History, allegorically related.

FALL, in Musick and Poetry. See CADENCE, EPIGRAM, &c.

FALLACY, a Deception, or false Appearance or Report. See ERROR, and TRUTH.

The *Epicureans*, deny that there is any such thing as a *Fallacy* of the Senses. According to them all our Sensations, and all our Perceptions, both of Sense and Phantasy, are true: So that Sense is the first grand Criterion of Truth. That the Senses are never deceiv'd, they argue from their being incapable of all Ratiocination and Remembrance: Hence they can neither add, take away, couple, nor disjoin; they cannot, therefore, infer, or conclude, or invent; and consequently cannot deceive by any Inference, or Invention. This the Mind may do, but not the Sense, whose only

only Business is to apprehend what is present. *E. gr.* Colours, not to discern or distinguish between this Body and that. But a Thing that barely apprehends without pronouncing any thing, cannot deceive. Add, that there is nothing to convict our Senses of Falshood. The right Eye, *e. gr.* cannot convict the left; nor *Plato's* Eyes, those of *Socrates*; since the Reasons or Pretensions of each are equal; and the pur-blind Person sees what he sees as much as the *Lynceus*. Nor can a Sense of one Kind convict another; as the Sight, the Smell; by reason their Objects are different; and consequently their Reports, or Judgments are not of the same Things. Thus again, if I see a Stick streight, when out of the Water; but when in it, crooked: My Perception is altogether as true in the latter, as in the former Case; *i. e.* 'Tis as true that I have the Perception or Idea of the crooked Stick, as of the streight one. And this Idea is all that the Sense suggests; so that it does not deceive. Lastly, Reason cannot shew our Senses mistaken, since all reasoning depends on previous Sensations; and the Senses must first be true, before any Reasoning founded thereon, be so. Thus, the *Epicureans*; whose System is strongly confirm'd by what we have already laid down from Mr. *Berkely*, concerning the External *World*.

The *Cartesians*, on the other hand, are continually crying out against the Senses, as the great Sources of all Deception. Every thing, which our external Senses present us, they say, should be suspected as false, or at best dubious, till our Reason has confirm'd the Report. They add, that our Senses, as being *fallacious*, were never given us by Nature, for the Discovery of any thing of Truth, but only to point out what Things are convenient, or hurtful to our Bodies.

The *Peripateticks* keep a middle Course: They hold, that if a sensible Object be taken in its common or generical View, the Sense cannot be deceiv'd about it; for the Sight can see nothing but what is visible; nor can it err in perceiving what is visible *quatenus* such. But they add, that if the Object be taken under its specific View, the Sense may be mistaken about it, *viz.* from a Want of the Dispositions necessary to a just Sensation, as an Indisposition in the Eye, in the Medium, &c. See Sense, Reason, &c.

Fallacy, in Logic, or *Syllogistic Fallacy*, is a captious Argument, call'd also a *Sophism*. See Sophism.

Fallacies either arise from Words, or Things: The Foundation of all Illusion and *Fallacy* in Words, is that one Article of *Ambiguity*; which is of two Kinds, *viz.* a simple *Homonymia*, and an *Amphibology*. See Homonymia, and Amphibology.

The Kinds of *Fallacy* in Things are very numerous, but may be reduc'd to seven Heads, *viz. Ignoratio Elenchi, Petitio Principii, falsa Causa, Interrogatio multiplex, Limitatio vitiosa, Accidens & Consequens.* See Elenchus, Petitio Principii, &c.

Falling *Sickness*. See Epilepsy.

Dr. *Turberville* in the Philosoph. Transact. gives the History of a Patient, much troubled with the *Falling* Sickness. In her Urine he observ'd a great Number of short Worms, full of Legs, and like Mille-pedes. While these continued lively, and full of Motion, the Fits return'd daily; but upon prescribing her half an Ounce of Oxymel Helleboratum in Tansey Water, the Worms and the Distemper were both effectually destroy'd.

FALLOPIAN *Tubes*, in Anatomy, two Ducts arising from the Womb, one on each Side of the Fundus thereof, and thence extended to the Ovaries; having a considerable Share in the Affair of Conception. See Conception.

They are call'd *Tubæ*, i. e. Trumpets, in respect of their Form; for that in their Rise or Opening into the Womb, they are exceedingly small, so as scarce to admit a knitting Needle; but in their Progress, towards the Ovaries, they grow much bigger; and at length are capable, to receive the Finger: From whence they contract again; and at the Extremity next the Ovaries, are expanded into a sort of Flanch or Foliage, which is fringed round with innumerable little Fibres, bearing some Resemblance to the Flanch of a Trumpet.

These Tubes are four or five Inches long: They consist of a double Membrane, derived from the outer and inner Membranes of the Uterus. The Extremity next the Ovary, at the Time of Impregnation, at which Time the whole Tube is expanded, reaches to, and embraces the Ovary; tho' at other times it seems to fall a little short of it, and is only slightly tied by the Fringe, to the Underside of the Ovary.

The Use of these Tubes, is to convey the Seed, or rather Ova of Women, and other Animals, from the Testicles, or Ovaries, into the Uterus, or Womb. See Ovary, and Uterus.

Their inner Substance is compos'd, in good Measure of Ramifications of Veins, and Arteries, which form a kind of reticular, or cavernous Body, not unlike that of the Clitoris. This Structure makes them capable of Dilatation, and Contraction, according to the Quantity, and Stop of the Blood; and consequently, of being, as it were, erected, in Coitu, and of embracing the Ovary at that Time, which in their State of Flaccidity they did not. See Generation.

They take their Denomination *Fallopian*, from *Gabriel Fallopius*, a *Modenese*, who died in 1562; and who is commonly reputed their first Inventor; tho' we find them described long before him, in *Rufus* of *Ephesus*.

The Ova, or Embryos, are sometimes detain'd in the *Tubæ Fallopianæ*, and cannot make their Way into the Womb. See Fœtus.

Instances of this Kind, have frequently been met with al in Dissections. But the most remarkable, is that related by *Abraham Cyprianus*, a celebrated Physician of *Amsterdam*, in a Letter, address'd to Sr. *Tho. Millington*, wherein he describes the Manner, in which he drew a Fœtus 21 Months old, out of the Tuba of a living Woman, who lived and had several Children after the Operation.

FALLOW, a Colour, of a palish red, like that of a Brick half burnt; as a *Fallow* Deer, &c.

Fallow *Field*, or *Fallow* Ground, is Land laid up; or that has lain untill'd for a considerable Time.

So, to *Fallow*, is to prepare Land by plowing, long before it is plow'd for Seed. To do this twice, is to *twifallow*, and thrice, to *trifallow*. See Ploughing.

FALSE *Arms*, in Heraldry, are those wherein the fundamental Rules of the Art are not observ'd: As if Metal be put on Metal; or Colour on Colour, &c. See Arms.

False *Attack*, in War, a feigned Attack, intended to draw all the Enemy's Force to one side, in order to favour a real Attack, intended in another Part. See Attack.

False *Braye*, in Fortification, a small Mount of Earth, four Fathom wide, erected on the Level round the Foot of the Rampart, on that Side towards the Field, and separated by its Parapet from the Berme, and the Side of the Moat.

It is made use of to fire upon the Enemy, when he is already so far advanced, that you cannot force him back from off the Parapet of the Body of the Place; and also to receive the Ruins, which the Cannons make in the Body of the Place.

False *Claim*, is where a Man claims more than his Due. See Claim.

False *Conception*. See Mole.

False *Diamond*, a Diamond counterfeited with Glass. See Diamond.

False, or *False Position*, in Arithmetick. See Position.

False *Flower*, a Flower, which does not seem to produce any Fruit; as those of the Hazle, Mulberry-Tree, &c. Or a Flower, that does not arise from any Embryo, or that does not knit; as those of the Melon, Cucumber, &c. See Flower.

False *Imprisonment*, is a Trespass committed against a Man, by imprisoning him without lawful Causes. It is also used for the Writ brought upon this Trespass.

False *Keel*, in a Ship, is a second Keel, which is sometimes put under the first, to make it deeper. See Keel.

False *Muster*, is when such Men pass in Review, as are not actually listed as Soldiers. See Muster, Fagot, &c.

False *Opal*. See Girasol.

False *Prophecies*, See Prophecies.

False *Roof* of a House, is that Part between the upper Rooms, and the Covering. See Roof.

False *Money*, False *Weights*, &c. False *Ribs*, False *Birth*, } See { Money. Weight, &c. *Spurious* Ribs. Abortion.

FALSEHOOD, *Falseness*, in Philosophy, an Act of the Understanding, representing a Thing, otherwise than it is, as to its Accidents: Or, a false Enunciation, or Judgment of any Thing. As if a Person should judge, that the King of *Spain* is in *America*. See Error, and Truth.

The Circumstance, *as to its Accidents*, is of absolute Necessity in the Definition; inasmuch as a thing cannot be represented otherwise than it is as to Essentials: for in such Case the Essence of the thing would not be represented: And since the Essence is the Thing it self, it would not be that Thing, which is represented, but another.

There is no *Falsehood* in Apprehension, or Sensation: Our Ideas of Sense are all just, and true, so far as they go; and all our Delusions arise from our Reasonings and Conclusions. See Fallacy.

The School-men distinguish *Falsehood* into *Objective*, which is the Object of the false Judgment; *e.gr.* the King of *Spain* being in *America*: *Entitative*, that of the Things appearing what it is not, and thus occasioning the Fallacy: And *Transcendental* and *Metaphysical*; which is a Repugnancy to the Essence, nor Essentials of the Thing.

Crimen FALSI, in the Civil Law, is a fraudulent Subornation, or Concealment, with design to darken, or hide the Truth, and make Things appear otherwise, than they are.

The *Crimen Falsi* is committed three ways; by Words, as when a Witness swears falsly. See PERJURY. By Writing, as when a Man frames or alters something, antedates a Contract, or the like. See FORGERY. And by Deed, as when he sells by false Weights, or Measures, debases the Coin, &c.

FALSO *Judicio*, a Writ, which lies for false Judgment, given in the *County Court*, *Court Baron*, or other Court, not of Record.

FALSO *Retorno Brevium*, a Writ, which lies against the Sheriff for making false Returns of Writ. See RETURN.

FALX, in Anatomy, a Part of the Dura Mater, descending between the two Hemispheres of the Brain, and seperating the Fore-part from the hinder. See DURA *Mater*.

It is call'd *Falx*, i. e. *Sickle*, by reason of its Curvature, occasion'd by the Convexity of the Brain. See BRAIN It divides the Brain, as low as the *Corpus callosum*.

FAMES *Canina*, by the *Greeks* call'd *Cynodes Arexis*, q. d. Dog appetite, is such an insatiable Hunger, as is not to be satisfied with Eating; but continues, even when the Stomach is full. See BULIMIA.

This is a Case, much talk'd of by Antients; but rarely met with amongst us.

It may be supposed, to arise from sharp fretting Juices in the Stomach, which by their continual Vellications excite a Sense like that of Hunger. See HUNGER.

FAMILIA, *Family*, commonly implies all the Servants, belonging to a particular Master.

In another Sense, 'tis taken for a Portion of Land, *viz.* as much as is sufficient to maintain one *Family*.

The Term *Hide* is by our Writers sometimes call'd a *Manse*; sometimes a *Family*; and sometimes *Carucata*, or a *Plow-land*; containing as much as one Plow and Oxen could cultivate in a Year. See HIDE, PLOUGH-LAND, &c.

FAMILY *of Curves*, is a Congeries of several Curves of different Orders, or Kinds; all which are defin'd by the same indeterminate Equation, but in a different Manner, according to their different Orders.

Suppose, *e. gr.* the indeterminate Equation, $a^{m-1}x = y^m$. If $m=2$, $ax=y^2$. If $m=3$, $a^2x=y^3$. If $m=4$, $a^3x=y^4$, &c. in Infinitum. All which Curves are said to be of the same *Family*. See CURVE.

FAN, a Machine, used to raise a Wind, and cool the Air, by agitating it.

The Custom which now prevails among the Ladies, of wearing *Fans*, was borrow'd from the *East*; where the hot Climate renders the Use of *Fans* and Umbrellas almost indispensible. It is not long, since the *European* Women first began to use a kind of *Fans*, made of Leather, in the Summer time: But they are now found of Necessity in Winter.

In the *East* they chiefly use large *Fans*, made of Feathers, to keep off the Sun, and the Flies. In *Italy* and *Spain* they have a huge sort of square *Fans*, suspended in the middle of their Apartments, and particularly over the Tables: These by a Motion at first given them, and which they retain a long Time, by reason of their perpendicular Suspension, help to cool the Air, and drive off Flies.

In the *Greek* Church, a *Fan* is put into the Hand of the Deacons, in the Ceremony of their Ordination; in Allusion to a Part of the Deacon's Office in that Church, which is to keep the Flies off the Priests, during the Celebration of the Sacrament.——

Wicquefort in his Translation of the Embassy of *Garcias de Figueroa*, gives the Name *Fans* to a Kind of Chimneys or Ventiducts, in use among the *Persians*, to furnish Air, and Wind into their Houses; without which the Heats would be insupportable. See the Description thereof in that Author, *p.* 38.

At present, what is call'd a *Fan* amongst us, and throughout the best Part of *Europe*, is a very thin Skin, or Piece of Paper, Taffaty, or other light Stuff, cut in a Semi-circle and mounted on several little Sticks of Wood, Ivory, Tortoise-shell, or the like.

Fans are either made with a double, or single Paper.

If the Paper be single, the Sticks of the Mounting are pasted on the least ornamental Side; if double, the Sticks are sewed betwixt them. E'er they proceed to place the Sticks, which they call, *mounting the Fan*; the Paper is to be plaited in such manner, as that the Plaits may be alternately inward and outward.

'Tis in the Middle of each Plait, which is usually about an Inch broad, that the Sticks are to be pasted; which again, are to be all join'd, and riveted together at the other End: They are very thin, and scarce exceed $\frac{1}{4}$ of an Inch, in breadth: And where they are pasted to the Paper, are still narrower; continuing thus to the Extremity of the Paper. The two outer ones, are bigger and stronger than ordinary. The Number of Sticks rarely exceed twenty two. The Sticks are usually provided by the Cabinet-makers, or Toymen: The San-painters plait the Papers, paint, and mount them.——

The common Painting is gold Leaf, applied on a Silver'd Ground, both prepared by the Gold-beaters. Sometimes they paint on a Gold-ground; but 'tis rarely: True Gold being too dear; and false too paltry. To apply the Silver Leaves on the Paper, they use a Composition, which they pretend is a great Secret, but which appears to be no other than *Gum Arabic*, Sugar Candy, and a little Honey, melted in common Water, and mix'd with a little Brandy. This Composition is laid on with a Spunge; then, laying the Silver-leaves thereon, and pressing them gently down, with a linnen Ball, stuffed with Cotton, they catch hold, and grow together. When instead of Silver, Gold-ground is laid, the same Method is observ'd.

The Ground being well dry'd, a Number of them are well beaten together on a Block; by which means the Silver, or Gold, get a Lustre, as if they had been burnish'd.

FANATICK, a wild, extravagant, visionary, enthusiastical Person; who pretends to Revelation, and Inspiration, and believes himself possess'd with a Divine Spirit.

Such were the Anabaptists, Quakers, &c. at their first Rise; and such are still the modern Prophets, *Muggletoneans*, &c.

Wigelius, and *Behmen*, were the Leaders of the *Fanaticks* of *Germany*; and both came out of the School of *Paracelsus*. *Wigelius* is held the Father of the *Rosycrucians*.

The Word is form'd of the Latin *Fanum*, a heathen Temple; for which Reason the first Christians call'd all the Gentiles *Fanaticks*. And accordingly the antient Chronicles of *France*, call *Clovis*, *Fanatick* and Pagan. But the Word is yet of higher Original.

Among the Heathens themselves, there were those, call'd *Fanaticks*; from whom the Denomination since pass'd to all the rest. They had their Name from the Latin *Fanum*, Temple, by reason they liv'd altogether in Temples. *Struvius*, *Antiq. Rom. Synt. C. 6. p.* 212. Such, particularly, were the Priests of *Isis*, of the Mother of the Gods; of *Bellona*, &c. Some others, who were always call'd *Fanaticks*. In *Gruter*, *p. CCCXII*, *n.* 7. we have an Inscription, wherein one *L. Cornelius Januarius*, is call'd *Fanaticus*. AB ISIS, SERAPIS. ABAEDEM BELLONE. And *p. DCLIV*, *n.* 7. *Fanaticus de Ædc Bellonæ*.

What might give further Occasion to the Appellation of *Fanaticks*, was, that they perform'd their Sacrifices in a wild, enthusiastical manner.——

FANATIO, in our antient Customs, the *Fawning-time*, or *Fence-month*, in Forests. See FENCE.

FANCY, see PHANTASY, and IMAGINATION.

FANTASTICAL *Colours*, are the same as those call'd *Emphatical Colours*. See EMPHATICAL COLOURS.

FAPESMO, in Logic, one of the Moods of Syllogisms. See MOOD.

A Syllogism in *Fapesmo*, has its first Proposition an universal Affirmative; the second an universal Negative; and the third, a particular Negative. See SYLLOGISM.

FAQUIR, see FAKIR.

FARCE, was originally a *Droll*, or petty Shew, or Entertainment, exhibited by Charletans, and their Buffoons, in the open Street, to gather the Croud together.

The Word is *French*, and signifies literally, *force-meat*, or *Stuffing*. It was applied on this Occasion, no doubt, on account of the Variety of Jests, Gibes, Tricks, &c. wherewith the Entertainment was interlarded.

At present, *Farce* is of a little more Dignity. 'Tis remov'd from the Street, to the Theater; and instead of being perform'd by Jack-puddings, to amuse the Rabble, is now acted by our Comedians, and become the Entertainment of the politest Audiences.

The Poets have reform'd the Wildness of the primitive *Farces*; and brought them to the Taste, and manner of Comedy. The Difference between the two, on our Stage, is, that the latter keeps to Nature, and Probability; and in order to that, is confin'd to certain Laws, Unities, &c. prescrib'd by the antient Criticks.

The former, disallows of all Laws; or rather, sets them all aside, on occasion. Its End is purely to please, or make merry: And it sticks at nothing, which may contribute thereto, however wild, and extravagant. Hence, the Dialogue is usually low; the Persons, of inferior Rank; the Fable, or Action, trivial, or ridiculous; And Nature, and Truth, every where heighten'd, and exaggerated, to afford the more palpable Ridicule. See COMEDY.

Some Authors derive the Word *Farce* in this Sense from the Latin *Facetia*; others from the *Celtic Farco*, Mockery; others from the Latin *farcire*, to stuff.

FARCIN, FARCY, or FASHIONS, a Disease in Horses, and sometimes in Oxen, &c. The *Farcin* is somewhat of the nature of a Scabies, or Mange.

Vegetius calls it *morbus farciminosus*. It consists in a Corruption of the Blood; which shews it self in Eruptions of hard Pustles, Knots, or Strings, along the Veins; and in Ulcers, which are not cured, without great Difficulty, by running hot Irons into them. There is a *spreading Farcin*, which diffuses it self over the whole Body; an *inner Farcy*; a *stringed Farcy*, &c.

The

The *Farcin* is infectious; and has the Effect of a true Plague. *Gesner* derives the Word from *Varices*, by changing the *v* into a Digamma, or *f*.

The *Farcy* is ordinarily occasion'd by Over-heats, and Colds; sometimes by Spur-galling with rusty Spurs, Snaffle, Bit, or the like: Or by the Bite of another Horse, infected with it: Or, if in the Leg, by cutting, or interfering.

The *Water-Farcin* proceeds from a Horse's feeding, on low, watery Grounds, and Pits, or Holes, where the Grass grows above the Water: For the Horse, in picking out the Grass, licks up the Water, which occasions him to swell under the Belly, or Chaps. The Cure is by a red-hot Iron.

FARDEL *of Land*, is according to some Authors, the fourth Part of a Yard-land. See YARD-LAND.

FARDING-*Deal*, in our antient Customs, signifies the fourth Part of an Acre, now call'd a Rood. See ACRE.

In the Reg. of Writs, we have also *Denariata*, *Obolata*, *Solidata*, and *Librata Terræ*; which must probably rise in Proportion of Quantity from the *Farding-deal*, as an halfpenny, Penny, Shilling and Pound, rise in Value: On which footing *Obolata*, must be half an Acre; *Denariata*, an Acre; *solidata*, twelve Acres; and *Librata*, twelve Score Acres.

Yet we find, *Viginta libratas terræ, vel redditus Reg. fol.* 94. *a.* and 248. *b.* whereby it seems *librata terra* is so much, as yields xx *s. per Annum:* and *centum solidatas terrarum tennementorum & redituum, fol.* 249. *a.* See FURLONG.

Others holds *Obolata* to be but half a Pearch; and *Denariata*, a Pearch. See PEARCH.

FARE, a Voyage, or Passage; or the Money paid for passing by Water, *&c.*

For the *Fares* of Hackney Coach-men, Water-men, *&c.* see COACH-MAN, *&c.*

FARINA, the Flower, or Powder of some Grain, or Pulse ground, and sifted from the Bran. See FLOWER, PULSE, BRAN, *&c.*

The Word is pure Latin, *Farina*, form'd of *Far*, Corn, Wheat: And *Far*, according to *Guichard*, comes from the *Hebrew* כר, *bar*, signifying the same Thing.

FARINA *fæcundans*, among Naturalists, is a fine Dust, prepar'd in the Male flowers of Plants; which being afterwards shed on the Female, does the Office of a Sperm, or Semen, by impregnating the same. See GENERATION, PLANT, and FLOWER.

The *Farina fæcundans*, call'd also the *Male-dust*, and *Male seed*, is form'd and secreted in the *Apices*, or Tops of the *Stamina*; where, when it becomes mature, and copious enough, bursting its Capsula, it is spilt on the Head of the *Pistil*, and thence convey'd to the *Matrix*, or *Utricle* thereof, to fæcundify the *Ova*, or female Seed, contain'd therein, See STAMINA, APICES, PISTIL, and UTERUS.

This *Dust*, in any one Plant, being view'd with a Microscope; every Particle thereof appears of the same Size and Figure: But in different Plants, the Figure, Size, Colour, *&c.* of the Dust, is very different. Some are clear, and transparent, as Crystal; as those of the *Maple*, *Burrach*, and *Hemlock*: Others are white, as those of *Hen-bane*, *Balsamum*: Others blue, as those of *Flax*: Others purple, as of some *Tulips*: Others flesh-colour'd, as some Species of *Lychnis*; and others red, as those of the *Geum*.

It may be observ'd, however, that the Colour of the *Farina* varies, in the same Species, according to the Colour of the Flower; and even, sometimes, the *Farina* of the same Flower is of different Colours; as is easily observ'd in the *Caryophillus arvensis*.

The Figures of the divers Kinds of *Farinæ* are much harder to describe. The most general Figure is the Oval, more or less sharp at the Ends, with one or more Channels, or Furrows, running length-wise; so that through the Microscope they look not unlike the Stone of a Date, a grain of Wheat, a Coffee-berry, or an Olive. Such are those of the Polygonatum, Bugles, Bryony, Tithimal, *&c.* Those of the Melilot, are Cylinders: Those of the Pansey, are Prisms, with four irregular Sides: Those of the great Coosolida, represent two crystal Globules, closely fasten'd to each other: Those of the Sycamore, represent two Cylinders, plac'd a-cross: Those of the Jonquille, are in form of a Kidney: Those of the *Camponulæ*, Passion-flower, *&c.* are nearly round, but unequal in their Surfaces: Those of *Caryophyllus silvestris*, are round, and cut in Facets: Those of the *Geranium*, and some other Species, are round, with a kind of *Umbelicus*, or Indenture, as in an Apple, *Bradley* says, they are perforated quite through, like the Bead of a Necklace, which we doubt: Those of the *Caltha*, *Corona Solis*, &c. are little Globes, set with Prickles, *&c.*

Of these *Farinæ*, some are very hard; others, soft, and easily broke. They all contain a deal of sulphureous Matters, more than the other Parts; whence, they are very odorous. Those of the Lilly, are so full of Oil, that they grease the Paper they are put in, as if it had been oil'd. The *Farinæ* of most Aromatic Plants, swim in an essential Oil, or sort of liquid Turpentine: Others are involved in a dry Rosin; as these of the *Lycopodium*, or *Muscus terrestris clavatus*. C. B. Others, as those of Fumitory, are inclos'd in a little, viscid, mucilaginous Matter; and all, in effect, have something so glutinous, that they stick to any thing, that touches them: So that 'tis difficult to separate them from each other.

Some have imagin'd, that these *Farinæ* were only Particles of Wax, or Rosin: But the Contrary is easily prov'd: For they neither dissolve in Water, nor Spirit, nor Oils; even when assisted with Fire.

Mr. *Bradley* supposes a Magnetick Virtue lodg'd in the *Farina fæcundans*, or Male Dust; by means whereof, when deposited in the Utricle of the Female, it draws the Nourishment from the other Parts of the Plant into the *Ova*, or Rudiments of the Fruit, and makes them swell. The Reality of this Virtue, he argues from the same being found in Wax, which is chiefly, or wholly gather'd hence by the Bees. See WAX.

Some, against the great Use of the *Farina fæcundans* in Generation, may object, that in Flowers, which hang downwards, as the Cyclamen, *&c.* the *Farina fæcundans* cannot be cast on the Orifice of the Pistil: To which it may be answer'd, that the Pistils of such Flowers, hanging lower than the dusty Apices which surround them, the glutinous Matter and Velvet, covering the Extremity of the Pistil, may be capable of receiving, and retaining some of the *Farina*, as it falls: And without any Intromission of the *Farina*, its Lodgment on the Mouth of the Pistil, may by Virtue of its attractive Power fecundify the Seed in the *Uterus*.——

FARM, or FERM, in Law, signifies a little Country-Domain, or District, containing House and Land, with other Conveniences; hired, or taken by Lease, either in Writing, or Parole. See LEASE.

This in divers Parts is call'd diversely: In the North, it is a *Tack*; in *Lancashire*, a *Fermeholt*; in *Essex*, a *Wike*, &c.

The Word originally is form'd of the Latin *firmus*.

In the corrupted Latin, *firma* signified a Place inclos'd, or shut in: Whence, in some Provinces, *Menage* observes, they call *Closerie*, or *Closture*, what in others they call *Farm*. Add, that we find *locare ad firmum*, to signify *to let, to farm*; probably, on account of the Sure hold the Tenant here has in Comparison of Tenants at Will.

But *Spelman*, and *Skinner*, chuse to derive the Word *Farm*, from the *Saxon Feorme*, that is, *Victus*, or Provision; by reason the Country-people and Tenants antiently paid their Rents in Victuals, and other Necessaries; afterwards converted into the Payment of a Sum of Money. Whence a *Ferm* was originally a Place that furnish'd its Owner or Lord with Provisions. And among the *Normans*, they still distinguish between *Farms*, that pay in Kind, *i. e.* in Provisions; and those, which pay in Money; calling the former simply *Fermes*, and the latter *Blanche Ferme*, white *Farm*.

Spelman shews farther, that the Word *firma* signified not only what we now call a *Farm*, but also a Feast, or Entertainment, which the Farmer gave the Proprietor, or Landlord for a certain Number of Days, and at a certain Rate, in Consideration of the Lands, *&c.* he held of him.

Thus, *Fearm*, in the Laws of King *Canutus*, is render'd by Mr. *Lambard*, *victus*; and thus we read of *reddere firmam unius noctis*; and, *reddebat unum diem de firma*; which denote, Provision for a Night, and Day; The Rents about the Time of the Conquest being all reserved in Provisions: The Custom whereof is said to have been first alter'd under *Henry* I.

We also say, *to farm* Duties, Imposts, *&c.* The Duty of Excise in *Scotland* is farm'd, or *let to farm*, for at 33500 *per Annum*. See EXCISE.

FARREATION, in Antiquity, the same with *Confarreation*. See CONFARREATION.

FARRIER, a Person, whose Office is to shoe Horses, and cure them, when they are diseased, or lame. See SHOEING, *&c.*

FARTHING, a small *English* Copper Coin, amounting to $\frac{1}{4}$ of a Penny. See COIN.

It was antiently call'd *Fourthing*; as being a fourth of the Integer, or Penny. See PENNY.

FASCE, *Fascia*, in Heraldry. See FESSE.

FASCES, in Antiquity, were Axes, or Hatchets, tied together with Rods, and bore before the *Roman* Magistrates, as a Badge of their Office, and Authority.

Florus, L. I. c. 5. assures us, that the Use of *Fascés* was introduc'd by the elder *Tarquin*, the 5th King of *Rome*; and were then the Mark of the soveraign Dignity. In after Times, they were bore before the Consuls. They had each of

of them twelve, bore by so many Ushers, call'd *Lictors*. See Lictor. *Dionys. Halicarn.* L. III. c. 84.

Others will have *Romulus* the Author of the Institution, and ascribe the Number twelve, to the Number of Birds, which foretold him his Kingdom. Others hold, that he borrow'd it from the *Hetrurians*; and that the Number twelve answer'd to the twelve Nations of *Hetruria*, who in creating him King, gave him each an Officer, to serve him as Lictor. *Silius Italicus* ascribes their first Invention to a City of *Hetruria*, call'd *Vetulonia*.

These *Fasces* consisted of Branches of Elm; in the Middle whereof was a *Securis*, or Hatchet, the Head whereof stood out beyond the rest. *Plutarch* relates the Reasons of this Disposition. *Publicola* took the Hatchet out of the *Fasces*, as *Plutarch* assures us, to remove from the People all Occasion of Terror.

After the Consuls, the Prætors assum'd the *Fasces*. *Censorin. de Die Natal.* observes, that the Prætors had only two: Tho' *Polybius* and *Plutarch* give them six. In the Government of the Decem-vir's, it was the Practice, at first, for only one of them to have the *Fasces*. Afterwards, each of them had twelve, in the same manner as the Kings.

FASCIA, in Architecture, by the Workmen call'd *Facia*, *Facio*, or *Face*, a Broad-list, Fillet, or Band; particularly used in Architraves, and Pedestals. See Architrave, and Pedestal.

The Architrave consists of three *Fasciæ*, or Bands; thus call'd by *Vitruvius*, as resembling *Swaths*, call'd in Latin *Fasciæ*.

That Author admits no *Fasciæ*, in the *Tuscan*, and *Doric* Architrave, *i. e.* he makes it all plain, without any Division, or cantoning into Parts or *Fasciæ*: But the modern Architects take Liberty to differ from him herein. See Tuscan, Doric, &c.

In Brick-buildings, the Juttings out of the Bricks, beyond the Windows, in the several Stories, except the highest, are call'd *Facia's*, or *Fasciæ*.

These are sometimes plain, and sometimes moulded. But the Moulding is only a *Cima reversa*, or an O G, at the Bottom, with two plain Courses of Bricks over it; then an *Astragal*, and lastly a *Boultine*.

Fascia *lata*, or *Fascialis*, in Anatomy, a Muscle of the Leg; call'd also *Membranosus*. See Membranosus.

FASCIÆ, in Astronomy, two Rows of bright Spots, observ'd on *Jupiter's* Body; appearing like Swaths, or *Belts*. See Jupiter.

The *Fasciæ*, or *Belts* of *Jupiter*, are more lucid than the rest of his Disk, and are terminated by parallel Lines. They are sometimes broader, and sometimes narrower; nor do they always possess the same Part of the Disk.

M. *Huygens*, likewise, observ'd a very large Kind of *Fascia*, in *Mars*; but it was darker than the rest of the Disk, and took up the middle Part thereof. See Mars.

FASCIALIS, in Anatomy, a Muscle of the Leg; call'd also *Sartorius*. See Sartorius.

FASCICULUS, in Medicine, a Term sometimes used to express a certain Quantity, or Measure of Herbs.

By *Fasciculus* is meant so much, as may be held in the Arm, when bent, and rested on the Top of the Haunch. Physicians note it in Perscription by *Fasc.*

FASCINATION, Witchcraft; or a Charm, or Spell, which alters the Appearance of Things, and represents 'em different, from what they are. See Witchcraft.

Linder, a *Swedish* Physician, has treated very well of *Fascination*, in the VIIIth Chapter of his little Work, *De Venenis*.

The Word is form'd of the *latin* Verb *fascinare*, of the *Greek* βασκαίνειν, signifying the same Thing. See Charm.

FASCINES, or *Faggots*, in Fortification, are small Branches of Trees, or Bavins, bound up in Bundles; which being mix'd with Earth, serve to fill up Ditches, to screen the Men, make the Parapets of Trenches, &c.

Some of them are dipp'd in melted Pitch or Tar; and being set on Fire, serve to burn the Enemies Lodgements, or other Works.

A pitch'd *Fascine* is a Foot and half about: A *Fascine* for Defence, two or three Foot.

In the corrupt *Latin*, they use *Fascenina*, *Fascennia*, and *Fascinata*, to signify the Pales, *Fascines*, &c. used to enclose the antient Castles, &c.

FASHION, see Mode, Custom, &c.

Fashion is particularly us'd among Artificers, for the Trouble, Time, and Labour, employ'd on a piece of Work; particularly some silver, or gold Utensil, Instrument, Toy, &c. 'Tis by the *Fashion*, that the Workmens Wages, or Salary are regulated. We paid so much a-piece for the *Fashion* of these Spoons, exclusive of the Matter, or Silver. That Weaver has so much a-piece for the *Fashion* of the Stuffs we give him to weave. The Word is *French*, Façon.

Fashion-*Pieces*, are those two Timbers, which form the Breadth of a Ship, at the Stern; and are the outmost Timbers of the Stern, on each Side, except aloft, where the Counters are. See Stern.

FAST, a Space of Time, wherein a Person takes little, or no Food. See Food.

The Advantages of *Fasting*, with regard to Health, with extraordinary Instances of long *Fasting*, see under the Article Abstinence.

The *Bramins* never bleed their Sick, but make them fast in lieu thereof.

Fast, is peculiarly used for an Abstinence, on account of Religion; or a space of Time, wherein the Church prohibits the use of Food; or at least restrains it to certain Things, and certain Hours.

The strict, canonical *Fast*, only allows of one Meal in 24 Hours. *Fa. Thomassin* observes, that the antient *Fast* was, to sup, without dining, *i. e.* only to take one Meal, and that not till after Nones: Adding, that to dine, though without supping, was a Breach of the *Fast*. The Practice of the *Latin* Church, was to fast 36 Days in the Year; which, is as it were, the Tyth of the Year.

Tertullian wrote an express Treatise *de Jejuniis*, of *Fasts*; to support the new Laws of *Fasting*, which the *Montanists* were for impofing. See Montanist.

The antient Catholicks allow'd of no *Fasts* of *Obligation*, or Command, beside that preceding *Easter*, since call'd *Lent*; the Terms of which were to forbear Eating till the Evening. See Lent.

The other *Fasts* observ'd were only of *Devotion*: Such were the fourth and sixth *Feriæ*, i. e. *Wednesdays*, and *Fridays*. This *Fast* was call'd *Station*. Besides these there were occasional *Fasts*, injoyn'd by the Bishops, &c. See Feriæ.

In the Book of *Hermas*, call'd the *Pastor*, the Angel tells him, The Day thou *fasteest*, thou shalt take nothing but Bread and Water; and having computed the usual Expences of each Day, thou shalt lay aside so much for the Widow, the Orphan, and the Poor.

In the same Passage, the *Fast* is call'd *Station*, and the Person who *fasted*, was to begin early in the Morning to retire to Prayer. See Station.

St. Fructuosus, *Fiery* tells us, going to suffer, some People, out of a Principle of Charity, offer'd him Drink, to support him: But he refus'd it, saying, It is not yet Time to break *Fast*; for it was but ten in the Morning, and it was *Friday*, Station-day. Which shews the Exactness of the primitive Christians, in this Point; and that Drinking was held breaking of *Fast*.

Some introduced the Xerophagy into *Fasts*; that is, the Use of dried Fruits for their Meals; and made a Practice of abstaining not only from all Meats, and Wines, but also from succulent Fruits, for the whole 24 Hours: And some reduc'd themselves to Bread and Water. But this was more than was commanded. See Xerophagy.

The Practice of *Fasting* is more antient than Christianity. The *Israelites fasted* often, and had their stated *Fast*-days. The Day of Attonement, which they call'd *Kipparim*, was a Day of *Fasting*, injoin'd in *Levit*, xxiii, 27. &c. Some will have this the Day St. *Paul* refers to in Acts xxvii. 9. The *Jews* had likewise *Fasts*, instituted by Precept of the Synagogue: Such were those of the fourth, fifth, and tenth of the Month, mention'd by *Zachariah* vii. 3. and viii. 19.

The Heathens adopted the same Custom, in all Probability, from the People of God; tho' their Religion inclin'd more to Feasting, than *Fasting*: as appears from the long List of *Feasts*, enumerated under the Article Feast.

Yet they *fasted* in the *Eleusinia*; as appears from *Arnobius*, and *Clemens Alexand.* See *Salmasius*, p. 150. and *Scaliger*, Poeti l. I. c. 32.

The *Fasts* of the *Calogeri* are so severe, that they remain seven Days, without Eating at all. For the *Fasts* of the *Greeks*, see *Spon. Voyag.* P. II.

The *Turks* are so scrupulous on the point of *Fasting*, that they will not so much as take the Smell of any Perfume, by the Nose. They hold that Odors themselves break *Fast*. If they bath, 'tis forbid to put the Head under Water, for fear of swallowing any of it: And as for Women, they are forbid to bath at all on *Fast-days*.

FASTERMANS, or Fasting *men*, q. d. *homines habentes*, was used in our antient Customs, for Men of Repute, and Substance; or rather for Pledges, Sureties, or Bonds-men, which according to the *Saxon* Polity were *fast* bound to answer for one anothers peaceable Behaviours. See Decenna.

FASTI, in Antiquity, was the *Roman* Calendar; wherein the several Days of the Year, with their Feasts, Games, and other Ceremonies, were express'd. See Calendar.

The *Romans* had their greater and lesser *Fasti*. The *Great Fasti* were call'd, the *Fasti of the Magistrates*; and the *lesser*, the *Fasti Calendares*.

The *Fasti Calendares*, which were, what was properly, and primarly call'd *Fasti*, are defined by *Festus Pompejus*, to be Books, containing a Description of the whole Year; *i. e.* Ephemerides, or Diaries, distinguishing the several kinds

kinds of Days, *Festi*, *Profesti*; *Fasti*, *Nefasti*, &c. See Festi, &c.

The Author hereof was *Numa*, who committed the Care and Direction of it to the *Pontifex Maximus*; whom the People used to go and consult on every Occasion. This Custom held to the Year of *Rome* 550. when *C. Flavius*, Secretary of the Pontifices, expos'd in the *Forum* a List of all the Days, whereon it was lawful to work; which was so acceptable to the People, that they made him *Curule Ædile*. *Liv.* L. IX. c. 46.

These *lesser Fasti*, or *Fasti Calendares*, were of two Kinds: *Urbani*, and *Rustici*. The *Fasti Urbani*, or *Fasti* of the City, were those, which obtain'd, or were observ'd in the City. Some will have them thus call'd, by reason they were expos'd publickly in divers Parts of the City; tho' by the divers Inscriptions, or Gravings thereof on antique Stones, one would imagine, that private Persons had them likewise in their Houses. It was these *Fasti Urbani*, *Ovid* undertook to illustrate, and comment on, in his *Fastorum*; whereof we have the six first Books still remaining; the six last, if ever they were wrote, being lost. Beside *Ovid*, several other Authors had undertook the same Subject, particularly *L. Cincius Alimentatus*, *Fulvius Nobilior*, *Masurius Sabinus*, *Cornelius Labeo*, *C. Licinianus*, and *Nisus*: Of all whom, *Macrobius* makes Mention, in his *Saturn.* and preserves Fragments of each; beside a Work of one *Bæbius Marcus*, entitled, *De Fastis diebus*, quoted by *Fulgentius*, *De Prisco Sermone*.

In the *greater Fasti*, or *Fasti* of the Magistrates, were express'd the several Feasts, with every thing, relating to the Gods, Religion, and the Magistrates; the Emperors, their Birth-days, Offices, Days consecrated to them; and Feasts, and Ceremonies, establish'd in their Honour, or for their Prosperity, &c.

With a Number of such Circumstances, did Flattery, at length, swell the *Fasti*; whence they became denominated *Magni*, to distinguish them from the bare Calendar, or *Fasti Calendares*.

In the *Fasti Rustici*, or *Country-Fasti*, were express'd, the several Days, Feasts, &c. to be observ'd by the Country-people: For as these were taken up in tilling the Grounds, fewer Feasts, Sacrifices, Ceremonies, and Hollidays were enjoyn'd them, than on the Inhabitants of Cities: And they had some peculiar ones, not observ'd at *Rome*.

Those *Rustick Fasti*, contain'd little more, than the Ceremonies of the Calends, Nones, and Ides; the Fairs, Signs of the Zodiac, Increase, and Decrease of the Days, the Tutelary Gods of each Month, and certain Directions for the rural Works, to be perform'd each Month.

Fasti, was also a Tablet, Chronicle, or Register of Time, wherein the several Years were denoted by the respective Consuls, with the principal Events, that happen'd during their Consulates; call'd also *Fasti Consulares*, or *Consular Fasti*.

Onuphrius Panvinius, *Pighius*, and *Janson d'Almeloween*, have given us the *Fasti Consulares*; the two first, with long, and learned Comments, wherein are express'd, not only the Consuls, but also the Dictators, *Magistri Equitum*, Triumphs, and Ovations. *Pighius* even adds as many of the other Officers, as he could find, *viz.* Prætors, Tribunes, &c. *Janson* confines himself to the Consuls alone.

Fasti, is still applied to the Archives, and publick Registers, wherein are kept Historical Memoirs, of the most memorable Things, befallen a People.

In the like Sense, the Martyrology is call'd the *Sacred Fasti* of the Church. See Martyrology.

The Jesuit *Du Londel* has compil'd the *Fasti of Lovis le Grand*, &c.

Fasti, or *Dies Fasti*, were Court-days, answering, in some measure, to our Terms. See Term.

The Word *Fasti*, *Fastorum*, is form'd of the Verb *Fari*, to speak; by reason, during those Days the Courts were open, Causes might be heard; and the Prætor was allow'd *fari*, to pronounce the three Words, *Do*, *Dico*, *Addico*: The other Days, wherein this was prohibited, were call'd, *Ne-fasti*. Thus *Ovid*:

> *Ille* Ne-fastus *erit per quem tria verba silentur*,
> Fastus *erit per quem lege licebit agi*.

These *Dies Fasti* were noted in the Calendar, by the Letter *F*. But observe, that there were some Days, *ex parte Fasti*, partly *Fasti*, partly *Ne-fasti*, i. e. Justice might be distributed at certain Seasons of the Day; and at others not. These Days were call'd *Intercisi*, or *Endotercisi*: These were mark'd in the Calendar thus, *F. P. Fastus primo*, denoting, that Justice might be demanded during the first Part of that Day.

FASTIDIUM *Cibi*. See Nausea.

FASTIGIUM, in Architecture, the same with *Pediment*. See Pediment.

FAT, in an Animal Body, a white, oily, sulphurous Substance, collected in little membranous *Loculi* or Cells, in divers Parts of the Body; serving to keep the Parts warm, and to soften and temper the sharp Salts in the Mass of Blood.

Physicians distinguish two kinds of *Fat*: the first, call'd in Latin *Pinguedo*, and *Axungia*, and in *English*, absolutely, and by way of Eminence, *Fat*, is a gross, whitish Oil, found immediately under the *Cutis*, inclos'd in little Bags, call'd *Cellulæ Adiposæ*, adhering to the outer Surface of a Membrane, call'd *Adiposa*, all over the Body, except on the Forehead, Eye lids, Penis, and Scrotum.

This *Fat* is nothing but the oily Part of the Aliment, or Chyle, separated from the Arterial blood, by the adipose Glands, and carried by peculiar Ducts to the membranous Cells; whence it is transmitted again to the Blood by the Veins.

Dr. *Grew* takes it to be a Coagulum of the oily Parts of the Blood, made, either by some of its own saline Parts, or by the nitrous Particles of the Air mingled therewith in the Lungs; which Sentiment is confirm'd by an Experiment of that learned Person, who made an artificial *Fat*, by only mixing Oil of Olives with Spirit of Nitre for some Days: And hence it is, that divers Animals, as Conies, Hares, &c. grow *fat* in Winter, and particularly in severe frosty Weather; the Air then abounding most in Nitre. Hence also it is, that the *Fat* of Land Animals, is much firmer, then that of Fishes; the watery Element containing less nitrous Matter, than the Air.

In some Subjects the *Cellulæ* are so full and distended, that the *Fat* is above an Inch thick: In others they are almost flat; and in emaciated Subjects, instead of *Fat*, we find a sort of flaccid transparent Substance, which is nothing, but the bare Membrane; the Cells being all exhausted. See *Membrana* Adiposa.

The second kind of *Fat*, call'd *Sevum*, *Suet*, and *Leaf*, is whiter, harder, and more brittle, than the former; being found in the Cavities of the Abdomen, Omentum, &c. See Omentum, &c.

The *Fat* of both Kinds, serves as a natural Balsam, to preserve the Body; and by mixing with, and enveloping the Salts wherewith the Blood and Serum are highly saturated, keeps them from fretting and corroding the Parts of the Body, through which they pass.

It is thought likewise, and not without Probability, to make a considerable Part of the Nourishment of our Bodies; whence, the fattest Persons, falling into an Atrophy, gradually lose all their *Fat*, which is always quite expended in such Cases, e're the Disease become fatal.

Too much *Fat* is usually attended with Heaviness, and Drowsiness, not only from the Unwieldiness of an overgrown Body, nor from the stuffing of the Cavities and *Thorax* alone, which sometimes obstructs the Expansion of the Diaphragm and Lungs, and produces a *Dyspnæa*, or an *Orthopnæa*; but it is likewise probable, that the Abundance of *fatty*, or oily Particles, return'd into the Blood, and implicating the more subtle and active Parts, may hinder the necessary Secretions in the Brain.

The *Fat* of Animals, for the generality, is not reckon'd good Food; as being hard of Digestion, and producing a thick, viscid Chyle. But it is of good use in Medicine.

Calves Fat is us'd in Pomatums, and Unguents; being resolutive, and emollient.——That of *Hogs* and *Boars*, has the same Qualities, and is strengthening besides.——*Deers Grease* is good to fortify the Nerves, against the Rheumatism, Sciatica, Gout, and Fractures.——*Hares Grease*, applied externally, promotes Digestion, and the Suppuration of Abscesses.——That of *Rabbits*, is nervous, and resolutive.——That of *Cocks*, and *Hens*, resolves and softens Hardnesses.——That of *Geese*, has the same Qualities; and likewise abates Hemorrhoids, assuages Pains in the Ear, being applied within the same; and opens the Belly, being taken inwardly.——*Eels Fat* is esteem'd good against the Hemorrhoids and Deafness; to take away Pits of the Small-pox, and to make the Hair grow.——That of the *Trout*, beside its being emollient, is good in Diseases of the Anus, and Ulcers of the Breast.

Fat, in the Sea Language, is the same with *Broad*.

Thus, if the Truffing in, or Tuck of a Ship's Quarter under Water be deep, they say, she hath a *fat* Quarter.

Fat, or *Vat* is a great wooden Vessel, which among Brewers and Maltsters is used to measure Malt for Expedition; containing a Quarter or eight Bushels. See Malt.

It is likewise a Vessel, or Pan of Lead, used in the making Salt, &c. See Salt.

FATE, *Fatum*, a Term much used among the antient Philosophers.

It is form'd *a fando*, from *speaking*: and primarily implies the same with *Effatum*, viz. a Word, or Decree, pronounc'd by God; or a fix'd Sentence, whereby the Deity has prescrib'd the Order of Things, and allotted every Person, what shall befall him.

The *Greeks* call it, εἱμὰρ, εἱμαρμένη, *quasi* ἑιρμὸς, *Catena*, a Chain, or necessary Series of Things, indissolubly link'd together; and the Moderns, *Providence*. See PROVIDENCE.

But beside this Sense of the Word, wherein it is us'd, sometimes to denote the Connexion of Causes in Nature, and sometimes in the Divine Appointment; the Word *Fate* has a further Intention; being us'd to express, I know not what *Necessity*, or eternal Designation of Things, whereby all Agents, both necessary, and voluntary, are sway'd, and directed to their Ends. See NECESSITY.

In this Acceptation, some Authors divide *Fate* into *Astrological*, and *Stoical*.

The first, is a *Necessity* of Things and Events, arising from the Influence, and Positions of the heavenly Bodies, which give Law, both to the Elements, and mix'd Bodies, and to the Wills of Men.

In this Sense is the Word often used by *Manilius*: *Certum est & inevitabile fatum: materiæque datum est cogi, sed cogere stellis.* See ASTROLOGY.

The *Stoical* FATE, or *Fatality*, is defin'd by *Cicero*, an Order, or Series of Causes, wherein Cause being link'd to Cause, each produces other; And thus, all Things flow from the one prime Cause.

Chrysippus defines it a natural invariable Succession of all Things *ab æterno*, each involving other. To this *Fate* they subject the very Gods.

Thus the Poet: The Parent of all Things made Laws at the Beginning, by which he not only binds other Things, but himself. So *Seneca*: *Eadem* necessitas *& Deos alligat. Irrevocabilis divina pariter & humana cursus vehit.—Ipse ille omnium Conditor & Rector scripsit quidem* Fata, *sed sequitur: semel scripsit, semper paret.*

This eternal Series of Causes, the Poets call μοῖρῶν, and *Parcæ*, or *Destinies*. See STOICISM.

Fate, is divided by some later Authors, into *Physical*, and *Divine*.

The first, is an Order, and Series of natural Causes, appropriated to their Effects.

This Series is necessary; and the Necessity is natural. The Principle, or Foundation of this *Fate*, is Nature, or the Power and Manner of acting which God, originally gave the several Bodies, Elements, Mixts, *&c.* By this *Fate* it is, that Fire warms; Bodies communicate Motion to each other; the Sun and Moon occasion the Tides, *&c.* And the Effects of this *Fate*, are all the Events, and Phænomena in the Universe; except such, as arise from the human Will. See NATURE.

Divine FATE, is what we more usually call *Providence*. See PROVIDENCE.

Plato, in his *Phædo*, includes both these in one Definition, as intimating, that they were one and the same thing actively and passively consider'd: Thus, *Fatum est ratio quædam divina, lexque naturæ comes, quæ transiri nequeat, quippe a causa pendens, quæ superior sit quibusvis impedimentis.* Tho' that of *Boetius* seems the clearer, and more just: *Fatum*, says he, *est inhærens rebus mobilibus dispositio, per quam Providentia suis quæque nectit ordinibus.*——

FATHER, *Pater*, a Term of Relation, denoting a Person who begot a Child, either Male or Female. See SON, and DAUGHTER.

Among the antient *Romans*, the *Fathers* of three Children had very considerable Privileges allow'd them. By the Laws of *Romulus*, a *Father* had an absolute unlimited Power over his Children.

Adoptive FATHER, is he who takes the Children of some other; and owns them as his own. See ADOPTION.

Putative FATHER, is he who is only the reputed, or supposed *Father*; as *Joseph* was *putative Father* of our Saviour. See PUTATIVE.

Natural FATHER, is he who has illegitimate Children. See BASTARD.

A *Father-in-Law*, is a Person married to a Woman, who has Children by a former Husband, *&c.*

FATHER, is also used in Theology, for the first Person in the Trinity. See PERSON, and TRINITY.

God the Father, is the *proper Father* of Jesus Christ; with regard to Men, he is call'd *heavenly Father*. See GOD, and SON.

FATHER, is also us'd in a figurative Sense, on divers Moral, and Spiritual Occasions Thus, it is applied to the Patriarchs; as we say, *Adam* was the *Father* of all Mankind; *Abraham*, the *Father* of the Faithful, *&c.* See PATRIARCH.

In an Ecclesiastical Sense, *Fathers* is used for the antient Prelates, and Doctors of the Church. The *Fathers* assembled at the Council of *Nice*: *Chrysostom*, *St. Basil*, &c. were *Greek Fathers*: *St. Augustin*, *St. Ambrose*, &c. *Latin Fathers*.

The *Fathers*, say the *Messieurs de Port Royal*, are the proper Interpreters of the Gospel; and are only honour'd with that sacred Appellation, as their Works are, in some measure, a Patrimony, or Inheritance, left the Faithful, as their proper Children.

Scaliger observes, that the *Fathers* were good People, but not learned ones. To which *St. Evremond* subjoins, that when a Man comes to look near the *Fathers*, he loses a great Part of the Veneration, which Time and Opinion has procur'd them: The great Distance between them and us, makes them appear much greater, than they are.

The *Fathers*, says the same Author, had more Imagination and Vivacity of Mind, than Judgment, and good Sense. They gave altogether into Allegories, and affected the Brillant to an Excess. Justness of Mind was a thing they valued themselves of the least.

FATHER, is also a Title of Honour, given to Prelates, and Dignitaries of the Church. The Right Reverend *Father* in God, *Tho.* Lord Bishop of, *&c.* See TITLE. See also REVERENCE.

FATHER, is also applied to the Superiors of Convents; the *Father* General; *Father* Provincial; Exprovincial: *Father* Prior, Sub-Prior: *Father* Definitor, in the Order of *Benedictines*: *Father* Guardian, in that of the *Franciscans*: *Father* Corrector, among the *Minimi*, &c.

FATHERS, is also us'd plurally for all Congregations of Ecclesiasticks, whether Regular, or Secular; as, the *Fathers Cordeliers*, *Capuchins*, *Augustins*, *Jacobins*, &c. The *Fathers Jesuites*, *Fathers* of the Oratory, *Barnabites*, *Theatins*, of the Mission, *&c.* See each under the proper Article. See also BROTHER.

FATHERS, is also us'd for Persons venerable for their Age, Quality, or the Services they have done the Publick. Thus, at *Rome*, the Senators were call'd, *Conscript* FATHERS, *Patres Conscripti*, &c. See PATRES *Conscripti*. See also SENATORS.

FATHIMITES, or FATHEMITES, the Descendants of *Mahomet*, by *Fathima*, or *Fathemah*.

The Dynasty of *Fathimites*, that is, of Princes descending in a direct Line from *Ali*, and *Fathima* his Wife, *Mahomet*'s Daughter, commenc'd in *Africa*, in the Year of the *Hegira*, 296; of Jesus Christ, 908.

The *Fathimites* afterwards conquer'd *Egypt*, and establish'd themselves therein, in Quality of *Kalifs*. See KALIFH.

The *Fathimites* of *Egypt*, ended in *Abed*, in the Year of the *Hegira*, 567; 268 Years after their first Establishment in *Africa*; and 208, after the Conquest of *Egypt*.

FATHOM, a long Measure, containing six Feet; taken from the utmost Extent of both Arms, when stretch'd into a right Line. See MEASURE.

The *Fathom* is chiefly us'd at Sea, in estimating the Lengths of Cables, and other Ship-ropes, with the Depths and Soundings of the Sea: Also in Mines, Quarries, Wells, and all Works of Fortification.

There are three kinds of *Fathoms*, accommodated to the different Ranks of Vessels. The first, which is that of Men of War, contains six Feet: The middling, or that of Merchant Ships, five Feet, and a half; and the small one, used in Fluyts, Flyboats, and other Fishing-vessels, only five Feet.

Fathom is also us'd in several Countries, particularly *Italy*, for the common Yard, or Ell, whereby Things are ordinarily measur'd, in Commerce: In which Sense it is commonly call'd *Brace*, or *Braccio*, q. d. Arm. See BRACE.

FATNESS, *Obesity*, or *Corpulency*, in Medicine, the State of a Person too much loaded with Flesh, and Fat. See FLESH, and FAT.

Fatness arises from a laudable, copious, oily, soft Blood containing less than its Share of Salt.

Such a Constitution of Blood, occasioning but a feeble Fermentation, there is less consumed, than is made; the Lymph, which seems to be the Matter of Nutrition, preserves its viscid Consistence longer; and by that means adheres the more plentifully to the divers Parts of the Body. Add, that there is more a Fat separated from the Blood, than can well be deposited in the adipose Cells. Hence the Body grows very considerably, and the Parts sometimes distend to a monstrous Bulk.

Fatness is promoted by any thing that tempers and softens the Blood, and renders it less sharp, and saline: Such is want of Exercise, and Motion; an indolent Life; too much Sleep; nourishing Foods, *&c.* It is prevented, or removed, by the contrary Causes; and particularly by the Use of saline and acid Meats, and Drinks.

Fatness is the Occasion of divers Diseases, and particularly the Apoplexy.

Sennertus mentions a Man, that weigh'd six-hundred Pound; and a Maid, 36 Years of Age, who weighd 450. *Chiapin Vitelli*, Marquess of *Cerona*, a noted General in his Time, from an excessive *Fatness*, reduced himself, by drinking of Vinegar, to such a Degree of Leanness, that he could fold his Skin several times round him.

Fatness was infamous among the *Lacedemonians*.

FATUA-

FATUARII, in Antiquity, were Persons, who appearing inspir'd, foretold Things to come.

The Word is form'd of *Fatua*, Wife of the God *Faunus*, who was suppos'd to inspire Women with the Knowledge of Futurity; as *Faunus* himself did the Men.

Fatua, had her Name from *Fari*, q. d. *Vaticinari*, to prophesy.

FATUUS *Ignis*, a kind of fiery Meteor, popularly call'd *Will-with-a-Wisp*. See METEOR.

The *Ignis Fatuus* is a Vapour, shining without Heat; and is there not the same Difference between this Vapour, and Flame, as between rotten Wood, shining without Heat, and burning Coals of Fire? *Newt. Opt. p.* 316.

FAUCON, a sort of Cannon, whose Diameter at the Bore is $5\frac{1}{4}$ Inches; Weight, 750 Pound; Length, 7 Foot; Load, $2\frac{1}{4}$ Pound; Shot, $2\frac{1}{2}$ Inches Diameter; and $2\frac{1}{2}$ Pound weight. See CANON.

FAUCONET, a piece of Ordnance, whose Diameter at the Bore is $4\frac{1}{2}$ Inches; Weight, 400 Pounds; Length, 6 Foot; Load, $1\frac{1}{4}$ Pound; Shot, something more than two Inches diameter, and $1\frac{1}{4}$ Pound Weight. See CANON.

FAVISSA, among Antiquaries, A Hole, Pit, or Vault under Ground, wherein is kept something of rare Value.

The *Favissa*, according to *A. Gellius*, and *Varro*, was much the same, with what the antient *Greeks* and *Romans* called Θησαυρὸς, *Thesaurus*; and what in some of the modern Churches is called the *Archives* and *Treasury*.

In the Capitol there were divers *Favissæ*. They were subterraneous Places, wall'd, and vaulted; having no Entrance, or Light, but by a Hole a-top, which was stop'd up with a huge Stone.

They were chiefly destined for keeping the old, worn Statues, and other antient Moveables, formerly us'd in the Temple; so religiously did the People respect, and preserve whatever was consecrated. *Catulus* would have lowerd the Floor of the Capitol; but that the *Favissæ* prevented him.

Festus, however, gives us a different Account of the *Favissæ*. According to that Author, they were Wells, or Pits of Water, near the Temples, and for the Use thereof: The same with what the *Greeks* call'd Ὀμφαλὸς, Navel, as being round, &c. *Gellius* likewise gives them the Name of *Cisterns*, as well as *Festus*; but 'tis apparently, for no other Reason, than that they bore a Resemblance thereto in figure.

In effect, the two Notions are pretty easily reconciled: It being certain, that the Treasuries of some of the antient *Greek* Churches were Cisterns, or Reservoirs of Water, wherein People us'd to wash themselves, e're they enter'd the Temple.

The Word *Favissa*, seems form'd of *Fovissa*, a Diminutive of *Fovea*, Pit or Ditch.

FAUNALIA, in Antiquity. Feasts celebrated by the *Romans*, in honour of the God *Faunus*. See FEAST.

The *Faunalia* were held on the Day of the Nones of *December*, i. e. on the fifth Day of that Month. The principal Sacrifice was a Roe-buck; or rather, according to *Horace*, a Kid, attended with Libations of Wine, and burning of Incense.

It was properly a Country Festival; being perform'd in the Fields and Villages with peculiar Joy and Devotion.

Horace gives us a very gay Description thereof, in the XVIIIth Ode of his 3^{d} Book.

——Tenedor pleno cadit hædus anno
Larga nec desunt Veneris sodali
Vina Crateræ, vetus ara multo
Fumat odore.

Struvius, in his *Roman* Calendar, marks the Feast of *Faunus* on the Day of the Ides of *February*, which is the 13th Day of that Month; and the *Faunalia* he places on the 5th of the Ides of *December*, or the 9th of that Month. And in C. IX. he shews, that there really were two *Faunalia*; the one in *February*, mention'd by *Ovid*, *Fast.* L. VI, v. 246; the other, on the 9th of *December*, mention'd by *Horace*, in the Place just cited.

The Deity *Faunus*, to whom the Solemnity was devoted, and from whom it was denominated, was the same among the *Romans*, with the *Pan* of the *Greeks*.

FAUNS, FAUNI, among the Antients, were a Species of Demi-Gods, inhabiting the Forests; call'd also *Silvans*, *Silvani*. See SILVANS.

The *Fauns* are reputed pure *Roman* Deities; unknown to the *Greeks*. They were represented as half Men, half Goats; having the Horns, Ears, Feet, and Tail of a Goat, a very flat Nose; and the rest human.

The *Roman Faunus*, we have observ'd, was the same with the *Greek Pan*. Now, in the Poets, we find frequent Mention of *Fauns* and *Panes* in the plural Number; in all Probability therefore, the *Fauns* were the same with the *Panes*. See PANES.

The Reason was, that there were several *Faunus's* and *Pan's*; tho' all descended from one principal one. Thus *Ovid*:

Aut quas semideæ Dryades; Faunique bicornes
Numine contactas attonuere suo.

The *Romans* call'd them *Fauni*, *Ficarii*, and *Fauni Ficarii*.

The Denomination *Ficarii* was deriv'd, not from the Latin *Ficus*, *ficûs*, a Fig, as some have imagin'd; but from *ficus*, *fici*, a sort of fleshy Tumor, or Excrescence, growing on the Eyelids and other Parts of the Body; with which the *Fauns* were represented.

Tho' the *Fauns* were held for Demi-Gods; yet were they suppos'd to dye, after a long Life. *Arnobius* shews, that their Father or Chief, *Faunus* himself, only liv'd 120 Years.

FAVOUR, in Commerce, *see* GRACE.

FAUSSE-*braye*, in Fortification, *see* FALSE *braye*.

FAWN, among Hunters, is a Buck, or Doe, of the first Year; or the young one, of the Buck's Breed, in its first Year.——

FEALTY, an Oath, taken at the Admittance of every Tenant, to be true to the Lord, of whom he holds his Land.

He that holds Land by this only Oath of *Fealty*, holds in the freest manner; for all, even those that have Fee, hold *per fidem & fiduciam*, that is, by *Fealty* at the least.

This *Fealty* is also us'd in other Nations; as in *Lombardy*, and *Burgundy*.

Indeed, as the very first Creation of this Tenure grew from the Love of the Lord, towards his Followers; so did it bind the Tenant to Fidelity; as appears by the whole Course of the Feuds; and the Breach thereof is Loss of the Fee.

Hotoman, in his Commentaries *De Verbis Feudalibus*; shews a double *Fealty*; one *General*, to be perform'd by every Subject to his Prince; the other *Special*, requir'd only of such, as in respect of their Fee, are tied by this Oath towards their Landlords. We read of both in the Grand Customary of *Normandy*, &c.

Fealty Special, is with us perform'd, either by *Freemen*, or *Villains*.

The Form of both, see *Anno* 17 *Ed.* 2. in these Words: When a Freeman shall do *Fealty* to his Lord, he shall hold his right Hand upon a Book, and shall say thus: *Hear you, my Lord* R. *that* J P. *shall be to you, both faithful and true, and shall owe my* Fealty *to you, for the Land that I hold of you, on the Terms assigned. So help me GOD, and all his Saints.*

When a Villain shall do *Fealty* to his Lord, he shall hold his right Hand over the Book, and say thus: *Hear you, my Lord* A. *that* J B. *from this Day forth, unto you shall be true and faithful, and shall owe you* Fealty, *for the Land that I hold of you in Villainage, and shall be justified by you in Body and Goods. So help me GOD, and all his Saints.*

Fealty is usually mention'd as synonomous, with Homage; but it differs from it.

Homage consists in taking an Oath, when the Tenant comes to his Land; and is done but once; being an Obligation, which is permanent, and binds for ever: which *Fealty* does not. See HOMAGE.

They differ also in the manner of the the Solemnity; for the Oath of Homage is taken by the Tenant kneeling; but that of *Fealty* is taken standing, and includes six Things, which are comprised in the Words, *Incolume*, *Tutum*, *Utile*, *Honestum*, *Facile*, *Possibile*.

Incolume, that he do no bodily Injury to the Lord: *Tutum*, that he do him no secret Injury in any thing, which is for his Defence; as in his House, or Castle: *Honestum*, that he do him no Injury in his Reputation: *Utile*, that he do not damage him in his Possessions: *Facile*, and *Possible*, that he make it easy, and not difficult for the Lord to do any good, which otherwise he might do; all which is likewise compris'd in *Leg. H.* I. *cap.* 5.

FEAST, or FESTIVAL, a Church-Solemnity, or Rejoycing, in Honour of God, or a Saint.

The Word is form'd of the Latin *Festum*, which some derive *a feriari*, to keep Holiday. Others derive it from the *Greek* ἑστῶν, which signifies the same Thing, and is form'd of ἑστία, *Hearth*, and *Vesta*. See FESTUM, and FERIÆ.

FEASTS, and the Ceremonies thereof, have made a great Part of the Religion of almost all Nations and Sects: Witness those of the *Greeks*, *Romans*, *Hebrews*, *Christians*, and *Mahometans*.

Feasts, among us, are either *immoveable*, or *Moveable*.

Immoveable FEASTS, are those constantly celebrated on the same Day of the Year: The principal are, *Christmas-day*, or

or the *Nativity*; the *Circumcision*, *Epiphany*, *Candlemass*, or the *Purification*; *Lady Day*, or the *Annunciation*, call'd also the *Incarnation*, and *Conception*; *All Saints*, and *All Souls*: Besides the Days of the several *Apostles*, St. *Thomas*, St. *Paul*, &c. which with us, are *Feasts*, tho' not *Feriæ*. See each *Feast* under its proper Article, NATIVITY, CIRCUMCISION, EPIPHANY, *&c.*

Moveable FEASTS are those, which are not confined to the same Day of the Year. Of these the principal is *Easter*, which gives Law to all the rest; all of them following, and keeping their proper Distance therefrom: Such are, *Palm-Sunday*, *Good-Friday*, *Ash-Wednesday*, *Sexagesima*, *Ascension-day*, *Pentecost*, and *Trinity Sunday*. See EASTER, SEXAGESIMA, PENTECOST, TRINITY, *&c.*

Beside these *Feasts*, which are general, and enjoyn'd by the Church, there are others, *Local*, and *Occasional*, enjoyn'd by the Magistrate, or voluntarily set on Foot by the People: Such are Days of *Thanksgiving* for Delivery from Wars, Plagues, *&c.*

Such also are the *Vigils*, or *Wakes*, in Commemoration of the Dedications of particular Churches. See VIGIL, *&c.*

The *Romans* had abundance of stated *Feasts*, in honour of their Deities and Heroes: Such were the *Saturnalia*, *Cerealia*, *Lupercalia*, *Liberalia*, *Neptunalia*, *Consitalia*, *Portumnalia*, *Vulcania*, *Palilia*, *Divalia*, &c.

They had also *Feasts*, instituted occasionally *Carmentalia*, *Quirinalia*, *Terminalia*, *Floralia*, *Compitalia*, *Lemuria*, *Vernalia*: Beside other moveable, and occasional ones; as to give Thanks to the Gods, for Benefits receiv'd; to implore their Assistance, or to appease their Wrath, *&c.* as the *Paganalia*, *Feralia*, *Bacchanalia*, *Ambarvalia*, *Amburbalia*, *Suovetaurilia*; and divers others, particularly denominated *Feriæ*; as *Sementinæ*, *Latinæ*, &c. See each *Feast* and *Feria* in its proper Place, SATURNALIA, LUPERCALIA, SEMENTINÆ, *&c.*

These *Feasts*, were divided into Days of Sacrifice, and Days of *feasting*, or banqueting; Days of Games, and Days of Rest, or Feriæ. See GAMES, SACRIFICES, *&c.*

There being but little History wrote, or at least publish'd in those Days; one end of these *Feasts*, or speaking Ceremonies, was to serve the People to keep up the Remembrance of Things, in lieu of reading, and Books.

The principal *Feasts* of the *Jews* were, the *Feast* of *Trumpets*; that of the *Expiation*; of *Tabernacles*; of the *Dedication*; of the *Passover*, and of *Pentecost*. See *Feast* of EXPIATION, TABERNACLES, PASSOVER, *&c.*

FEAST is also us'd for a Banquet, or sumptuous Meal, without any immediate Regard to Religion.

The Use of the Word in this Sense, is owing to this, that a Part of the Ceremony of many of the antient *Festivals*, both those of the Heathens, and the Agapea of the Christians, was good Eating: Tho' M. *Huet* chuses to derive the Word from *Festinare*, which is found in an antient *Latin* Version of *Origen*'s Comment on *Matthew*, to signify *to Feast*. *Ut veniens illuc Jesus festinet cum Discipulis suis.*

In all Antiquity, both sacred, and profane, Sacrifices were little more than religious *Feasts*. See SACRIFICE.

It has been often observ'd by Authors, that there is no Nation in the World comes near the *English*, in the Magnificence of their *Feasts*. Those made at our Coronations, Installments, Consecrations, *&c.* transcend the Belief of all Foreigners; and yet it is allow'd, that those now in use are no way comparable to those of our Forefathers.

The *Persians* never discourse, and deliberate of their most important Affairs, but in the middle of their *Feasts*.—

FEATHER, *Plume*, that Part in Birds, which covers them; and by which they are enabled to fly. See WING, FLYING. See also BIRD.

Feathers make a considerable Article in Commerce; particularly those of the *Ostrich*, *Heron*, *Swan*, *Peacock*, *Goose*, &c. For Plumes, Ornaments of the Head, filling of Beds, writing Pens, *&c.* See PLUME, QUILL, *&c.*

Some of our latest Naturalists contend for *Feathers* being a Species of Plants; as having the two great Characters of Vegetables, *viz.* That they grow, and are not sensible. They add, that the Growth of *Feathers* is not perform'd with less Art or Apparatus, than that of Plants; and that they have all the essential, or characteristick Parts thereof, as a Root, Stem, Branches, and Leaves. See PLANTS.

Others, take *Feathers* to be that on Birds, which Leaves are on Trees. See LEAVES.

Others seem to be nearer to Nature, in making *Feathers* to be what Hairs are on other Animals. See HAIR.

Others, will have *Feathers* a kind of Neophytes, or Plant-Animals; such as the Fætus is in the Womb. Accordingly, in *Feathers*, especially those of unfledg'd Birds, the Stem, or Quill, is found full of Blood; which argues, that there is some umbelical Nodus, whereby the first Rudiment of the *Feather* was connected to the extreme Fibres, *i. e.* to the Veins and Arteries of the Bird.

In effect, *Feathers* seem only Productions and Expansions of the last, extreme *Fibrillæ* of the Cutis; and hence, upon stripping off the Cutis, the *Feathers* are likewise taken away: Just, as the Leaves, and Fruit follow, upon peeling the Bark off a Tree. Add, that *Feathers* as well, as Hairs, arise out of Pores in the Cutis; which Pores are not mere Apertures, or Foramina, but a kind of Vaginulæ, wove of the Fibres of the Skin; which terminate in the Oscula or Anastomases of the internal Fibres of the *Feather*.

Feathers, Mr. *Derham* observes, are a very commodious Dress for the Inhabitants of the Air; not only a Guard against wet and cold, and a Means for the Hatching and Brooding the Young, but most commodious for Flight: To which purpose they are nicely placed over the Body, to give an easy Passage; every where neatly posited, from the Head towards the Tail in close uniform Order: So that being preen'd and dress'd by an unctuous Matter, secreted in a proper Gland, and deposited in a *Oil bag*, placed therein for that Purpose (See OIL-BAG); they afford as easy a Passage through the Air, as a Boat new clean'd and dress'd, through the Waters. Without all this Nicety they would have been apt to be ruffled and discompos'd; would have gather'd Air, and prov'd an Obstruction to the Passage of the Body.

Most of the *Feathers* tend backwards, and are laid over each other in exact Method, arm'd with warm and soft Down next the Body; and more strongly made, as well as more curiously clos'd next the Air, and Weather. To which Purpose the Apparatus Nature has made, and the Instinct she has given them to *preen*, or dress their *Feathers*, are admirable. See PREENING.

The Mechanism of the *Feather* is wonderful: The *Shaft*, or Rib exceeding strong, but hollow below, for Strength and Lightness sake, and above, not much less strong; fill'd with a *Parenchyma*, or Pith both strong and light.

But the *Vanes*, or *Webs* in the flag Part of the Wing, are incomparable; nicely gauged; broad on one Side, and narrower on the other: The Edges of the exterior Vanes bending downwards, and those of the interior, or wider, upwards; by which means they catch, hold, and lie close to each other, when the Wing is spread; so that not one *Feather* may miss its full Force and Impulse upon the Air: The Tips all made sloping; those of the interior Vanes sloping to a Point towards the outer Part of the Wing, and the exterior Vanes towards the Body; so that the Wing, whether extended, or shut, is as nearly slop'd and form'd, as if constantly trim'd with a pair of Scissars.

Mr. *Derham* has several new Observations on the Mechanism of the *Vanes* or Webs of the *Feathers*, as they present themselves to the Microscope, by which the wonderful Care and Accuracy of the Creator in so small a Part, are excellently illustrated.

The Vane consists not of one continued Membrane (because if once broken, it would then be scarce reparable); but of many *Laminæ*, admirably contriv'd to hook and hang together. On the under side they are thin, and smooth; but their upper, outer Edge (represented *Tab. Nat. History*, *Fig.* 3.) parted into two hairy Edges; each Side having a different sort of Hairs, laminated, or broader at Bottom, and slender, and bearded towards the Top. Those bearded Hairs, on one side the Laminæ, have strait Beards, as represented in *Fig.* 4. Those on the other, have hook'd Beards on one Side, the slender part of the Bristle; and strait ones on the other, as in *Fig.* 5.

Both Kinds are represented, as they grow on the upper Edge of the Lamina, in *Fig.* 3. In the Vane, the hooked Beards of one Lamina always lie next the strait Beards of the next Lamina; by which means they lock, and lay hold of each other; and by a pretty Mechanism, brace the Laminæ close to one another.

FEATHER *Edg'd Boards and Planks*, are those which are thicker on one side, than on the other.

FEATHER *in a Horses Fore-head*, &c. Is a Turning, or Parting of the Hair, which in some resembles an Ear of Barley, and in others, a kind of Oeilet-hole.

FEBRIFUGE, in Medicine, a specifick Remedy for the Cure of *Fevers*. See FEVER.

The Word is a Compound of *Febris*, and *Fugo*, I drive away.

The Quinquina, or Jesuit's Bark, is the greatest, and surest of all the Class of *Febrifuges*. See QUINQUINA.

The little Centaureum is sometimes also call'd *Febrifugum*, on account of its Virtues. See CENTAUREUM.

The *Chinese* Ginseng is particularly fam'd as a *Febrifuge*. See GINSENG.

For such as cannot take the Bark in Substance, Dr. *Fuller* prescribes a *Febrifuge Enema*, made of a Decoction thereof.

The inner Bark of the Ash-tree, with a little Salt of Wormwood, taken like the *Peruvian* Bark, is said to equal, or even exceed it, as a *Febrifuge*.

The like is said of the Bark of the *Elm* near the Root. The Flowers of *Sal Armoniac* are held an excellent *Febri-*

Febrifuge, especially in intermitting Fevers. Cold Water has been lately much extoll'd as a *Febrifuge*. Dr. *Hancock* gives it the emphatical Denomination of *Febrifugium Magnum*. See WATER.

Mr. *Reneaume*, in the *Hist. de l'Academ. R. de Sciences*, *An.* 1711. proposes a new *Febrifuge*, of his own Discovery, *viz. Galls*. From a great Number of Experiments, he has learnt, that Galls alone will frequently cure an intermitting Fever, as well as the Quinquina; over which it has some Advantages in other Things; in that it is not so bitter, does not heat, is taken in a lesser Dose, seldomer, and cheaper.

At his Motion, several other Physicians tried it with Success, particularly Mr. *Homberg*; though it did not succeed so well with M. *Bulduc*, *Lemery*, and *Geoffroy*. See GALLS.

FEBRIS, in Medicine. See FEVER.

FEBRUA, in Antiquity, A Feast, held by the *Romans*, in the Month of *February*; in behalf of the Manes of the Deceased.

Macrobius tells us, that Sacrifices were here perform'd; and the last Offices pay'd the Shade of the Defunct. *Saturn. L. I. c.* 13. And from this Feast it was, that the Month of *February* took its Name.

The Design of these Sacrifices is somewhat controverted: *Pliny* says, that they were perform'd, to render the infernal Gods propitious to the Deceas'd; tho' some of the Moderns have imagin'd, that they were intended, to appease the Deceas'd themselves, and were offer'd immediately to them, as a sort of Deities. What confirms the former Sentiment, is, that *Pluto* himself is surnam'd *Februus*. They held for twelve Days.

The Word is of a very antient standing in the *Latin* Tongue. From the very Foundation of the City, we meet with *Februa*, for *Purifications*; and *Februare*, to purify. *Varro, de Ling. Lat. L. V.* derives it from the *Sabins*: *Vossius*, and others, from *ferveo*, I am hot; by reason, that Purifications chiefly were perform'd with Fire, and hot Water. Some go higher, and even deduce the Words from פוּר, *Phur*, or *Phavar*, which in *Syriac* and *Arabic* has the same Signification with *Ferbuit*, or *Efferbuit*; and might probably, likewise signify, *to purify*: For *phavar*, in *Arabic*, denotes a Preparative, given to Women in Childbed, to bring away the After-birth, and other Impurities, remaining after Delivery: Much as among the *Romans*, who gave the Name *Februa* to the Goddess supposed to preside over the Delivery of Women. *Ovid. Fast.*

FECES, and FECAL *Matter*, } See { FÆCES. FÆCAL MATTER.

FECIALES, FÆCIALES, or FETIALES, were publick Officers among the antient *Romans*.

The *Feciales* were a sort of Heralds, or Kings at Arms; who, when the *Romans* had any Dispute with their Neighbors, were sent, first, to demand the Thing pretended to be usurp'd; or require Satisfaction for the Injury alledg'd to be done. If an Answer was not return'd by them, that was satisfactory to the People and the Senate; they were dispatch'd again to declare War: And the like in treating of Peace; the *Feciales* being the only Persons appointed to treat between the Senate, *&c.* and the Enemy.

Plutarch, in the Life of *Numa*; and *Halicarnassens* L. II. observe, that they were first instituted by that Prince. The latter adds, that they were chosen out of the best Families in *Rome*; that their Office, which was reputed a sort of *Sacerdotium*, or Priesthood, only ended with their Life; that their Persons were sacred, and inviolable, as those of other Priests; that they were even charged to see the Republick did not declare War unjustly; that they were to receive the Complaints and Remonstrances of Nations, who pretended to have been any way injur'd by the *Romans*; that if those Complaints were found just, they were to seize the Criminals, and deliver them up to those they had offended; that they were invested with the Rights and Privileges of Embassadors; that they concluded Treaties of Peace, and Alliance, and took Care they were executed, and lastly abolish'd them, if they were not equitable.

But *Varro* assures us, that in his time most of these Functions of the *Feciales* were set aside; as those of the antient Heralds at Arms are among us: Tho' *Plutarch* observes, that they had still some Authority in his Time. See HERALD.

The *Feciales* went crown'd with *Verbena*, Vervein, when they went to declare War: Their Head was cover'd with a Veil, over which the Crown was applied. In this Equipage they proceeded to the Frontiers of the new Enemy's Country, and threw a bloody Dart, or Javelin into the Earth, within the same. In *Livy*, and other antient Authors, as also among the modern Criticks and Grammarians, we have the Formala's us'd in such Declarations.

Festus derives the Word from *ferio*, I strike; as *ferire fœdus*, signifies to conclude a Treaty: And accordingly, instead of *Feciales*, he would have it wrote *Fetiales*.

Others derive it from *fœdus*, which was antiently wrote *fœdus*; or from *fides*, Faith: Others from *facio*, *feci*, I make, *&c.* by reason they made War and Peace.

Vossius chuses to derive it from *fatu*; of the Verb *fari*, to speak; in which sense the *Feciales* should be the same with *Oratores*; which Sentiment is confirm'd from the Authority of *Varro*, who says, they were call'd indifferently, *Feciales* and *Oratores*. *De Vita Popul. Roman.* L. II.

FECULA, or FÆCULA, in Pharmacy, A white, mealy Substance, or Powder, which subsides, and gathers at the Bottom of the Juices, or Liquors of divers Roots; as those of Briony, Arum, Iris, *&c.*

This Substance, or Sediment, they dry in the Sun; after having pour'd off the Liquors; and it serves for divers Remedies.

The Word *Fæcula* is a Diminutive of *Fæces*.

FECULENT, or FÆCULENT, is applied to the Blood, and other Humors, which abound in Fæces, or Dregs; or have not the proper and usual Degree of Purity.——

FECUNDITY, or FÆCUNDITY, *Fertility*, or the Quality of a thing, which denominates it fruitful.

The *Fecundity* of divers Plants is very extraordinary. M. *Dodart* has an express Treatise thereof in the Memoirs of the Academy of Sciences.

He shews, that at a moderate Computation, an Elm, one Year with another, yields 329000 Grains, or Seeds; each of which, if properly lodg'd, would grow up unto a Tree. Now, an Elm ordinarily lives 100 Years; consequently, in the Course of its Life, it produces 33000000 Grains; all which arise from one single Grain.

He shews farther, that the same Elm, by frequently cutting off its Head, *&c.* might be brought to produce 15840000000 Seeds; and that there are so many actually contain'd in it; see PLANT.

FEE, FEUD, FEUDUM, FEODUM, or FIEF, an Estate, Land, Tenement, Lordship, or Right held of a superior Lord, on condition of Fealty, Homage, or other Acknowledgement.

The Term *Fees* is properly applied to Lands and Tenements, which we hold in perpetual Right, on condition of an Acknowledgment of Superiority in a higher Lord. See TENURE.

The Writers on this Subject, divide all Lands and Tenements, wherein a Man hath a perpetual Estate to him and his Heirs, into *Allodium*, and *Feudum*.

Allodium is defin'd, to be a Man's own Land, which he possesses merely in his own Right, without Acknowledgment of any Service or Payment of any Rent to another; and this is Property in the highest Degree. See ALLODIUM.

He that hath *Fee* holds of another by some Duty, or other, call'd *Service*, see SERVICE.

Feudum is that, which we hold by the Benefit of another, and for which we do Service, or pay Rent, or both, to the chief Lord.

Originally, a *Feud* was only an Estate for Life; and those to whom it was granted, were call'd *Vassalli*, who, by such means, were brought to a stricter Discipline and Obedience to the Princes, and were bound to serve them in Wars. See VASSAL.

The Origin of *Fees* is one of the darkest, and most intricate Points in modern History; Authors being exceedingly divided about it.

Some attribute the Invention thereof to the *Lombards*: Others find some Appearance of the Duties of a Vassal to his Lord, in the antient Relations between the Patron, and his Client: And others look for its Rise in the *Roman* Beneficia.

The Emperors, it seems, distributed Lands among the antient Legions, on condition of their holding themselves ready at all Times, to take up Arms, in defence of the Frontiers of the Empire; which affords us a good Image enough of *Feuds*; and in all Probability, their first Origin was no otherwise: But in Process of Time their Nature was changed, and Duties were annex'd to them, which originally were not.

Du Moulin makes no Doubt, that these Distributions of Lands, call'd *Benefices*, were the first matter of *Fees*; for which reason he uses the Terms *Benefice* and *Feud* promiscuously; as if they were the same Thing: And yet, there was a good deal of Difference between them; as there was neither Fealty, nor Homage, nor the other *feudal* Rights annex'd to the Benefice; and as the Benefice was not hereditary. See BENEFICE.

Probably, *Benefices* began then to be call'd *Feuds*, when they became hereditary; and when those, of whom the Benefices were held, began to demand Faith, or Fealty, from them. See FEALTY.

This Fealty seems to constitute the *Fee*; the Word *Fee* it self, signifying in the antient *Norman* Language, *Faith*.

There is no fixing the precise Æra, when these Changes commenced; For *Fees*, such as they now are, were not establish'd all at once: And in different Countries they took place at different Times, and in different manners. The Great

Lords; after the Destruction of the *Roman* Empire, having in several Parts usurp'd the Property of their Benefices; laid likewise hold of the Jurisdiction; and made their Vassals their Subjects, so that each became a sort of petty Sovereign in his own Territory.

Mezeray observes, that the Donation of *Fees* to the Noblesse of *France* commenc'd under the Principality of *Charles Martel*.

Hugh Capet; when he came to the Crown, was himself so little establish'd, that he durst not oppose those Usurpations; and was forc'd to suffer, what he could not redress. See *le Fevre, de l'Origine des Fiefs*: and *Hauteserre's Origines Feudorum pro Moribus Galliæ*.

The Origin of *Fees* in *England*, *Cambden* attributes to *Alexander Severus*. That Prince having built a Wall in the North of *England*, to prevent the Incursions of the *Picts*; he some time after, began to neglect the Defence thereof, and gave, as *Lampridius* assures us, the Lands conquer'd from the Enemy, to his Captains and Soldiers, whom that Author calls *Limitarios Duces, & Milites*, i. e. Captains and Soldiers of the Frontiers; but it was on this Condition, that their Heirs should continue in the Service; and that the Lands should never descend to private Persons, *i. e.* to such as did not bear Arms. That Prince's Reason was, that People, who in serving defended their own, would serve with a deal more Zeal, than others.

Such was the Rise of *Fees* in our Nation, according to *Cambden. Britan. p.* 651.

All our Lands in *England* (the Crown Land which is in the King's own Hand, in right of his Crown excepted) is in the Nature of *Feude* or *Fee*.

For tho' many have Land by Descent from their Ancestors, and others have bought Lands; yet cannot Land come to any, either by Descent, or Purchase, but with the Burden that was laid on him who had the *Novel Fee*, or who first received it as a Benefice from his Lord to him, and such as should descend from him, or to whom it should be otherwise convey'd and transfer'd; so that no Man has *directum Dominium*, i. e. the very Property or Demain in any Land, but the Prince, in right of his Crown. *Camb. Britan. p.* 93.

Tho' he who has *Fee*, has *Jus perpetuum*, and *utile Dominium*, yet he owes a Duty for it; so that it is not strictly his own. Indeed, as much is imported by the Terms in which we express our highest Right in Lands, *&c.* the most he can say, is, *I am seiz'd of this Land, in my Demain, as of* Fee.

In the Stat. 37 *Hen.* 8. *cap.* 16. *Fee* is also us'd for Lands invested in the Crown; but 'tis from Ignorance of the Import of the Word; for *Fee* cannot be without Fealty sworn to a Superior: But the King owns Fealty to no Superior, but God alone.

The Words *Fee*, *Feud*, or *Fief*, are deriv'd by some Authors from *fœdus*, as arising from *Treaty*, or Alliance, made with the Lord: Others, as *Cujas*, &c. fetch them from *fides*, on account of the Faith the Person is oblig'd to bear his Lord: Others derive them from the *Saxon* Feh, Hire, Wages, q. d. *Status beneficiarius*.

Bodin takes the Latin *Fedum* to be form'd by Abbreviation of the initial Letters of *Fidelis Ero Domino Vero Meo*, which is an antient Formula of Fealty and Homage. *Nicod* derives it from the German *Feld*, which signifies the same Thing: *Hottoman* from *Feed*, a *German* Word, signifying *War*: *Pontanus* from the Danish *Feide*, Militia: Others from the Hungarian *Foeld*, Land: Others from *foden*, to feed: But the Opinion of *Selden*, seems the best authoriz'd, who brings it from the Saxon *Feon*, Stipendium; the *Fee* being a kind of Prebend to live upon; and accordingly we find, that in antient Times it was us'd for the Wages, and Appointment of Officers.

Fee is divided in our Laws, into *Fee absolute*, call'd also *Fee Simple*; and *Fee Conditional*, also call'd *Fee Tail*.

Fee-*Simple*, *Feudum simplex*, is that, whereof we are seiz'd *to us and our Heirs, for ever*.

Fee-*Tail*, *Feudum taliatum*, is that, whereof we are seiz'd with Limitation *to us and the Heirs of our Body*. *Fee-Tail* is of two kinds, *General*, and *Special*.

Fee-Tail general is, where Land is given to a Man, and the Heirs of his Body; so that if a Man seiz'd of such Land by such Gift, marry one, or more Wives, and have no Issue by them, and at length marry another, by whom he hath Issue; this Issue shall inherit the Land.

Fee-Tail special is, where a Man and his Wife are seiz'd of Lands to them, and the Heirs of their two Bodies; because in this Case, the Wife dying without Issue, and he marrying another, by whom he hath Issue; this Issue cannot inherit the Land, it being especially given to such Heirs, *&c.*

This *Fee-Tail special* has its Origin from the Stat. of *Westm.* 2. *cap.* 1. Before that Statute, all Land given to a Man, and his Heirs, either General, or Special, was reputed in the nature of a *Fee*; and therefore so firmly held to him, that, any Limitation notwithstanding, he might alienate it at pleasure. For Redress of which Inconvenience, the Statute provides, that if a Man give Lands in *Fee*, limiting the Heirs to whom it shall descend, with a Reversion to himself, and his Heirs for Default of such former Heirs; that the Form and Meaning of the Gift shall be observ'd.——

Fee is also us'd for the Compass or Circuit of a Manor, or Lordship. Thus *Bracton, in eadem Villa; & de eodem Feodo.*——

Also for a perpetual Right Incorporeal; as to have the keeping of Persons in *Fee*: Rent granted in *Fee*: an Office held in *Fee*, &c.

Lastly, *Fee* still signifies a Reward, or ordinary Due, given a Person for the Execution of his Office, or the Performance of his Part, in his respective Art or Science. Thus, the Lawyer, and Physician, are said to have their *Fees*, *i. e.* Considerations for the Pains taken with the Client, or Patient. A Barrister, or Physician, are suppos'd to receive their *Fees* from time to time, as their Service is perform'd: They cannot make a Bill.

Fee-*Expectant*, *Feudum expectativum*, see Expectant.

Fee-*Farm*, or Fee-*Ferm*, *Feudi-firma*, or *Feofirma*; signifies Lands holden to a Man and his Heirs for ever, under Rent.

Fee-Farm arises, when the Lord upon Creation of the Tenancy reserves to himself, and his Heirs, either the Rent for which it was before let to Farm, or at least a fourth Part of the Rent; and that without Homage, Fealty, or other Services more than are especially compriz'd in the Feoffment.

Tho', by *Fitz-herbert*, it appears that the third Part of the Value may be appointed for the Rent, or the finding of a Chaplain, to say Divine Service, *&c.* And the Nature of it is this, that if the Rent be behind, and unpaid for the Space of two Years; then the Feoffer or his Heirs have Action, to recover the Lands as their Demeans. See Farm.

Fees are also settled Perquisites, or Allowances, paid to Publick Officers, by Persons who have Business with them.

The Smallness of the Salaries of divers of the Queens Servants, is compensated by the Perquisites, or *Fees* of Honour.

The *Fees* paid to the several Officers by every Person, upon his being knighted, amount to 78 *l.* 13 *s.* 4 *d.* And if it be done within the Verge of the Courts, there is three Pound more to the six Pages of the Bed-Chamber, which brings it to 81 *l.*

FEELING, or *Touching*, one of the external Senses, whereby we get the Ideas of *solid*, *hard*, *soft*, *rough*, *hot*, *cold*, *wet*, *dry*, or other *tangible* Qualities; as also of *Distance*, *Titillation*, *Itching*, *Pain*, &c. See Sense, Solid, Hard, *&c.*

Feeling, is the grossest, but at the same time the most extensive of our Senses; having more Objects than all the rest taken together: And some even reduce all the other Senses, to this one of *Feeling*.

Aristotle is express, that all Sensation is only *Feeling*; and that the other Senses, as *Seeing*, *Hearing*, *Taste* and *Smelling*, are only the more exquisite Species or Degrees thereof. *De Anim. lib.* 4. *c.* 3. and *lib.* 3. *c.* 12. See Seeing, Hearing, *&c.*

Naturalists are divided as to the Organ, or Instrument of *Feeling*.

Aristotle takes this Sense to reside in the Flesh, *quatenus* Flesh; inasmuch as all Flesh, is, in some measure capable of *feeling*. *Hist. Anim. L. I. c.* 4. Others will have it in all the Parts that have nervous Fibres; which extends it to the Skin, Flesh, Muscles, Membranes, and Parenchyma's: Others restrain it to the Skin, or *Cutis*; it being observ'd, that only those Parts cover'd with a Cutis, have properly the Faculty of *Touching*, or perceiving tangible Qualities. But what part of the Cutis to assign immediately for this Office, is again disputed.

Some will have it the membranous Part; others the Carnous; and others the medullary Part, derived from the Nerves.

Malpighi, and after him, all our latest, and best Authors, hold the immediate Organ of the Sense of *Feeling*, to be the pyramidal Papillæ under the Skin.

These Papillæ are little, soft, pulpous, medullary, nervous Prominences, lodg'd every where immediately under the Cuticula. They are form'd of the subcutaneous Nerves, which in order hereto, first lay aside their outer Membrane, and are left exceedingly soft, and sensible; are continually moisten'd by a thin, subtle Humor; and only covered over, and defended by the Cuticle, or scarf Skin. They are largest, and most conspicuous in those Parts, chiefly design'd for the Office of *Feeling*, *viz.* the *Tongue*, *Tips* of the *Fingers*, and *Toes*; and are contractile, and again expansive at pleasure. See Papillæ; see also Tongue, Finger, *&c.*

Feeling, then, is thus effected: The Tip of the Finger, for instance, being applied to an Object to be examined; By that Intention of the Mind, the Papillæ are emitted or elevated; and being lightly rubb'd over the Surface of the Object, a Motion is impress'd on them; which being thence propagated by the Nerves communicating with them, to the common Sensory, excites the Perception of Heat, Cold, Hardness, or the like. See SENSATION.

Hence we see, why *Feeling* becomes painful, when the Cuticle is wore off, burnt, macerated, &c. And why, when the Cuticle becomes thick, hard, callous, or cicatrized, &c. the Sense of *Feeling* is lost; whence the Numbness impress'd by the Torpedo; why that exquisite Painfulness under, and at the Roots of the Nails, &c. See CUTICLE, BURNING, CALLUS, TORPEDO, and NAIL.

Feeling is, on many Accounts, the most universal of our Senses: There is no Animal without it.

Pliny observes, that several Animals, as Oysters, and Earth-worms, which have no other Sense, yet have this of *Feeling*. *Nat. Hist. lib.* 10. *c.* 71. The other Senses are confin'd to narrow Bounds; *Feeling* only is coextended with the Body, as being necessary to the Well-being of every Part. Hence *Cicero*, *Feeling* is equally diffused throughout the whole Frame, that we might be sensible of all Impulses in every Part, and feel all the Degrees of Heat, Cold, &c. *De Nat. Deor. L. II. c.* 56.

Naturalists observe, that Spiders, Flies, and Ants have the Sense of *Feeling* in a much greater Perfection than Men; though we have Instances of Persons, who could distinguish Colours by their *Feeling*; and of others, who could perceive what People said, by the same Sense. See COLOUR, and DEAFNESS.

FEINT, in Musick, a Semi-tone; the same with what we also call *Diesis*. See DIESIS.

FEINT, in Rhetorick, A Figure whereby the Speaker touches on some thing, in making a Shew of passing it over in Silence. The *Latins* call it *Prætermissio*. See PRETERMISSION.

FEINT, in Fencing, a false Attack, or a Shew of making a Stroke, or Push in one Part, with Design to bring the Enemy to guard that Part, and leave some other Part unguarded, where the Stroke is really intended. See GUARD.

Feints are either single, or double; high, or low; without, or within, &c. In Prime, in Tierce, in Quart, in Demi, and in the whole Circle; in one, two, or three Measures.

The *simple Feint* is a mere Motion of the Wrist, without stirring the Foot, &c.

FELAPTON, in Logick, one of the Moods of Syllogisms. See MOOD.

In a Syllogism, in *Felapton*, the first Proposition is an universal Negative; the second, an universal Affirmative; and the third, a particular Negative. See SYLLOGISM.

FELLING *of Timber*, see TIMBER.

FELLOWS, in Fortification, are six pieces of Wood, each of which form an Arch of a Circle; and these joyn'd all together by Duledges, make an entire Circle; which with twelve Spokes, make the Wheel of a Gun-Carriage. See CARRIAGE.

Their Thickness is usually the Diameter of the Ball of the Gun they serve for, and their Breadth something more.

FELLOWSHIP, *Company*, or *Partnership*, in Arithmetick, is a Rule of great Use in ballancing Accounts amongst Merchants, and Owners of Ships; where a Number of Persons putting together a general Stock; it is requir'd to give every one his proportional Share of the Loss, or Gain.

The Golden Rule several times repeated, is the Basis of *Fellowship*, and fully answers all Questions of that Kind: For, as the whole Stock is to the Total thereby gain'd, or lost; so each Man's particular Share, is to his proper Share of Loss, or Gain. Wherefore, the several Sums of Money of every Partner are to be gather'd into one Sum, for the first Term; the common Gain, or Loss for the second; and everyMan's particular Share for the third: and the Golden Rule to be wrought so many times, as there are Partners.

There are two Cases of this Rule; the one *Without*, the other *With Time*.

FELLOWSHIP *without Time*, is where the Quantity of Stock, contributed by each Person, is alone consider'd; without any particular regard to the Length of Time, that any of their Monies were employ'd. An Example will make this Process easy.

A, *B*, and *C*. freight a Ship with 212 Tun of Wine; *A*. laying out 1342 *l*. *B*. 1178 *l*. and *C*. 650 *l*. towards the same: The whole Cargo is sold at 32 *l*. *per Tun*. Query, what shall each Person receive?

Find the whole Produce of the Wine, by multiplying 212 by 32, which yields 6784: Then, adding together the several Stocks, 1342, 1178, and 630, which make 3150, the Work will stand thus:

3150 : 6784	1342	—Answ.	—2890
	1178	— —	2537
	630	— —	1356
Proof 3150			6784

FELLOWSHIP *with Time*, is, where the Time, wherein the Money, &c. was employ'd, enters into the Account. An Example will make it clear.

A. B. C. commence a Partnership the first of *January*, for a whole Year. *A.* the same Day disbursed 100 *l*. whereof he receiv'd back again on the first of *April*, 20 *l*. *B*. pays on the first of *March* 60 *l*. and more the first of *August*, 100 *l*. *C*. pays the first of *July* 140 *l*. and the first of *October* withdraws 40 *l*. At the Years End their clear Gain is 142 *l*. Query, what is each Person's Due?

A's 100 *l*. multiplied by 3 Months, the Time it was in, makes 300 *l*. and the remaining 80, by 9 Months=720, In all 1020 *l*. of *A*'s Contribution. For *B*. 60 into 10, gives 600; and 100 into 5, 500; in all 1100 *l*. for *B*. For *C*, 140 into 3, gives 420; and 100 into 3, is 300; in all 720 *l*. for *C*.

Now, 1020+1100+720=2840 for the common Antecedent; and the Gain 142, is for the general Consequent: Then the Rule will stand thus:

2840 : 142	1020	—Answ.	—51
	1100	— —	55
	720	— —	36
Proof 2840			142

FELO-*de-see*, is he, that commits Felony, by willingly killing himself.

The *Saxons* call'd him *Self-bane*. See SUICIDE.

He is to be interr'd without christian Burial, with a Stake driven through his Corps; and to forfeit his Goods.

FELONY, was antiently used for a violent and injurious Action of a Vassal, or Tenant against his Lord.

In which Sense, *Felony* was equivalent to petty Treason; or it was a Crime next below High Treason. The Crime of *Felony* inported Confiscation of the Fee, to the Profit of the Lord.

The same Term *Felony*, is applied to an Injury of the Lord to his Vassal; which imports a Forfeiture of the Homage and Service thereof, and make it revert to theSoveraign.

Fidelity, and *Felony* are reciprocal between the Lord and the Vassal. See LORD.

Menage derives the Word from *Felonia*, form'd of *felo*, or *fello*, which occurs in the Capitularies of *Charles* the Bald, and is suppos'd to come from the *German Fehlen*, or *Saxon Felen*, to fail, or be delinquent. Others derive it from the barbarous Latin *Vilania*.

My Lord *Coke*, *Nicod*, &c. derive it *a felle*, Gall, as being suppos'd to be done maliciously. Lastly, others derive it from the *Greek* φήλεω, to deceive.

FELONY, in Common Law, is an Offence next below that of Petty-Treason.

Felony includes several Species of Crimes, whose Punishment is the same, *viz.* Death: Such as *Murther*, *Theft*, *Suicide*, *Sodomy*, *Rape*, wilful *Burning* of Houses, receiving of *stolen Goods*, and divers others found in the Statutes, which are daily making Crimes *Felony*, that were not so before.

Felony is easily distinguish'd from *Treason*. See TREASON.

From lesser Crimes, it is distinguish'd by this, that its Punishment is Death; tho' not universally: For Petty Larceny, *i. e.* stealing of a thing, under the Value of 12 *d*. is *Felony*, according to *Brook*; tho' the Crime be not capital, but only a Loss of Goods.

The Reason *Brook* gives for its being *Felony*, is that the Indictment runs, *Felonice cepit*.

Till the Reign of *Henry* I. *Felonies* were punish'd by pecuniary Fines: That Prince first order'd *Felons* to be hang'd, about the Year 1108.

Felony is of two Kinds: The one lighter, which for the first time is entitled to the *Benefit of Clergy*; as *Manslaughter*. See MANSLAUGHTER. The other is not.

Felony is also punish'd by Loss of all Lands, not intail'd; and all Goods and Chattels, both real and personal: Tho' the Statutes make a Difference in some Cases, concerning Lands; as appears by Stat. 37 *Hen.* 8.

Felony ordinarily works Corruption of Blood, unless the Statute, ordaining the Offence to be *Felony*, provide otherwise; as the Stat. 39 *Eliz.* c. 17. See FURCA.

FELT, a kind of Stuff, either of Wool alone, or of Wool and Hair; neither spun, cross'd, nor wove, but deriving all its Consistence from its being wrought, and full'd with Lees and Size, and afterwards fashioned on a Block or Mould, by help of Fire and Water.

Castor's, Camels, and Coneys Hair; Lambs and Sheeps Wool, &c. are the most usual Ingredients of *Felts*: And Hats of all kinds, are the Works, they are chiefly employed in.

The

The *Felt* intended for a Hat, being ſufficiently full'd, and prepar'd, is reduc'd into one Piece, ſomewhat in the figure of a large Funnel: In which State it remains ready, to be put into Form, and become a Hat. See HAT.

FELUCCA, or FELUCCO, a little Veſſel, with ſix Oars, not cover'd over; and much us'd in the Mediterranean. It may bear its Helm on both Sides; which is likewiſe ſhifted from behind, forewards occaſionally. Its Size is about equal to that of a Sloop, or Chaloup. See BOAT.

The Word is form'd from the *Arabick Felicon*, a Ship.—

FEMALE, the Sex that conceives, and bears Fruit. See SEX, and WOMAN.

An Animal that generates in it ſelf, is called *Female*; and that which generates in another, *Male*. See MALE.

The *Female* both in Quadrupeds, and even Birds, is uſually ſmaller, and weaker than the Male; tho' in Birds of Prey, as the Falcon, Hawk, *&c.* it is otherwiſe; the *Female* being bigger, ſtronger, bolder, hardier, and more courageous. See FALCON

The like is obſerv'd in moſt Inſects, particularly Spiders; to that Degree, that Mr. *Homberg* aſſures us, he has weigh'd five or ſix Male Garden-Spiders againſt one *Female* of the ſame Species.

For the *Proportion of Males to* FEMALES, ſee MARRIAGE, BIRTHS, *&c.*

Naturaliſts diſtinguiſh Male and *Female* Plants; Male and *Female* Flowers, *&c.* See PLANT, FLOWER, GENERATION, *&c.*

FEMALE *Screw*. See SCREW.

FEME *Covert*, in Law, a married Woman; who is alſo ſaid to be under *Covert Baron*. See COVERT.

FEMININE, in Grammar, one of the Genders of Nouns. See GENDER.

The *Feminine Gender* is that, which denotes the Name to belong to a *Female*. In the *Latin*, the *Feminine* Gender is form'd of the Maſculine, by altering its Termination; particularly by changing *us* into *a*. Thus, of the Maſculine *bonus equus*, a good Horſe, is form'd the *Feminine*, *bona equa*, a good Mare: So, of *parvus homo*, a little Man, is form'd, *parva fæmina*, a little Woman, *&c.*

In *French*, the *Feminine* Gender is expreſs'd, not by a different Termination; but a different Article: Thus, *le* is joyn'd to a Male, and *la* to a Female.

In *Engliſh*, we are generally more ſtrict, and expreſs the Difference of Sex, not by different Terminations, nor by different Particles, but different Words; as Boar, and Sow; Boy, and Girl; Brother, and Siſter, *&c.* tho' ſometimes the *Feminine* is form'd by varying the Termination of the Male into *eſs*; as in Abbot, Abbeſs, *&c.*

FEMININE *Rhimes*, ſee RHIME.

FEMUR, or *Os* FEMORIS, in Anatomy, the Thigh-bone. See BONE, and THIGH.

The *Femur* is the largeſt and ſtrongeſt Bone in the Body; and its Articulations are proportion'd to its Bulk, and Strength. Its upper Part is jointed with the Iſchium, by Enarthroſis; the Head of the *Femur* being receiv'd into a Cavity of the Iſchium; and the two kept together by a ſtrong Cartilage, or Bandage. The lower End is articulated with the Tibia by Ginglimus; two Heads of the *Femur* being receiv'd into two Cavities of the Tibia; beſide a Cavity between the two Heads, which receives a Proceſs of the Tibia.

The *Femur* is pretty much incurvated, or bent; the convex Part being before, and the Concave behind. It is divided into three Parts; the upper, middle, and lower.

The upper, conſiſts of a Head, and a Neck; in which are contain'd three Epiphyſes, *viz.* the *Extremity*, or Head, which is round, and big, and receiv'd into the Acetabulum of the Coxendix, wherein it is tied by two Ligaments; the one from the Head, and the other from the Bottom of the Acetabulum, but both inſerted into the Middle of the Head. Immediately under the Head, is the *Neck*, which is ſmall, long, and a little oval, and makes an Angle with the Body of the Bone; by means whereof the Thighs and Feet are kept at a due Diſtance from each other, to make our Standing the firmer; Beſide that the Obliquity of the Neck conduces to the Strength of the Muſcles, which muſt otherwiſe have paſs'd too near the Centre of Motion. The other two Epiphyſes are call'd the greater and leſs *Trochanters*. See TROCHANTER.

The middle Part, or Shank of the *Femur*, is round, ſmooth, and poliſh'd on its Fore-ſide, and rough on the Hind-ſide; along which there runs a ſmall Ridge, the whole Length of the Bone, called the *Linea aſpera*, ſerving for the Inſertion of Muſcles.

The lower Part of the *Femur* is divided by a Sinus in the Middle, into two Heads, or Apophyſes, call'd *Condili*, which make the Ginglymus above mention'd; being both received into the Sinus of the Tibia. See CONDILUS.

Between the hind Parts of theſe Heads is a Space for the Paſſage of the great Veſſels and Nerves, which go to the Leg.

The *Femur* has a very large Cavity, running its whole Length, filled, like the reſt, with Marrow. The Cavity of the *Femur* makes it ſerve as a Buttreſs to the Body, to prevent its falling, or bearing too much forward.

Surgeons and Bone-ſetters ſhould take Care, that in fractures of the *Femur* they don't endeavour to ſet it ſtreight, which is unnatural.

Monſ. *Dionis* derives the Word *Femur* from *fero*, by reaſon it bears the whole Weight of the Body.——

FEN, in Geography, a kind of Lake, or rather, Moraſs. See LAKE, and MORASS.

Fens are of two Kinds: The firſt of a Boggy Conſiſtence, compoſed of Water and Earth intermixed; ſcarce firm enough to ſuſtain the Tread of a Man. See BOG, and MOSS.

The ſecond are Ponds, or Collections of Waters, with pieces of dry Land, raiſed here and there, above the Surface thereof.

The former kind neither receive, nor emit any River: But the latter are frequently the Heads or Springs of Rivers: Such is the Head of the *Nile*, *Tanais*, &c.

FENCE-*Month (Menſis prohibitionis*, or *Menſis vetitus)* is a Month, wherein the female Deer do fawn; for which Reaſon it is unlawful to hunt in the Foreſt, during that Time.

It begins fifteen Days before Midſummer, and ends fifteen Days after; in all, thirty Days.

There are alſo certain *Fence*, or *Defence* Months, or Seaſons for Fiſh, as well as wild Beaſts; as appears by Stat. *Weſtm.* 2. *cap.* 13. in theſe Words:

All Waters, where Salmons are taken, ſhall be in *Defence* for taking of Salmon, from the Nativity of our Lady, unto St. *Martin's* Day. And likewiſe, young Salmons ſhall not be taken or deſtroyed by Nets, *&c.* from the Midſt of *April*, to the Nativity of St. *John Baptiſt*, &c. See TEMPUS, FOINESUN, FANATIO, *&c.*

FENCE-*Walls*, are Walls of Brick, or Stone, made round Gardens, *&c.* See WALL.

FENCING, the Art of *Defence*; or of uſing the Sword, to wound an Enemy, and ſhelter one's ſelf from his Attacks. See SWORD, and GUARD.

Fencing is one ſo the Exerciſes learnt in the Academies, *&c.* See EXERCISE.

Fencing is learnt by practiſing with *Files*, called in *Latin*, *Rudes*; whence *Fencing* is called *Gladiatura rudiaria*. See GLADIATOR.

Pyrard aſſures, that the Art of *Fencing* is ſo highly eſteemed in the *Eaſt Indies*, that none but Princes and Noblemen are allowed to teach it. They wear a Badge or Cognizance on their right Arms, called in their Language *Eſaru*, which is put on with great Ceremony, like the Badges of our Orders of Knighthood, by the Kings themſelves.

Montaign aſſures us, that when he was a Youth, the Nobility all ſhunned the Reputation of being good *Fencers*; as ſomething too ſubtle, and deſigning, and apt to corrupt virtuous Manners.

Fencing is divided into two Parts, Simple, and Compound.

Simple is, what is performed directly and nimbly, on the ſame Line; and is either Offenſive, or Defenſive. The principal Object of the firſt, is whatever may be attempted, in puſhing or paſſing from this or that Poiot, to the moſt uncovered Part of the Enemy. The ſecond, conſiſts in parrying, and repelling the Thruſts aimed by the Enemy.

The *Compound*, on the offenſive Side, includes all the poſſible Arts and Inventions, to deceive the Enemy, and make him leave that Part we have a Deſign on, bare, and unguarded, upon finding we cannot come at it by Force, nor by the Agility of the ſimple Play.

The principal Means hereof are Feints, Appeals, Claſhings, and Intanglings of Swords, half-Thruſts, *&c.* And in the Defenſive, to puſh in ſpeaking.

FEND, in the Sea Language, is uſed for the ſaving a Boat from being daſh'd againſt the Rocks, Shore, or Ships Side.

Hence the Phraſe, *Fending the Boat*, &c. Hence alſo

FENDERS, any Pieces of old Cable Ropes, or Billets of Wood, hung over the Ship's Side, to *fend* or keep other Ships from rubbing againſt her.

Boats have the like.——

FENDUE *en Pal*, in Heraldry, a *French* Phraſe, applied to a Croſs, to denote it cloven down from Top to Bottom, and the Parts ſet at ſome Diſtance from one another.

FENESTRA, in Anatomy, a Name applied to two Holes, or Apertures in the inner Ear. See EAR.

The *Feneſtræ* are two Openings in the Labyrinth; the firſt of them inclos'd by the Baſis of the Stapes, and from its oval Figure denominated *Feneſtra ovalis*; the latter, call'd *rotunda*, is clos'd with a tranſverſe tranſparent Membrane, plac'd a little within the Surface of its Aperture.

These *Fenestræ*, with the whole Labyrinth, are comprehended in that Part of the *Os temporum*, properly call'd from its Hardness *petrosum*. See LABYRINTH, &c.

FENNEL, or *Fennel-seed*, in Commerce, &c. a longish, striated Seed, flat on one Side, and roundish on the other; of a sweetish Taste, not unlike that of Anis-seed; being the Produce of an umbelliferous Plant of the same Name, well known as a Pot-herb.

Fennel makes part of the Commerce of the Druggists and Apothecaries. 'Tis esteem'd a Carminative, and us'd like Anis-seed, to dispell Winds in the Body; and correct Senna, and the rest of the vegetable Purgatives.

There is also a strong Water, or Brandy made of the Seeds of *Fennel*, and call'd *Fennel-Water*. The Ingredients are *Fennel* Seed, Liquorice, Brandy, and white Wine, which are distill'd together; and to the Essence thereof are added Spirit of Wine, Sugar, and sweet Almonds: The whole strain'd, &c.

FENUGREE, *Fænum Græcum*, or *Fennigreek*, a medicinal Plant, thus call'd, because anriently brought from *Greece*, tho' now cultivated in several Parts of *Europe*.

Its Stem is about a Foot high: Its Leaves small, and dispos'd somewhat like those of Trefoil. It yields a little white Flower, from whence arises a long, pointed Pod, shap'd not unlike a Bullocks Horn.

The Grain, or Seed is inclos'd in this Pod, which bears the Name of the Plant it self, is less than Mustard Seed, very hard, and solid, of a triangular Form, and a strong disagreeable Smell: When new, 'tis of a yellow, gold Colour; but when kept, ruddy, or brown.

The Farina, or Flower of these Seeds is esteem'd good to ripen and digest; and as such, is used in Cataplasms of those Intentions; as also in emollient Clysters, Decoctions, and Cataplasms.

It yields a Mucilage used in Inflammations of the Eyes and on other Occasions.

FEODARY, FEUDARY, or FEUDATARY, was an Officer, antiently made and authorized by the Master of the Court of Wards. See WARD.

His Office was, to be present with the Escheator, at the finding any Office; and to give Evidence for the King, concerning the Tenure and the Value thereof: To survey the Land of the Ward after the Office found, and rate it. He also assign'd the Kings Widows their Dowers, and received the Rents of Wards Lands. This Office is taken away by Stat. 12 *Car.* 2.

FEODER, a Capital Measure for Liquids, used throughout *Germany*. See MEASURE.

FEODUM, or FEUDUM, the same with *Fief*, or *Fee*. See FEE.

FEOFFMENT, in Common Law, signifies any Gift, or Grant of any Honours, Castles, Manors, Messuages, Lands, or other corporeal or immoveable Things of like nature, unto another in Fee simple; that is, to him, and to his Heirs for ever, by the Delivery of Seisin, and the Possession of the Thing given; whether the Gift be made by Deed, or Writing.

When it is in Writing, it is called the *Deed of Feoffment*.

In every *Feoffment*, the Giver is called the *Feoffer*, or *Feoffator*.

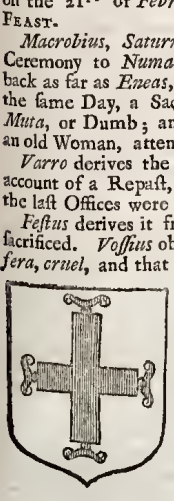
The proper Difference between a *Feoffer*, and a Donor, is, that the Feoffer gives in Fee simple; and the Donor in Fee-tail. See DONOR, and FEE.

FERALIA, in Antiquity, a Feast held by the *Romans*, on the 21st of *February*, in honour of the Dead. See FEAST.

Macrobius, *Saturn.* L. I. c. 13. refers the Origin of the Ceremony to *Numa Pompilius*. *Ovid*, in his *Fasti*, goes back as far as *Æneas*, for its Institution. He adds, that on the same Day, a Sacrifice was perform'd to the Goddess *Muta*, or Dumb; and that the Persons who officiated, were an old Woman, attended with a Number of young Girls.

Varro derives the Word from *inferi*, or from *fero*; on account of a Repast, carried to the Sepulchers of such, as the last Offices were that Day render'd to.

Festus derives it from *ferio*, on account of the Victims sacrificed. *Vossius* observes, that the *Romans* called Death *fera*, *cruel*, and that the Word *Feralia* might arise thence.



FER *de Fourchette*, in Heraldry. *Croix a Fer de Fourchette* is a Cross, having a forked Iron at each End, like that formerly us'd by Soldiers, to rest their Muskets; by which it is distinguish'd from the Cross *Fourchee*; the Ends whereof turn forked, whereas in this, the Fork is fix'd on the square End; as in the adjoining Figure.

FER *de Moulin*, q. d. Iron of the Mill, is a Bearing in Heraldry of the Figure adjoining.

It represents the Iron-Ink, or Ink of a Mill, which sustains the moving Mill-stone.

There are divers ways of bearing it: The most usual is that here represented.

It is born by the Name of *Beveatham*, and also by the Name of *Turner*.

FERD-*wit*, in our antient Customs, A Formulary, by which the King pardoned Manslaughter, committed in the Army.

The Word is form'd of the *Saxon Fird*, Army, and *Wite*, Punishment.

FERENTARII, or FERENDARII, a Term in History. The *Ferentarii* among the *Romans*, were auxiliary Troops, lightly arm'd; their Arms being a Sword, Arrows, and a Sling; which are much less cumbersome, than a Buckler, Battle-ax, Pike, &c.

The Name *Ferentarii* was derived *a ferendo auxilio*; these being auxiliary Forces: Tho' *Varro* thinks, they might be so called, by reason, the Sling and Stones *feruntur*; *non tenentur*.

We have also Mention of another sort of *Ferentarii*, whose Business was, to carry Arms after the Armies, and to be ready to supply the Soldiers therewith in Battle.

Lydius uses the same *Ferentarii* for the *Cataphracti Equites*, i. e. Cavaliers, arm'd Cap-a-pee.

FERIÆ, among the *Romans*, were Holidays; or Days wherein they abstain'd from Work.

The *Feriæ*, or *Dies feriati*, were observ'd and distinguish'd chiefly, by Rest; whereas the *Feasts*, or *Dies festi*, beside a Cessation from Labour, were celebrated with Sacrifices and Games; so that there were *Feriæ*, which were not Fast-days. Tho' Authors frequently confound the *Feriæ*, and *Festi*. See FEAST, and FESTI DIES.

Others confound the *Feriæ* with the *Dies Ne-fasti*, or Non-Court-Days. See FASTI *Dies*.

The Latin *Feria*, amounts to the *Sabbath* of the *Hebrews*: See SABBATH.

The *Romans* had divers kinds of *Feriæ*: Their Names, at least the principal thereof, are, The *Æstivales*, Summer-*Feriæ*; *Anniversariæ*, Anniversary *Feriæ*; *Compitalitiæ*; *Feriæ* of the Streets, and *Compita*, or Cross-ways; *Conceptivæ*, Votive *Feriæ*, which the Magistrates promis'd every Year: *Denicales*, for the Expiation of a Family polluted by the Death of any one; *Imperativæ*, or *Indictivæ*, those decreed by the Magistrate; *Latinæ*, the Latin *Feriæ*, instituted by *Tarquin* the Proud, for all the Latin People, amounting to above fifty Nations; being celebrated on *M. Alba*, in Memory of the Peace, concluded by *Tarquin*, with the People of *Latium*; *Messis Feriæ*, the *Feriæ* of Harvest; *Paganales Feriæ*, or *Paganalia*, an Account of which is given in its Place; *Præcidaneæ*, which were, what we properly call, the Vigils, or Eves of the Feasts; *Privatæ*, or *Propriæ*, those peculiar to the several Families; as the *Familiæ Claudiæ*, *Æmiliæ*, *Juliæ*, &c. *Publicæ*, those observ'd by all in general, or for the Publick Weal; *Sementivæ*, those held in Seed-time; *Stativæ*, those kept constantly to the same Day of the Year; *Saturnales*, whereof we shall speak in their Places; *Stultorum Feriæ*, or *Quirinalia*, the *Feriæ* of Fools, held on the 17th of *February*; *Victoriæ Feriæ*, those of Victory, in the Month of *August*; *Vindemiales*, those of the Vintage, from the 20th of *August*, to the 15th of *October*; *Vulcani Feriæ*, those of *Vulcan*, which fell on the 22d of *May*.

FERIÆ was also used among the *Romans* for Fair Days; by reason it was the Custom to hold their Fairs, on *Dies feriati*, or Holidays. *Struvius Synt. Antiqq. Rom. C. IX. p.* 425. 443. &c. See NUNDINA.

The Word *Feriæ*, is usually deriv'd *a feriendis Victimis*: *Martinius* says, that *Feriæ dictæ sunt velut* ἱεραὶ, μέραι; *dies sacri*, holy Days. Others observe, that all Days in general, tho' they were not Feast-days, were antiently call'd *Festæ*; or as *Vossius* reads it, *Fesiæ*; whence, according to that Author, is form'd the Word *Feriæ*.

FERIA is still retain'd in the *Romish* Breviary, tho' in a Sense somewhat different from the *Feriæ* of the Antients.

It is applied to the several Days of the Week, beginning with Sunday; provided none of those Days be a Feast, or Fast Day. Thus, *Monday* is the second *Feria*; *Tuesday* the third, &c.

These are the ordinary *Feriæ*; beside which they have extraordinary, or greater *Feriæ*, *viz.* the three last Days of Passion Week; the two Days following Easter Day, and Whitsunday; and the second *Feria* of Rogation.

The Word *Feria*, in this Sense, is doubtless borrowed from the antient *Feria*, a Day of Rest. Accordingly, Sunday is the first *Feria*: For antiently, all the Days of Easter Week were accounted Festival Days, by a Decree of *Constantine*; whence those seven Days were called *Feriæ*: Sun-

day being the first, Monday the second, &c. And this Week being then accounted the first of the Ecclesiastical Year; they afterwards accustom'd themselves, to call the Days of the other Weeks after the same manner, first, second, third, &c. *Feriæ*.

Tho' others will have it, that the Days of the Week were not called *Feriæ*, from resting the People, that is, on account of being oblig'd to abstain from servile Works; but to advertise the Faithful, that they ought to abstain from Sin. See *Durand. de Off. Div. L. VIII. c.* 1.

FERIAL *Days*, *Dies feriales*, or *Feriæ*, among the Antients, signify Holidays, or Days vacant from Labour and Pleading. See FERIÆ.

But in the Stat. 27 *Hen.* 6. *c.* 5. and in *Fortescu*, *De Laudibus LL. Angliæ*, *Ferial Days* are taken for working Days. *S. Silvester* ordained—*Sabbati & Dominici dies nomine retento, reliquos hebdomadæ dies* feriarum *nomine distinctos, ut jam ante in Ecclesia vocari cœperant, appellari.*

So that *Ferial Days* are properly all the Days of the Week, except Saturday and Sunday.

FERM, in Law, see FARM.

FERMENT, in Physicks, A Body of any Kind, which being applied to another, produces a *Fermentation* therein: Or, any thing capable of exciting an intestine Motion, in the Part of another; and of swelling, or dilating the same, by means of its more penetrating and moveable Parts, which by their Agitation divide and agitate the Particles thereof. See FERMENTATION.

Thus, the Acid in Leven, is a *Ferment*, which makes Bread rise, or swell. The Moisture in Hay is the *Ferment*, which heats and makes it smoak. Thus also, Remnet is the *Ferment*, that curdles and breaks Milk: Balm, or Yeast is the *Ferment*, that sets Wort a-working, &c. See LEVEN, &c.

The Force or Effect of a *Ferment*, arises hence, that by dissolving, and breaking the Texture or Combination of the component Parts or Principles of the Body, and giving them a new Motion; it disposes them to take a new Arrangement, or to combine again in a new manner; and so to constitute a new Species of Body. Its Effect is somewhat like that of a Person, who opening the Gates of a City, lets in the Enemy, who soon raises terrible Disorders: Thus, the Bite of a mad Dog excites a slow Fermentation in the Blood, whereby the divers Liquors, or Matters it consists of, lose that Nexus, or Union, necessary to a State of Health; and occasion an Irregularity in the Spirits, from which arise the Horrors, and other Symptoms of the Disease. See HYDROPHOBIA.

One way of accounting for Digestion, is by supposing a certain *Ferment* or Menstruum in the Stomach, which dissolves the Food contain'd therein. But what this *Ferment* is, or whence it should be derived, is greatly disputed. Some will have it an Acid; others, alcalious; others, sulphureous; others, alcalino-sulphureous; others, muriatick, &c. as their own Fancies suggest to them. See DIGESTION, and MENSTRUUM.

FERMENTARII, or FERMENTACEI, a Denomination those of the *Latin* Church have given to the *Greeks*, on account of their consecrating and using leven'd, or *fermented* Bread in the Eucharist.

As the *Greeks* call the *Latins Azymites*, the *Latins*, in return, call them *Fermentarii*. See AZYMUS.

FERMENTATION, an intestine Motion, or Commotion of the small, insensible Particles of a mix'd Body, arising without any apparent mechanical Cause, and producing a considerable Alteration therein.

Or, it is an easy, slow, gentle Motion of the intestine Particles of a Body, arising usually from the Operation of some active, acid Matter; which rarifies and subtilizes the softer, yielding Particles thereof. See FERMENT.

Fermentation differs from *Dissolution*, as the latter is the Result or Effect of the former. *Fermentation* is frequently without Dissolution, *i. e.* the fermentative Motion frequently does not go so far as to dissolve the Body: But Dissolution always supposes an antecedent *Fermentation*. See DISSOLUTION.

Fermentation differs from *Ebullition*, and *Effervescence* in this, that the Motion, which in the former is slow; in the two latter, is violent; and that in the former, the Motion is restrain'd to the minute Particles of the Body; but in the latter it extends to large Masses thereof. See EBULLITION, and EFFERVESCENCE.

Indeed it must be observ'd, that Authors usually allow of divers kinds of *Fermentations*; *viz.* an *insensible* one, which is only known from its Effects; and a *sensible* one: A *violent* and a *moderate* one: A *hot*, and a *cold* one: A *natural*, and an *artificial* one.

Plants bruis'd, and left a certain Time in a close Vessel, *ferment* of themselves; and if let alone, the *Fermentation* will proceed to Putrefaction. See PUTREFACTION.

In order to *Fermentation*, 'tis necessary, the Ferment or Liquor have something acid and spirituous in it; that its Motion be tumultuous; that it be in an open, spacious Place, and assisted by the Air; and that it tend to exalt and purify the Liquor, and produce vinous, or inflammable Spirits. These are the particular Properties and Conditions of *Fermentation*; tho' in the general, all required to effect a *Fermentation*, is a Body, or Liquor, which is not homogeneous, that is, consists of different Principles; that there be a strong Attraction between the Particles of the *Ferment*, and the Body; that the Parts of this latter be moved and agitated irregularly; and that this Motion produce some Alteration in the mixt.

Fermentation is one of the most obscure Processes in all Nature. The Generality of our later Philosophers allow it in great Measure a Mystery, to which their Principles will not fully reach.

Dr. *Morgan*, in his late *Philosoph. Prin. of Medicine*, attempts to account for it, on the *Newtonean* System. His Principle is, that the expansive Force of Air, rarified by the Action of Fire; or the mutual Action of Fire and Air, is the universal natural Cause of *Fermentation* and Dissolution.

To shew this, he considers, two great Powers, or Principles in Bodies; *viz.* an attractive, cohesive Power, in the small Particles of Matter, as the Principle of all Rest, Concretion, &c. And the expansive Force of heated Air; as that of *Fermentation*. On the different Proportion and Adjustment of these two opposite Forces, with respect to each other, the Constitution, Texture and Cohesion of Bodies depend.

By the attractive Force, acting alone, the constituent Parts of compound Bodies, must be brought to their nearest and greatest Contacts, and remain there in a Degree of Firmness, and Cohesion, proportional to the Quantities of Contact. See FIRMNESS.

On the other hand, by the repulsive, expansive Force, acting alone, all Bodies, even the most compact and solid, must be dissolved and diffused into one perfectly fluid, incoherent Mass. See FLUIDITY.

If both are found in the same Body, and equal in Degree, such Body must continue in its present State of Fluidity, or Cohesion; if the attractive Power prevail, the Quantity of Contact, or Degree of Cohesion will be continually increased to a certain Pitch, where it will rest: On the Contrary, if the expansive Force of the Fire and Air, included in any Body, or Mass of Matter, prevails against the attractive Power of the contiguous Parts, the Parts must necessarily recede from their Points of Contact.

And this happening thro' all the Subdivisions of which the Body or Mass is capable, every small Part must be divided and separated into other smaller Parts; and these again into others, and so on, till we come to the first constituent Particles or Atoms, which are supposed to be perfectly solid, and indivisible. See ATOM.

This Recess of the Parts of Bodies from their Points of Contact, and the Separation, and Division consequent thereon, is what we call *Rarefaction*; as, on the Contrary, the Approach of the Parts nearer to the Points of Contact, is called *Condensation*. Now from the contrary Effects of these two Forces, there necessarily arises an intestine Commotion, Collision, and natural Struggle of the Parts among themselves, *i. e.* the Parts acted on by two such opposite Forces, will fly off, and recoil, recede, and accede, in Proportion to the Strength and Energy of the opposite Powers, till one or the other prevail, either to *fix* and condense, or *dissolve* and diffuse it; which alternate Motion is what we call *Fermentation*. See RAREFACTION, &c.

If the attractive Force prevail, the most fluid Body will be consolidated, as Water into Ice. See FREEZING.

On the contrary, if the expansive Force prevail, the firmest Body will be broke, and dissolved. See DISSOLUTION.

Fermentation is a Point of the utmost Consequence in Medicine: It is one of the principal Means, or Instruments we have for altering, exalting, or calling forth the Properties and Powers of Bodies. To get an Idea of these Changes, we cannot consider it better, than in the procuring of a Spirituous Liquor from Malt, by means thereof.

It is to be observ'd then, that the Malt being made, as shewn under the Article MALT; and then laid to infuse or *mash* in hot Water, the rest of the Process of Brewing is nothing but a raising and directing of a *Fermentation*, or intestine Motion. See BREWING.

How such Motion is mechanically effected, and how it brings forth such a Spirit, may be conceived from what follows; supposing the Reader acquainted with these common Propositions in Hydrostaticks; *viz.* 1°. That a Body immersed in any Fluid, specifically lighter than itself, will sink; otherwise, emerge and get to the Top.

2°. That if two equal Bodies of different specifick Gravities be immersed in a Fluid, lighter than either of them, the Celerities of their Descents will be as their Gravities.

3°. That

3°. That if two unequal Bodies of unequal specifick Gravities be immersed in a Fluid lighter than either, the Celerities of their Descents will be compounded of their Gravities and Dimensions together.

The same Law, by which Bodies descend, hold good in the Ascent of those specifically lighter than the Fluid.

Hence in all heterogeneous Fluids, the constituent Parts of which are not fitted to associate and cohere, so as to form what is called an uniform homogeneous Fluid, the heavier may be accounted as solid Bodies, immersed in a Fluid specifically lighter; and the lighter Parts, as such Bodies in a Fluid specifically heavier; as it may be demonstrated, that the component Parts of all Fluids, separately consider'd, are solid. See FLUID, SOLID, &c.

This Liquor, therefore, called *Wort*, which is a Decoction of Malt, may be consider'd as such an heterogeneous Fluid, whose Parts cannot be interchang'd in their Positions, till each has obtained such an Elevation, as corresponds to its proper Gravity: But lest this alone should fail of the Intention, by not being sufficient to break those Moleculæ and Vicidities, which entangle the spirituous Parts, and likewise to prevent their flying off at the Surface, some Portion of an already fermented Substance is mix'd with it.

This Substance, term'd *Barm*, or *Yeast*, consists of a great Quantity of subtile spirituous Particles, wrapp'd up in such as are viscid. Now, when this is mix'd with such a Liquor, it cannot but much contribute to that intestine Motion, which is occasioned by the Intercourse, and Occursions of Particles of different Gravities; as the spirituous Particles will be continually striving to get up to the Surface, and the viscid ones continually retarding such Ascent, and preventing their Escape.

So that by these two concurring Causes the Particles extracted from the Grain, will by such frequent Occursions be so comminuted, as continually to increase the more subtile and spirituous Parts, until all that can be made so by Attrition, are set loose from their former viscid Confinements: and this appears by the Warmth of the Liquor, and the Froth drove to the Top; just at which Time, if it be thrown into the Still, it affords some Quantity of an high inflammable Spirit.

Moderate Warmth much hastens this Process, as it assists in opening the Viscidities, in which some spirituous Parts may be entangled, and unbend the Spring of the included Air, which cannot but contribute to the Rarefaction and Comminution of the whole.

The viscid Parts, which are raised to the Top, not only on account of their own Lightness, but by the continual Efforts and Occursions of the Spirit to get uppermost, both shew, when the Ferment is at the highest, and prevent the finer Spirits making their Escape: For if this intestine Luctus be permitted to continue too long, a great Deal will get away, and the remaining grow flat, and vapid, and raise little besides Phlegm in the Still.

The greatest Use of this Theory in Medicine, will be in teaching, what Parts of the Materia Medica are most properly brought under this Procedure; and how such intestine Motion, does in some Things, destroy their Virtues: For by some Medicines an Intention is aimed at, which is not to be procured, but by their being spirituous; whereas in others the very contrary Property is required: In such Cases therefore, when by any adventitious Cause those Medicines get into a *Ferment*, they are destroyed, and should not be administred.

FERNAMBOUC, *see* BRASIL *Wood*.

FERRUGINOUS, a Term, intimating a Thing to partake of the Nature of Iron; or to contain Particles of that Metal. See IRON.

It is particularly applied to certain mineral Springs, whose Water in their Passage along the Strata of the Earth meet with the Ore, or Marcassite of the Metal, part of which they wash off, and carry with them; and thus become impregnated with the Principles thereof. Such are what we call *chalybeate* Waters. See CHALYBEAT, and MARS.

The Waters of *Tunbridge*, those of Forges, and of the iron Spring at *Bourges*, are *ferruginous*.

FERRUGO, the Rust of Iron; or a kind of Calx, found on the Surface thereof. See IRON, and RUST.

FERRUM, see IRON.

FERTILITY, *Fruitfulness*, or the Quality, which denominates a thing *fertile*, or *prolifick*. See FECUNDITY; see also BARRENNESS, DISEASE, &c.——

The *Egyptian* Nitre, or Natron, renders the Ground exceedingly *fertile*. *M. de la Chambre* observes, that Plants grow in such Abundance in *Egypt*, that they would choak one another, if they were not hindred, by throwing Sand upon the Fields: Insomuch that the *Egyptians* must take as much Pains to lessen the Fatness of their Soil, as other Nations do to increase it. *Philos. Transact.* N° 160.

Nothing is more *fertile* than Wheat, which Faculty was given it by the Creator, in regard it was to be the principal Food of Men: Thus a single Measure of that Grain, sown in a proper Soil, will yield 150 Measures.—One of *Augustus*'s Procurators sent him 400 Ears, all produced from one Seed. *Nero* had 340 Ears sent him, from a single Seed. *Plin. Nat. Hist. lib.* 18. *c.* 10. See SEMBRADOR.

FERULA, a little wooden Pallet, or Slice; reputed the Schoolmasters Sceptre, wherewith he chastises the Boys, by striking them on the Palm.

The Word is pure *Latin*, and has also been used to denote the Prelates Crozier, and Staff. Under the Eastern Empire, the *Ferula* was the Emperor's Sceptre, as is seen on divers Medals. It consists of a long Stem, or Shank, and a flat, square Head. The Use of the *Ferula* is very antient among the *Greeks*, who used to call their Princes ραβδηφόροι, q. d. *Ferula-bearers*.

The Word is supposed to be form'd of the Latin *ferire*, to *strike*; or, perhaps, *Ferula* in this Sense may be derived from the Name of a Plant, called *Ferula*, the Stem whereof was antiently used to correct Children withal; tho' others think, the Plant took its Name from the Instrument, or rather from its Use, *ferire*.

In the antient Eastern Church, *Ferula* signifies a Place separated from the Church, wherein the Penitents, or Catechumens of the second Order, called *Auscultantes*, ἀκροώμενοι, were kept; as not being allowed to enter the Church. Whence the Name of the Place; the Persons therein being under Penance, or Discipline: *Sub Ferula erant Ecclesiæ*.

FERULÆ, among Chirurgeons, called also *Splinters*; are little Chips, of different Matter, as Woods, Barks, Fir, Leather, Paper, &c. applied to Bones, that have been disjointed, when they are set again.

The Bark of the Herb Sagapene, called in Latin *Ferula*, was antiently much used on this occasion; whence the Name *Ferula* became common to all.

FESCENNINE, in Antiquity. *Fescennine* Verses were a kind of satyrical Verses, full of open, wanton, and obscene Expressions, sung or rehears'd by the Company, at the solemnizing of a Marriage among the *Romans*. See SATYR.

The Word *Fescenninus* is borrowed, according to *Menage*, from *Fascinum*, a Charm; the People taking such Songs to be proper to drive away Witches, or prevent their Effect. See LIGATURE.

FESSE, one of the nine Honourable Ordinaries of the Escutcheon, which it divides horizontally in the Middle, and separates the Chief from the Point. It is supposed to represent a broad Girdle, or Belt of Honour, which Knights at Arms were antiently girded withal.

It possesses the Centre of the Escutcheon, and contains in Breadth one third Part thereof.

Thus, he beareth Azure, a *Fesse* Or, by the Name of Eliott.

When the *Fess* takes up less than its proper Breadth, it is called a *Bar*. See BAR.

FESSE-*Point*, is the exact Centre of the Escutcheon. See ESCUTCHEON.

It is thus called, as being the Point, through which the *Fess* Line is drawn from the two Sides; and accordingly divides the Escutcheon into two equal Parts; when the Escutcheon is parted *Per-fess*.

FESSE-*ways*, or *in Fesse*, denotes Things born after the manner of a *Fesse*, *i. e.* in a Line, or Range, a-cross the Middle of the Shield, which the *French* call *en Fesse*.

Party per FESSE, implies parted a-cross the Middle of the Shield from Side to Side, through the *Fesse* Point.

This the *French* express by one Word, *Couppe*.

FESTI *Dies*, among the Antients, were *Feast*-Days, or Holidays. See FEAST.

Numa distinguish'd the Days of the Year into *Festi*, *Profesti*, and *Intercisi*.

The first were those dedicated to the Gods: The second, were those allowed to Men, for the Management of their own Affairs; being thus called, according to *Festus*, *Quod procul sint a religione Numinis divinæ*: The third were shared between the Gods and Men.

The *Festi dies*, again, were divided, according to *Macrobius*, *Saturn. c.* 16. into Sacrifices, Epulæ, or Banquets; Ludi, or Games; and Feriæ. See FERIÆ, &c. And the Profesti into *Fasti*, *Comitiales*, *Comperendini*, *Stati*, and *Prælliares*. See FASTI, &c.

FESTINO, in Logick, one of the Moods of Syllogisms. See MOOD.

In a Syllogism in *Festino*, the first Proposition is an universal Negative; the second, a particular Affirmative; and the third a particular Negative. See SYLLOGISM.

FESTIVAL, see FEAST, and FESTUM.

FESTOON, a *Garland*, or Ornament of Flowers, Fruits and Leaves intermix'd; antiently much used at the Gates of Temples, where Feasts, or solemn Rejoycings were held; or at any other Places, where Marks of publick Joy and Gayety were desired; as at Triumphal Arches, Tournaments, &c.

Festoons,

Festoons, or Garlands, were also put on the Heads of Victims in the antient heathen Sacrifices. St. *Paulinus*, in his Poem on St. *Felix*, does not forget the *Festoons* and Crowns of Flowers, plac'd at the Door of the Church, and on the Tomb of that Saint. See GARLAND.

The *Italians* have a sort of Artificers, called *Festaroli*, whose Office is, to make *Festoons* and other Decorations for Feasts.

The Word is *French*, *Feston* form'd of the *Latin Festum*, Feast.

FESTOON, in Architecture, Sculpture, *&c.* A Decoration used by Architects, Painters, Joyners, *&c.* to enrich their respective Works.

It consists of a String, or Collar of Flowers, Fruits, and Leaves tied together, somewhat biggest in the Middle, and suspended by the two Extremes; from which, beside the main Part which falls down in an Arch, two lesser Parts hang perpendicularly.

This Ornament is made in Imitation of the *Festoons*, or long Clusters of Flowers, plac'd by the Antients on the Doors of their Temples, *&c.* on festival Occasions.

Festoons are now chiefly used in Freezes, and other vacant Places, required to be filled up, and adorn'd.

FESTUM, see FEAST.

In our Law Books, *Festum* is also frequently used for a general Court; in regard such were antiently always kept on the Great Festivals of the Year. Thus, in our Chronicles we read, that in such a Year the King kept his *Festum* at *Winchester*, &c. that is, he kept a Court there at that Time. *Rex apud Winton. maximum* Festum *& Convivium celebravit, tempore Natalis Domini, convocatis ibidem Principibus & Baronibus totius Regni.*

FET-*Lock*, in the Manage, the Hair that grows behind on a Horses Foot: Hence, the Joint where it grows, is called the *Fetloch Joint*.

FETUS, see FOETUS.

FEUD, or FEUDE, FEODUM, is the same with *Fief*, or *Fee*. See FEE.

FEUD is also used in our antient Customs, or a capital Quarrel, or Enmity, called also *Feed*, or *Feeth*.

Feud, or *Feed*, called also *Feida*, and *Faida*, in the original *German* signifies *Guerram*, i. e. *Bellum*, War.

Lambart writes it *Feeth*, and saith, it signifies *Capitales inimicitias*.

In *Scotland*, and the North of *England*, *Feud* is particularly used for a Combination of Kindred, to revenge the Death of any of their Blood against the Killer and all his Race, or any other great Enemy.

FEUDAL, or FEODAL, of, or belonging to a *Feud*, or *Fee*. See FEE.

A *Feudal* Lord, in default of Fealty and Homage from his Vassal, may seize the Fruits of the Fee. A *Feudal* Matter: *Feudal* Jurisprudence: *Feudal* Seisure.

A *Neapolitan* Lawyer, called *Caravita*, has not long ago publish'd a *Latin* Treatise of the *Feudal Law*, entitled, *Prælectiones Feodales*.

When once the Use of *Fees* was thoroughly establish'd in *France*, they would need extend it much further: And almost all the great Offices of the Crown thus became *Feudal*; even the Courts of Justice were drawn in; in order to which they were annex'd to certain Lands, or Revenues.

The Design of these *Infeodations* was to render the Offices hereditary, after the manner of Fees, which were now become so. Thus the Offices of Grand Chamberlain, Grand Butler, *&c.* came to be held by hereditary Right.

FEUDATARY, a *Vassal*, or Person who holds of a Superior in *Fee*, i. e. on condition of yielding Fealty and Homage, or other Service. See FEE.

The Electors, Princes, and free Cities of *Germany* are all *Feudataries* of the Emperor. See EMPEROR, ELECTOR, *&c.*

Fa. Daniel observes, that *Charles* VII. forbad the Count *d'Armignac* to call himself in his Titles, *by the Grace of God Count d'Armignac*; such Terms, which seem to exclude all Dependance, except on God, being an Innovation, prejudicial to the Right of the Soveraign, and which had never been allowed to any Duke, or Count, who was a *Feudatary* of any Crown. *Histoire de France*, T. II. p. 1162.

FEUDBOTE, a Recompence, for engaging in a Feud, or Faction, and for the Damages consequent therein; it having been the Custom of antient times for all the Kindred to engage in their Kinsmens Quarrels, according to that of *Tacitus de Morib. Germanor. Suscipere tam Inimicitias seu patris, seu propinqui quam amicitias necesse est.*

FEUDIST, a Lawyer, or Doctor learned, or much conversant about *Feuds*, or *Fees*.

Du Moulin is reckon'd a Great *Feudist*.

FEVER, *Febris*, in Medicine, a Disease, or rather Species, or Class of Diseases; it being an Observation of *Sydenham*, that *Fevers* with their Appendages, make two Thirds of all the Diseases of the Body. See DISEASE.

This Disorder is very differently defined by Physicians, according to the different Views and Relations they consider it in.

Sydenham defines it a strenuous Endeavour or Effort of Nature, to throw off some morbific Matter, that greatly incommodes the Body.

Etmuller, with the same View, calls it a Motion, or Struggle of Nature, whereby with the Assistance of the Spirits, more or less alter'd, she seeks to expell what is hurtful to the animal Oeconomy.

Quincy defines it an augmented Velocity of the Blood: Others, a Fermentation of the Blood, accompanied with a quick Pulse, and excessive Heat.

The Causes of *Fevers* are innumerable; and the Disease even often arises in the soundest Bodies, where there was no previous morbific Apparatus; as Cacochymia, Plethora, *&c.* But merely from a Change of Air, Food, or other Alteration in the Non-naturals.

A *Fever*, *Boerhave* observes, is an inseparable Companion of an Inflammation.

The Symptoms are many: Every *Fever* arising from any internal Cause, is attended with a quick Pulse and unusual Heat, at different Times, and in different Degrees. Where these are intense, the *Fever* is *acute*; where remiss, *slow*. The Disease begins almost always with a Sense of Chilness; and in its Progress is chiefly distinguish'd by the Velocity of the Pulse: So that a too quick Contraction of the Heart, with an increased Resistence or Impulse against the Capillaries, furnishes the proper Idea of a *Fever*; and he Health of the Patient is the scope Nature chiefly aims at in the Disease.

The other attendant Symptoms are usually a laborious and disturb'd Respiration; an uniform, high colour'd Urine; a Parchedness and Dryness of the Tongue, Mouth, *&c.* a Clamminess of the Saliva; Thirst; Wakefulness; and Nausea against every thing but thin diluting Liquors.

From these Symptons, Dr. *Morgan*, our latest Writer on that Subject, lays it down as a Principle, that in every *Fever*, there is a *general Obstruction, and Diminution of the glandular Secretions*; that is, a great Part of the Lymph, or Serum of the Blood, which ought to be continually drain'd off by the Glands, is, during the *Fever*, so retain'd in, and closely united to the Mass, that it circulates together with it in the Veins and Arteries. This he endeavours to prove to be the State and Condition of the Blood in the Production of a *Fever*, by accounting for all the above-mentioned Phænomena from it, as the just and adequate Effects of such a Cause. How he does it, see in his *Philos. Princ. of Med.* p. 207, *&c.*

The general Indication in the Cure of *Fevers*, is, to restrain the Commotion of the Blood, with in the Bounds agreeable to the End, Nature had in raising it, *i. e.* neither to let it rise too high, for fear of the Consequence; nor yet keep it too low, for fear of frustrating the Endeavour of Nature. And hence the Rule and Measure of letting more, or less Blood, or none at all.

The Cure of *Fevers*, *Boerhave* summarily comprehends in correcting the sharp, irritating febrile Matter, dissolving the Lentor, and mitigating the Symptoms. If Nature seem to carry the *Fever* too high, it must be moderated by Abstinence, thin Diet, drinking of Water, bleeding and cooling Clysmas: If she bring it on too slowly, it must be excited by Cardiacs, Aromaticks, Volatiles, *&c.* The Cause removed, the Symptoms cease of course; and if they can be bore without much Danger of Life, it were best not to enter into any particular Cure thereof: If they be unseasonable, or too severe, they are each to be abated with the proper Remedies.

Sydenham recommends an Emetick in the Beginning of a *Fever*; or if it have been then omitted, in any other Stage thereof; especially where there is a Propensity to Vomiting: For want of this, a Diarrhæa frequently succeeds, which is exceedingly dangerous. After this, he uses a Paregorick; and the following Days, if there be no Indication to repeat the Venæsection, nor any Diarrhæa, he prescribes every other Day an Enema, till the twelfth Day, when Matters coming to a Crisis, he has Recourse to hotter Medicines, in order to promote and accelerate it. He adds, that if the Disease proceed well, and the Fermentation be laudable, there is no occasion for any Physick at all. About the 15th Day, if the Urine be found to separate, and give a Sediment; and the Symptoms be abated, a Cathartick is usually order'd, lest the Sediment returning into the Blood again, occasion a Relapse. Nothing cools the Patient, and abates the *Fever* so much, as a Cathartick after Venæsection.

The more acute the *Fever*, the thinner, according to *Etmuller*, must be the Diet. 'Tis no matter, if the Patient should fast for several Days running; for never did feverish Persons die of Hunger: Eating, always exasperates the Disease. Vomitories, he allows the principal Place in the Cure of all *Fevers*; but, as a Patron of the hot Regimen,

men, assigns Sudorificks the second. Spirit of Sal Ammoniack, or its Sal Volatile, he observes is an universal Febrifuge, and rarely fails: All sugar'd Things are hurtful.

Hippocrates, in all *Fevers*, prescribes Wine. Dr. *Hancock*, Water. See Febrifuge.

So long as the Urine remains crude, that is, does not give a Sediment, the Patient's Case is very dubious: But when once the Coction commences, and the Urine separates, the great Danger is over.

Among the Signs of Death, the same Author adds, there is none more certain, than a frequent blowing of the Nose, without any Discharge of Matter. A strong, equable Pulse, with Deliria, Tremors, Twitches of the Tendons, and other Symptoms, fatal in Diseases of the nervous kind, always presage well in *Fevers*: On the contrary, a quick, weak, faltering Pulse, howsoever favourable the other Symptons may seem, infallibly proclaim Death at the Door. *Morton*.

It appears, by Observation, that a frequent letting of Blood, renders Persons more inclinable to *Fevers*.

There are various Kinds of *Fevers*, denominated and distinguish'd from the particular Cause that produce them; the Time they continue; their Accesses, or Returns; and their several Symptoms.

The most general and genuine Division of *Fevers*, is into *Essential*, and *Symptomatick*.

An Essential Fever, is that whose primary Cause is in the Blood it self; and which does not arise as an Effect, or Symptom from any other Disease in the Solids, or other Parts. This is, what we absolutely and properly call a *Fever*.

A *Symptomatick* Fever is that which arises as an Accident, or Symptom of some other antecedent Disorder, as an *Inflammation*, *Phlegmon*, *Erysipelas*, *Impostume*, small *Pox*, *Pleurisy*, &c. Whence it is peculiarly denominated *Inflammatory*, *Erysipelatous*, *Purulent*, &c.

Essential Fevers are generally distinguished into *Continued* and *Intermitting*. Others chuse to divide them into *Diary*, *Intermitting*, *Continent*, and *Continued*.

A Continued Fever is that which gives the Patient no Respite, or Intermission; but sticks to him from its first Seizure, to its final Period. This is subdivided into *Putrid*, and *not putrid*.

A *Continued Fever not putrid*, is that wherein the Parts of the Blood are not so dissolved and broke, as to give Room and Occasion for the principal Parts thereof to be secreted: Or that, wherein there is not any Discharge of putrid, purulent Matter into the Blood. Of this there are two Kinds, the *Diary*, and *Synochus*; to which some add the *Hectick*.

A *Diary Fever* is that, which does not ordinarily hold beyond 24 Hours. 'Tis also called *Ephemera*, from the *Greek* ἡμέρα, Day. It is the gentlest of all *Fevers*: Is frequently got by too much Exercise, or other external Accident. It is cured by Rest alone, and keeping a-bed: If it remain for several Days, it is either called a continued *Ephemera*, or Simple *Synochus*.

A *Hectick Fever* is a slow, durable *Fever*, which extenuates and emaciates the Body by insensible degrees. It is thus called from the *Greek* ἕξις, Habitude, as being difficult to get rid off.

It has three Stages; the first, while it consumes the Juices of the Body: The second, when it exhausts the fleshy Substance of its Humidity: And the third, when it lays hold of, and destroys the Solids themselves: In which last Stage it is reputed incurable. Its Effect is somewhat like that of a Flame; first consuming the Oil of the Lamp; then the Moisture of the Wick; and lastly the Wick it self. But this *Fever* is frequently consider'd as of the *Symptomatick*, or secundary kind, arising in *Phthises*, &c. See Hectick *Fever*.

A *Putrid*, or *continued Putrid Fever*, is that wherein the Texture of the Blood is render'd so lax, or even dissolv'd, that its Parts or Principles seperating, some of the principal are secreted, and lost. See Blood.

Or *Putrid Fevers* are frequently consider'd as secundary ones, arising from the Discharge of putrid, purulent Matter from some morbid Part, as an Ulcer in the Lungs, &c.

Putrid Fevers are divided into *Simple*, and *Compound* or *Remitting*.

A *Simple continued putrid Fever*, or a *Continued Fever*, properly so called, by the *Greeks* called Σύνοχος, is that which continues uniformly, from first to last, without any Fits or Periods of Exasperation and Remission of Heat, and the other Symptoms.

Willis divides the *Putrid Fever* into four Stadia, or Stages. The *Beginning*, which is attended with a Chillness, Shivering, Weariness, Thirst, Wakefulness, Pain in the Head and Loins, Nausea, and Vomiting: The *Increase*, wherein the former Symptoms are heighten'd, with the Addition of Deliria, convulsive Motions, Foulness of the Mouth, high turbid Urine, without any laudable Sediment, or Hypostasis; the *State*, which contains the Crisis, which in this Disease is much what the Paroxysm is in Intermitters: For as that returns at certain Hours, so do the critical Motions in continued *Fevers* happen on the fourth, fifth, sixth, or seventh Day. See Crisis. The last Stage is the *Declension*, which ends either in Recovery, or Death.

These *Fevers* are divided into *Burning*, and *Slow*.

Ardent, or *Burning Fever*, called by the *Greeks* καυσος, is a very acute *Fever*, attended with a vehement Heat, intolerable Thirst, a dry Cough, Delirium, and other violent Symptoms.

It frequently kills on the third, and fourth Day; rarely exceeds the seventh.

It often goes off in a Hemorrhage, on the third, or fourth Day; which, if it prove too sparing, is deadly. Sometimes it goes by Stool, Vomiting, &c. and sometimes ends in a Peripneumony.

To the Class of *Burning Fevers* are reducible, the *Liperia*, *Assodes*, *Elodes*, &c.

The *Fever Liperia* is a burning *Fever*, wherein the Heat is very intense within side, and at the same time the external Parts cold.

The *Assodes* is a burning *Fever*, attended with great Inquietudes, Nauseas, Vomitings, &c.

The *Elodes* is a *Fever*, wherein the Patient sweats continually.

The *Syncopal Fever* is that attended with frequent Swoonings.

The *Epeal Fever* is that wherein both Heat and Cold are felt in the same Part at the same Time.

Slow Fevers are gentle, but durable ones, which consume the Patients by degrees.

They usually arise from Disorders in the Lympha, or Pituita; whence *Sylvius* calls them *Lymphatick Fevers*.

The principal of these are the Catarrhal, attended with a Catarrh, Cough, Hoarseness, &c. And the *Scorbutick Fever*, into which acute *Fevers*, and sometimes Intermitters degenerate. To this Class are reducible,

Colliquative Fevers, wherein the whole Body is consumed and emaciated in no long Time; the solid Parts, with the Fat, &c. melted down, and carried off by a Diarrhæa, Sweat, Urine, &c. See Colliquation.

A Remitting Fever, called also a *Continent*, Σύνοχος, and a *compound continued Fever*, is that which continues some Time, without any gradual Increase of Heat; yet is liable to alternate Fits of Remission and Aggravation; either stated and periodical, or irregular.

Of this there are divers Kinds, denominated from the Periods of returning; as the *Remitting*, *Continued*, *Quotidian*, the *Continued Tertian*, *Continued Quartan*, &c. which are only a continued *Fever*, whose Accesses or severer Fits return every Day, or any other Day; or every third Day; or every fourth Day.

Some enumerate divers other more complicated continued *Fevers*; as the *double* or *triple*, *Quotidian*, which has two or three Paroxysms every Day: *Double*, or *triple Tertian*, or *Quartan*, which have two or three every third or fourth Day: The *Semi-tertian*, by the *Greeks* called ἡμιτριταῖος, which consists of a *Continued*, and two intermitting *Fevers* of different Kinds, *viz.* a Quotidian, and Tertian. The Patient, beside a Continued *Fever*, has an extraordinary Fit every Day; and every other Day two.——

Others divide the *Remitting*, Σύνοχος, *Continent*, or *Compound Continued Fever*, into *Simple*, and *Spurious*.

The *Simple Remitter* returns regularly, and is only distinguish'd from an Intermitter, in that the feverish Heat in the Intervals of this latter is never quite extinguish'd; and that the Paroxysms don't begin with so much Chillness and Horror; and go off in profuse Sweats.

The *Spurious Remitter* is attended with grievous Symptoms in the nervous Kind, resembling those of the Rheumatism, Colick, Pleurisy, and other inflammatory and spasmodick Diseases; beside immoderate Excretions, Vomitings, Diarrhæas, &c. Whence its Returns are uncertain, and variable.

The *Simple* rarely, if ever, kills; the *Spurious*, frequently. Sometimes it degenerates into a malignant Σύνοχος.

The first is cured with the Cortex Peruv. almost as infallibly an Intermitter; the febrile Ferment being much the same in both: And the same Medicine is found almost a sure, tho' not so speedy a Remedy of the Spurious, if properly applied.

An Intermitting Fever, or *Ague*, is that which ceases, and returns again alternately, at stated Periods.

In this kind, Cold, and Heat, Shivering, and Sweating succeed each other.

The Paroxysms are attended with Sickness, Nausea's, Vomitings, Headach, Pain in the Back and Loins, &c. The Paroxysms are acute, but the Disease usually more or less chronical.

No body was ever killed of an intermitting *Fever*, except in the first Stage of the Paroxysm, during the Shiver-

ing, caused by the Oppression of the Spirits. When the Disease becomes of a very old standing, it sometimes degenerates into other very fatal ones.

As to the Cure, 'tis found by abundant Observations, that neither Bleeding, nor Emeticks, nor Catharticks, nor any other Remedy, administer'd during the Fit, avail any thing. A just Dose of *Vinum Benedictum*, three Hours before the Paroxysm, *Morton* assures us, has often cured it: *Antimonium Diaphoreticum*, a little before the Paroxysm, has the like Effect: And Salt of Wormwood is commended on the same Occasion. *Dolæus* mentions *Lapis Lazali* taken in Spirit of Wine before the Fit, is admirable.

And several Bitters, as Carduus Benedictus, Gentian Root, Camomile Flowers, Pulvis Febrifugus, &c. were much valued before the Invention of the Cortex Peruv. But that Bark has almost thrown them all out of use; being by the universal Consent of all Physicians allowed a Pianacea, or Specifick for all intermitting *Fevers*, on all Seasons, Ages, and Constitutions. See CORTEX *Peruvianus*; see also FEBRIFUGE.

Intermitting *Fevers* are of divers kinds, as the

Quotidian Fever, where the Paroxysm returns every Day.

Double Quotidian, which returns twice in twenty four Hours.

Tertian Fever, which only returns every other Day; which again is, either Legitimate, or Spurious.

The *Legitimate Tertian* only holds twelve Hours, and is followed by an absolute Intermission.

The *Spurious Tertian* exceeds twelve Hours, and sometimes holds 18, or 20.

The *Double Tertian* is that which returns twice every other Day. The Word *Double Tertian* is also used, where the *Fever* returns every Day, like a Quotidian; only at different times of the Day; the third Fit answering to the Time of the first; the fourth to that of the second, &c.

The *Quartan Fever* is that which only returns every fourth Day; leaving two Days Intermission between every two Fits.

The *Double Quartan* is that which has two Fits every fourth Day. The same Name is given to a *Fever*, which returns two Days successively; only leaving one Day's Intermission.

Triple Quartan Fever is that which has three Fits every fourth Day: Or that which returns every day like a Quotidian, only at different Seasons of the Day; the fourth Fit answering to the Time of the first; the fifth to the second, &c.

There are also intermitting *Fevers*, which only return every *fifth* Day, or every *sixth*, or every *seventh*, and at other Intervals.

Lastly, there are some extraordinary Species of *Fevers*, not reducible to any of the forementioned Classes; as *Malignant*, *Eruptive*, and *Pestilential Fevers*.

Malignant FEVERS are those, wherein the usual, regular Symptoms do not appear (Nature being oppress'd with the Malignity of the febrile Matter) but other foreign Symptoms arise; as a Pain about the Stomach, and Præcordia; a livid Complexion, with the Face much disfigur'd, &c. Sometimes Efflorescences on the Skin, &c.

Some Authors, from microscopical Observations affirm, that in all malignant *Fevers* the Blood is so corrupted, that Swarms of little Worms are generated therein, which occasion most of the Symptoms.

In all malignant *Fevers* the Blood is too fluid. Bloodletting has here no Place: Vomitories do well at first; afterwards Sudorificks and Alexipharmachicks: Blisters are commended in the Progress of the Disease.

Eruptive FEVERS are those, which beside the Symptoms common to other *Fevers*, have their Crises attended with cutaneous Eruptions. Such are those of the small Pox, Meazles, Petechiæ, the Purple or Scarlet *Fever*, and Miliary *Fever*: Their other Symptoms are, a grievous Oppression of the Breast; laborious, short Breadth, obstinate Waking; Spasms, soar Throat, Cough, &c. See PETECHIÆ, SMALL-POX, MEAZLES, and MILIARY *Fever*.

Pestilential FEVERS, are acute, contageous, and mortal Diseases. Some will have the *Fever* to be the Disease or Plague it self: Others only account it a Symptom of the Plague. See PLEAGUE.

Petechial FEVER, is a malignant *Fever*, wherein, beside the other Symptoms, on the fourth, or more frequently the seventh Day, *Petechiæ*, or red Spots, like Fleabites, appear, chiefly on the Breast, Shoulders, and Abdomen. The Spots afterwards turn paler, then yellow, and so disappear. When they grow livid, or black, they usually prove fatal.

This *Fever* is contagious, and often Epidemical. It is treated much as those just mentioned.

FEUILLANS, an Order of Religious, cloathed in White, and going bare-foot; who live under the strict Observance of the Rule of St. *Bernard*. See BERNARDINES.

The Name was occasioned by a Reform of the Order of *Bernardines*, first made in the Abby of *Feuillans*, a Village in *France*, five Leagues distant from *Tholouse*, by the Sieur *Barriere*, who was Abbot thereof in 1589.

It was approved of by Pope *Sixtus* V. And the Popes *Clement* VIII. and *Paul* V. granted it its particular Superiors. King *Henry* II. founded a Convent of *Feuillans* in the *Fauxbourg*, St. *Honorius* at *Paris*.

There are also Monasteries of Nuns, who follow the same Reform, called *Feuillantines*.

FEUILLE *de Scie*, in Heraldry, expresses that an Ordinary, as a Fesse, Pale, or the like, is indented only on one Side; in regard it then looks like a *Saw*, as the *French* Phrase imports. See INDENTED.

FEWEL, or FUEL, in Philosophy, the *Pabulum* of Fire, or whatever receives, and retains Fire, and is consumed, or render'd insensible thereby. See FIRE.

Pure Fire, if left to it self, would disperse, and disappear: To preserve it, it is necessary there be some *Fuel*, to sustain, and keep it together.

The only proper *Fuel*, known in all Nature, is Oil, commonly called Sulphur: And all Bodies, whether vegetable, fossil, or animal, are only inflammable, as they contain Oil in them.

Oil feeds and sustains Fire by virtue of its ramose, tenacious Particles, which are disposed to be put into a most vehement, rotatory Motion, before they will let each other go. But, by this rotatory Motion the Fire at length breaks and comminutes the ramose Particles of the *Fuel*; till, ceasing to cohere, they are no longer able to sustain the Fire.

In the popular Sense of the Word, *Fewel* is any Body, which contains this Pabulum, or Oil, in such Quantity, as to fit them for culinary Uses.

Such 1°, Are dry, or green Vegetables; especially those abounding in Oil; as the rosinous, and balsamick Woods.

2°, Fossil Coals, whether vegetable, or animal; as being little else, but the oily Part of the Vegetable, or animal, purged of the Salt, Water, &c. so that the blacker they are, the better.

3°, Fossil, and bituminous Earths, as Turf, and Peat, which are a fatty Earth, dug out of the Ground.

4°, All mineral Sulphur, whether pure, or mix'd with Earth, Stone, &c.

5°, The Fat and Dungs of Animals dried.

And 6°, The Productions of Chymistry, which are either Coals, or Oil, or oily Bodies; as, inflammable Spirits, produced by Fermentation, Putrifaction, &c. See COAL, TURF, &c.

FIBRA *Auris*, see EAR.

FIBRE, in Anatomy, a similar Part of the animal Body, called also *Filament*; and when very small, *Fibrilla*, or *Capillament*. See CAPILLAMENT.

A *Fibre* is a long, slender Thread; which being variously interwove, or wound up, forms the various solid Parts of an animal Body; so that *Fibres* are the Stamen, or Matter of the Animal. See SOLID, and STAMEN.

Anatomists usually distinguish four kinds of *Fibres*, viz. *Carnous*, or *Fleshy*; *Nervous*; *Tendinous*; and *Osseous*, or *Bony*; of one or other of which all the other Parts consist. See FLESH, NERVE, TENDON, BONE, MUSCLE, and SENSATION.

Fibres again are divided, with respect to their Situation, into *Direct* or *Longitudinal*, which proceed in right Lines; *Transverse*, which cut, or go a-cross the former, at right Angles: And *Oblique*, which intersect, or cross them at unequal Angles.

Some Anatomists reduce the animal *Fibres* to two Species, viz. *Muscular*, or *Motive*; and *Nervous*, or *Sensitive*.

The *Nervous* FIBRES are the minute Threads, whereof the Nerves are composed. They arise from the Medulla of the Brain; as that does from the Cortex; and that again from the last, finest Ramifications of the carotid and vertebral Arteries: So it is probable, these Nerves are only Continuations of those Arteries. See BRAIN.

From every Point of the Cortex there arises a fine, medullary *Fibrilla*, which uniting in their Progress form the Medulla of the Cerebrum, Cerebellum, and Oblongata; and *Fibrillæ* arising from each Point of these again, form the spinal Marrow. See MEDULLA.

From the medullary Substance of all these Parts arise Nerves; which are Combinations or Assemblages of a Number of these minute medullary *Fibres* inclosed, after they are got out of the Cranium in a common Membrane, or Coat from the Pia mater: And 'tis probable, that to each Nerve, there concur *Fibres* from all three; as also that these *Fibres* are so many fine hollow Tubuli or Canals, for the Conveyance of a fine Juice or Spirit from the Brain throughout the Body. See NERVE.

The *Muscular* FIBRES are those whereof the Muscles, or fleshy Part the Body are composed. Every Muscle is divisible into other less ones; and these into others, still less, beyond all Imagination. The last and smallest are the muscular

muſcular *Fibres*; which whether or no they be veſicular, is ſome queſtion.

Now, there are Nerves propagated to every Muſcle, and diſtributed through the Body thereof; ſo as there is no aſſignable Point wherein there is not ſomewhat of a Nerve. Add, that all the Nerves here diſappear; and that in other Parts of the Body, the Extremities of the Nerves are expanded into Membranes. 'Tis therefore probable, the muſcular *Fibres* are only Continuations of the nervous ones. See MUSCLE.

The animal *Fibres* have different Properties; ſome are ſoft, flexible, and a little elaſtick: And theſe are either hollow, like ſmall Pipes; or ſpongious, and full of little Cells, as the nervous and fleſhy *Fibres* above mentioned. See FLESH.

Others are more ſolid, flexible, and endowed with a ſtrong Elaſticity, or Spring; as the membranous and cartilaginous *Fibres*. See MEMBRANE, *&c.*

A third ſort are hard, and inflexible, as the *Fibres* of the Bones. See BONE.

Now of all theſe, again, ſome are very ſenſible, and others deſtitute of all Senſe: Some ſo very ſmall, as not to be eaſily perceived; and others on the contrary, ſo big, as to be plainly ſeen; and moſt of them, when examin'd with a Microſcope, appear to be compoſed of ſtill ſmaller *Fibres*. Theſe *Fibres* firſt conſtitute the Subſtance of the Bones, Cartilages, Ligaments, Membranes, Nerves, Veins, Arteries, and Muſcles. And again, by the various Texture, and different Combination of ſome, or all of theſe Parts, the more compound Organs are framed; ſuch as the *Lungs*, *Stomach*, *Liver*, *Legs*, and *Arms*, the Sum of all which make up the Body. See BODY.

The great Property of *Fibres*, is *Elaſticity*, or a Power of Contraction, after the diſtractile Force is removed; upon which the Knowledge of the animal Mechaniſm greatly depends. See ELASTICITY.

To underſtand this, it may be obſerved, that any Membrane or Veſſel may be divided into very ſmall *Fibres*, or Threads; and that theſe Threads may be drawn out into a very conſiderable Length, without breaking; and that when ſuch external Force is removed, they will again reſtore themſelves to their proper Dimenſions. It is farther alſo manifeſt, that this Property is preſerved to them by a convenient Moiſture; becauſe if one of thoſe Threads be dried, it immediately looſes it; ſo that upon the Application of any Force to ſtretch it, it will break; as alſo will its lying ſoked in Liquor too much, render it flaccid, and deſtroy all its Power of Reſtitution, when diſtended.

Now ſome Hints of that Configuration of Parts, upon which this Property depends, may be had from the Contrivance and Properties of a Syringe; with the Reaſon, why it is ſo difficult to draw back the Embolus, when the Pipe is ſtopp'd; and the Neceſſity of any Liquors following it, wherein the Pipe is immerſed.

All that is neceſſary hereto, is, that the Embolus be ſo exactly adapted to the inner Surface of the Barrel, as to prevent any Air paſſing between them, when it is drawn up: It matters not what Figure the Barrel is of, ſo that the Embolus is well fitted to it. A Caſe of Syringes therefore might be contrived, wherein every Barrel may alſo ſerve as an Embolus to its exterior, which immediately includes it.

In this manner it is not difficult to imagine a continued Series of Particles, ſo put together, that they may be moved, and drawn upon one another, without ſuffering the Air immediately to enter into the Interſtices made by their Diſtraction; whereupon as ſoon as that Force, which drew them, is removed, they will, for the very ſame Reaſon as the Embolus of a Syringe, ruſh up again into their former Contacts.

As ſuppoſe *A. B.* (Fig. 1.) two Particles touching one another in *e. f.* and *C. D.* two others, covering the oppoſite Sides of their Contacts. It is alſo to be ſuppoſed, that on the other Sides they are covered with other Particles in the ſame manner, as by *C. D.* ſo that the Places of their Contacts are on all Sides covered from the Air, or the Inſinuation of any fluid Body.

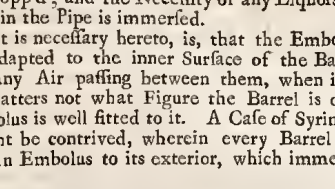


Fig. 1.

If now *A. B.* by an external Force, greater than that of their Coheſion be drawn from each other, as far as *G. I.* and *H. K.* (in Fig. 2.) as ſoon as that Force is removed, they will again run into their former Contacts in *e. f.* (Fig. 1.) that is, if they are not ſo far as to bring their tranſverſe Surfaces to coincide with *C.* and *D.* for then the Air, or circum-ambient Fluid will interpoſe and prevent their Reunion; ſo that by this Contrivance, ſo much of *A.* and *B.* as is incloſed by other ſurrounding Particles, is as the Embolus of a Syringe, and the Particle ſurrounding them as its Barrel. And therefore when *A.* and *B.* are diſtracted from their Contacts in *e. f.* it will be with ſome Difficulty; and when the diſtracting Force is taken away, they will again run up in their former Contacts; juſt as the Embolus of a Syringe, and for the ſame reaſon. See SYRINGE.

Fig. 2.

It is not rigidly contended that this muſt exactly be the Contexture of a *Fibre*; but only ſome thing like this; whereby the Interſtices of the interior Orders are covered by the exterior in ſuch a manner, that when the Thread is diſtended, that is, when its conſtituent Parts are drawn from their tranſverſe Contacts, neither the Air, nor any other external Fluid can get between them, ſo as to hinder their Re-union, as ſoon as ſuch Force is withdrawn; that is, if their Diſtraction, as was before ſaid, be not ſo far as to bring their tranſverſe Surfaces to a Co-incidence with one another; for then the circum-ambient Fluid will interpoſe, that is, the Thread will be broke.

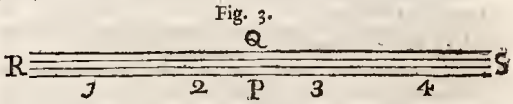
But beſides this peculiar Arrangement of a determinate Set of Particles to compoſe the main Suſtance of an animal *Fibre*, endowed with the Properties above-mentioned; it ſeems not at all unreaſonable to conjecture, that into their Compoſition alſo enters a common Capſula, or Covering, which aſſiſts in the wrapping up, and holding together thoſe Faſciculi, or Series of Particles already deſcribed; not much unlike the Perioſtium of the Bones; the Contexture of which covering, reſembling that of a Net, cannot any ways hinder, either the tranſverſe, or longitudinal Diſtractions of the other Parts.

Suppoſing this, then, the Contexture of a *Fibre*, it will be neceſſary to conſider, what farther Requiſites are needful to put them into that State, which they are in, in a living Body; to ſhew how they are maintained in continual Motion; and what are the Conſequences of it.

And 1°, it is neceſſary to take notice, that all the *Fibres* in a living Body are in a State of Diſtention; that is, they are drawn out into a greater Length than they would be in, if ſeparated from any Part, and taken out of the Body; which is demonſtrable upon any Solutio Continui, as in the tranſverſe Diviſion of a Nerve, or Artery; for immediately the divided Parts run up, and leave a great Diſtance between them; and the Fluids contained between them, upon ſuch Contraction are ſqueezed out. This alſo ſhews, that their natural Diſtractions are owing to ſome Fluids being propelled into the Veſſels which they compoſe, with a Force greater than their Endeavours of Reſtitution, ſo far as to obtain a cloſe Contact of all their tranſverſe Surfaces; but yet leſs than that which is neceſſary to diſtract them, ſo as to bring them into a Coincidence; for then the Veſſels would break.

2°, This State of Diſtraction muſt neceſſarily leave Vacuola between all the tranſverſe Surfaces; as between *G. I.* and *H. K.* (in Fig. 2.) which may be repreſented by the ſeveral Series of Particles (Fig. 3.) which Vacuola will continue as long, as the longitudinal Surfaces of its component Parts continue to cloſe to one another, as to prevent the Inſinuation of any foreign Matter, how ſubtile ſoever between them.

Fig. 3.



For the ſame Reaſon therefore, as when the Embolus of a Syringe is drawn, and the Pipe is ſtopp'd, there muſt be continually a *Niſus reſtituendi*, or an endeavour of Contraction.

There is alſo this farther Neceſſity of their being continued in a State of Diſtraction, becauſe if they were cloſely to touch one another in all Parts, they could not be put into, and continue in thoſe undulatory Motions, which they are always in, in a living Body, without being altered in their Figures and Contextures.

3°. It being manifeſt, that all animal *Fibres* are continued by the perpetual ſucceſſive Impulſe of the Fluids, in ſuch undulatory Motions; beſides this Neceſſity of their Diſtraction, they muſt alſo be continually moiſten'd with ſome convenient Fluid; becauſe otherwiſe their continual Attritions againſt one another, would wear them out, as well as render it difficult to move them: The Fluid alſo for this purpoſe, muſt be very ſoft and ſubtile, becauſe otherwiſe it cannot inſinuate into all the Interſtices of the *Fibres*, without ſo far ſeparating their Parts, as is inconſiſtent with that Contexture and Mechaniſm here laid down.

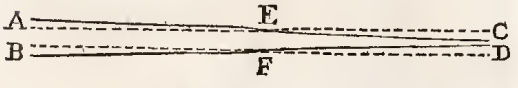
Upon

Upon this View there arises a very natural Explication of several Terms, much used by mechanical Writers; such as *Distraction*, *Contraction*, *Vibration*, *Undulation*, *Tonick Motion*, *Concussion*, *Relaxation*, *Corrugation*, and *Elasticity* of the Solids; all which are but different ways of expressing the various Modifications and Dispositions of those Machinulæ with which all the *Fibres* are composed.

Thus much being granted of the Contexture of a *Fibre*, and the Requisites for its Office, it is to be consider'd, how it comes first to be set in Motion, and by what Mechanism it is afterwards carried on. Suppose then the *Fibre* (Fig. 3.) in such a State of Distraction, as before mentioned; it is certain by *Req.* 2. that in all its Parts there is a *Nisus restituendi*: Where, then, any external Impulse is made against it from *R* to *S*, successively thrusting it from *P* towards *Q*, it is certain that against 1 for instance, the Thread will be more distracted, than in any other Part; and thereby will there be a greater Endeavour of Restitution. And therefore the Impulse passing on towards S, all the constituent Machinulæ, 1, 2, 3, 4, will successively move after one another.

To make this Matter still more plain, let a Portion of an Artery be represented by Fig. 4. through which the Blood is continually propelled in a Direction parallel to its Axis: Nothing is more certain, than that if it were not for the Resistance of the Sides of the Artery at *E F*, the Blood setting out at *A*, *B*, would go on by the prick'd Lines *C*, *D*; and therefore it cannot but strike against the Sides of the Artery at *E*, *F*, and distract them there more, than any where else; whereby their Endeavours of Restitution will be there the greatest: And therefore, when the Impulse of the Blood has raised them to a certain Measure, wherein their Endeavours of Restitution will exceed the Impulse which raised or distracted them, their contractile Powers will draw them again into the same Dimensions; and consequently the Blood will be thrust forward into the next Section of the Artery, and so on successively from one to another, thro' the whole Course of its Circulation; the Contraction of one Section of an Artery being the true Cause of the Blood's Impulse against, and raising the next. See Circulation.

Fig. 4.



Fibre is also used in Physicks, for long, fine Parts, or Threads, whereof other natural Bodies are composed, and which prevent their being friable, or brittle.

Trees, Plants, and Fruits have their *Fibres*, or Capillaments; which are Modifications of their woody Substance, penetrating and terminating in the Parenchyma, or Pith. See Plant, Wood, &c.

In the common Use, *Fibre* is only applied to the slender, capillary Roots of Plants.

Kepler even gives *Fibres* to the Stars; and explains several of their Motions from the Situation of their *Fibres*.

FIBRILLA, a little Fibre, or Capillament. The Word is a Diminutive of *Fibra*. Each Fibre is divisible into a number of lesser Threads, called *Fibrillæ*. See Fibræ.

FIBULA, in Anatomy, one of the Bones of the Leg, called also *Perone*, *Sura*, and *Focile minus*. See Bone, Leg, Focil, &c.

The *Fibula* is the outer, and slenderer of the two Bones of the Leg; and yet, notwithstanding its being more exposed, and its being much weaker than the inner Bone, or Tibia, 'tis not so often broken, as being more pliant and flexible; so that the Tibia often breaks, leaving the *Fibula* entire.

The *Fibula* is join'd or articulated with the Tibia, at both Ends, by a kind of close Arthrodia.

It is divided into three Parts; the *upper*, which is a round Head, which terminates a little below the Knee, and receives a lateral Protuberance of the Tibia into a small Sinus; by which the Articulation of this Part is effected: The *Middle* is very slender, long, and triangular, like the Tibia, but somewhat more irregular. The *lower* Part is receiv'd into a Sinus of the Tibia, and then shoots out into a large Process, called the Malleolus internus, or outer Ankle: It is a little hollow on the Inside, to give Liberty for the Astragalus to move; and a little Convex on the Out-side, that it may have the more Strength, to retain the Astragalus.

The Tibia and *Fibula* only touch at the two Extremes, like the Radius, and Ulna: The Space between them is filled up with a strong membranous Ligament, which ties them together, and strengthens the Articulation. See Tibia.

Fibula, *Button*, in Surgery, an Instrument in use among the Antients, for the closing of gaping Wounds.

Celsus speaks of the *Fibula*, as to be used when the Wound was so patent as not easily to admit of being sewed.

Authors are somewhat at a loss as to the Form of the *Fibulæ*. *Guido* says, they were made of iron Circles, or Semi-circles, bent backwards both ways; the Hooks whereof being fasten'd on both Sides to the Wound, answer'd exactly to each other: But, as this must have been an insupportable Pain to the Patient, this Description is generally set aside.

Fallopius, *Sanctorius*, and others, take the *Fibula* to have been, in reality, no more than the sewing up of the Wound with a Needle and Thread, used at this Day. See Suture.

FIBULÆUS, in Anatomy, a Muscle of the Leg, call'd also *Peroneus primus*. See Peroneus.

FICUS, a kind of Wart, or Excrescence, yielding a very stinking Sanies, arising sometimes on Fractures of the Skull, but more usually about the Fundament, and Pudenda.

The Physicians more usually call it *Sarcoma*, of σάρξ, Flesh. See Sarcoma.

FICHANT, *Figens*, a *French* Term, used in Fortification: Thus, a Flank *Fichant*, or a Line of Defence *Fichant*; is the Place, whence the Shots are made, that not only rase the opposite Face to be defended, but also enter within it.

The Word is form'd of *ficher*, to stick a Thing in.

FICHE, in Heraldry; see Fitchee.

FICTION, see Fable, Fallacy, &c.

FIDDLE, see Violin.

FIDE-*Jussor*, in the Civil Law, is the same with Repromissor, Adpromissor, Sponsor, Prædes, and Vades; that is, a *Surety*, or one that obliges himself in the same Contract with a Principal, for the greater Security of the Creditor, or Stipulator.

FIDEI-*Commissum*, in the *Roman* Law, the appointing of an Heir, or Bequeathing of a Legacy to a Person, on this View or Condition, that he surrender the Inheritance or Legacy to another Person, for whom the same is originally meant: Or, it is an Inheritance left in trust with any one, for the use of another. See Trustee.

Fidei-Commissa were much used among the *Romans*. In the *French* Law the thing is become odious; as being, ordinarily, no other than an Expedient in favour of Persons to whom the Laws forbad any thing to be given. In order to this, some Friend was chose, whom they trusted to make legal Heir, under a tacit Agreement, to deliver the Succession to the Person incapacitated by Law: At length, the same Expedient came to be used with regard to Persons capable of inheriting; to whom the Testator for particular Reasons did not care to leave the Succession directly.

As it happen'd, that the *Fidei-Commissioners* did not always faithfully restore, what was trusted to them, *Augustus* took proper Measures to oblige them thereto: To this End a Pretor was erected, whose Business was restrain'd to the single Matter of *Fidei-Commissions*. Just. Lib. II. T. 23.

FIDEI-*Commissioner*, a Trustee, or Heir intrusted with Charge, to restore the Inheritance or Succession to another Person.

A *Fidei*-commissionary Heir had a Right to reserve the *Trebellianick* Fourth to himself: as a Testament was null without the Institution of an Heir; and it frequently happening, that the *Fidei-Commissioner* refused to accept the Trust, upon which the Testament fell to the Ground; To engage some body to accept it out of the Consideration of Advantage, the *Pegasian* Senatus-Consultum decreed, that the *Fidei-Commissioner* should be at Liberty to retain a Fourth of the Fidei-commissum.

By the *Trebellian* Senatus-Consultum, a farther Regulation was made. And in course of Time, the two Senatus-Consulta, the *Pegasian* and *Trebellian*, came to be confounded under the Name of the *Trebellian*.

FIDEI-*Jussio*, in the Civil Law, a Security, or Guaranty. See Guaranty.

FIDICINALES, in Anatomy, a Name given to several Muscles of the Fingers, called also *Lumbricales*. See Lumbricalis *Manus*.

FIEF, the same with *Feud*, or *Fee*. See Fee.

FIELD, in Agriculture, a piece of Land, or Ground inclosed, and fit for Tillage, to bear Hay, Grain, &c. See Tillage, Ploughing, Fallow, &c.

Field, *Campus*, in Antiquity, is frequently used for a publick Place, or Square in a City, &c. as the *Field* of *Mars*, *Campus Martius*; and *Field* of *Flora*, *Campus Floræ*, in *Rome*; the *Field* of *May*, *Campus Maji*, among our Ancestors, &c. See Campus.

The Field *of Mars* was denominated from a Temple of that Deity, built therein. It was the Scene, or Place of the Assemblies called *Comitia*. See Comitia.

Tarquin the Proud at length appropriated it to his own Uses;——But after the Expulsion of the Kings, the Consuls

ſuls *Brutus* and *Collatinus* reſtor'd it to the publick Uſe of Aſſemblies and Elections.

Originally it was no more than a Meadow, on the Banks of the *Tiber*, where Horſes grazed, and the *Roman* Youth were exerciſed to War. But it was afterwards erected into a magnificent Square, adorn'd with Statues, &c. The *Field of Flora* was the Place, where the Laws, Edicts and Conſtitutions were publiſh'd.——

For *Field of May*, ſee Campus *Maji*.

Field, in Heraldry, is the Surface, or Face of the Shield, or Eſcutcheon; thus called, as containing the Atchievements antiently acquired in the *Field* of Battle.

The *Field* is the Ground wherein the Colours, Bearings, Metals, Furs, Charges, &c. are repreſented. In blazoning a Coat, we always begin with the *Field*: He bears Sable, &c.

Among the more Modern Heralds, *Field* is leſs frequently uſed than Shield, or Eſcutcheon. See Shield, and Escutcheon.

Field *of a Painting*, &c. is more uſually call'd the *Ground* thereof. See Ground.

Field, in War, the Place where a Battle was fought.—The General remain'd Maſter of the *Field* of Battle——*Cloſe Field* was antiently a Place incloſed, or rail'd in with a Barrier, for Juſts and Turnaments to be perform'd. See Barrier, Just, and Tournament.

Field-*Colours*, are ſmall Flags about a Foot and an half ſquare, which are carried along with the Quarter-maſter General for marking out the Ground for the ſeveral Squadrons and Battallions of an Army.

Field *Pieces*, are ſmall Cannon, uſually carried along with an Army in the *Field*; ſuch as three Pounders, Minions, Sakers, ſix Pounders, Demi-Culverins, and twelve Pounders; which being light, and ſmall, are eaſily carried.

Field *Works*, in Fortification, are thoſe thrown up by an Army, in the Beſieging of a Fortreſs; or elſe by the Beſieged, in defence of the Place. Such are the Fortifications of Camps; thoſe of the High ways, &c.

Field *Staff*, is a Staff carried by the Gunners: It is about the Length of an Halbert, with a Spare at the End, which on each Side has Ears ſcrewed on, like the Cock of a Match lock; and in theſe the Gunners ſcrew in lighted Matches, when they are on Command. And this is called, arming the *Field Staffs*.

Elyſian Fields, ſee Elysian *Fields*.

FIERI *Facias*, is a Writ Judicial, that lieth at all times within the Year and Day, for him that hath recovered in an Action of Debt and Damages, to the Sheriff, to command him to levy the Debt, or the Damages of his Goods on him againſt whom the Recovery was had.

FIFTEENTH, *Decima quinta*, an antient Tribute, or Impoſition of Money, laid upon any City, Borough, or other Town through the Realm; not by the Poll, or upon this or that Man, but in general upon the whole City, or Town. See Tribute, Tax, &c.

It is ſo called, becauſe amounting to a *Fifteenth* Part of that which the City hath been valued at of old; or to a *Fifteenth* Part of every Man's perſonal Eſtate, according to a reaſonable Valuation.

This is impoſed by Parliament, and every Town thro' the Realm knows what a *Fifteenth* for themſelves amounts to, becauſe it is always the ſame: Whereas the *Subſidy*, which is raiſed of every particular Man's Lands, or Goods, muſt needs be uncertain. See Subsidy.

In this View, the *Fifteenth* ſeems to have been a Rate, antiently laid upon every Town, according to the Land or Circuit belonging to it.

Cambden mentions many of theſe *Fifteenths* in his *Britan.* *viz.* pag. 171. *Bath geldebat pro viginti hidis, quando Schira geldabat*, &c. And *p.* 181. *Old Sarum pro quinquaginta hidis geldabat*, &c. Which Rates were according to Domeſday.

The *Fifteenth* therefore ſeems in old Time to have been a yearly Tribute in Certainty; whereas now, though the Rates be certain, yet it is not levied but by Parliament. See Quinsieme.

FIFTH, in Muſick, one of the harmonical Intervals, or Concords. See Interval.

The *Fifth* is the Third in order, of the Concords. The Ratio of the Chords that afford it, is 3 : 2. See Concord.

It is called *Fifth*, becauſe containing *five Terms*, or Sounds between its Extremes; and four Degrees: So that in the natural Scale of Muſick it comes in the *fifth* Place, or Order, from the Fundamental. See Degree, and Scale.

The Antients called this Interval, *Diapente*. See Diapente.

The *imperfect*, or *defective Fifth*, by the Antients called *Semi-Diapente*, is leſs than the *Fifth* by a mean Semi-tone. See Tone, and Semi-tone.

FIG, *Ficus*, a ſoft, ſweet, delicious Fruit; the Produce of a Tree of the ſame Name.

There are *Figs* of divers Kinds; chiefly denominated from their Colours; White, Violet, Black, Purple, Green, and Ruddy: The White ate eſteem'd the beſt: The Black and Violet are the worſt.

They are gather'd in Autumn, and laid on a Rack, or Hurdle, to dry in the Sun.

Figs contain a deal of Phlegm; a little volatile, alcali Salt, and a moderate Quantity of Oil.

They are very nouriſhing, and ſofren the Aſperities of the Breaſt, &c. And accordingly are uſed in Medicine, to make Gargariſms, againſt Diſorders of the Throat and Mouth. They are alſo applied externally, to ſoften, digeſt, and promote Maturation.

Figs are dried, either by a Furnace, or the Sun. The *Latins* call them *Caricæ*, or *Ficus paſſæ*, when thus dried. In this Condition they are uſed both as Medicine and Food; being both the wholeſomer, and eaſier of Digeſtion, for being thus clear'd of a deal of their aqueous and viſcid Parts.

The Word is form'd of the *Latin Ficus*; and that of the *Greek* φύω, I produce; by reaſon the *Fig* Tree is a great Bearer, and has uſually two Crops a Year.

The beſt *Figs* are the Produce of *Italy*, *Spain*, *Provence*, &c. The Iſlands of the Archipelago yield *Figs* in great Abundance; but they are much inferior in Goodneſs to thoſe of *Europe*. The *Greeks* in thoſe Iſlands cultivate them with wonderful Care, and Attention; as making the principal Food, and a conſiderable Part of the Riches of the Country.

They have two Kinds of *Fig* Trees, the firſt called *Ornos*, or the wild *Fig* Tree; the ſecond, the domeſtick *Fig* Tree. The wild, called by the Latins *Caprificus*, yields ſucceſſively three ſorts of Fruits, called *Fornites*, *Cratitires*, and *Orni*; none of which are of any uſe as Foods; but all abſolutely neceſſary for the ripening thoſe of the domeſtick *Fig* Tree.

The Art of cultivating and ripening theſe *Figs*, makes a peculiar Art, by the Antients called *Caprification*; often ſpoke of among them in Terms of Admiration. Some of the modern Naturaliſts have look'd on it as a Chimera; but Monſ. *Tournefort* has aſſured us of the Contrary, and given us that Proceſs, as he learn'd it upon the Spot; which ſee under the Article Caprification.

The Generation of the *Fig* is ſomewhat anomolous; the Parts ſubſervient to the Office in other Plants; *i. e.* the Flower, not being here apparent. But the Anatomy of the Fruit helps out of the Difficulty.

Monſ. *de la Hire* the younger, in the Memoirs of the Fr. Academy, ſhews, that the *Fig* is a Flower, as well as a Fruit. By Diſſection it diſcovers all the Eſſentials of a Flower, *viz.* Stamina, Apices, and a Farina fecundans.

To ſhew this, that ingenious Author divides the Length of the *Fig* into three Parts or Spaces, A, U, X, *Tab. Nat. Hiſt. Fig.* 4. The firſt of which, A, being the next the Pedicle, and much the greateſt, contains the Grains, or Seeds of the *Fig*. Theſe Seeds are little Stones, repreſented by A, *Fig.* 5. within which are Kernels. Each Stone is half incompaſs'd with a Parenchyma, B, ſupported by a Calyx, laid on the Parenchyma: This Calyx is fix'd to a pretty long Pedicle, which grows to the inner Rind of the *Fig*, as repreſented in the Figures.—The Diviſion X of the *Fig* is full of little Leaves, like thoſe repreſented in *Fig.* 6. which are faſten'd by their Baſes to the Rind or Skin of the *Fig*. In this Diviſion there is a Hole B, *Fig.* 4. called the Umbilicus, or Navel, whoſe outer, or upper Edge is furniſh'd with little Leaves, which cloſe the Aperture.——Laſtly, the Space V is full of little whitiſh Bodies, repreſented Fig. 4. which ariſe from the internal Parietes of the *Fig*, by a large Pedicle A, at whoſe Extremity is a Calyx B C; from the Diviſions whereof ariſe three other Bodies, D, E, F. Theſe Bodies terminate in little Eminences in E, F, &c. which are Capſulæ, that include an infinite Number of little Grains, eaſily perceivable by the Microſcope, and all alike, and of a Size, perfectly ſimilar to the Farinæ in the Apices or Capſulæ of other Flowers. Whence it follows, that the Bodies contain'd in the Space V, of the *Fig*, are real *Fig* Flowers; tho' ſeveral Naturaliſts have taken theſe in the Diviſions A, and X, for the Flowers; which have no eſſential Marks of Flowers at all.

FIGURATE, or Figurative, that which has relation to a *Figure*; or that teaches under ſome obſcure Reſemblance.

A *Figurative Stile* is that which abounds in Figures.

The *figurative* Stile, Fa. *Bouhours* obſerves, is neither the moſt juſt, nor the beſt. For this reaſon, *Cicero* directs us to the Antients, who, not having yet berhought themſelves to uſe figurative Expreſſions, but keeping to the moſt proper, and natural way, have almoſt all wrote well. *Sunt enim illi veteres, quia nondum ornare poterant ea quæ dicebant, omnes prope præclare loquuti.* Long Uſe, ſay the Grammarians, renders that proper in all Languages, which at firſt was *figurative*.

The ſame Thoughts appear more lively when expreſs'd by a Figure, than when in ſimple Terms. The Reaſon is,

that *figurative* Expressions denote not only the principal Matter, but also the Emotion and Passion of the Person who speaks.

The Term *figurative* is also much used in speaking of the Mysteries and Figures of the old Law. Thus, Manna is said to be *figurative* of the Eucharist.

In the *Greek* Grammar, *figurative* is also used for what we otherwise call *characteristick*, viz. a Letter that characterises certain Tenses of the *Greek* Verbs; or that distinguishes, and specifies them.

In the first Conjugation of the *Barytonous* Verbs, the ω is characteristick, or *figurative* of the Preterit; and the ψ of the Future. See CHARACTERISTICK.

FIGURATE *Counter-point*, in Musick, is that wherein there is a Mixture of Discords along with the Concords. See COUNTER-POINT.

Figurative Counter-point is of two Kinds: That wherein the Discords are introduced occasionally, to serve only as Transitions, from Concord to Concord; and that, wherein the Discord bears a chief Part in the Harmony. See DISCORD.

'Tis a Rule in Composition, that the Harmony must always be full on the accented Parts of the Bar, or Measure *i. e.* Nothing but Concords are allowed in the Beginning and Middle; or the Beginning of the first half of the Bar, and Beginning of the latter half thereof in common Time; and the Beginning, and first three Notes in triple Time. But upon the unaccented Parts, this is not so necessary: But Discords may transiently pass there without any Offence to the Ear.

This the *French* call *Supposition*, because the transient Discord supposes a Concord immediately to follow it. See SUPPOSITION.

Where the Discords are used as a solid, and substantial Part of the Harmony, the *Counter-point* is properly called the *Harmony of Discords*. See HARMONY *of Discords*.

FIGURE, in Physicks, is the Surface, or terminating Extremes of a Body.

All Bodies have some *Figure*; whence, *Figurability* is generally rank'd among the essential Properties of Body, or Matter. See MATTER.

A Body that should have no *Figure*, would be an infinite Body. See INFINITE.

The corpuscular Philosophers account for every thing from the *Figures*, Bulks, and Motions of the Atoms, or primary Corpuscles. See CORPUSCULAR.

The Earth is of a spherical *Figure*, or rather a spheroidical. See EARTH. *Saturn* sometimes appears of an Elliptick, or Oblong *Figure*. See SATURN.

For the *Figures* of Bodies, consider'd as Objects of Sight, see VISION.

The Author of a Collection of Dissertations, printed at *Paris*, in 1715. shews in the first Dissertation on the *Hebrew* Medals, *p. 66*. That the Jews were allowed to make any kind of *Figures*, or Images of Trees, Plants, Flowers, Buildings, &c. excepting those of Animals, the Sun, Moon, and Stars. See IMAGES.

FIGURE, is particularly used by the Philosophers, in opposition to essential Form. See FORM.

There are Bodies of the same nature, and they only differ in *Figure*, or *Configuration*. See CONFIGURATION.

The Schoolmen dispute, whether or no the Quality of *Figure* be the same with that of *Form*; and if they differ, what it is constitutes the Difference.

Boetius will have *Figure* only predicated of inanimate Bodies, and Form of animate. Others extend *Figure* to all natural Things, and Form to all artificial ones: Whence the Verse,

Formam viventis, picti dic esse Figuram.

Lastly, others apply *Figure* indifferently to all kinds of Bodies, but not in all Relations. If only the bare Circumference, or Circumscription be consider'd, they call it *Figure*; but if the Circumference be consider'd as endued with Colour, then they call it *Form*.

FIGURE is also applied to all Representations, or Images of Things, in Prints, &c. Such a Book is printed with *Figures*.

The *Figures*, or Schemes in Mathematical and Physical Writings, should be made to fold out of the Book.

Some Readers chuse to have the *Figures*, especially the Mathematical ones, in Wood, for the Convenience of having them immediately annex'd to the Matter they refer to: Others, rather chuse to be at the Pains of turning over, and having Recourse to another Part of the Book, that they may have the *Figures* more neat and accurate on Copper.

FIGURE, in Geometry, a Surface inclosed, or circumscribed with one or more Lines. See SURFACE.

Such are *Triangles*, *Squares*, *Polygons*, *Circles*, *Ellipses*, &c. which see.

Wolfius defines *Figure* a Continuum, terminated by a Perimeter.

In which Sense *Figure* is applicable both to Superficies and Solids.

In the former Case, the Perimeter is Lines; in the second, Surfaces. See PERIMETER.

Figures are either *Rectilinear*, or *Curvilinear*, or *Mixt*, according as the Perimeter consists of right Lines, curve Lines, or both. See CURVE.

The superficial Parts of a *Figure* are called its *Sides*; the lowest Side, its *Base*; and the Angle opposite to the Base, the *Vertex*. See BASE, VERTEX, &c.

The Height of a *Figure* is the Distance of the Vertex from the Base. See HEIGHT.

An Equilateral *Figure* is that whose Sides are equal. See EQUILATERAL.

A *Figure Circumscribed*, and *Inscribed*, see CIRCUMSCRIBED, and INSCRIBED.

Similar FIGURES, see SIMILAR *Figure*.

All Similar *Figures*, both Regular, and Irregular, are in a duplicate Ratio of the homologous Sides.

A *Regular* FIGURE is that which is Equilateral, and Equiangular.

An *Irregular* FIGURE is that which is not both. See REGULAR.

FIGURE, in Conicks, is the Rectangle, made under the Latus rectum, and transversum in the Hyperbola, and Ellipsis.

FIGURE *of the Diameter*. The Rectangle under any Diameter, and its proper Parameter, is in the Ellipsis and Hyperbola called the *Figure of that Diameter*. See DIAMETER.

FIGURE, in Painting, and Designing, is the Lines and Colours, that form the Representation of a Man, or other Animal. See DESIGN.

Thus we say, There are above an hundred *Figures* in this Piece: Such a *Figure* is lame, &c.

But the Term *Figure* is in a more immediate and peculiar manner understood of human Personages: Thus, a Painting is said to be full of *Figures*, when there are abundance of Representations of Men: And a Landskip is without *Figures*, when there is nothing but Trees, Plants, Mountains, &c. See COLOUR.

FIGURE, in Architecture, and Sculpture, is used for Representations of Things, made in solid Matters; such as Statues, &c.

In this Sense we say, *Figures* of Brass, of Marble, of Stuck, of Plaster, &c. But in this Sense too, the Term is more usually applied to human Representations, than other Things. Thus we say, an Equestrian *Figure*, for a Man on Horseback. See STATUE.

Daviler, however, observes, that those, either represented sitting, as Popes, &c. or kneeling, as those on Monuments, &c. or laid all along, as Rivers, &c. are more properly called *Figures*, than Statues.

FIGURE, in Heraldry, a bearing in a Shield, representing, or resembling a human Face; as a Sun, a Wind, an Angel, &c.

Among the Masters of Defence, *Figures* are the divers Guards, Postures or Dispositions of the Body, Arm, or Sword.——

In Astronomy we say, the *Figure of an Eclipse*, meaning the Representation of the Path, or Orbit of the Sun and Moon, during the Time of the Eclipse, upon Paper; with the Number of Digits eclipsed, and the Beginning, Middle and End of Darkness. See ECLIPSE.

The *Figure*, or Delineation of the Full Moon, such as viewed thro' a Telescope, with two convex Glasses, is of considerable use in Observations of Eclipses, and Conjunctions of the Moon with other Luminaries. In this *Figure*, of the Moon, are represented the Maculæ, or Spots of the Moon, mark'd by Numbers; beginning with the Spots, which usually enter first, within the Shade at the Time of great Eclipses, and also emerge the first. See MOON, MACULÆ.

FIGURE, in Astrology, a Description, or Draught of the State and Disposition of the Heavens, at a certain Hour; containing the Places of the Planets and Stars, mark'd down in a *Figure* of twelve Triangles, called *Houses*.

This is also called a *Horoscope*, and *Theme*. See HOROSCOPE, &c.

In Geomancy, *Figure* is applied to the Extremes of Points, Lines or Numbers, thrown, or cast at random; on the Combinations or Variations whereof the Sages of this Art found their fantastical Divinations.

FIGURE, in Fortification, is the Plan of the fortified Place; or the interior Polygon. See POLYGON, &c.

When the Sides and Angles are equal, 'tis called a *Regular*; when unequal, an *Irregular Figure*. See REGULAR, &c.

FIGURE, in Dancing, the several Steps which the Dancers make in Order, and Cadence; which mark divers *Figures* on the Floor.

FIGURE,

Figure, in the Manufactures, is applied to the various Designs represented, or wrought on Velvets, Damasks, Taffaties, Sattens, and other Cloths and Stuffs.

The most usual *Figures* of such Designs are Flowers, imitated from the Life; or Grotesques and Compartiments of pure Fancy. Representations of Men, Beasts, Birds, Landskips, have only been introduced since the Taste for the *Chinese* Stuffs, particularly those called *Furees*, have begun to prevail among us.

'Tis the Woof of the Stuff that forms the *Figures*: The Warp only serves for the Ground. In working *figured* Stuff, there is required a Person to shew the Workman, how far he must raise the Threads of the Warp, to represent the *Figure* of the Design with the Woof, which is to be pass'd a-cross between the Threads thus raised. This some call reading the Design. See Design.

For the *Figures on Tapestry*, *Brocade*, &c. see Tapistry, *&c.*

For those given by the *Callenders*, *Printers*, &c. see Callender, *&c.*

Figures, in Arithmetick, are the numeral Characters; or the Characters whereby Numbers are express'd, or wrote. See Character.

Thus the Number four hundred and fifty, is wrote, or express'd by three *Figures* 450.

For the Antiquity, Use, *&c.* of the *Numeral Figures*, see Numeral *Character*.

The *Figures* in Arithmetick, are the nine Digits; 1, 2, 3, 4, 5, 6, 7, 8, 9, and 0.

Figure, in Logick, a certain Disposition of the Terms of a Syllogism; particularly of the Medium, with regard to the Extremes.

Chauvin defines it, a proper placing or connecting of the middle Term with the Extremes, so as to have the Effect of a Proof, or Conclusion. See Syllogism.

Hence it follows, that there are so many *Figures* of Syllogisms, as there are different Connections of the Extremes with the Medium: So that, tho' the School-men ordinarily only reckon three; yet a fourth might be admitted.

For the Medium may be either prefix'd to both Extremes; or subjoin'd to both: Or, it may be before the Major, and after the Minor; or before the Minor, and behind the Major.

If it be after the Major, and before the Minor, it is usually called the *First Figure*; this seeming the nearest way of arguing to the natural way.

If it be before the Major, and after the Minor, it is called the *Fourth* and *Last*; and by the Peripateticks, the *Indirect*, and by others, the *Galenical Figure*; as varying too far from the natural Form.

If it precede both, 'tis called the *Second Figure*.

And if it follow both, the *Third Figure*; as in the following Technical Distich:

Prima *infra*, *& supra*: *supraque bis*, Altera: *bisque*
Tertia *vult infra medium*: *supra*, Ultima, *& infra*.

A Syllogism, therefore, *of the First Figure* is that wherein the Medium is severally join'd with both Extremes of the Conclusion, so as to be predicated of the lesser; the Conclusion being sometimes Affirmative, and sometimes Negative. In that of the *Second Figure*, the Medium is predicated of both; and the Conclusion is always negative. In the *Third Figure*, the Conclusion, which in the former Cases is sometimes General, sometimes Special, is always Special.

The *Fourth*, called the Indirect *Figure*, some prefer before all the others; by reason 'tis in this alone, that the Medium or mean Term has its natural Situation, *viz.* in the Middle, between the Extremities; it being in the rest no more than a Medium by Office: But in the Fourth *Figure*, the Medium is in the middle Place.

E. gr. Take the two Terms, *Man*, and *Living* for Extremes, and Animal for the Medium. The Mind argues thus, There is a Connection between *Man* and *Animal*; and between *Animal*, and *Living*: Therefore the Order is, Man, Animal, Living; and by Animal, as a Medium, the two Extremes are conjoin'd, as the Extremes of a Line are connected by the Middle.

A C A B C
B

Figure, in Rhetorick, is an Ornament, or Turn of Speech or Discourse, finer and nobler than what is used in natural, or ordinary talking.

Figures, by the *Greeks* called *Schemata*, are the Enrichments of Discourse, which we only use when raised and moved with the Consideration of some thing extraordinary. See Sublime.

There are two kinds of *Figures*; the one of *Sentences*, and contained in the *Sense* it self, without any immediate Dependance on any particular Words; the other are only in the *Words* themselves.

Of the Figures *of Sentences* some are design'd to move; others to teach; and others only to delight: Of the first kind, the most considerable are; *Exclamation*, *Imprecation*, *Obsecration*, *Interrogation*, *Doubting*, *Preterition*, *Expolition*, and *Epiphonema*.

Those of the Second, are the *Antithesis*, *Correction*, *Communication*, and *Suspension*.

Those of the Third, the *Apostrophe*, *Hypotyposis*, *Prosopopœia*, *Ethopœia*, and *Prosographia*. See each under its proper Head, Exclamation, *&c.*

Of *Figures of* Words, some are *Tropes*, i. e. Translations of Words from their proper Signification, to some more remote and extraordinary one. See Trope.

The principal of these are, the *Metaphor*, *Allegory*, *Metonymy*, *Synecdoche*, *Irony*, and *Sarcasm*; *Metalepsis*, *Antonomasia*, and *Syllepsis*.

Others, are *Figures* of *Words*, properly so called, and not Tropes; being so inherent in the Words, that upon changing of those, the *Figure* is destroy'd; as in *Amantes sunt Amentes*, where the *Figure* would be lost, if instead of *Amentes* you should put *Stulti*.

Of these, the principal are, the *Repetition*, *Conversion*, *Complexion*, *Gradation*, *Synonymy*, *Polysyndeton*, and *Polyptoton*, *Reticency*, *Disjunction*, *Similitude*, *Paronomasy*, and *Transition*. See each *Figure* under its Article, as Metaphor, Allegory, Metonomy, Synecdoche, Irony, Sarcasm, *&c.*

Figure, in Grammar, is an Expression that devlates from the common and natural Rules of Grammar; either for the sake of Elegancy, or Brevity. The best Grammarians only reckon four *Figures*; the *Ellipsis*, *Pleonasm*, *Syllepsis*, and *Hyperbaton*: Others add two more, viz. *Antiptosis*, and *Enallage*. See each in its Place, Ellipsis, Pleonasm, *&c.*

Figure is also used among the Divines, for the Mysteries represented or delivered obscurely to us under certain Types or Actions in the Old Testament. See Type.

Thus Manna is held a *Figure*, or Type of the Eucharist: The Death of *Abel* a *Figure* of the Suffering of Christ.

Many Divines and Criticks contend that all the Actions, Histories, Ceremonies, *&c.* of the Old Testament are only *Figures*, Types, and Prophesies of what was to befal under the New. See Mystical.

The Jews are supposed to have had the *Figures* or Shadows, and we the Substance. See Prophesy.

Figure is also applied in the like Sense to prophane Matters; as the *Emblems*, *Enigma's*, *Fables*, *Symbols*, and *Hieroglyphicks* of the Antients. See Emblem, Enigma, Devise, *&c.*

FIGURED, in the Manufactures; A *figured* Camlot, Stuff, Tabby, *&c.* is that whereon there are divers Designs of Flowers, Figures, Branches, *&c.* impress'd by means of hot Irons. See Camlot.

Figured *Velvet*, see Velvet.

Figured *Ribbonds*, first came into Fashion about the Year 1680. The Method of Performance was by successively applying Steel Plates engraven with divers Ornaments, as Flowers, Birds, Grotesques, *&c.*

But one *Chandelier*, a Ribbonmaker of *Paris*, invented a much better and readier way of doing it; by a Machine not unlike the Flatter used in Coining to flatten the Pieces of Metal, only much simpler.

The principal Parts thereof, were two Steel Cylinders, engraven with the Figures intended to be represented. These Cylinders were plac'd over each other, like the Rolls of a Rolling Press; having each of them, at one of its Extremes, a little dented Wheel, one of which catching into the other, the whole was put in Motion, by means of a Winch, or Handle, fasten'd to the first. The Machine thus prepared: The Workman heats the Cylinders; and places the Ribbond in the little Space remaining between the two, which he contracts yet further by a Screw, that presses the upper down upon the lower; then, turning the Rolls by the Handle, a whole Piece of Ribbon is *figured* in less Time than a single Yard could be done in the ordinary way. See Ribbond.

FILAMENT, in Medicine, Anatomy, Nat. History, *&c.* a Term used in the same Sense with *Fibre*; for those fine Threads, whereof the Flesh, Nerves, Skins, Plants, Roots, *&c.* are composed. See Fibre.

FILANDERS, in Falconry, a Disease in Hawks, *&c.* consisting of Filaments, or Strings of Blood, coagulated and dried; occasioned by a violent Rupture of some Vein, by which the Blood extravasating, hardens into Points like Needles, to the great Annoyance of the Reins, Hips, *&c.*

Filanders are also a sort of fine, small Worms, that greatly incommode the Hawk in the Gorge and about the Heart, Liver and Lungs; and which, on some Occasions, are of Service, as they feed on the Superfluities of those Parts.

There

There are five kinds of these *Filanders*, or *Vermiculi*.

The first, in the Gorge, or Throat; the second, in the Belly; the third, in the Reins; the fourth, are called Needles, on account of their exceeding Fineness. The Symptoms that discover the Disease, are, the Bird's gaping frequently; straining the Fist or Perch with her Pounces; croaking in the Night; ruffling her Train; rubbing her Eyes, Wings, Nostrils, &c.

As the Worms are very restless, the Bird is frequently endeavouring to cast them up; and in opening his Mouth you will readily discover them. From the Throat, &c. they will ascend to the Larynx, Brain, &c. and over over the whole Body.

The ordinary Cause is bad Food. The Cure is, not by killing them, for fear of Imposthumes from their Corruption; but chiefly by stupifying them, that they may be offensive but seldom.

This is best effected by making the Bird swallow a Clove of Garlick, after which she'll feel nothing of the *Filanders* for forty Days. Others use Rue, Worm-powder, Aloes, Vervain, Saffron, &c.

The Word is form'd of the *French Filanders*, of Fil, Thread.

FILAZER (from the *French* Fil, a Thread, Line, or String) is an Officer in the Court of Common Pleas, so called, because he *files* the Writs, whereon he makes out Process. Of these there are fourteen, in the several Divisions and Counties.

They make out all *Writs*, and *Process* upon original Writs, issuing out of the Chancery, as well real, as personal and mix'd, returnable in that Court. See Writ, &c.

In Actions merely personal, where the Defendants are return'd summon'd, they make out *Pone's* or *Attachments*; which being return'd and executed, if the Defendant appears not, they make out a Distringas, and so *Ad infinitum*, or till he does appear. See Distringas, &c.

If he be return'd Nihil, then Process of Capias infinite, if the Plaintiff will; or after the third Capias, the Plaintiff may proceed to Outlawry, in the County where his Original is grounded, and have an Exigent with Proclamation.

The *Filazers* likewise make out all Writs of View in real Actions, where the View is prayed; and upon Replevins or Recordare's, Writs of Retorno habendo, second Deliverance, and Writ of Withernam. In real Actions, Writs of Grand and Petit Cape before Appearance.

They enter all Appearances, and special Bails, upon any Process made by them. They make the first Scire Facias upon Special Bails, Writs of Habeas Corpus, Distringas nuper Vice-Comitem vel Balivum, and Duces tecum; and all Supersedeas's upon Special Bail or Appearance, &c. Writs of Habeas Corpus cum Causa upon the Sheriffs return, that the Defendant is detained with other Actions, Writs of Adjournment of a Farm, in case of Pestilence, War, or publick Disturbance. Till an Order of Court made 14 *Jac.* which limited the *Filazers* to all Mattets and Proceedings before Appearance, and the Prothonotaries to all after, they also enter'd Declarations, Imparlances, Judgments, and Pleas, whereto a Serjeant's Hand was not requisite, and made out Writs of Execution, and divers other Judicial Writs after Apperance.

FILBERDS, the best sort of small *Nuts*, worth planting in Orchards, or Gardens. See Nut.

They are raised from Nuts set in the Earth, or Suckers from the Roots of an old Tree; or may be grafted on the common Hazle Nut.

They delight in a fine, mellow, light Ground, but will grow almost any where, especially if defended from violent and cold Winds.

The Tree is easily propagated, bears well, and is of two sorts, the *White*, and the *Red*; but the former is the best.

FILE, an Instrument of Steel, cut in little Hatches, or Furrows; used by the Workmen in Metals, to smooth, polish and fashion the same.——*Files* bear a near Resemblance to *Rasps*: The only Difference between them, is, that the former are cut with Edge Tools; and the latter punch'd with pointed ones. See Rasp.

The *File* is a principal Instrument in all the Kinds and Parts of Smithery.

It should be forged of the best Steel; after which rubbing it with Grease, to make it more soft under the Chissel, they *cut* it with Chissels and a Mallet, this and that way, and this or that Depth, according to the Grain or Tooth required. After *cutting* the *File*, it remains to be *temper'd*; which being the principal Mystery in the making of *Files*, will deserve to be particularly described.

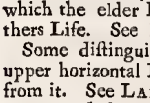
Files, then, are temper'd with a Composition of Chimney Soorh, very dry, and hard, diluted and work'd up with Urine and Vinegar; to which is added common Salt: The whole being to be reduced to the Consistence of Mustard.

Now, the *Files* being cut, and rubb'd over with Vinegar and Salt, to scour off the Grease laid on it for the cutting, they cover them over with this Composition; and having laid several of them together in a Packet, and cover'd them in Loam, they put them in a Charcoal Fire: Out of which they are taken out again, by that Time they have acquired a Cherry Colour, which is known by a little Rod of the same Steel, put in along with them. Upon taking them out, they cast them into the coldest Spring Water they can get.

Iron *Files* require a more intense Heat, than Steel ones. When the *Files* are cold, they clean them with Charcoal, a Rag, &c. to take away any of the Soot or Fæces left in the Cuttings: Then drying them before the Fire, they put them up carefully in a Box of Wheat Bran, to keep them from rusting.

Files are of different Forms, according to the different Occasions: Those in common use are the *Square*, *Flat*, *Triangular*, *Half-round*, *Round*, *Thin File*, &c. all which are made of different Sizes, as well as different Cuts, and Degrees of Fineness, to take place, according as the Work is more or less advanced: Some cutting faster, as the *rough tooth'd File*, &c. others more slowly, as the *fine tooth'd File*, &c. See Filing.

File, is also a Thread or Wire, whereon Writs, or other Exhibits in Courts, or Offices are fasten'd, properly called *Filed*, for the more safe keeping them.



File, or *Label*, in Heraldry, a bearing of this Form; tho' sometimes of more, and sometimes of fewer Points.

It is sometimes born as a Charge in a Coat of Armour, of which *Guillim* gives many Instances: But it is usually the Difference or Mark of Distinction, which the elder Brother bears in his Coat, during his Fathers Life. See Difference.

Some distinguish *File*, and *Label*, calling the *File* the upper horizontal Line, and the Label the Point, that issues from it. See Label.

File *of three or more Labels*, see Label.

File in a Military Sense, is a Row of Men standing one behind, or below another from Front to Rear.

Or File, in War, is a Line or Series of Soldiers, placed one before another; and thus composing the Depth of a Battallion, which in the Infantry ordinarily consists of six Soldiers in a *File*; and in the Cavalry, of three.

They say, *Close the Files*, that is, bring the Men nearer each other: *Double the Files*, *i. e.* Double the Depth of the Batallion; and diminish its Breadth, or Front by one half. The last or hindmost Person is said to bring up the *File*.

The Word is *French*, *File* literally signifying a long Series or Succession of any kind of Things, of *Fil*, Thread.

FILIAL, something belonging to the Relation of Son. See Son.

The Divines usually distinguish between a Servile, and a *Filial* Fear. The most abandon'd may have a servile Fear of God, such as that of a Slave to his Master; but not a *Filial* Fear, *i. e.* a Fear resulting from Love and Respect.

FILLIGRANE, or, as some call it, Filligram, or Filligrean, a kind of Enrichment on Gold, or Silver, wrought delicately in manner of little Threads, or Grains, or both, intetmix'd.

In *Latin* it is called *Filatim elaboratum opus*, *argentum*, *aurum*. This Cabinet is furnish'd with divers fine Pieces of *Filligrean* Work. Vases, Torches, &c. of *Filligrean* Work.

The Word is a Compound of Fil, or *Filum*, Thread, and *Granum*, Grain.

FILING, one of the principal Operations in Smithery, &c. succeeding to *Forging*. See File.

The coarser Cut Files are always to be succeeded by finer; and in all the Kinds the Rule is, to lean heavy on the File in thrusting it forward, because the Teeth of the File are made to cut forwards: But in drawing the File back again for a second Stroak, it is to be lightly lifted just above the Work, by reason it cuts not coming back.

The *rough*, or *coarse-tooth'd File* (which, when large, is called a *Rubber*) serves to take off the Unevennesses of the Work, left by the Hammer, in Forging. See Forging.

The *bastard-tooth'd File* is to take out the too deep Cuts, and File Strokes made by the *rough File*. The *fine-tooth'd* File takes out the Cuts, or File Strokes the Bastard File made. And the *smooth File* those left by the fine File.

In this Order the Files of several Cuts are to succeed each other, till the Work is as smooth as it can be filed. After which it may be made yet smoother with Emery, Tripoli, &c. See Polishing.

FILIUS *ante Patrem*, q. d. The Son before the Father, a Phrase applied by Botanists and Florists, to Plants, whose Flowers come out before their Leaves.

FILLET, in Anatomy, is the Extremity of the membranous Ligament under the Tongue, more usually called the *Frænum*, or Bridle. See Frænum.

Fillet, in Botany, is understood of those Threads usually found in the middle of Flowers; as in the Lilly, Tulip, Rose, &c. There

There are two Kinds: Thoſe which ſupport Apices, are particularly called *Stamina*; and thoſe which have none, ſimply *Fillets*. See STAMINA.

FILLET, *Tæniola*, in Heraldry, a kind of Orle, or Bordure, containing only a third or fourth Part of the Breadth of the common Bordure. See BORDURE.

It is ſuppoſed to be withdrawn, inwards; and is of a different Colour from the Field. It runs quite round, near the Edge, as a Lace over a Cloak.

FILLET is alſo uſed for an Ordinary drawn, like the Bar, from the ſiniſter Point of the Chief a-croſs the Shield; in manner of a Scarf: tho' it is ſometimes alſo ſeen in the Situation of a Band, Feſs, Croſs, &c.

According to *Guillim*, the *Fillet* is a fourth Part of the Chief; and placed in the chief Point of the Eſcutcheon. See CHIEF.

FILLET, or FILET, in Architecture, a little ſquare Member, or Ornament, uſed in divers Places, and on divers Occaſions; but generally as a ſort of Corona, over a greater Moulding.

The *Fillet* is the ſame with what the *French* call *Reglet*; the *Italians*, *Liſta*, or *Liſtella*; and others, *Band*, or *Bandelette*. See REGLET, LIST, &c.

The Word is *French*, *Fillet*, of Fil, Thread.

FILLET is alſo uſed among Painters, Gilders, &c. for a little Rule, or Reglet of Leaf Gold, drawn over certain Mouldings; or on the Edges of Frames, Pannels, &c. eſpecially when painted white; by way of Enrichment.

FILLETS, in the Manage, are the Loins of an Horſe; which begin at the Place, where the hinder part of the Saddle reſts.

FILM, a thin Skin, or Pellicle, dividing ſeveral Parts of the Fleſh.

In Plants, it is that thin woody Skin, which ſeparates the Seeds in the Pods, and keeps them apart.

FILTRATION, the Act of paſſing a thing thro' a *Filtre*; called alſo *Percolation*, and *Tranſcolation*. See PERCOLATION.

Filtration is a kind of Diſtillation; perform'd by ſtraining a Liquor thro' a Cloth, Bag, Linen, or brown Paper, in order to clarify or purify it. The moſt commodious way of *filtrating* is by brown Paper, faſten'd over the Mouth or Aperture of a Funnel. See FILTRE.

The Secretion of the divers Juices in the Body, from the Maſs of Blood, ſeem to be little elſe but *Filtration*. See SECRETION.

Pitcairn, and other late Authors, hold that the Differences of *Filtrations* don't depend on the different Configurations of Pores; but on their different Sizes or Diameters. And Springs ſeem to be rais'd from the Ocean by the ſame Principle. See SPRING, ASCENT *of Water*, CAPILLARY *Tubes*, &c.

There are alſo *Filtrations* thro' Sand, pulverized Glaſs, &c. Spirits of Vitriol, Salt, and Nitre, are *filtrated* thro' a Quantity of beaten Glaſs, in the Bottom of a Funnel.

Filtration is chiefly concern'd in Tinctures; as when ſome Portion is drawn from the Ingredients, or ſuſpended in the Tincture, which is not neceſſary thereunto; but diſturbs and renders the reſt unpleaſant, both to the Palate, and Sight.

The *Filtration* moſt in uſe, is the ſtraining a Liquor thro' Paper, which by the Smallneſs of the Pores admits only the finer Parts through, and keeps the reſt behind.

Beſide this, there is a *Filtration*, which hath much tortur'd the Philoſophy of ſome Ages to account for, *viz.* that perform'd by the Aſcent of the finer Parts of a Liquor, up a Cord, or Skain of Cotton, or ſuch like Matter, which is contrived to drop over another Veſſel, and leave the groſſer behind.

Some ſay, that the Cauſe of this Aſcent is, becauſe the Liquor ſwells thoſe Parts of the Filtre, that touch it by entering into the Pores of the Threads, which compoſe it, whereby they riſe up, touch, and wet thoſe next above them; and theſe again the next Threads; and ſo on, to the Brims of the Veſſel; when, the Liquor runs over, and deſcends in the other Part of the Filtre, which hangs down, by its own natural Gravity.

But this Account is liable to many Objections; eſpecially as Liquors riſe, after the like manner in Glaſs Tubes, much above the Surface of the Liquor they are immerſed in; where the Glaſs cannot be imagin'd thus to ſwell.

Others account for it, by conſidering every Filtre, as compoſed of a great Number of long, ſmall, ſolid Bodies, which lie very cloſe together; ſo that the Air getting in between them, loſes much of its Preſſure, and cannot gravitate ſo ſtrongly, as it doth on the Fluid without them: The Conſequence is, that the Parts of the Water between the Threads of the Filtre muſt be preſs'd upwards, and aſcend till they come ſo high, as by their Weight to counter-ballance the general Preſſure on the other Parts of the Surface of the Water.

Laſtly, the Retainers to Sir *I. Newton*'s Philoſophy deduce the Phænomenon from the Principle of Attraction. See ATTRACTION.

The Principle of this *Filtration* is doubtleſs the ſame with that whereby Fluids aſcend up Heaps or Lumps of Aſhes, Sand, &c. The ſame with that, whereby Water is raiſed in form of Vapour: The Sap riſes in Vegetables; and the Blood circulates through the capillary Arteries, and the extremely minute glandular Strainers. See ASCENT *of Liquors*.

FILTRE, FILTER, or PHILTER, in Chymiſtry, &c. A piece of Cloth, Linen, Paper, or other Matter, uſed to *filtrate* or ſtrain Liquors through. See FILTRATION.

The *Filtre* has the ſame Uſe and Effect, with regard to Liquids, that the Sieve or Searce has in dry Matters.

Filtres are of two ſorts: The firſt, ſimple pieces of Paper, or Cloth; through which the Liquor is paſs'd without further Ceremony.

The ſecond are twiſted up like a Skain or Wick, and firſt wet, then ſqueez'd, and one End put in the Veſſel that contains the Liquor to be filtrated. The other End is to be out, and hang down below the Surface of the Liquor. By means hereof, the pureſt Part of the Liquor diſtills Drop by Drop out of the Veſſel; leaving the coarſer Part behind.

This *Philtre* acts as a Syphon. See SYPHON.

FILTRE is alſo a Charm, ſuppoſed to have a Virtue of inſpiring Love. See CHARM.

The Word is derived from the *Greek* φιλτρον, which ſignifies the ſame Thing, of φιλέω, *amo*, I love.

FIMASHING, in Heraldry. See FUMETS.

FIMBRIA, the Extremities or Border of the Tubæ Fallopianæ were formerly thus called; the Word ſignifying a fringed Border, which that Part reſembles. See FALLOPIAN *Tube*.

FIMBRIATED, a Term in Heraldry, ſignifying that an Ordinary is edged round with another of a different Colour.

Thus, He beareth Or, a Croſs, Pateé Gules *fimbriated* Sable.

FIN, that Part of a Fiſh, made in Faſhion of a Feather. See FISH.

The Office of the *Fins* has commonly been ſuppoſed to be analogous to that of Feathers in Fowls; and to aſſiſt the Fiſh in its progreſſive Motion, or Swimming: But the later Naturaliſts find this a Miſtake.

'Tis the Tail is the great Inſtrument of Swimming: The *Fins* only ſerve to keep the Fiſh upright, and prevent Vacillation, or Wavering. See SWIMMING, TAIL, &c.

Whale FINS are commonly taken for that Part of the Whale, which the Populace call Whale-bone; but whence the Miſtake ſhould ariſe, is not eaſy to determine.

'Tis certain, that fibrous, flexible Matter is not the *Fins* of that Fiſh, but rather its Teeth; that Species of Whales wherein they are found having no other Teeth. They are taken out of the Throat, and are uſually about a Span broad, and 14 or 15 long. See WHALE *Bone*.

The Whale *Fins* are the moſt valuable Part of the Animal. See *Whale* FISHERY.

FINAL, that which terminates, or comes laſt in any Thing: *Final* Judgment; *Final* Sentence, &c.

Divines call the Impenitence of the Reprobate *Final*, as ſuppoſing it to continue to the End of their Life.

FINAL *Cauſe*, is the end for which any thing is done. The *final Cauſe* is the firſt thing in the Intention of a Perſon who does a thing; and the laſt, in the Execution. See *Final* CAUSE.

Final Cauſes are of good uſe in Ethicks; but miſchievous in Phyſicks, and by no means to be allowed; yet Mr. *Boyle* propoſes ſome Views and Regulations, under which they may be admitted, in an *Expreſs Inquiry into the* Final Cauſes *of Natural Things*.

FINAL *Letters* are thoſe which cloſe the Words. The Figure call'd Apocope, conſiſts in retrenching *final* Letters.

The *Hebrews* have five *final* Letters; which, when at the End of a Word, have a different Figure from what they have at the Beginning, or in the Middle thereof. Theſe are the ך, ם, ן, ף, ץ, Caph, Mem, Nun, Pe, Tſade; which every where but at the Ends of Words are wrote כ, מ, נ, פ, צ.

FINANCE, a Term uſed by the *French*, for the Revenues of the King, or State. Thus, The Council of the *Finances*, correſponds to our Commiſſioners of the Treaſury: The Comptroller General of the *Finances*, to our Lord High Treaſurer, &c. See REVENUE, TREASURY, &c.

The Word is derived from the *German Finantz*, Uſury. Tho' *du Cange* chuſes rather to deduce it from the barbarous *Latin Financia*, *præſtatio pecuniaria*.

FINANCES, in the *French* Cuſtoms, denote the publick Treaſury of the King and Government: Much the ſame with the Treaſury, or Exchequer of the *Engliſh*, and the Fiſcus of the *Romans*. See TREASURY, EXCHEQUER, &c.

The Word is ſometimes alſo uſed for the Stock or Caſh of a Banker, &c.

The *French* have a peculiar kind of Figures, or numeral Characters, which they call *Chiffre de Finance*. See CHARACTER.

FINE, that which is pure, and without Mixture. The Term is particularly used in speaking of Gold and Silver.

Fine Gold should be 24 Carats; but there is but little, if any, that rises to such a Degree of Fineness.

Gold thus fine, is soft, and difficult to work; for which reason they always mix a certain Quantity of Alloy with it. See GOLD, ALLOY, and CARACT.

Fine Silver is that of twelve-penny Weights. See SILVER; see also REFINING.

FINE, in Law, hath divers Uses or Significations.

The first and most noble is, a Covenant made before Justices, and enter'd of Record for Conveyance of Lands, Tenements, or any thing inheritable, being *in esse tempore Finis*, to cut off all Controversies. See COVENANT.

A *Fine*, then, appears to be a Concord, acknowledged and recorded before a competent Judge, touching some Hereditament or Thing immoveable, that was in Controversy between the Parties to the same Concord; and for the better Credit of the Transaction, it is supposed to be made in the Presence of the King, because levied in his Court.

Hence it binds Women Covert, being Parties, and others whom ordinarily the Law disables to transact, only for this Reason, That all Presumption of Deceit or evil Meaning is excluded, where the King and his Court of Justice are supposed to be privy to the Act.

Originally this Final Concord was instituted and allowed, in regard that by the Law and antient Course of Proceedings, no Plaintiff could agree or end the Cause without Licence of the Court: So as *Fines* have been antiently levied in personal Actions; and for no greater a Sum of Money than 11 *l.*

But Time has produced other Uses of *Fine*, *viz.* To cut off Entails; and with more Certainty to pass the Interest or Title of any Land or Tenement, though not controverted, to whom we think good either for Years, or in Fee: Insomuch as the passing a *Fine* in most Cases now is but *Fictio Juris*, supposing an Action or Controversy, where in Truth none is; and so not only operating a present Bar and Conclusion against the Parties to the *Fine*, and their Heirs; but at five Years End against all others, not expresly excepted, and not claiming (if it be levied upon good Consideration, and without Covin) as Woman Covert; Persons under twenty one Years; Prisoners, or such as are out of the Realm at the Time of its acknowledging.

This *Fine* hath in it five essential Parts: 1°. The original Writ taken out against the Cognizor. 2°. The King's Licence, giving the Parties Liberty to accord; for which he hath a *Fine*, called the King's Silver; being accounted part of the Crown Revenue. 3°. The Concord it self, which begins thus, *Et est Concordia talis*, &c. 4°. The Note of the *Fine* beginning thus, K. *inter* R. *querentem*, & S. & T. *uxorem ejus deforcientes*, &c. (where instead of *Deforcientes*, antiently *Impedientes* was used) 5°. The Foot of the *Fine* (*Hæc est finalis concordia facta in Curia Domini Regis apud Wist. a die Paschæ in quindecim dies Anno*, &c.) concludes all, containing the Day, Year, and Place, and before what Justice the Concord was made.

This *Fine* is either *Single*, or *Double*.

A *Single Fine* is that, by which nothing is granted or render'd back again by the Cognizees to the Cognizors, or any of them.

A *Double Fine* contains a grant and Render-back, either of some Rent, Common, or other thing out of the Land, or of the Land it self, to all or some of the Cognizors for some Estate, limiting thereby Remainders to Strangers, not named in the Writ of Covenant.

Sometimes a *Double Fine* is, when the Lands do lie in several Counties.

Again, a *Fine* is with regard to its Effect divided into a *Fine executed*, and a *Fine executory*.

A *Fine executed* is such, as, of its own Force, gives a present Possession (at least in Law) to a Cognizee, so that he needs no Writ of *Habere facias seisinam*, for Execution of the same, but may enter; of which sort is a *Fine*, *Sur Cognizance de droit come ceo que il ad de son done*, that is, Upon Acknowledgment that the Thing mentioned in the Concord, is *Jus ipsius cognizati, ut illa quæ idem habet de dono Cognitoris.* West. Sect. 51. K.

The Reason is, because this *Fine* passeth by way of Release of that Thing which the Cognizee hath already (at least by Supposition) by Virtue of a former Gift of the Cognizor; which is in truth the surest *Fine* of all.

Fines executory are such, as of their own Force do not execute the Possession in the Cognizees; as *Fines sur Cognizance de droit tantum*; Fines *sur done*, Grant, Release, Confirmation, or Render.

For if such *Fines* are not levied; or such Render made to those who are in Possession at the time of the *Fines* levied, the Cognizees must needs sue out Writs of *Habere facias seisinam*, according to their several Cases, for obtaining their Possession; except, at the levying such executory *Fines*, the Parties to whom the Estate is limited, be in Possession of the Lands passed thereby: For in this Case such *Fines* do enure by way of Extinguishment of Right, not altering the Estate or Possession of the Cognizee, but perhaps bettering it. *West. Symb. Sect.* 20.

As to the Form of these *Fines*, it is to be consider'd, upon what Writ or Action the Concord is to be made; which is commonly on a Writ of Covenant. In this Case there must first pass a pair of Indenture between the Cognizor, and Cognizee; whereby the Cognizor covenants with the Cognizee, to pass a *Fine* to him of such and such Things by a Day limited. As these Indentures are first in this Proceeding, so are they said to *lead the Fine*. See INDENTURE.

Upon this Covenant, the Writ of Covenant is brought by the Cognizee against the Cognizor, who thereupon yields to pass the *Fine* before the Judge; and so the Acknowledgment being recorded, the Cognizor and his Heirs are presently excluded, and all Strangers (not excepted) after five Years passed.

If the Writ whereon the *Fine* is grounded, be not a Writ of Covenant, but of *Warrantia Charta*, or a Writ of Right, or Mesn, or of Customs and Services (for of all these *Fines* may also be found) then this Form is observed: The Writ is served upon the Party that is to acknowledge the *Fine*; and then he appearing, doth accordingly. See *Dyer*.

Fines are now only levied in the Court of Common Pleas at *Westminster*, in regard of the Solemnity thereof, ordain'd by the Statute of 18 *Edw.* 1. Before which Time they were sometimes levied in the County-Courts, Court-Barons, and in the Exchequer; as may be seen in *Origines Juridiciales*, &c.

Plowden says, There were *Fines* levied before the Conquest: *Fulbeck* says, He has seen the Exemplification of one of *Henry* the First's time: *Dugdale* affirms, That there were none till *Henry* the Second. See IMPEDIENS.

FINE also signifies a Sum of Money, paid as an Income for Lands or Tenements let by Lease; antiently called *Gersuma*.

Sometimes it also denotes an Amends, pecuniary Punishment or Recompence, upon an Offence committed against the King and his Laws; or against a Lord of a Manor.

In which Case a Man is said, *Facere* Finem *de Transgressione cum Rege*, &c.

In all the Diversities of Uses of *Fine*, it hath but one Signification; and that is, a *Final Conclusion*, or End of Differences between Parties.

And in this last Sense, wherein it is used for the ending and Remission of an Offence, it is used by *Bracton*, who speaks of a Common *Fine*, that the County pays to the King for false Judgments or other Trespasses, which is to be assessed by the Justices in Eyre before their Departure, by the Oath of Knights, and other good Men, upon such as ought to pay it.

There is also a *Common Fine* in Leets.

FINES *for Alienation*, are reasonable *Fines* paid to the King by his Tenants in Chief, for Licence to alien their Lands according to the Statute, 1 *Edw.* 3. cap. 12. See ALIENATION.

FINE-DRAWING, or *Rentering*, a dexterous sowing up, or rejoining the Parts of any Cloth, Stuff, or the like; torn or rent in the dressing, wearing, &c. 'Tis prohibited to *fine-draw* Pieces of foreign Manufacture, upon those of our own; as has formerly been practised. See RENTERING.

FINERS *of Gold and Silver*, are those that purify, and part those Metals from other coarser, by Fire and Water.

They are also called *Parters* in our old Law-Books, and sometimes *Departers*.

FINESSE, a *French* Term, of late current in *English*. Literally, and as it is used among the *French*, it is of no further Import than our *English Fineness*.

But among us, 'tis chiefly used to denote that peculiar kind of Fineness, Delicacy, or Subtlety perceived in Works of the Mind; and the nicest and most secret and sublime Parts of any Science, or Art.

A Person of Taste can never be fond of a Pun, where all the *Finesse* lyes in an Equivoque, or an Ambiguity. This Man understands all the *Finesses* of his Art. The Substance and necessary Part of a Language is learnt at a little Expence: 'Tis the *Finesses* and Delicacies that cost the most.

FINGERS, *Digiti*, the extreme Part of the Hand, divided into five Members. See HAND.

The *Fingers* consist of fifteen Bones, disposed in three Rows, or Ranks; each *Finger* having three Bones.

The Joints or Jointures are called *Condyli*, and *Internodii*; and their Arrangement or Rows, *Phalanges*: The uppermost of which is the longest and largest; the second less, but yet longer and larger than the third. See PHALANX.

The first *Finger* is called the *Pollex*, or Thum: The second, *Index*, sometimes *salutaris* Digitus, and sometimes *numerans*: The third, the *Middle Finger*, *Infamis*, *Obscenus*, *Impudicus*, and *Famosus* because used in mocking and Derision: The fourth, *Annularis*, the Ring *Finger*, *medio proximus*, and *Medicus*; by reason the Antients used

to

to ſtir and mix their Medicines therewith: The fifth, the little *Finger*, *Auricularis*; by reaſon the Ear is pick'd therewith.

FINGERS *Breadth*, a Meaſure, of two Barley Corns in Length, and four laid Side to Side. See MEASURE.

FINING, ſee REFINING, CLARIFYING, &c.

FINISHING, in Architecture, &c. is frequently applied to a Crowning, Acroter, &c. rais'd over a piece of Building, to terminate, and *finiſh*, or compleat it. See CROWNING.

FINITE, ſomething bounded, or limited; in Contradiction to Infinite. See INFINITE.

The School-men make two kinds of *Finites*: The one as *to Extenſion*; which is applied to Things that have not all poſſible, or conceiveable Extenſion.

The other as *to Perfection*, applied to Things, which have not the laſt Perfection.

To get an Idea, *e. gr.* of a Thing *finite* in Point of Perfection, we firſt conceive the thing as having certain Perfections; and then conceive ſome other Perfection, which it has not, or ſome Perfection in a further Degree.

Thus, when I ſay that Three is a finite Number, I firſt conceive a Number, conſiſting of three Unites; then conceive other Unites beyond theſe three. Thus it is I conceive my Mind *finite*, by obſerving certain Perfections beyond what I find in my Mind.

After the ſame manner I conceive this Study to be *finite*, by having an Idea of Extenſion beyond what is contained therein. See EXTENSION.

FINITOR, in Aſtronomy, the *Horizon*; thus called, by reaſon it *finiſhes* or bounds the Sight or Proſpect. See HORIZON.

FIOL, ſee PHIOL.

FIRE, in Phyſiology. The moſt univerſal and ſenſible Character of *Fire*; and that which beſt defines and diſtinguiſhes it from every other thing, is its *Heating*.

Fire, therefore, may be defined to be whatever warms, or heats Bodies. See HEAT.

Again, as Heat is ſomething, whoſe Preſence we beſt perceive by the Dilatation of the Air or Spirit in the Thermometer: *Fire* may be defined to be that whoſe Preſence we perceive by the Expanſion of the Air, or Spirit in the Thermometer. See RAREFACTION.

Whence it follows, that *Fire* is a Body, and a Body in Motion.

Its *Motion* is argued from its expanding the Air; which is not effected without communicating Motion thereto: And its *Corporeity* is proved by Experiment.

For pure Mercury being incloſed in a Phial with a long Neck, and kept in a gentle Heat for the ſpace of a Year, is reduced into a Solid; and its Weight conſiderably increaſed; which Increaſe can ariſe from nothing but the Acceſſion of *Fire*. See MERCURY.

'Tis a Diſpute of ſome Standing among Philoſophers, Whether *Fire* be any ſpecifick Subſtance, originally diſtinct from all other; or whether it be the Matter of other Bodies, only under certain peculiar Modifications, *i. e.* Whether *Fire* be ſuch by its own Nature, or by Motion.

Fire, makes one of the vulgar, or Peripatetick Elements, defined to be hot, and dry; or, it is that Part, or Ingredient in all Bodies, which is hot in the higheſt Degree, and dry in an inferior one. See ELEMENT.

What the School-Philoſophers add further, as to the Nature of *Fire*, is, that it is a *Simple* Body; as not including any Contrariety of Qualities; and a Body abſolutely *light*, as tending naturally upwards: For which reaſon they hold its natural Place above all the other Elements, between the Extremity of our Atmoſphere, and the Moon; and the Source of *Fire* ſuppoſed to reſide in that Sphere, they call *Elementary Fire*. See ELEMENTARY.

Fire, according to the *Carteſians*, is an Aſſemblage of the more ſolid, earthy Particles; which ſwimming in the rapidly fluid Matter of the firſt Element, become vehemently agitated thereby; and by this intenſe Agitation or Motion are diſpoſed to give the Senſation of Heat, Light, &c. See CARTESIANISM.

Fire, according to Sir *I. Newton*, is a Body heated ſo hot, as to emit light copiouſly.

For what elſe, ſays that Philoſopher, is red-hot Iron, but *Fire*? And what elſe is a *fiery* Coal, than red hot Wood? By which he ſuggeſts, that Bodies which are not *Fire*, may be changed and converted into *Fire*. See FLAME.

Fire, according to ſome of the lateſt Philoſophers, is a certain Subſtance, or Body *ſui generis*, originally ſuch; and not producible by any Motion or Alteration of other Bodies.

Theſe Authors lay it down as a very ſubtile, moveable, penetrating Body; and the Cauſe or Inſtrument of Heat and Light. Some of them add, that when *Fire* enters the Eye in right Lines, it produces or excites the Idea of *Light*; which rectilinear Motion they account abſolutely neceſſary to the Idea of Light. See LIGHT.

Whereas, to produce Heat, and the other Effects of *Fire*, ſuch Motion is not required; but on the Contrary, an irregular, various Motion is fitter to produce the ſame. See HEAT.

The Nature of *Fire* is ſo wonderful, and abſtruſe, that the Antients generally revered it as a God: Among the Moderns, we can ſcarce name one one Point in all Philoſophy of more Importance, or leſs underſtood.

Fire, in Effect, is the univerſal Inſtrument of all the Motion, and Action in the Univerſe: Without *Fire*, all Bodies would become immoveable; as in a ſevere Winter we actually ſee our Fluids become ſolid, for want thereof. Without *Fire*, a Man would harden into a Statue; and the very Air cohere into a firm, rigid Maſs.

Fire, then, is the univerſal Cauſe of all Mutation, or Change; for all Mutation is by Motion; and all Motion by *Fire*.

Several Authors have labour'd to ſet this grand Agent in its juſt Light; and particularly the excellent *Boerhave*, in a new Courſe of Experiments, and Lectures expreſly on the Subject, *De Igne*. That Author has indeed done Wonders: The Sum of his Doctrine we ſhall here ſubjoin.

Fire, then, is diſtinguiſh'd into two Kinds; as it is in itſelf, called *Elementary*; or as it is join'd with other Bodies, called *Culinary Fire*.

Pure, or *Elemental* FIRE, is ſuch as it exiſts in itſelf; which alone we properly call *Fire*.

Common, or *Culinary* FIRE is that exiſting in ignited Bodies; or excited, by the former, in combuſtible Matters, the minute Particles whereof joining with thoſe of the pure *Fire*, conſtitute pure Flame.

This latter is improperly called *Fire*; in regrad only a ſmall Part of it is real, or pure *Fire*.

Pure *Fire*, ſuch as collected in a Burning Glaſs, yields no Flame, Smoak, Aſhes, or the like: Conſequently, in *ignited* Bodies, that which flames, ſmoaks, &c. is not ſimply *Fire*.

The Effects, Nature, Properties, &c. of each ſhall be conſider'd.

I. *Pure*, or *Elemental Fire* of it ſelf, is imperceptible; and only diſcovers it ſelf by certain Effects, which it produces in Bodies; which Effects are only learnt, by obſerving the Changes that ariſe in thoſe Bodies.

The Firſt *Effect of Elemental Fire* on Bodies, is *Heat*; which ariſes wholly from *Fire*; and in ſuch manner as that the Meaſure of Heat is always the Meaſure of *Fire*; and that of *Fire*, of Heat. So the Heat is inſeparable from *Fire*. See HEAT.

The Second is, *Dilatation* in all ſolid Bodies; and *Rarefaction* in all Fluids.

That both theſe are inſeparable from Heat, is evident from numerous Experiments. An iron Rod, or Bar being heated, increaſes in all its Dimenſions; and the more ſo, as it is further and further heated: Upon expoſing it to the Cold again, it contracts and returns ſucceſſively through all the Degrees of its Dilatation, till it arrive at its firſt Bulk; being never two Minutes ſucceſſively of the ſame Magnitude.

The like is obſerved in the heavieſt of all Bodies, Gold; which, when fuſed, takes up more Space than before: So Mercury, the heavieſt of all Fluids, we have known to aſcend in a narrow Tube over the *Fire*, to above 30 times its Height. See RAREFACTION, and DILATATION.

The Laws of this Expanſion, are 1°. That the ſame Degree of *Fire* rarefies Fluids ſooner, and in a greater Degree than it does Solids. Without this, the Thermometer would be of no uſe; ſince the Cavity of the Tube would then be dilated in the ſame Proportion, as the Fluid is rarified. 2°. The lighter the Liquid, the more it is dilated by *Fire*. Thus Air, the lighteſt of all Fluids, expands the moſt; and after Air, Spirit of Wine. See THERMOMETER.

The Third *Effect of Fire* on Bodies, is *Motion*: For *Fire*, in warming and dilating Bodies, muſt of Neceſſity move their Parts.

In Effect, all the Motion in Nature ariſes from *Fire* alone; and taking this away, all Things become immoveable: Upon the Abſence of only a certain Degree of *Fire*, all Oils, Fats, Waters, Wines, Ales, Spirits of Wine, Vegetables, Animals, &c. become hard, rigid, and inert: And the leſs the Degree of *Fire*, the ſooner, and more violently is this Induration made.

Hence, if there were the greateſt Degree of Cold, and all *Fire* were abſolutely taken away, all Nature would grow into one concrete Body, ſolid as Gold, and hard as Diamond. But upon the Application of *Fire*, it would recover its former Mobility.

Conſequently, every Diminution of *Fire* is attended with a proportionable Diminution of Motion: And *vice verſa*. See COLD.

This *Fire*, whoſe Effects we have been relating, needs no Air, or Pabulum to ſuſtain or preſerve it.

For

For, putting some Calx of Tin or Lead, in the exhausted Receiver of an Air Pump; and apply a Burning Glass, so as the Focus shall fall on the Calx; the Consequence will be a vehement Dilatation of the Calx, from the Centre towards the Circumference, whereby the Receiver will be broke into a thousand Pieces. And if a Quantity of any essential aromatick Oil be pour'd in Vacuo, upon Spirit of Nitre, there will immediately arise a huge *Fire*, to the great Danger of the By-standers.

All the above-mentioned Effects of Elemental *Fire* may be increas'd divers ways, *viz.*

1°. By *Attrition*, or a swift Agitation, or rubbing of one Body against another. This is apparent in Solids: A vehement Attrition of a Flint, and Steel, every body knows, will produce Sparks. So in Fluids, Cream, by long churning to separate the Butter, will grow sensibly warm; and a Barometer renders the Effect still more discernable. See ATTRITION.

In effect, all the Heat of an Animal is owing to the Agitation and Attrition of the Parts of its Juices against each other, and the Sides of the Vessel. See CALIDUM *Innatum*.

The more solid, hard, and elastick the Bodies thus agitated are; the more Points of Contact they have; the more intense the Force whereby they are struck against each other, is; the greater their Motion; the quicker the Returns of the Strokes; and the longer continued; the greater is the Heat produced.

Thus, a piece of Spunge rubb'd lightly, and for a little while against another, acquires no sensible Heat: But a large, heavy piece of Iron briskly rubb'd against another in a cold Season (when Bodies are the densest) will presently acquire an intense Heat, sufficient to *fire* Sulphur, Gunpowder, or the like.

So a Knife whetted briskly on a dry rough Stone, shall yield Sparks of *Fire*; but if Oil, or any other fatty Matter be interposed, no sensible Heat shall arise: And the Points of two Needles rubb'd against each other ever so strongly, or so long, will never grow warm; as only touching in a few Points.

Hence 1°, The Globules of the Cruor, or red Blood drove by the Force of the Heart against each other, or against the Sides of the Arteries, excite more Heat than the Globules of the Serum, or any other Humor in the Animal. Hence 2°. Those Parts abounding most in these Globules thus agitated, as the Heart, Liver, and Head, will be the hottest of all others: And the denser the Blood, *cæteris paribus*, the greater the Heat, *&c.* 3°, The quicker the Contractions of the Heart are repeated, the greater will the Heat be.

The Second *Manner of increasing the Effect of Elemental Fire*, is by throwing a Quantity of moist or green Vegetables, cut down while full of Sap, into a large Heap, and pressing them close down: The Result of which, is, that they grow warm, hot, smoak, and break out into Flame.

The Third way is, by the Mixture of certain cold Bodies. Thus, Water and Spirit of Wine, first warm'd, grow much hotter by the Mixture: So, any of the heavy aromatick Oils, as of Cloves, Cinnamon, Sassafras, Guiacum, *&c.* mix'd with Spirit of Nitre, grow exceedingly hot, and burst forth like Vulcano's. And the same may be said of Spirit of Nitre, and Steel Filings.

The like Effect may be had from dry Bodies. Thus, pure Sulphur, and Steel Filings, well ground and mix'd in equal Quantities, with Water enough to make them into a dry Paste, and laid an Hour or two any where, even under Ground, will smoak and emit Flame; and that with the greater Vehemence, as it is more strongly press'd down. See EARTHQUAKE.

The Fourth is by *Phosphorus*, which is a kind of Magnet, prepar'd from the Parts of Animals, that imbibes and retains *Fire* for many Ages. See PHOSPHORUS.

But, in all these manners, it does not appear, that any *Fire* is excited, or generated of what was not *Fire* before: For, if in a severe Winter's Day you rub a Plate of Gold briskly against another, they will both grow hotter and hotter by Degrees, till at length they become red hot, and at the point of melting: And yet all this time the Plates lose nothing of their Weight; but swell or grow bigger in all their Dimensions.

Hence it follows, that the Particles of the Gold are not converted by the Friction, into *Fire*; but the *Fire* existed before; and all the Effect of the Friction, *&c.* is to collect, or bring together a Quantity thereof before dispersed throughout the Atmosphere.

In Effect, there is no making or producing of *Fire de novo*. All we can do, is, of insensible, to render it sensible, *i. e.* to collect it out of a greater Space into a lesser; and to direct and determine it to certain Places. This is effected, as above mention'd, by Motion, Attrition, *&c.*

The Sun also contributes very much to the bringing of *Fire* to light, by means of his rapid Motion round his Axis; whereby the fiery Particles, every where diffused, are directed and determined in parallel Lines towards certain Places, where their Effect becomes apparent. See SUN.

Whence it is that we perceive the *Fire* when the Sun is above the Horizon; but that, when he disappears, his Impulse or Pression being then taken away, the *Fire* continues dispersed at large thro' the ethereal Space.

In effect, there is not less *Fire* in our Hemisphere in the Night time, than by day; only it wants the proper Determination to make it perceived.

Another way of rendering it sensible, is, by collecting the parallel Rays into a less Compass, by means of Convex Glasses, or Concave Specula. See LENS, BURNING GLASS, *&c.*

This Elemental *Fire* is present every where, in all Bodies, all Space, and at all Times; and that in equal Quantities: For, go where you will, to the Top of the highest Mountain, or descend into the lowest Cavern; whether the Sun shine, or not; in the coldest Winter, or the most scorching Summer; by one or other, or all of the means above mentioned may *Fire* be collected. In a Word, there is no assignable physical Point without *Fire*; no Place in Nature, where the Attrition of two Sticks will not render it sensible.

So long as *Fire* remains equably, and undetermin'd in any Place, it does not discover it self by any Effect. In the severest Weather we perceive no Influence or Effect of *Fire*, when, at the same time being collected and determined by Attrition, it becomes manifest.

By changing *Fire* out of its indeterminate State, and impelling it in converging Lines, its Moment is increased. Witness the Phænomena of Burning Glasses.

But, how Attrition, crude Vegetables, *&c.* contribute towards altering the Direction, *&c.* of *Fire*, does not appear.

Of this *Fire*, and the Effects thereof above mentioned, depends all Fluidity of Humours, Juices, *&c.* All Vegetation, Putrifaction, Fermentation, animal Heat, *&c.* See FLUIDITY, VEGETATION, PUTRIFACTION, *&c.*

II. But in what manner soever, *Fire* is collected in Bodies; upon a Cessation of the collecting Cause, it soon disappears again, unless it be supplied with a *Pabulum*, or Fuel. In which case it becomes Culinary *Fire*.——

By *Pabulum*, or *Fuel* of *Fire*, we mean whatever receives, and retains *Fire*; and is consumed, or at least render'd insensible thereby. See FUEL.

The only *Pabulum* of *Fire*, in all Nature, is the Oil, Sulphur, or Fat of Bodies: And Bodies are only Fuel, on account of the Oil they contain.

Hence 1°, All Vegetables, not too moist, nor too dry, afford such a Pabulum; particularly those, which contain the greatest Quantity of Oil; as Balsamick and Resinous Woods, *&c.* 2°, All vegetable and animal Coals are a proper Pabulum for maintaining of *Fire*; as being only the Parts of Vegetables and Animals, which have exhaled their Water and Salt, and retain'd the Oil alone inhering, in a black Form, in their Earth. 3°, All fossil and bituminous Earths, Turfs, *&c.* 5°, All Mineral Sulphur, whether pure or join'd with Earth, Stone, or Metals; as Pit-Coal, *&c.* 6°, The Fat and Dung of Animals; and 7°, Several Productions of Chymistry; as Oils, inflammable Spirits, *&c.*

This *Fire*, which burns combustible Bodies, requires Air, to sustain it; which taken away, the *Fire* is immediately dissipated: As appears from the Experiments in Vacuo.

And yet, *Fire* does not immediately bear, or endure the Air; but always repels it: And by that means forms a kind of Vault, or aerial Furnace all round; which by its Weight, and the Pressure of the incumbent Air acts on all the Particles, or Corpuscles that would make their Way through it; and thus retains the *Fire*, and applies it to the combustible Matter.

Hence, the heavier the Air, the more vehement the *Fire*: And accordingly, in still cold Weather we observe the *Fire* to act with more Violence than in warm Weather.

But whether the Air retains *Fire* by its Weight alone (which Water it self would do), may be questioned: And whether its Elasticity does not contribute something thereto; as also, whether there be not some further unknown Property in the Air, that has a Share, may be doubted. Something of this kind one would suspect from hence, that all Air is not proper to maintain Flame. See AIR.

This *Fire*, in burning a combustible Matter, affords a *shining Fire*, or a Flame, or both, according to the Diversity of Fuel; and frequently, Smoak, Soot and Ashes.

Shining, or *luminous Fire*, seems to be elemental *Fire*, attracted towards the Parts of the Sulphur, or Oil, with such Force and Velocity, as to move, and shake them very violently, whirl them about, divide, and attenuate them, and thus render them volatile, and ready to be expelled: While, in the mean time, the Air, making its Vault all around, restrains and keeps them in, directs them to the Sulphur, and keeps them still collected in their Place or Pabulum, while the combustible Matter is diffused all around.

Flame

Flame seems to be nothing but a thick Sulphur agitated, as before, by Elemental *Fire*; so as the *Fire* is driven with a great Motion around the revolving Particles of the Sulphur. See FLAME.

Soot, seems to be produced, when *Fire* and Sulphur cannot break into a Flame; being a sort of Coal, consisting of a thick Sulphur, and an attenuated Oil with Earth and Salt. See SOOT.

Smoak seems to be the combustible Matter, when it begins to be relinquish'd by the Elemental *Fire*: For, if this Smoak be afterwards pass'd thro' a Flame, it will it self become Flame, as before. See SMOAK.

Lastly, *Ashes* are the Earth, and Salt; which the *Fire* leaves untouch'd. See ASHES.

FIRE may be distinguish'd into *Shining*, and *not Shining*: For, that there is *Fire* which does not emit Light, is evident hence, that a piece of Iron taken out of the *Fire*, before it be red hot, shall yet give *Fire* to Sulphur.

Shining Fire again may be subdivided into two Kinds: That which *warms*, as red hot Iron; and that which does *not warm*, as that observed in putrid Fishes, rotten Wood, &c. The Oil whereof beginning to be agitated, and attenuated, produces Light, without any Heat, so far as the Thermometer may be a Judge.

Of *Shining*, and at the same time *Warming Fires*, the principal is that of the *Sun*, as it is called; tho', whether the *Fire* be really emitted from the Body of the Sun; or whether it be only the common, vague, universal *Fire*, determin'd by the Sun, is not easy to say. This *Fire* we more usually consider under the Denomination of *Light*. See SUN, and LIGHT.

This *Solar Fire*, in calcining certain Bodies, makes some Addition to the Weight thereof.

Thus, Antimony exposed in the Focus of a Burning Glass, will smoak a considerable Time; and the greatest Part of it seem to evaporate in Fumes: But, if tried by the Balance, it will be found to have gain'd in Weight. And if it be again applied in the Focus of a larger Glass, it will again emit Fumes; and yet still be increased in Weight.

Beside the *Solar*, there is likewise a *Subterraneous Fire*. This appears in digging under Ground: For the first Glebe, next to the Surface, is warm'd by the Heat of the Sun; and as you go deeper, you will find it colder; whence, in hot Countries they have Conservatories of Ice at some Depth under Ground: Till, arriving at a certain Depth, *viz.* forty or fifty Foot, it begins to grow warmer; so as no Ice can there subsist: And at a yet greater Depth, 'tis so hot, as to take away Respiration, extinguish Candles, &c. And if the Miner will venture further, and carry a Candle along with him, he frequently sets the whole Place in a Flame, the sulphurous Fumes render'd volatile by the subterraneous *Fire*, catching Flame from the Candle.

Whence it appears, that there is another Source of *Fire*, or another Sun, in the Bosom of the Earth, which gives Motion and Life to every thing growing in, or upon the Globe; and even, that the Centre of the Earth is mere *Fire*: which *Fire* is likewise argued to be perpetual from Vulcano's or burning Mountains, which have been known to cast up *Fire*, from the earliest Account of Times. See VULCANO.

There are two great *Fires* therefore, the Higher, or Solar; and the lower, or subterraneous; in every other respect perfectly alike. See SUBTERRANEAN, CENTRAL, SOLAR, &c.

FIRE, in Chymistry, is the great Instrument, by which most of the Operations of that Art are perform'd. See CHYMISTRY.

The Kind, Degree, Direction, &c. of *Fire* are Things the Chymist is principally to attend to. The Diversity of *Fire* makes a great Difference in the Result of the Experiment; so as, the same Effect, *e. gr.* shall not arise, if an Experiment be made with the *Fire* of Spirit of Wine, and that of Pitcoal.

And to this Cause, Mr. *Boyle*, in his Treatise of the unexpected Failure of Experiments, attributes it, that a great many Experiments successfully tried by some, have not succeeded to others.

The *Fires* chiefly required by the Chymists, are such as yield no Fæces, or Remains; no Salt, or Smoak: And such alone are those of the Sun, and of Spirit of Wine. Those which come next in Purity, are Oils distilled per Vesicam; which lose their Earth and Salt, by their Boyling and Agitation in the Water; so that the oftener the Distillation is repeated, the purer they are render'd: After these come Turf.

Indeed, the very Manner wherein the *Fire* is blown, is found to have some Effect: Thus, *Acosta, lib.* 4. *c.* 5. relates, that in *Peru*, when they would melt and separate their Silver from the Earth, &c. if the *Fire* be blown up with Bellows, the Fusion will not succeed: Nor will any other *Fire* do but that blown by the Wind raised from the Fall of some Water; so that they are forc'd to have Recourse to large Tubes laid to the Feet of large Mountains, or Cataracts to convey the Wind generated by the Fall of Water to their Works.

The *Degree of Fire*; or the Collection and Direction of *Fire*, to the Degree proper for each Operation, is almost the Whole of Chymistry: For the *Fire*, *e. gr.* requisite to melt Metals, is by no means proper for the Distilling of Spirit of Wine.

Now, the greater or less Force of *Fire* depends altogether on a greater or less Quantity thereof collected into a Focus: For, as to its Motion, it does not seem in our Power to alter it; or to make any Increase or Diminution of the Force of the *Fire* on that account.

The Chymists use four principal *Degrees of Fire* in their Operations.

The First is equal to the natural Heat of the human Body; or rather that of a Hen, hatching her Eggs; which is the Standard: And accordingly this first Degree is best measured by applying a Thermometer to a Hen; and some Chymists, by keeping a *Fire* continually to this Degree, by means of a Thermometer, have hatch'd Chickens.

By this Degree all their Digestions, easy Separations and Solutions, gentle Distillations, with all Fermentations and Putrifactions are perform'd. See DIGESTION, DISTILLATION, &c.

The Second *Degree of Fire* is that which gives a Man Pain, but does not destroy, or consume the Parts: Like the Heat of a scorching Summers Sun, which chafes and inflames the Skin; and even sometimes raises Blisters.

It is used in making Separations of the more ponderous Bodies, which the first Degree is not equal to; as also in some Fixations, particularly that of Mercury, which is render'd fix'd by a gradual Introduction of such *Fire* among the Parts of the Mercury.

It makes the Serum of the Blood, and White of an Egg coalesce, and so occasions deadly Inflammations; and is too intense for any Digestion, Putrifaction, or Fermentation to be effected by it.

The Third *Degree of Fire* is that of boiling Water, which separates and destroys the Parts of Bodies. This Degree is perfectly stable; for Water, when once it boils, is at its utmost Degree of Heat, and cannot be rais'd a whit further, by any Augmentation of *Fire*, or Fuel; as was first observ'd by Mons. *Amontons*.

This Degree serves to attenuate, separate, fix, and perform other Operations, where the two former would not be effectual.

The Fourth *Degree* is that which melts Metals, and destroys every thing else.

This Degree is too vehement to be estimated by the Thermometer; that Instrument not being able to endure it; so that it is only determinable by its Effect in the Fusion of Metals: As the Heat of boiling Water cannot be increased, so neither can that of melted Metals.

This Degree is used in abundance of Operations, and particularly about Minerals, where the three preceding Degrees are insufficient. This is the last Degree known to the antient Chymists.

The latest Chymists reckon a Fifth *Degree of Fire*. viz. that where by Gold is made to emit Fumes, and evaporate.

This was first discover'd in the Year 1690, by Mr. *Tschirnhausen*, whose Burning Glass render'd every thing, even Gold it self volatile. See VOLATILITY, BURNING GLASS, GOLD, &c.

Beside these five Degrees, the Chymists have several intermediate ones; all which however may be easily reduc'd to the former.

As, *the digesting Fire*, or *Venter Equi*, which is the Heat of a Dunghil.

The *Balneum Mariæ*, *Arenosum*, &c. explain'd under the Article BALNEUM.

The *Naked*, or *Immediate Fire*, which is the common *Fire* applied under a Vessel.

The *Fire of a Lamp*, which is moderate and equal, and may be increased by the Addition of more Wick; used by Enamellers, &c.

The *Wheel Fire*, which is lighted all round a Crucible, or other Vessel, to heat it all alike.

That called *by Suppression*, which is when the Vessel is not only encompass'd round, but cover'd over with *Fire*.

The *Reverberatory Fire*, when it is in a Furnace close a-top, by which the *Fire* is reflected back, and all around upon the Vessel. See REVERBERATORY.

The *Melting*, or *Fusing Fire*, for the Solution and Calcination of Metals and Minerals. See FUSION.

The *Glass-house Fire*, for the Vitrifying of the Ashes of Vegetables. See GLASS.

And the *Olympick Fire*, which is that of the Sun collected in the Focus of a burning Mirror, &c.

To the several Degrees of *Fire* required, several Forms of Furnaces are accomodated; which see under the Article FURNACE.

There are five principal ways of *altering the Degrees of Fire*.

For *Fire* differs 1°, According to the *Weight of the Pabulum*, or Fuel; it being a Rule, that the heavier the Fuel or combustible Matter is, the more vehement, *cæteris paribus*, is the *Fire*. Thus, Spirit of Wine affords a weaker and less destructive *Fire* than Oil; and this, than Pitch, and so on; the heavier and grosser, still the fiercer.

2°, According to the *Quantity of the Pabulum*.

3°, According to the *Distance of the Fire* from the Object; it being a Rule, that the Heat of the *Fire* at different Distances is reciprocally, as the Squares of those Distances.

4°, By the introducing or blowing of Air into the *Fire*; it being a Rule, that the stronger the Current of Air, or Wind, provided it be not so strong as to break the aerial Fornix or Vault incumbent on the *Fire*, the more is the *Fire* increas'd.

For a brisk Blowing puts the minute Parts of the Pabulum into a greater Motion, whence a greater Attrition arises, and of consequence, more *Fire* is collected.

5°, According to the *Solidity*, or *Resistance* of the Medium between the *Fire* and the Object: For the more solid the Medium, the greater Quantity of Heat, *cæteris paribus*, does it receive from the *Fire*, and communicate to the Object.

Thus, a Vapour Bath communicates much less Heat to the Bodies distilled by it, than a Water Bath; and this, less than a Sand Bath; and this again less than a Bath of Steel Filings; for all Bodies exposed to the *Fire*, grow hot in Proportion to their specifick Gravities.

Thus, if a piece of Metal be put in Water, and both set over the *Fire*; while the Water only grows lukewarm, the Metal shall be so hot, as to be past touching: And thus, a Key in a Person's Pocket sitting near the *Fire*, shall frequently be very hot, while his Cloaths themselves have not any sensible Warmth.——Indeed, this Rule admits of some Exceptions; for we have Oils, lighter than Water, which yet admit of triple its Degree of Heat, before they boil.

'Tis a great Controverly in Chymistry, whether *Fire*, when applied to Bodies, only separates and dissolves them; or whether it does not also change them.

Mr. *Boyle*, in his *Sceptical Chymist*, we think, has abundantly proved, that *Fire* alters Bodies; and that the Parts or Elements procured from Bodies by *Fire*, did not exist such in the Bodies themselves. See ELEMENTS.

Add, that *Fire* does not only separate and decompound; but it also compounds and mixes Bodies. This no body can doubt of, who knows that *Fire* in acting on many Bodies, insinuates and fixes it self among them, and so constitutes one Body together with them.

This is the Case in dissolving of Lead by *Fire*; as is evident from the Increase of the Weight of the Lead: The like is observable in Salt of Tartar, which when first melted, loses somewhat of its Weight; but as it is calcined further and further, grows still heavier and heavier. In like manner, Antimony calcined by a Burning Glass, receives a notable Accession of Weight.

To say no more, Phosphorus must derive its shining Matter from the fiery Particles it imbibes in the Distillation: For no body will imagine that any of that shining Matter before existed in the human Body. See PHOSPHORUS.

FIRE, in Medicine and Chirurgery, is used in the same Sense with Cautery; and is distinguish'd into *Actual*, and *Potential*.

Actual Fire is a hot Iron. There are several Diseases, only to be cured by the Application of *Actual Fire*; which Method of Cure is practiced with great Success in the *East Indies*. See BURNING.

Potential Fire is that contain'd in Caustick Medicines. See CAUSTICK, and CAUTERY.

Fire also gives the Denomination to divers Diseases, as

St. *Anthony*'s FIRE, by Physicians more usually called *Erysipelas*. See ERYSIPELAS.

St. *Anthony's Fire* is also called *Holy Fire*, or *Sacer Ignis*; and in an antient Instrument, belonging to the Hospital in the Church of St. *Anthony*, at *Marseilles*, it is called *Fire of Hell*, or *Ignis infernalis*.

This Distemper made great Ravages in *France*, in the XIth and XIIth Century; and it was for the Relief of Persons labouring under it, that the religious Order of St. *Anthony* was founded, in the Year 1093. under the Pontificate of *Urban* II.

Walking FIRE, called also Will-with-a-wisp, *Jack in a Lanthorn*, *Ignis fatuus*, &c. See *Ignis* FATUUS.

FIRE, in Theology, is frequently understood of the Punishment of the Wicked after Death. See HELL, GEHENNA, PURGATORY, &c.

'Tis supposed the World will perish at last by *Fire*. See CONFLAGRATION.

God has made several Revelations of himself, under the Appearance of *Fire*: He appeared to *Moses* under the Form of a *Fire* burning in a Bush.: The Holy Ghost descended on the Apostles in Tongues of *Fire*; and the Camp of the *Israelites* was guided and conducted in the Night-time by a Pillar of *Fire*.

The *Persians* ador'd *God* under the Image or Representation of *Fire*; by reason 'tis *Fire* gives Motion to every thing in Nature. They are said to have *Fires* still subsisting, which have burnt above a thousand Years.

The *Hebrews* kept up the *Holy Fire* in the Temple; and the Vestals were appointed express, to keep up the sacred *Fire* of the *Romans*. See VESTAL.

Vulcan was worship'd among the Antients, and particularly the *Egyptians*, as the Inventor of *Fire*: And *Boerhave* has made it highly probable, that the *Vulcan* of the Heathens was the *Tubal Cain* of the *Hebrews*, the first who appears to have known the Use of *Fire*; and to have applied it in the Fusion of Metals, and other Preparations of Chymistry. See CHYMISTRY.

FIRE-*Stone*, a kind of Stone, called also *Rigate Stone*, from the Place whence 'tis chiefly brought: 'tis very good, and much used for Chimneys, Hearths, Ovens, Stoves, &c. See STONE.

FIRE *Office*, see OFFICE, of INSURANCE.

FIRE *Master*, in our Train of Artillery, Is an Officer that gives Directions and the Proportions of the Ingredients for all the Compositions of *Fire* Works, whether for Service in War, or for Rejoycings and Recreations.

The Orders are given to the *Fire* Workers and Bombardeers, who are oblig'd to execute them.

FIRE *Workers*, are subordinate Officers to the *Fire* Master, who command the Bombardeers.

They receive the Orders from the *Fire* Masters, and see that the Bombardeers execute them.

FIRE-*Eater*. We have a great Number of Charletans, who have procured the Attention and Wonder of the Publick, by *eating of Fire*, *walking on Fire*, *washing their Hands in melted Lead*, &c.

The most celebrated is our Countryman *Richardson*, much talk'd of abroad. His Secret, as related in the *Journal des Scavans*, of the Year 1680, consists in a pure Spirit of Sulphur, wherewith he rubs his Hands, and the Parts that are to touch the *Fire*; which burning and cauterizing the Epidermis, hardens and enables the Skin to resist the *Fire*.

Indeed, this is no new Thing: *Amb. Pare* assures us he had tried on himself, that after washing the Hands in ones own Urine, or with Unguentum Aureum, one may safely wash them in melted Lead.

He adds, that by washing his Hands in the Juice of Onions, he could bear a red hot Shovel on them, while it distill'd Lard.

FIRE *Works*, or *Artificial* FIRES are Preparations made of Gunpowder, Sulphur, and other inflammable and combustible Ingredients, on occasion of publick Rejoycings, and other Solemnities.

The principal of these are *Rockets*, *Serpents*, *Stars*, *Hail*, *Mines*, *Bombs*, *Garlands*, *Letters*, and other Devises. See ROCKET, STAR, BOMB, &c.

The Art of preparing and managing *Fire* Works, is called *Pyrotechnia*. See PYROTECHNIA.

Wild FIRE, is a kind of artificial or factitious *Fire*, which burns even under Water; and that with greater Violence than out of it.

It is composed of Sulphur, Naphtha, Pitch, Gum, and Bitumen; and is only extinguishable by Vinegar, mix'd with Sand and Urine; or with raw Hides.

Its Motion or Tendency is said to be contrary to that of natural *Fire*, and always follows the Direction in which it is thrown; whether it be downwards, sidewise, or otherwise.

The *French* call it *Greek Fire*, or *Feu Gregeois*, because first used by the *Greeks*, about the Year 660; as is observ'd by the Jesuit *Petavius*, on the Authority of *Nicetas*, *Theophanes*, *Cedrenus*, &c.

The Inventor, according to the same Jesuit, was an Ingineer of *Heliopolis*, in *Syria*, named *Callinicus*, who first applied it in the Sea Fight commanded by *Constantine Pogonat*, against the *Sarazens*, near *Cizicus*, in the *Hellespont*; and with such Effect, that he burnt the whole Fleet therewith, wherein were thirty thousand Men.

But others will have it of a much older Date; and hold *Marcus Gracchus* the Inventor; which Opinion is supported by several Passages, both in the *Greek* and *Roman* Writers, which shew it to have been antiently used by both those Nations in their Wars. See *Scaliger* against *Cardan*.

Constantine's Successors used it on divers Occasions, with equal Advantage, as himself; and what is remarkable enough, is, that they were so happy as to keep the Secret of the Composition to themselves; so that no other Nation knew it in the Year 960.

Hugh, King of *Burgundy*, demanding Ships of the Emperor *Leo*, for the Siege of *Fresne*, desired likewise the *Greek Fire*. *Chorier Hist. de Dauph.*

Fa. *Daniel* gives us a good Description of the *Greek Fire*, in his Account of the Siege of *Damiette*, under St. *Louis*.

Every body, says that Author, was astonish'd with the *Greek Fire* which the *Turks* then prepared; and the Secret where-

whereof is now loſt. They threw it out of a kind of Mortar; and ſometimes ſhot it with an odd ſort of Croſs Bow, which was ſtrongly bent by means of a Handle, or Winch, of much greater Force than the bare Arm. That thrown with the Mortar, ſometimes appear'd in the Air of the Size of a Tun, with a long Tail, and a Noiſe like that of Thunder. The *French* by Degrees got the Secret of extinguiſhing it; in which they ſucceeded ſeveral times.

FIRE, in the Military Language, is ſometimes uſed for the *Fires* lighted in an Army in the Night time.

Thus, the Enemy's *Fires* were ſeen on the Top of the Mountains.

But, the Term *Fire* is more frequently uſed for the Diſcharge of the *Fire Arms*; or the Shot made on the Enemy from the Artillery, &c.

The Horſe ſuffered extremely from the *Fire* of the Foot, which took them in Flank: The Trench was expoſed to the *Fire* of the Place: In this Aſſault the Courtin was all in *Fire*.——

In Fortification, the *Fire of the Place* is the Flank, or that Part of the Courtin where the Line of Defence terminates; from whence they *fire*, to defend the oppoſite Face of the Baſtion.

The beſt way of fortifying is that which gives the moſt *Fire*. See FORTIFICATION.

FIRE *Arms* are thoſe charged with Gunpowder: Such are *Canons*, *Mortars*, and other *Ordnance*; *Muſquets*, *Carabines*, *Piſtols*, and even *Bombs*, *Granado's*, *Carcaſſes*, &c. See CANON, MORTAR, ORDNANCE, &c.

For the *Rebound* or *Reſilition of Fire Arms*, ſee REBOUND: See alſo GUNPOWDER, BULLET, SHOT, &c.

In the Hiſtory of the *Royal Academy* for the Year 1707, we have an Account of ſome Experiments made with *Fire Arms*, differently charged, by Mr. *Caſſini*.

That Author, among other Things obſerves, that by loading the Piece with a Ball which is ſomewhat leſs than Caliber; and only laying a little Gunpowder below the Ball, and a good deal above it, it will yield a vehement Noiſe, but have no ſenſible Effect or Impulſe on the Ball.

This he takes to have been all the Secret of thoſe People who pretended to ſell the Art of rendering ones ſelf invulnerable, or Shot proof.——

FIREBOTE, *i. e.* Fuel for neceſſary Occaſions, which by the Common Law any Man may take out of the Lands granted to him. See HAYBOTE, ESTOVERS, and LIGNAGIUM.

FIRKIN, an *Engliſh* Meaſure of Capacity, for Things liquid. See MEASURE.

The *Firkin of Ale* contains eight Gallons; and that *of Beer*, nine: Two *Firkins* of Beer make the Kilderkin; two Kilderkins the Barrel; and two Barrels the Hogshead. See KILDERKIN, GALLON, BARREL, and HOGSHEAD.

The *Firkins* of Soap and Butter are on the footing of the *Firkin* of Ale, *viz.* a Gallon *per Firkin* leſs than that of Ale.

FIRMAMENT, in the antient Aſtronomy, the eighth Heaven, or Sphere; being that wherein the fix'd Stars are ſuppoſed to be placed. See SPHERE.

'Tis called the *Eighth*, with reſpect to the ſeven Heavens or Spheres of the Planets, which it ſurrounds.

It is ſuppoſed to have two Motions: A Diurnal Motion, given it by the Primum Mobile, from Eaſt to Weſt, about the Poles of the Ecliptick: and another oppoſite Motion from Weſt to Eaſt; which laſt it finiſhes, according to *Tycho*, in 25412 Years; according to *Ptolomy*, in 36000; and according to *Copernicus*, in 258000: In which Time the fixed Stars return to the ſame preciſe Points wherein they were at the Beginning. This Period is commonly called *Plato's* Year, or the Great Year. See PRÆCESSION *of the Equinox*.

In divers Places of Scripture the Word *Firmament* is uſed for the middle Region of the Air. Many of the Antients allowed, with the Moderns, that the *Firmament* is a fluid Matter; tho' they, who gave it the Denomination of *Firmament*, muſt have taken it for a ſolid One.

FIRMAN, in the *Eaſt Indies*, and particularly in the Territories of the Great *Mogul*, is the Paſſport, or Permit, granted to foreign Veſſels, to trade within their Juriſdiction.

FIRMNESS, or FIRMITY, in Philoſophy, a *Conſiſtence* of a Body; or that State, wherein its ſenſible Parts cohere, or are united together, ſo that the Motion of one Part induces a Motion of the reſt: In which Senſe, *Firmity* ſtands oppoſed to *Fluidity*. See FLUIDITY.

Some Authors confound *Firmneſs* with *Denſity*; as thinking the ſame State or Property of Body, implied by both; or at leaſt, that *Firmneſs* follows Denſity: But this is a Miſtake: For Mercury, the denſeſt Body in Nature, excepting Gold, is yet one of the moſt fluid: And even Gold it ſelf, with all its *Denſity*, when fuſed, wants *Firmneſs*, or Coheſion. See DENSITY.

Many of the *Carteſians*, and others, hold *Firmneſs* to conſiſt in the mere Quiet of the Particles of the Body, and their mutual immediate Contact; urging, that a Separation of Parts can only ariſe from ſome Matter interpoſed between them, which is excluded, by the Notion of Contiguity.

But the Inſufficiency of this Hypotheſis is evident: For mere ſimple Quiet has no Force, either to act, or reſiſt; conſequently two Particles only join'd by Reſt and Contiguity, would never cohere ſo as that a Motion of the one ſhould induce a Motion of the other. This is obvious in the Caſe of two Grains of Sand, which however contiguous, and at reſt, will never conſtitute a *firm*, coherent Body.

The *Firmneſs* of Bodies, then, depends on the Connection or Coheſion of their *Particles*. Now, the Cauſe of Coheſion, Sir *I. Newton* and his Followers, hold to be an attractive Force, inherent in Bodies, which binds the ſmall Particles thereof together; exerting it ſelf only at, or extremely near, the Points of Contact, and vaniſhing at greater Diſtances. See ATTRACTION.

The *Firmneſs* of Bodies, therefore, follows the Laws of the Coheſion of Bodies; which ſee under COHESION.

Hence, *Firmneſs* in all Bodies muſt be as the Surfaces, and Contacts of the component Parts: Thus a Body, whoſe Parts are by their peculiar Shapes capable of the greateſt Contacts, is moſt *firm*; and that, whoſe Parts are capable of the leaſt Contact, will be moſt ſoft.

In the former, the greateſt Requiſite is to be as near Cubes as poſſible, and in the latter to Spheres. And in the ſame manner are to be accounted for, not only all the intermediate Degrees between the moſt *firm*, and the moſt ſoft Bodies, but thoſe different Conſiſtences, which are diſtinguiſh'd by other Names, as *friable*, *tenacious*, *glutinous*, and the like: for the greater are the Solidities of the component Parts of any Body, in Proportion to their Surfaces, though that Body by the Aptitude of the Contacts, may be what we call very *hard*; yet it will be moſt *friable* or brittle. And where the Surfaces of the compounding Particles are much extended upon a ſmall Quantity of Matter, the Bodies they compoſe, though they may be light and ſoft, yet they will be *tenacious* or glutinous: For although the Flexibility of their compounding Parts admits of their eaſy Changing of Figure by any external Force, yet by their touching one another in ſo many Points, they are very difficultly ſeparated.

The former is the Caſe in cryſtalized Salts, Reſins, and the like; the latter in Turpentines, Gums, and all of that Sort. See SOLIDITY, &c.

FIRST *Fruits*, *Annates*, or *Primitiæ*, are the Profits of every Benefice for one Year. See PRIMITIÆ, &c.

The *First Fruits* were originally intended for the Pope's Benefit, and were accordingly, before the Reformation, paid to him: But King *Henry* VIII. by a Statute in the twenty ſixth Year of his Reign, tranſlated them to the Crown.

Queen *Anne*, in the third Year of her Reign, made a Grant of the whole Revenue of *First Fruits* and Tenths, to ſettle a Fund for the Augmentation of the Maintenance of the poor Clergy. See AUGMENTATION.

By the Act 26 *Hen.* 8. he, who enters on any ſpiritual Living, before he pays, or compounds for it, on Conviction, forfeits double the Value thereof.

Every Clerk therefore, before his Induction (or ſoon after) ſhould go himſelf with one Friend, or ſend two Friends for him to the *First Fruits* Office, and there enter into Bond to pay the *First Fruits* of his Benefice within two Years next enſuing, at four equal half-yearly Payments. Only one Tenth of the whole yearly Sum, enter'd in the King's Books, is to be deducted; becauſe that muſt be paid by it ſelf the firſt Year.

Formerly four Bonds were given for the four ſeveral Payments; but by Statute 2 and 3 of Queen *Anne*, one Bond only is appointed to be given; and the Rates of all Benefices, according to the King's Books, are declared unalterable. The Succeſſor is chargeable with Arrears of Tenths, due from his Predeceſſor; and conſequently, by 27 *H.* 8. c. 8. is impower'd to diſtrain his Predeceſſor's Goods, being upon the Benefice; and hath likewiſe a good Action at Law againſt him or his Executors.

FISC, FISCUS, in the Civil Law, the Treaſury of a Prince, or State; or that, to which all Things due to the Publick, do fall.

By the Civil Law, none but a Sovereign Prince has a Right to have a *Fiſc*, or publick Treaſury. At *Rome*, under the Emperors, the Term *Ærarium* was uſed for the Revenues deſtin'd for the Support of the Charges of the Empire; and *Fiſcum* for thoſe of the Emperor's own Family.

The Treaſury, in effect, belong'd to the People, and the *Fiſc* to the Prince. See TREASURY.

The Word is derived from the *Greek* φίσκος, a great Baſket.

FISCAL, ſomething relating to the pecuniary Intereſts of the King, the Publick, or a private Perſon.

The

The Emperor *Adrian* erected the Office of *Fiscal Advocate* in the *Roman* Empire.

FISH, in Natural History, an Animal that lives in the Waters, as its proper Place of Abode. See ANIMAL.

Naturalists observe a World of Wisdom, and design in the Structure of *Fishes*, and their Conformation to the Element they are to reside in.

Their Bodies are cloathed and guarded in the best Manner, with Scales or Shells, suitable to their respective Circumstances, the Dangers they are exposed to, and the Motion and Business they are to perform. See SHELL, and SCALE.

The Centre of Gravity is placed in the fittest Part of the Body for Swimming; and their Shape most commodious for making way through the Water, and most agreeable to Geometrical Rules. See SWIMMING.

They have several Parts, peculiar to themselves; as *Fins*, to ballance and keep them upright. See FIN.

And an *Air Bladder*, to enable them to rise and sink to any Height and Depth of Water, at pleasure. See *Air* BLADDER.

They have Gills, or *Branchiæ*, whereby they respire; as Land Animals do by the Lungs. See BRANCHIÆ, and RESPIRATION.

The *Tail* is the Instrument of progressive Motion, and serves to row them forward. See TAIL.

Their *Eyes* are peculiarly form'd to enable them to correspond to all the Convergences and Divergences of Rays, which the Variations of the watery Medium, and the Refractions thereof, may occasion: In which respect they bear a near Resemblance to Birds. See EYE, CHOROEIDES, and BIRD.

Fishes are distinguish'd into *Sea* or *Salt-Water-Fish*, *Piscis Marinus*; as the Whale, Herring, Mackarel, &c. *River* or *Fresh-Water-Fish*, *Piscis Fluviatilis*; as the Pike, Trout, &c. and *Pond* or *Lake-Fish*; as the Carp, Tench, &c. To which may be added others, which abide indifferently in fresh Water, or salt, as Salmons, Shad-*Fish*, &c.

There are also an *Amphibious* Kind, which live indifferently on Land, or Water; as the Castor, Otter, &c. See AMPHIBIOUS.

Aristotle, and after him Mr. *Willoughby*, more accurately distinguish *Fishes* into *Cetaceous*, *Cartilaginous*, and *Spinous*.

The *Cetaceous* Kind, called also *Bellæ Marinæ*, have Lungs and Breath like Quadrupeds; they copulate also like them; and conceive and bring forth their Young alive, whom they suckle with their Milk.

The *Cartilaginous* Sort are produc'd from large Eggs, like Birds; which are excluded the Womb, also, like those of Birds.

The *Spinous* Kind are also oviparous; but their Eggs are smaller, and they have Spinæ up and down in their Flesh to strengthen it.

Willoughby thinks, it would be yet more proper to divide *Fishes* into such as *breath with Lungs*; and into such as *breath with Gills*: And then, to subdivide those that breath with Gills, not into Cartilaginous and Spinous, but into *Viviparous* and *Oviparous*.

The *Viviparous* Kind that breath *with Gills*, he subdivides into *Long*; such as the *Galei* & *Canes*, or Sharks, and Dog *Fish*: And *Broad*, such as the *Pastinaca*, *Raja*, &c. The Subdivisions of each whereof he gives in his Chapter of *Cartilaginous Fishes* in general.

The *Oviparous* Kind that breath *with Gills*, are the most numerous; and these he subdivides into such as are what we usually call *Flat Fish*; and such as swim with their Back upright, or at Right Angles to the Horizon.

The *Plain* or *Flat Fish* Kind, called usually *Plani Spinosi*, are either *Quadrati*, as the *Rhombi* and *Passeres*; or *Longiusculi*, as the *Soleæ*.

Such as swim *with their Backs erect*, are either *Long*, and *Smooth*, and *without Scales*, as the *Eel kind*; or *shorter* and *less smooth*: And these have either but *one Pair of Fins* at their Gills, which are called *Orbes*, and *Congeneres*; or else *another Pair of Fins* also on their Bellies: And this latter Kind he divides into two Kinds.

1°. Such as have *no prickly Fins on their Backs*, but soft and flexible ones. 2°. Such as *have prickly Fins* upon their Backs.

Those *Fishes* which have only soft and flexible Fins on their Backs, may be divided into such as have *three*, *two*, or but *one* single Fin there.

No *Fish* but the *Asselli* have *three* Fins on their Backs.

Fishes with *two* Fins on their Backs, are either the *Truttaceous*, or *Trout Kind*; or the *Gobionite*, or *Loach*, or *Gudgeon Kind*.

Fishes with but *one* soft back Fin, are of three sorts: The first Kind have one *long continued Fin*, from Head to Tail, as the *Hipparus* of *Rondeletius*, &c.

The second, have their *Fin but short*, and placed just in the Middle of their Back; and these are either *Marine*, as the *Herring Kind*;

Or *Fluviatile*, as those we call *leather-mouthed Fishes*; such as Carp, Tench, &c.

Such *Fishes* as have *prickly Fins on their Backs*, are of two Kinds.

First, such as have *two prickly Fins* on their Backs; and in these the anterior Radii of their Fins are always prickly.

Or, 2°. Such as have but *one prickly Fin* there.

Mr. *Willoughby* gives us the following Catalogue of our *English Fishes*.

(1) Of the *Long Cartilaginous* Kind are the

1 *Canis Carcharius*, or *Lamia*, the White Shark.
2 *Galeus Glaucus Rondeletii*, the Blue Shark.
3 *Canis Galeus Rondeletii*; called a *Tope* in *Cornwall*.
4 *Galeus Acanthias*, *sive Spinax*, the Prickled Dog, or Hound-Fish.
5 *Galeus*, *seu Mustela levis*, the Smooth, or unprickled Hound-Fish.
6 *Catulus Major*, *vulgo Canicula Aristotelis*, the Rough Hound, called in *Cornwall*, the *Bounce*.
7 *Catulus Minor*, the lesser Hound-Fish, or Morgay.

(2) Of the *Plain Cartilaginous* Kind, are the

1 *Raja levis undulata*, the Skate, or Flare.
2 *Raja clavata*, the Thornback.
3 *Raja aspera nostras*, the White-Horse.
4 *Squatina*, the Angel, or Monk Fish.
5 *Rana piscatrix*, the Thoad Fish, or Sea-Devil.

(3) Of the Plain Spinous Kind, are the

1 *Rhombus maximus aspero squamosus*, called the *Turbot*, or Brett.
2 *Rombus non aculeatus squamosus*, in *Cornwall* called the *Lug-alefe*.
3 *Passer Bellonii*, the Place.
4 *Passer asper*, *sive squammosus*, the Dab.
5 *Passer fluviatilis*, *sive amphibius*, the Flounder, Fluke, or Butt.
6 *Hippoglossus Rondeletii*, the Holy-But, called in the North the *Turbot*.
7 *Buglossus*, or *Solea*, the Sole.

(4) Of the Eel Kind we have,

1 *Lampreta major*, the Lamprey, or Lamprey-Eel.
2 *Lampreta parva*, and *Fluviatilis*, the Lampern.
3 *Anguilla*, the common Eel.
4 *Conger*, the Conger, or Sea-Eel.
5 *Ammodytes Gesneri*, the Sand-Eel, or Launce.
6 *Gunnellus Cornubiensis*, the Butter-Fish.
7 *Mustela vulgaris Rondeletii*, the Sea-Loach, or Whistle-Fish.
8 *Mustela fluviatilis*, the Eel-Pout, or Turbou.
9 *Lupus marinus*, the Wolf-Fish, or Sea-Wolf.
10 *Alauda non cristata*, the Sea-Lark; called in *Cornwall* Mulgranock, and Bulcard.
11 *Alauda Cristata*, the crested Sea-Lark.
12 *Liparis Rondeletii*.
13 *Gobio fluviatilis*, the Bull-head, or Miller's-Thumb.
14 *Scorpana Bellonii similis*, the Dutch-Pots-Hog; the *Cornish* Boys call it *Father-Lasher*.

(5) Of the Kind of *Fishes* wanting the Belly Pair of Fins; we have,

1 *Mola Salviani*, the Sun-Fish.
2 *Acus Aristotelis*, *species major*.
3 *Acus Aristotelis congener*, the Sea-Adder.
4 *Xiphias*, *seu Gladius piscis*, the Sword-Fish.

(6) Of the Non-spinous Kind of *Fishes*, with three unprickly soft Fins on their Backs; we have

1 *Asellus vulgaris major*, the Cod-Fish, or Kaling.
2 The *Whiting* Pollack.
3 *Asellus niger*, the Coal-Fish, or Rawling Pollack.
4 *Asellus lucus*, the Bib, or Blinds.
5 *Asinus antiquorum*, the Haddock.
6 *Asellus mollis major*, the Whiting.

(7) Of the Non-spinous Kind, with only two soft Fins on their Backs, are found with us,

1 *Merlucius*, the Hake.
2 *Asellus longus*, the Ling.
3 *Thynnus*, *Thunnus*, the Tunny, or *Spanish* Mackrel.
4 *Scomber*, the Mackrel.
5 *Thymallus*, the Gragling, or Umber.

6 *Al-*

6 *Albula Salmoni similis*, the Guinnard.
7 *Albula Harengi formis*, the Schelly.
8 *Salmo*, the Salmon.
9 *Salmulus*, the Samlet, or Branlin.
10 *Salmo griseus*, the Gray.
11 *Trutta Salmonata*, the Salmon Trout.
12 *Trutta Lacustris*, the Scurf, or Bull Trout.
13 *Trutta fluviatilis duum generum*, the Trout.
14 *Umbia minor Gesn.* the Red Charr, or Welsh Torgoch.
15 *Carpio lacus Benaci*, the Guilt, or Guilt Charr.
16 *Eperlanus, seu Violæ*, the Smelt.
17 *Golius Niger*, the Rock-Fish, or Sea Gudgeon.
18 *Lumpus Anglorum*, the Lump, or Sea Owl.
19 *Cataphractus Schonfeldii*, in the West of *England*, a *Dog*.

(8) Of the Non-spinous Kind, with only one Fin on the Back; there are,

1 *Harengus*, the Herring.
2 *Harengus minor*, the Pilchard, called also *Calchis*.
3 *Enerasicholus*, the Anchoris.
4 *Alosa, seu Clupæa*, the Shad, or Mother of Herrings.
5 *Sardina*, the Sprat, or Sparling; which is nothing else but the Fætus of an Herring.
6 *Acus vulgaris*, the Garr Fish, or Horn Fish.
7 *Sturio*, the Sturgeon.
8 *Lucius*, the Pike, or Pickrel.
9 *Cyprinus*, the Carp.
10 *Cyprinus latus*, the Bream, or Bruma.
11 *Tinca*, the Tench.
12 *Orfus Germanorum*, the Riedd, Oerve, or Nerfling.
13 *Capito, seu Cephalus*, the Chub, or Chevin.
14 *Barbus*, the Barbel.
15 *Leuciscus*, the Dace, or Dare.
16 *Rutilus, seu Rubellas*, the Roach.
17 *Alburnus*, the Bleak, or Bley.
18 *Gobius fluviatilis*, the Gudgeon.
19 *Bobites fluviatilis barbatula*, the Locke.
20 *Varias, seu Phoxinus lævis*, the Pink, or Minnow.

The last twelve of these are called by us (*Malacostomi*) *Leather-mouthed Fishes*; because they have no Teeth in their Jaws, but only deep down in their Mouths.

(9) Of the Spinous Kind, with two Fins on their Back, of which the foremost is aculeate, we have,

1 *Lupus*, the Basse.
2 *Mugil*, the Mullet.
3 *Gurcardus Piscis*, the Grey Garnard.
4 *Hirundo Aldrovandi*, the Tub Fish.
5 *Cuculus Aldrovandi*, the Red Gamard, or Rotchet.
6 *Lyra prior Rondeletii*, the Piper.
7 *Mullus major*, the Sur-Mullet.
8 *Draco, sive Araneus Plinii*, the Spider.
9 *Frachurus*, the Scud.
10 *Perca fluviatilis*, the Perch.
11 *Faber Piscis*, the Dorge.

(10) Of the Aculeate Kind, with only one Fin on the Back, whose Radii are some prickly, and some soft; there are,

1 *Aurata*, the Gilt-Head, or Gilt-Poll.
2 *Pagrus*, the Bream.
3 *Turdus, vulg.* the Old Wife, or Wrass.
4 *Perca fluviatilis minor, seu aurata*, the Ruff.
5 *Piscis aculateus vulgaris, seu Pungitius Aberti*, the Common Prickle-Back, or Sharpling, or Branstickle.
6 *Piscis aculeatus minor*, the Lesser Prickle-Back.

(11) Of the Cetaceous Kind, we reckon only

1 *Balæna Britanica Antiquorum*, which seems now to be gone from our Seas; and we scarce know what kind of Fish it was.
2 *Balæna, vulg. Rondeletii*, the Whale, which is sometimes found stranded on our Coasts, or rambles up our Rivers.
3 *Delphinus Antiquorum*, the Dolphin, very rarely, but sometimes seen here.
4 *Phocæna*, the Porpuss, called by *Schonfeld*, the *Northern Dolphin*.

Fish, with regard to Commerce, is distinguish'd into *Dry*, *Pickled*, *Green*, and *Red*.

Dry, or *Salt* Fish, is that which is salted and dryed, either by the Heat of the Sun; or by Fire. Such principally are the *Cod*, *Stock-Fish*, *Herring*, and *Pilchard*.

Green Fish is that lately salted, and which yet remains moist; as *Green Cod*, &c.

Pickled Fish is that boil'd and steep'd in a Pickle, made of Salt, Vinegar, &c. as *Salmon*, *Cod*, *Herring*, *Mackarel*, *Pilchard*, *Anchovy*, and *Oysters*.

Red Fish, is some fresh *Fish*, broil'd on the Grid-iron, then fried in Oil of Olives, and barrel'd up with some proper Liquor; as new Olive Oil, Vinegar, Salt, Pepper, Cloves, and Laurel Leaves, or other Herbs. The best *Fish* thus prepar'd are Sturgeon and Tunny.

Fish, *consider'd as a Food*, makes a considerable Article in the Furniture of the Table; and the Breeding, Feeding, Catching, &c. thereof makes a peculiar Art of no small Moment in the Oeconomy of a Gentleman's House and Garden.

To this relate the Ponds, Stews, &c. described in their proper Places. See Pond, Stew, &c.

Some General Rules and Observations on the same Subject, may not here be unacceptable.

1°. *For the Breeding of Fish*, the Quality of the Pond, Water, &c. proper for this end, is scarce determinable by any certain Symptom, or Rule: For some very promising Ponds do not prove serviceable that way. One of the best Indications of a *Breeding* Pond, is when there is good Store of Rush, and Grazing about it, with gravelly Shoals; such as Horse-ponds usually have: So that when a Water takes thus to Breeding, with a few Milters and Spawners, two or three of each, a whole County may be stock'd in a short Time.

Eels and Pearch are of very good Use, to keep down the Stock of *Fish*; for they prey much upon the Spawn and Fry of bred *Fish*, and will probably destroy the Superfluity of them.

As for Pike, Pearch, Tench, Roach, &c. they are observ'd to breed in almost any Waters, and very numerously; only Eels never breed in standing Waters, that are without Springs; and in such are neither found, nor increase, but by putting in: Yet where Springs are, they are never wanting, tho' not put in. And which is most strange of all, no Person ever saw in an Eel the least Token of Propagation, either by Milt, or Spawn; so that whether they breed at all, and how they are produc'd, are Questions equally mysterious, and never yet resolved.

2°. *For the Method of Feeding Fish*, take the following Remarks. 1. In a Stew, thirty or forty Carps may be kept from *October* to *March*, without Feeding; and by fishing with Tramels, or Flews in *March*, or *April*, you may take from your great Waters, to recruit the Stews: But you must not fail to feed all Summer, from *March* to *October* again, as constantly as cooped Chickens are fed; and 'twill turn to as good an Account.

2. The Constancy and Regularity of serving the *Fish*, conduces very much to their well eating and thriving.

3. Any sort of Grain boiled, is good to feed with, especially Pease and Malt, coarse ground: The Grains after Brewing, while fresh and sweet, are very proper; but one Bushel of Malt not brew'd, will go as far as two of Grains: Chippings of Bread, and Orts of a Table steep'd in Tap-droppings of strong Beer, or Ale, are excellent Food for Carps. Of these the Quantity of two Quarts, to thirty Carps, every Day, is sufficient: And so fed Morning and Evening, is better than once a Day only.

There is a sort of Food for *Fish*, that may be called accidental, and is no less improving than the best that can be provided; and this is, when the Pools happen to receive the Wash of Commons, where many Sheep have Pasture, the Water is enrich'd by the Soil, and will feed a much greater Number of Carps, than otherwise it would do: And farther, the Dung that falls from Cattel standing in Water in hot Weather, is also a very great Nourishment to *Fish*.

The best Food to raise Pikes to an extraordinary Fatness, is Eels; and without them 'tis not to be done, but in a long Time: Setting these aside, small Perches are the best Meat. Breams put into a Pike-pond, breed exceedingly, and are fit to maintain Pikes; which will take care they do not encrease over-much: The numerous Fry of Roaches and Rouds, which come from the greater Pools into the Pike-Quarters, will likewise be good Diet for them.

Pikes in all Streams, and Carps in hungry-springing Waters, being fed at certain Times, will come up, and take their Meat almost from your Hand.

The best Feeding-place is toward the Mouth of the Pond, at the Depth of about half a Yard; for by that means the Deep will be kept clean and neat; the Meat thrown into the Water, without other Trouble, will be pick'd up by the *Fish*, and nothing be lost: Yet there are several Devices for giving them Food, especially Pease; as a square Board let down with Meat on it.

When *Fish* are fed in the larger Pools or Ponds, where their Numbers are great, Malt boiled, or fresh Grains, is the best Food. Thus Carps may be fed and rais'd like Ca-

pons, and Tenches will feed as well; but Perch are not for a Stew in Feeding-time.

3°. As to the *Benefits that redound from the keeping of Fish*, besides furnishing your Table for your Friends, and raising Money; your Land will be vastly improv'd, so as to be really worth, and yield more this way, than by any other Employment whatsoever: For suppose a Meadow of 2 *l. per* Acre; four Acres in Pond, will return every Year a thousand fed Carps, from the least Size, to fourteen or fifteen Inches long; besides Pikes, Perch, Tench, and other Fry: The Carps are saleable, and will bring 6 *d.* 9 *d.* and perhaps 12 *d.* a piece, amounting in all to 25 *l.* which is 6 *l.* 5 *s. per* Acre.

FISH-GARTH, according to *Skinner*, signifies an Engine, to take *Fish*; but it seems rather to signify the Dam or Wear in a River, where these Engines are laid and used.

For *Garth*, in the North, is still used for a Back-side, or Hornested.

Fish-*Glue*, see Ichthyocolla.

Fish-*Ponds*, Reservoirs of Water, for the Breeding, Feeding, and Preserving of *Fish*.

For these *Ponds*, 'tis agreed, those Grounds are best, which are full of Springs, and apt to be moorish: The one breeds them well, and the other preserves them from being stolen.

The Situation of the Pond is also to be consider'd, and the Nature of the Currents that fall into it; likewise, that it be refresh'd with a little Brook, or with the Rain-water that falls from the adjacent hilly Ground. Add, that those Ponds, which receive the Stale and Dung of Horses and other Cattle, breed the largest and fattest *Fish*.

In making the Pond, observe that the Head be at the lowest Part of the Ground; and that the Trench of the Flood-gate or Sluice have a good swift Fall, that it may not be too long a emptying.

If the Pond carry six Foot of Water, it is enough; but it must be eight Foot deep, to receive the Freshes and Rains that should fall into it.

It would also be advantageous to have Shoals on the Sides, for the *Fish* to sun themselves in, and lay their Spawn on; besides in other Places, certain Holes, hollow Banks, Shelves, Roots of Trees, Islands, *&c.* to serve as their Retiring Places. Consider farther, whether your Pond be a Breeder; if so, never expect any large Carps from thence; the Greatness of the Number of Spawn overstocking the Pond.

For large Carps, a Store-Pond is ever accounted the best; and to make a Breeding-Pond become a Store-Pond, see what Quantity of Carps it will contain: Then put in all Milters, or all Spawners; whereby in a little Time you may have Carps that are both large, and exceeding fat. Thus, by putting but one Sex, there is an Impossibility of the Increase of them; yet the Roach will notwithstanding multiply abundantly.

Reserve some great Waters for the Head-Quarters of the *Fish*, whence you may take, or wherein you may put any Quantity thereof. And be sure have Stews and other auxiliary Waters, so as you may convey any Part of the Stock from one to the other; so, to lose no Time in the Growth of the *Fish*, but employ the Water, as you do your Land, to the best Advantage.

View the Grounds, and find out some Fall between the Hills, as near a Flat as may be, so as to leave a proper Current for the Water: If there be any Difficulty in judging of such, take an Opportunity after some sudden Rain, or the breaking up of a great Snow in Winter, and you'll plainly see which way the Ground casts; for the Water will take the true Fall, and run accordingly.

The Condition of the Place must determine the Quantity of Ground to be cover'd with Water. For Example, we may well propose in all fifteen Acres, in three Ponds; or eight Acres in two, and not less: And these Ponds should be plac'd one above another, so as the Point of the lower may almost reach the Head or Back of the upper; which Contrivance is no less beautiful, than advantageous.

The Head, or Bank, which by stopping the Current, is to raise the Water, and so make a Pond, must be built with the Clay and Earth taken out of the Pan, or Hollow, dugg in the lowest Ground above the Bank; and that Pan should be shap'd as an half Oval, whereof the Flat comes to the Bank, and the longer Diameter runs square from it. See Banks *for Fish-ponds*, and Pond-*Heads*.

Royal Fishes, see Royal *Fishes*.

Fishes, in Astronomy, see Pisces.

Fishes, in Heraldry, are of themselves of less Esteem in a Coat Armour, than Beasts and Fowls, as being posterior thereto in the Order of Creation: But they sometimes become so dignified by the Persons or Families, who bear them, as to be preferable to many Birds, and Beasts.

Fishes are born divers ways, *Upright*, *Imbowed*, *Extended*, *Endorsed*, *Surmounted* of each other; *Fretted*, *Triangled*, &c.

All *Fishes* born Feeding, should be term'd *Devouring*.

Those born directly Upright, should be term'd *Hautriant*.

And those born Traverse the Escutcheon, *Najant*.

FISHERY, a commodious Place for *Fishing*; or, a Place wherein great Quantities of Fish are caught. See Fish, and Fishing.

The principal *Fisheries* of *Europe*, for *Salmon*, *Herring*, *Cod*, and *Mackarel*, are along the Coasts of *England*, *Scotland*, and *Ireland*: For *Whales*, about *Greenland*: For *Pearls*, in the *East* and *West Indies*, &c.

The *Fishery* makes a principal Branch of the *British* Commerce. A great Quantity of Vessels and Sea-men are employ'd therein; and beside what is spent at home, above 200000 Pounds Sterling is yearly return'd merely for Herring, and Cod, exported to *Spain*, *Italy*, several Parts of the Mediterranean, and Islands of the Archipelago.

Yet are our Countrymen reproach'd, and with a good deal of Justice, for their Remissness in this Branch of Trade. The advantagious Situation of our Coasts might be of immense Benefit to us, did not we let our Neighbours share with us therein. The *Dutch*, *French*, *Hamburgers*, &c. come yearly in huge Shoals, and not only take the Fish from our own Doors; but sell them us for our Money, when they have done.

Scotland suffers incredibly on this Score: No Country in *Europe* can pretend to rival them in the Abundance of the finest Fish, wherewith their numerous Harbours, Loughs, Rivers, *&c.* are incredibly stored. In the River *Dee*, 'tis said, an hundred and seventy Head of Salmon is not very extraordinary for a single Draught of Net: And the pickled Salmon sent hence, is allowed the best in *Europe*. The *Scottish* Islands, especially those on the Western Side, do certainly lye most commodiously for carrying on the Fishing Trade to Perfection.

King *Charles* the First began the Experiment, in Conjunction with a Company of Merchants; but the Civil Wars soon set it aside. King *Charles* the Second made a like Attempt; but having pressing Occasion for Money, he was persuaded to withdraw, what he had employ'd in the *Fishery*; at which the Merchants, join'd with him, being displeas'd, did the like.

Since the Union, several Efforts have been made, to retrieve it; and there is now a Corporation settled on that footing, called the *Royal British Fishery*, though now in a very languishing Condition, and ready to sink.

Whale Fishery, or *Greenland*-Fishery.

This huge Fish, we have elsewhere observ'd, is chiefly caught in the North Sea. The largest Sort are those about *Spitzberg*, some of them amounting to two hundred Foot in length. Those on the Coasts of *America* are about ninety, or hundred; and those on the Coasts of *Guyenne*, and the Mediterranean, the smallest of all: See Whale.

The *Dutch* have upwards of these hundred Years had the *Whale Fishery* almost to themselves; and it is now esteem'd one of the principal Branches of their flourishing Trade: The chief Merchants of the several Provinces associate themselves into a Body, for the carrying it on; and send every Year a great Fleet of Vessels to the North Seas for the purpose. They attempted to make their first Establishments in *Grænland*; but not succeeding, they have since fix'd their *Fishery* about the Western Coast of *Spitzberg*; from the Latitude of 76 Deg. 40 Min. to 80 Deg.

This present Year 1725. the *English* South-Sea Company have begun to share it with them; and by the extraordinary Success they met withal in their first Attempt, beyond any of their Neighbours, will no doubt be induced to persist in it.

To give some Idea of the Manner and Importance of this Trade, we shall here subjoin the *Discipline*, of a long Time observ'd in the Whale *Fishery*; the *Method of Fishing*; the *Cargo* and *Equipage* of a Vessel; and the *Produce* thereof.

The *Discipline* is adjusted by a standing Regulation, consisting of twelve Articles; the principal whereof, are:

That in case a Fishing Vessel be shipwrack'd, and the Captain and Crew saved, the next Vessel they meet, shall take them in; and the second Vessel take half of them from the first: But that no Vessel shall be oblig'd to take any of the Loading of a Vessel shipwrack'd: That what Effects of a shipwrack'd Vessel, which are absolutely relinquish'd, an other Captain shall find, and take up, upon his Arrival in *Holland* he shall account for one Half of them to the Proprietors of the shipwrack'd Vessel, clear of all Expences: That if the Crew desert a shipwrack'd Vessel, they shall have no Claim to any of the Effects saved; but the whole shall go to the Proprietor; but if they be present, when the Effects are saved, and assist therein, they shall have one Fourth thereof: That if a Person kill a Fish on the Ice, it shall be reputed his own, so long as he leaves any

any Person with it; but the Minute he leaves it, it becomes the Due of the first Captain that comes that way; but that if a Fish be tied to an Anchor, or a Rope fasten'd to the Shoar, it shall remain to its first Proprietor, tho' he leave it alone: That if any Person be wounded, or lamed in the Service, the Commissioners of the *Fishery* undertake to procure him a reasonable Satisfaction; to which the whole Fleet shall contribute.

Beside this general Regulation, which all the Captains, Pilots, and Masters of Vessels are oblig'd to swear to see observed, before they put to Sea; there is also a particular one for each Ship's Crew, which they are all swore to execute, in Presence of one of the Commissioners, who goes a-board every Ship, to receive the Oath.——

This Regulation is a kind of Charter-Party, importing, That they will attend Prayers Morning and Evening, on pain of an Amercement, at the Discretion of the Captain: That they will not get drunk; nor draw their Knives, on Forfeiture of half their Wages; nor fight, on Forfeiture of the whole: That no body shall lay Wagers, on the good or ill Success of the Fishing; nor buy, or sell on such Conditions. *In case we take one or more Fish*, on Penalty of 25 Florins: That they will be contented with the Provisions allowed them; and that they will never light Fire, Candle, or Match, by Night or Day, without the Captain's Leave, on the like Penalty.

After the Reading of this Regulation, the Crew are all called, to receive the customary Gratuity before their Setting out, with an Assurance of another Sum at their Return, in Proportion to the Success of the Fishing.——

The Captain, on this Occasion, receives from 100, to 150 Florins; the Pilot, from 40, to 60; each Harpineer, from 40, to 50 Florins; the other Officers, from 26, to 36 Florins; the elder Sailors 20; and the younger 12.

The Fleet, which consists mostly of Fluyts, from two, to three hundred Tuns; and from 35 Men to 41. usually sets Sail about the Beginning of *April*, and takes its Course by the Isles of *Iceland*, from 60 to 61 Degrees of Latitude; after which, leaving them to the West, it steers Northward, thro' 73, 74, and 75 Deg. of Lat. where they begin to find the Ice.

'Tis through these huge Heaps of Ice, wherewith the whole Quarter is filled, that they first begin to spy the Whales: And there most of the Vessels fix their Abode for the Fishing.——But, as the Fish are larger and fatter, the further North you go; some Captains will venture as far as 80, or 82 Deg. of N. Lat.

Each Vessel of 300 Tuns has six Chaloupes; and each Chaloupe six Harpineers, with five Seamen, to row it. To every Chaloup there are seven Lines, of three Inches Circumference; five of them in the Hind-part of the Vessel, and two behind. The hind Lines together make six hundred Fathoms, and with the Addition of the other two, 880. If the Whale dive deeper, or run further underneath the Ice, the Line must be cut, left the Chaloupe be drawn after it.

The Instrument, wherewith the Execution is done, is a harping Iron, or Javelin, five or six Foot long, pointed with Steel, in a triangular Shape, like the Barb of an Arrow.

The Harpineer, upon sight of the Fish, from one End of the Chaloupe, where he is plac'd, flings the harping Iron with all his Might against the Whales Back; and if he be so happy as to make it penetrate the Skin and Fat, into the Flesh, he lets go a String, fasten'd to the harping Iron, at the End whereof is a dry Gourd, which swimming on the Water, discovers whereabout the Whale is; who, the Minute he is struck, plunges to the Bottom.

If the Whale return to breath in the Air, the Harpineer takes occasion to give him a fresh Wound; till, fainting by the Loss of Blood, the Men have an Opportunity of approaching him; and thrusting a long steeled Lance under his Gills into his Breast, and thro' the Intestines; which dispatches him: And when the Carcass begins to float, they cut off the Fins, and Tail; and tying a Rope to the Place where the Tail was, swim to the Vessel, where he is taken in.——

When they have got their Quota of Whales, they begin to take the *Blubber*, or Fat, and the *Fins*, or Whale-bone.

In order to this, the Whale is hoisted over-board, and kept suspended above the Water, by two Ropes, the one tied around his Neck, the other about his Tail; and under the Carcass are two Chaloupes; placed to receive what may chance to drop.

This done, three or four Men go down upon the Whale, with a kind of Calkers, or Irons on their Feet to prevent their Slipping. They begin to open him on the Side, and proceed downwards the Belly; cutting off all the Lard or Fat, in Pieces of about three Foot broad, and eight long: Beside the Fat on the Sides, they likewise cut off that of the Throat, and the under Lip, leaving all the lean behind.——They next proceed to the Whale-bone, which they cut off with a Hatchet, made for the purpose, from the upper Jaw of the Fish, and make it up in Packets. The Fat and Bone thus procured, what remains of the Whale, they leave for the Bears, who are very fond of it.

In Proportion as the large Pieces of Fat are cut off, the rest of the Crew are employed in slicing them smaller, and picking out all the lean. When this is prepared, they stow it under the Deck, where it lies, till the Fat of all the Whales is on Board: Then, cutting it still smaller, they put it up in Tubs, in the Hold, or Bottom of the Vessel, cramming them very full and close.

Nothing now remains, but to sail homewards, where the Fat is to be boiled, and melted down into *Train Oil*. See WHALE.

Produce of One Years Whale Fishery.

To state the Produce, we make choice of the *Fishery* of 1697. as being the greatest, and most fortunate that ever was known: To which we shall add that of the present Year.

In the Year 1697. there were an hundred, ninety eight Vessels of divers Nations; whereof an hundred, twenty nine were *Dutch*; forty seven *Hamburghers*; two *Sweedish*; four *Danish*; twelve of *Bremen*; two of *Embden*; and one of *Lubeck*.

In the present Year 1725. there were 226 Vessels; whereof 144 were *Dutch*; twelve *English*; forty three *Hamburghers*; twenty three *Bremers*; one and twenty of *Berghen*; two of *Flensburg*. Their Captures each Year were as follow.

In 1697,

129 *Dutch* Vessels took	——	1255	Whales.
47 *Hamburghers*	— —	449	——
2 *Sweeds*	— — —	113	——
4 *Danes*	— — —	52	——
12 *Bremers*	— — —	96	——
2 *Embden*	— — —	2	——
1 *Lubeck*	— — —	1	——
In all, 197 Vessels took	— —	1968	Whales.

In 1725,

144 *Dutch* Vessels took	——	248 $\frac{1}{2}$	Whales.
12 *English*	——	25 $\frac{1}{2}$	——
43 *Hamburghers*	——	46	——
23 *Bremers*	——	29	——
2 *Berghen*	——	0	——
2 *Flensburg*	——	0	——
In all, 226 Vessels took	— —	349	Whales.

The *Dutch* Captures in 1697 produced		41344	Punchions of
The *Hamburghers*	— —	16414	(Blubber
The *Sweeds*	— — —	540	—
The *Danes*	— —	1710	—
The *Bremers*	— — —	3790	—
The *Embdeners*	— —	28	—

The *English* Captures in 1725 produced 1000 Puncheons of Blubber, and 20 Tuns of Whale Bone.

Now, estimating the Puncheon of Blubber at 30 Florins *Dutch*; or 2 *l.* 15 *s.* *English*, the current Price in the Year 1697, the total Produce of the Years Fishing amounting to 63826 Puncheons, yields

l. 175521—10 *s.* Sterl.

As to Fins, or Whale Bones, setting them at 2000 Weight *per* Whale; and hundred Weight at 4 *l.* 4 *s.* they will yield *l.* 171233

Total *l.* 346754

Whereof, the Share belonging to the *Dutch*, was 228737

On the same Footing might the Produce of the *Fishery* of the present Year be easily stated. It will come far short of that of 1697; which indeed vastly transcends what has ever been known: Each Vessel, taking one with another, caught that Year 10 Whales, $\frac{2}{3}$: And the present Year only *one* Whale $\frac{5}{8}$; tho' the *English*, more happy than the rest, caught above two a-piece. But it may be added, that the Whales of the present Year being larger and fatter than those of 1697, produced one with another 40 Puncheons of Blubber; and these other only 33 Puncheons.

Herring FISHERY.

The *Herring* is a small Salt-water Fish, with a blueish Back, and a white silver'd Belly, not unlike the little Shad Fish; whence it is called in Latin *Alosa minor*. *Rondeletius* calls it *Harengus*.

It is a popular Error to believe the Herring to be the *Halec* of the *Romans*. The Halec was no particular Fish, but a kind of Sauce, made of any sort of Salt Fish: The modern Herring

Herring ſeems to have been unknown to the Antients: It is neither the *Halec*, nor *Halex*, nor *Moenis*, nor *Lencomænus*, nor the *Gerres* of *Pliny*. See *Rondelet. de Piſcib. marin. L. V. c.* 13. and *Voſſius de Idolol.*

Herrings are chiefly found in the North Sea. 'Tis true, there are *Fiſheries* elſewhere, but none ſo copious.

They uſually make two Fiſhing Seaſons; the firſt in *Auguſt*; and the ſecond in Autumn: The latter of which is the more conſiderable, on account of the Fogs, which are very favourable to this kind of Fiſhing.

'Tis commonly ſaid, that no body ever ſaw a Herring alive; and that they die the Minute they are taken out of Water: But there are Inſtances to the Contrary.

The *Herring* is a Fiſh of Paſſage; ſo that it is allowed to fiſh them on Holydays, and Sundays: In the Decretal there is an expreſs Chapter to this Effect. They go chiefly in Droves, and are fond of following Fire, or Light; and in their Paſſage reſemble a kind of Lightning themſelves.

The *Dutch* were the firſt who began the *Herring Fiſhery*, and obſerv'd the ſeveral Seaſons of their Paſſage. Their firſt regular Fiſhing is fix'd to the Year 1163.

The Method of Salting and Barreling them, was not diſcover'd, till the Year 1416. *Willoughby*, in his Hiſtory of *Fiſhes*, obſerves, that *Will. Buckelſz*, a Native of *Bier Uliet*, render'd his Name immortal, by the Diſcovery of the Secret of Curing and Pickling Herring: He adds, that the Emperor *Charles* V. coming in to the Low Countries, made a Journey to *Bier Uliet*, with the Queen of *Hungary*, on purpoſe to view the Tomb of this firſt Barreler of Herring.

The *Dutch* begin their *Herring Fiſhing* on the 14th of *June*, and employ no leſs than 1000 Veſſels therein. Theſe Veſſels are a kind of Barks, by the *Dutch* called *Flyboats*, carrying from 45 to 60 Tun, and two or three ſmall Canon. See Boat.

None of them are allowed to ſtir out of Port without a Convoy; unleſs there be enough of them together, to make 18, or 20 Pieces of Canon: In which caſe they are allowed to go in Conſerve, or Company. Before they ſet out, they make a verbal Convention; which has the ſame Force, as if it were in Writing.

Theſe Regulations of the Admiralty of *Holland* are partly followed by the *French*, and other Nations; and partly improved, and augmented with new ones; as, that No Fiſher ſhall caſt his Net within a hundred Fathoms of another Boat: That while the Nets are caſt, a Light ſhall be kept on the hind Part of the Veſſel: That when a Boat is by any Accident obliged to leave off Fiſhing, the Light ſhall be caſt into the Sea: That when the greater Part of a Fleet leaves off Fiſhing, and caſts Anchor, the reſt ſhall do the ſame, *&c.*

The Manner of *Fiſhing* has nothing particular in it. The Nets wherein the Fiſh is drawn, ſhould, regularly, have their Maſhes an Inch ſquare, that none of the leſſer Fry may be taken. See Nets.

The Commerce of *Herring*, both *pickled*, and *red*, is very conſiderable: But there are ſo many different Sorts prepared; in ſuch different ways, and different Places, that 'tis hard to ſay any thing preciſe thereupon.

Thoſe prepared by the *Dutch*, are in the greateſt Repute: They are diſtinguiſh'd into four Kinds, according to their Sizes. The Goodneſs of this Commodity conſiſts in its being fat, fleſhy, firm, white; ſalted the ſame Day 'tis taken, and with good Salt, and well barrel'd.——

The *Iriſh* Herring are the next in Value after thoſe of *Holland*; and principally thoſe of *Germuth* and *Dublin*, which are ſcarce inferior to the beſt Herring of *Rotterdam*, or *Enkuyſen*. The *Scotch* Herring is not near ſo well prepared, gutted, ſalted, nor barrel'd as the *Dutch*; and yet its Taſte is excellent: Nor is it doubted, but that if the *Scotch* were as careful in theſe Circumſtances, as their Neighbours, their Herring would be the beſt in the World. The Herring fiſh'd in *England* is inconſiderable; the Fiſh being too dry and freſh for the Market.

Method of Curing, and Preparing Pickled, *and* Red Herring.

1°. *For Pickled Herring:* As ſoon as the Herring are taken out of the Sea, one of the Crew, appointed for this Office, cuts them open, and takes out the Guts, and every thing but the Milt, and the Eggs which are always to be left in the Body of the Fiſh. Then, waſhing them in freſh Water, they are left the Space of twelve or fifteen Hours in a Tub full of ſtrong Brine made of freſh Water, and Sea Salt.

When they are taken out, they drain them; and when well drain'd, put them up in Barrels; taking care to diſpoſe and range them evenly, in Rows, or Layers; and preſſing them well down; and ſtrewing a Layer of Salt both at Top, and Bottom.

When the Barrel is full, they ſtop it up very cloſe; that no Air may get in, nor any Brine out; either of which is very prejudicial to the Fiſh.

2°. *For Red Herrings:* The Fiſh being caught, they proceed to waſh, gut, and lay them in Brine, as for pickled Herring; only they let them lie double the Time in Brine, *viz.* twenty four Hours; inaſmuch as they are to take all their Salt here, whereas the other Kind takes half its Salt in the Barrel.

When the Herring is taken out of the Brine, they ſpit them, *i. e.* ſtring them by the Head on little wooden Spits, and thus hang them in a kind of Chimneys, made for the purpoſe; and when the Chimney is as full as it will hold, which leſs than ten or twelve thouſand ſeldom effects, they make a little Fire underneath, of bruſh Wood, which yields a deal of Smoak, but no Flame.

Here the Herring remains, till ſufficiently ſmoaked, and dried; which ordinarily is in 24 Hours. Then they are taken down, and barrel'd up for keeping.

Their Goodneſs conſiſts in their being large, firm, and dry; their Outſide of a yellow, golden Colour; their Eggs, or Milt within, and well ſalted and barrel'd.——

Salmon Fishery.

The *Salmon*, according to ſome, breeds in the Sea; but the Opinion of others ſeems better warranted, that he breeds in the clear ſandy Parts of Rivers, not far from the Mouths thereof. They commonly ſpawn in *October*, and the young becomes a *Samlet* the following Year, and in a few Months a large *Salmon*. The Milter and Spawner having perform'd their Office, betake themſelves to the Sea; and if their Return be prevented by Wears, or the like, they become ſick, lean, pine away, and die in two Years time: If they ſpawn in the mean time, the Produce is a diminutive Salmon, called *Skegger*, which will never arrive at the natural Bulk; it being the Sea that makes them grow big, and the Rivers, fat. The Female is diſtinguiſh'd from the Male, in that its Noſe is longer and more hooked, its Scales not ſo bright, and its Body ſpeckled over with dark-brown Spots; its Belly flatter, and its Fleſh not ſo red; more dry, and leſs delicious to the Taſte. In ſpawning Time, when they repair from the Sea up the Rivers, ſcarce any thing can ſtop their Progreſs. We have ſeen them leap up Cataracts and Precipices, many Yards high.——

The chief *Salmon Fiſheries* in *Europe*, are along the Coaſts of *England*, *Scotland*, and *Ireland*. The Fiſhing uſually begins about the firſt of *January*, and ends by the laſt of *September*. It is perform'd with Nets, in the Places where the Rivers empty themſelves into the Sea; and along the Sea Coaſts there about. The Fiſh are ſeen to croud thither frequently in Shoals from all Parts, in ſearch of the freſh Water: They alſo fiſh for them higher up in the Rivers; ſometimes with Nets; and ſometimes with a kind of Dikes, or Wears made for the Purpoſe, with iron Grates therein, ſo diſpoſed, as that the Fiſh, in going up the River, open them with their Head; but are no ſooner enter'd, than the Gate claps to. Thus the Salmon are incloſed as in a Reſervoir, where it is eaſy taking them. In ſome Places they fiſh for Salmon in the Night time, by the Light of Torches, or kindled Straw. The Fiſhermen watch when the Fiſh draws towards the Light, whereof he is naturally a great Lover, and ſtrike him with a Fork, or Lifter. In ſome Parts of *Scotland*, it is ſaid, they ride a-fiſhing up the Rivers, and when they ſpy them in the ſhallow Parts, ſhoot them with Piſtols.——

When the Fiſh is taken, they open them; take out the Guts and Gills, and ſalt them, in large Tubs for the Purpoſe: Out of which they are not taken before *October*, to be pack'd up in Caſks from three to four hundred and fifty Pound Weight.

Salmon is alſo *fiſh'd* in Rivers, after the manner of Trout, with a Line, and Hook. He bites beſt in the Afternoon, about Three, in *May*, *June*, *July*, and *Auguſt*; the Water being clear, and a little Breeze of Wind ſtirring; eſpecially if the Wind and Stream ſet contrary ways. The Salmon is catch'd like a *Trout*, with Worm, Fly, and Minion; and eſpecially the Garden Worm, if well ſcour'd, and kept twenty Days in Moſs. The Salmon never ſtays long in a Place, but is continually ſhifting; to be as near the Spring Head as poſſible, and ſwimming generally in the deepeſt and broadeſt Parts of the Rivers, near the Ground. Put two, or three Garden Worms well ſcour'd on your Hook at once, as if you were baiting for Trout; and be ſure to give him Time to gorge his Bait, before you ſtrike. Some uſe a Wire-ring on the Top of the Rod, through which the Line may be let run to any Length at Pleaſure, by a Reel near at hand.——

Mackarel Fishery.

The *Mackarel* is a Salt-water Fiſh, without Scales. Its Body is round, and fleſhy; terminating almoſt in a Point, at each Extreme.

Some

Some Persons, well skilled in the Naval Architecture, hold its Figure the most commodious for Swimming of all others, and propose it as a Model for the Building of Ships.

'Tis ordinarily about a Foot long: When in the Water, it appears yellow; and when out of it, of a Silver White, excepting for Streaks, or Speckles of a deep Blue, on the Back, and Sides.

The Mackarel is found in large Shoals, in divers Parts of the Ocean; but especially on the *French* and *English* Coasts.

The Fishing is usually in the Months of *April*, *May*, and *June*, and even *July*, according to the Place. They enter the *English* Channel in *April*, and proceed up to the Streights of *Dover*, as the Summer advances; so that by *June* they are on the Coasts of *Cornwal*, *Sussex*, *Normandy*, *Picardy*, &c. where the *Fishery* is most considerable. They are an excellent Food, fresh; and not to be despised, when well prepared, pickled, and put up in Barrels.

Naturalists have observed, that the Water wherein Mackarel has been boiled, yields a Light, after stirring it a little.——

The Fish is taken two ways; either with a Line, or Nets: the latter is the more considerable; and is perform'd in the Night-time. The Rules observ'd in the Fishing of Mackarel are much the same as those already mentioned in the *Fishery of Herrings*.

There are two ways of pickling them: The first is, by opening and gutting them, and filling the Belly with Salt, cramm'd in as hard as possible with a Stick: Which done, they range them in Strata or Rows, at the Bottom of the Vessel, strewing Salt between the Layers.

In the second way, they put them immediately into Tubs full of Brine, made of fresh Water, and Salt; and leave them to steep, till they have imbibed Salt enough to make them keep: After which they are taken out, and barrel'd up; taking care to press them close down.

Cod Fishery.

The *Cod* is a Fish of Passage, pretty large, with a frightful Head; Teeth in the Bottom of the Throat; its Flesh, white; its Skin, brownish on the Back, white under the Belly; and cover'd with thin, transparent Scales.

It eats excellently, when fresh; and, if well prepared and salted, will keep a long Time. 'Tis this Fish, commonly eaten among us in Lent, &c. under the Denomination of *Salt-Fish*, or *Stock-Fish*.

There are two Kinds of Salt Cod; the one called *Green* or *White*; and the other *Dried*, or *Cured*: Tho' it is all the same Fish; only differently prepared.——

Green Cod.

The chief *Fisheries* for *Green Cod* are in the Bay of *Canada*, on the Great and Little *Bank* near the Coast of *New-found Land*, the Island of St. *Peter*, and the Isle of *Sable*: And hither, Vessels are yearly sent from divers Parts, both of *America* and *Europe*.

The Vessels used herein, are from an hundred, to an hundred and fifty Tuns; which will bring thirty, or thirty five thousand Fish a-piece.

The most essential Articles in this *Fishery* are three Persons, who know how to open the Fish, to cut off the Heads, and to salt them; upon the Ability of which last the Success of the Voyage chiefly depends.

Several Authors will have it, that the *Biscayans*, in pursuing their Whales, made the first Discovery of the Great and Little *Bank* of Cods, *New-found Land*, *Canada*, &c. a hundred Years before *Columbus*'s time; and that it was a *Biscayan Newfound-lander*, that gave the first Intimation thereof to *Columbus*.

Others say, that the Great Bank was discover'd by a Native of St. *Maloes*, named *Cartier*. But, be the Inventor of what Name or Nation he will, the Invention is certainly highly valuable: Not a trading Nation in *Europe*, but allows the Commerce of Cod Fish one of the most secure and gainful that is known.

The best, largest, and fattest Cod, are those taken on the South Side of the Great *Bank*; which is a kind of submarine Mountain, 150 Leagues long, and 50 broad; and at the Distance of 25 from *New-found Land*: Those on the North Side are much smaller.

The best Season is from the Beginning of *February*, to the End of *April*; at which Time the Cod, which during the Winter had retired to the deepest Parts of the Sea, return to the Bank, and grow very fat.

Those caught from *March*, to *June*, keep well enough; but those in *July*, *August*, and *September* soon spoil.

The Fishing is sometimes done in a Month, or six Weeks; sometimes it holds six Months. As Lent draws on, if the Fishers have but half their Cargo, they strive to make homeward the first; the Market being then the best.

Some will make a second Voyage, before others have got Loading for the first. Each Fisher only takes one Cod at a time; and yet the more experienc'd will take from 350 to 400 *per* Day: But this is the most; for 'tis very fatiguing Work, both on account of the Weightiness of the Fish, and of the extreme Cold which reigns on the Bank.

The Salary usually allowed the Captain and Sailors, is one Third of the Cod they bring home sound.

They salt the Cod on Board. The Head being cut off, the Belly open'd, and the Guts out; the Salter ranges them in the Bottom of the Vessel, Head to Tail; and having thus made a Layer thereof, a Fathom or two square, covers it with Salt: Over this he lays another, which he covers as before; and thus he disposes all the Fish of that Day, taking care never to mix the Fish of different Days together.

By that time the Cod has lain thus to drain three or four Days, they are moved into another Part of the Vessel, and salted a-fresh. After this, they are no more to be touch'd, till the Vessel have its Burthen.

Sometimes they put them up in Barrels, for the Conveniency of Carriage.——

Dry Cod.

In the Fishing of Dry Cod, Vessels of all Sizes are used; though such are generally chose, as have large Holds, by reason this sort of Fish incumbers more than it burthens.

As Cod is only to be dried by the Sun, the *European* Vessels are obliged to put out in *March*, or *April*, to have the Benefit of the Summer for Drying. Indeed, we send Vessels for Cod in *June*, and *July*; but those only buy what has been fish'd and prepared by the Inhabitants of the *English* Colonies of *New-found Land*, and the neighbouring Parts; in exchange for which, we carry them Meals, Brandies, Biscuits, Pulse, Molasses, Linen, &c.

The principal *Fishery* for Dry Cod is along the Coast of *Placentia*, from *Cape-Rose*, to the *Bay des Experts*; in which Compass there are divers commodious Ports for the Fish to be dried in.

The Fish intended for this Use, tho' of the same Kind with the Green Cod, is yet much smaller; whence it is the fitter to keep, as the Salt takes more hold.

The Method of Fishing is much the same in both; only this latter is the more expensive, as it takes up more Time, and employs more Hands; and yet scarce half so much Salt is spent in this, as the other.

When several Fishing Vessels meet, and intend to fish in the same Port; he whose Chaloupe first touches Ground, becomes entitled to the Quality and Privileges of Admiral; has the Choice of his Station, and the Refusal of all the Wood on the Coast at his Arrival.

As fast as the Captains arrive, they unrig all their Vessels, leaving nothing but the Shrouds, to sustain the Masts; and in the mean time the Mates provide a Tent on Shore, cover'd with Branches of Fir, and Sails over them; with a Scaffold, fifty, or sixty Foot long; and one third as much broad. While the Scaffold is making ready, the Crew are a-fishing; and as fast as they catch, they bring their Fish, open them, and salt them on moveable Benches: But the main Salting is perform'd on the Scaffold.

When the Fish has taken Salt, they wash them; and to drain them again, lay them in Piles on the Galleries of the Scaffold: When drained, they range them on Hurdles, a Fish thick, Head against Tail, with the Back uppermost; observing, while they lie thus, to turn, and shift them four times every 24 Hours.

When they begin to dry, they lay them in Heaps, of ten or twelve a-piece, to retain their Warmth; and continue to inlarge the Heap every Day, till it becomes double its first Bulk: At length they join two of these Heaps into one, which they turn every Day, as before. Lastly, they salt them over again; beginning with those that had been salted first; and thus lay them in huge Piles, as big as Hay-Stacks.

And thus the rest: Till they are carried a Ship-board, where they are laid on Branches of Trees, disposed for that purpose in the Bottom of the Vessel, with Mats all around, to prevent their contracting any Moisture.——

There are four kinds of Commodities drawn from Cod, *viz.* the *Tripes*, and *Tongues*, which are salted at the same time with the Fish, and barrel'd up: The *Roes*, or Eggs, which being salted and barrel'd up, serve to cast into the Sea, to draw Fish together, and particularly Pilchards: And lastly, the *Oil*, which is used in the dressing of Leather, &c.

The *Scots* catch a small kind of Cod on the Coasts of *Buchan*, which is highly prized, tho' very much like Ling. They salt it, and dry it in the Sun, upon Rocks; and sometimes in the Chimney: But the greatest Part of it is spent at home.——

Sturgeon Fishery.

The *Sturgeon* is a large Sea Fish, which at its Season runs up the Rivers; having a sharp-pointed Snout, flat

Belly, and bluiſh Back. Sturgeons are reckon'd among the Number of Royal Fiſhes; and when left on Shore, belong to the King; but when taken out at Sea, are the Property of the Perſon who takes them. See ROYAL *Fiſh*.

There are Sturgeons of all Sizes; and we even read of ſome twenty Foot long: But the middle Size are reckon'd the beſt.

Some will have this the *Silurus* of the Antients.

'Tis of the Roe, or Eggs of this Fiſh, that the *Cavia* or *Kavia*, ſo much prized by the *Italians*, &c. is prepared. See CAVIA.

Sturgeon, when freſh, eats deliciouſly. To make it keep, they ſalt or pickle it in large Pieces, and put them up in Cags, from 25 to 50 Pounds.

The greateſt *Sturgeon Fiſhery* in the World is in the Mouth of the *Volga*, in the Caſpian Sea; where the *Muſcovites* find Employment for a great Number of Men.

They are not caught in Nets, but in a kind of Incloſure, form'd by huge Stakes, diſpoſed in Triangles, repreſenting the Letter Z ſeveral times repeated. Theſe ſort of *Fiſheries* are open on the Side towards the Sea; and cloſe on the other; by which means the Fiſh, aſcending in its Seaſon up the River, embaraſſes it ſelf in theſe narrow, angular Retreats, and not being able to turn it ſelf, to go back again, by reaſon of its Bulk, is eaſily ſtruck, and killed with a ſort of harping Iron.

The chief Object of this *Fiſhery* is the Roe; which is a Commodity as much uſed in *Muſcovy*, as Butter in *Holland*; and there are Sturgeons, that furniſh 400 Pounds thereof. 'Tis only the leſſer and younger Sturgeon, that they pickle for Eating.——

PILCHARD *Fiſhery*.

The *Pilchard* is a ſmall Salt-water Fiſh, bigger than the Anchovy; but leſs than the Herring, which in other reſpects it reſembles. Its Head is yellow; Belly, white; and Head, a Sea-green. It eats admirably, freſh, or lightly ſalted.

There are Seaſons for fiſhing the Pilchard; which, like the Herring and Anchovy, is a Fiſh of Paſſage. They are prepared and ſalted much as the Anchovy is; with this Difference, that the Head is cut off the latter: But the Pilchard were diſtinguiſhable from the Anchovy, even tho' its Head were off likewiſe; the Pilchard having a very flat Back, and the Anchovy a round one.

The chief *Pilchard Fiſheries* are along the Coaſts of *Dalmatia*, to the South of the Iſland *Iſſea*: On the Coaſts of *Bretagne*, from *Bell* Iſland, as far as *Breſt*; and along the Coaſts of *Cornwall* and *Devonſhire*.

That on the Coaſts of *Dalmatia* is ſo plentiful, that it not only furniſhes all *Greece*; but a great Part of *Italy*. That on the Coaſts of *Bretagne* employs yearly above three hundred Sloops, and moſt of the Seamen of the Country.

The Fiſh caught on our own Coaſts, tho' bigger, are not ſo much valued, as thoſe on the Coaſts of *France*; owing principally to their not being ſo thorougly cured. The Seaſon is from *June* to *September*.——

The Pilchards naturally follow the Light; and will gather about a Boat, which bears a Light in the Night-time; which contributes much to the Facility of the *Fiſhery*.

On the Coaſts of *France* they make uſe of the Roes of Cod-fiſh, as a Bait; which, thrown into the Sea, makes them riſe from the Bottom, and run into the Nets, diſpoſed for the Purpoſe.

On our Coaſts, there are Perſons poſted a-ſhore, who ſpying by the Colour of the Water where the Shoals are, make Signs to the Boats, to get among them, to caſt their Nets.

When taken, the Fiſh are brought to a Ware-houſe on Shore, where they are laid up in broad Piles, ſupported by Backs or Sides.

As they pile them, they ſalt them with Bay Salt; in which, lying ſoaking twenty or thirty Days, they run out a deal of Blood, with dirty Pickle, and Bittern; which laſt draws a deal of the Oil from the Fiſh, to the great Loſs of the Owners. When taken out of the Pile, there remains a deal of Salt, Blood, Scales, &c. at Bottom, which, with freſh Salt, ſerves for another Pile.

They now proceed to waſh them in Sea Water, to clear off the Dirt, and Blood; and when dry, put them up in Barrels, and preſs them hard down, to ſqueeze out the Oil, which iſſues away at an Hole in the Bottom of the Caſk: And in this State, they are fit for Sale, or Uſe.——

Pearl FISHERY, ſee PEARL *Fiſhery*.

FISHING, the Act, or Art of catching *Fiſh*. See FISH.

Fiſhing is diſtinguiſh'd, with regard to its Inſtrument, into that perform'd with the *Net*, for Fiſh that *go in Shoals*; and that with the *Hook*, for *ſolitary* Fiſh: Which latter is properly called *Angling*. See NET, and ANGLING.

Fiſhing again, is diſtinguiſh'd, with regard to its Object, into that perform'd in *Salt Water*; and that in *Freſh*. The firſt practiſed for *Whales*, *Herring*, *Cod*, *Salmon*, *Pearls*, *Mackarel*, and other Sea Fiſh. See FISHERY.

The latter practiſed for *Pike*, *Trout*, *Carp*, *Tench*, *Perch*, *Dace*, *Eels*, &c.

The Inſtruments principally uſed in Angling, or *Fiſhing with the Hook*, are the *Rod*, *Line*, *Hook*, and *Fly*. See FISHING *Rod*, FISHING *Hook*, FISHING *Fly*, &c.

The Points on which the Art of *Fiſhing* chiefly turns, are the proper *Seaſon*, *Place*, *Bait*, and manner of *Application*. What relates to each hereof, we ſhall here entertain the Reader withal, in the ſeveral kinds of *Fiſhing*, chiefly practiſed among us.

Pike FISHING. The *Pike* is reputed the Tyrant of the freſh Waters: By the common Conſent of Naturaliſts, he is the longeſt lived of all Fiſhes. The larger he is found, the coarſer the Food; and ſo *vice verſa*. This Fiſh never ſwims in Shoals, but always ſingle; being very rapacious, and preying even on his own kind. He ſpawns in *February*, and *March*. The beſt Sort is in Rivers: The worſt in Meres and Ponds. His ordinary Food is Pickeral Weed, Frogs, and what Fiſh he can lay hold on.

There are two ways of *fiſhing* for the Pike; by the Ledger Bait, and the Walking Bait. 1°. The *Ledger Bait* is that, fix'd in one certain Place; and which the Angler may leave behind him. Of this kind, the beſt is ſome living Bait, as a Dace, Roach, Gudgeon, or yellow Frog. To apply it, if a Fiſh, ſtick the Hook through his upper Lip; then faſtening it to a ſtrong Line, ten or twelve Yards long, tie the other End of the Line to ſome Stake on the Ground, or Bough of a Tree, near the Pike's uſual Haunt; letting the Line paſs over the Fork of a Stick, plac'd for the purpoſe; ſuſpending the Hook, and about a Yard of Line in the Water; but ſo, as that when the Pike bites, the Fork may give way, and let him have Line enough to his Hold and Paunch. If the Bait be a Frog, the Arming Wire is to be put in at his Mouth, and out at his Gills, and one of the Legs to be ſtitch'd, or tied over the upper Joint of the Wire.—— 2°. The *Walking Bait* is that the Fiſher caſts in, and conducts with a Rod, &c. This Method is perform'd by a Troll, with a Winch to wind it up withal. At the Top of the Rod is to be placed a Ring for the Line to be run thro'. The Line, for two Yards, and a Quarter next the Hook, to be of Silk, double; and arm'd with Wire, the length of ſeven Inches: On the Shank of the Hook is to be faſten'd a ſmooth piece of Lead, ſo as to ſink the Fiſh Bait, which is to be a Gudgeon, with its Head downwards. Thus diſpoſed, the Bait to be caſt up, and down; and if you feel the Fiſh at the Hook, give him Length enough, to run away with the Bait, and paunch it: Then ſtrike him with a ſmart Jerk. To fiſh with a dead Bait, uſe a Minnow, yellow Frog, Dace, or Roach, anointed in Gum of Gee, diſſolved in Oil of Spike; and caſt it where the Pike frequents. After it has lain a little while at the Bottom, draw it to the Top, and ſo up the Stream, and you will quickly perceive a Pike in earneſt Purſuit thereof. The Fiſh bites beſt about three in the Afternoon, in clear Water, with a gentle Gale, from the Middle of Summer, to the End of Autumn; but in Winter all Day long; and in the Spring he bites beſt early in the Morning, and late at Night.——Another Method of *fiſhing* for Pike, ſee under HUXING.

Trout FISHING. The *Trout* is a delicious Freſh-water-Fiſh, ſpeckled with red and yellow; coming in, and going out of Seaſon with the Buck, and ſpawning in the cold Months of *October* and *November*; whereas all the other Species ſpawn in hot Summer Weather. There are divers Kinds of this Fiſh, all valuable; but the beſt are the red and yellow Trouts; and of theſe the Female, diſtinguiſh'd by a leſs Head and deeper Body, is preferr'd. They are known to be in Seaſon, by their large Backs; which may ſerve as a Rule for other Fiſh. All Winter long they are ſick, lean, and unwholeſome, and frequently louſy. As the Spring comes on, deſerting the ſtill, deep Waters, they repair to the gravelly Ground, againſt which they continue to rub, till they have got rid of their Lice, which are a kind of Worms, with large Heads. From that Time they delight to be in the ſharp Streams, and ſuch as are ſwift; where they lie in wait for Minnows and May Flies. At the latter End of *May* they are in their prime.

The uſual Baits whereby the Trout is catch'd, are the *Worm*, *Minnow*, and *Fly*, either Natural, or Artificial. The proper *Worms* are the Brandling, Lob-worm, Earth-worm, Dung-worm, and Maggot, or Gentle, eſpecially the two firſt: But whatever Worms are uſed, they are the better for keeping, which is to be done in an earthen Pot, with Moſs frequently changed. For the *Minnow*, ſlip the Hook thro' his Mouth, and the Point and Beard out of the Tail, ſo as it may lie almoſt ſtraight on the Hook. Then try againſt the Stream, whether it will turn. In defect of a Minnow, a ſmall

a ſmall Leach may ſerve the Turn; or for want of either, an artificial one may be made of Cloth, by the Life, which is found every whit as good a Bait as the natural one.

For *Fiſhing with Flies, either Natural, or Artificial*, ſee FISHING *Fly*.

Carp FISHING. The *Carp* is generally held the Queen of Freſh-water Fiſh. It is exceeding ſubtle, and of all others, the Eel only excepted, lives longeſt out of Water. Mr. *Ray* aſſures us, that in *Holland* they have a ſpeedy way of fattening them, by hanging them up in a Net in a Cellar, and feeding them with White-Bread and Milk. They breed ſeveral times in one Year; for which reaſon we ſeldom meet with either Male or Female, without either Melt or Spawn. Their natural Place is a Pond; in running Waters they rarely, if ever, breed. To make them fat and large, 'tis a good way, when the Pond is low, in *April*, to rake all the Sides thereof with an iron Rake, and ſow Hay Seeds thereon. By Autumn there will be a Crop of Graſs; which coming to be overflow'd, as the Pond riſes, will be a fine Feeding Place for them.

A World of Patience is required to angle for Carp, on account of their incredible Policy. They always chuſe to lie in the deepeſt Places: They ſeldom bite in cold Weather; and in hot, a Man cannot be too early, or too late for them. When they do bite, there is no fear of the Hold. The Baits are, the Red Worm, in *March*; the Candice, in *June*; and the Graſhopper in *July*, *Auguſt*, and *September*. Proper Paſtes may alſo be prepared for him; as Honey and Sugar wrought together, and thrown in Pieces into the Water, ſome Hours before you begin to angle. Honey and White Crums of Bread mix'd together do alſo make a good Paſte.

Tench FISHING. The *Tench* is a fine Freſh-water Fiſh, having very ſmall Scales, but large, ſmooth Fins, with a red Circle about the Eyes, and a little Barb hanging at each Corner of the Mouth. It takes more Delight among Weeds in Ponds, than in clear Rivers; and covets to feed in foul Water. His Slime is ſaid to have a healing Quality for wounded Fiſh; upon which Account he is commonly called the *Fiſhes Phyſician*. When the Carp, Pike, &c. are ſick, they find Relief by rubbing themſelves againſt the Tench.

The Seaſon for catching this Fiſh, is in *June*, *July*, and *Auguſt*, very early, and late, or even all Night, in the ſtill Part of Rivers. His Bait is a large Red Worm, at which he bites very eagerly, if firſt dipt in Tar. He alſo delights in all ſort of Paſtes, made up of ſtrong ſcented Oils, or with Tar: Or a Paſte of brown Bread, and Honey. Nor does he refuſe the Cud-worm, Lob-worm, Flag-worm, green Gentle, Cad-bait, or ſoft boil'd Bread, Grain.

Pearch or *Perch* FISHING. The *Pearch* or *Perch* is hook-back'd, not unlike a Hog; arm'd with ſtiff Griſtles, and his Sides with dry thick Scales: He is voracious, and will venture on his own Kind; even with greater Courage than the Pike. He ſeldom grows above two Foot long: He ſpawns in *February*, or *March*; and bites beſt when the Spring is far ſpent.

The proper Baits are, the Brandling, Minnow, and ſmall Frog; as alſo the Cob-Worm, Bob Oak-Worm, Gentle, Waſp, and Cad Bait. The Minnow yields the beſt Sport, which is to be alive, and ſtuck on the Hook through the upper Lip, or Back Fin, and kept ſwimming about Mid-Water. If the Frog be uſed, he is to be faſten'd to the Hook by the Skin of his Leg. When the Fiſh bites, as he is none of the Leather-mouthed kind, he muſt have Time to pouch his Bait. The beſt Place to fiſh for him, is in the turning of the Water Eddy, in a good Gravel Bottom.

Roach FISHING. The *Roach*, or *Rochet* is no delicate, but a very ſilly Fiſh. Thoſe in Rivers are more valued, than thoſe in Ponds; tho' the latter are much the larger. They ſpawn about the Middle of *May*.

To angle for this Fiſh in *April*, Cads or Worms are proper Baits; ſo are ſmall white Snails or Flies in Summer. The Bait is always to be under Water; for the Fiſh will not bite a-top. Others uſe a *May* Fly, in that Seaſon, with good Succeſs. In Autumn a Paſte muſt be uſed, made of the Crum of White Bread, moulded with a little Water, labour'd with the Hands into a tough Paſt, and colour'd, not very deep, with red Lead. In Winter, Gentles are the beſt Bait, Sprouted Malt; the young Brood of Waſps, and Bees, dipt in Blood; and the thick Blood of Sheep, half dried, are Noſtrums in this ſort of *Fiſhing*.

Dace, and *Dare* FISHING. The *Dace*, and *Dare*, bearing a near Reſemblance to each other, in Kind, Size, Goodneſs, Feeding, Cunning, &c. we join them together. They bite at any Fly; but eſpecially the Stone Caddice Fly, or *May* Fly, the latter End of *April*, and moſt Part of *May*; and the Ant Fly in *June*, *July*, *Auguſt*, &c. They rarely refuſe a Fly a-top of the Water, in a warm Day; but when you fiſh under Water for them, 'tis beſt to be within a handful of the Ground. To catch Dace in Winter, the Bait is a white Worm, with a large red Head, gather'd after the Plough in Heaths or ſandy Grounds.——The Noſtrums for Roaches are alſo commended for *Dace*.

Gudgeon FISHING. The *Gudgeon* is a ſmall Fiſh, of a very delicious Taſte. It ſpawns three or four times in the Summer Seaſon, and feeds in Streams, and on Gravel; ſlighting all kind of Flies: But is eaſily taken with a ſmall red Worm, *fiſhing* near the Ground; and being a leather-mouthed Fiſh, will not eaſily be off the Hook, when ſtruck. The Gudgeon may either be fiſh'd for with a Float, the Hook being on the Ground; or by Hand, with a running Line on the Ground, without Cork, or Float. He will bite well at Waſps, Gentles, and Cad Baits; and one may even fiſh him with two or three Hooks at the ſame time; which makes good Sport. When you angle for Gudgeons, ſtir up the Sand or Gravel with a long Pole, which will make them gather to the Place, and bite the faſter.

Flounder FISHING. The *Flounder* is a flat Sea or River Fiſh; caught in *April*, *May*, *June*, and *July*, in any time of the Day; in a ſwift Stream, and ſometimes alſo in the ſtill Deep. The beſt Bait is red Worms, Waſps, and Gentles.—

Eel FISHING. The *Eel* is a Freſh-water Fiſh, much in Shape of a Serpent: Naturaliſts have long been divided, as to the Manner how it is produced; whether by Generation; or Corruption as Worms are; or by certain glutinous Dew Drops, which, falling in *May* and *June* on the Banks of ſome Ponds and Rivers, are by the Heat of the Sun turn'd into Eels. This is certain, that there is not the leaſt Appearance of Sex or Difference therein. *Abr. Mylius*, in a Treatiſe of *the Origin of Animals*, deſcribes a Method of producing them by Art. He ſays, that if you cut up two Turfs, cover'd with *May* Dew, and lay one on the other, the graſſy Side inwards; and thus expoſe them to the Heat of the Sun, on the Banks of a Water: In a few Hours time there will ſpring from them an infinite Quantity of Eels. The Kinds of Eels are various: Some reduce them to four; the *Silver Eel*; a greeniſh, call'd the *Gray Eel*; a *blackiſh Eel*, with a broad flat Head; and an *Eel with reddiſh Fins*. The firſt is allowed to generate: It is viviparous, and the young, when it comes from the Female, is no bigger than a ſmall Needle.

The *Silver* Eel may be caught with divers Baits; particularly powder'd Beef, Garden Worms, or Lobs, Minnows, Hens Gut, Fiſh Garbage, &c. But as they hide themſelves in Winter in the Mud, without ſtirring out for ſix Months, and in the Summer take no Delight to be abroad in the Day, the moſt proper Time to take them, is in the Night, by faſtening a Line to the Bank ſide, with a laying Hook in the Water. Or a Line may be thrown at large with good Store of Hooks baited, and plumbed, with a Float, to diſcover where the Line lies, in the Morning. The Roach does here well for a Bait, the Hook being laid in his Mouth. ——Another uſual way of catching Eels, call'd *Sniggling*, is perform'd in the Day time, by taking a ſtrong Line, or Hook baited with a Lob, or Garden Worm, and reſorting to ſuch Holes and Places, as Eels uſe to abſcond in, near Mills, Wears, or Flood Gates; where, the Bait being gently put into the Hole, by help of a cleft Stick, the Eel will certainly bite.——*Bobbing for Eels* is another Method: In order to this, ſcour ſome large Lobs, and with a Needle run a twiſted Silk through them, from End to End, taking ſo many as may be wrap'd a dozen times round a Board. Tie them faſt with the two Ends of the Silk, that they may hang in ſo many Links. This done, faſten all to a ſtrong Cord, and about an Handful and an half above the Worms fix a Plummet, three Quarters of a Pound Weight; and make the Cord faſt to a ſtrong Pole: *Fiſhing* with theſe in muddy Water, the Eels will bite haſtily at the Bait. When you think they have ſwallow'd it, gently draw up the Line, and bring them aſhore as ſoon as may be.——Others uſe an Eel Spear, with three or four Forks, or jagged Teeth, which they ſtrike at random into the Mud.——

Chub FISHING. The *Chevin* or *Chub* is a Freſh-water Fiſh, with a large Head. It ſpawns in *March*, and is very ſtrong, tho' inactive; yielding in a very little Time, after he is ſtruck; and the larger he is, the quieter. His Bait is any kind of Worm, or Fly, particularly the large Yellow-moth; alſo Grain, Cheeſe, the Pith in the Bone of an Ox's Back, &c. He affects a large Bait, and Variety of them at the ſame Hook. Early in the Morning angle for him with Snails; but in the Heat of the Day chuſe ſome other Bait; and in the Afternoon fiſh for him at Ground, or Fly.

Fishing *Fly*, a Bait used in Angling for divers kinds of Fish. See Fish, and Fishing.

The *Fly* is either Natural, or Artificial.

Natural Flies are innumerable: The more usual on this occasion are the *Dun-Fly*, the *Stone*, or *May-Fly*, the *Red-Fly*, the *Moor-Fly*, the *Tawny-Fly*, the *Vine-Fly*, the *Shell-Fly*, the *Cloudy* and *Blackish-Fly*, the *Flag-Fly*; also *Caterpillars*, *Canker-Flies*, *Bear-Flies*, &c. all which appear sooner or later, according to the Forwardness or Backwardness of the Spring. To know the particular Fly the Fish most covers, when you come in the Morning to the River-side, beat the Bushes with your Rod, and take up what Variety you can of all sorts of Flies; try them all, and you will quickly know which are in greatest Esteem: Not but that they will sometimes change their Fly, but it is only when they have glutted themselves therewith.

There are two ways to fish with Natural Flies, either on the Surface of the Water, or a little underneath it.

In angling for Chevin, Roach, or Dace, move not your Natural Flie swiftly, when you see the Fish make at it; but rather let it glide freely towards him with the Stream: But if it be in a still and slow Water, draw the Fly slowly sideways by him, which will make him eagerly pursue.

For the *Artificial Fly*, 'tis seldom used but in blustering Weather, when the Waters are so troubled by the Winds, that the Natural Fly cannot be seen, nor rest upon them.

Of this Artificial Fly, there are reckon'd no less than twelve Sorts; of which these are the principal.

1. The *Dun-Fly*, in *March*, made of Dun Wool, and the Feathers of a Partridge Wing. 2. A *Dun-Fly*, made of black Wool, and the Feathers of a black Drake; the Body made of the first, and the Wings of the latter. 3. The *Stone-Fly*, in *April*, the Body made of black Wool, dy'd yellow under the Wings, and Tail. 4. The *Ruddy Fly*, in the Beginning of *May*; the Body made of red Wool, and bound about with black Silk, with the Feathers of a black Capon, which hang dangling on his Sides, next his Tail. 5. The *Yellow*, or *Greenish Fly*, in *June*; the Body made of black Wool, with a yellow List on either Side, and the Wings taken off the Wings of a Buzzard, bound with black broken Hemp. 6. The *Moorish Fly*; the Body made of dusky Wool, and the Wings with the blackish Mail of a Drake. 7. *Tawny-Fly*, till the Middle of *June*; the Body made of tawny Wool, the Wings made contrary one against the other, of the whitish Mail of a white Drake. 8. The *Wasp-Fly*, in *July*; the Body made of black Wool, cast about with yellow Silk, and the Wings of Drakes-feathers. 9. The *Steel-Fly*, in the Middle of *July*; the Body made of greenish Wool, cast about with the Feathers of a Peacocks-tail, and the Wings made of Buzzards Wings. 10. The *Drake-Fly*, in *August*; the Body made of black Wool, cast about with black Silk, his Wings of the Mail of a black Drake, with a black Head.

The best Rules for *Artificial Fly-Fishing*, are

1°. To fish in a River somewhat disturbed with Rain; or in a cloudy Day, when the Waters are moved by a gentle Breeze: The South-wind is best; and if the Wind blow high, yet not so, but that you may conveniently guard your Tackle, the Fish will rise in plain Deeps; but if the Wind be small, the best Angling is in swift Streams.

2°. Keep as far from the Water-side as may be; fish down the Stream, with the Sun at your Back, and touch not the Water with your Line.

3°. Ever angle in clear Rivers, with a small Fly, and slender Wings; but in muddy Places use larger.

4°. When after Rain the Water becomes brownish, use an Orange-Fly; in a clear Day, a light colour'd Fly; a dark Fly for dark Waters, &c.

5°. Let the Line be twice as long, as the Rod, unless the River be incumber'd with Wood.

6°. For every sort of Fly, have several of the same, differing in Colour, to suit with the different Complexions of several Waters and Weathers.

7°. Have a nimble Eye, and active Hand, to strike presently with the rising of the Fish; or else he will be apt to spew out the Hook.

8°. Let the Fly fall first into the Water, and not the Line, which will scare the Fish.

9°. In slow Rivers, or still Places, cast the Fly cross over the River, and let it sink a little in the Water, and draw it gently back with the Current.

Salmon-Flies should be made with their Wings standing, one behind the other, whether two, or four. That Fish delights in the gawdiest Colours that can be; chiefly in the Wings, which must be long, as well as the Tail.

Fishing *Floats*, are little Appendages to the Line, serving to keep the Hook and Bait suspended at the proper Depth, to discover when the Fish has hold of them, &c.

Of these are divers Kinds; some made of *Muscovy* Duck-quills, which are the best for slow Waters; but for strong Streams, sound Cork, without Flaws or Holes, bored thro' with an hot Iron, into which is put a Quill of a fit Proportion, is preferable: Pare the Cork to a pyramidal Form, and grind it smooth.

Fishing *Hook*, a little Engine, of Steel Wire, of a proper Form to catch and retain Fish. See Hook.

The *Fishing Hook*, in general, ought to be long in the Shank, somewhat thick in the Circumference, the Point even, and straight; let the Bending be in the Shank.

For setting the Hook on, use strong, but small Silk, laying the Hair on the Inside of your Hook; for if it be on the Outside, the Silk will fret and cut it asunder.

There are several Sizes of these Fishing Hooks, some big, some little, and of these some have peculiar Names; as,

1. *Single Hooks*. 2. *Double Hooks*, which have two Bendings, one contrary to the other. 3. *Snappers*, or *Gorgers*, which are Hooks to whip the Artificial Fly upon, or to bait with the Natural Fly. 4. *Springers*, or *Spring Hooks*, a kind of double Hooks, with a Spring, which flies open, being struck into any Fish, and so keeps its Mouth open.

Fishing *Rod*, a long, slender Rod, or Wand, to which the Line is fasten'd, for Angling.——

Of these there are several Sorts; as,

1. A *Troller*, or *Trolling Rod*, which has a Ring at the End of the Rod, for the Line to go through, when it runs off a Reel. 2. A *Whipper*, or *Whipping Rod*, a Top Rod, that is weak in the Middle, and top-heavy, but all slender and fine. 3. A *Dopper*, which is a strong Rod, and very light. 4. A *Snapper*, or *Snap Rod*, that is a strong Pole, peculiar for a Pike. 5. A *Bottom Rod*, being the same as the *Dopper*, but somewhat more pliable. 6. A *Snuggling*, or *Proking Stick*, a forked Stick, having a short strong Line, with a Needle, baited with a Lob-worm: This is only for Eels in their Holes. See Angling, &c.

Fishing *Vessels*, or those used in the several Fisheries at Sea, or on the Coasts, are the

Busse.	Fluit.
Coble.	Hocker.
Cock.	North Sea Boat.
Dogger.	Peter Boat.
Driver.	Smack.
Eel Boat.	Strand Boat.
Ewar Boat.	Trawler.
Flyboto.	Trinker.——

FISSURE, Fissura, in Chirurgery; A Cleft or Crack in a Bone: Or, a longitudinal Fracture of a Bone: Or, a Solution of the Continuity of a Bone, whereby it is only cloven, or crack'd. See Fracture.

Fissures are of two Kinds: The one apparent, by the *Greeks* called ῥωγμὴ, or ῥῆξις; and by the Latins, *Scissura*: The other so small, as not to be visible, called τειχισμὸς, or τειχιάσις, Capillary; as resembling a Thread.

The Causes of *Fissures* are Falls, Leaps, and Contusions of the Parts against hard Bodies. See Bone.

Fissures, especially in the Cranium, either happen on the Part the Stroke was given on; or on the opposite Part: That on the opposite Part is called *Counter-Fissure*, or *Counter-Cleft*, by the *Greeks* ἀντάχνημα; and the Latins, *Resonatio*.

Old Men are more subject to *Fissures*, than young ones; by reason their Bones are drier.

Fissures are difficult to find; but the easiest cured of all Fractures: Tho', if they be not known, or be neglected, they bring on Ulcers, and Caries's; and in such Case become dangerous; so that there is frequently a Necessity of having Recourse to an Amputation of the Member.

The Signs of a *Fissure* of the Cranium, are bilious Vomitings; Vertigo; Flux of Blood at the Mouth, or Nose; Dumbness; Delirium, &c. If there be any *Fissure* in the Scull, the Patient will feel a Pain in the Place, upon holding a String between his Teeth, while the Chirurgeon pulls it strongly.

In such Cases 'tis frequently necessary to perforate the Cranium, to give Vent for the Blood and Sanies.

FISTULA, in the antient Musick, An Instrument, of the Wind kind, resembling our Flute, or Flageolor. See Flute.

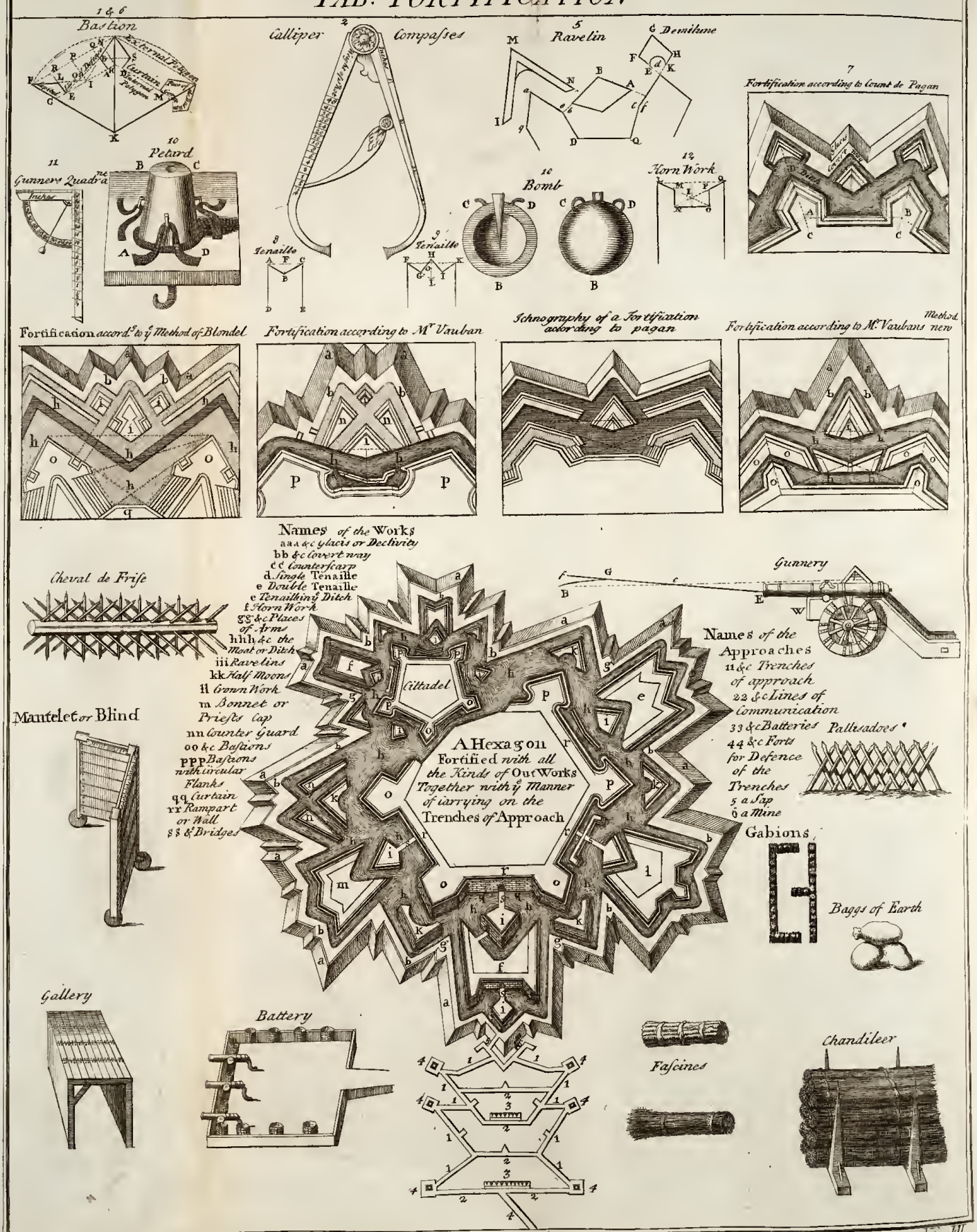
The principal Wind Instruments of the Antients, are the *Tibia*, and *Fistula*: Tho' how these were constituted; or wherein they differ'd; or how they were play'd on, does not appear. All we know, is that the *Fistula* was at first made of Reeds, and afterwards of other Matters. Some had Holes; some none: Some again were single Pipes; others a Combination of several; Witness the Syringa of *Pan*. See Tibia.

Fistula, in Medicine, A deep, winding, callous, cavernous Ulcer, with a narrow Entrance, but opening thence into a spacious Bottom; and generally yielding a sharp, virulent Matter.

Fistula's differ from winding Ulcers in this, that the former are callous, and the latter not. See Ulcer.

They

TAB: FORTIFICATION



Fletcher, Sculp

No. III

They attack all Parts of the Body, without Exception; particularly the Anus, Foramen lachrymale, Thorax, &c. The general Cause of *Fistula's*, is some Abscess, or Ulcer, which either being inveterate, or having been ill used, comes to be callous; the Orifice being at first lined or incrustated therewith, and at length the whole Sinus.

The Cure consists, in consuming the Callus, and healing, and consolidating the Ulcer with cleansing Medicines, and Sarcoticks.

The Antients gave the Name *Fistula* to this sort of Ulcers, from the Resemblance they bear, on account of their Depth, to a *Flute*, or *Pipe*, called by the Latins *Fistula*.

Fistula *in Ano*, is a *Fistula* form'd in the Anus, or Fundament. See Anus.

Of this, some Authors reckon four Kinds, *viz.* the *Cæcum Internum*, which is open outwards, but not into the Rectum: The *Cæcum Externum*, which has an Aperture into the Rectum, but none outwards: The *Compleat*, which opens both into the Anus, and the Intestine: And the *Cuniculatus*, or that with several Sinus's, which discharge themselves into one common Cavity, that is the Fund, and as it were, Reservoir of them all.

Others, as *Wiseman*, reduces *Fistula's in Ano* to two Classes. The *first* are those, arising from a Phyma: These are very painful, and difficult to cure; as entering deep amongst the *Intestines* of the *Muscles*, and forming various Cuniculi, or Sinus's; which, the more remote they are from the Anus, the worse they be, by reason they do not allow of being cut: The second, owe their Origin to an internal Hæmorrhage, or Extravasation between the Coats of the Rectum; and have a small Perforation, near the Circumference of the Anus, whence they yield a thin Sanies, or Ichor, without Pain: They in time bring on Itchings and Excoriations; and the Orifices at length become callous, and are sometimes closed, and sometimes open again.

Fistulæ, if they do no Harm by the Copiousness of the Flux, the Stench, or the like Accidents, are a Benefit to Nature, as carrying off cachectic Humours; and ought not to be cured, but kept open. The fresh, simple *Fistulæ* may be cured without Danger.

The great way is by cutting; where that may be done without Damage to the Muscle of the Anus, which might occasion an involuntary Discharge of the Excrements. Cutting is either perform'd with a *Thread*, or a *cutting* Instrument. See each Method under the Article Cutting *for the Fistula in Ano*.

Fistula *Lachrymalis*, is a *Fistula* in the greater Canthus of the Eye, call'd also *Ægilops Lachrymalis*.

It is a little deep callous Ulcer, in the greater Caruncle, or the Place of the Glandula Lachrymalis. It usually begins with an Abscess, call'd *Anchylops*, which in time produces an Ulcer, that afterwards degenerates into a *Fistula*. When press'd with the Finger, it yields a stinking Matter, not unlike the Yolk of an Egg; and the corrosive Humor finding, or making it self a Passage, there ensues a perpetual Oozing.

Sometimes the Os Ethmoidis it self is corroded, and render'd carious by it; in which Condition it is supposed to be only curable by an actual Cautery: Sometimes it becomes cancrous; and then, *Riverius* directs, all Medicines to be laid aside.

The Cure of the *Fistula lachrymalis*, is wholly external and chirurgical; excepting that Evacuants and Mercurials may be given internally; as also Decoctions of the Woods. Some perforate the Os Nasi, to give room for the Matter, to be evacuated that way.

A *French* Chirurgeon, named *Anel*, has found out a new way, *viz.* by putting a Probe and Syringe of an inconceiveable Fineness, thro' the *Puncta lachrymalia* into the *Sacculus lachrymalis*.

Fistula was also the Pipe put into the Cup, out of which the Communicants antiently sucked the Wine.

Divisit Ecclesiis Cruces, Altaria, Scrinia, &c. *Situlas*, Fistulas, & *Ornamenta varia*. Flor. Wigorn. Anno 1087.

FISTULAR *Flowers*, among Herbalists, are those made up of many long, hollow, small Flowers, like Pipes; all divided into large Jaggs at the end. See Flower.

FISTULOUS, or Fistular, is applied by the Chirurgeons to Wounds and Ulcers, which degenerate into Fistula's.

Care must be taken, not to leave the Seton too long in the Wound, lest it renders it callous and *fistulous*. Dionis.

Among Botanists, *fistulous* is understood of such Leaves of Plants, as are round and hollow within, like a Fistula, or Flute. Thus the Leaves of Onions are said to be *fistulous*.

FIT, in Medicine, an Access, or Paroxysm. See Paroxysm.

Fits *of the Mother*, see Hysterick *Affection*.

Fits *of easy Reflexion* and *easy Transmission*, see Reflexion, Transmission, Light, &c.

FITCHEE, or Fichee, in Heraldry, is when the lower Part of any Cross is sharpen'd into a Point, fit to fix into the Ground.

Thus, Azure, a Cross Potent *Fitchee*.

The Origin hereof, *Mackenzy* ascribes to the primitive Christians, who used to carry their Crosses with them, wherever they went; and when they stop'd at any Place in a Journey, fix'd them in the Ground.

FITZ, a *French* Term, literally denoting *Son*; sometimes given by way of Addition to the natural Sons of the Kings of *England*; as *James Fitz-Roy*, Duke of *Grafton*, &c.

FIVE-*leav'd Grass*, Cinque-foil, in Heraldry, is us'd by such as would introduce a Blazon by Herbs and Flowers, instead of Metals and Colours, to signify *Vert* or *Green*. See Vert.

FIXATION, the Act of *fixing*, or rendering a thing firm, and fix'd. See Fixity, and Firmness.

Fixation, in Chymistry, is a peculiar Preparation of Mercury, whereby it is put in a Condition to bear the Fire without evaporating; or the Hammer without flying, or separating. See Mercury.

The Alchymists hold, that if they had the true Secret of fixing Mercury, without the Addition of any foreign less heavy and solid Ingredient, they could make Gold, at least Silver. See Philosophers *Stone*.

Mons. *Homberg* has a long Process of many Months, to prepare an Oil from the fecal Matter, or human Excrements, which he imagin'd would have fix'd Mercury into Silver; but he fail'd. See Fecal *Matter*.

The Term is likewise applied in the general to any thing that fixes, and binds together what of its own Nature is volatile; and enables it to sustain the Force of the Fire for some considerable Time.

Geber defines *Fixation* an Operation whereby a volatile thing, *i. e.* a thing that cannot endure the Fire, is render'd capable of enduring it. In the general, *Fixation* is the changing of a volatile Body into a fix'd one. See Fixed.

FIXT, or Fix'd *Bodies*, in the general, are such, as neither the Fire, nor any Corrosive, has such Effect on, as to reduce or resolve them into their component Elements, *i. e.* absolutely to destroy them.

Chauvin holds it not sufficient to denominate a Body *fixt*, that it can withstand the Fire, or any one Agent; but it should withstand all. He contends, that *Fixity* should not be restrain'd, as it usually is, to an Exemption from Evaporation; but from Destruction, or Resolution into primary Elements; in which sense, Gold, pretious Stones and Glass, and even Sulphur, and Mercury it self, are properly *fix'd* Bodies; for Mercury, and Sulphur retain their Nature, notwithstanding all their Evaporation. See Mercury.

Fixt, or Fix'd *Bodies*, among Chymists, are such as bear the Violence of the Fire, without evaporating. See Evaporation.

The Chymists divide all Natural Bodies into *fix'd* and *volatile*, *i. e.* Such as bear the utmost Force of the Fire, without dissipating, or spending themselves in Fume; and such as do not.

Of *fix'd* Bodies, the principal are Gold, Silver, pretious Stones particularly the Diamond, Salts, &c.

Of all Metals, Gold and Silver alone are *fix'd*, *i. e.* remaining a long time exposed to the most intense Flame; they alone lose nothing of their Weight. See Volatile.

Whence this Property should arise, is difficult to say. If the Reader is not contented with the Causes enumerated under Fixity, he may add the following one from *Boerhave*, *viz.* The Homogeneity and Equality of the Parts.

The Parts, *e. gr.* of Gold being all homogeneous and equal, will equally sustain each other, and leave equal Pores between them; through which Pores, when fus'd, the Fire finding an easy, equal Passage, goes off, without carrying any thing of the Metal with it: Or rather, the Particles of Gold being of all others the most solid, and heavy (as appears from the Weight of that Metal) and of all others the most strongly united, or bound together (as appears from the infinite Ductility of that Metal) the Force of the Fire is not sufficient to overcome so powerful a Resistance: The Solidity of the Particles, and their Freedom from Air prevents their being rarified, or set further apart; which might lessen their specifick Gravity, and diminish their *vis cohesionis*: So that what has the chief Effect in the raising of Fumes and Vapours, *viz.* the Rarefaction, or Expansion of the Body being here precluded, the Metal maintains its natural Weight and Tendency to the Centre. See Rarefaction, and Expansion.

Mr. *Boyle*, the Prince of *Mirandola*, Mons. *Homberg*, and others, have made numerous Experiments on Gold, Silver, &c. to see how far their Fixity extended. Pure Gold, kept in an intense Heat for two Months, lost nothing sensible of

its Weight. See GOLD. Silver, under the like Circumstances and in the like time, lost one twelfth Part of its Weight; tho' Mr. *Boyle* attributes this to the Metals not being fine and pure. See SILVER. See also SALT, DIAMOND, &c.

Indeed, by the great Burning Glasses of Mess. *Tschirnhausen* and *Villette*, the most *fix'd* Bodies, as Gold it self, are render'd volatile, and lose of their Weight; so that there is no Body in all Nature absolutely *fix'd*. See BURNING *Glass*, MIRROR, &c.

FIX'D *Stars* are such, as constantly retain the same Position, and Distance with respect to each other: By which they are contra-distinguish'd from erratick or wandering Stars, which are continually shifting their Situation and Distance.

The *Fix'd* Stars are, what we properly and absolutely call *Stars*: The rest have their peculiar Denomination of *Planet*, and *Comet*. See STAR, PLANET, and COMET.

FIXED *Signs* of the Zodiack, according to some are the Signs *Taurus*, *Leo*, *Scorpio*, and *Aquarius*. See SIGN.

They are so called, because the Sun passes them respectively in the Middle of each Quarter, when that particular Season is more settled and fixed, than under the Sign, which begins and ends it.

FIX'D *Salts*. The Chymists distinguish Salts into *fix'd* and volatile.

Fix'd Salts are these extracted or gain'd from Bodies by Calcination and Lotion. They are call'd *fix'd*, in that the *Fire* was not able to sublime or raise them; as those carried off in the Course of Calcination, by the Vehemence of the Fire, are called *volatile*. See SALTS.

The Ashes of all Plants yield *fix'd* Salts. See LIXIVIUM.

The Chymists also give the Appellation *fix'd* to certain of their Preparations.

FIX'D *Nitre* is a Preparation of that Salt, by fusing it in a Crucible, and then inflaming it with throwing in a few Coals, and this again and again, till no more Flame or Detonation arise: Then letting it cool, they pulverize, and then dissolve it in Water, and afterwards evaporate it into a fine white Salt; which serves to draw the Tinctures out of Vegetables. This Salt, *per deliquium*, yields, what we call, the *Liquor of fix'd Nitre*. See NITRE, and SALT-*Petre*.

FIXING *Sulphur*, see SULPHUR and METAL.

FIXITY, or FIXEDNESS, in Philosophy, the Quality of a Body, which denominoates and renders it *fix'd*: Or, a Property, which enables it to endure the Fire and other violent Agents.

According to *Chauvin*, *Fixity* consists in this, that the component Principles of the Body are so closely united, or cohere so strongly, and are mix'd in such Proportion, that they cannot easily be divided either by Fire, or any other corrosive Menstruum; or their integral Parts separated, and carried off in Vapour. For a Body may be said to be *fix'd* in two respects.

First, when exposed to the Fire, or a corrosive Menstruum, its Particles are indeed separated, and the Body render'd fluid; but without being resolved into its first Elements: The Second, when the Body sustains the active Force of the Fire, or Menstruum, without its integral Parts being carried off in Fumes. Each kind of *Fixity* is the Result of a strong or intimate Cohesion between the Particles of the mix'd. See COHESION.

FIXITY, or *Fixedness*, in Chymistry, is in a peculiar manner used for the Property opposite to Volatility, *i. e.* the Property whereby Bodies bear the Action of the Fire, without being dissipated in Fumes. See VOLATILITY.

The principal Causes of *Fixity*, or the Qualifications that contribute most to the rendering a Body *fix'd*, according to Mr. *Boyle*, are 1° That its Corpuscles be singly of a certain proportionable Bulk, too big and unwieldy to be carried, up by Heat, or buoyed up in the Air. See VAPOUR. 2° That they have also a proper Degree of Weight, or Solidity. 3° That their Figure be such as unfits them for Evaporation, or flying off; some being branched, others hook'd &c. So that being entangled with one another, they cannot easily be extricated, loosen'd, and separated. To these may be added a fourth Circumstance, *viz.* the Nearness of the Particles, and their being contiguous in a great many Points, or a deal of their Surface, which produces a stronger Force of Attraction and Cohesion. See ATTRACTION, COHESION, &c.

FLACCIDITY, in Medicine, &c. a Diforder of the Fibres, or solid Parts of the Body, opposite to *Rigidity*. See FIBRE.

The too great *Flaccidity* of the Parts is cured by Cardiacks; Exercise; Friction; a dry warm Air, and Food, &c.

FLAG, a general Name, including *Colours*, *Standards*, *Antients*, *Banners*, *Ensigns*, &c. which Authors frequently confound with each other. See COLOUR, STANDARD, BANNER, &c.

The Fashion of bearing the *Flags* pointed, or triangular, which now obtains, *Rodric. Toletan.* assures us, came from the *Mahometan Arabs*, or *Saracens*, upon their seizing of *Spain*; before which Time all the Ensigns of War were stretch'd, or extended on cross-pieces of Wood, like the Baoners of the Church; on which account they were called in Latin *Vexilla*, q. d. *Velilla*; *a veli diminatione*, as is remark'd by *Isidore*.

The Pirates of *Algiers*, and throughout the Coasts of *Barbary*, are the only People who bear a hexagonal *Flag*. It is *Gules*, charged with a Moresk Head, coifed with its Turban, &c. though this be expressly contrary to their Law, which prohibits the making any Image, or Representation of a Man; founded on an Opinion, that they who make them, shall be obliged at the Day of Judgment to find Souls for them; and that in defect hereof they shall be damn'd. But this Portrait is that of *Hali Sulficar*, *Mahomet's* Son in Law, to whose Party the *Africans* all retain; who order'd that his Effigy should be express'd on their *Flags* and Standards, believing himself so formidable to the *Christians*, that the bare Sight of his Image would carry undoubted Victory over them. *Leunclavius*.

FLAG is more particularly used at Sea, for the Colours, Antients, Standards, &c. bore on the Top of the Masts of Vessels, to notify the Quality of the Person who commands the Ship, of what Nation it is, and whether it be equip'd for War, or Trade.

The Admiral alone carries his *Flag* on the Main-Top, or Top of the Main-Mast. See ADMIRAL.

The Vice Admiral carries his on the Fore-Top; and the Rear Admiral his on the Mizzen Top, or Top of the Mizzen Mast.

The Commanders of Squadrons bear their *Flag* on the Mizzen Mast, when in the Body of a Fleet: And on the Main Mast, when they command a Party. It should be cleft two Thirds of its Height, and terminate in a Point.

The *Flags* bore on the Mizzen, are particularly called *Gallants*. See MAST, GALLANT, &c.

The *Flag* of the *French* Nation is blue, charged with a white Cross, and the Arms of *France*.

Beside the National *Flag*, Merchant Ships frequently bear lesser *Flags* on the Mizzen Mast, with the Arms of the City, where the Master ordinarily resides; and on the Fore-Mast, with the Arms of the Place, where the Person who fraights them, lives.——

To *Lower*, or *Strike the Flag*, is to pull it down, out of Respect or Submission, when a weaker Party meets a more powerful one.

By an Ordinance of *Philip* II. King of *Spain*, 1565. the Captains are peremptorily commanded, to perish rather, than *lower the Royal Flag*, when once hung out.——

To *hang out the White Flag*, is to ask Quarter: Or, it shews, when a Vessel is arrived on a Coast, that it has no hostile Intention, but comes to trade, or the like. The *red Flag* is the Signal of Defiance and Battle.

The way of leading vanquish'd Ships in Triumph, is to tye the *Flags* to the Shrouds, or the Gallery in the Hind-part of the Ship, and let them hang downwards to the Water: And to tow the Vessels by the Stern. 'Twas thus the *Romans* used those of *Carthage*, as *Livy* relates.

FLAG *Ship*, a Ship commanded by a General, or *Flag* Officer, who has a Right to carry a *Flag*; in Contra-distinction to the secondary Vessels, under the Command thereof.——

FLAG *Officers*, are the General Officers of Fleets, Squadrons, &c. Such are the Admiral, Vice-Admiral and Rear-Admiral. See ADMIRAL.

The *Flag-Officers* in Sea-Pay are the Admiral, Vice-Admiral, and Rear-Admiral of the White, Red, and Blue. See NAVY.

FLAG *Staves* are Staves set on the Heads of the Top-Gallant Masts, serving to let fly, and unfurl the *Flags*.

FLAGS, in Falconry, are the Feathers in a Hawk's Wing near the principal ones. See FEATHER.

FLAGELLANTS, or FLAGELLANTES, a Sect of Hereticks, who chastised and disciplined themselves with Whips, in publick.

The Sect of the *Flagellants* had its Rise at *Perouse*, in the Year 1260. Its Author was one *Rainier*, a Hermit. 'Twas in all Probability no more than an Effect of an indiscreet Zeal.

A great Number of Persons of all Ages made Processions, walking two by two, with their Shoulders bare, which they whip'd, till the Blood ran down, in order to obtain Mercy from God, and appease his Indignation against the Wickedness of the Age. They were then called the *Devout*; and having establish'd a Superior, he was called the General of the Devotion.

Women did not appear in these publick Assemblies; tho' they practis'd the same Severities: But it was in private, and in their own Houses.

In

In the Middle of the XIVth Century the Sect of the *Flagellantes* was restored, on occasion of a great Mortality; and spread it self into all Parts of *Europe*.

The Bishops and Magistrates at length found it necessary to put a Stop to their Excess. The Writers and Preachers disputed against it; but the *Flagellants* remain'd unshaken against all they could say: So that of a Number of perhaps innocent, well-meaning Zealots, Pride, Obstinacy and Schism converted them into a dangerous Sect. They held, that the Blood they thus spilt, was mix'd with that of Jesus Christ; and that by a *Flagellation* of twenty four Days they gain'd the Pardon of all their Sins.

Clement VIth forbad all publick *Flagellations*. *Gerson* wrote an express Treatise against publick *Flagellations*.

FLAGELLATION, a Term appropriated to the Suffering of Jesus Christ, when whipp'd and scourged by the *Jews*; from the Latin *Flagellum*, a *Scourge*, or *Whip*.

Thus we say, A Painting of the *Flagellation*; or simply, a *Flagellation*, to denote a Painting, or Print, representing this Torment inflicted on the Saviour of the World. In this Sense we say, the *Flagellation* of such a Painter, &c.

Flagellation, *Whipping*, is also used for a voluntary Discipline, or Penance, frequently practised by the antient Penitents.

The Parliament of *Paris* prohibited all publick *Flagellations*, by an Arret of 1601. See Flagellants.

FLAGEOLET, or Flajolet, a kind of little Flute, or musical Instrument of the Flute kind; used chiefly by the Shepherds and Country-People. See Flute.

'Tis usually made of Box, or other hard Wood; sometimes of Ivory. It has six Holes, or Stops, beside that at Bottom, the Mouth-piece, and that behind the Neck.

FLAIL, see Thrashing.

FLAMBEAU, or Flamboy, a Luminary, made of an Assemblage of several thick Wicks, cover'd over with Wax; serving to burn a-nights in the Streets; as also at funeral Processions, Illuminations, &c. See Luminary.

Flambeaux differ from *Links*, *Torches*, and *Tapers*. See Torch, and Taper.

They are made square; sometimes of white Wax, and sometimes of yellow. They usually consist of four Wicks, or Branches, near an Inch thick, and about three Foot long; made of a sort of coarse hempen Thread, half twisted.

They are made with the Ladle, much as Torches, or Tapers are; *viz.* by first pouring the melted Wax on the Top of the several suspended Wicks, and letting it run down to the Bottom: This they repeat twice. After each Wick has thus got its several Cover of Wax, they lay them to dry; then roll them on a Table, and so join four of them together, by soldering them with a red hot Iron.

When join'd, they pour on more Wax, till the *Flamboy* is brought to the Size required; which is usually a Pound, and half, or two Pounds.

The last Thing is to finish their Form, or Out-side; which they do with a kind of polishing Instrument of Wood, by running it along all the Angles, form'd by the Union of the Branches. See *Wax* Candle.

The *Flambeaux* of the Antients were different from ours. They were made of Woods, dried in Furnaces, or otherwise. They used divers kinds of Wood for this Purpose: The most usual was Pine. *Pliny* says, that in his Time they frequently also burnt Oke, Elm, and Hazle. In the VIIth Book of the *Æneid*, Mention is made of a *Flambeau* of Pine: And *Servius* on that Passage remarks, that they also made them of the Cornel Tree.

FLAME, the brightest and subtilest Part of a Fire, ascending above the Fewel in a pyramidal or conical Figure. See Fire.

Flame seems to be the Smoak, *i. e.* the Fumes, or volatile Parts of the Fewel, greatly rarified, and at last kindled, or heated red hot. By the great Rarifaction, the Matter becomes so light, as to be rais'd with great Velocity in the Air: And by the Pressure of the incumbent atmospherical Fluid, it is kept for some time together; the Air forming a sort of Arch, or Sphere around it, that prevents its immediate Diffusion and Dissipation, and by its Contiguity and Fixation sustains and feeds the Fire of the *Flame*; the aqueous and earthy Parts of the Fume being naturally incapable of being ignited, are only rarified, and so impelled upwards, without *flaming*. See Smoak.

Flame is defined by Sir *I. Newton*, in his little Treatise *De Acido*, to be *Fumus Candens*, red hot Smoak. The same Author argues, Is not *Flame* a Vapour, Fume, or Exhalation heated red hot, that is, so hot as to shine? For Bodies do not *flame* without emitting a copious Fume; and this Fume burns in the *Flame*. The *Ignis Fatuus* is a Vapour, shining without Heat; and is there not the same Difference between this Vapour, and *Flame*, as between rotten Wood, shining without Heat, and burning Coals of Fire? In distilling hot Spirits, if the Head of the Still be taken off, the Vapour which ascends, will take Fire at the *Flame* of a Candle, and turn into *Flame*. Some Bodies, heated by Motion or Fermentation, if the Heat grow intense, fume copiously; and if the Heat be great enough, the Fumes will shine, and become *Flame*. Metals in Fusion do not *flame*, for want of a copious Fume. All *flaming* Bodies, as Oil, Tallow, Wax, Wood, fossil Coal, Pitch, Sulphur, &c. by burning, waste in Smoak, which at first is lucid; but at a little Distance from the Body, ceases to be so, and only continues hot. When the *Flame* is put out, the Smoak is thick, and frequently smells strongly; but in the *Flame* it loses its Smell, and according to the Nature of the Fewel, the *Flame* is of divers Colours. That of Sulphur, *e. gr.* is blue; that of Copper open'd with sublimate, green; that of Tallow, yellow; of Camphire, white, &c. We find that when Gunpowder takes Fire, it goes off in a *flaming* Smoak. The manner we conceive to be this: The Charcoal and Sulphur easily take Fire, and set Fire to the Nitre; by which the Spirit of the Nitre being rarified into Vapour, rushes out, the like Vapour of Water out of an Æolipile. Then the acid Spirit of the Sulphur entering violently into the fix'd Body of the Nitre, sets loose the Spirit of the Nitre, and excites a greater Fermentation, whereby the Heat is increased, and the fix'd Body of the Nitre rarified into Fume; and thus is a vehement Explosion effected. The *Flame* of Gun-powder arises from a violent Action, whereby the mixt being quickly and vehemently heated, is rarified and converted into Fume and Vapour: Which Vapour by the Violence of the Action becoming so hot as to shine, appears in the Form of *Flame*. *Newt. Opticks*, p. 318.

'Tis a remarkable Phænomenon of the *Flame* of a Candle, Torch, or the like, that in the dark it appears bigger at a Distance, than near at hand. The reason is, that at a Distance, *e. gr.* of six Feet, the Eye can readily distinguish between the *Flame*, and the contiguous Air illumined by it; and sees precisely where the *Flame* terminates: But at the Distance, *e. gr.* of thirty Foot, tho' the Angle subtended by the *Flame* be much smaller than before; yet the Eye not being able to distinguish the precise Bound of the *Flame*, takes part of the Sphere of Air illuminated by it, for the *Flame* it self. See Vision.

We have several Instances of actual *Flames's* being produc'd by the Mixture of two cold Liquors. Dr. *Slare* gives us a List of the Oils which burst into *Flame*, upon mixing them with compound Spirit of Nitre: Such are those of Carroways, Cloves, Sassafras, Guaicum, Box, Camphor, Pepper, Hartshorn, Blood, &c. *Phil. Transact.* N° 213.

Vital Flame, Flamma, or Flammula *Vitalis*, a fine, warm, kindled, but mild Substance, supposed by many both of the Antients and Moderns, to reside in the Hearts of Animals, as necessary to Life, or rather, as that which constitutes Life it self.

To the Preservation of this *Flame*, they suppose Air as necessary, as it is to the Conservation of common *Flame*; And hence refer the Necessity of Respiration to animal Life. See Life.

Mr. *Boyle*, by Experiments in an exhausted Receiver found, that the *Vital Flame* of Animals, if Life may be so called, survives, or outlasts the *Flame* of Spirit of Wine, or of a Wax or Tallow Candle, &c. Some Animals would remain alive and well in Vacuo, for three or four Minutes, whereas no common *Flame* would last there one Minute. The Light of Gloworms he found would presently be destroy'd by exhausting the Air; and retriev'd again upon its Re admission.

Dr. *Quincy* can find nothing more in the Notion of Vital *Flame*, than the natural Warmth, which is the Effect of a circulating Blood; and which is always as its Velocity. See Calidum *Innatum*.

FLAMEN, among the antient *Romans*, was a Priest, or Minister of Sacrifice.

There were as many kinds of *Flamens* at *Rome*, as there were Gods who had Priests, and Sacrificers.

Numa, at first, only instituted three: One for *Jupiter*, called *Flamen Dialis*; another for *Mars*, called *Flamen Martialis*; and a third for *Romulus* or *Quirinus*, call'd *Flamen Quirinalis*. See Dialis, &c.

In After-times twelve more were added; which made the Number of *Flamens* fifteen.

The three first were taken from among the Patricians; and were held of a Rank and Distinction superior to the rest. They were called *Greater Flamens*, *Flamines majores*; in Contra-distinction to the other twelve, who were chose from among the Plebeians, and were called *Lesser Flamens*, *Flamines minores*.

The *Flamen* of *Jupiter* was the first instituted, and held in the greatest Repute. He bore a peculiar Ornament on his Head, called *Albogalerus*, white Cap, or Hat; which was made of a white Victim, sacrificed to *Jupiter*.

The Cap wore by the rest, was called *Flamineum*, or *Galerium*. It was made of a Sheeps Skin, with the Wool on:

To

To it was faſten'd a little Branch of an Olive Tree. That of the *Flamen* of *Jupiter* ended in a Point, called *Tutulus*. It was tied under the Chin with Strings. In the Summer time it was only made of woolen Thread: With this the Head was conſtantly cover'd; it being prohibited them to appear bare headed. And hence, according to *Feſtus*, came their Denomination of *Flamen*, *viz.* from *Filamen*, of *Filum*, Thread.

Tho' the *Flamens* all bore one Name; yet did not they conſtitute any thing of a Company or College. Each God had his ſeveral Sacrifices, Feaſts, and Ceremonies a-part: Nor had one *Flamen* any relation to another; only they were all ſubordinate to the *Pontifex Maximus*. *Aulus Gellius* aſſures us, that they were created by the People in the Comitia of the Curiæ: But the *Pontifex Maximus* conſecrated them. Their Prieſthood was perpetual; tho' on ſome Occaſions they might be depoſed.

The Names of the ſeveral *Flamens* are as follow: The three great *Flamens*, as already obſerved, were the *Flamen Dialis*; *Flamen Martialis*, and *Flamen Quirinalis*. The twelve leſſer were, the *Flamen Carmentalis*, or Prieſt of the Goddeſs *Carmenta*: *Flamen Falacer*, or Prieſt of the God *Falacer*; a Name, whoſe Origin *Varro* obſerves, is not known: *Flamen Floralis*, or of the Goddeſs *Flora*: *Flamen Furinalis*, whoſe Etymology is not known: *Flamen Levinalis*: *Flamen Lucullaris*: *Flamen Palatualis*, whom ſome Moderns will have the Prieſt of the Goddeſs that preſided over the Palatium; tho' *Varro* owns himſelf at a loſs for its Original: *Flamen Pomonalis*, or of *Pomona*, Goddeſs of Fruits: *Flamen Virbialis*, or of the God *Virbius*, whom ſome take for the ſame with *Hippolytus*: *Flamen Vulcanalis*, or of *Vulcan*; and *Flamen Volturnalis*, or of the God *Volturnus*.

They had alſo their *Flaminæ* or *Flaminicæ*, who were Wives of the *Flamens*, or the Prieſteſſes of the Deities. In an antient Marble, quoted by *Gruter*, *p.* CCCCLIX. *n.* 9. the Word *Flamina* is uſed for Prieſteſs: And in the ſame Author, *p.* CCCVIII. *n.* 3. the Prieſteſs of the Goddeſs *Feronia* is called FLAM. FERON. that is, *Flamina*, or *Flaminica Feroniæ*.

The *Flamina* bore the ſame Ornament on her Head with the *Flamen*. She had alſo the ſame Surname with her Husband; as Flamina *Dialis*, *Martialis*, &c.

FLAMMULA, or FLAMULA, in the *Greek* Militia under the Eaſtern Empire, was a kind of Ornament, ſerving as a Mark, or Badge, to diſtinguiſh the ſeveral Companies, Batalions, Regiments, &c.

In *Greek* it was called φλάμουλον. The *Flamula* was ſometimes placed on the Caſk; ſometimes on the Cuiraſs, and ſometimes at the End or Tip of the Pike, &c.

The Emperor *Maurice* order'd, that the *Flammulæ* of each Diviſion ſhould be of a different Colour, to diſtinguiſh them from the other Batalions or Brigades. φλάμουλα ἑκάστης μοίρας ἐνίσχυρα εἶναι.

They uſed to lay aſide the *Flammula* before an Engagement, leſt it ſhould prove an Incumbrance. The Cavalry had alſo *Flammulæ* on their Horſes, to diſtinguiſh the Troops they belong'd to.

FLANCH, FLANQUE, or FLASQUE, an Ordinary in Heraldry, form'd by an Archline, which begins at the Corners of the Chief, and ends in the Baſe of the Eſcutcheon: Thus, He beareth Ermin, two *Flanches* Vert.

Flanches are always born by Pairs.

The *Flanch* bends in more than the Flaſk.

Leigh makes *Flanque* and *Flask* two diſtinct and ſubordinate Bearings; but *Gibbon* judiciouſly makes them but one, which he calls *Flanque*.

FLANEL, or FLANNEL, a kind of ſlight, looſe, woolen Stuff, not croſs'd, but very warm; compos'd of a Woof, and Warp, and wove on a Loom, with two Tredles, after the Manner of Bays, &c. See BAYS.

FLANK, or FLANC, in the Manage, is applied to the *Sides* of Horſes Buttocks, &c.

In a ſtrict Senſe, the *Flanks* of a Horſe are the Extremes of the Belly, where the Ribs are wanting, and below the Loins.

The *Flanks* of a Horſe ſhould be full; and at the Top of each, a Feather. The Diſtance between the laſt Rib, and Haunch Bone, which is properly the *Flank*, ſhould be ſhort; which they term *well-coupled*: Such Horſes being moſt hardy, and fit to endure Labour.

A Horſe is ſaid *to have no Flank*, if the laſt of the ſhort Ribs be at a conſiderable Diſtance from the Haunch Bone; as alſo when his Ribs are too much ſtreighten'd in their Compaſs.

FLANK, in War, is uſed by way of Analogy, or Similitude, for the Side of a Batalion, Army, &c. in Contra-diſtinction to the *Front* and *Rear*.

To attack the Enemy in *Flank*, is to diſcover, and fire upon them on one Side.

The Enemy took us in *Flank*. The *Flank* of the Infantry muſt be cover'd with the Wings of the Cavalry.

FLANK, in Fortification, is a Line, drawn from the Extremity of the Face, towards the Inſide of the Work.

Such is the Line B A Tab. Fortification. Fig. 1.

Or, *Flank* is that Part of the Baſtion, which reaches from the Courtin to the Face, and *defends* the oppoſite Face, the *Flank*, and the Courtin. See BASTION.

There is alſo an *Oblique*, or *Second Flank*, which is that Part of the Courtin, where they can ſee to ſcour the Face of the oppoſite Baſtion, and is the Diſtance between the Lines Razant, and Fitchant.

The *Low*, *Cover'd*, or *Retired Flank*, is the Platform of the Caſemate, which lies hid in the Baſtion.

Simple FLANKS, are Lines, going from the Angle of the Shoulder, to the Courtin; whoſe chief Office is for Defence of the Moat, and Place.

FLANK *of the Courtin*, or *Second Flank*, is that Part of the Courtin between the *Flank* and the Point, where the Fitchant Line of Defence terminates.

FLANK *Fitchant* is that from whence a Canon playing, *fireth* its Bullets directly in the Face of the oppoſite Baſtion.

FLANK *Razant* is the Point, from whence the Line of Defence begins, from the Conjunction of which with the Courtin, the Shot only raſeth the Face of the next Baſtion; which happens when the Face cannot be diſcover'd but from the *Flank* alone.

Retired FLANK, or the *Lower* and *Covert Flank*, is that exterior Part thereof, which advanceth to ſecure the innermoſt; which advanced Part, if it be rounded, is called the Orillon; ſo that this *Flank* is only the Platform of the Caſemate, which lies hid in the Baſtion.

FLANK'D *Angle*, is the Angle form'd by the two Faces of the Baſtion, and which of courſe forms the Point of the Baſtion. See BASTION.

FLANK'D *Tenaille*, call'd alſo *double Tenaille*. See TENAILLE.

FLANK'D, *Flanque*, is uſed by the *French* Heralds, to expreſs our *Party per Saltire*; that is, when the Field is divided into four Parts, after the manner of an X.

Tho', *Columbiere* uſes the Term in another Senſe, which to us appears more natural, *viz.* for the taking of *Flanks* or rounding Sections out of the Sides of the Eſcutcheons; the firſt from the Angles of it; the latter in ſtrait Lines, forming an Angle at the Feſs, without making any Saltire.

FLANKING, in the general, is the Act of diſcovering and firing upon the Side of a Place, Body, Batalion, &c.

To *flank* a Place, is to diſpoſe a Baſtion, or other Work in ſuch manner, as that there ſhall be no Part of the Place, but what may be defended, *i. e.* may be play'd on, both in Front, and Rear.

To *flank* a Wall with Towers. This Baſtion is *flank'd* by the oppoſite Flank, and a Half-Moon. This Horn-Work is *flank'd* by the Courtin.

Any Fortification that has no Defence but juſt right forwards, is faulty: And to render it compleat, one Part ought to be made to *flank* the other. Hence the Courtin is always the ſtrongeſt Part of any Place, becauſe 'tis *flank'd* at each End. See DEFENCE.

Batalions alſo are ſaid to be *flank'd* by the Wings of the Cavalry: And a Houſe is ſometimes ſaid to be *flank'd* with two Pavillions, or two Galleries; meaning it has a Gallery, &c. on each Side.

FLANKING *Line of Defence*, ſee RASANT LINE of *Defence*.

FLASK, FLASQUE, a Bearing, more properly called *Flank*, or *Flanque*. See FLANK.

FLATS, in Muſick, a kind of additional Notes, contriv'd, together with *Sharps*, to remedy the Defects of Muſical Inſtruments. See SHARP.

The Natural Scale of Muſick being limited to fix'd Sounds, and adjuſted to an Inſtrument; the Inſtrument will be found defective in ſeveral Points: As particularly, in that we can only proceed from any Note, by one particular Order of Degrees; that for this Reaſon we cannot find any Interval required from any Note or Letter upwards and downwards; and that a Song may be ſo contrived, as that if it be begun by any particular Note, or Letter, all the Intervals, or other Notes, ſhall be juſtly found on the Inſtrument, or in the fix'd Series; yet were the Song begun with any other Note, we could not proceed. See SCALE.

To remove, or ſupply this Defect, the Muſicians have Recourſe to a Scale proceeding by twelve Degrees, that is, thirteen Notes, including the Extremes, to an Octave; which makes the Inſtruments ſo perfect, that there is but little to complain of. This, therefore, is the preſent Syſtem or Scale for Inſtruments, *viz.* betwixt the Extremes of every Tone of the Natural Scale is put a Note, which divides it into two unequal

unequal Parts, called *Semi-tones*; and the Whole may be called the *Semitonic Scale*, containing twelve Semi-tones betwixt thirteen Notes, in the Compass of the Octave. See Semi-tone, and *Scale of* Semi-tones.

Now, to preserve the Diatonic Series distinct, these inserted Notes either take the Name of the natural Note next below, with a Character ♯ called a *Sharp*; or they take the Name of the natural Note next above, with the Mark ♭ called a *Flat*: Thus D ♭ or D *Flat* signifies a Semi-tone below the D natural. And it is indifferent in the main, whether the inserted Note be accounted as a *Flat*, or *Sharp*.

This Semitonic Series or Scale is very exactly represented by the Keys of a Spinet: The foremost Range of Keys being the natural Notes; and the Keys behind, the artificial Notes, or the *Flats* and *Sharps*. See Spinet.

FLATULENT, something, that has a relation to *Flatus's* or Winds. See Flatus.

Peese, and most kinds of Pulse, Onions, &c. are *flatulent* Foods.

FLATUS, or Flatulency, a Wind gather'd in the Bowels, or other Cavity of the Body, by Indigestion, or a gross internal Perspiration. It is discussed by warm Aromaticks, which rarefy it enough to break away wherever Vent can be found.

FLATTER, or Flattener, } See Coining.
FLATTING, or Flattening, }

FLAX, or Line, a Plant, with a slender hollow Stem, usually about two Foot high; whose Bark consists of Fibres, or Threads, much like those of Hemp, which being dress'd and work'd in a due manner, makes that noble Commodity, *Linen Cloth*. See Linen.

Flax thrives best in a Soil that has long lain fallow.

To bear *Flax*, it must be well plowed, laid flat and even, and the Seed sown in a warm Season, about the Middle of *March*, or Beginning of *April*. The best Seed is that brought from the East; which, though dear, repays the Charges with Abundance. One Sowing will produce two or three Crops, before it need be renewed.

Flax pull'd up in the Bloom, proves whiter and stronger, than if left standing till the Seed is ripe; but then the Seed is lost.

The Preparations *Flax* must undergo, to fit it for Spinning, are *Pulling*, *Drying*, and *Swingling*. See Hemp.

The Seed of *Flax* has several considerable Properties.

It enters the Composition of several Medicines, and yields an Oil, by Expression, which has most of the Properties of Nut-Oil; and which is frequently used, in defect thereof in Painting, to burn in Lamps, &c. That drawn cold, is reputed good in divers Diseases. See Oil.

FLEA, in Natural History. The Generation of this familiar Vermin affords something very curious, first discover'd by Sig. *Diacinctio Cestone*.

Fleas bring forth Eggs, or Nits, which they deposit on Animals that afford them a proper Food: These Eggs being very round and smooth, usually slip streight down; unless detain'd by the Plies, or other Inequalities of the Cloaths, Hairs, &c.

Of these Eggs are hatch'd white Worms, of a shining Pearl Colour, which feed on the scurfy Substance of the Cuticle, the downy Matter gather'd in the Plies of Cloaths, or other the like Excrement.

In a fortnight they come to a tolerable Size, and are very lively and active; and if at any time disturbed, suddenly roll themselves into a kind of Ball.

Soon after they come to creep, after the manner of the Silkworms, that have no Legs, with a very swift Motion. When arrived at their Size, they hide themselves as much as possible, and spin a silken Thread out of their Mouth, wherewith they form themselves a small round Bag, or Case, white within, as Paper, but without always dirty, and foul'd with Dust.

Here, after a fortnight's Sleep, he bursts out, transform'd into a perfect *Flea*; leaving its Exuvia in the Bag. While it remains in the Bag, it is milk white; till the second Day before its Eruption, when it becomes colour'd, grows hard, and gets Strength; so that upon its first Delivery it springs nimbly away. *Philosoph. Transact.* N° 24.

FLEA-BITTEN *Colour* of a Horse is white spotted all over with dark reddish Spots.

FLEAM, is a Surgeon's Instrument to lance the Gums; or a Farrier's Tool to let a Horse blood. See Lancet.

FLEDWITE, or Flight-wite, in our antient Laws, a Discharge or Freedom from Amerciaments, when one, having been an outlaw'd Fugitive, comes to the Peace of our Lord the King, on his own accord, or with Licence. *Rastal*.

Others rather take it to denote a Mulct, or Fine, set upon a Fugitive to be restored to the King's Peace.

FLEECE, the covering of Wool shorn off the Bodies of Sheep. See Wool.

The *Golden* Fleece is famous among the antient Writers. 'Twas this that the *Argonauts* under the Command of *Jason* went in Pursuit of to *Colchis*, a Province of *Asia*, now call'd *Mingrelia*. See Argonauts.

Order of the Golden Fleece. See Golden *Fleece*.

FLEET, by the *Spaniards* call'd *Flotta*, or *Flota*, and the *French*, *Flotte*, a Number of Vessels, going in Company, whether on a Design of War, or Commerce.

In times of Peace, Merchants Ships go in *Fleets*, for their mutual Aid and Assistance: In times of War, beside this Security, they likewise procure Convoys of Men of War; either to escort them to the Places whither they are bound; or only a part of the way, to a certain Point or Latitude, beyond which they are judg'd out of Danger of Privateers, &c. See Convoy.

The *Spanish Fleet*, sent against *England*, by *Philip* II. consisted of 1000 Vessels. In the East there have been *Fleets* seen of 3000 Vessels.

Merchant *Fleets* generally take their Denomination from the Place they are bound to; as the *Turky-Fleet*, *East India Fleet*, &c.

The *Spaniards* call simply the *Fleet*, or *Flota* a certain Number of Vessels, belonging partly to the King, and partly to the Merchants, sent every Year to *Vera Crux*, a Port of *New Spain*.

The *Flota* consists of the *Captain*, *Admiral*, and *Patach*, or *Pinnace*, which go on the King's account; and about sixteen Ships, from four hundred to a thousand Tuns, belonging to particular Persons. They are all so heavy laden both going and coming, that they have much a-do to defend themselves when attack'd. The *Fleet* puts out from *Cadix* about the Month of *August*, and makes it eighteen or twenty Months, before its return. See Flota.

The *Fleet* sent annually from the same Port to *Peru*, they call the *Gallions*. See Gallion.

When the two *Fleets* put out together, they go in Company as far as the *Antilles*, where they separate; the *Gallions* for *Carthagena*, and *Porto Bello*; and the *Flota* for *Vera Crux*: At their Return they join in the *Havana*.

Of the two *Fleets* the Gallions are the most richly laden; not but the Cargo of the *Flota* is very considerable. See Commerce.

Fleet is also a famous Prison in *London*, thus called from the River *Fleet*, on the Border whereof it stands. See Prison.

To this Prison Persons are usually committed for Contempt of the King and his Laws; or upon absolute Command of the King, or some of his Courts, particularly that of Chancery; and lastly, for Debt.

FLEGM, Flegmatick, Flegmagogue, &c. see Phlegm, Phlegmatic, &c.

FLEMISH, is applied to any thing belonging to *Flanders*, or the Inhabitants of *Flanders*.

The Flemish Tongue is what we call *Low-Dutch*, to distinguish it from the *German*, which is called simply *Dutch*, or *High-Dutch*; whereof it is a Corruption, and a kind of Dialect. See Dutch.

The *Flemish* is the Language used throughout all the Low Countries. It differs from the *Walloon*; which is a corrupt *French*. See Walloon.

There are several *Flemish* Translations of the Bible. In the Year 1618. it was decreed by the Synod of *Dort*, that a new *Flemish* Version should be made of the whole Scripture; by reason the old Translation which had been taken from that of *Luther*, was full of Faults. Accordingly, several Persons, learn'd in the *Greek* and *Hebrew* Languages, undertook the Work; which was publish'd with Notes in 1637. This Bible is highly valued by the Reform'd in *Holland*, &c. though M. *Simon* censures it as far from the Perfection of a just Translation. See Bible.

Flemish *Bricks*, a neat, strong kind of Brick, of yellowish Colour, brought from *Flanders*, and much used for paving. See Brick.

FLESH, Caro, in Anatomy, a similar, fibrous Part of an animal Body, soft, thick, and bloody; being that whereof most of the other Parts are composed, and whereby they are connected together. See Body.

The Antients made five different kinds of *Flesh*: The first *Musculous*, *Fibrous*, or *Fistular*; as the Substance of the Heart, and other Muscles. See Muscle, Fibre, &c. The second, *Parenchymous*, as that of the Lungs, Liver and Spleen. See Parenchyma, Spleen, &c. The third, *Viscerous*, as the *Flesh* of the Stomach and Intestines. See Intestines. The fourth, *Glandulous*, as that of the Breasts, Panchreas, Tonsils, &c. See Breast, Panchreas, &c. And the fifth, *Spurious*; as that of the Gums, Glans of the Penis, the Lips, &c. See Glans, &c.

The Moderns only admit of one kind of *Flesh*, *viz.* That of the Muscles, consisting of little Tubes, or Vessels with Blood therein. See Caro; so that the *fleshy* and muscular Parts of the Body with them are the same thing. See Muscle. Sometimes, however, they apply that Term to the Glands; which they call, by way of Distinction, Glandulous *Flesh*. See Gland.

As to the Parenchymas, they are now found to be quite other Things than the Antients imagin'd. The Lungs are only an Assemblage of membranous Vesicles, inflated with Air. See Lungs. The Liver a Collection of Glands, wherein the Bile is separated. See Liver. The Spleen, a Heap of Vesicles, full of Blood; and the Kidneys, like the Liver, a Mass of Glands, for separating of the Urine. See Spleen, and Kidney.

Flesh is also used in Theology, in speaking of the Mysteries of the Incarnation and Eucharist; The Word was made *Flesh: Verbum* Caro *factum est.* See Incarnation.

The *Romanists* hold, that the Bread in the Sacrament of the Supper is turn'd into the real *Flesh* of Jesus Christ. See Transubstantiation.

The Resurrection of the *Flesh* is an Article of Faith. See Resurrection.

The Anthropophagi, or *Cannibals*, feed upon human *Flesh*. See Cannibal, and Carnivorous.

Fungous Flesh, see Fungus.

Flesh-*Colour*, see Carnation.

Flesh is also us'd by Botanists, *&c.* for the soft pulpy Substance of any Fruit, inclos'd between the Outer Rind or Skin, and the Stone: Or that part of a Root, Fruit, *&c.* fit to be eaten.

FLEUR-DE-LISEE, Fleurettee, Fleuronnee, and Fleury, in Heraldry, see Flory.

FLEXIBLE, in Physicks, is applied to Bodies that are capable of being bent, or changed from their natural Form and Direction. See Ductility.

Trees that grow near Waters, as the Willow, Popler, *&c.* are more *flexible* than others. The Fibres being finer and more *flexible* in Women than Men, they have generally a greater Degree of Delicacy of Thought, and Imagination. A *flexible* Voice succeeds in Music.

A Body is not capable of being thus inflected, or bent, unless the whole thereof be at rest. In bending a Body it constitutes, as it were, two Levers; and the Point it is to be bent in, is a Fulcrum: Hence, as a moving Power, the further it is from the Fulcrum, has the greater Force; the longer the *flexible* Body is, the easier it is bent.

FLEXION, in Anatomy, &c. is applied to the Motion of an Arm, or other Member, when bent.

The Arm has a Motion of *Flexion*, and another of Extension.

The Motion of *Flexion* is, when the Radius and Humerus approach each other, and from an Angle, at the Elbow. See Flexor.

Flexion, or Flexure *of Curves*, see Point *of contrary Flexion.*

FLEXOR, in Anatomy, a Name given to several Muscles, in respect of their Action, *viz.* the *Bending* of the Members, or Joints; in opposition to the *Extensors*, which open or stretch them. See Muscle.

Flexor *Capitis*, is a Muscle of the Head, called also *Rectus major anticus.* See Rectus *major*, &c.

Flexor *Carpi ulnaris*, called also *Cubitæus internus*, arises tendinous from the inner Protuberance of the Humerus, and upper Part of the Ulna, upon which it runs along, till passing under the Ligamentum annulare, it is inserted by a short strong Tendon into the fourth Bone of the first Row of the Carpus.

Flexor *Carpi Radialis*, called also *Radicæus Internus*, rises from the same Part with the former, and running along the Radius, is inserted into the upper Part of the Bone of the Metacarpus, which is join'd with the Fore-finger.

Both these Muscles bend the Wrist.——

Flexor *Pollicis longus*, a Muscle of the Toe, derived from the Back-part of the Fibula, with a double Order of Fibres, and runs tendinous under the inner Ankle, and thro' the Channel in the inner Part of the Bone of the Heel, to its Insertion at the Extremity of the great Toe, on the under Side.

Flexor *Pollicis brevis*, arises from the Middle of the Cuneiform Bone. It is short, thick, and fleshy, seemingly two, and running over the Termination of the Peronæus, has a double Insertion into the Ossa Sesamoidea.

Flexor *primi Internodii Digitorum Pedis*, see Lumbricales *pedis.*

Flexor *secundi Internodii Digitorum Manus*, see Perforatus *manus.*

Flexor *tertii Internodii Digitorum Pedis.* See Perforans *Pedis.*

Flexor *tertii Internodii Digitorum Manus*, see Perforans *Manus.*

Flexores *primi Internodii Digitorum Manus*, are Muscles of the Fingers, called also *Lumbricales Manus.* See Lumbricales.

Flexores *secundi Internodii Digitorum Pedis*, see Perforatus *Pedis.*

Flexores *Pollicis Manus*, are two Muscles, serving to bend the Thumb.

The first, called *Flexor tertii Internodii*, &c. arises from the internal Protuberance of the Humerus, and part of the Radius, by different Orders of Fibres, and passing under the Ligamentum Annulare, is inserted into the third Bone of the Thumb.——

The second, called *Flexor secundi Internodii*, &c. arises from the Bones of the Carpus, and Annular Ligament; and is inserted into the second Bone of the Thumb.——

FLIE, that Part of the Mariners Compass, on which the thirty two Winds are drawn, and to which the Needle is fasten'd underneath. See Compass.

FLIGHT, the Act of a Bird in *flying*; or the Manner, Duration, *&c.* thereof. See Flying.

The Feathers of Birds are admirably contriv'd and fitted for the Ease and Conveniency of *Flight.* See Feather.

Almost every kind of Bird has its particular *Flight*: The Eagle's *Flight* is the highest: The *Flight* of the Sparrow-Hawk, and Vultur, are noble, dispos'd for high Enterprise and Combat. The *Flight* of some Birds is low, weak, transient, and as they call it, *terra a terra*: The *Flight* of the Partridge and Pheasant, is but of short Continuance: That of the Dove, labour'd: That of the Sparrow, in Waves, *&c.*

The Augurs pretended to foretell future Events from the *Flight* of Birds. See Augury.

Flight. In melting the Lead Oar in the Works in *Mendip*, there is a substance flies away in the Smoak, which they call the *Flight.*

They find it sweetish upon their Lips, if their Faces happen to be in the way of the Smoak, which they avoid all they can. This, falling on the Grass, kills Cattle that feed there; and being gather'd and carried home, kills Rats and Mice in their Houses: That which falls on the Sand, they gather and melt upon a Flagg-hearth, into Shots and Sheet-Lead.

Flight *of a Stair-Case*, see Stair-*Case.*

Flight, in Heraldry, see Vol.

Capons Flight, in some Customs, is a Compass of Ground, such as a Capon might *fly* over, due to the eldest born of several Brothers, in making Partition of the Father's Effects with them, when there is no principal Manor in a Lordship.

It it usually estimated by a Bow-shot.——

FLINT, a small, hard, livid or black Pebble. See Stone, and Pebble.

Flints are one of the principal Ingredients in the making of Glass. See Glass.

Flint-*Glass*, see *Flint* Glass.

Flint and *Steel*, see Tinder.

The *Indians*, instead of *Flint* and Steel, use two Pieces of green Wood, which they rub violently against each other. In the East, they use the Wood Candon; and in *Peru*, Reyaca. See Fire.

Flint-*Walls*; see Walls.

FLIP, a sort of Sailors Drink, made of Malt Liquor, Brandy and Sugar, mix'd.

FLOAT, or Fleet, see Flota, and Flotilla.

Float *of a Fishing Line*, a Cork, or Quill, swimming on the Water, to observe what becomes of the Hook, whether any thing bite, *&c.* See Fishing *Float.*

Floats, a certain Quantity of Pieces of Timber joined together with Rafters a-thwart, thrown into a River, to be convey'd down the Stream; and even to convey Burdens down a River with the Stream. The Invention of *Floats* is of great use: 'Tis said to have been first put in Execution at *Paris*, in the Year 1618.

FLOATING *Vessels*, see Boat.

Floating, in Husbandry, is the drowning or watering of Meadows.

FLOOD, a Deluge, or Inundation of Waters. See Deluge.

Plato seems to have had some Notion of the Great *Flood*, and the Intention thereof. ὅταν δ' αὖ οἱ θεοὶ τῷ γῆν ὕδασι καθαίρωσι, &c. When the Gods purge the Earth with a *Flood. Plat. Tim. p.* 22.

Flood is also us'd in speaking of the Tides.

When the Water is at lowest, 'tis called *Flood*; when rising, Young, or Old *Flood*; when at highest, and beginning to fall, *Ebb Water.* See Tides, Ebb, Flux, *&c.*

FLOOK, or Floak *of an Anchor*, see Anchor.

FLOOR, in Building, the Underside of a Room, or that Part we walk on.

Floors are of divers sorts; some of Earth, some of Brick, others of Stone, *&c.*

Carpenters, by the Word *Floor*, understand as well the framed Work of Timber, as the Boarding over it.

Earthen Floors are commonly made of Lome, and sometimes, especially to make Malt on, of Lime, and Brook Sand, and Gun Dust, or Anvil Dust from the Forge.

Ox-blood, and fine Clay, temper'd together, Sir *Hugh Plat* says, makes the finest *Floor* in the World.

For *Brick* and *Stone Floors*, see Paving.

For

For boarded *Floors*, it is obſervable, that the Carpenters never *floor* their Rooms with Boards, till the Carcaſs is ſet up, and alſo inclos'd with Walls, leſt the Weather ſhould wrong the *Flooring*; yet they generally rough-plane their Boards for the *Flooring*, before they begin any thing elſe about the Building, that they may ſet them by to dry and ſeaſon; which is done in the moſt careful manner.

FLOOR *of a Ship*, ſtrictly taken, is only ſo much of her Bottom, as ſhe reſts on, when a-ground; ſo that ſuch Ships as have long, and withal broad *Floors*, lye on the Ground with moſt Security, and are not apt to ſeel, or tilt on one Side; whereas others, which are narrow in the *Floor*, or in the Sea-Phraſe, *Cranck'd by the Ground*, cannot be grounded without Danger of being overthrown.

FLORALES *Ludi*, or FLORAL *Games*, in Antiquity, were Games held in Honour of *Flora*, the Goddeſs of Flowers. See FLORALIA.

They were celebrated with horrible Debaucheries. The moſt licentious Diſcourſes were not enough; but the Courtiſans were called together by the Sound of a Trumpet, made their Appearance naked, and entertain'd the People with abominable Shews and Poſtures: The Comedians appear'd after the ſame manner on the Stage. *Val. Maximus* relates, that *Cato* being once preſent in the Theater on this occaſion, the People were aſham'd to aſk for the infamous Pleaſure, in his Preſence; till *Cato*, appriz'd of the Reſervedneſs and Reſpect he inſpir'd them withal, withdrew, that the People might not be balk'd of their accuſtomed Diverſion.

There were divers other ſorts of Shews exhibited on this occaſion; and if we may believe *Suetonius*, in *Galba*, C. 6. and *Vopiſcus* in *Carinus*, theſe Princes preſented Elephants dancing on Ropes.

The *Ludi Florales*, according to *Pliny*, L. XVIII. C. 29. were inſtituted by order of an Oracle of the Sibyls, on the 28th of *April*; not in the Year of *Rome* IↃXVI. as we comonly read it in the antient Editions of that Author; nor in IↃXIV. as *Fr. Hardouin* has corrected it; but as *Voſſius* reads it, in 513. They were chiefly held in the Night time, in the *Patrician-Street*: Some will have it there was a Circus for the purpoſe on the Hill call'd *Hortulorum*.

Some will have the Goddeſs *Flora* to be the ſame with the *Chloris* of the *Greeks*.

Others hold, that this ſame *Flora* was a famous Courtiſan at *Rome*, who having enrich'd her ſelf by Proſtitution, made the People of *Rome* her Heir, on condition that they ſhould celebrate the Anniverſary of her Birth-day, by the Games and Feaſts above-mentioned. Some time afterward, the Senate judging ſuch a Foundation unworthy the Majeſty of the *Roman* People; to ennoble the Ceremony, converted *Flora* into a Goddeſs, whom they ſuppos'd to preſide over Flowers; and ſo made it a piece of Religion to render her propitious, that it might be well with their Gardens, Vineyards, &c.

This is the common Account: But *Voſſius de Idol.* L. I. C. 12. can by no means allow the Goddeſs *Flora* to have been the Courtiſan above-mention'd: He will rather have her a *Sabine* Deity; and thinks her Worſhip might have commenc'd under *Romulus*. His Reaſon is, that *Varro* in his *Fourth Book of the Latin* Tongue, ranks *Flora* among the Deities, to whom *Tatius*, King of the *Sabins*, offer'd up Vows, before he join'd Battle with the *Romans*. Add, that from another Paſſage in *Varro* it appears, that there were Prieſts of *Flora*, with Sacrifices, &c. as early as *Romulus* and *Numa*.

FLORAL *Games*. There are a kind of *Floral Games* obſerv'd at this day in *France*. They were firſt inſtituted in 1324.

The Deſign and Eſtabliſhment is owing to ſeven Perſons of Condition, Lovers of Poetry, who about *All-Saints Day*, in 1323. ſent a Circular Letter to all the Provincial Poets, called *Troubadours*, to meet at *Tholouſe* on *May-day* following, there to rehearſe their Poems; promiſing a Violet of Gold to the Perſon whoſe Piece ſhou'd be judg'd the beſt.

The *Capitouls* found the Deſign ſo good, that it was afterwards reſolv'd at a Council of the City, to continue it at the City Charge; which is ſtill done, in a manner that does Honour to the Place:

In 1325 a Chancellor, and Secretary of the New Academy were choſe; and the ſeven Inſtitutors took the Quality of *Maintainers* thereof. Two other Prizes were afterwards added to the Violet, *viz.* an Eglantine for the ſecond Prize; and a Panſy for the third. It was alſo decreed, that the Perſon who bore away the firſt Prize, might demand to be made Batchelor; and that whoever bore away all three, ſhould be created Doctor in the *Gaye Science*, that is, in Poetry.

There is a Regiſter of theſe Games kept at *Tholouſe*, which gives this Account of their Origin: Tho' others give the thing another turn. It was an antient Cuſtom, they ſay, for the Poets of *Provence*, to meet yearly at *Tholouſe*, to confer together, rehearſe their Verſes, and receive a Prize allotted to the beſt Performance. This held till about the Year 1540, when a Lady of Quality left the beſt part of her Fortune, to eternize the Cuſtom, and bear the Expence of Prizes; the Number of which ſhe increas'd, ordering an Eglantine, a Panſy, a Violet, and a Pink: The three firſt a Cubit high; worth fifteen Piſtoles a-piece.

The Ceremony begins on *May-day*, with a ſolemn Maſs, Muſick, &c. The Corporation attend; and Poems are rehearſed every day: The third Day a magnificent Treat is given the Magiſtracy, &c. and that day the Prizes are adjudged. The three Prizes are the Rewards of three different kinds of Compoſitions, *viz.* a Poem, an Eclogue, and an Ode.

FLORALIA, in Antiquity, a general Name for the Feaſts, Games, and other Ceremonies, held in honour of the Goddeſs *Flora*.

The *Floralia* were alſo called *Anthiſteſes*: They were held at the latter end of the Month of *April*, as *Ovid* witneſſes,

Exit, & in Majas feſtum Florale *Calendas.*

In effect, the *Floralia* began on the 28th of *April*, and laſted ſix Days.

They who aſſiſted at the Ceremony, were crown'd with Ivy, and committed a world of undecent things; which indeed was no extraordinary thing in the Heathen Feaſts.

Some apply the Word *Floralia* indifferently to the Feaſts, and Games of this Goddeſs; but others reſtrain it to the Feaſts alone; calling the Games *Ludi Florales*. See FLORALES *Ludi*.

FLORID *Style*, is that enrich'd and heighten'd with Figures and Flowers of Rhetorick. *Longinus* uſes the Terms *florid* and *affected* Style indifferently, and lays them down as quite contrary to the true ſublime. See STYLE, and SUBLIME.

FLORILEGE, FLORILEGIUM, a Name the *Latins* have given, to what the *Greeks* call ἀνθολόγιον. *Anthology*; *viz.* a Collection of choice Pieces, containing the fineſt and moſt florid Things in their kind. See ANTHOLOGY.

The Term is particularly uſed in the Eaſtern Church, for a kind of Breviary, compiled by *Arcadius*, for the Conveniency of the *Greek* Prieſts and Monks, who cannot carry with them in their Travels and Pilgrimages all the Volumes wherein their Office is diſpers'd.

The *Florilegium* contains the General Rubricks, Pſalter, Canticles, the Horologium, Office of the Feriæ, &c.

FLORIN, is ſometimes us'd for a Coin, or real Money; and ſometimes for an imaginary Money, or Money of Account. See COIN, and MONEY.

As a *Coin*, *Florin* is of divers Values, according to the divers Metals, and divers Countries where it is ſtruck.

Florins were antiently very frequent in Commerce; at preſent they are leſs common, though there were abundance of them ſtruck in *Holland*, of *Engliſh* Silver, during the War which was terminated by the Treaty of *Ryſwick*.

In all appearance they took their Name from the Place where they were firſt ſtruck, *viz.* the City of *Florence*. Their Æra is about the Year 1251. though others aſcribe the Name to a Flower-de-Lis, which was ſtruck on one Side.

The Gold *Florins* are moſt of them of a very coarſe Alloy; ſome of them not exceeding thirteen or fourteen Carats, and none ſeventeen and a half. They weigh about two Penny-weights, and thirteen Grains.

Villani obſerves, that there were Gold *Florins* in the Year 1067; from which time the Names *Frank*, or *Florin* became applied to the Gold Coins, which till that time had been called *Solidi*, Shillings.

As to Silver *Florins*, thoſe of *Holland* are worth about 25 *French* Sols, or 1 *s.* 10½ *d.* Sterling. Thoſe of *Genoa*, &c. are worth about 8 *d.* ¾ Sterling.

Pieces of three *Florins* are called *Ducatoons*. See DUCATOONS.

As a *Money of Account*, the *Florin* is us'd by the *Italian*, *Dutch*, and *German* Merchants and Bankers, in keeping their Books, and making out their Accounts. But this *Florin* is very diverſe, and admits of different Diviſions. In *Holland* it is on the foot of the *Dutch* Coin of that Name, containing 24 *Deniers Groſch*, and divided into *Pacards* and *Penins*.

At *Francfort*, *Nuremberg*, &c. it is equivalent to three Shillings Sterl. and is divided into *Creutzers* and *Pfennings*. At *Liege* it is equivalent to 2 *s.* 3 *d.* At *Strasbourgh* to 1 *s.* 8 *d.* In *Savoy* to 11 *d.* At *Genoa* to 8 *d.* ¾. and at *Geneva* to 6 *d.* ½.

FLORIN was alſo a Gold Coin, ſtruck in *England* in the 18th of *Edw.* 3. of the Value of ſix Shillings.

Cambden ſays, They were ſu called, becauſe made by *Florentines*: And *Fabian* ſays, they were not of ſo fine Gold as the Nobles and Half-Nobles of that Prince.

But what is moſt obſervable, is that *Fabian* calls the *Florin* a Penny, Val. 6 *s.* 8 *d.* the half *Florin* an Half-penny, Val. 3 *s.* 4 *d.* the Quarter *Florin* a Farthing, Val. 1 *s.* 8 *d.*

Theſe Words you will often meet with in old Hiſtories and Accounts, applied to ſeveral Coins, as Rials and Angels,

gels, &c. where you are to understand by Denarius the whole, by Obolus the half, and by Quadrans the fourth Part, or Farthing. See DENARIUS, PENNY, OBULUS, FARTHING, &c.

By Indenture of the Mint in 18 *Ed.* 3. every Pound weight of old Standard Gold, was to be coin'd into fifty *Florins*, to be current at six Shillings a-piece; all which made in Tale fifteen Pounds; or into a proportionable Number of half or quarter *Florins*.

FLORINIANS, FLORIANI, a Sect of Hereticks, of the second Century, denominated from its Author *Florinus*, or *Florianus*, a Priest of the *Roman* Church, deposed along with *Blastus*, for his Errors.

Florin had been a Disciple of St. *Polycarp*, along with *Irenæus*. He made God the Author of Evil; and taught the *Gnostic* Doctrine of two Principles.

According to *Philastrius*, the *Florianians* likewise denied a future Judgment and Resurrection: Held that JESUS CHRIST was not born of a Virgin; and taught that the Resurrection was in effect a new Generation. They are also charged with holding criminal Assemblies in the Night-time, and giving into Judaism and Paganism.

They had other Names given them: *Philastrius* says, they were the same with the *Carpophorians*. He adds, that they were also called Soldiers, *Milites*, *Quia de militaribus fuerunt*. St. *Irenæus* calls them *Gnosticks*: St. *Epiphanius*, *Phibionites*; and *Theodoret*, *Borborites*, on account of the Impurities of their Life: Others call them *Zacheans*; others *Coddians*, &c. though, for what particular Reasons, 'tis not easy, nor perhaps wou'd it be worth while, to say.

FLORIST, a Person curious, or learned in Flowers; their Kinds, Names, Characters, Culture, &c. See FLOWER.

FLORY, FLOWRY, FLEURY, FLORETTEE, FLEUR-DE-LISEE, &c. are Terms in Heraldry, when the Outlines of any Ordinary are drawn as if trimm'd with, or in the Form of, Flowers, Lillies, Flower-de-Luces, &c.

Thus, He bears a Cross *Flory*, &c.

FLOTA, or FLOTTA, *i. e. Fleet*, a Name the *Spaniards* give particularly to the Ships which they send annually from *Cadix*, to the Port of *Vera-Crux*, to fetch the Merchandizes gather'd in *Mexico* for *Spain*. Those sent to fetch the Commodities prepared in *Peru*, are called *Gallions*. See FLEET, and GALLION.

They give the Name FLOTILLA to a Number of Ships, which get before the rest in their Return, and give Information of the Departure and Cargo of the *Flota* and Gallions.——

FLOTAGES, are all such things as are floating on the Top of the Sea, or great Rivers; a Word more especially used in the Commissions of Water-Bailiffs.

FLOTSON, or FLOTZAM, a Term signifying any Goods lost by Shipwreck, and swimming on the Top of the Water; which, with *Jetson*, and *Lagon*, and *Shares*, are given to the Lord High Admiral, by his Letters Patents. See ADMIRAL.

Jetson is what is cast out of the Ship, being in Danger of a Wreck, and beaten to the Shore by the Water; or cast on Shore by the Seamen. See JETSON.

Lagon, or *Lagan* is that which lies in the Bottom of the Sea. See LAGON.

Shares are Goods due to several Persons, by Proportion.

FLOUNDER *Fishing*, see *Flounder* FISHING.

FLOWER, *Flos*, is that Part of a Plant, which contains the Organs of Generation; or the Parts necessary for the Propagation of the Kind. See PLANT and GENERATION *of Plants*.

The *Flower* is a natural Production, which precedes the Fruit, and yields the Grain or Seed. See SEED, and FRUIT.

The Structure of *Flowers* is somewhat various; though the Generality, according to *Grew*, have these three Parts in common, *viz.* The *Empalement*, the *Foliation*, and the *Attire*. See EMPALEMENT, FOLIATION, &c.

Mr. *Ray* reckons, that every perfect *Flower* has the *Petala*, *Stamina*, *Apices*, and *Stylus*, or *Pistil*: Such as want any of these Parts, he deems *Imperfect Flowers*. See PETALA, STAMINA, PISTIL, &c.

In most Plants there is a *Perianthium*, Calix, or *Flower*-Cup, of a stronger Consistence than the *Flower* it self, and design'd to strengthen and preserve it. See PERIANTHIUM, and CALIX.

In some *Flowers* the two Sexes are confounded, *i. e.* the Male and Female Parts are found in the same *Flower*; in others, they are separated: And of these again, some are followed by Fruits, and others not: Whence, *Flowers* become distinguish'd into *Male*, *Female*, and *Hermaphrodites*.

The Generality of *Flowers* are of the *Hermaphrodite* kind: Such *e. gr.* are the Lilly, Tulip, Daffodil, Rosemary, Sage, Thyme, Geranium, Althæa, &c. See HERMAPHRODITES.

The Structure of Parts is much the same in those where the Sexes are divided: The Difference between them consists in this, that the Stamina and Apices, *i. e.* the male Parts, in these, are separated from the Pistils; being sometimes on the same stand, and sometimes on different ones.——

Those, wherein the Stamina are, in regard they bear no Fruit, are called *Male*, or barren *Flowers*, and by the Botanists, *Stamineous Flowers*: Those which contain the Pistil, being succeeded with Fruit, are called *Females*, or *Knitting*, or *Fruitful Flowers*.

Among the Plants which bear both Male and Female Parts on the same Stand, but at a distance from each other, are reckon'd, the Cucumber, Melon, Gourd, Turky Wheat, Turnsol, Wallnut, Oak, Beech, Fir, Alder, Cypress, Cedar, Juniper, Mulberry, Plantan, &c.

Those, where the Male and Female Parts of the *Flowers* are bore on different Stands, are some Species of Palm, the Willow, Poplar, Hemp, Mercury, Spinage, Nettles and Hops.——See GENERATION *of Plants*.——

Mr. *Ray* divides *Flowers* into *Perfect*, and *Imperfect*.

Perfect Flowers he here accounts all such as have the Petala, tho' they want the Stamina. These he subdivides into *Simple*, which are those not compos'd of other smaller ones, and which usually have but one single Style; and *Compounded*, which consist of many Flosculi, all making but one *Flower*. See *Simple* FLOWERS.

Simple Flowers are either *Monopetalous*, which have the Body of the *Flower* all of one entire Leaf, though sometimes cut, or divided a little way, into many seeming Petala, or Leaves, as in Borrage, Buglos, &c.

Or *Polypetalous*, which have distinct Petala, and those falling off singly, and not altogether, as the seeming Petala of the monopetalous *Flowers* always do.

Both those are farther divided into *Uniform* and *Difform Flowers*.

The former have their Right and Left-hand Parts, and the forward and backward Parts all alike; but the Difform have no such Regularity; as in the *Flowers* of Sage, Dead-Nettle, &c.

A Monopetalous *difform Flower* is likewise farther divided into

1° *Semi-fistular*, whose upper Part resembles a Pipe, cut off obliquely, as in the Aristolochia.

2° *Labiate*: And this either with one Lip only, as in the Acanthum and Scordium; or with two Lips, as in the far greater Part of the Labiate *Flowers*.

And here the upper Lip is sometimes turned upwards, and so turns the convex Part downwards, as in the Chamæcissus, &c. but most usually the upper Lip is convex above, and turns the hollow Part down to its Fellow below, and so represents a kind of Helmet, or Monk's Hood; whence these are frequently called *Galleate*, *Cucullate*, and *Galericulate Flowers*.

Such are the *Flowers* of the Lamium, and most verticillate Plants.

Sometimes also the Labium is entire, and sometimes jagged or divided.

3° *Corniculate*, that is, such hollow *Flowers*, as have on their upper Part a kind of Spur or little Horn; as in the Linaria, Delphinum, &c. And the Corniculum or Calcar is always impervious at the Tip or Point.

Compound FLOWERS are,

1° *Discous* or *Discoidal*, that is, whose Flosculi are set together so close, thick, and even, as to make the Surface of the *Flower* plain and flat; which therefore, because of its round Form, will be like a Discus.

This Disk is sometimes radiated, when there are a Row of Petala standing round in the Disk, like the Points of a Star; as in the Matricaria, Chamæmelum, &c.

And sometimes naked, having no such radiating Leaves round the Limb of its Disk, as in the Tanacetum.

2° *Planifolious*, which are compos'd of plain *Flowers*, set together in circular Rows, round the Centre, and whose Face is usually indented, notch'd, uneven, and jagged; as the Hieracia, Sonchi, &c.

3° *Fistular*, which are compounded of many long, hollow, little *Flowers*, like Pipes, all divided into large Jags at the Ends.

Imperfect Flowers are such as want the Petala, and are called likewise *Stamineous*, *Apetalous*, and *Capillacious*.

Those which hang pendulous by fine Threads like the Juli, are by *Tournefort* called *Amentacious*; we call them *Cats-tails*.

Botanists furnish other Divisions and Denominations of *Flowers*.

Campaniform, or Bell-like FLOWERS, are those in Shape of a Bell. See CAMPANIFORM.

Cruciform FLOWERS, are those consisting of four Petala, or Leaves: The Calix also containing four Leaves; and the Pistil always producing a Fruit. Such are those of the Clove Tree, Cabbage Tree, &c.

Infun-

Infundibuliform Flowers, are such as resemble the Figure of a Funnel, *i. e.* broad, and ample at top, and contracted into a Neck at bottom: Such is that of the Bear's Ear.

Cucurbitaceous Flowers, are such as resemble the *Flower* of the Gourd; or have the same Conformation therewith. See Cucurbitaceous.

Stamineous Flowers, are such as have no Petala, but consist wholly of Stamina's or Threads, with Apices a-top.

The Leaves placed around these Stamina, are not to be esteem'd as Petala, but a Calix; in regard they afterwards become a Capsula, or Cover, including the Seed; which is the Office of the Calix alone. See Calix.

In effect, it is essential to the Leaves of *Flowers*, not to serve as a Cover to the Seeds that succeed them: And this is the only Characteristic that distinguishes the Leaves, or Petala of *Flowers* from their Calix; for, that no particular Colour of the Leaves does determine, whether the Parts in dispute be Leaves of the *Flower*, or the Calix of the *Flowers*, appears hence, that there are some Leaves of *Flowers*, which are green like the Calix; and some Calices colour'd, like Petala.——.

Leguminous Flowers, are those of Leguminous Plants. These bear some Resemblance to a flying Butterfly; for which reason they are also called *Papillionaceous Flowers*.

Papillionaceous Flowers, consist of four or five Leaves, whereof the uppermost is called *Vexillum*, or Standard; and the lowest *Carina*, as resembling the Bottom or Keel of a Boat: Those between the two, are called *Lateral* Leaves, or *Alæ*.

From the Bottom of the Calix arises a Pistil, which is incompass'd with a Sheath, or Cover, fringed with Stamina. This Pistil always becomes the Fruit, and is usually called the Pod, in Latin, *Siliqua*. See *Leguminous*.

Umbelliform Flowers, are those with several Leaves doubled, and dispos'd in manner of a Rose; and whose Calix essentially becomes a Fruit of two Seeds, join'd, before they come to Maturity; but afterwards easily separated again.

They have this Denomination, by reason they are generally sustain'd by a Number of Threads, which proceeding from the same Centre, are branch'd all around, like the Sticks of an Umbrello.

Of this kind are the *Flowers* of Fennel, Angelica, &c. See Umbelliform.

Verticillate Flowers, are those ranged, as it were, in Stories, Rings, or Rays along the Stems: Such are those of Horehound, Clary, &c.

Flowers, in Gardening, are distinguish'd, into *Early*, or *Spring-Flowers*, which flourish in the Months of *March*, *April*, and *May*.

Such are the Anemonies, Daffodils, Hyacinths, Tulips, Junquils, Cowslips, Primroses, &c.

Summer Flowers, which open in *June*, *July*, and *August*, as Pinks, Gilly Flowers, Lillies, Dasies, Campanulas, Poppies, Sun Flowers, &c.

And *Autumnal*, or *Late Flowers*, those of *September* and *October*; as the Oculus Christi, Indian Pinks, and Roses, Pansy, Flower Gentle, &c.

Of these *Flowers*, those which subsist all the Year, we mean in the Stem, or Root at least, are called *Perennials*;

And those which are to be planted, or sow'd a-fresh every Year, according to the Season, are called *Annuals*.——See Green-house.

Flower, in Architecture, according to *Vitruvius*, is a Representation of some imaginary *Flower*, by way of crowning, or finishing, on the Top of a Dome, &c.

In lieu of this the Moderns commonly use a Vase, Ball, or the like.

Flower *of the Capital*, is an Ornament of Sculpture, in form of a Rose, in the middle of the Sweep, of the *Corinthian* Abacus: In that of the Composite, 'tis an imaginary kind of *Flower*. See Capital.

Flowers, in Chymistry, are the finest, and most subtle Parts of dry Bodies, rais'd by Fire, into the Head, and Aludels; and adhering to them, in form of a fine Powder, or Dust. Such are the *Flowers* of Sulphur, Benjamin, &c. See Sublimation.

Flower *of Sulphur*, or *Brimstone*, is prepared by putting the Sulphur grosly powder'd into a Glass Body, placed in a small open Fire, with another earthen Vessel of the same form over, or in it, Neck to Neck. This disposed, the Fire will sublime, or raise the *Flowers*, and gather them in the upper Vessel. See Aludel; see also Sulphur.

Flower *of Wheat*, Rye, and other Pulse. See Farina.

Flowers, in the Animal Oeconomy, are Womens monthly Purgations, or Menses. See Menses.

Nicod derives the Word in this sense from *fluere*, q. d. *Fluors*: Others will have the Name occasion'd hence, that Women do not conceive, till they have had their *Flowers*; so that these are a sort of Forerunners of their Fruit.——

Flowers, in Rhetoric, are Figures, or Ornaments of Discourse, by the *Latins* called *Flosculi*. See Figure.

Flower-*de-Lis*, or, as it is vulgarly wrote, *de Luce*, in Heraldry, is a bearing antiently of great Dignity; being reputed the noblest of all *Flowers*, and as such having been in all Ages the Charge of the Royal Escutcheon of the Kings of *France*; though Tract of Time has made the bearing thereof more vulgar.

In some Coats 'tis bore Single; in others Triple; in others it is Semée, seeded all over the Escutcheon.

FLOWERAGE, a Collection of Flowers of several kinds set together in Husks, and hung up with Strings.——

FLOWER'D, in the Manufactures. A Stuff, or Cloth, is said to be *flower'd*, *flourish'd*, *sprig'd*, or *figur'd*, when there are Representations of *Flowers*, either natural, or imaginary wrought thereon.

There are Stuffs *flower'd* of almost all kinds of Matters: Flowers of Gold, Silver, Silk, Wool, Thread, Cotton, &c. Stuffs and Cloths are usually denominated from the Ground, whereon the Flowers are raised.

Thus there are *flower'd* Velvets, Taffaties, Damasks, Satins, Mohairs, Dimities, &c. See Velvet, Taffaty, Damask, &c.

Those *flower'd* with Gold and Silver, are more usually called *Brocades*. See Brocade.

The Flowers are usually wrought at the same time with the Cloth, or Ground. The Threads of the Warp are rais'd, and lowerd by means of Packthreads, pass'd through them in mounting the Loom; and the Manufacturer shooting his Warp, or matter of the Flowers, whether Gold, Silver, Silk, or the like between the Threads thus rais'd, forms the Flowers. See Warp, Woof, Weaving, &c.

'Tis very curious to see them mount a Loom; or, as they call it, *Read a Design*, to be represented on a Stuff: But it is next to impossible to describe it; yet we have endeavour'd to give some Idea thereof under the Article Design; see also Tapistry.

FLUIDITY, in Physicks, that State or Affection of Bodies, which denominates, or renders them *fluid*; see Fluid.

Fluidity stands in direct Opposition to *Firmness*, or Solidity. See Firmness.

It is distinguish'd from *Liquidity*, and *Humidity*, in that the Idea of the first is absolute, and the Property contain'd in the thing it self; whereas that of the latter is relative, and implies wetting, or adhering; *i. e.* somewhat that gives us the Sensation of Wetness, or Moisture, and which would have no Existence, but for our Senses.

Thus, melted Metals, Air, Æther, and even Smoak and Flame it self are *Fluid* Bodies, but not *Liquid* ones; their Parts being actually dry, and not leaving any Sense of Moisture. See Liquid, and Humidity.

The Nature, or Cause of *Fluidity* has been variously assign'd. The *Gassendists*, and antient Corpuscularians, require only three Conditions as necessary thereto, *viz.* a Smallness and Smoothness of the Particles of the Body; Vacuities interspersed between them; and a Spherical Figure. Thus the Epicurean Poet, Lucretius,

Illa autem debent ex lævibus atque rotundis
Esse magis, fluido quæ corpore liquida constant.

The *Cartesians*, and after them Dr. *Hook*, Mr. *Boyle*, &c. beside the Circumstances above mentioned, require a various, perpetual, intestine Motion of the Particles of the Bodies, as that which principally contributes to *Fluidity*.

Fluidity then, according to these Philosophers, consists in this, that the Parts of the Body being very fine, and small, are so disposed by Motion, or Figure, as that they can easily slide over one another's Surfaces all manner of ways; and that they be in a constant, various, separate Agitation to and fro; and that they only touch one another in some Parts of their Surfaces.

Mr. *Boyle* in his *History of Fluidity* mentions these three as the Conditions principally required to *Fluidity*, viz.

1° The *Minuteness of Parts*: As, in effect, we find that Fire, by dividing Metals into fine, small Parts, renders them fluid; and that acid Menstruums dissolve and render them fluid after the like manner; and that Fire turns the hard Body of common Salt almost wholly into a Liquor, by Distillation: Not but that the Figure of the Particles may have a considerable Share in *Fluidity*.

Thus Mercury, whose Parts are doubtless much grosser than those of Oil and Water, is yet more fluid than either of them: And thus Oil, by the Action of Fire, may be converted into a consistent Substance, like Butter.

2° *Store of Vacuities* interspersed between the Corpuscles, to give room for the several Particles to move among themselves.

3° A *Motion* and *Agitation* of the Corpuscles; either from some Principle of Mobility within themselves, or from some extraneous Agent, penetrating and entering the Pores, moving variously among them, and communicating to them part of its Motion.

That this last is the Qualification chiefly required in *Fluidity*, he argues from divers Observations and Experiments.

Thus, a little dry Powder of Alabaster, or Plaister of Paris finely sifted, being put in a Vessel over the Fire; it soon begins to boil like Water; exhibiting all the Motions and Phænomena of a boiling Liquor. It will kindle variously in great Waves like that; will bear stirring with a Stick or Ladle like that, without resisting; Nay, if strongly stirr'd near the Side of the Vessel, its Waves will apparently dash against them: Yet is it all the while a dry, parch'd Powder.

The like is observ'd in Sand: A Dish of which being set on a Drumhead, briskly beaten by the Sticks; or on the upper Stone of a Mill, it in all respects emulates the Properties of a fluid Body. A heavy Body, *e. gr.* will immediately sink in it to the Bottom, and a light one emerge to the Top: Each Grain of Sand has a constant vibratory and dancing Motion; and if a Hole be made in the Side of the Dish, the Sand will spin out like Water.

That the Parts of Fluids are in continual Motion, the *Cartesians* bring divers Considerations to prove; as 1° The Transmutation of Solids into Fluids, *e. gr.* Ice into Water, and *vice versa*; the chief Difference between the Body in those two States consisting in this, that the Parts being fix'd and at rest in the one, resist the Touch; whereas in the other, being already in Motion, they gave way upon the slightest Impulse,

2° The Effects of Fluids, which commonly proceed from Motion: Such are the Insinuation of Fluids among the Pores of Bodies; the softening and dissolving of hard Bodies; the Actions of corrosive Menstruums, *&c.* Add, that no Solid can be brought to a State of *Fluidity*, without the Intervention of some moving, or moveable Body, as Fire, Air, or Water.

Air, the same Gentlemen hold the first Spring of these Causes of *Fluidity*; it being this that gives Motion to Fire and Water, though it self receives its Motion and Action from the Æther, or subtle Medium. See AIR and ÆTHER.

The Learned *Boerhaave*, in his late Excellent *Institut. Chymiæ*, pleads very strenuously for Fire's being the first Mover, and the Cause of all *Fluidity* in other Bodies, as Air, Water, *&c.* without this, he shews, that the Atmosphere it self would fix into one solid Mass. See FIRE.

Sir *I. Newton* sets aside this Theory of the Cause of *Fluidity*, and substitutes a new one, the great Principle of Attraction.

The Corpuscular System, with all the Improvements of *Des Cartes*, and Mr. *Boyle*, did not sufficiently account for the primary Condition, requisite to constitute a Body fluid, *viz.* the various intestine Motion and Agitation of its Particles.

But, this Motion is naturally enough accounted for, by supposing it a primary Law of Nature, that, as all the Particles of Matter attract each other, when within a certain Distance; so at all greater Distances, they fly from, and avoid one another.

For then, tho' their common Gravity together with the Pressure of other Bodies upon them, may keep them together in a Mass; yet their continual Endeavour to avoid one another singly, and the adventitious Impulses of Heat, Light, or other external Causes, may make the Particles of Fluids continually move round about one another, and so produce this Quality.

There is a Difficulty indeed, in accounting, why the Particles of Fluids always keep at such a Distance from one another, as not to come within the Sphere of one another's Attraction.

The Fabrick and Constitution of that fluid Body, Water, is amazing; that a Body so very rare, and which has a vast Over-proportion of Pores, or interspers'd Vacuity, to solid Matter, should yet be perfectly incompressible by the greatest Force: And yet this Fluid is easily reducible into that firm, transparent, friable Body, which we call *Ice*, by being only exposed to a certain Degree of Cold. See COLD and FREEZING.

One would think, that tho' the Particles of Water cannot come near enough to attract each other, yet the intervening frigorifick Matter doth, by being mingled *per minima*, strongly attract them, and is it self likewise strongly attracted by them, and so wedges or fixes all the Mass into a firm solid Body; which solid Body loses its Solidity again, when by Heat the Vinculum is solved, and the frigorifick Particles are disjoined from those of the Water, and are forced to fly out of it: And just thus may the Fumes of Lead perhaps fix Quicksilver. See FIXATION.

When a firm solid Body, such as a Metal, is by Heat reduced into a Fluid, the Particles of Fire disjoin and separate its constituent Parts, which their mutual Attraction caused before to cohere; and keep them at such a distance from one another, as that they are out of the Sphere of each other's Attraction, as long as that violent Motion lasts; and when by their Lightness and Activity they are flown off, unless they are renewed by a continual Supply, the component Particles of the Metal come near enough again to feel one another's Attractions.

As therefore the Cause of Cohesion of the Parts of solid Bodies appears to be their mutual Attraction; so the chief Cause of *Fluidity* seems to be a contrary Motion, impress'd on the Particles of Fluids, by which they avoid, and fly one another, as soon as they come at, and as long as they keep at such a Distance from each other.

It is observ'd also in all Fluids, that the Direction of their Pressure against the Vessels which contain them, is in Lines perpendicular to the Sides of such Vessels; which Property being the necessary Result of the Particles of any Fluid's being spherical, it shews that the Parts of all Fluids are so, or of a Figure very nearly approaching thereunto.

FLUIDS, are Bodies, whose Particles are but weakly connected; their mutual Cohesion being in great measure prevented from some external Cause: In which sense a *Fluid* stands opposed to a *Solid*. See SOLID.

Sir *I. Newton* defines a *fluid* Body, to be that whose Parts yield to the smallest Force impress'd, and by yielding are easily moved among each other.

The Cause, therefore, of *Fluidity*, should seem to consist in this, that the Parts do not cohere so strongly, as they do in solid or firm Bodies; and that their Motion is not hinder'd by any Inequality in the Surface of the Parts; as is the Case in Powders.

For, that the Particles whereof *Fluids* consist, are of the same nature, and have the same Properties with the Particles of Solids, is evident, from the Conversion of Liquids and Solids into each other, *e. gr.* of Water into Ice; of Metals into Fluors, *&c.* Nor can it be reasonably doubted, that the component Parts of all Bodies are the same, *viz.* hard, solid, impenetrable, moveable Corpuscles. See BODY, and MATTER.

The *Cartesians* define a *Fluid* to be a Body whose Parts are in continual intestine Motion; and Dr. *Hook*, Mr. *Boyle* and *Boerhave*, tho' far from Cartesianism, subscribe to the Definition; alledging Arguments to prove that the Parts of *Fluids* are in continual Motion; and even that it is this Motion, which constitutes *Fluidity*. See FLUIDITY.

The later *Newtonians* dare not go so far: To say that the Parts of a *Fluid* are in continual Motion, is more than either our Senses, Experience, or Reason will warrant; and to define a thing from a Property that is disputable, is certainly bad Philosophy. See DEFINITION.

Add, that the great Argument from Geometry, produced in favour of this continual Motion, *viz.* That the Resistance of a Body moving in a *Fluid*, is less, if the Parts of the *Fluid* be agitated by an intestine Motion, than if they were at rest, is demonstrated to be false. See RESISTANCE.

We add, therefore, with Dr. *Clark*, That if the Parts of a Body either do not touch each other, or easily slide over one another; and are of such a Magnitude, as that they may be easily agitated by Heat: And the Heat be sufficiently great to agitate them; tho' it may perhaps be less than suffices to prevent Water from freezing: Or, even, tho' the Parts be not actually moved, yet, if they be small, smooth, slippery, and of such a Figure and Magnitude as disposes them to move and give way: That Body is *fluid*.

And yet the Particles of such *fluid* Bodies, do, in some measure, cohere; as is evident hence, that Mercury, when well purg'd of Air, will be sustained in the Barometer, to the Height of 60 or 70 Inches; that Water will ascend in Capillary Tubes even in Vacuo; and that the Drops of Liquors in Vacuo run into a spherical Form: As adhering by some mutual Cohesion like that between polish'd marble Planes. Add, that these *fluid* Bodies, if they consist of Particles that are easily entangled with each other, as *Oil*; or if they be capable of being stiffen'd by Cold, and join'd by the Interposition of little Cunei, or Wedges, as Water; they are easily render'd hard: But if their Particles be such as can neither be entangled, as *Air*; nor stiffen'd by Cold, as Quicksilver; then they never grow hard and fix'd. See PARTICLE.

FLUIDS are either Natural, as *Water*, and *Mercury*; or Animal, as *Blood*, *Milk*, *Bile*, *Lymph*, *Urine*, &c; or Factitious, as *Wines*, *Spirits*, *Oils*, &c. See each under its proper Article, WATER, MERCURY, BLOOD, MILK, BILE, WINE, SPIRIT, OIL, *&c.*

The Doctrine and Laws of *Fluids* are of the greatest Extent in Philosophy.

The Pressure, and Gravitation of Bodies in *Fluids*, and the Action of the *Fluids* immersed in them, makes the Subject of *Hydrostaticks*. See HYDROSTATICKS.

Hydrostatical Laws of FLUIDS.

I. Of the Pressure and Equilibrium of FLUIDS.

1° *The upper Parts of all* Fluids, *as Water*, &c. *do press upon the lower:* Or, as some Philosophers state it, *All* Fluids *do gravitate* in proprio loco.

The Contrary of this was a Principle in the School-Philosophy; but the Certainty of such Pressure is now demonstrated by a thousand Experiments: It will be sufficient to instance one or two.

Immerge a Tube, open at both Ends, and half filled with Oil of Turpentine, in a Vessel of Water, the upper End of the Tube being stopp'd with the Finger: If now the upper Surface of the Oil lie as low as that of the Water; the Oil, upon removing the Finger, will not run out at the lower End of the Tube: Nay, and if the Tube be thrust a little lower, the Water will rise up in it, and bear the Oil above it: But if the upper Surface of the Oil be considerably higher than that of the Water; the Oil will drop out of the Tube. Whence it follows, that the Column of Oil in one case presses or gravitates less on the Plane imagined to pass under its lower Surface, than a Column of Water; and in the other case, more.

Or thus; an empty Vial, close shut, being immersed in Water, and suspended by a Horse Hair to the Beam of a Balance, with a Weight at the other End exactly counterpoising it: Upon unstopping the Vial, and letting it fill with Water, it will preponderate, and bear down the End of the Balance; without having any Communication with the external Air.

Which two Experiments abundantly prove the Proposition, that the upper Parts of *Fluids* press, or gravitate on the lower. See PRESSURE, and GRAVITATION.

Corol. From this Gravity it follows, that the Surfaces of stagnant *Fluids* are plain, and parallel to the Horizon; or rather that they are Segments of a Sphere concentrical with the Earth.

For, as the Particles are supposed to yield to any Force impress'd, they will be moved by the Action of Gravity, till such time as none of them can descend any lower. And this Situation once attained, the *Fluid* must remain at rest, unless put in Motion by some foreign Cause; inasmuch as none of the Particles can now move without ascending; contrary to their natural Tendency.

2° *If a Body be immersed in a* Fluid, *either wholly, or in part, its lower Surface will be press'd upward by the Water underneath it.*

The Truth of this Proposition is evident from the Experiment above mention'd; where the Oil of Turpentine was suspended, nay and made to mount up in the Tube by the Pressure of the Water upwards on its lower Parts.

The Law, or Quantity of this Pressure is this, that *a Body immerged in a* Fluid, *loses just so much of the Weight it would have in Air; as so much of the* Fluid *as is equal to it in Bulk, if weigh'd in the Air, would amount to.*

This Pressure of *Fluids* on the lower Parts of an immersed Body is farther confirm'd, by attending to the Reason why Bodies specifically lighter than *Fluids* ascend therein. The Effect is owing to this, that there is a greater Pressure or Weight on every other Part of the Plane or Surface of the *Fluid* imagined to pass under the lower Surface of the Body, than there is on that whereon the emerging Body insists. Consequently, to produce an Equilibrium in the *Fluid*, the Parts immediately under the rising Body being press'd by the rest every way, do continually force it upwards.

In effect, the emerging Body is continually press'd on by two Columns of Water, one bearing against its upper; and the other against its lower Parts: The length of both which Columns being to be accounted from the Top of the Water; that which presses on the lower Part, will be the longer, by the Thickness of the ascending Body, and consequently overbalance it by the Weight of as much Water as will fill the Space that Body takes up. See SPECIFIC *Gravity*.

Corol. 1. Hence we are furnish'd with one Reason, why very minute Corpuscles, either heavier, or lighter than the Liquor they are mingled with, will be sustain'd therein a good while, without either emerging to the Top, or precipitating to the Bottom: The Difference between the two Columns of the *Fluid* being here inconsiderable.

Corol. 2. Hence also, if a Body A be specifically lighter than B, an equal Portion of the *Fluid* in which it is immerged; it will rise with a Force proportionable to the Excess of Gravity of B above A: And if A be specifically heavier than B; it gravitates and descends with the Excess only of its Weight above that of B.

3° *The Pressure of the upper Parts of a* Fluid, *on the lower, exerts it self every way, and every way equally; laterally, horizontally, and obliquely as well as perpendicularly.*

For, as the Parts of a *Fluid* yield to any Impression, and are easily moved, 'tis impossible any Drop shou'd remain in its Place: If while it is press'd by the super-incumbent *Fluid*, it be not equally press'd on every side.

The same is confirm'd from Experiments: For several Tubes of divers Forms, straight, curved, angular, &c. being immersed in the same *Fluid*; tho' the Apertures, thro' which the *Fluid* enters, be differently posited to the Surface or Plane, some being perpendicular, others parallel, and others variously inclined; yet will the *Fluid* rise to an equal Height in all.

Corol. 1. Hence, all the Particles of *Fluids* being thus equally press'd on all Sides, 'tis argued that they must be at rest, and not in continual Motion, as has been usually suppos'd.——

Corol. 2. Hence also a Body being immersed in a *Fluid*, sustains a lateral Pressure from the *Fluid*; which is also increas'd as the Body is placed deeper beneath the Surface of the *Fluid*.——

4° *In Tubes that have a Communication with each other, whatever their Magnitude be, whether equal, or unequal; and whatever their Form, whether streight, angular, or crooked: Still,* Fluids *rise in them to the same Height.*

5° *If a* Fluid *rise to the same Altitude in two Tubes that communicate with each other; the* Fluid *in one Tube is a Balance, or equal in weight, to that in the other.*

If the Tubes be of equal Diameters, the Columns of the *Fluid* having the same Base and Altitude, are equal, and consequently their Gravities equal; so that they press and gravitate against each other with equal Force.

This is demonstrated from Mechanicks. *E. gr.* Let the Base of G I *Tab. Hydrostaticks, Fig.* 6. be supposed Quadruple the Base of H K; and that the *Fluid* descend in the greater Tube the Space of an Inch, as from L to O; it will then rise in the other the Space of four Inches, as from M to N. Wherefore the Velocity wherewith the *Fluid* moves in the Tube H K, is to that wherewith it moves in G I; as the Base of the Tube G I to the Base of the other, H K. But the Altitude of the *Fluid* being supposed the same in both Tubes, the Quantity of the *Fluid* in the Tube G I, will be to that in the other Tube H K as the Base of the Tube G I to the Base of the other, H K.

Consequently, the Momentum of the *Fluid* in the Tube G I, is to that in the Tube H K, as the Product of the Base of the Tube G I into the Base of the other H K; to the Factum of the Tube H K into the Base of the other G I. Wherefore, the Products being equal; the Momenta must be equal.

The same is easily demonstrated where one of the Tubes is inclined, and the other perpendicular, &c.

Corol. Hence in Tubes that communicate, the *Fluid* preponderates in that where its Altitude is the greatest.

6° *In Communicating Tubes,* Fluids, *of different specific Gravities, will equiponderate, if their Altitudes be in the Ratio of their specific Gravities.*

Corol. Hence we have a Way of finding the *Specific Gravities of* Fluids, *viz.* by pouring one *Fluid* into one of the communicating Tubes, as A B (*Fig* 7.) and another, into the other Tube C D; and measuring the Altitudes E B and F D, at which they stand when balanced.

For the specific Gravity of the *Fluid* in A B, is to that in D C; as D H, to B G. If the *Fluids* be apt to mix; it may be proper to fill the Horizontal Tube B D with Mercury, to prevent the Mixture.

Corol. Since the Densities of *Fluids*, are as their specific Gravities; the Densities will likewise be as the Altitudes of the *Fluids* D H and B G: So that we have hence likewise a Method of determining the *Densities of* Fluids. See DENSITY.

7° *The Bottoms, and Sides of Vessels, are press'd in the same manner, and by the same Laws as the Liquids, contained in them.*

Corol. Hence as Action and Re-action are equal; the *Fluids* themselves, sustain an equal Pressure from the Bottoms and Sides. And as the Pression of *Fluids* is equal every way, the Bottom and Sides are press'd as much as the neighbouring Parts of the *Fluids:* And consequently this Action increases in proportion to the Height of the *Fluid*; and is equal every way at the same Depth; as depending altogether on the Height, and not at all on the Quantity of the *Fluid*.

8° *In perpendicular Vessels of equal Bases, the Pressures of* Fluids *on the Bottoms, is in the Ratio of their Altitudes.*

This is evident, in that the Vessels being perpendicular, the Bottoms are horizontal: Consequently the Tendency of *Fluids* by the Action of Gravity will be in Lines perpendicular to the Bottom; so that they will press with all their Weight: The Bottoms therefore are press'd in the Ratio of the Gravities. But the Gravities are as the Bulks; and the Bulks here are as the Altitudes: Therefore the Pressures on the Bottoms are as the Altitudes.

9° *In*

9° *In perpendicular Vessels of unequal Bases, the Pressure on the Bottoms is in a Ratio compounded of the Bases, and Altitudes.*

From the preceeding Demonstration it appears, that the Bottoms are press'd in the Ratio of the Gravities: And the Gravities of *Fluids* are as their Bulks; and their Bulks in a Ratio compounded of the Bases and Altitudes. Consequently, *&c.*

10° *If an inclined Vessel A B C D, Fig.* 8. *have the same Base and Altitude with a perpendicular one B E F G, the Bottoms of each will be equally press'd.*

For in the inclined Vessel A B C D, the Bottom C D, is press'd in the Direction B D. But the Force of Gravity in the Direction B D, is to the absolute Gravity, as B E to B D. See GRAVITY.

Consequently, the Bottom C D is press'd in the same manner; as if it had been press'd perpendicularly by the *Fluid* under the Altitude B E. Therefore, the Bottoms of the perpendicular and inclined Vessels are equally press'd.

11° Fluids *press upon subjected Bodies, according to their perpendicular Altitude, and not according to their Latitude.*

Or, as others state it, thus: If a Vessel be taper, or unequally big at Top and Bottom; yet the Bottom will be press'd after the same manner as if the Vessel were cylindrical, and the Top and Bottom equal.

Or thus: The Pressure sustain'd by the Bottom of a Vessel, whatever the Figure of the Vessel be, is ever equal to the Weight of a Column of the *Fluid*, whose Base is the Bottom it self, and Height, the vertical Distance of the upper Surface of the Water from the Bottom.

Or, yet more explicitly, thus: If there be two Tubes or Vessels, having the same Heights, and Bases, both filled with Water; but one of them made so tapering upwards, that it shall contain but twenty Ounces of Water, whereas the other widening upwards, holds 200 Ounces: Yet, the Bottoms of the two Tubes shall sustain an equal Pressure of Water, *viz.* each of them, that of the Weight of 2000 Ounces.

This is a noble Paradox in Hydrostaticks, which it is well worth the clearing and insisting on. It is found unexceptionably true from abundant Experiments: And may even be demonstrated and accounted for on Principles of Mechanicks.

Suppose *e. gr.* the Bottom of a Vessel, C D (*Fig.* 9.) less than its Top, A B. Since the *Fluid* presses the Bottom C D, which we suppose horizontal, in a perpendicular Direction E C, none but that Part within the Cylinder E C D F can press upon it; the natural Tendency and Pressure of the rest being taken off by the Sides.

Again, supposing the Bottom, C D (*Fig.* 10.) much bigger than the Top F G. Or even, for the easier Demonstration, suppose a Tube F E fix'd in a Cylinder A B C D: And suppose the Bottom C D rais'd to L; that the *Fluid* may be moved through the Interval D L. Then will it have risen through the Altitude G H, which is to D L, as the Base C D to that G F. The Velocity therefore of the *Fluid* F E, is to its Velocity in the Vessel A D; as the Base C D to the Base F G.

Hence, we have the Momentum wherewith the *Fluid* in the Tubes tends downwards, by multiplying the Base of the Cylinder C D into its Altitude C K.

Consequently, the Bottom C D is press'd with the same Force; as it would be press'd by the Cylinder H C D I.

To confirm and illustrate this Doctrine of the Pressure of *Fluids* in the Ratio of the Base and Altitude, provide a metallick Vessel, A C D B (*Fig.* 11.) so contrived, as that the Bottom C D may be moveable, and to that End fitted in the Cavity of the Vessel with a Rim of wet Leather, to slide without letting any Water pass. Then, thro' a Hole in the Top, A B, apply successively several Tubes of equal Altitudes, but different Diameters. Lastly, fastening a String to the Beam of a Balance, and fixing the other End by a little Ring K to the moveable Bottom; put Weights in the other Scale, till they be sufficient to raise the Bottom C D: Then will you not only find, that the same Weight is required, what Diameter or Magnitude soever the Tube be of; but even, that the Weight which will raise the Bottom, when press'd by the smallest Tube, will raise it when press'd by the whole Cylinder H C D I.——

12° *The most solid and ponderous Body, which near the Surface of the Water would sink with great Velocity, yet if placed at a greater Depth than twenty times its own Thickness, will not sink, unless assisted by the Weight of the incumbent Water.*

Thus, immerge the lower End of a slender Glass Tube in a Vessel of Mercury: Then, stopping the upper End with your Finger, you will by that means keep about half an Inch of that ponderous *Fluid*, suspended in the Tube. Lastly, keeping the Finger thus; immerge the Tube in a long Glass of Water, till the little Column of Mercury be more than 13 or 14 times its Length under Water. Then, removing the Finger, you will find that the Mercury will be kept suspended in the Tube by the Pressure of the Water upwards: But if you raise the Tube a very little above the former Station; the Mercury will immediately run out: Whereas, if before you had removed the Finger from the Top, you had sunk the Pipe so low, as that the Mercury were 12 or 14 Inches, *&c.* below the Surface of the Water; the Mercury would be violently forced up, and make several Ascents and Descents in the Tube, till it had gain'd its proper Station, according to the Laws of specific Gravity.

Corol. Hence we have a Solution of the Phænomenon of two polish'd Marbles, or other Planes, adhering so strongly together: In that the Atmosphere presses or gravitates with its whole Weight on the under Surface and Sides of the lower Marble; but cannot do so at all on its upper Surface, which is closely contiguous to the upper, and suspended Marble.

II. *For the Laws of the Pressure and Gravitation in* FLUIDS *specifically heavier, or lighter than the Bodies immerged,* see SPECIFIC *Gravity.*

For the Laws of the Resistance of FLUIDS, or the *Retardation of solid Bodies, moving in* Fluids, see RESISTANCE.

For the Ascent of FLUIDS *in Capillary Tubes, or between Glass Planes,* see ASCENT.

The Motions of *Fluids*, and particularly *Water*, make the Subject of *Hydrulicks*. See HYDRULICKS.

Hydrulick Laws of FLUIDS.

1° *The Velocity of a* Fluid, *as* Water, *moved by the Pressure of a super-incumbent* Fluid, *as* Air, *is equal at equal Depths; and unequal, at unequal ones.*

For the Pressure being equal at equal Depths, the Velocity arising thence must be so too; and *vice versa:* Yet does not the Velocity follow the same Proportion, as the Depth; notwithstanding that the Pressure, whence the Velocity arises, does increase in the Proportion of the Depth. But here the Quantity of the Matter is concern'd: And the Quantity of Motion, which is compounded of the Ratio of the Velocity and Quantity of Matter, is increased in equal times as the Square of the Velocities.

2° *The Velocity of a* Fluid *arising from the Pressure of a super-incumbent* Fluid, *at any Depth, is the same as that which a Body would acquire in falling from a Height, equal to the Depth.* As is demonstrated both from Mechanicks and Experiments. See DESCENT.

3° *If two Tubes of equal Diameters, full of any* Fluid, *be placed any how, either erect, or inclined; provided they be of the same Altitude, they will discharge equal Quantities of the* Fluid *in equal times.*

That Tubes, every way equal, should, under the same Circumstances, empty themselves equally, is evident; and that the Bottom of a perpendicular Tube is press'd with the same Force, as that of an inclined one, when their Altitudes are equal, has already been shewn. Whence it easily follows, that they must yield equal Quantities of Water, *&c.*

4° *If two Tubes of equal Altitudes, but unequal Apertures or Diameters, be kept constantly full of Water, the Quantities of Water they yield in the same Time, will be as the Diameters: And this, whether they be erect, or any how inclined.*

Corol. If the Apertures or Diameters be circular, the Quantities of Water emptied in the same time, are in a duplicate Ratio of the Diameters.

This Law, *Mariotte* observes, is not perfectly agreeable to Experiment. If one Diameter be double the other, the Water flowing out of the less is found more than a Fourth of what flows out of the greater. But this must be owing to some accidental Irregularities in making the Experiments.

Wolfius ascribes it principally to this, that the Column of Water directly over the Aperture is shorter than that next the Sides or Parietes of the Vessel: For the Water, in its Efflux forms a kind of Cavity over the Aperture; that Part immediately over it being evacuated first, and the other Water not running fast enough from the Sides to supply it. Now, this Cavity, or Diminution of Altitude being greater in the greater Tube, than the less; hence the Pressure or Endeavour to pass out, becomes proportionably less in the greater Tube, than the less.

5° *If the Apertures E and F of two Tubes A B and C D* (Fig. 12) *be equal, the Quantities of Water discharged in the same time are as the Velocities.*

6° *If two Tubes have equal Apertures E and F, and unequal Altitudes A B and C D; the Quantity of Water discharged from the greater A B, will be to that discharged from C D, in the same time; in a subduplicate Ratio of the Altitudes A B and C D.*

Corol.

Corol. 1. Hence, the Altitudes of Waters, A B, and C D, discharged thro' equal Apertures E and F; are in a duplicate Ratio of the Waters discharged in the same time. And as the Quantities of Water are as the Velocities; the Velocities are likewise in a subduplicate Ratio of their Altitudes.

2. Hence, the Ratio of the Waters discharged by two Tubes A B, and C D, together with the Altitude of one of them being given; we have a Method of finding the Altitude of the other, *viz.* by finding a fourth Proportional to the three given Quantities; which Proportional multiplied by it self, gives the Altitude of C D, required.

3. Hence also, the Ratio of the Altitudes of two Tubes of equal Apertures being given; as also the Quantity of Water discharged by one of them: We have a Method of determining the Quantity the other shall discharge in the same time. Thus, to the given Altitudes, and the Square of the Quantity of Water discharged at one Aperture, find a fourth Proportional. The square Root of this will be the Quantity of Water required.

Suppose *e. gr.* the Heights of the Tubes as 9 to 25; and the Quantity of Water discharged at one of them, three Inches: That discharged by the other, will be $= \sqrt{(9.25:9)} = \sqrt{25} = 5$.

7° *If the Altitudes of two Tubes A B, and C D be unequal; and the Apertures E and F likewise unequal: The Quantities of Water discharged in the same time, will be in a Ratio compounded of the simple Ratio of the Apertures; and the subduplicate one of the Altitudes.*

Corol. Hence, if the Quantities of Water discharged in the same time by two Tubes, whose Apertures and Altitudes are unequal, be equal; the Apertures are reciprocally as the Roots of the Altitudes: and the Altitudes in a reciprocal Ratio of the Squares of the Apertures.

8° *If the Altitudes of two Tubes be equal, the Water will flow out with equal Velocity, however unequal the Apertures be.*

9° *If the Altitudes of two Tubes, A B, and C D* (Fig. 13.) *as also their Apertures E, and F be unequal; the Velocities of the Waters discharged are in a subduplicate Ratio of their Altitudes.*

Corol. 1. Hence, as the Velocities of Waters flowing out at equal Apertures, when the Altitudes are unequal, are also in a subduplicate Ratio of the Altitudes; and, as this Ratio is equal, if the Altitudes be equal; it appears, in the general, that the Velocities of Waters flowers out of Tubes is in a subduplicate Ratio of the Altitudes.

2. Hence also, the Squares of the Velocities are as the Altitudes.

Mariotte found from repeated Experiments, that if a Vessel A B C D have a Tube E F fitted to it, there will more Water be evacuated through the Tube, than there could have been in the same time, through the Aperture of the Vessel E, without the Tube: And that the Motion of the *Fluid* is accelerated so much the more, as the Tube E F is the longer.

E. gr. The Altitude of a Vessel A C being one Foot, that of the Tube E F three Feet, and the Diameter of the Aperture three Lines; $6\frac{1}{2}$ Septiers of Water were discharged in the Space of one Minute; whereas upon taking off the Tube, only four Septiers were discharged. Again, when the Length of the Tube E F was six Feet, and the Diameter of the Aperture F, an Inch; the whole Quantity of Water run out in 37 Seconds: But, cutting off half the Tube F H, the Vessel was not evacuated in less than 45 Seconds; and taking it quite away, in less than 95 Seconds.

9° *The Altitudes and Apertures of two Cylinders full of Water, being the same: One of them will discharge double the Quantity of Water discharged in the same time by the other; if the first be kept continually full, while the other runs it self empty.*

For the Velocity of the full Vessel will be equable; and that of the other continually retarded. Now, 'tis demonstrated, that, if two Bodies be impell'd by the same Force, and the one proceeds equably, and the second is equably retarded: By that time they have lost all their Motion, the one has moved double the space of the other.

10° *If two Tubes have the same Altitudes, and equal Apertures; the Times wherein they will empty themselves, will be in the Ratio of their Bases.*

11° *Cylindric, and Prismatic Vessels, as A B C D* (Fig. 14.) *empty themselves by this Law, that the Quantities of Water discharged in equal times, decrease according to the uneven Numbers,* 1. 3. 5. 7. 9. &c. *taken backwards.*

For the Velocity of the descending Level F G is continually decreasing in the subduplicate Ratio of the decreasing Altitudes: But the Velocity of a heavy Body descending, increases in the subduplicate Ratio of the increasing Altitudes. The Motion, therefore, of the Level F G in its Descent from G to B, is the same, as if it were to descend in the inverse Ratio, from B to G. But if it descend from B to G, the Spaces, in equal times, would increase according to the Progression of the uneven Numbers. Consequently, the Altitudes of the Level F G in equal times decrease according to the same Progression inversely taken.

Corol. Hence, the Level of Water F G, descends by the same Law, as, by an equal Force impress'd, it would ascend thro' an Altitude equal to F G.

From this Principle, might many other particular Laws of the Motion of *Fluids* be demonstrated, which for Brevity sake we here omit.

To divide a Cylindrical Vessel into Parts, which shall be evacuated in certain Parts, or Divisions of time, see CLEPSIDRA.

12° *If Water descending thro' a Tube H E* (Fig. 15.) *spout up at the Aperture G, whose Direction is vertical, it will rise to the same Altitude G I, at which the Level of the Water L M, in the Vessel A B C D does stand.*

For since the Water is driven thro' the Aperture G, by the Force of Gravity of the Column E K; its Velocity will be the same as that of a Body by the same Force impress'd, would rise to the Altitude F I. Wherefore, since the Direction of the Aperture is vertical; the Direction of the Water spouting thro' it, will be so too. Consequently, the Water must rise to the Height of the Level of the Water L M in the Vessel.

Indeed, by the Experiment it appears, that the Water does not rise quite so high as I: Beside, that the Aperture G should be smaller, as the Height of the Level of the Water is less: And even smaller, when Mercury is to be spouted, than when Water. But this is no Objection to the Truth of the Theorem; it only shews that there are certain external Inpediments, which diminish the Ascent.

Such are the Resistance of the Air; the Friction of the Tube, and the Gravity of the ascending *Fluid*.

13° Water descending thro' an inclined Tube, or a Tube bent in any manner; will spout up through a perpendicular Aperture to the Height at which the Level of the Water in the Vessel stands.——

14° *The Lenghts or Distances D E and D F, or I H, and I G* (Fig. 16.) *to which Water will spout either thro' an inclined, or a horizontal Aperture D, are in a subduplicate Ratio of the Altitudes in the Vessel or Tube A B and A D.*

For, since Water spouted out thro' the Aperture D, endeavours to proceed in the horizontal Line D F; and at the same time, by the Power of Gravity, tends downwards in Lines perpendicular to the same; nor can the one Power hinder the other, in as much as the Directions are not contrary: It follows, that the Water by the Direction B A will arrive at the Line I G, in the same time wherein it would have arrived at it, had there been no horizontal Impulse at all. Now the Right-lines I H and I G are the Spaces which the same Water would have described in the mean time by the horizontal Impetus: But the Spaces I H and I G, inasmuch as the Motion is uniform, are as the Velocities. Consequently, the Velocities are in a subduplicate Ratio of the Altitudes A B and A D. And therefore, the Lengths or Distances to which the Water will spout in Apertures either horizontal or inclined, are in a subduplicate Ratio of the Altitudes.

Corol. Hence, as every Body projected either horizontally, or obliquely, in an unresisting Medium, describes a Parabola: Water projected either through a vertical or inclined Spout, will describe a Parabola.

Hence we have a way of making a delightful kind of Water Arbours, or Arches, *viz.* by placing several inclined Tubes in the same Right-line.

On these Principles are form'd various Hydraulic Engines for the raising, &c. *of* Fluids, *as* Pumps, Syphons, Fountains, *or* Jets de Eau, &c. *Which see described under their proper Articles,* PUMP, SYPHON, FOUNTAIN, SPIRAL SCREW, &c.

For the Laws of the Motion of Fluids, *by their own Gravity, along open Channels,* &c. see RIVER, and WAVE.

For the Laws of Pressure and Motion of Air, consider'd as a Fluid, see AIR, and WIND.

FLUMMERY, A wholesome Jelly, made of Oatmeal.

The manner of preparing it in the Western Parts of *England*, is to take half a Peck of Wheat Bran, which must be soaked in cold Water three or four Days; then strain out the Oil and Milk-water of it, and boil it to a Jelly: Afterwards season it with Sugar, Rose and Orange-flower Water, and let it stand till cold, and thickened again; and then eat it with White or Rhenish Wine, or Milk-cream.

FLUOR, in Physick, &c. a *Fluid*; or more properly, the State of a Body, which was before hard, or solid, but is now reduc'd by Fusion or Fire into a State of Fluidity. See FLUIDITY.

Gold and Silver will remain a long time in a *Fluor*, kept to it by the intensest Heat, without losing any thing of their Weight. See FIXITY.

FLUOR is also us'd by the modern Mineral Writers for such soft, transparent, starry kinds of mineral Concretions, as are frequently found amongst Oars, and Stones, in Mines and Quarries.

Fluor *Albus*, or *Uterinus*, a kind of Flux, incident to Women, popularly called the *Whites*. See Whites.

It consists in an irregular, disorderly Discharge of some corrupt Humor, sometimes white, and pale, like Whey; sometimes yellow, green, or blackish: At first it is usually soft and harmless, but in time grows hot, sharp, and corrosive, and excoriates all the Parts it touches.

It is attended with a Pain in the Spina Dorsi, a Swelling of the Feet and Eyes, Wearinesss, Lumbago, a Loss of Appetite, Change of Complexion, &c.

It is frequently produced from a too heavy and lasting Grief. It must be well distinguish'd from an Ulcer in the Uterus, and a Gonorrhæa. See Gonorrhæa.

It happens to all Ages; from Girls of three Years old: And at all times; before, after, or even along with the Menses; and even to Women with Child.

Etmuller takes it for a *Gonorrhæa muliebris*, analogous to a non virulent Gonorrhæa in Men, and flowing out of the Glandulæ of the Prostrates.

What the *Coryza* is in the Nostrils; too much weeping in the Eyes; coughing and hawking in the Fauces; that, according to *Etmuller*, is this *Fluor* in Women.

According to *Pitcairn*, all the Difference between the venereal Gonorrhæa, and a *Fluor albus*, is that the Humor evacuated in the latter is viscid, and in the former, quite thin and serous. The same Author adds, that the *Fluor albus*, can only be cured by Medicines proper for the venereal Disease. See Gonorrhæa.

FLUTE, an Instrument of Musick, the simplest of all those of the Wind kind. See Musick.

It is play'd, by blowing in it with the Mouth; and the Tones or Notes form'd and changed by stopping or opening Holes disposed for that purpose all along it.

The *Latins* call it *Fistula*, and sometimes *Tibia*, Pipe; from the former of which, some derive the Word *Flute*: Tho' *Borel* will have it derived from *Flutta*, a Lamprey, thus called *a fluitando in Fluviis*; in regard the *Flute* is long, like the Lamprey, and has Holes all along it, like that Fish.

The antient *Fistulæ* or *Flutes* were made of Reeds; afterwards they were of Wood; and at length, of Metal. But how they were blown, whether as our *Flutes*, or Hautboys, does not appear.

'Tis plain, some had Holes, which at first, were but few; but afterwards increased to a greater Number: And some had none. Some were single Pipes; and some a Combination of several, particularly *Pan's Syringa*, which consisted of seven Reeds, join'd together sideways.

They had no Holes; each giving but one Note, in all seven distinct Notes: but at what Intervalls, is not known: Perhaps they were the Notes of the Natural, or Diatonic Scale. See Tibia, and Fistula.

The *German* Flute is different from the common one: 'Tis not put into the Mouth, by the End, as the ordinary ones are: The End is stop'd up with a Plug, or Tampion; but the lower Lip is applied to a Hole about half an Inch distant from it.

'Tis usually a Foot long; equally big every where, and perforated with six Holes, beside that of the Mouth. It is us'd as a Treble in a Concert of several Parts.

Its Bass is double, or quadruple that Length.

Flutes, or *Flutings*, in Architecture, are perpendicular Channels, or Cavities, cut along the Shaft of a Column or Pilaster. See Column, and Pilaster.

They are supposed to have been first introduced in Imitation of the Plaits of Womens Robes; and are therefore called by the *Latins*, *Striges*, and *Rugæ*. See Striges, &c.

The *French* call them *Cannelures*, as being Excavations; and we, *Flutes*, or *Flutings*, as bearing some Resemblance to the musical Instrument so called.

They are chiefly affected in the *Ionic* Order, where they had their first Rise; tho' they are also us'd in all the richer Orders, as the *Corinthian* and *Compente*; but rarely in the *Doric*; scarce ever in the *Tuscan*. See Ionic, Corinthian, Composite, Doric, &c.

Their Number is 24, tho' in the *Doric* only, 20.

Each *Flute* is hollow'd in, exactly a Quadrant of a Circle.

Between the *Flutes* are little Spaces that separate them, called by *Vitruvius*, *Striæ*, and by us, *Lists*; tho' in the *Doric*, the *Flutes* are frequently made to join each other, without any intermediate Space at all; the List being sharpen'd off to a thin Edge, which forms a Part of each *Flute*.

In some Buildings we see Columns with *Flutes* that go winding round the Shaft, spirally; but this is rather look'd on as an Abuse.

Vignola determines the Depth of the *Flutes* by taking the Angle of an equilateral Triangle for the Centre.

Vitruvius describes it from the Middle of the Square, whose Side is the Breadth of the *Flute*: Which latter Method makes them deep.

The *Flutes*, or *Striges*, are frequently fill'd up with a prominent, or swelling Ornament, sometimes plain, in form of a Staff or Reed; and sometimes a little carved, or enrich'd, in imitation of a Rope, or otherwise, and therefore called a *Rudenture*, or *Cabling*; and the Columns thus enrich'd, *Cabled Columns*. See Column.

This is most frequent in the *Corinthian* Order. The Cablings, or Fillings up commence from about one Third of the Height of the Column, reckoning from the Base; and are continued to the Capital: That is, they begin and end with the Diminution of the Column. See Diminution.

Flutes, or *Flutings*, are also us'd in Botany, in describing the Stems and Fruits of certain Plants, which have Furrows, analogous to those of Columns.

Flute, or *Fluyt*, is also a kind of long Vessel, with flat Ribs, or Floor Timbers; round behind, and swelled in the Middle; serving chiefly for the carrying of Provisions in Fleets, or Squadrons of Ships: tho' it is also us'd in Merchandizes.

The Word *Flute*, taken for a sort of Boat, or Vessel, is derived, according to *Borel*, from the antient *Flette*, a little Boat. In the verbal Process of the Miracles of St. *Catharine* of *Sweden*, in the XIIth Century, we read, *Unus equum suum una cum mercibus magni ponderis introduxit super instrumentum de lignis fabricatum, vulgariter dictum* Fluta.

Upon which the *Bollandists* observe, that in some Copies it is read *Flotta*, an Instrument call'd by the Latins *Rattis*; and that the Word *Flutta*, or *Flotta*, arose from *Flotten*, or *vlotten*, to float.——

Flute-*Grafting*, see Engrafting.

FLUX, Fluxus, in Medicine, an extraordinary Issue, or Evacuation of some Humor. See Humor.

Fluxes are various, and variously denominated, according to their Seats, or the Humors thus voided; as, *a Flux of the Belly*; *Uterine Flux*, *Hepatic Flux*, *Salival Flux*, &c.

The *Flux of the Belly* is of four kinds, which have their respective Denominations, *viz.* the *Lientery*, or *Fluxus Lientericus*; the *Cæliac*, or *Fluxus Chylosus*; *Diarrhæa*; and *Dissentery*, or *Bloody Flux*. See each explain'd under its proper Article, Lienterv, Diarrhæa, &c.

A Wound, or Scarification cross the Crown of the Head is used in *Scotland* to cure *Fluxes* and Dissenteries. *Phil. Transact.* N° 312.

Flux *of the Mouth*, or *Salival* Flux, see Salivation.

The *Hepatic* Flux of the Antients is a mere Name; being, in reality a hæmorrhoidal *Flux*, out of the hemorrhoidal Veins; and so reducible to the *Dissentery*. See Hæmorrhoids.

Women are subject to three kinds of *Fluxes* extraordinary: The first, call'd the *Menses*, or *Menstrual Flux*, as happening every Month; sometimes *Courses*, as keeping pace with the Moon; and sometimes *Flowers*. See Menses, and Flowers.

The second is after Delivery, call'd *Lochia*. See Lochia.

The third is irregular, and præternatural; and for want of a better Name called *Fluor albus*, or *Whites*. See Fluor *Albus*.

Flux, in Hydrography, a regular, periodical Motion of the Sea; happening twice in twenty four Hours; wherein the Water is rais'd, and driven violently against the Shores.

The *Flux*, or *Flow*, is one of the Motions of the Tide; the other, whereby the Water sinks and retires, is call'd the *Reflux*, or *Ebb*. See Tides.

There is always a kind of rest, or Cessation of about half an Hour, between the *Flux* and Reflux: During which the Water is at its greatest Height, called *High Water*.

The *Flux* is made by the Motion of the Water of the Sea, from the Equator towards the Poles; which, in its Progress, striking against the Coasts in its way, and meeting with Opposition from them, swells, and where it can find Passage, as in Flats, Rivers, &c. rises up, and runs into the Land.——

This Motion follows in some measure the Course of the Moon; as it loses, or comes later every Day by about three Quarters of an Hour; or more precisely, 48 Minutes: And by so much is the Motion of the Moon slower than that of the Sun. It is always highest and greatest in full Moons, particularly those of the Equinoxes. In some Parts, as at Mount St. *Michael*, it raises 80 or 90 Feet; tho' in the open Sea it never rises above a Foot, or two: And in some Places, as about the *Morea*, there is no *Flux* at all.

It runs up some Rivers above 120 Miles. Up the River *Thames* it only goes 80; *viz.* near to *Kingston* in *Surry*.

Above *London* Bridge the Water *flows* four Hours, and *ebbs* eight; and below the Bridge, *flows* five Hours, and ebbs seven. See Flood.

Flux *Powders* are those prepared to facilitate the Fusion of the harder Metals; as also to melt Ores, in order to discover what Proportion of Metal they contain. See Fusion.

Powder of Antimony is a very good *Flux* Powder. By this alone may you readily melt Iron or Steel in a Crucible, with

with an ordinary Charcoal Fire. See ANTIMONY; see also FOUNDERY.

FLUXION, in Medicine, a sudden Collection of morbid Matter in any Part of the Body.

Fluxions arise either from the Weakness, Flaccidity, and Inactivity of the Part affected, which does not disperse, protrude, or expell the Humors naturally receiv'd into it: Or from the Derivation of some extraordinary Quantity of peccant Matter from some other Part.

This latter is properly called *Defluxion*, and by the Antients, *Attraction*. See DEFLUXION.

Fluxions are occasion'd by Motion, Heat, Pain, Fomentation, &c.

A *Fluxion*, or Defluxion on the Lungs, is called a Catarrh. See CATARRH.

FLUXIONS, or the *Method of* FLUXIONS, is the Arithmetick, or Analysis, of infinitely small variable Quantities; or the Method of finding an Infinitesimal, or infinitely small Quantity, which being taken an infinite Number of times, becomes equal to a given Quantity. See INFINITE, and INFINITESIMAL.

Sir *I. Newton*, and after him all the *English* Authors, call these infinitely small Quantities, *Fluxions*; as considering them as the momentary Increments or Decrements of variable Quantities, *e. gr.* of a Line consider'd as generated by the *Flux* of a Point; or of a Surface generated by the *Flux* of a Line.

Accordingly, the variable Quantities are called *fluent*, or *flowing Quantities*; and the Method of finding either the *Fluxion*, or the *Fluent*, the *Method of Fluxions*. See METHOD.

M. *Leibnitz*, and the Foreigners after him, consider the same infinitely small Quantities as the *Differences*, or *Differential* of two Quantities; and call the Method of finding those Differences, the *Differential Calculus*. See CALCULUS *differentialis*.

Each of these ways of considering and denominating, has its Advantages; which the Retainers to this, or that Method, strenuously assert.

Variable Quantities, *i. e.* such as in the Genesis of Figures by local Motion are continually increasing and diminishing, are certainly very properly denominated *Fluents*: And as all Figures may be conceiv'd as so generated; the infinitely small Increments, or Decrements of such Quantities are very naturally denominated *Fluxions*.

Beside this Difference in the Name, there is another in the Notation.

Sir *I. Newton* expresses the *Fluxion* of a Quantity, as x by a Dot placed over it, as $\dot{x}$; and Mr. *Leibnitz* expresses his Differential of the same x by prefixing a d as dx; each of which Methods of Notation has likewise its Advantage. See *Differential* CALCULUS.

Setting aside these circumstances, the two Methods are the same.

The Method of *Fluxions* is one of the greatest, most subtile and sublime Discoveries of this, or perhaps any other Age: It opens a new World to us, and extends our Knowledge, as it were, to Infinity. It carries us beyond the Bounds that seem'd to have been prescrib'd to the human Mind; at least infinitely beyond those to which the antient Geometry was confined.

The History of this important Discovery, as fresh as it is, is a little dark, and imbroiled. Two of the greatest Men of this Age, do both of them claim the Invention, Sir *I. Newton*, and M. *Leibnitz*; and nothing can be more glorious for the Method it self, than the Zeal wherewith the Partisans of either side have asserted the Title.

To give the Reader a just View of this noble Dispute, and of the Pretensions of each Party, we shall lay before him the *Origines* of the Discovery, and mark where each Claim commenced, and how it was supported.

The first time the Method made its Appearance in publick, was in 1684; when M. *Leibnitz* gave the Rules thereof in the *Leipsic* Acts of that Year; but the Demonstrations he kept to himself. The two Brothers, the *Bernoulli's*, were presently struck with it; and found out the Demonstrations, tho' very difficult; and practised the Calculus with surprizing Success.

This is all we hear of it, till the Year 1687; when Sir *I. Newton*'s admirable *Principia* came forth, which is almost wholly founded on the same Calculus.

The common Opinion at that time, was, that Sir *Isaac*, and M. *Leibnitz* had each invented it about the same time: And what confirm'd it, was, that neither of them made any mention of the other; and that, tho' they agreed in the Substance of the thing, yet they differed in their ways of conceiving; called it by different Names, and used different Characters.

In effect, Mr. *Leibnitz*'s Character, was suppos'd by Foreigners to be somewhat more comodious than that of Sir *Isaac Newton*; accordingly, the Method soon spreading it self throughout Europe, M. *Leibnitz*'s Character went with it; by which means the Geometricians were insensibly accustomed too look on him as the sole, or principal Inventor.

The two Great Authors themselves, without any seeming Concern, or Dispute as to the Property of the Invention, enjoy'd the glorious Prospect of the Progresses continually making under their Auspices; till the Year 1699: when the Peace began to be disturb'd.

M. *Fatio*, in a Treatise of the *Line of swiftest Descent*, having declared that he was oblig'd to own Sir *I. Newton* as the first Inventor of the Differential Calculus, and the first by many Years; and that he left the World to judge, whether M. *Leibnitz*, the second Inventor, had taken any thing from him: This precise Distinction between first and second Inventor; with the Suspicion it insinuated; raised a Controversy between M. *Leibnitz*, supported by the Editors of the *Leipsic Acta*; and the *English* Geometricians, who declared for Sir *I. Newton*.

Sir *Isaac* himself never appear'd on the Scene: His Glory was become that of the Nation; and his Adherents, warm in the Cause of their Country, needed him not to animate them.

Writings succeeded each other but slowly, on either side; probably on account of the Distance of Places; but the Controversy grew still hotter and hotter: Till at length it came to such Pass, that in the Year 1711, M. *Leibnitz* complain'd to the Royal Society, that Dr. *Kiel* had accused him of publishing the Method of *Fluxions* invented by Sir *I. Newton*, under other Names, and Characters.

He insisted, that no body knew better than Sir *Isaac* himself, that he had stolen nothing from him; and required that Dr. *Kiel* should publickly disavow the ill Construction which might be put on his Words.

The Society, here appeal'd to as Judge, appointed a Committee to examine all the old Letters, Papers, &c. that had passed among the several Mathematicians, relating to the Point: And after a strict Examen of all the Evidences that could be procured, gave in their Report, "That it "did not appear that M. *Leibnitz* knew any thing of the "differential Calculus before a Letter wrote him by Sir *I.* "*Newton*, and sent to him at *Paris*, in the Year 1672; "wherein the Method of *Fluxions* was sufficiently ex-"plain'd, to let a Man of his Sagacity into the whole Mat-"ter; and that Sir *I. Newton* had even invented his Me-"thod before the Year 1669, and of consequence fifteen "Years before M. *Leibnitz* had given any thing on the "Subject in the *Leipsic Acts*." And thence they concluded, that Dr. *Kiel* had not at all injured Mr. *Leibnitz* in what he had said.

The Society printed this Censure of theirs, together with all the Pieces and Materials relating thereto, under the Title of *Commercium Epistolicum, de Analysi promota. London*, 1712.

The Book was carefully distributed through *Europe*, to vindicate the Title of the *English* Nation to the Discovery; for Sir *Isaac*, as already hinted, never appear'd in it: Whether it were, that he trusted his Honour with his Compatriots, who were zealous enough in the Cause; or whether it were, that he were even superior to the Glory thereof.——

M. *Leibnitz* and his Friends could not shew the same Indifference: He was accus'd of a Theft; and the whole *Commercium Epistolicum* either expresses it in Terms, or insinuates it.

Soon after the Publication thereof, a loose Sheet was printed at *Paris*, in behalf of M. *Leibnitz*, then at *Vienna*. It is wrote with a world of Zeal and Spirit, and maintains boldly, that the Method of *Fluxions* had not preceded that of Differences; and even insinuates, that it might have arose from it.

The Detail of the Proofs on each side would be too long, and could not be understood without a large Comment; which must enter into the deepest Geometry.

M. *Liebnitz* had begun to work upon a *Commercium Epistolicum*, in opposition to that of the Royal Society; but he died before it was compleated.

It must be own'd, there are strong Presumptions in favour of M. *Leibnitz*; Presumptions, we mean, that he was no Plagiary: For that Sir *Isaac Newton* was the first Inventor, is past all Dispute: His Glory is secure: The reasonable Part, even among the Foreigners, allow it; and the Question is only, Whether M. *Liebnitz* took it from him, or fell upon the same thing with him: For in his *Theory of abstract Motions*, which he dedicated to the Royal Academy, in 1671, before he had seen any thing of Sir *Isaac Newton*'s, he already supposed infinitely small Quantities, some greater than others; which is one of the great Principles of the System.

The Doctrine consists of two Parts, viz. *Fluxions properly so called*, or the DIRECT METHOD *of Fluxions* call'd also *Calculus Differentialis*; and the *Inverse Method of Fluxions*, or *Calculus Integralis*.

The

The latter is directly oppofite to the former; and is a Sequel of it. Both of them are adopted into the new Geometry, and make reigning Methods therein.

The firft defcends from finite, to infinite; the latter afcends from infinitely fmall, to finite: The one decompounds a Magnitude, the other re-eftablifhes it.

Direct Method of FLUXIONS.

All finite Magnitudes are here conceiv'd to be refolv'd into infinitely fmall ones; which are the Elements, Moments, or Differences thereof.

The Art of finding thefe infinitely fmall Quantities, and of working on them, and difcovering other infinite Quantities by their means, makes the *Direct* Method of *Fluxions*.

What renders the Knowledge of infinitely fmall Quantities of fuch infinite Ufe and Extent, is that they have Relations to each other, which the finite Magnitudes, whereof they are the Infinitefimals, have not.

Thus, *c. gr.* In a Curve of any kind whatever, the infinitely fmall Differences of the Ordinate and Abfciffe, have the Ratio to each other, not of the Ordinate, and Abfciffe; but of the Ordinate and Subtangent; and of confequence, the Abfciffe and Ordinate alone being known, give the Subtangent unknown; or which amounts to the fame, the Tangent it felf. See *the inverfe Method of* FLUXIONS.

The Method of Notation in *Fluxions*, introduc'd by the Inventor Sir *I. Newton*, is thus,

The *Fluxion* of the variable, or flowing Quantity, to be uniformly augmented, as fuppofe the Abfciffe of a Curve, he denotes by 1, or Unite; and the other flowing Quantities he denotes by the Letters $v\ x\ y\ z$; and their *Fluxions* by the fame Letters, with Dots plac'd over them, thus $\dot{v}\ \dot{x}\ \dot{y}\ \dot{z}$.

Again, as the *Fluxions* themfelves are alfo variable Quantities, and are continually increafing, or decreafing; he confiders the Velocities with which they increafe, or decreafe, as the *Fluxions* of the former *Fluxions*, or *fecond Fluxions*; which are denoted with two Dots over them, thus, $\ddot{y}\ \ddot{x}\ \ddot{z}$.

After the fame manner one may confider the Augments, and Diminutions of thefe, as their *Fluxions* alfo; and thus proceed to *third*, *fourth*, *fifth*, &c. *Fluxions*, which will be noted thus, $\dddot{y}\ \dddot{x}\ \dddot{z}$: $\ddddot{y}\ \ddddot{x}\ \ddddot{z}$: $\dddddot{y}\ \dddddot{x}\ \dddddot{z}$ &c.

Laftly, if the flowing Quantity be a Surd, as $\sqrt{a-b}$; he notes its *Fluxion* $\dot{\sqrt{a-b}}$: If a Fraction $\frac{x}{d-y}$ he notes it, $\dot{\frac{x}{d-y}}$:

The chief Scope and Bufinefs of *Fluxions*, is, from the flowing Quantity given, to find the *Fluxion*: For this, we fhall lay down one general Rule, as ftated by Dr. *Wallis*; and afterwards apply and exemplify it in the feveral Cafes.——

" Multiply each Term of the Equation feperately by the " feveral Indices of the Powers of all the flowing Quanti- " ties contain'd in that Term: And in each, change one " Root or Letter of the Power into its proper *Fluxion*: " The Aggregate of all the Products connected together " by their proper Signs, will be the *Fluxion* of the Equa- " tion defired."

The Application of this Rule will be contain'd in the following Cafes.——

I. In the General: To *expref the* Fluxions *of fimple variable Quantities*, as already mentioned, you need only put the Letter, or Letters, which exprefs them, with a Dot over them: Thus, the *Fluxion* of x is $\dot{x}$; and the *Fluxion* of y is $\dot{y}$; and the *Fluxion* of $x+y+v+z$, is $\dot{x}+\dot{y}+\dot{v}+\dot{z}$ &c.

Note. For the *Fluxion* of Permanent Quantities, when any fuch are in the Equation, you muft imagine o, or a Cypher; for fuch Quantities can have no *Fluxion*, properly fpeaking, becaufe they are without Motion, or invariable.

II. To *find the* Fluxions *of the Products of two or more variable or flowing Quantities*;

Multiply the *Fluxion* of each fimple Quantity by the Factors of the Products; or the Product of all the reft; and connect the laft Products by their proper Signs; the Sum or Aggregate is the *Fluxion* fought.

Thus, the *Fluxion* of $x\ y$ is $x\dot{y}+\dot{x}y$; and the *Fluxion* of $x\ y\ z$, is $x\ y\ \dot{z}+x\ \dot{y}\ z+\dot{x}\ y\ z$; and the *Fluxion* of $x\ v\ y\ z$, is $x\ v\ y\ \dot{z}+x\ v\ \dot{y}\ z+x\ \dot{v}\ y\ z+\dot{x}\ v\ y\ z$; and the *Fluxion* of a $\overline{+x\ x}$ by $b-y$ (the common Product being $a\ b+b\ x-y\ a-x\ y$) will be $b\ \dot{x}-\dot{y}\ a-\dot{x}\ y-x\ \dot{y}$.

III. *To find the* Fluxion *of a Fraction*;

Multiply the *Fluxion* of the Numerator by the Denominator, and after it place (with the Sign —) the *Fluxion* of the Denominator to the Nominator, and divide the whole by the Square of the Denominator.

Thus, the *Fluxion* of $\frac{x}{y}$ is $\frac{\dot{x}\ y-x\ \dot{y}}{y\ y}$;

For fuppofe $\frac{x}{y}=z$, then will $x=y\ z$; which equal Quantities will have equal *Fluxions*; therefore $\dot{x}=\dot{y}\ z+z\ \dot{y}$, and $\dot{x}-z\ \dot{y}=z\ \dot{y}$; and dividing all by y $\frac{\dot{x}-x\ \dot{y}}{y}=z=$ (becaufe $\frac{x}{y}=z$) $\frac{\dot{x}\ y-x\ \dot{y}}{y\ y}$: Wherefore this laft is the *Fluxion* of the Fraction $\frac{x}{y}$; becaufe z being $=\frac{x}{y}$, $\dot{z}$ will be equal to the *Fluxion* of $\frac{x}{y}$

And the *Fluxion* of $\frac{a}{x}$ will be $\frac{-\dot{x}\ a}{x\ x}$; for the permanent Quantity a having no *Fluxion*, there can be no Product of the *Fluxion* of the Numerator into the Denominator, as there would have been, had a been x, z, or any other variable Quantity.

IV. *To find the* Fluxion *of a Power*;

Multiply the Power (firft brought one Degree lower) by the Index of that firft Power; and the Product by the *Fluxion* of the Root.

Thus, the *Fluxion* of $x\ x$ will be $2\ x\ \dot{x}$, for $x\ x=x\times x$; but the *Fluxion* of $x\times x=\dot{x}\ x+x\ \dot{x}=2\ x\ \dot{x}$, &c. and the *Fluxion* of x^3 will be $3\ x\ x\ \dot{x}$. That of x^8 will be $8\ x^7\ \dot{x}$, &c. Or if m exprefs the Index of any Power, as fuppofe x^m, its *Fluxion* will be $m\ x^{m-1}\ \dot{x}$, or $m\ x\ \dot{x}\ m-1$:

For $x\ m$ brought one Degree lower (m being a general Index) muft be x^{m-1}; then that $\times$ by m the Index, makes $m\ x^{m-1}$; and this laft by the *Fluxion* of the Root, produces $m\ x^{m-1}\ \dot{x}$.

If the Power be produced from a Binomial, &c. as fuppofe $x\ x+2\ x\ y+y\ y$, its *Fluxion* will be $2\ x\ \dot{x}+2\ \dot{x}\ x+2\ x\ \dot{y}+2\ y\ \dot{y}$, by the Fourth and Second Rules.

If the Exponent be Negative, as fuppofe x^{-m} or x^{-n}, its *Fluxion* will be $-m\ x\ \dot{x}\ -m-1$.

Or, if you would do it by way of Fraction, $\frac{-m\ x^{m-1}\ \dot{x}}{x^{2m}}$ (for the Square of x^m is as well x^{2m} as x^{m2}) or according to Sir *I. Newton*'s Method, which is yet fhorter, $\frac{-m\ \dot{x}}{x^{m+1}}$.

If the Power be imperfect, *i. e.* if its Exponent be a Fraction, as fuppofe $\sqrt[n]{x^m}$; or in the other Notation $x^{\frac{m}{n}}$, fuppofe $x^{\frac{m}{n}}=z$: Then if you raife up each Member to the Power of n, it will ftand thus, $x^m=z^n$; the *Fluxion* of which will be, by this general Rule, $m\ x^{m-1}\ \dot{x}=n\ z^{n-1}\ \dot{z}$: Wherefore $\dot{z}$ will be $=\frac{m\ \dot{x}\ x^{m-1}}{n\ z^{n-1}}$ (by dividing both Parties by $n\ z^{n-1}$,) and $\frac{m\ \dot{x}\ x^{m-1}}{n\ z^{n-1}}=\frac{m}{n}\ x^{m-1}\ \dot{x}$; or $\frac{m}{n}\ \dot{x}\ x^{m-n}$, by putting inftead of $n\ z^{n-1}$, its Value $n\ x^{\frac{m}{n}}$.

Hence

Hence to find the *Fluxion* of any kind of Power, proceed thus:

Multiply the Power given by its Index or Exponent, and then that Product by the *Fluxion* of the Root of the Power given; and after that, subtract One, or Unity, from the Index of the Power.

V. *To find the* Fluxions *of Surd Quantities.*

Suppose it requir'd to find the *Fluxion* of $\sqrt{2rx - xx}$, or $\overline{2rx - xx}|^{\frac{1}{2}}$. Suppose $\overline{2rx - xx}|^{\frac{1}{2}} = z$; then is $2rx - xx = zz$; and consequently $r\dot{x} - x\dot{x} = z\dot{z}$; and by Division, $\frac{r\dot{x} - x\dot{x}}{z} = \dot{z} =$ (by Substitution) $\frac{r\dot{x} - x\dot{x}}{\sqrt{2rx - xx}} =$ to the *Fluxion* of $\sqrt{2rx - xx}$

If it be required to find the *Fluxion* of $\overline{ay - xx}|^{\frac{2}{3}}$; for $\overline{ay - xx}|^{\frac{2}{3}}$ put z; then, $ay - xx = z^{\frac{3}{2}}$, and $a\dot{y} - 2x\dot{x} = \frac{3}{2}z^{\frac{1}{2}}\dot{z}$: And multiplying by 3, $3a\dot{y} - 6x\dot{x} = z^{\frac{1}{2}}\dot{z}$; and consequently, $3az^{\frac{2}{3}}\dot{y} - 6z^{\frac{2}{3}}x\dot{x} = z$ equal (substituting $\overline{ay - xx}|^{\frac{2}{3}} = z^{\frac{2}{3}}$) $3a^3y^2\dot{y} - 6a^2x^2y\dot{y} + 3ax^4\dot{y} - 6a^2y^2\underline{x\dot{x}} + 12ayx^3\dot{x} - 6x^5\dot{x} =$ to the *Fluxion* of $ay - xx^3$.

VI. *To find the* Fluxion *of Quantities compounded of Rational and Surd Quantities.*

Let it be requir'd to find the *Fluxion* of $\frac{bx^3 + cax + ea^2x\sqrt{xx + aa}}{} = z$. Put $bx^3 + cax + ea^2 = p$ and $\sqrt{xx + aa} = q$. Then the given Quantity is $pq = z$, and the *Fluxion* thereof is $p\dot{q} + q\dot{p} = \dot{z}$: But $\dot{q}$ is $\frac{x\dot{x}}{\sqrt{xx + aa}}$, and $\dot{p}$ is $= 2b\dot{x}x + ca\dot{x}$; therefore in the Equation $p\dot{q} + q\dot{p} = \dot{z}$, if in the place p, q, $\dot{p}$, $\dot{q}$, we restore the Quantities they represent, we shall have $\frac{bx^3 + cax^2 + ea^2x\,x\dot{x}}{\sqrt{xx + ea}} + 2bxx\sqrt{xx + aa}\,x\dot{x} + cax\sqrt{xx + aa}\,x\dot{x} = \dot{z}$. Which being reduc'd to one Denomination, gives $\frac{3bx^3 + 2acx^2 + ea^2x}{\sqrt{xx + aa}} + 2ba^2x + x\,a^3\,x\dot{x} = \dot{z} =$ to the *Fluxion* of the given Quantity.

Inverse Method of Fluxions, or *Calculus Integralis*, consists in finding finite Magnitudes, from the infinitely small Parts thereof.

It proceeds, as already observ'd, from infinitely small Quantities to finite; and recompounds and sums up what the other has resolved; whence it is also call'd the *Summatory Calculus.*

But what that has decompounded, this does not always re-establish; so that the Inverse Method is limited, and imperfect; at least, hitherto. If it were once compleat, Geometry would be arrived at its last Perfection.

To give an Idea of its Nature and Office, take the Instance already proposed in the direct Method: In that the infinitely small Quantities of the Ordinates and Abscis, being known, give the Subtangent required. In this, on the contrary, the Subtangent of an unknown Curve being had, gives the infinitely small Quantities of the Abscis and Ordinate which produc'd it, and of consequence the Abscis and Ordinate themselves; which are finite Magnitudes, in whose Relation the whole Essence of the Curve is founded.

But the distinguishing Province of this Method is in measuring the Base of a Parallelogram multiplied by the infinitely small Element of its Weight, gives an infinitely small Parallelogram; which is the Element of the finite Parallelogram, and is repeated an Infinity of times therein, *i. e.* as many times as there are Points in the Height of the Parallelogram.

To have the finite Parallelogram, therefore, by means of its Element, the Element must be multiplied by the Height; which is the inverse Method of *Fluxions*, re-ascending from the infinitely small Quantity, to the finite.

Such a Circuit of Infinitesimals, 'tis true, were impertinent in so simple a Case; but when we have to do with Surfaces, terminated by Curves; the Method then becomes necessary, or at least superior to any other.

Suppose, *e. gr.* in a Parabola, the Space included between two infinitely near Ordinates, an infinitely small Portion of the Axis, and an infinitely little Arch of the Curve: 'Tis certain, this infinitely small Surface is no Parallelogram; since the two parallel Ordinates which terminate it on one Side, are not equal; and the Arch of the Curve, opposite to the little Portion of the Axis, is frequently neither equal nor parallel thereto. And yet this Surface, which is no Parallelogram, may be consider'd, in the strictest Geometry, as if it really were one; by reason it is infinitely small, and the Error, of consequence infinitely little, *i. e.* none.

So that, to measure it, there needs nothing but to multiply an Ordinate of the Parabola by the infinitely small Portion of the Axis corresponding thereto. Thus we have the Element of the whole Parabola; which Element being rais'd by the inverse Method to a finite Magnitude, is the whole Surface of the Parabola.

This Advantage is peculiar to the Geometry of Infinites, of being able without any Error to treat little Arches of Curves, as if they were Right-lines; curvilinear Spaces, as if rectilinear ones, *&c.* enables it not only to go with more Ease and Readiness than the antient Geometry, to the same Truths; but also a great Number of Truths inaccessible to the other.

Its Operations, in effect, are more easy, and its Discoveries more extensive: And Simplicity and Universality are its distinguishing Characters.

To find the flowing Quantity belonging to any Fluxion *given.*

To have the Doctrine of the Inverse Method correspond and keep pace with that of the Direct, we will apply it in the same Cases.

I° Then, in the general: *To express the variable Quantity of a* Fluxion, there needs nothing but to write the Letters without the Dots.

Thus the flowing Quantities of $\dot{x}\,\dot{y}\,\dot{z}$, are $x\,y\,z$.

II° *To find the flowing Quantities belonging to the* Fluxion *of the Product of two Quantities*;

Divide each Member of the *Fluxion* by the fluxionary Quantity, or Letter; or change the fluxionary Letter into the proper flowing Quantity of which it is the *Fluxion*: The Quota's connected by their proper Signs will be the flowing Quantities sought.

Only, if the Letters be all exactly the same, the flowing Quantity will be a simple one, whose Parts are not to be connected together by the Signs + and —

III° *To find the flowing Quantity belonging to the* Fluxion *of any Power, either perfect, or imperfect.*

Take the fluxionary Letter or Letters out of the Equation: Then augment the Index of the *Fluxion* by 1, or Unity: Lastly, divide the *Fluxion* by the Index of its Power so increased by Unity.

Thus suppose $3\dot{x}\dot{x}\dot{x}$ proposed; by taking away $\dot{x}$ it will be $3\dot{x}\dot{x}$: and by increasing its Index by Unity, it will be $3\dot{x}\dot{x}\dot{x}$: Then dividing it by 3, its now (augmented) Index, the Quotient will be $\dot{x}\dot{x}\dot{x}$, the flowing Quantity required.

Again, suppose $\frac{n}{m}\dot{x}\,x^{\frac{n-1}{m}}$ a *Fluxion* propos'd: By taking away the fluxionary $\dot{x}$, it will be $\frac{n}{m}x^{\frac{n}{m}-1}$: By augmenting the Index by Unity (*i. e.* taking away —1) it will be $\frac{n}{m}x^{\frac{n}{m}}$: And lastly, by dividing the remaining Part of the *Fluxion* by $\frac{n}{m}$, prefix'd to, or multiplied into x, the Quotient will be $x^{\frac{n}{m}}$; which is the flowing Quantity sought.

The Uses of the direct Method of Fluxions, *see specified under the Articles* Maximis *and Minimis*, Tangents, *&c.*

Those of the Inverse Method, see under Quadrature *of Curves*; Rectification *of Curves*; Cubature *of Solids*, &c.

FLYBOAT, a large Vessel, with a broad Bow, us'd by Merchants in the coasting Trade.

Some of them will carry 800 Ton of Goods.

To Fly *Gross*, in Falconry, is said of a Hawk when she flies at the great Birds, as Cranes, Geese, Herons, *&c.*

Fly *on Head*, is when the Hawk missing her Quarry, betakes her self to the next Check, as Crows, *&c.*

FLYERS, in Architecture, such Stairs, as go strait; and do not wind round, nor its Steps made tapering; but the fore and back part of each Stair and the Ends respectively parallel to one another.

So that if one *Flight* do not carry you to your design'd Height, there is a broad half Space; and then you *fly*

again, with Steps every where of the ſame Breadth and Length as before. See STAIR-CASE.

FLYING, the progreſſive Motion of a Bird, or other winged Animal in the liquid Air. See FLIGHT, and BIRD.

Flying is either *Natural*, or *Artificial*.

Natural FLYING is that perform'd by an Apparatus or Structure of Parts concerted for that end by Nature her ſelf. Such is that of moſt Birds, and Inſects; and ſome Fiſhes.

In *Virginia*, and *New England*, they have alſo *flying Harts*. *Philoſoph. Tranſact.* N° 127. And in *Languedoc*, *flying* Graſhoppers, about an Inch long, wherewith the Ground, in ſeveral Parts, in the Year 1685 was cover'd one third of a Foot deep.——*Ibid.* N° 182.

The Parts of Birds, &c. chiefly concern'd in *Flying*, are the *Wings*, and *Tail*: By the firſt, the Bird ſuſtains and waſts himſelf along; and by the ſecond he is aſſiſted in aſcending, and deſcending; to keep his Body pois'd and upright, and to obviate the Vacillations thereof. See WING and TAIL.

'Tis by the Largeneſs and Strength of the temporal Muſcles, that Birds are ſo well diſpoſed for quick, ſtrong, and continued *Flying*.

Theſe Muſcles, which in Men are ſcarce $\frac{1}{79}$ Part of the Muſcles of the Body, in Birds, exceed and ontweigh all the other Muſcles taken together: Upon which Mr. *Willoughby* makes this Reflection, that if it be poſſible for Man to *fly*, his Wings muſt be ſo contrived and adapted, that he may make uſe of his Legs, and not his Arms in managing them. See PECTORAL *Muſcle*.

The *Flying* of Birds is thus effected:

The Bird, firſt, bends his Legs, and ſprings with a violent Leap from the Ground: Then, opens or expands the Jointures of his Wings, ſo as to make a Right-line, perpendicular to the Sides of his Body. Thus, as the Wings, with the Feathers therein, conſtitute one continued Lamina; being now rais'd a little above the Horizon, and vibrating the Wings with great Force and Velocity, perpendicularly, againſt the ſubject Air; the Air, tho' a Fluid, reſiſts thoſe Succuſſions both from its natural Inactivity, and from its Elaſticity, which makes it reſtore it ſelf, after it has been compreſs'd, and react aſmuch as it is acted on: By ſuch means is the whole Body of the Bird protruded.

The Sagacity of Nature is very remarkable in the opening and recovering of the Wing for freſh Strokes.

To do it directly, and perpendicularly, it would needs have a great Reſiſtance to overcome: To avoid which, the bony Part, or Bend of the Wing into which the Feathers are inſerted, moves ſidewiſe with its ſharp End foremoſt; the Feathers following it like a Flag.

The Reſiſtance the Air makes to the withdrawing of the Wings, and conſequently the Progreſs of Bird, will be ſo much the greater, as the Waſt, or Stroke of the Fan of the Wing is the longer: But, as the Force of the Wing is continually diminiſh'd by this Reſiſtance; when the two Forces come to be in Equilibrio, the Bird will remain ſuſpended in the ſame Place: For the Bird only aſcends ſo long, as the Arch of Air the Wing deſcribes, makes a Reſiſtance equal to the Exceſs of the ſpecific Gravity of the Bird above the Air. If the Air therefore be ſo rare as to give way with the ſame Velocity as it is ſtruck withal, there will be no Reſiſtance, and conſequently the Bird can never mount on ſuch unſtable Steps.——

Mr. *Ray*, *Willoughby*, &c. have ſuppos'd the Tail to do the Office of a Rudder, in ſteering and turning the Body this way or that: But *Borelli* has ſhewn it unfit for any ſuch Office.

The *Flying* of a Bird, in effect, is quite a different Motion from the Sailing of a Ship: Birds don't vibrate their Wings towards the Tail, as Oars are ſtruck towards the Stern; but waſt them downward: Nor does the Tail of the Bird cut the Air at right Angles, as the Rudder does the Water; but is diſpoſed horizontally, and preſerves the ſame Situation what way ſoever the Bird turns.

In effect, as a Veſſel in the Water is turn'd about on its Centre of Gravity to the right, by a briſk Application of the Oars to the left; ſo a Bird, in beating the Air with its right Wing alone, towards its Tail, its Fore-part will be turn'd to the left: As when in ſwimming, by only ſtriking out with the right Arm, and Leg, we are driven to the left.

Thus, we ſee Pidgeons, changing their Courſe to the leftward, labour it with the right Wing; keeping the other almoſt at reſt.

Add, that Birds with long Necks have another way of altering their Courſe: For by only inclining the Head and Neck towards this or that Side; the Centre of Gravity of the whole being ſhifted, the Bird will proceed according to his new Direction.

Birds never fly upwards in a perpendicular Line, but always in a Parabola, the Line deſcribed by Projectiles.

In a direct Aſcent, the Natural and Artificial Tendency would oppoſe and deſtroy each other; ſo that the Progreſs would be very ſlow: In a direct Deſcent, they would aid one another; ſo that the Fall would be too precipitate.

Indeed, the Hawk we frequently find take that Advantage in ſeizing of the Partridge: But ordinarily, Birds keep their Wings expanded, and at reſt, to retard their Deſcent; and at the ſame time ſtretch out their Feet, and Legs.——

Artificial FLYING, is that attempted by Men, by the Aſſiſtance of Mechanicks.

The *Art of Flying* is one of the great Deſiderata of Mechanicks; attempted in divers Ages: The Diſcovery whereof might prove of great Service, and great Diſſervice to Mankind.

No body ſeems to have bid ſo fair for that Invention, as our famous Fryar *R. Bacon*, who liv'd upwards of 500 Years ago. He not only affirms the Art feaſible; but aſſures us he himſelf knew how to make an Engine, in which a Man ſitting might be able to carry himſelf through the Air, like a Bird: And affirms, that there was another Perſon, who had actually tried it with Succeſs.

The Secret conſiſted in a Couple of large thin hollow Copper Globes, exhauſted of Air; which being much lighter than Air, would ſuſtain a Chair, whereon a Perſon might ſit. See AIR-PUMP.

Fa. *Franciſco Lane*, in his *Prodromo*, propoſes the ſame thing, as his own Thought. He computes, that a round Veſſel of Plate Braſs, fourteen Foot in Diameter, weighing three Ounces the ſquare Foot; will only weigh 1848 Ounces; whereas a Quantity of Air of the ſame Bulk, will weigh $3155\frac{2}{3}$ Ounces: So that the Globe will not only be ſuſtain'd in the Air; but will carry with it a Weight of $373\frac{2}{3}$ Ounces; and by increaſing the Bulk of the Globe, without increaſing the Thickneſs of the Metal, he adds, a Veſſel might be made to carry a much greater Weight.

But the Fallacy is obvious: A Globe of the Dimenſions he deſcribes, Dr. *Hook* ſhews, would not ſuſtain the Preſſure of the Air; but be cruſh'd inwards. Beſide, that in whatever Ratio the Bulk of the Globe were increas'd, in the ſame muſt the Thickneſs of the Metal, and conſequently the Weight, be increaſed: So that there would be no Advantage in ſuch Augmentation.

The ſame Author deſcribes an Engine for *Flying*, invented by the Sieur *Beſnier*, a Smith of *Sable*, in the County of *Maine*. *Philoſoph. Collect.* N° 1.——

FLYING *Bridges*, in Fortification, are thoſe made of two ſmall Bridges, laid one upon the other, ſo that the uppermoſt, by means of Ropes and Pullies, is forc'd forwards, till the End of it is joined to the Place deſigned. See BRIDGE.

FLYING *Camp*, a ſmall Body of an Army, conſiſting of 4, 5, or 6000 Men, and ſometimes a greater Number, as well Foot as Horſe, which continually keep the Field, making divers Motions, to prevent the Incurſions of the Enemy, or to fruſtrate their Enterpriſes; to hinder Convoys, to harraſs the adjacent Country, and to be thrown into a beſieged Place, as Occaſion ſhall ſerve.——

FLYING *Pinion*, is a Part of a Clock, having a Fly or Fan, whereby to gather Air, and ſo to bridle the Rapidity of the Clock's Motion, when the Weight deſcends in the ſtriking Part. See PINION, CLOCK, &c.

FOCAGE, or FUAGE, Fire-money, Hearth-money, or Chimney-money. See FUAGE.

FOCILE, FOCIL, in Anatomy, a Name the *Arabs* give to the two Bones of the Arm, reaching from the Elbow, to the Wriſt. See ARM.

The biggeſt, which is what we call the *Cubitus*, and *Ulna*, they call the *greater Focil*, *Focile majus*.

The leſs, which we call *Radius*, they call *Focile minus*. See CUBITUS, and RADIUS.

The like is obſerv'd with regard to the Bones of the Leg. The biggeſt of which, by the *Latins* called *Tibia*, the *Arab* Writers, &c. call the *great Focil*: And the leſs, or *Fibula*, the leſſer *Focil*. See TIBIA, and FIBULA.

FOCUS, in Geometry, and the Conic Sections, is applied to certain Points in the Parabola, Ellipſis, and Hyperbola; wherein the Rays reflected from all Parts of theſe Curves do concur, or meet. See CURVE.

The FOCUS *of a Parabola* is a Point in its Axis, as F, (*Tab. Conicks*, *Fig.* 18.) wherein the ſemi-ordinate F N, is equal to the Semi-parameter; or a Point in the Axis diſtant from the Vertex, by a fourth Part of the Parameter, or Latus rectum. See PARABOLA.

'Tis demonſtrated in Conicks, 1° That in a Parabola, the Diſtance of the *Focus*, from the Vertex, A F, is to the Parameter, in a ſubquadruple Ratio.

2° That the Square of the ſemi-ordinate is quadruple of the Rectangle of the Diſtance of the *Focus* from the Vertex, and the Abſciſſe.

3° That the Right-line F M drawn from the *Focus* F, to the Extremities of the Semi-ordinate of the Parabola is equal to the aggregate of the Abſciſſe A P; and the Diſtance of the *Focus* from the Vertex A F.

The FOCI *of an Ellipſis* are two Points, as F f (*Fig.* 19.) in the Axis A B, on which, as Centres, the Figure is deſcribed:

ſcribed: Or, two Points in the longer Axis, whence two Right-lines being drawn to any Point in the Circumference, ſhall be together equal to the Axis it ſelf. Theſe are alſo called *Umbilici*. See UMBILICUS, and CENTRE.

To find the *Foci* of an Ellipſis, from B to L, ſet off half the Parameter: And in the Centre C erect a Perpendicular C K, meeting a Semicircle deſcribed on A L. Then making C F=C K; the Point F will be the *Focus*.

If then the Axis A B be cut in the *Focus* F; the Rectangle of the Segments of the Axis A F, F B, will be ſubquadruple of the Rectangle of the Parameter into the Axis; whence the Square of the Diſtance of the *Focus* from the Centre is equal to the Rectangle of half the Axis into the Difference of the Semi-parameter from half the Axis. See ELLIPSIS.

FOCUS *of the Hyperbola*, ſee HYPERBOLA.

FOCUS, in Opticks, is a Point wherein ſeveral Rays concur, and are collected; either after having undergone Refraction, or Reflection. See RAY.

It is thus called, by reaſon the Rays being here brought together, and united; their Force and Effect is increas'd; ſo that they become able to burn: Accordingly, 'tis in this Point, that Bodies are plac'd to ſuſtain the Force of Burning Glaſſes, or Mirrors. See BURNING *Glaſs*, &c.

It muſt be obſerv'd, that the *Focus* is not ſtrictly ſpeaking a Point; the Rays are not all accurately collected into the ſame Place: *Huygens* demonſtrates, that the *Focus* of a Lens convex on both Sides is $\frac{4}{5}$ of the Thickneſs of the Lens. See LENS.——

FOCUS, in Dioptricks, is the Point wherein the refracted Rays, by Refraction render'd convergent, do concur, or meet, and croſs the Axis. See REFRACTION.

The ſame Point is alſo call'd the *Point of Concourſe*, or *Concurrence*. See POINT *of Concourſe*.

Virtual FOCUS, in Dioptricks, is the Point from which refracted Rays, when by Refraction they are render'd divergent, do begin to diverge, or recede from each other. See VIRTUAL *Focus*.

The ſame Point is alſo call'd *Punctum Diſperſus*. See POINT *of Diſperſion*.

The Effect of convex Glaſſes, or Lenſes, is to render the Rays, tranſmitted thro' them, convergent, and bring them together into a *Focus*, which will be nearer or further off, as the Lens is a Portion of a greater or leſs Sphere. See CONVEX, and CONVERGENT.

The Effect of concave Lenſes is to render the Rays tranſmitted thro' them, *divergent*, or to diſperſe them from a Virtual *Focus*. See CONCAVE, and DIVERGENT.

For the Place, Poſition, Diſtance, &c. *of the* Foci *of Rays refracted thro' Plain, Concave, and Convex Mediums of divers Denſities, as Air, Water, Glaſs*, &c. ſee REFRACTION, *&c.*

The Laws of the *Foci* of Glaſſes, and the Methods of finding the ſame, being thoſe of moſt Uſe, and Importance; we ſhall here ſubjoin them a-part, as deliver'd and demonſtrated by the ingenious Mr. *Molyneux*, in his *Dioptrica Nova*.

1° then, The *Focus of a convex Glaſs*, i. e. the Point wherein parallel Rays tranſmitted through a convex Glaſs, whoſe Surface is the Segment of a Sphere do unite, is diſtant from the Pole, or Vertex of the Glaſs, almoſt a Diameter and half of the Convexity.

2° In a *Plano-Convex Glaſs*, the *Focus* of parallel Rays, or the Place where they unite with the Axis, is diſtant from the Pole of the Glaſs a Diameter of the Convexity; provided the Segment do not exceed 30 Degrees.

The Rule or Canon in Plano-Convex Glaſſes, is as 107 : 193 : : So is the Radius of the Convexity: to the refracted Ray taken in its Concourſe with the Axis; which in Glaſſes of larger Spheres, is almoſt equal to the Diſtance of the *Focus* taken in the Axis.

3° In *double Convex Glaſſes* of the ſame Sphere, the *Focus* is diſtant from the Pole of the Glaſs about the Radius of the Convexity, if the Segment be but 30 Degrees.

But if the Convexities are unequal, or if the two Sides are Segments of different Spheres, then the Rule is,

As the Sum of the Radii of both Convexities : to the Radius of either Convexity alone : : So is the double Radius of the other Convexity : to the Diſtance of the *Focus*.

Here obſerve, that the Rays which fall nearer the Axis of any Glaſs, are not united with it ſo ſoon as thoſe farther off: Nor will the *Focal Diſtance* be ſo great in a Plano-Convex Glaſs, when the convex ſide is towards the Object, as when the contrary way.

Hence it is truly concluded, that in viewing any object by a Plano Convex Glaſs, the convex Side ſhould be turned outward; as alſo in burning by ſuch a Glaſs.

For the *Virtual Focus* obſerve,

1° That in *Concave Glaſſes*, when a Ray falls from Air parallel to the Axis, the Virtual *Focus*, by its firſt Refraction becomes at the diſtance of a Diameter and an half of the Concavity.

2° In *Plano-Concave Glaſſes*, when the Rays fall parallel to the Axis, the Virtual *Focus* is diſtant from the Glaſs the Diameter of the Concavity.

3° In *Plano-Concave Glaſſes*; as 107 : 193 : : So is the Radius of the Concavity, to the Diſtance of the Virtual *Focus*.

4° In *double Concaves* of the ſame Sphere, the Virtual *Focus* of parallel Rays is at the Diſtance of the Radius of the Concavity.

But whether the Concavities be equal or unequal, the Virtual *Focus*, or Point of Divergency of the parallel Rays is determined by this Rule;

As the Sum of the Radii of both Concavities : is to the Radius of either Concavity : : So is the double Radius of the other Concavity : to the diſtance of the Virtual *Focus*.

5° In *Concave Glaſſes*, if the Point to which the incident Ray converges, be diſtant from the Glaſs farther than the Virtual *Focus* of parallel Rays; the Rule for finding the Virtual *Focus* of this Ray is this;

As the Difference between the Diſtance of this Point from the Glaſs, and the Diſtance of the Virtual *Focus* from the Glaſs : is to the Diſtance of the Virtual *Focus* : : So the Diſtance of this Point of Convergence from the Glaſs : is to the Diſtance of the Virtual *Focus* of this converging Ray.

6° In *Concave Glaſſes*, if the Point to which the incident Ray converges, be nearer to the Glaſs, than the Virtual *Focus* of parallel Rays; the Rule to find where it croſſes the Axis, is this;

As the Exceſs of the Virtual *Focus*, more than this Point of Convergency : is to the Virtual *Focus* : : So the Diſtance of this Point of Convergency from the Glaſs : is to the Diſtance of the Point where this Ray croſſes the Axis.

Practical Rules for finding the FOCI *of Glaſſes.*

To find the *Focus* of a Convex Spherick Glaſs, being of a ſmall Sphere, apply it to the End of a Scale of Inches, and Decimal Parts, and expoſe it before the Sun; upon the Scale you will have the bright Interſection of the Rays meaſur'd out; or, expoſe it in the Hole of a dark Chamber; and where a white Paper receives the diſtinct Repreſentation of diſtinct Objects, there is the *Focus* of the Glaſs.

For a Glaſs of a pretty long *Focus*; obſerve ſome diſtant Objects thro' it, and recede from the Glaſs till the Eye perceives all in Confuſion, or the Objects begin to appear inverted; here the Eye is in the *Focus*.

For a Plano-Convex Glaſs: Make it reflect the Sun againſt a Wall; you will on the Wall perceive two Sorts of Light; one more bright within another more obſcure: Withdraw the Glaſſes from the Wall, till the bright Image is at its ſmalleſt; the Glaſs is then diſtant from the Wall about the fourth Part of its *focal* Length.

For a double Convex: Expoſe each Side to the Sun in like manner; and obſerve both the Diſtances of the Glaſs from the Wall. The firſt Diſtance is about half the Radius of the Convexity turned frrm the Sun; and the ſecond, about half the Radius of the other Convexity.

Thus, we have the Radii of the two Convexities; whence the *Focus* is found by this Rule;

As the Sum of the Radii of both Convexities : is to the Radius of either Convexity : : So is the double Radius of the other Convexity : to the Diſtance of the *Focus*.

FOCUS, in Catoptricks, is a Point wherein the Rays reflected from the Surface of a Mirror, or Speculum; and by Reflection render'd convergent; do concur, or meet. See MIRROR.

The Effect of Concave Mirrors is to collect the Rays falling on their Concave Surface into a *Focus*. See CONCAVE *Mirror*.

The Effect of Convex Mirrors, is to diſperſe the Rays falling on them, or render them more Divergent. See CONVEX *Mirror*.

For the Laws of the Foci *of Rays refracted from Mirrors, or Specula*, ſee REFLECTION, &c.

The *Foci* of Concave Glaſſes are had by Reflection: For as a Concave Mirror burns at the Diſtance of about half the Radius of the Concavity; ſo a Concave Glaſs, being ſuppos'd a reflecting Speculum, unites the Rays of the Sun, at the Diſtance of about half the Radius of the Concavity.

To find the Foci *of all Glaſſes, Geometrically*;

Dr. *Halley* furniſhes us a general Method for finding the *Foci* of ſpherical Glaſſes of all kinds, both concave, and convex; expos'd to any kind of Rays, either parallel, converging, or diverging; under the following Problem.

To find the *Focus* of any Parcel of Rays diverging from, or converging to a given Point in the Axis of a ſpherical Lens, and inclined thereto under the ſame Angle: The Ratio of the Sines of Refraction being given:

Suppoſe G L (*Tab. Opticks, Fig.* 38.) a Lens; P a Point in its Surface; V its Pole; C the Centre of the Sphere whereof it is a Segment; O, the Object, or Point in the Axis, to or from which the Rays do proceed; and O P a given Ray: And ſuppoſe the Ratio of Refraction to be as *r* to *s*.

Then,

Then, making C R to C O, as *s* to *r* for the Immerſion of a Ray; or as *r* to *s* for the Emerſion (*i. e.* as the Sines of the Angles in the Medium which the Ray enters, to their correſponding Sines in the Medium out of which it comes) and laying C R, from C towards O, the Point R will be the ſame for all the Rays of the Point O. Laſtly, drawing the Radius P C, if need be, continued; with the Centre R, and Diſtance O P ſtrike a piece of an Arch, interſecting P C in Q. The Line Q R being drawn, ſhall be parallel to the refracted Ray; and P F being made parallel thereto, ſhall interſect the Axis in the Poiot F, the *Focus* ſought.

Or, make it, as C Q : C P : : C R : C F. Then will C F be the Diſtance of the *Focus* from the Centre of the Sphere.

This Author gives a Demonſtration of the Method; and adds various Figures, exhibiting the various Caſes of Rays either diverging, or converging, as they enter, or emerge out of the Surface either of a convex or concave Lens.

From this Principle all the Rules for the *Foci* of Rays parallel to the Axis, as likewiſe for the principal *Focus*, where the Rays neareſt the Axis do unite, are deduc'd. As,

Hence 1° If O P be equal to C R; the Points Q and C are coincident, and the Rays O P, after Refraction, run on parallel to the Axis. 2° If the Point Q fall on the ſame Side of the Axis, as is the Point P; then the Beams after Refraction do tend on, either Diverging, or Converging, as before: But if Q fall on the other Side the Axis, the Diverging Rays are made to converge by a Convex, or the Converging to diverge by a Concave Glaſs. 3° If O P do exceed C R, the *Focus* is in all Caſes on the ſame Side of the Glaſs, as is the Centre of the Sphere C. But contrarywiſe, if O P he leſs than C R, the *Focus* falls on the other Side of the Glaſs beyond the Vertex V. 4° An Object may be ſo placed, that the Rays next the Axis of a Convex Glaſs ſhall have an imaginary *Focus* tranſmitting diverging Rays, when the more remote Parts thereof ſhall make them converge to a real *Focus*. 5° If O V, the Diſtance of the Object from the Pole or Vertex of the Glaſs, be taken inſtead of O P, then will C Q be the Difference of O V and C R; and as that Difference is to C R, ſo is the Radius C V, to C F, the Diſtance of the principal *Focus* from the Centre of the Sphere, whereof the Glaſs is a Segment. Or elſe, as C Q : to O P or R Q : : So P C : to V F, the *focal* Diſtance from the Pole of the Glaſs. Whence follows a General Rule for the *Foci* of all Glaſſes; only according to *Cor.* 3. if O V do exeed C R, the *Focus* is on the ſame Side of the Glaſs, as the Center of the Sphere: But if C R be greater, then the *Focus* is on the oppoſite Side of the Glaſs: Whence it will be determined, whether the *Focus* be real, or imaginary.

What has been ſaid of one Surface of the Lens, is eaſily applicable to the other, taking F the *Focus*, for an Object.—

FODDER, any kind of Meat for Horſes, or other Cattle: In ſome Places Hay and Straw mingled together, is accounted *Fodder*:

In the Civil Law it is us'd for a Prerogative that the Prince has, to be provided of Corn, and other Meat, for his Horſes, by the Subjects, in his warlike Expeditions.

FODINA, a Name ſome Authors give to the Labyrinth in the Bone of the Ear. See LABYRINTH.

FOECES, FOECAL, FOECULÆ, } See { FÆCES. FÆCES. FÆCULÆ.

FOETOR, in Medicine, ſtinking, or fœtid Effluvia, proceeding from the Body, or the Parts thereof. See EFFLUVIA.

Fœtors ariſe from ſtagnant, extravaſated, corrupted, or poiſon'd Humors; as alſo from any thing capable of attenuating and volatilizing the Oil and Salts: As, Abſtinence, Heat, too much Motion, Acrimony of Food, &c.

FOETOR *Narium*, Stench of the Noſtrils, a ſort of Diſeaſe, ariſing from a deep Ulcer, within ſide the Noſe, yielding a fœtid Smell. Its Cauſe, according to *Galen*, is a ſharp Humor, falling from the Brain upon the Mamillary Proceſſes. This is one of the Cauſes that annuls Marriage. See DIVORCE.

FOETUS, in Medicine, denotes the Child, while yet contain'd in the Mother's Womb: but particularly, after it is perfectly form'd: Till which Time it is properly call'd *Embryo*. See EMBRYO.

The manner of the Conception, or Generation of the *Fœtus*, is Matter of great Controverſy.

That all the Parts of the Animal did exiſt, and that its Fluids were in Motion, before Generation, is generally allow'd; but whether the Animalcule was lodg'd in the Male, or Female, is not agreed of.

Many of the Moderns will have the Ova, or Eggs, contain'd in the Ovary of the Female, to be the firſt Matter, or Stamen of the *Fœtus*: Theſe Eggs, they ſuppoſe to contain all the Parts of the *Fœtus* in little; and that being impregnated with the Male Seed, the Parts thereof become enlarg'd, and diſplay'd: From the Ovary they are convey'd by the Fallopian Tubes into the Uterus, where they receive their Impregnation, Accretion, &c. See EGG, and OVARY.

Others will only have the female Ovum to be a proper Nidus for the Animalcule, which, they contend, is in the Male Seed. The Animalcule getting into an Ovum fit to receive it; and this falling thro' one of the Tubæ Fallopianæ into the Womb; the Humors which diſtil thro' the Veſſels of the Womb penetrating the Coats of the Egg, ſwell and dilate it, as the Juice of the Earth does Seed thrown into the Ground. Or elſe, the Branches of the Veins and Arteries, whereby the Egg was tied in the Ovary, being broken, knit with the Veſſels of the Womb. See GENERATION, CONCEPTION, SEED, &c.

The firſt thing that appears of a *Fœtus*, is the *Placenta*, like a little Cloud, on one Side of the external Coat of the Egg: About the ſame time the Spina is grown big enough to be viſible; and a little after, the Cerebrum and Cerebellum appear like two ſmall Bladders: Next, the Eyes ſtand prominent in the Head; Then the Punctum ſaliens, or Pulſation of the Heart is plainly ſeen. The Extremities diſcover themſelves laſt of all.

The *Fœtus*, when form'd, is almoſt of an Oval Figure, while it lies in the Womb: For its Head hangs down, with its Chin upon the Breaſt: Its Back is round; with its Arms it embraces its Knees, which are drawn up to its Belly; and its Heels are cloſe to its Buttocks: Its Head upwards, and its Face towards its Mother's Belly. About the ninth Month, its Head which was hitherto ſpecifically lighter than any other Part, becomes ſpecifically heavier; its Bulk bearing a much ſmaller Proportion to its Subſtance, than it did.

The Conſequence of this Change, is, that it tumbles in the Liquor which contains it: Its Head falls down; its Feet get up; and its Face turns towards its Mother's Back. But being now in an irkſome Poſture, tho' at the ſame time a favourable one for its Exit; the Motion it makes for its Relief, gives frequent Pains to the Mother; which cauſes a Contraction of the Womb, for the Expulſion of the *Fœtus*: See DELIVERY.

Indeed, what ſome Anatomiſts pretend to give of the Poſture of the *Fœtus* in the Womb, in the ſeveral Stages of Geſtation, is very precarious.

In the firſt Month it is of no moment, how it lies in the Womb: In the latter Months, after the *Fœtus* is grown not only quick, but robuſt, it frequently changes its Poſture of it ſelf; as not only the Mothers themſelves feel, but any other Perſon by laying the Hand on their Bellies, frequently may. However, its ordinary Poſture is ſuppoſed to be fitting: As the Time of Birth draws near, it turns it ſelf, and preſents the Head to the Os Uteri; tho' ſometimes it offers the Feet firſt, and ſometimes lies a-croſs, and offers either a Hand, a Knee, or the like; which are irregular Situations, and without a deal of Adreſs in the Midwife in turning the *Fœtus*, both the Mother and the Infant are in Danger. See PARTURITION, &c.

The *Fœtus* is encloſed in two Membranes, or Coats; the inner, which immediately inveſts the *Fœtus*, and the Liquor wherein it lies, is call'd the *Amnios*: The outward Membrane is called the *Chorion*. See AMNIOS, and CHORION.

In ſome Animals there is a third Membrane, called the *Allantois*, whoſe Place is between the other two; and ſerves for the Diſcharge of the Urine of the *Fœtus*, brought hither by the Urachus.

Dr. *Needham* ſeems to have diſcover'd ſomething analogous hereto in the human *Fœtus*, and calls it the *Membrana Urinaria*: But others chuſe only to make it a Duplicature of the Chorion; tho' the Neceſſity of ſuch third Membrane be the ſame in Men, as in Cows, Sheep, &c. See ALLANTOIS.

There are ſome Differences in the Structure, Mechaniſm, and Proportion of the Parts of a *Fœtus*; from thoſe of an *Adult*: And even ſome additional and extraordinary Parts; by which the Nutrition of this Zoophyte, or Plant Animal, and the Circulation of the Blood therein, are effected.

The principal Variations are about the Liver, Heart, and Lungs. Of theſe the moſt conſiderable are the *Umbilical Veſſels*, which are two Arteries, a Vein, and Urachus, ariſing from the Placenta, and convey'd thro' the Navel to the Liver of the *Fœtus*, near the Navel; which after the Birth drying up, become impervious and uſeleſs. See FUNICULUS, and UMBILICAL *Veſſels*.

In the Liver it ſelf is an extraordinary Communication between the Porta and Cava, call'd *Canalis Venoſus*, which after the Birth gradually dries up. In the Heart, at the Mouth of the Vena Cava, is the *Foramen Ovale*, whereby that Vein has a Communication with the pulmonary Vein: There is alſo a Communication between the Aorta, and Pulmonary Artery, by means of the *Canalis Arterioſus*, which paſſes between the two, at about two Inches diſtance from the Baſe of the Heart. 'Tis by means of theſe two Canals or Paſſages, that the Blood circulates in the *Fœtus* while incloſe'd in the Womb; they ſerving to convey and paſs the

Blood

Blood from the Heart into the Arteries; and from the Veins into the Heart again, without passing through the Lungs, which are now useless. See CIRCULATION.

The Lungs of a *Fœtus* are of a darker Colour, and closer Consistence, than after they have been breath'd into; as appears from their swimming in Water, after Birth, which they will not do before: Which Difference affords an useful Experiment, in case of the suspected Murther of Children. For if they were still-born, the Lungs sink in Water; if born alive, they swim.

The two Canals above-mentioned serve only to prevent the Obstruction the Blood would otherwise have within the Lungs, before they have been open'd. After Respiration has open'd the Lungs, the Blood taking its Course through them, the Passages close up. See FORAMEN *Ovale*, RESPIRATION, &c.

The Head of the *Fœtus* is much bigger in proportion to the Body, than afterwards: The Bones and Brain softer: The Sutures open, and leaving a great Space on the Top of the Head, cover'd only with a Membrane; and the Glands, particularly the *Thymus*, and *Renales*, bigger and softer. For other Differences in the Proportions, see EMBRYO.

Bartholin, in his Treatise *De insolitis partus viis*, relates a great many stupendous Cases of *Fœtus's* Dead and putrified in the Womb; the Parts of which have made their way thro' Apostemations; one whereof at the Navel was some Years in coming away: And in the *Philosoph. Transactions* we meet with the like Instances; particularly, of one voided piece-meal by the Anus, several Years after Conception.

Authors give Accounts of *Fœtus's* found in the Fallopian Tubes; and others in the Cavity of the Belly.

M. *de S. Maurice*, in the Memoirs of the R. Academy of Sciences, relates the History of a *Fœtus* form'd in the Ovary of the Mother; and which at three Months from Impregnation, bursting the Testicle, forc'd its Way through, into the Epigastric Region.

During the Rupture, the Mother felt all the Preludes of an imminent Travel; and calling her Chirurgeon, died in his Arms, crying, I am delivering, I am delivering!

The Story of *Margaret* Countess of *Holland*, who is said to have been deliver'd of 364 *Fœtus's*, all alive, and afterwards baptized, commonly passes for a Fable: And yet there is a Picture of this notable Delivery still preserv'd in the Church of *Losdune*, as a Monument of the Truth thereof. *Albertus Magnus* gives a like Instance of a Woman, who brought forth 150 *Fœtus's*, or Embryo's, all form'd, and as big as the little Finger.

FOG, or MIST, a Meteor, consisting of gross Vapours, floating near the Surface of the Earth. See VAPOUR.

If the Vapours, plentifully rais'd from the Earth, and Waters either by the Solar or Subterraneous Heat, meet, at their first Entrance into the Atmosphere, with Cold enough to condense them considerably; their specific Gravity being hereby increas'd, their Ascent will be stop'd, and they will either return back in form of a *Dew*, or drizzling Rain; or remain suspended, for some time, in form of a *Fog*. See RAIN, and DEW.

Fogs are only low *Clouds*; or Clouds in the lowest Region of the Air: And *Clouds* are no other than *Fogs* rais'd on high. See CLOUD.

Objects view'd thro' *Fogs*, appear larger, and more remote than thro' the common Air. See VISION.

The fishing for Herring is chiefly practiced in *foggy* Weather. See *Herring* FISHERY.

FOGAGE, in the Forest Law, is Rank Grass, not eaten in the Summer.

FOIBLE, a *French* Term, frequently us'd also in our Language.

It literally signifies *weak*, and in that Sense is applied to the Body of Animals, and the Parts thereof: As, *foible* Reins, *foible* Sight, &c. being deriv'd from the *Italian Fievole*, of the Latin *Flebilis*, to be lamented, pitied.

But it is chiefly us'd with us substantively; to denote the principal Defect, or Flaw in a Person, or Thing. Thus we say, Every Person has his *Foible*; and the great Secret consists in hiding it artfully: Princes are gain'd by Flattery, that is their *Foible*: The *Foible* of young People is Pleasure: The *Foible* of old Men is Avarice: The *Foible* of the Great and Learned, is Vanity: The *Foible* of Women and Girls, Coquettry, or an Affectation of having Gallants: You should know the Force, and the *Foible* of a Man, before you employ him: We should not let People perceive that we know their *Foible*.

FOIL, a Sheet of Tin, Quicksilver, or the like, laid on the Backside of a Looking Glass, to make it reflect. See FOLIATING.

The Word is form'd of the Latin *Folium*, Leaf.

FOILING, among Hunters, is the footing, and treading of Deer, which is on the Grass, but scarce visible.

FOLDS, in the Manufactures, see PLAITS, CLOTH, PACKING, &c.

FOLDS *of the Drapery*, in Painting. See DRAPERY.

FOLIA, in Botany, is us'd for the *Leaves* of Plants and Flowers; but particularly the former: The Leaves of Flowers being more properly called *Petala*. See LEAVES, and PETALA.

FOLIACEUM *Expansum*, in Anatomy, is that Extreme of the Fallopian Tube, next the Ovary; and which is expanded like the Mouth of a Trumpet, and inviron'd with a sort of Fringe. See FALLOPIAN *Tube*.

FOLIAGE, a Cluster, or Assemblage of Flowers, Leaves, Branches, &c.

FOLIAGE is particularly us'd for Representations of such Flowers, Leaves, Branches, Rinds, &c. whether Natural, or Artificial; us'd, as Inrichments on Capitals, Freezes, Pediments, &c. See CAPITAL, FREEZE, &c.

FOLIATING *of Looking Glasses*, is the spreading a Composition of something which will firmly adhere to the Back of the Glass, and there reflect the Image. See MIRROR.

This is called the *Foil*, and is usually made with Quicksilver, mix'd with some other Ingredients.

For the Method of *Foliating* Looking Glasses, see LOOKING GLASS.

In *Philos. Transact.* N° 245 we have a Method of *foliating* Globe Looking Glasses, communicated by Sir *R. Southwell*.

The Mixture is of Quicksilver, and Marchasite of Silver, of each three Ounces; and Tin, and Lead, of each half an Ounce: To these two first throw on the Marchasite; and last of all the Quicksilver. Stir them well together over the Fire; but they must be taken off, and be towards cooling, before the Quicksilver is put to them.

When you use it, the Glass should be well heated, and very dry: But it will do also when it is cold, tho' best when the Glass is heated.

FOLIATION, in Botany, &c. is us'd by Dr. *Grew*, to express the Assemblage of the *Folia*, or Petala of a Flower. See PETALA.—

The *Foliation* is the most conspicuous Part of Flowers; being that Collection of fugacious, colour'd Leaves, which constitute the Compass, or Body of the Flower. See FLOWER.

It is of great use in the Generation and Preservation of the young Fruit, or Seed: It filtrates a fine Juice, to nourish it in the Uterus, or Pistil. See GENERATION *of Plants*.

In some Species, as Apricocks, Cherries, &c. it likewise serves to guard the young tender Fruit from the Violence of Wind, Weather, &c. for these being of a very tender, and pulpous Body, and coming forth in the colder Parts of the Spring, would be often injured by the Extremities of Weather, if they were not thus protected, and lodged up within their Flowers.

Before the Flower opens, the *Foliation* is curiously and artfully folded up in the Calix or Periantheum. See CALIX.

Dr. *Grew* enumerates several Varieties of these Foldings, *viz.* the *Close Couch*, as in Roses; the *Concave Couch*, as in the Blattaria *flore albo*; the *Single Plait*, as in Pease Blossoms; the *Couch* and *Plait*, as in Marigolds; the *Rowl*, as Ladies Bower, &c.

FOLIO, signifies *Page*. See PAGE.

Thus *Folio* 7, wrote abridgedly F° 7. denotes the seventh Page, &c.

Folio Recto, or F° R° expresses the first Side or Page of a Leaf.

Folio Verso, or F° V° the second, or back side of the Leaf.—

The Word is *Italian*, and literally signifies *Leaf*.

FOLIO, among Booksellers. A *Book in Folio*, or simply, a *Folio*, is that where the Sheet is only folded in two, each Leaf making half a Sheet.

Beneath the *Folio* are the *Quarto*, *Octavo*, *Duodecimo*, *Sixteens*, *Twenty fours*, &c. See BOOK.

FOLIUM *Indicum*, or *Indum*, call'd also *Thamalapathra*, and *Malabathrum*; a Leaf brought from the *Indies*, growing chiefly about *Cambaya*, produc'd by a Tree not unlike the Lemon Tree; us'd in the Composition of *Venice* Treacle. See TREACLE.

FOLIUM *Cariophyllatum*, or Clove Leaf. See CLOVES.

FOLK-LAND, in our antient *Saxon* Customs, denoted *Copyhold Lands*. See COPYHOLD.

In opposition to these, *Charter Lands* were called Boclands. See BOC-LAND.

Fundus sine scripto possessus (says *Somner*) *censum pensitans annuum, & officiorum servituti obnoxius: Terra popularis.*

FOLCMOTE, and FOLKESMOTE, among our *Saxon* Ancestors, signified, according to *Lambard*, two kinds of Courts.

One, now called the *County Court*: The other, the *Sheriff's Turn*. See COUNTY *Court*, and TURN.

The Word, says *Stow*, is still in use among the *Londoners*, and signifies, *Celebrem ex omni Civitate conventum*. But *Manwood* says, it is the Court holden in *London*, wherein all the Folk and People of the City did complain of the Mayor and Alderman for any Misgovernment.

Mr. *Somner*, in his his *Saxon* Dictionary, makes it a general Assembly of the People, for considering and ordering Matters of the Commonwealth. *Omnes proceres regni, & milites & liberi homines universi totius Regni Britanniæ facere debent in pleno* Falcmote *fidelitatem Domino Regi, coram Episcopis Regni. In Leg. Edw. Confess. cap.* 35. *Et amplius non sit in Hustinga, Miskenninga*, i. e. speaking amiss; *neque in* Folkesmote, *neque in aliis placitis infra Civitatem. Charta H.* 1. *pro London. Du Cange.*

When this great Assembly is made in a City, it may be call'd a *Burgemot*; when in the County, a *Shiregemot. Cum aliquid vero inopinatum & malum contra regnum vel contra coronam Regis emersérit, statim debent pulsatis campanis, quod Anglice vocatur* Amotbel, *convocare omnes & universos, quod Anglici vocant* Folkmote, *&c.* Leg. Alfred.

FOLLICULUS, among Gardeners, the Seed-Vessel, Case, Coat, Husk, or Cover, which some Seeds and Fruits have over them. See Fruit, and Seed.

Folliculus *Fellis*, see Vesica *Bilaria*.

FOLLY, according to Mr. *Look*, consists in the drawing of false Conclusions from just Principles; by which it is distinguish'd from *Madness*, which draws just Conclusions from false Principles. See Madness.

FOMAHANT, in Astronomy, a Star of the first Magnitude, in the Constellation *Aquarius*. Its Longitude is 329 Degrees, 17 Minutes, Latitude 21 Degrees, 3 Minutes. See Aquarius.

FOMENTATION, a liquid Medicine, applied on any diseas'd Part.

Fomentations are either Simple, or Compoud.

Simple Fomentations are those made with luke warm Water, Milk, Oil, Oxicrat, or other the like Liquor.

Compound Fomentations are Decoctions of Roots, Leaves, Flowers, Seeds, made in common Water, or other proper Liquor; to which are sometimes added Salts, Axungiæ, Oils, *&c.*

To use, or apply them, they dip a hot linen Cloth, or Flannel in the Liquor, and spread it on the Part affected.

There are also *Fomentations* made another way; *viz.* by boiling certain Drugs in linen Bags, and then applying 'em, Bags and all, on the Part.

There are also a sort of *dry Fomentations*, being Bags fill'd with Medicines, but not boil'd, only sometimes sprinkled with a little Wine or Brandy.

The Intention of *Fomentations* is to resolve, discuss, soften, assuage, fortify, constringe, *&c.* the Parts they are applied on.

Fomentations are also called *Local Baths*, or Partial Bathings; because, being applied on a diseased Part, they have much the same Effect as a Bath, or Half-bath has on the whole Body. See Bath, and Bathing.

FONT, or *Baptismal* Font, a Stone, or Marble Vessel, at the lower End of a Parish Church, serving to hold the Water, to be us'd in administring the Sacrament of Baptism. See Baptism.

A Baptismal *Font* is the Character of a Parish Church. See Parish.

Its Place, at present, is at the Bottom of the Church, or in a little Chapel within the Church. Antiently, it was placed in a little Church, distinct from the great one, tho' near to it, called the *Baptistery*. See Baptistery.

It was a common thing, during the first Ages of the Church, for the Baptismal *Fonts* to be fill'd miraculously, at the time of Easter, which was their great Baptizing Season.

Baronius gives divers Instances of these miraculous *Fonts*, in the Years 417, 554, and 558.

Possevinus B. of *Lilybeum*, who wrote in 443, observes, that in the Year Four hundred and seventeen, under the Pontificate of *Sostnus*, there was an Error committed in the time of celebrating Easter; it being held on the 25th of *March*, in lieu of the 22d of *April*, which was the Time it was held on at *Constantinople*. He adds, that GOD was pleas'd to shew the Error in a very convincing manner, by the *Fonts* of a certain Village, which always us'd to be miraculously fill'd against Easter; and which, this Year, were not full till the 23d of *April*. See *Tillemont Hist. Eccles. T. X. p.* 678, and 679. *Gregory de Tours, p.* 320, 516, 746, 950, 1063.

FONTICULUS, or Fontinella, in Chirurgery, a general Name for Issues, Seatons, Cauteries, and other small artificial Discharges. See Issue, Seaton, Cautery, *&c.*

The Word is a Diminutive of *Fons*, Fountain.——

FONTINALIA, or Fontanalia, in Antiquity, a religious Feast, held among the *Romans*, in honour of the Deities who presided over Fountains, or Springs.

Varro observes, that it was the Custom to visit the Wells on those Days; and to cast Crowns into Fountains. *Scaliger* in his Conjectures on *Varro*, takes this not to be the Feast of Fountains, as *Festus* insinuates; but of the *Fountain* which had a Temple at *Rome*, near the *Porta Capena*, call'd also *Porta Fontinalis*: He adds, that 'tis of this Fountain *Cicero* speaks in his II Book *de Legib.* The *Fontinalia* were held on the 13th of *October*.—

FOOD, or Aliment, is whatever Matter is taken in at the Mouth, digested in the Stomach, and other Viscera, and converted into the Matter of the Body, to repair, or supply what is spent, or wanting. See Digestion.

The Changes which the *Food* undergoes, before it become a Part of our Body, are 1° *Mastication*; 2° *Deglutition*; 3° *Concoction*; 4° *Chylification*; 5° *Sanguification*; 6° *Assimilation*. See Mastication, Concoction, Chylification, Nutrition, *&c.*

Food is of two Kinds, *viz. Esculents*, or *Meat*; and *Potulents*, or *Drink*. See Esculent, Drink, Wine, Malt *Liquors*, Water, *&c.*

The first *Foods* of our Great Forefathers, were Water, and the spontaneous Productions of the Earth; with which whole Nations sustain themselves to this Day.

Tulpius, Obs. 14. 10. notes, That Men antiently fed after the same rate as other Animals; and lived of Hay and Corn. By degrees they came to the Humors or Juices of certain Beasts, as *Milk*; and at length they commenced *Carnivorous*, and devour'd the Parts of the Animals themselves. See Carnivorous.

The Variety of *Foods*, it seems, does not make any Difference in the Substance, or Actions of the Bodies sustain'd thereby; the Viscera having a Power of altering and assimulating them, however heterogeneous, into one similar Substance, like themselves. See Assimilation.

The Difference in *Foods* consists principally in this, that some are more easily digested and assimilated, than others; and afford more nutritious Juice, than others: To which end it is, that the divers Kinds of dressing have been invented; *viz.* to dispose the Matter for a more easy and plentiful Assimilation. See Dressing.

The best, most simple, and light of Digestion are these *Foods* prepar'd of Frumentations, and Leguminous Seeds; as Wheat, Rye, Barley, Oats, Mays, dried, ground, fermented, baked, *&c.* See Bread. Pease, Beans, Vetches, *&c.* Also green Plants, and Pot-herbs, as Lettice, Beet, Parsly, *&c.* See Sallet. Fruits, as Apples, Pears, Berries, Plumbs, Cherries, *&c.* See Fruit. And the lean Parts of Animals, Birds, Fishes, Insects, *&c.* prepar'd by *Boiling*, *Baking*, *Stewing*, &c.

And yet for different Intentions, different kinds of *Food* are requir'd: Thus hard, dry, thick, heavy, fæculent *Foods* are best for those whose Viscera are strong, Digestion quick, *&c.* and soft, light, humid, simple *Foods* to such, are pernicious. Again, to the Weak, valetudinary, studious, and sedentary, those *Foods* are best, which are either by Art, or Nature the nearest to Chyle, as Milk, Broths, *&c.*

Where the Temperature inclines to Acidity, there alcalious *Foods* are the most suitable; and Acids, where the Constitution inclines to be alcaline.

Some will have it, that Iron, Metals, Minerals, *&c.* may by a proper Preparation become *Food*; on which accounts Decoctions of Gold, Chalybeat's, *&c.* are cried up: But 'tis certain, that no such Matters can ever be assimilated, and become Part of our Body. They may act on the Blood, and the Blood Vessels, by their Weight, Impetus, *&c.* and on that account, may be of use in Medicine; but not as *Food*.—

A due Regulation of the Quantity, and Quality of our *Food*; and a nice Adjustment thereof to the concective Powers, would be of the utmost Consequence to Health and long Life. See Health.

What we expend in Motion, Excretion, Effluvia, *&c.* is but a determinate Quantity; and the Supply should only keep pace with the Expence. A just Proportion of the two would probably preserve us from acute Distempers; as it certainly would from chronical ones; Most, or all of which proceed from Repletion, as appears from their being cured by Evacuation. See Evacuation.

The Qualities of *Foods*, as to Easiness, or Difficulty of Digestion, Dr. *Cheyne* thinks, may be determin'd in all Cases from these three Principles.

1° That those Substances which consist of the grossest Parts, are hardest of Digestion; by reason their constituent Parts touch in the most Points; or have the greatest Quantity of Contact, upon which their Cohesion depends. See Cohesion.

2° That those Substances, whose Parts are brought together with the greater Force, cohere proportionably closer, and are the more difficultly separated.

3° That Salts are very hard to be digested; because united by plain Surfaces, under which they are always comprehended: Hence, in the last Stages of the Circulation, where

where it is flower, they readily shoot into larger Clusters, and so are hard to be driven out of the Habit.—

From these Principles that Author infers, That such Vegetables and Animals, as come soonest to their Growth, are easier of Digestion, than those long in attaining to Maturity: The smallest of their kind, sooner than the larger: They of a dry, fleshy, and fibrous Substance, sooner than the oily, fat, and glutinous: Those of a white Substance, sooner than those of a redder: Those of a soft, mild, and sweet, sooner than those of a rich, strong, poignant, aromatic Taste: Land Animals, than Sea Animals; Animals that live on light, vegetable *Food*, than those on hard and heavy *Food*; plain dress'd *Food*, than what is pickled, salted, bak'd, smoak'd, or otherwise high season'd; boil'd Meat sooner than roast, *&c.*

The same Author adds, that Abstinence, and Exercise most concur with the due *Food* for the Preservation of Health; and that where Exercise is wanting, as in studious Persons, the Defect must be supplied by Abstinence. See ABSTINENCE, and EXERCISE.

FOOL, according to Mr. *Lock*, is one who makes false Conclusions from right Principles; by which he is distinguish'd from a Madman. See MADNESS.

Dr. *Willis* relates, That upon dissecting of a *Fool*, the principle Differences found between him and a Man of Sense, were, that the Brain was smaller; and that the Cervical Plexus, form'd of the Intercostal Nerve, whereby the Correspondence between the Brain and Heart is effected, was less, and sent forth fewer Branches to the Heart, *&c.*— *Nervor. Descript. & Us. c. 26.* See CONSENT *of Parts.*

FOOT, a Part of the Body of most Animals, whereon they stand, walk, *&c.* See BODY.

Animals are distinguish'd, with respect to the Number of *Feet*, into *Bipedes*, q. d. two-footed; such are Men, and Birds: *Quadrupedes*, q. d. four-footed; such are most Land Animals: And *Multipedes*, q. d. *many-footed*; as Insects. See QUADRUPED, INSECT, *&c.*

The Reptile Kind, as Serpents, *&c.* have no *Feet*. See REPTILE.

The Merchants would persuade us, that the Bird of Paradice has no *Feet*; that when it sleeps, it hangs by its Wings; and when it feeds, by its Bill: But the Matter is, they cut them off, that the Bird may be thought the more extraordinary. Others say, 'tis for fear they should spoil the Feathers, which are very beautiful.

Lobsters have twelve *Feet*; Spiders, Mites, and Polypus's, eight; Flies, Grasshoppers, and Butterflies, six *Feet*.

Galen has several good Observations on the wise Adjustment of the Number of *Feet* in Men, and other Animals, in his Book *De Usu Part.* L. 3.

The *Fore-feet* of Moles are admirably form'd to dig, and scratch up the Earth, and make way for its Head, *&c.* In Water Fowls, the Legs and *Feet* are excellently adapted to their respective Occasions and Manners of living. In such, as are to wade in the Rivers, the Legs are long, and bare of Feathers a good way above the Knee: Their Toes also are broad; and in such as bear the Name of Mud-suckers, two of the Toes are somewhat jointed, that they may not easily sink in walking upon boggy Places.

Others are *whole-footed*, i. e. have their Toes webbed together, as the Goose, Duck, *&c.* And 'tis pretty enough to observe, how artificially these will gather up their Toes and *Feet*, when they withdraw their Legs, or go to take their Stroke in swimming; and again expand, or open the whole *Foot*, when they press upon, or drive themselves forward in the Water. See LEG.—

FOOT, in Anatomy, or the great *Foot*, is the whole Extent from the Jointure of the Hip, to the Tip of the Toes; as the *Hand* is the whole, from the Shoulder to the Fingers Ends. See HAND.

The *Pes magnus*, or great *Foot*, is divided into the Thigh, the Leg, and the *Foot*, properly so called. See THIGH, LEG, &c.

Its Bones are the *Femur*, or Thigh Bone; the *Tibia* and *Fibula* for the Leg; and those of the *Tarsus*, *Metatarsus*, and *Fingers*. See FEMUR, TIBIA, &c.

Its Arteries are Branches of the Crural Artery; and its Veins terminate in the crural Vein. See CRURAL.

Of these there are five principal ones, *viz.* the *Saphæna*, great and little *Ischiadic*, the *Musculous*, *Popliteus*, and *Suræus*. See each under its proper Article, SAPHÆNA, *&c.*

The *Lesser Foot*, or Extremity of the *Foot*, which is the *Foot* properly so call'd, consists of three Parts, *viz.* the *Tarsus*, the Space from the Ankle to the Body of the *Foot*; answering to the Wrist in the Hand: The *Metatarsus*, the Body of the *Foot* to the Toes; and the *Digiti*, or Toes.

Each of these Parts consists of a great Number of Bones, as the *Calx*, *Talus*, *Cuneiformia*, and *Cuboides*. The Bottom of all is call'd the *Sole*, or *Planta Pedis*. See TARSUS, METATARSUS, CALX, *&c.*

FOOT, in the *Greek*, and *Latin* Poetry, the Metre, or Measure of the Verse. See MEASURE, and VERSE.

Feet are compos'd of a certain Number of long and short Syllables. See QUANTITY.

The *Spondee*, *Jambic*, *Trochee*, and *Pirrhic*, of two Syllables, each.

The *Dactyl*, *Anapest*, *Molos*, *Tribrach*, &c. of three Syllables. See SPONDEE, JAMBIC, DACTYL, &c.

Hexameter Verses consist of six *Feet*; Pentameters of only five. See HEXAMETER, and PENTAMETER.

Even, and *Odd* FOOT, *Par*, and *Impar*, in Poetry, and particularly in Jambic Verses. *Feet* are denominated *Odd*, and *Even*, in respect of their Situation in the Verse.

Thus, the first, third, and fifth *Foot* of the Verse are *uneven*, in regard those Numbers are not capable of being divided into two equal Parts.

In the antient Tragedy, the Jambic Verses, which prevail'd therein, only allow'd the uneven *Feet* to the Spondees; so that the second, the fourth, and sixth *Feet* were to be Jambus's, in regard they were even. This regular Mixture of Spondees in the uneven *Feet*, render'd the Verse the more solemn and noble.

The Comic Poets, the better to disguise their Verse, and make it more like Prose, took the contrary Course; putting Spondees, where the Tragic Poets would only have allow'd Jambus's.—

FOOT, is also a Measure, consisting of twelve Inches. See MEASURE.

The *Foot-long* is divided into twelve Inches; and the Inch into three Barley Corns. See INCH, *&c.*

Geometricians divide the *Foot* into ten *Digits*; the *Digit* into ten *Lines*, &c. See DIGIT, *&c.*

The *French* divide their *Foot* like us, into twelve Inches; and the Inch, into twelve Lines. See LINE, *&c.*

The *Foot square* is the same Measure, both in Length, and Breadth; containing 144 square, or superficial Inches. See SQUARE.—

The *Cubic*, or *Solid Foot* is the same Measure in all the three Dimensions; containing 1728 Cubic Inches. See CUBE, and CUBIC.

The *Foot* is of different Lengths, in different Countries.

The *Paris Royal Foot* exceeds the *English* by seven Lines and a half: The Antient *Roman Foot* of the Capital, consisted of four Palms; equal to eleven Inches, and seven Tenths *English*: The *Rhineland*, or *Leiden Foot*, by which all the Northern Nations go, is to the *Roman Foot*, as 950 to 1000—The Proportions of the principal *Feet* of several Nations, compar'd with the *English* and *French*, are as follow.

The *English Foot* being divided into 1000 Parts; or into 12 Inches; the other *Feet* will be, as follow;

		Thous. Parts.	F.	Inch.	Li.
London — —	Foot	1000	0	12	0
Paris — the Royal	Foot	1068	1	00	8
Amsterdam —	Foot	942	0	11	3
Antwerp —	Foot	946	0	11	2
Dort — —	Foot	1184	0	02	2
Rhinland, or *Leyden* —	Foot	1033	1	00	4
Lorrain — —	Foot	958	0	11	4
Mechlin —	Foot	919	0	11	0
Middleburg —	Foot	991	0	11	9
Strasbourg —	Foot	920	0	11	0
Bremen — —	Foot	964	0	11	6
Cologn —	Foot	954	0	11	4
Francfort on the Mayn	Foot	948	0	11	4
Spanish — —	Foot	1001	0	11	0

		Thous. Parts.	F.	In.	Li.
Toledo — —	Foot	899	0	10	7
Roman — —	Foot	967	0	11	6
Bononia — —	Foot	1204	1	02	4
Mantua —	Foot	1569	1	06	8
Venice — —	Foot	1162	1	01	9
Dantzick —	Foot	944	0	11	3
Copenhagen — —	Foot	965	0	11	6
Prague — —	Foot	1026	1	00	3
Riga — —	Foot	1831	1	09	9
Turin — —	Foot	1062	1	00	7
The *Greek* —	Foot	1007	1	00	1
Paris Foot, by Dr. *Bernard* —		1066	1	00	1
Old *Roman* —	Foot	970	0	00	0

The

The *Paris Foot* being suppos'd to contain 1440 Parts; the rest will be, as follow.

Paris	Foot	1140
Rhinland	Foot	$1391\frac{3}{10}$
Roman	Foot	1320
London	Foot	1350
Swedish	Foot	1320
Danish	Foot	1403
Venetian	Foot	$1540\frac{2}{3}$
Constantinopolitan	Foot	3120
Bononian	Foot	$1682\frac{2}{3}$
Strasbourg	Foot	$1282\frac{2}{3}$
Norimberg	Foot	$1346\frac{3}{4}$
Dantzick	Foot	$1721\frac{1}{2}$
Hall	Foot	1320

Foot *Rule*, see Rule.

Foot *Level*, an Instrument, which serves to do the Office both of a Level, a Square, and a *Foot* Rule. See Level, Square, *&c.*

The *Foot Level*, represented *Tab. Surveying*, *Fig.* 22. consists of two Branches, about an Inch broad; opening and shutting like a two-foot Rule.

These Branches are hollow'd half way up the side of each, to receive a kind of Tongue, or thin piece of Brass, which is fasten'd to one of them, by means whereof the Branches may be shut close together. The Use of this Tongue is such, that when the End of it is placed in the Branch it is not fasten'd to, where there is a Pin that holds it, the two Branches will stand at Right Angles: To the Head of the Instrument is likewise added a square piece of Brass; by means whereof it does the Office of a Square. At the Bottom of the Angle of the said Piece of Brass is a little hole, wherein is fasten'd a Line with a Plummet; which falling on a perpendicular Line, drawn on the Tongue, shews whether any thing the Instrument is applied to, be level, or not.

Foot *of the Forest*, *Pes Forestæ*, in our antient Customs, contain'd 18 Inches, or $1\frac{1}{2}$ of the common *Feet*.——

Notandum est, quod Pes Forestæ *usitatus tempore Ric. Oysell, in Arrentatione Vastorum, factus est, signatus & sculptus in pariete Cancellæ Ecclesiæ de Edwynstone, & in Ecclesia Beatæ Mariæ de Nottingham: Et dictus* Pes *continet in Longitudine octodecim pollices*, &c. *Ex Regist. Abb. de Novo Loco in Com. Nott.*

Foot *Pace*, *Half Pace*, or *Landing Place*, see Stair *Cases*.

Foot *Bank*, or Banquette, in Fortification, is a small Step of Earth, on which the Soldiers stand to fire over the Parapet. See Banquette.

Foot *Gilde*, was an antient Amerciament, for not cutting out the Balls of the *Feet* of great Dogs in the Forest; which was done for preventing their running after the King's Deer; and was called *Expeditation*. See Expeditation.

Foot *Husks*, among Gardners, are short Heads, out of which Flowers grow.——

FORAMEN, in Anatomy, a Name given to certain Holes or Perforations in divers Parts of the Body; as the

Foramen *Ovale*, or Foramen *Botalli*, an Oval Aperture, or Passage thro' the Heart of a Fœtus, which closes up after Birth.

It arises above the Coronal Veio, near the right Auricle; and passes directly into the left Auricle of the Heart. See Heart.

The *Foramen Ovale* is one of the temporary Parts of the Fœtus; wherein it differs from an Adult. It serves for the circulating of the Blood in the Fœtus, till such time as the Infant breaths, and the Lungs are open'd. See Foetus, and Lungs.

Its Use was first exactly describ'd by *Leon. Botal* of *Assa* in *Piedmont*, in the Year 1562; who tracing the Courses and Passages of the Blood, asserted the *Foramen Ovale* to be one, whereby the Blood in Fœtus's was convey'd from the right Ventricle to the left.

The Modern Anatomists stand to the Discovery; and the *Foramen Ovale* is now generally allow'd a part necessary in the System of the Circulation of the Blood in the Fœtus. See Circulation.

At the Aperture of the *Foramen*, there is a kind of floating Membrane, which looks like a Valve; but has nothing of the Office thereof: It does not hinder the Blood from passing from either Auricle to the other: All it serves for, according to Mr. *Winslow*, is, to close the *Foramen* after the Birth.

It has generally been thought, that the *Foramen Ovale* might sometimes remain open, even in Adults: And in effect, divers Authors furnish us with Instances thereof.

Dr. *Connor* assures us he found it but half clos'd in a Girl of four or five Years old; and in another Girl which he open'd at *Oxford*, there was Room left to thrust a Tent thro'. *Dissert. Med. Phys. de Stup. Os. Coat.*

The accurate Mr. *Cowper* adds, that he has often found the *Foramen Ovale* open in Adults. *Anat. Append. Fig.* 3. And the *Paris* Anatomists observe, that in a Sea Calf the *Foramen Ovale* is always open; by which means it is enabled to stay so long under Water.

Somewhat of this, too, is suppos'd to have been the Case in the extraordinary Recoveries of divers Persons drown'd, hang'd, *&c.* See Hanging, and Drowning.

But Mr. *Cheselden* ventures to set aside all these Authorities; and contends, that the *Foramen Ovale* is neither open in any Adult Land Animals, nor in Amphibious Creatures.

When he first applied himself to Dissection, he tells us, he had no Distrust of the frequent Accounts in Authors of the *Foramen* being open: But he afterwards found that he mistook the Ostium of the Coronary Veins for the *Foramen*; and the like he imagines other Authors to have done; who assert, that it is always open in amphibious Animals: For that upon a diligent Enquiry into these Animals, he could never find it open in any.

Neither does he think that sufficient, to enable those Creatures to live under Water, as the Fœtus does in Utero; unless the Ductus Arteriosus were open also. *Chesel. ap. Der. Phys. Theol. L. IV. c.* 7.

Foramen *of the Membrana Tympani*, is a Perforation in the Membrane of the Tympanum, or Drum in the Ear; which admits of the Passage of Wind, Smoak, *&c.* from the *Meatus a palato* to the Drum. See Ear.

This Passage is very small, and runs obliquely from the Tympanum thro' the upper Part of its Membrane, near the Process of the Malleus. The Existence of this Perforation is more evident, when Ulcers affect the Palate, by the Egress of Wind, upon the Patient's stopping his Nose and Mouth, and forcing the Wind by the Ears, than by any Anatomical Inspection. See Tympanum.

Foramen *Lacerum*, see Dura *Mater*.

FORCE, Vis, or Power, in Mechanicks, Philosophy, *&c.* See Vis, and Power.

Attractive Force,	See	Attraction.
Repelling Force,		Repulsion.
Elastic Force,		Elastic.
Force *of Gravity*,		Gravity.
Force *of Cohesion*,		Cohesion.
Central Force,		Central.
Centripetal Force,		Centripetal.
Centrifugal Force,		Centrifugal.
Force *of Inactivity*,		*Vis* Inertiæ.
Resisting Force,		Resistance.
Retarding Force,		Retardation.
Accelerating Force, *&c.*		Acceleration, *&c.*

Force, in Common Law, signifies an Offence, by which Violence is us'd to Persons, or Things.

Force is either *Simple*, or *Compound*.

Simple *Force* is that which has no other Crime adjoin'd to it: As if one by *Force* do enter into another Man's Possession, without doing any other unlawful Act.

Mix'd, or Compound *Force* is that Violence committed with such a Fact as of it self only is criminal: As if any by Force enter into another Man's Possession, and there kill a Man, or ravish a Woman, *&c.*

Force is also divided into *True Force*, and *Force after a sort*.

There are other Branches; as *forcible Entries*, *forcible Detaining*, or *Holding*; *unlawful Assembly*, *Routs*, *Riots*, *Rebellions*, &c. See Forcible *Entry*, Forbible *Detaining*, Unlawful *Assembly*, Riot, *&c.*

Force, in Grammar, and some other Arts, is applied to something which stands in lieu of, or has the same Effect as, another.

In our Language, the *ſ* between two Vowels has the *Force* of a *z*, and is sometimes put for a *z*: As in Horison, Baptising, *&c.*

In *Hebrew*, the *Dagesch*; and in *Arabic*, the *Tesdid*, have the *Force* of a Letter suppress'd. A Figure before a Cypher, has the *Force* of ten.——

FORCEPS, *Pair of Tongues*, a Chirurgeon's Instrument, wherewith dead, and corrupt Parts are seiz'd, cut, or pulled off, *&c.* As also foreign Bodies extracted out of Wounds, *&c.*

They are of divers Forms, long, crooked, with *Teeth*, with *Beaks*, *half-moon'd*, &c. See Speculum.

FORCIBLE *Entry*, a violent, actual Entry into a House or Land, *&c.* or a taking Distress of any Person, weapon'd, whether he offer Violence or Hurt to any Person there, or furiously drive any out of the Possession thereof, or not. See Entry.

Forcible *holding*, or *detaining* Possession is a violent Act of Resistance, by a strong Hand of Men, weapon'd with Harness, or other Action of Fear in the same Place, or elsewhere, whereby the lawful Entry of Justices, or others, is barr'd, or hindred.

FORDICIDIA, in Antiquity, a religious Feast among the *Romans*, held on the thirteenth of *April*.

It was thus call'd from the Latin *Forda*, a Cow big with Calf, and *cædo*, I slay, or sacrifice; by reason Cows were herein sacrificed to the Goddess *Tellus*, or the Earth.

Forda, a Cow with Calf, is form'd, according to *Ovid*, from *fero*, I bear; or rather, as *Scaliger* and *Salmasius* imagine, from the *Greek* φορὰς, φορὰδος, signifying the same thing. *Varro* writes, that there were several of these Cows sacrific'd in the *Curiæ*. *Livy*, and *Halicarnassæus* relate, that there was one in each Curia; so that there were thirty in all; which is confirm'd by *Ovid*, *Fastor*. *L. IV. v.* 635.

The *Fordicidia* were first instituted by *Numa*, on occasion of a general Barrenness among the Cattle: *Ovid* gives a particular Description of the Ceremony, in the Passage first quoted: He adds, that part of these Cows were sacrific'd in the Temple of *Jupiter*; that is, in the Capitol.

FORE-*Knight*, in the Sea Language, a piece of Wood, carv'd in the Figure of a Man's Head, and fast bolted to the Beams upon the second Deck.

FORE *Castle* of a Ship, is that Part where the Fore-mast stands: It is divided from the rest of the Floor by a Bulk-head; that Part of the *Fore Castle* which is aloft, and not in the Hold, is called the Prow.

FORE *Mast* of a Ship, is a round large piece of Timber, seated in her *Fore* Part, on which is burn the *Fore* Sail, and *Fore*-Top-Sail Yards. See MAST.

Its Length is usually $\frac{2}{3}$ of the Main Mast.

The *Fore-Top-Mast* is half the Length of the *Fore* Mast, and the *Fore-top-gallant* Mast is half the Length of the *Fore*-Top-Mast. See GALLANT.

FORELAND, or FORENESS, in Navigation, a Point of Land jutting out into the Sea. See CAPE.

FORELAND, in Fortification, is a small Space of Ground between the Wall of a Place, and the Moat, call'd also *Berme*. See BERME.

FORELOCKS in a Ship, are little flat Wedges like pieces of Iron; us'd at the Ends of Bolts, to keep them from flying out of the Holes. See BOLTS.

FORE *Sail*, the Sail of the *Fore* Mast. See SAIL.

FORE-*shorten*, among Painters, &c. See SHORTENING.

FORE *Loin*, among Hunters, is when a Hound going before the rest of the Cry, meets Chace, and goes away with it.

FORE *Skin*, see PREPUCE.

FOREJUDG'D *the Court*, is when an Officer of any Court is banish'd or expell'd the same for some Offence, or, for not appearing to an Action by Bill fil'd against him; and in the latter he is not to be admitted to officiate, till he appear to the Bill, Anno 2 *Hen.* 4. *c.* 8.

He shall loose his Office, and be *forejudg'd* the Court, &c. *Forjudicare*, *interdum est male judicare*. Spel.

FOREJUDGER, in Law, signifies a Judgment, whereby a Man is deprived, or put by the thing in question.

FORECLOS'D, in our antient Law Books, signifies barr'd, shut out, or excluded for ever.

FOREFOOT, in the Sea Language, is when one Vessel sails, or lies a-cross another's way.

As if two Ships being under Sail, and in Ken of one another, one of them lies in a Course with her Stern so much a-weather the other, that if both hold on, the windward Ship will run out a-head of the other. Such Ship is said to lie with the others *forefoot*.

Tho', as soon as she has pass'd, they say, she is gone out *a-head*.

FOREIGN, something extraneous, or adventitious. *Foreign* Minister, *Foreign* Prince, *Foreign* Goods, &c. are those belonging to other Nations. *Foreign* to the Purposes, *i. e.* remote.

Matter is *foreign* to the Idea of Space, *i. e.* is not inherent therein, but additional thereto. See VACUUM.

Foreign Plants are particularly call'd *Exoticks*. See EXOTIC.——

In some Universities they give the Appellation *Foreign Doctors*, *Doctores Forenses*, to such as do not reside in the Place, or the University; but take Degrees to go and live else where, and in other Countries.

In the Life of St. *Paul*, Bishop of *Verdun*, written by an anonymous Author, and publish'd from a MS. above 400 Years old, by *Bollandus*; we meet with *Forensis Presbyter*, for a Priest who lives in another Part. The same *Bollandus* notes, that St. *Ambrose* uses the Word *Forensis* for *Exterior*.

Foreign, or *Foraine Traitte*, is a Duty belonging to the King of *France*, of $\frac{1}{50}$ of the Value of all Goods imported or exported out of the Kingdom. See DUTY.

The Word *Foreign* is form'd of the Latin *Fores*, Doors; or *foris*, or out of doors; or *Forum*, Market, &c.

FOREIGN, is us'd in Law in several Senses, and join'd with divers Substantives. Thus,

FOREIGN *Answer*, is such an Answer, as is not triable in the County where it is made. See ANSWER.

FOREIGN *Attachment*, is an Attachment of *Foreigners* Goods found within a Liberty or City, in the Hands of a third Person; for the Satisfaction of some Citizen, to whom the *Foreigner* oweth Money. See ATTACHMENT.

FOREIGN *Matter*, in Law, is Matter triable in another County; or Matter done in another County. See MATTER.

FOREIGN *Opposer*, or *Apposer*, is an Officer in the Exchequer, to whom all Sheriffs or Bailiffs do repair to be appos'd by him of their Green-Wax, after they are appos'd of their Sums out of the Pipe Office; and from thence draws down a Charge upon one of them to the Clerk of the Pipe.

His Business is, to examine the Sheriff's Estreats with the Record, and to ask the Sheriff, what he says to every particular Sum therein.

FOREIGN *Plea* is a Refusal of the Judge as incompetent, because the Matter in hand was not within his Precinct. See PLEA.

FOREIGN *Service*, is such Service whereby a mean Lord holdeth of another, without the Compass of his own Fee; or else that which a Tenant performeth, either to his own Lord, or to the Lord Paramount out of his own Fee. See SERVICE.

FORELORN *Hope*, in an Army, the *Enfans perdues*. See ENFANS *Perdues*.

FORESCHOKE, *Derelictum*, antiently signified as much as *forsaken* in our modern Language.

It is specially us'd in one of our Statutes, for Land or Tenements seiz'd by the Lord, for want of Services due from the Tenant; and so quietly held and possess'd beyond the Year and Day.

As if we should say, that the Tenant, who seeing his Lands or Tenements taken into the Lord's Hand, and possess'd so long, takes not the Course appointed by Law to recover them; does in due Presumption of Law disavow or forsake all the Right he has to them.

And then such Lands shall be call'd *Foreschoke*, says the Stat. 10 *Ed.* 2. *c. unico.*

FOREST, *Silva*, in Geography, a huge Wood: Or, a large Extent of Ground, cover'd with Trees. See WOOD.

The *Calidonian* and *Hercynian Forests* are famous in History: The first was a celebrated Retreat of the antient *Picts*, and *Scots*: The latter, antiently possess'd the greatest Part of *Europe*; particularly *Germany*, *Poland*, *Hungary*, &c. In *Cæsar's* time it extended from the Borders of *Alsatia* and *Switzerland* to *Transylvania*; and was computed 60 Days Journey long, and nine broad: Some Parts, or Cantons thereof are still remaining.

The *Forest* of *Dean* in *Glocestershire* is famous for the Iron Works therein. See IRON.

The Antients ador'd *Forests*, and imagin'd a great Part of their Gods to reside therein: Temples were frequently built in the thickest *Forests*; the Gloom and Silence whereof naturally inspire Sentiments of Devotion, and turn Men's Thoughts within themselves.

For the like reason, the antient *Druids* made *Forests* the Place of their Residence, perform'd their Sacrifices, instructed their Youth, and gave Laws therein. See DRUIDS.

The Word *Forest* is form'd of the Latin *Foresta*, which first occurs in the Capitularies of *Charlemaign*, and which it self is deriv'd from the German *Forst*, signifying the same thing. *Spelman* derives it from the Latin *foris restat*, by reason *Forests* are out of Towns. Others derive *Foresta a feris*, q. d. *Feresta*, *quod sit tuta statio ferarum*, as being a safe Station or Abode for wild Beasts.

FOREST, in a Law Sense, is defined a certain Territory of woody Grounds, and fruitful Pastures, privileg'd for wild Beasts, and Fowls of *Forest*, Chase and Warren, to rest and abide in the safe Protection of the King for his Princely Delight; meer'd and bounded with unremoveable Bounds, Marks, Meers, and Boundaries, either known by Matter of Record, or Prescription; Replenish'd with wild Beasts of Venery, or Chase, and with great Coverts of Vert for Succour of the said Beasts. For Preservation and Continuance of which Place with the Vert and Venison, there are certain peculiar Laws, Privileges, and Officers.

The Properties or Characters of a *Forest*, are,

1° That it cannot be in the Hands of any, but the King; because none else hath Power to constitute such *Commissions* as are necessary to the Being of a *Forest*, beside the King; as, particularly that of a Justice in Eyre of the *Forest*.

And yet the Abbot of *Whitby* had a *Forest* by Grant of King *Henry* the Second, and King *John*; with all Officers incident thereto.

The Second Character, is the *Courts* belonging thereto, which are, the *Justice Seat*, held every three Years; the *Swainmote*, held trice every Year; and the *Attachment*, once every forty Days. See JUSTICE *Seat*, SWAINMOTE, &c.

The Third Characteristic is the *Officers* belonging thereto, for Preservation of the Vert and Venison; as the *Justices of the Forest*, the *Warder*, or Keeper, *Ranger*, *Verderors*, *Foresters*, *Agistors*, *Regardors*, *Bailiffs*, *Beadles*, &c.

See each under its proper Article, JUSTICE *of the Forest*, WARDEN, RANGER, VERDER, or REGARDER, &c.

But the most essential Mark of a *Forest* is the *Swainmote*, which is no less incident thereto, than the Court of Pye-Powder to a Fair. If this fail, it ceases to be a *Forest*, and commences a *Chace*. See CHACE.

The way of making a *Forest*, is thus: Certain Commissioners, appointed under the Great Seal, view the Ground intended, and fence it round: This being reported in Chancery, the King causes it to be proclaim'd throughout the County where the Land lies, that it is a *Forest*; and thenceforth to be govern'd by the Laws of the *Forest*; and prohibits all Persons from hunting therein, without his Leave.

New Forest, in *Hampshire*, History tells us, was rais'd by the Destruction of 22 Parish Churches, and all the Villages, Manors, Chappels, &c. for the space of 30 Miles together. Beside *New Forest*, there are now subsisting 68 *Forests* in *England*; thirteen *Chases*, and more than 781 *Parks*. See PARK.

Our antient *Norman* Kings were the first who inclos'd *Forests*, and settled the Jurisdiction thereof: Their Taste run mightily that way. In the Course of a few Reigns from the Conquest, no less than sixty eight *Forests* were inclos'd; the strictest Laws were made to secure them; and the severest Penalties inflicted on all Trespassers thereon.

William the Conqueror decreed, the Eyes of any Person to be pull'd out, who took either a Buck, or Boar: *William Rufus* made the Stealing of a Doe a hanging matter: The taking of a Hare was fined at 20 *s.* and a Cony at 10 *s.*

Eadmer adds, that fifty Persons of Fortune being apprehended by the same Prince, for killing his Bucks, were forc'd to purge themselves by the Fire of Ordeal, &c.

Henry the First made no distinction between him who kill'd a Man, and a Buck; and punish'd those who destroy'd the Game, tho' not in the *Forest*, either by Forfeiture of their Goods, or Loss of Limbs; tho' *Henry* the Second remitted it for a temporary Imprisonment.

Richard the First revived the old Discipline of gelding and pulling out the Eyes of those convict of hunting in the *Forest*: But he afterwards relax'd a little, and was contented to make such Convicts abjure the Realm, or be committed, or pay a Fine.

Charter of the FOREST, see CHARTA *de Foresta*.

FOREST is also us'd adjectively. The *Forest Cities* of the Empire are four Cities situate in the Black *Forest*, or *Silva Nigra*, a Part of the antient *Hyrcinian Forest*; viz. *Rhinfield*, *Valdshust*, *Seckinghen*, and *Lauffembourg*. But, now that the Bounds of the *Black Forest* are contracted, these Cities are out of the Limits thereof.

FOREST *Law*. The *Forest* Laws are peculiar Laws, different from the common Law of *England*. See LAW.

Before the making of *Charta de Foresta*, Offences committed therein, were punish'd at the Pleasure of the King, in the severest manner; and even in the Charter were some grievous Articles, which the Clemency of later Princes have since by Statute thought fit to alter *Per Assisas Forestæ*.

Yet to this Day, in Trespasses relating to the *Forest*, *Voluntas reputabitur pro facto*; so that if a Man be taken hunting a Deer, he may be arrested, as if he had taken a Deer. The Forester may take, and arrest a Man, if he be taken either at *Dog-draw*, *Stable-stand*, *Back-bear*, or *Bloody-hand*; notwithstanding that three of these be only Presumptions. See DOG-DRAW, STABLE-STAND, &c.

FORE-STAFF, an Instrument us'd at Sea, for taking the Altitudes of heavenly Bodies. See ALTITUDE.

The *Fore-staff*, call'd also *Cross-staff*, takes its Denomination hence, that the Observer, in using it, turns his Face towards the Object; in contradiction to *Back-staff*, where he turns his Back of the Object. See BACK-STAFF.

The *Fore* or *Cross-staff*, represented in *Tab. Navigation. Fig.* 14. consists of a straight, square, graduated Staff, A B, and four Crosses, or Vanes F F, E E, D D, C C, which slide thereon.

The first, and shortest of these Vanes F F, is called the Ten-cross, or Vane, and belongs to that side of the Instrument, whereon the Divisions begin at three Degrees, and end at 10. The next longer Vane E E is call'd the thirty Cross; belonging to that Side of the Staff, wherein the Divisions begin at 10 Degrees, and end at 30, called the thirty Scale. The next Vane D D is call'd the sixty Cross, and belongs to the Side where the Divisions begin at 20 Degrees, and end at 60. The last, and longest, C C, call'd the ninety Cross, belongs to the Side whereon the Divisions begin at 30 Degrees, and end at 90.

Use of the FORESTAFF.

The great Use of this Instrument, is to take the Heights of the Sun, and Stars, or the Distance of two Stars: And the Ten, Thirty, Sixty, or Ninety Crosses are to be us'd according as the Altitude is greater, or lesser; that is, if the Altitude be less than 10 Degrees, the Ten Cross to be us'd; if above ten, but lesser than 30, the Thirty Cross to be us'd, &c.

Note, for Altitudes greater than 60 Degrees, this Instrument is not so convenient as a Quadrant, or Semi-circle. See QUADRANT.

To observe an Altitude by the FORESTAFF; Apply the flat End of the Staff to your Eye, and look at the upper End *b* of the Cross for the Centre of the Sun or Star, and at the lower End *a* for the Horizon. If you see the Sky instead of the Horizon, slide the Cross a little nearer the Eye; and if you see the Sea, instead of the Horizon, slide the Cross further from the Eye: And thus continue moving, till you see exactly the Sun or Star's Centre by the Top of the Cross *b*, and the Horizon by the Bottom thereof, *a*.

Then the Degrees, and Minutes cut by the inner Edge *c* of the Cross upon the Side of the Staff peculiar to the Cross you use, is the Altitude of the Sun, or Star.

If it be the Meridian Altitude you want, continue your Observation as long as you find the Altitude increase; still moving the Cross nearer to the Eye. See MERIDIAN.

By substracting the Meridian Altitude thus found from 90 Degrees, you will have the Zenith Distance.

To work accurately, an Allowance must be made for the Height of the Eye above the Surface of the Sea; *viz.* for one *English* Foot, 1 Minute; for five Foot, $2\frac{1}{2}$; for ten Foot, $3\frac{1}{2}$; for twenty Foot, 5; for forty Foot, 7, &c.

These Minutes substracted from the Altitude observ'd; and added to the Zenith Distance observ'd; give the true Altitude, and Zenith Distance.

To observe the Distance of two Stars, or the Moon's Distance from a Star, by the FORESTAFF; Apply the Instrument to the Eye; and looking to both Ends *a* and *b* of the Cross, move it nearer, or farther from the Eye, till you see the two Stars; the one on the one End, and the other on the other End of the Cross. Then the Degrees and Minutes cut by the Cross on the Side proper to the Vane in use, give the Star's Distance.

FORESTAGE, FORESTAGIUM, in our antient Customs; an obsolete Duty, or Service, paid by the Foresters to the King.

In *Britany*, *Lobineau* observes, the Office of Foresters was held by Gentlemen of the first Rank, who for their *Forestage* were oblig'd to furnish the Lord, when he kept open House, with Cups and Spoons.——

Forestage also seems to have been us'd for a Duty, payable to the King's *Foresters*. *Et sint quieti de Theolonio, & Passagio, & de* Forestagio, &c. *Chart. Edu.* I.

It may likewise be taken for a Right to use the Forest; or, a taking of reasonable Estovers. See ESTOVER.

FORESTAL, or FORSTAL, in Domesday wrote *Foristel*, is an interceptiog in the Highway; or stopping, or even insulting a Passenger therein.

Spelman defines it an Obstruction, or shutting up of the King's Highway.

In the Laws of *Hen.* I. the Sense of the Word is thus explain'd: *Forestal est, si quis ex transverso incurrat, vel in viam expectet, & assaliet inimicum suum.*

The Word is form'd of the *Saxon Fore*, before; and *Stal*, Journey, Road.

FORESTALLER, a Person who *forestals* the Market, or buys up Goods upon the Road. See FORESTALLING.

FORESTALLING, the buying, or bargaining for Corn, Cattle, or other Merchandize, by the Way, before it reaches the Market, or Fair, to be sold; or by the Way, as it comes beyond the Sea's, or otherwise, toward any City, Port, Haven, or Creek of this Realm; with design to take Advantage thereof, and sell it again at a more advanc'd and dear Rate. See REGRATOR, and ENGROSSER.

Forestalling is particularly us'd in *Crompton*, for stopping a Deer broken out of the Forest, and preventing its returning home again; or, a lying between him and the Forest, in the Way he is to return.

Fleta says, it signifies *Obstructionem viæ, vel impedimentum transitus & Fugæ averiorum.*

FORESTER, a sworn Officer of the *Forest*, appointed by the King's Letters Patent, to walk the Forest, and to watch the Vert, and Venison; as also to attach and present all Trespassers against both, within his Bailiwick or Walk, to the Forest Courts; to be punish'd according to their Offences. See FOREST.

Tho' the Letters Patent of a *Forester* be ordinarily only granted, *quam diu bene se gesserint*; yet they are granted to some, and their Heirs; who are hereby called *Foresters in Fee*. See FEE.

Sir *William Temple* relates, that the *Franks* having subdued all *Gaul*, their Princes reduc'd *Flanders* into a kind of Government; and gave the Quality of *Forester*, with part of the Province, to the bravest of their Captains.

This

This Quality of *Lord Forester* held till the time of *Charlemaign*, or, according to others, of *Charles the Bald*, in whose Time *Flanders* being erected into a County, the Title of *Foresters* was chang'd into that of *Count*. See COUNT.

FORFEITURE, originally signifies a Transgression, or Offence against some penal Law.

But with us, it is now more frequently us'd for the Effect of such Transgression, or the losing some Right, Privilege, Estate, Honour, Office, or Effects, in consequence thereof; than for the Transgression it self.

As, *Forfeiture of Escheats*, &c. *Forfeiture of Goods*, &c. A Fee becomes vacant by the *Forfeiture* or Rebellion of his Vassal.

Goods *forfeited*, and Goods confiscated, differ: Those which have a known Owner who has committed some Offence, whereby he loses his Goods, are said to be *forfeited*. Those which an Offender disavows, as not his own; and which are not claim'd by any other, are said to be *confiscate*. Stat. 25 *Edw.* 3.

Forfeiture, or *Forfeit*, again, is rather more general; and Confiscation more particular, to such as *forfeit* only to the King's Exchequer. See CONFISCATION.

The Word is form'd of the base Latin, *Forisfactura*; whence *Forfaitura*, and *Forfaictura*, and the *French Forfait*. *Forisfactura* comes of *forisfacere*, which, according to *Isidore*, signifies to hurt, or offend, *facere contra rationem*; and which is not improbably deriv'd of *foris*, out, and *facere*, to do, q. d. an Action out of Rule, or contrary to the Rules. *Borel* will have *Forfait* deriv'd from the using of *Force*, or Violence: *Lobineau* in his Glossary will have *Forsfacta* properly to signify a Mulct, or Amend; not *a Forfeit*, which latter he derives from the bass Briton *forfed*, a Penalty.——

Full FORFEITURE, *plena forisfactura*, call'd also *plena vita*, is a *Forfeiture* of Life and Member, and all else that a Man has.

FORFEITURE *of Marriage*, *Forisfactura Maritagii*, a Writ, which laid against him, who, holding by Knight's Service, and being under Age, and unmarried, refus'd her whom the Lord offer'd him, without his Disparagement, and married another.

FORFEX, an Instrument to draw Teeth withal.

FORGE, properly signifies a little Furnace, wherein Smiths, and other Artificers in Iron and Steel, &c. heat their Metals red hot, in order to soften and render them more malleable and manageable on the Anvil, &c. See FURNACE.

Farriers *Forge*, Silversmiths *Forge*, Cutlers *Forge*, Locksmiths *Forge*, &c.

The *Forge* us'd by the several Operators in Iron, is very simple: We shall instance in that of the Blacksmith, to which all the rest are reducible.

The *Hearth*, or Fire-place, is a Massive of Brick, about two Foot, six Inches high: The *Back* of the *Forge* is built upright to the Cieling, and is inclos'd over the Fore-place with a *Hovel*, which leads into a Chimney, to carry away the Smoak. In the Back of the *Forge*, against the Fire-place, is a thick iron Plate, with a taper Pipe fix'd therein, about five Inches long, call'd the *Fewel*, into which the Nose or Pipe of the Bellows is receiv'd: The Use of this Plate and Fewel is, to preserve the Pipe of the Bellows, and the Back of the Hearth from being burnt. Right before the Back, at about two Foot distance, is the *Trough*, fill'd with Water, to wet the Coals in, and thereby increase their Force; as also to quench the Iron in. Behind the Back of the *Forge* is plac'd the *Bellows*, one of whose Boards is fix'd so, that it move not, either upward, or downward; and to the other is fitted a Rope, Chain, or even Rod; which rising perpendicularly, is fix'd to a cross piece, call'd the *Rocker*, which moving on a kind of Fulcrum, near the Middle, serves as a Handle.

By drawing down this Handle, the moveable Board of the Bellows rises, and by a considerable Weight a-top of its upper Board sinks down again; and by this alternate Agitation performs the Office of a pair of Bellows.

Braziers, and *Coppersmiths* FORGE differs but little from that already describ'd; only that it is much less, and that nothing is burnt in it but Charcoal; the Metals us'd by these Operators not being able to sustain the Violence of Pit Coal.

FORGE is also us'd for a large Furnace, wherein iron Oar taken out of the Mine, is melted down. See IRON.

But this is not so properly call'd a *Forge*, as a *Furnace*. See FURNACE.

FORGE is more properly us'd for another kind of Furnace, wherein the iron Oar, melted down and separated in a former Furnace, and there cast into Sows, and Piggs, is heated, and fus'd over again, and beaten with large Hammers; and thus render'd more soft, pure, ductile, and fit for use. See IRON.

Of these *Forges* there are two kind; which the Iron successively passes through, before it comes to the Smith.

The first, call'd the *Finary*, where the Pigs are work'd into Gross Iron, and prepar'd for the second, which is call'd the *Chafery*, where it is further wrought into Bars, fit for Use. See FINARY, &c.

FORGER *of False Deeds*, signifies either him, that fraudulently makes, and publishes false Writings, to the Prejudice of any Man's Right; or else the Writ that lies against him who commits this Offence.

Fitz. Nat. Br. fol. 96. b. says, That a Writ of Deceit lies against him, who commits this Offence, and the Penalty of it is declar'd in the Stat. 5 *Eliz. cap.* 14.

FORGING, the Act of beating, or hammering Iron on an Anvil; after having first made it red hot in the *Forge*; in order to Fashion, and extend it into various Forms, and Works.

Iron is hammer'd, and *forg'd* two ways: Either by the Force of the Hand; in which there are usually several Persons employ'd, one of them turning the Iron, and hammering likewise; and the rest only hammering.

Or, by the Force of a Water-mill; which raises, and works several huge Hammers, beyond the Force of Man, under the Strokes whereof the Workmen present large Lumps, or pieces of Iron, which are sustain'd at one End by the Anvils, and at the other by iron Chains fasten'd to the Ceiling of the Forge.

This last way of *forging* is only us'd in the largest Works, as Anchors for Ships, &c. which usually weigh several thousand Pounds. See ANCHOR.

For the lighter Works, a single Man suffices to hold, heat and turn with one Hand, while he strikes with the other.—

Each Purpose the Work is design'd for, requires its proper Heat. If it be too cold, it will not *feel the Weight of the Hammer*, as the Smiths call it (*i. e.* will not stretch, or give way); and if it be too hot, it will *red-sear* i. e. break or crackle under the Hammer. See HAMMERING.

The several Heats the Smiths take of their Iron, are 1° A Blood-red Heat. 2° A white-flame Heat. 3° A sparkling, or welding Heat. See HEAT.

FORKED *Heads*, among Hunters, all Deers Heads, which bear two Croches on the Top; or which have their Croches doubled.

FORLET *Land*, was such Land in the Bishoprick of *Hereford*, as was granted or leas'd, *dum Episcopus in Episcopatu steterit*; that the Successor might have it for his present Income.

But now that Custom is disus'd, and the same Lands are granted, as others, by Lease; yet they still retain the Name. *Butterfield's* Survey, fol. 56.

FORLINS, or FIELD FORTS, are Sconces, or little Fortresses, whose flank'd Angles are generally distant one from another 120 Fathom; but their Extent and Figure are different, according to the Situation and Nature of the Ground; some of them having whole Bastions, and others only Demi-Bastions.

They are made use of only for a time; either to defend the Lines of Circumvallation, or to guard some Passage or dangerous Post.

FORM, in Philosophy, is the manner of being peculiar to each Body; or that which constitutes it such a particular Body, and distinguishes it from every other. See BODY.

The Philosophers generally allow two Principles of Bodies: *Matter*, as the common Basis, or Substratum of all; and *Form*, as that which specifies and distinguishes each; and which added to a Quantity of common Matter, determines or denominates it this, or that; Wood, or Fire, or Ashes, &c. See PRINCIPLES; see also MATTER.

Aristotle calls *Form* λόγος τῆς οὐσίας, the *Reason*, or Manner of the *Essence*, or Being of a thing: But as οὐσία denotes *Substance*, as well as *Essence*, a mighty Controversy has arose in the Schools, in which sense the Word is here to be us'd; and whether *Forms* are to be accounted *substantial*, or only *essential*: *i. e.* Whether the *Forms* of Bodies be any real Substances, and have an Existence distinct from that of Matter, or not.

'Tis certain, the most antient Philosophers never dreamt of making *Form* a Substance. *Parmenides* and *Telesius* expresly assert, all natural Things to consist of one and the same kind of Substance, and only to differ in Accidents. And tho' *Empedocles* allow'd of a substantial *Form* in mixt Bodies; yet he deny'd it in the Elements, and only held an essential one.

Galen allow'd of nothing in Matter more than the Temperature of the primary Elements, in which he was seconded by *Alex. Aphrodisæus*, *Philoponus*, and others.

Substantial FORMS seem to have been first broch'd by the Followers of *Aristotle*, who thought Matter, under different Modes or Modifications, not sufficient to constitute different Bodies; but that something substantial was necessary to set them at a sufficient Distance: And thus introduc'd substantial *Forms*; on the footing of Souls, which specify and distinguish Animals.

The Considerations which the Peripateticks principally insist on, in confirmation of this Doctrine, are: 1° That without

out substantial *Forms*; all natural Things would be of the same Species, Nature, and Essence; which is suppos'd an Absurdity.

2° That every thing has its peculiar Pow'r, Motion, and Operation; as the Magnet, *e. gr.* has of attracting Iron; but that this Pow'r, does not flow from the Matter of the Body, which is only passive; nor from the Accidents: And therefore must arise from a substantial *Form*.

3° That without substantial *Forms* there would be no Generation; for a Production of Accidents is only an Alteration.

4° That without such *Form*, the Nature of a Man and of a Lyon would not differ.

What contributed much to their Error, was the Circumstances of Life and Death: For, observing, that as soon as the Soul was departed out of a Man, all Motion, Respiration, Nutrition, &c. immediately ceas'd; they concluded that all those Functions depended on the Soul; and consequently that the Soul was the *Form* of the animal Body, or that which constituted it such: And that the Soul was a Substance, independent of Matter, no body doubted; whence the *Forms* of other Bodies were concluded equally substantial.

But to this it is answer'd, that tho' the Soul be that by which a *Man* is *Man*; and consequently is the *Form* of the *human* Body, as *human*; yet it does not follow, that it is properly the *Form* of this Body of ours, as it is a Body; nor of the several Parts thereof, consider'd as distinct from each other.

For those several Parts have their proper *Forms* so closely connected with their Matter, that it remains inseperable therefrom, long after the Soul has quitted the Body: Thus, Flesh has the *Form* of Flesh; Bone, of Bone, &c. after the Soul is remov'd, as well as before.

The Truth is, the Body does not become incapable of performing its accustom'd Functions, by reason the Soul has deserted it; but the Soul takes its leave, by reason the Body is not in a Condition to perform its Functions.

The antient and modern corpuscular Philosophers therefore, with the *Cartesians*, exclude the Notion of substantial *Forms*; and shew by many Arguments, that the *Form* is only the Modus, or manner of the Body it is inherent in.

And as there are only three primary Modes of Matter, *viz.* Figure, Rest, and Motion; with two others arising therefrom, *viz.* Magnitude, and Situation: The *Forms* of all Bodies they hold to consist therein; and suppose the Variations these Modes are capable of, sufficient to present all the Variety observable in Bodies. See MODE.

Many Varieties we actually see result from changes in these Modes; which may very well pass for Differences of *Form*: Thus an Awl only differs from a Needle in Magnitude; a Globe from a Cube in Figure: Transparent Glass being pulveriz'd, will reflect the Light, and appear white; and yet all the Alteration consists in the Order and Arrangement of the Parts: When Wheat is ground into Flower, all the Change consists in a Seperation of the contiguous Parts; and when the Flower is bak'd into Bread, what is it but the same Particles associated again, in another manner. By agitating Water, a Froth is form'd; if the Agitation be increas'd, the Particles will exhale, and form Clouds; which being congregated again, return in Dew, Snow, Hail, or Rain: And the same Water, by the Accession of Cold, might have been form'd into Ice. So many different Bodies, endued with different Qualities, and which the Peripateticks themselves allow specifically different, arise from one and the same Body, by mere Motion, and Rest.

The Philosophy of substantial *Forms*, its Rise, Use, and Extent, are set in an excellent light by Fa. *Mallebranch*.

The way of thinking, that first introduc'd it, is this: Every thing I perceive in tasting, seeing, and handling this Honey, and Salt, is in the Honey, and Salt: But it is certain, that the things I perceive in the Honey, *e. gr.* the Colour, Taste, &c. differ essentially from those I perceive in the Salt; consequently, there is an essential Difference between the two.

Hence it follows, that they are grosly deceiv'd, who take all the Differences between those Bodies to consist in the different Configurations of the component Parts; since the different Figure is not at all essential to the different Bodies: For change the Figure of the Parts of the Honey how you will; and even give them those of the Parts of Salt; yet it is Honey still.

There must therefore be some Substance added to the common Matter of all Bodies, to make them essentially different. And thus are *substantial Forms* hook'd in; those fertile Substances, which perform every thing that we see in all Nature.

Since then in every natural Body there are two Substances; the one common to Honey, Salt, and all other Bodies; and the other, that which makes the Honey, Honey; the Salt, Salt; and all other Bodies what they are: It follows, that the first, viz. *Matter*, having no contrary, but being indifferent to all *Forms*, must remain without Force, and Action; as having no occasion to defend it self.

But for the others, *viz.* the *substantial Forms*, there is a Necessity of their being accompany'd and invested with Faculties and Qualities for their Defence, and Subsistence. These must be always on their Guard, for fear of being surpriz'd: They are in possession of a thing, which they are to hold against numerous Pretenders; and therefore must be continually at work, to fortify themselves, and extend their Dominion over the neighbouring Matters, and push their Conquests as far as they can: Were they to remain unactive, and unprepar'd, other *Forms* would lay hold of them, and banish and destroy them for ever. To guard against this, they keep constant watch; and entertain mortal Enmities and Antipathies against those other *Forms*, which only wait to destroy them.

If now it happen, that one *Form* seize the Matter, or Receptacle of another; that the *Form* of a Carcass, for instance, seize the Body of a Dog; it is not enough, that this new *Form* annihilate the former; but its Hatred must be further gratify'd with the Destruction of all the Qualities, that took its Enemy's part.

The Hair of the Carcass, then, must be turn'd white; by a Creation of a new Colour: Its Blood must become red, but of such a red, as is not to be suspected in the Interest of the Enemy; and the whole Body to be invested with Qualities, trusty to their new Master, whom they are to defend with all the Power the Qualities of a Carcass can have; till such time as being overpow'rd, this *Form* gives way too, in its turn, to the *Form* of Maggots, Worms, &c.

But, as nothing can be in perpetual War; but every thing has its place of Rest; it follows, that even the Fire must likewise have its Centre, whither its natural Levity always prompts it, that it may remain at rest, cease to burn, and even quit its Heat, which it only maintains here below for its Defence.——

These may serve as a Taste of the Consequences, drawn from that important Principle, *Substantial Forms*; which is infinitely fertile, and furnishes every Philosopher with all sorts of Solutions, according to his Ability, Adress, Inclination, &c.

FORMS are distinguish'd into *Essential*, and *Accidental*.

Essential FORMS. Though the five Modes above-mention'd, generally taken, be adventitious; yet, to this, or that Body, *e. gr.* to Fire, or Water, they are essential: Thus, it is *accidental* to Iron, to have this, or that Magnitude, Figure, or Situation; since it might exist in different ones; yet, to a Knife, or Hammer, the Figure, Magnitude, and Position of Parts, which constitute it a Hammer, or Knife, are *essential*; and they cannot exist, or be conceiv'd without them.

Hence it is infer'd, that tho' there be no *Substantial*, there are *Essential Forms*, whereby the several Species of Bodies become each what they are, and are distinguish'd from all others. See ESSENTIAL.

Accidental FORMS are those really inherent in Bodies; but in such manner, as that the Body may exist in all its Perfection, without them.

Such is Whiteness in a Wall; Heat in Water; a Figure of a Man in Wax, &c.

Metaphysical FORM is nothing else but specific Difference; as metaphysical Matter is nothing else but Genus.

Thus, *Rational*, is the Metaphysical *Form* of Man.

Syllogistic FORM is a just Disposition, both of the Terms, in respect of Predicate, and Subject; and of the Propositions, in respect of Quantity, and Quality.

By just Disposition we mean such an one, wherein the Conclusion follows duly and legitimately from the two Premisses; there being no *Form*, where there is no Conclusion. See SYLLOGISM.

The Disposition of the several Terms, being, as it were, so many Steps or Degrees of a *Syllogistic Form*; is call'd the *Figure* of the Syllogism. See FIGURE.

The Disposition of the Premisses alone, being as it were another Degree, is call'd the *Mode of the Syllogism*. See MODE.

Forms, again, are distinguish'd into *Simple*, and *Compound*.

Simple FORMS are those of Simple Bodies, *i. e.* of such as have but few Properties.

Compound FORMS are those of more Compounded Bodies; or such, as have more Properties.

Thus, *e. gr.* If the *Form* of a *hard Body* be compar'd with the *Form* of Wood; the former may be accounted *Simple*, and the latter *Complex*; inasmuch as a hard Body, consider'd only as *hard*, has fewer Properties than Wood. Absolutely speaking, however, Simple *Forms* are those of the Elements; and Compound, of mixt Bodies.

Lastly, some distinguish *Forms* into a *Natural*, and *Artificial*.

Natural, are those inherent in Bodies, without any thing contributed thereto on the part of Man. Such is the *Form* of Marble.

Artificial, are those arising from human Industry: Such is that of a Statue. But this Distinction is useless; and does not imply any intrinsic Difference in the *Forms* themselves.—

Form *of Corporeity*, according to *Avicenna*, and the *Scotists*, is that which constitutes Body in the generical *Esse* of Body.

That there is such a thing, they prove thus: The human Body is a natural Body, which cannot be plac'd in the *Esse* of Body, but by the *Form* of Corporeity: For it is either so plac'd by this, or by the rational Soul; not by the Soul, since that is spiritual; therefore by the *Form* of Corporeity. And the same may be understood of other Bodies: But the later Philosophers set this aside as a Chimæra.

Form, in Theology, is one of the essential Parts of the Sacraments; being that which gives them their Sacramental *Esse*. See Sacrament.

The *Form* consists in certain Words, which the Priest pronounces in administring them.

In some of the *Romish* Sacraments the *Form* is deprecative; in ours it is absolute, or indicative.

The Fathers and antient Divines held, that the Sacraments consisted of Things, and Words, *Rebus & Verbis*. *William* of *Auxerre* was the first, who, about the Beginning of the XIIIth Century introduc'd the Terms, Matter, and *Form* in lieu thereof.

Form is also the external Appearance, or Surface of a Body; or the Disposition of its Parts, as to Length, Breadth and Thickness: In which sense it coincides with *Figure*. See Figure.

Form is also us'd in the Mechanic Arts, for a kind of Mould, whereon a Thing is fashion'd, or wrought.

As the Hatters *Form*, the Papermakers *Form*, &c.

Hatters Form, is a large Block, or piece of Wood, of a cylindrical Figure; the Top thereof rounded, and the Bottom quite flat.

Its Use is, to mould or fashion the Crown of the Hat, after the Matter thereof has been beaten, and full'd.——

To *form* a Hat, 'tis necessary the Wool, Hair, &c. be very hot, just reeking out of the Copper. See Hat.

Papermakers Form is one of the Moulds wherein the Sheets are fram'd. See Paper.

Printers Form, is a Frame, or Board, compos'd of divers Letters, rang'd in Order, and dispos'd into Pages, by the Compositor; from which, by means of Ink, and a Press, the Printed Sheets are drawn.——

Every *Form* is inclos'd in an iron Chase, wherein it is firmly lock'd by a Number of pieces of Wood; some long, and narrow; and others in *form* of Wedges. See Chase.

There are two *Forms* requir'd for every Sheet; one for each side; and each *Form* consists of more or fewer Pages, according to the Volume of the Book. See Printing.

Form is also us'd in a Moral sense, for a manner of being, or doing a thing according to Rules.

This Republic has frequently chang'd its *Form* of Government; that is, its antient Order, or Constitution. Pardons generally express a Remission, or Abolition of a Crime; in what *Form*, or Manner soever it were committed. He was admitted Doctor *in Form*: Put your Argument in *Form*.

Form, in Law, is apply'd to certain establish'd Rules, to be observ'd in Processes, or Judiciary Proceedings; in which sense the Word stands oppos'd to the Ground or Matter in dispute.

'Tis a Maxim in Law, that the *Form* leads, or sways the Matter: The very contrary Maxim should be true.

Form, in Joinery, &c. is apply'd to the long Seats, or Benches in the Choirs of Churches, for the Priests, Canons, Prebends, Religious, &c. to sit on.

Such a Joiner made the *Forms* of such a Church. *Du Cange* takes the Name to be deriv'd hence, that the Backs of these Seats were antiently enrich'd with Figures of Painting and Sculpture; call'd in Latin *Formæ & Typi*.—

In the Life of Sir *William* of *Rosehild* we meet with *Forma*, as signifying a Seat for an Ecclesiastic, or Religious in a Choir; and in that of St. *Lupicin*, we have *Formula* in the same sense. In the Rule of the Monastery of St. *Cæsarea*, the Nun, who presides over the Choir, is call'd *Primiceria, vel Formaria*.

FORMA *Pauperis*, or *In Forma Pauperis*, is when any Person has Cause of Suit, and is so poor that he cannot dispend the usual Charges of suing at Law, or in Equity.

In this case, upon his making Oath that he is not worth 5 *l.* his Debts being paid; and bringing a Certificate from some Lawyer, that he has just cause of Suit; the Judge admits him to sue *in Forma Pauperis*, that is, without paying Fees to Councellor, Attorney, or Clerk. This Custom has its Beginning from Stat. 11 *H.* 7. *c.* 12.

FORMAL, any thing that regards the *Form*; that gives the Manner, or *Form*.

Thus, we say, The *formal* Cause joining it self to the material, produces the Body, or Compound.

The Schoolmen also apply it to any thing which has a kind of *Form*, either Essential, or Accidental; at least, in our Conception.

Thus, we frequently hear the Philosophers talk of the *formal* Object of Knowlege; the *formal* Reason of any thing; *formal* Unity, &c. The *formal* Cause.

Formal *Cause*, is defin'd by certain Philosophers to be something implanted in Matter, whereby it is distinguish'd from other Matter.

For Matter is suppos'd common to all Bodies; consequently, that they are distinguishable from one another does not arise from their Matter, but the Form which is peculiar to each: So that what is produc'd by such Cause, is said to be *formed*. See Matter.

Hence it follows, that the Causality of Matter, and Form, is not the same; or that the Component Pow'r, and the Actual Composition are different. Contrary to the Opinion of the Generality of Schoolmen, who maintaining *Form* to be a Substance coextended with Matter, make it a real component Part; as much as Matter it self. See Cause, Form, Substance, and Substantial.

Formal is also us'd in a Moral sense, importing positive, express, and precise.

Thus we say, A *formal* Agreement; a *formal* Text; *formal* Answer, &c.

FORMALITER, or Formally, is variously us'd in the Schools.

Sometimes it is understood of the Subject, when a Predicate is therein on account of some Form: Thus, White *formally* taken, diffuses the Light; *q. d.* the Form inherent in this Subject, *viz.* Whiteness, is the Cause why the Subject disperses the Light.

Formally has also place in Suppositions; A Word being *formally* suppos'd, when it is taken for the Thing it was intended to signify; as *Man is an Animal*.

Formally is also us'd in the same sense with adequately, and totally: Thus, a Syllogism *formally*, i. e. adequately taken, requires three Propositions.

Sometimes it is also us'd for *Quidditatively*: Thus, Man *formally* taken is a reasonable Animal.

Formally is also us'd for *Really*, in opposition to objectively: And a thing is said to be *formally* such, when it is such in the proper Notion of the thing spoke of.—

Formally, again, is us'd in speaking of the Manner wherein a Thing is contain'd in another; in opposition to *Virtually*, and *Eminently*. See Virtually, and Eminently.

FORMALITY, the Quality of a *Form*, or *Formula*; or that which constitutes, and denominates them such. See Form, and Quality.

Formality, as defin'd in the Schools, is any Manner, or Notion, wherein a thing is conceiv'd: Or, a Manner in any Object, importing a Relation to the Understanding, whereby it may be distinguish'd from another Object.

Thus, *Animality*, and *Rationality* are *Formalities*.

The *Scotists* make great use of *Formalities*; in opposition to the *Virtualities* of the *Thomists*. See Scotist.

The *Scotists* hold, that the Metaphysical Degrees in Man are so many *Formalities*, really distinct from each other; as *Man*, *Living*, *Animal*, &c. And the same they hold of the Attributes of God: The *Thomists*, on the contrary, contend, that they are really and intrinsically the same. See Degree.

In Matters of Law, *Formalities* are frequently us'd for the Formula's themselves; or the Rules prescrib'd for judiciary Proceedings. In Contracts of strict Law, all the *Formalities* must be strictly observ'd. An Omission of the least *Formality* may ruin the whole Convention.

The Term is also us'd for a certain Order, certain Decencies, and Ceremonies observ'd.

This Composition of *Formalities*, Decencies, and Circumspections, may form a political Pedant; but not an Ambassador, who must be a Gallant Man. *Wicquefort*.

FORMATION, in Philosophy, &c. the Act of forming, fashioning, or producing a thing.

The *Formation* of the Chick in the Egg, is admirably explain'd by *Malpighi*, in an express Treatise, *De Formatione Pulli in Ovo*. See Egg.

The *Formation* of the Fœtus, the Embryo in the Womb, is a Process of which we have but very dark Conceptions. See Conception, Fœtus, &c.

The *Formation* of Metals is effected in the Veins of the Earth, of Fumes or Vapours rais'd by the subterraneous Fire, and fix'd, or condens'd as they arrive toward the Surface of the Earth. See Metals, Minerals, &c.

The *Formation* of an Abscess in the Body, see Abscess.

FORMATRIX, or Formatrice. The antient Philosophers admitted a *Virtus*, or *Facultas Formatrix*, whereby all Bodies had their *Forms* given them. See Faculty.

FORMé, or Formy, in Heraldry. A Croſs *Formé*, or *Formy*, is a Croſs narrow in the Centre, and broad at the Extremes; ſo call'd by *Leigh*, and *Morgan*; though moſt other Authors call it *Patee*. See Patee.

FORMED, or Figured *Stones*, among Naturaliſts, are ſuch Bodies, as being either pure Stone, Flint, or Spar, are found in the Earth, ſo *form'd* as that they bear a near Reſemblance to the external Figure of Muſcles, Cockles, Oiſters, and other Shells, or Plants.

Authors are greatly divided as to their Origin: The ſeveral Opinions ſee under Fossil, Shell, *Stone* Plant, Spar, &c.

Formed, in Heraldry, ſee Seated.

FORMEDON, in Law, a Writ which lies for him who has Right to Lands, or Tenements, by virtue of any Intail, ariſing from the Statute of *Weſtm.* 2. *c.* 1.

There are three Kinds, viz. *Forma Donationis*, or *Formedon, in the Deſcender*; *Formedon in the Reverter*; and *Formedon in the Remainder*.

Formedon in the Deſcender, lies for the Recovery of Lands, &c. given to one and the Heirs of his Body; or to a Man and his Wife, and the Heirs of their two Bodies; or to a Man, and his Wife, being Couſin to the Donor, in Frak Marriage, and afterwards alienated by the Donee.

After his Deceaſe, his Heir ſhall have this Writ againſt the Tenant, or Alienee.

Fitz. Nat. Br. fol. 211. &c. makes three ſorts of *Formedon* in the Deſcender: The firſt is that now expreſs'd: The ſecond, for the Heir of a Coparcenor, that aliens, and dies: The third he calls, *Inſimul tenuit*; which lies for a Coparcenor, or Heir in Gavel-kind, before Partition againſt him, to whom the other Coparcenor or Heir has alienated, and is dead.

Formedon in the Revertor, lies for the Donor, or his Heirs (whoſe Land is entail'd to certain Perſons, and their Iſſue, with condition, for want of ſuch Iſſue to revert to the Donor, and his Heirs) againſt him to whom the Donee alienates after the Iſſue extinct, to which it was entail'd.

Formedon in the Remainder, lies where a Man gives Land in Tail, the Remainder to another in Tail, and afterwards the former Tenant in Tail dies without Iſſue, and a Stranger abates; then he in Remainder ſhall have this Writ.

FORMICA, literally ſignifies an *Ant*, and is us'd to expreſs little Tumours, which appear like the Bites of thoſe Creatures.

FORMING, is us'd for the Act of giving Being, or Birth to any thing: Thus, GOD is ſaid to have *form'd* Man after his own Image. Every thing generated, is form'd of ſomething corrupted.—

The Word is alſo ſimply us'd for giving the Figure to any thing. The Potter *forms* his Veſſels as he pleaſes. Geometry teaches, how to *form* all kinds of Figures.—

Alſo, for the producing of a thing: Thus, Thunder is *form'd* of Exhalations: The Lines of his Face began to be *form'd*.

Forming *of a Siege*, is the making Lines of Circumvallation, to fortify the Camp, and diſpoſing things for the Attack of a Place, in *form*. See Siege.

They alſo ſay, to *form* a Squadron, or Battalion; meaning, to range the Soldiers in form of a Squadron, &c.

The Term is alſo us'd in ſpeaking of a Body of Forces; which being out of any order of Squadrons, Battalions, &c. do halt, range themſelves into Order, and put themſelves in a Condition for the Attack. Aſſoon as the Enemy obſerv'd this Motion, they began to *form* themſelves.

Forming, is alſo us'd in Grammar, in ſpeaking of certain Tenſes of Verbs, which are made from others, by a Change of certain Letters.

The Preſent Tenſe is *form'd* from the Infinitive. Compound and Derivative Words, and even all that have any Etymology, are alſo ſaid to be *form'd*.

FORMS, in Hunting, the Seat of an Hare; or the Place or Time when and where ſhe ſquats.

FORMULA, a Rule, or Model; or certain Terms preſcrib'd, and decreed by Authority, for the *Form* and Manner of an Act, Inſtrument, Proceeding, &c.

The *Roman* Law was full of *Formula's*. Divorces, Adoptions, Stipulations, &c. were perform'd by certain *Formula's*, or in certain Terms.

Cnejus Flavius publiſh'd a Collection of the *Formulas* of his Time; which were well receiv'd. The leaſt Slip or Failure in any of the Terms of theſe *Formulæ*, render'd the whole Tranſaction Null. The *Formula's* of *Marculphus*, with M. *Bignon's* Comment, are in great Eſteem.

Formula, in Church Hiſtory, and Theology, is a Formulary, or Profeſſion of Faith.

The Council of *Seleucia* was diſſolv'd by *Leonas*, the Emperor's Commiſſary, as not able to bring them to ſign the *Formula*.

Formula is particularly us'd for a little Form, or Preſcription; ſuch as Phyſicians direct in extemporaneous Practice; in Diſtinction from the greater Forms, which are the Officinal Medicines. See Prescription.

FORMULARY, a Writing, containing the Form, or Formula of an Oath, Declaration, Atteſtation, or Abjuration, &c. to be made on certain Occaſions.

There are alſo *Formularies* of Devotion, of Prayers, &c. Liturgies are *Formularies* of the publick Service in moſt Churches. See Liturgy.

FORNACALIA, or Fornicalia, a Feaſt held among the antient *Romans*, in honour of the Goddeſs *Fornax*, or *Fornix*, Furnace. See Feast.

It was ſolemniz'd with Sacrifices, perform'd before the Mouth of a Furnace, or Oven, wherein they dry'd their Corn, bak'd their Bread, &c.

The *Fornacalia* were moveable: The Grand Curio proclaim'd the time of Celebration every Year on the twelfth of the Calends of *March*.

They were firſt inſtituted by *Numa*. The Quirinalia were inſtituted for the ſake of ſuch as had not kept the *Fornacalia*. See Quirinalia.

FORNICATION, Whoredom, the Act, or Crime of Incontinency between ſingle Perſons: For if either of the Parties be married, it becomes *Adultery*.

St. *Thomas* labours to prove ſimple *Fornication*, contrary to the Law of Nature. See Concubine.

By the antient Law of *England*, the firſt Offence herein was puniſh'd with three Months Impriſonment: The ſecond was made Felony, by an Act in the time of the late Uſurpation. See Whoredom.

Fornication is ſometimes us'd as a Generical Term, including all kinds of Offences againſt Chaſtity.

Its Species are, 1° *Simple Fornication*, which is that committed with a Proſtitute. 2° call'd *Stuprum*, is that committed with Perſons of Reputation and Sobriety. 3° That committed with Relations, call'd *Inceſt*. 4° That committed with married Perſons, *Adultery*. 5° That committed with Perſons conſecrated to God, *Sacrilege*. 6° That committed between Perſons of the ſame Sex, *Sodomy*. 7° That committed by Perſons on themſelves, *Manuſtupration*. 8° That committed with Beaſts, *Beſtiality*. See Adultery, Inceſt, Sodomy, &c.

FORNIX, in Anatomy, the Extremity of the Corpus Calloſum, next the Cerebellum; which is ſeparated or divaricated into two Legs, forming a kind of *Arch*, or *Fornix*. See Corpus *Calloſum*.

FORPRISE, in Law, an Exception, or Reſervation: In which Senſe the Word is us'd in the Statute of *Exon*, 14 *Edw.* 1. but there written Horſepriſe.

We ſtill uſe it in Conveyances and Leaſes, wherein *Excepted* and *Foreprised* are ſynonymous.

Forprise is alſo us'd for an *Exaction*: In which Senſe it is the ſame with Forecapium.

Totum pratum, &c. *ſine quacunque* Forpriſa *in excambium pro placea dedit*.

FORRAGE, Proviſion for Cattle, of Hay, Oats, and Straw; particularly in War.

In Marching, Encamping, &c. care muſt be taken, that the Cavalry may find *Forrage*. To go to *forrage*: They were ſent *a-forraging*. A Ration of *Forrage* is the Portion of Hay, Straw and Oats, allow'd each Horſeman, for the Subſiſtance of his Horſe one Day; which is 12 Pounds of Hay, as much Straw, and three Pecks of Oats. See Ration.

Skinner derives the Word from *foras agere*, by reaſon they go abroad to ſeek *Forrage*: Others, from *Far*, which antiently ſignify'd any kind of Corn, or Grains: *Menage*, from *Foderagium*, of *Foderum*, or *Fodrum*, which the *Romans* us'd in the ſame Senſe. *Cujas*, and *du Cange*, derive it from the German *Futter*, Horſe-meat: *Voſſius*, from the German *Foden*, or *voeden*, to feed: *Nicod*, from *Farrago*; which literally ſignifies what we call *Forrage*; and figuratively, a Mixture of divers kinds of Things. *Hicks* derives it from the Saxon *Fodre*, or the Engliſh *Fodder*, or the baſe Latin, *Fodrum*.

FORSTAL, FORSTALLING, } See { Forestal. Forestalling.

FORT, a little Caſtle, or Fortreſs; or a Place of ſmall Extent, fortify'd by Art, or Nature, or both. See Castle, and Fortress.

A *Fort* is a Work encompaſs'd round with a Moat, Rampart, and Parapet; to ſecure ſome high Ground, or Paſſage of a River; to make good an advantageous Poſt; to fortify the Lines and Quarters of a Siege, &c.

Royal Fort is a *Fort* whoſe Line of Defence is at leaſt 26 Fathoms long. See Defence.

Star Fort, is a Sconce, or Redoubt, conſtituted by re-entering and ſalient Angles; having commonly from five, to eight Points; and the Sides flanking each other. See Sconce.

Field Fort, ſee Fortin.

FORTERESSE, or Fortresse, a general Name for all fortify'd Places, whether ſo fortify'd by Nature, or Art: Such are fortify'd *Towns*, *Caſtles*, *Cittadels*, *Forts*, *Towers*, *Redoubts*, *Sconces*, &c.

FORTI-

FORTIFICATION, call'd also *Military Architecture*, is the Art of *fortifying*, or strengthening a Place; by making Works around the same, to render it capable of being defended by a small Force, against the Attacks of a more numerous Enemy. See *Military* ARCHITECTURE.

Some Authors go back to the Beginning of the World, for the Author and Origin of Military Architecture.

According to them, GOD himself was the first Engeneer; and Paradice, or the Garden of *Eden*, the first *Forteresse*. *Cain* improv'd on the Hint, in building the first City, *Gen.* iv. 17. After him came *Nimrod*, *Gen.* x. 17. Then *Semiramis*, as *Poliænus* relates, *Stratagem. L. VIII. c.* 27. The *Canaanites*, *Numb.* xiii. 19. *Deut.* i. 28. *David*, 2 *Kings* v. 9. *Solomon*, 2 *Chron.* iii. 5. *Reboboam* his Son, 2 *Chron.* xi. 5, 10. and the other Kings of *Juda* and *Israel*, and at length the *Greeks* and *Romans*. *Vitruvius L. X.* last Chap. and *L. I. c.* 5.

Such is the Series of those who fortify'd Places: To which might be added *Pharoah*, the Persecutor of the *Israelites*, who built the Cities of *Pithom* and *Raamses*. *Exod.* i. 11.

But how antient soever the surrounding of Cities with Walls, Towers, *&c.* may be; the Name *Fortification*, and the Art now understood thereby, are of no very old Standing.——

They had their Rise since the Invention of Cannons; the terrible Effects whereof render'd it necessary to change the Structure of the antient Walls, and add so many Things thereto, that those Changes were thought enough to constitute a new Art, which was called *Fortification*, by reason of the Strength it afforded those in Cities, to defend them against an Enemy.

The first Authors who have wrote of *Fortification*, consider'd as a particular form'd Art, are *Ramelli*, and *Cataneo*, *Italians*. After them *Errard*, Engineer to *Henry* the Great of *France*; *Stevinus*, Engineer to the Prince of *Orange*, *Marolois*, the Chevalier *de Ville*, *Lorini*, the Count *de Pagan*, and the Marechal *de Vauban*: Which two last Noble Authors contributed very greatly to the Perfection of the Art.

From the Idea and Office of *Fortification*, some General Fundamental Rules or Axioms may be drawn, as

1° That the Manner of fortifying should be accommodated to that of Attacking: So that no one Manner can be assured will always hold, unless it be assured the Manner of Besieging be incapable of being alter'd; and to judge of the Perfection of a *Fortification*, the Method of Besieging at the Time when it was built, must be consider'd.

2° All the Parts of a *Fortification* should be able to resist the most forcible Machines us'd in Besieging.

3° A *Fortification* should be so contriv'd, as that it may be defended with as few Men as possible; which Consideration, when well attended to, saves a world of Expence.

4° That the Defendents may be in the better Condition, they must not be expos'd to the Enemy's Guns and Mortars; but the Aggressors be expos'd to theirs.

Hence 5° All the Parts of a *Fortification* should be so dispos'd, as that they may defend each other; in order to this, every Part thereof is to be *flank'd*, i. e. capable of being seen and defended from some other; so that there be no Place where an Enemy can lodge himself, either unseen, or under Shelter.

6° All the Campaign around must lie open to the Defendents; so that no Hills or Eminences must be allow'd, behind which the Enemy might shelter himself from the Guns of the *Fortification*; or from which he might annoy them with his own.

The Fortress, then, is to command all the Place round about; consequently the Outworks must all be lower than the Body of the Place.

7° No Line of Defence to be above Point blank Musket Shot, which is about 120 Fathom.

8° The acuter the Angle at the Centre; the stronger is the Place, as consisting of the more Sides, and consequently more defensible.

Such are the General Laws and Views of *Fortification*: The Particular ones, respecting each several Work or Member thereof, will be deliver'd under their proper Articles.— See FORTIFIED *Place*.

FORTIFICATION is also us'd for the *Place fortified*; or the several Works rais'd to defend and flank it, and keep off the Enemy.

All *Fortifications* consist of Lines and Angles, which have various Names, according to their various Offices. See LINE, and ANGLE.

The principal Angles are those of the CENTRE, the FLANKING *Angle*, FLANK'D *Angle*, *Angle of the* EPAULE.

The principal Lines are, those of CIRCUMVALLATION, of CONTRAVALLATION, of the CAPITAL, &c. See each in its Place.

Fortifications are divided into *Regular*, and *Irregular*; and again into *Durable*, and *Temporary*.

Regular FORTIFICATION, is that wherein the Bastions are all equal; or that built in a regular Polygon; the Sides and Angles whereof are generally about a Musket Shot from each other. See POLYGON.

In a Regular *Fortification*, the Parts being all equal, have the Advantage of being equally defensible; so that there are no weak Places.

Irregular FORTIFICATION, is that wherein the Bastions are unequal, and unlike; or the Sides, and Angles not all equal, and equidistant.

In an Irregular *Fortification*, the Defence and Strength being unequal; there is a Necessity for reducing the Irregular Figure, as near as may be, to a Regular one.

And, as the Irregularity of a Figure depends on the Quantity of Angles and Sides; the Irregularity of a *Fortification* arises either from the Angles being too small, or the Sides being too long, or too short.

Consequently, an Irregular Figure being propos'd to be fortify'd; all the Angles, with the Quantity of the Sides, must be found, to be able to judge how it is to be fortify'd.

Durable FORTIFICATION, is that built with design to remain a standing Shelter for Ages. Such are the usual *Fortifications* of Cities, Frontier Places, &c.

Temporary FORTIFICATION, is that erected on some emergent Occasion, and for little time.

Such are Works cast up for the seizing and maintaining a Post, or Passage; those about Camps, *&c.* as Circumvallations, Contravallations, Redoubts, Trenches, Batteries, &c.

FORTIFIED *Place*, a *Forteresse*, or *Fortification*; *i. e.* a Place well flank'd, and shelter'd with Works.

Places fortified, after the modern way, consist chiefly of *Bastions*, and *Curtains*, and sometimes of *Demi-Bastions*; according to the Situation of the Ground, of *Cavaliers*, *Ramparts*, *Fausse-brayes*, *Ditches*, *Counterscarps*, *Cover'd Ways*, *Half Moons*, *Ravelins*, *Hornworks*, *Crownworks*, *Outworks*, *Esplanades*, *Redents*, and *Tenailles*. See each under its proper Article, BASTION, CURTAIN, RAMPART, CAVALIER, FAUSSEBRAYE, DITCH, &c.

There are other moveable and additional Parts, as BERMES, PARAPETS, BANQUETTES, EMBRASURES, CORDONS, BOYAUX, MOULINETS, CHEVAUX *de Frise*, CHAUSSETRAPES, GALLERIES, MANTEELTS, BATTERIES, SAPS, MINES, BLINDS, GABIONS, and PALISSADES. See each in its Place.

Several of these Works, again, consist of divers Parts, which have different Denominations: Thus a Bastion consists of FACES, FLANKS, CASEMATES, ORILLONS, GORGE, *&c.* which see.

The Methods of *Fortifying*, that have been invented, are various; and new Methods continue still to be propos'd. The principal, and those which chiefly obtain thro' *Europe*, are those of *Coeborn*, *Pagan*, *Vauban*, and *Scheiter*, from which all the rest are easily conceiv'd.——

FORTIFICATION, *according to the* Dutch *Method*, is that, which making the Flank perpendicular to the Curtain, makes the Flank subduple of the Face, and subtriple of the Curtain; and the Angle of the Bastion, equal, either to two thirds of the Angle of the Polygon; or to half thereof, with the Addition of 15 or 20 Degrees, to make it equal to a right Angle.

Freitach determines the Quantity of the Flank in a square to be six; in a Pentagon, seven; in a Hexagon, eight; in a Heptagon, nine; in a Enneagon, ten; in a Decagon, eleven and in all other Figures, twelve *Rhinland* Perches: Consequently, the Face 24, and the Curtain 36 Perches.

To draw the Profile of a Fortification *after the* Dutch *manner*; Draw the inner Polygon G H *Tab. Fortification. Fig.* 6. into five equal Parts: The Demigorge A B is to contain one of them; and the Capital A B, two. Then divide the Curtain E A into four Parts; and make the Flank A B one.

This is *Freitach*'s Method: But the *French* make both the Demigorge, and Flank a sixth Part of the Polygon; and in Squares, and Pentagons, setting aside the second Flanks, describe a Semicircle upon B S, that the Angle of the Bastion C may be a right Angle.

The *Italians* giving the same Dimensions to the Gorge and Flank; make the secondary Flank half the Curtain, in Polygons exceeding a Hexagon, and a third of the Curtain in the rest.

Lastly, the *Spaniards* giving the same Dimensions to the Flanks, omit the secondary Flanks.

But Flanks perpendicular to the Curtain, with secondary Flanks, are in Disrepute, on account of the Obliquity of the Defence; so that the *Dutch* Method of fortifying, with the other antient ones, founded on the same Principles, are now out of Doors.——

FORTIFICATION, *according to the* COUNT *de* PAGAN'S *Method*; supposes in the larger Fortifications, the external Polygon A B, *Fig.* 7. to be 100, the Face A G, 30 Perches; in the smaller, the first, 80, and the second, 25; and in the middle Size, the first 90, and the second $27\frac{1}{2}$: The Perpendicular C D, 15, and the Flanks G F and H E perpendicular to the Lines of Defence A F and B E, cover'd with an

an Orillon, and tripled; and a Ravelin, Curtain and Bastions built on the Outside the Rampart.

This Method was receiv'd with great Applause, and must be allow'd greatly preferable to the *Dutch* Method.

But it has its Defects; for besides that the *fortifying* of Places by it is very expensive; its triple Flanks are too close, so as to lie expos'd to the Violence of the Bombs; the Orillon is so large as to prejudice the Length of the Flanks; the outer Rampart of the Bastion is too big, &c.

FORTIFICATION, *according to Monf.* Blondel's *Method*; has a great Affinity with that of the Count *de Pagan*, only that the Quantity of the Lines and Angles are differently determined.

Thus, a Right Angle being subtracted from the Angle of the Polygon, and to a third part of the Remainder, 15 added; the Sum gives the diminish'd Angle. In the greater Fortifications, the outer Polygon is 100, in the smaller 85. The external Polygon being divided into ten parts, seven of them give the Lines of Defence; and the Faces are half those of the Tenaille.

This Method is very well calculated for the Purposes of Architecture; only, being somewhat expensive, 'tis but little us'd.——

FORTIFICATION, *according to Monf.* Vauban's *Method*, supposes the outer Polygon in the larger Fortifications to be 100; in the smaller, 80; and in the middle Size 90: The Faces are made $\frac{2}{3}$ of the same; the Perpendicular, in a square, $\frac{1}{8}$, in a Pentagon $\frac{1}{7}$, in the other Polygons $\frac{1}{6}$ of the same. The Complement of the Face to the Line of Defence, he makes equal to the Distance of the Epaule: He uses re-entering and crooked Flanks; and places a low Tenaille before the Curtain; and the *Dutch* Ravelin with Lunettes.

This Method of *fortifying* pleases most People; both as it increases the Strength, without much Expence; and as it is perfectly well accomodated to the Principles of military Architecture, above laid down.

Yet it seems defective in this, that the Faces are too much expos'd to the View of the Enemy; and that the Lunettes are a little too long to be defended.

Monf. Vauban's *newer Method of* FORTIFYING, is that which builds large Bastions before small ones, and covers the Courtin with a double Ravelin; drawing a low Tenaille before the same Curtain.

Detached Bastions are perfectly suitable to what we have deliver'd in the former Method; excepting that the Flanks are rectilinear, and destitute of an Orillon.

FORTIFICATION, *according to the Method of* Scheiter, supposes the external Polygon, in the larger Fortifications to be 100 Perches; in the lesser 80; in the middle Size 90: The Flanks perpendicular to the Lines of Defence; and the Lines of Defence in the greater Fortifications 70 Perches, in the lesser 60, and the middle Size 65.

It detaches Bastions from the Curtain, and forms a kind of inner Recess behind the Curtain: It assumes the Angle of the Bastion, in a Square, to be 64 Degrees; to this adding 8, the Product is the Angle in a Pentagon; to which adding six Degrees, the Sum is the Angle of the Bastion in a Hexagon; and adding 5 to this, the Sum is the same Angle in a Heptagon.

FORTIN, a Diminutive of the Word *Fort*, importing a little *Fort*, or Sconce, call'd also *Field Fort*, built in Haste, for defence of a Pass, or Post; but particularly to defend a Camp, in the time of a Siege, where the principal Quarters are join'd, or made to communicate with each other by Lines defended by *Fortins* and Redoubts.

Fortins being very small, their flank'd Angles are generally 120 Fathom distant from each other; but their Figure and Extent is various, according to the Place and Occasion; some having whole Bastions, and others only half Bastions. See REDOUBT.

Star-FORTIN, is that whose Sides flank each other, &c. See *Star* FORT.

FORTUNA, in our antient Law Books, is the same with what we call *Treasure-Trove*. See TREASURE-*Trove*.

Thesaurum ducente Fortunâ *invenire inquirendum est per* 12 *Juratores pro Rege*, &c. *quod fideliter præsentabunt*, &c. *omnes* Fortunas, *abjurationes*, *appella*, &c.

Spelman tells us, it also signifies *Fortuito occisos*; but this seems to be very fanciful. See SACROBARRA.

FORTUNATE *Islands*, in the antient Geography, an Appellation which has given the Criticks and Antiquaries a world of Perplexity; being a Denomination of a Place famous for Golden Apples, which grew therein: Or, as *Varro* says, for Sheep, with Golden Fleeces.

The Antients describe them as situate without the Straights of *Gibraltar*, in the *Atlantic* Ocean.

The common Opinion of the Moderns takes them for the *Canary* Islands; grounded principally on the Situation and Temperature of those Islands, which renders the use of Cloaths unnecessary; and the Abundance of Oranges, Lemons, Grapes and other delicious Fruit growing therein. See GOLDEN *Fleece*.

Ol. Rudbecks has found a very different Place for them. That learned Author, who makes his native Country *Sweden* the Scene of all that is great and extraordinary in antient Tradition and Fable; will have the *Fortunate* Islands to be *Sweden*.

The delicious Fruits, talk'd off by the Antients, his Imagination suggests, were nothing but the Virtue, and good Manners, which antiently flourish'd in that cold Hyperborean Nation.

FORTUNE, see PROVIDENCE, FATE, &c.

The Name *Fortune*, τύχη, was unknown in the earlier Ages; and does not occur either in *Homer*, or *Hesiod*; as not being yet invented.

In After-days, it was introduc'd as a Machine; and made to serve divers Purposes in Natural Philosophy, and Theology.

Men observing a world of Evils, and Disorders to fall out; and not daring directly to complain of Providence; and being willing withal to excuse themselves from being the Occasions of their own Misfortunes, had recourse to the Notion of *Fortune*: Against whom they might vent all their Resentments *impune*.

Plutarch, in an express Treatise of *the Fortune of the Romans*, accounts for the Practice of the antient Poets, who seem to make *Jupiter* the Author of all the Evils of Life. Mankind, he observes, before the Name of *Fortune* had got into the World, perceiving a certain arbitrary Cause, disposing of things in an irresistible manner, call'd it *God*; but the same Cause being often observ'd to act at random, and without any Rule or Order at all; the supreme Being came to be divested of the Attribute; and *Fortune*, or *Destiny* acknowledg'd in his stead. See DESTINY.

It is not easy to unravel, what the Antients meant by the Name *Fortune*.

The *Romans* understood by it, I know not what Principle of Fortuity, whereby things came to pass, without being necessitated thereto; but what, and whence that Principle is, they do not seem to have ever precisely thought: Whence their Philosophers are often intimating, that Men only fram'd the phantom *Fortune* to hide their Ignorance; and that they call *Fortune* whatever befalls a Man, without his knowing why.

Juvenal affirms, it was Men who made a Deity of *Fortune*.

Nullum Numen abest si sit prudentia; sed te, nos facimus, Fortuna, *Deam, Cœloque locamus.*

According to the Sentiment of the Heathens, therefore, *Fortune*, at Bottom, was only the Arrival of Things in a sudden and unexpected Manner, without any apparent Cause, or Reason: So that the Philosophical Sense of the Word, coincides with what is vulgarly call'd *Chance*. See CHANCE.

But in Religion it had a further Force: Altars and Temples in great Numbers were consecrated to this *Fortune*, as a Deity.

This intimates, that the Heathens had personify'd, and even deify'd their Chance; and conceiv'd her as a sort of Goddess, who dispos'd of the Fate of Men at her pleasure. Hence that Invocation of *Horace*, *O Diva gratum quæ regis Antium*; in the 35th Ode of the first Book, where he recommends *Augustus*, then preparing for a Visit to *Britain*, to her Protection.——

From these different Sentiments it may be infer'd, that the Antients at one time took *Fortune* for a peremptory Cause, bent upon doing good to some, and persecuting others: And sometimes for a blind, inconstant Cause, without any View or Determination at all.

If then the Word *Fortune* had no certain Idea in the Mouth of those who erected Altars to her; much less can it be ascertain'd what it denotes in the Mind of those who use the Word in their Writings.

They who would substitute the Name *Providence* in lieu of that of *Fortune*, cannot give any tolerable Sense to half the Phrases wherein the Word occurs.

To these, *e. gr.* we must always distrust *Fortune*, but especially when she seems to flatter us most: The Contempt of Riches, in the Philosophers, is a secret Desire of revenging their Merit against the Injustice of *Fortune*, by a Contempt of those very Benefits she deprives them off: *Fortune* is so blind, that amidst a Croud, wherein there is but one wise Man, we must not imagin she will trace him out, to accumulate him with her Favours.——

On these and the like Occasions, the Word *Providence* cannot be substituted in lieu of *Fortune*: The Idea answering to the Expression, is Pagan, as well as the Expression it self. Add, that it is a Fault, even in point of Accuracy, to use a Term that signifies nothing; as much as it is in point of Religion, to associate *Fortune* with Providence, in the Direction of the Universe.

Horace paints the Goddess, preceded by Necessity, holding Nails and Wedges in her Hands, with a Cramp-iron, and melted Lead to fasten it; rarely accompanied with Fidelity, unless when she abandons a Family; for in that case Fidelity never fails to depart with her, as well as Friends.

The Painters represent her in a Woman's Habit, with a Bandage before her Eyes, to shew that she acts without Discernment; standing on a Wheel, to express her Instability. The *Romans*, says *Lactantius*, represented her with a Cornucopia, and the Helm of a Ship, to shew that she distributes Riches, and directs the Affairs of the World. In effect, 'tis with such Characters, that we see her represented on so many Medals, with the Inscriptions, FORTUNA AUG. FORTUNA REDUX. FORTUNÆ AUG. or REDUCIS, &c. Sometimes she is seen pointing at a Globe before her Feet, with a Sceptre in one Hand, holding the Cornucopia in the other.

The *Romans* had a Male, and Female *Fortune* for the Objects of their Adoration: The *Fortuna Virilis*, honour'd by the Men; and the *Fortuna Muliebris*, by the Women.

On the Reverse of a Medal of *Commodus*, we have a Representation of *Fortune*, under the Quality, or Surname of *Manens*, *i. e.* stable, permanent; holding a Horse by the Reins. On the *Greek* Medals we meet with ΑΓΑΘΗ, or ΚΑΛΗ ΤΥΧΗ, Good *Fortune*. *Constantine* gave the Epithet *Anthousia*, *i. e.* flourishing, to the *Fortune* of his new City *Constantinople*.

FORUM, in Antiquity, is us'd in divers Acceptations.

Sometimes for a Place of Negotiation, or Merchandizing, answering to our *Market Place*; in which sense it has usually some Adjective added to it, as *Forum Boarium*, the Beast Market; *Forum Piscarium*, the Fish Market; *Olitorium Forum*, the Herb Market, &c. See MARKET.

FORUM, again, is us'd for any Place, where the Governor of a Province convenes his People, to give Judgment, according to Course of Law: Whence a Man is said *Forum agere*, when he keeps the Assizes; *Forum indicere*, when he appoints the Place where they are to be kept, &c.

FORUM is also a publick Standing Place in the City of *Rome*, where Causes were judicially try'd, and Orations deliver'd to the People.

Of these *Forums* there were several; at first only three, viz. *Romanum*, *Julianum*, and *Augustum*: But that Number was afterwards increas'd to six, by the Addition of the *Transitorium*, call'd also *Palladium*; the *Trojanum*, and *Salustii Forum*.

The first, and most eminent of these, was the *Forum Romanum*, call'd also *Forum Vetus*; and absolutely, *Forum*, or *the Forum*.

In this was an Apartment, call'd the *Rostra*, where the Lawyers pleaded; the Officers harangued; Funeral Orations were deliver'd, &c. See ROSTRA.

In the same *Forum* was the *Comitium*, or Hall of Justice, with the Sanctuary of *Saturn*, the Temple of *Castor*, &c. See COMITIUM.

FORUM is also us'd among Casuists, &c. for Jurisdiction.

Thus, they say in *Foro Legis*, or the *Outer Forum*, i. e. in the Eye of the Law, or the common Course of Justice: In *Foro Conscientiæ*, or the *Inner Forum*, *i. e.* in the Eye of GOD, or a Man's own Conscience.

There are a great many things not condemn'd in *Foro Legis*, which yet are criminal in *Foro Conscientiæ*.—

FOSS, in Fortification, &c. a *Ditch*, or *Moat*. See DITCH, &c.

The Word is form'd of the Participle *Fossum*, of the Verb *fodio*, I dig.——

Foss, in Anatomy, a kind of Cavity in a Bone, with a large Aperture, but no Exit, or Perforation.

When the Aperture is very narrow, it is called a SINUS.

In the Cranium there are six internal, and fourteen external *Fosses*. The Cavity of the Orbit, which contains the Eye, is a *Foss*.

Foss is particularly us'd for a Cavity, or Denture in the Back Part of the Neck. See NECK.

Foss-*Way*, was antiently one of the four great Highways of *England*; so call'd, because in some Places it was never perfected, but left as a great Ditch. See WAY, see also WATLING *Street*.

FOSSA *Magna*, or *Navicularis*, is an oblong Cavity, forming the Inside of the *Pudendum Muliebre*, and which presents it self upon opening the *Labia*; and in the Middle whereof are the *Carunculæ Myrtiformes*. See PUDENDUM.

FOSSA, in our antient Customs, was a Ditch, full of Water, where Women, committing Felony, were drowned; but Men hanged.

Nam & ipsi in omnibus tenementis suis omnem ab antiquo legalem habuere justitiam, videlicet ferrum, fossam, *furcas*, & *similia*. See FURCA.

In another Sense 'tis taken for a Grave, as appears by these old Verses;

Hic jacent in Fossâ BEDÆ *venerabilis ossa,*
Hic est fossatus, *qui bis erat hic cathedratus.*

FOSSARII, in Antiquity, a kind of Officers in the Eastern Church, whose Business was, to inter the Dead.

Ciaconius relates, that *Constantine* created 950 *Fossaries*; whom he took out of the divers Colleges or Companies of Tradesmen: He adds, that they were exempted from Taxes, Services, onerary Offices, &c.

Fa. *Goar*, in his Notes on the *Greek Euchologos*, insinuates, that the *Fossarii* were established in the times of the Apostles; and that the young Men, who carried off the Body of *Ananias*, and those Persons full of the Fear of GOD, who interr'd St. *Stephen*, were of the Number.

St. *Jerom* assures us that the Rank of *Fossarius* held the first Place among the Clerks: But he is to be understood of those who had the Direction and Intendance of the Interment of the Devout.

FOSSIL *Kingdom*. The Chemists divide all Bodies into three Classes, or Kingdoms; *viz. Fossil*, or *Mineral*; *Vegetable*; and *Animal*. See each in its Place, FOSSIL, VEGETABLE, &c.

FOSSIL, in Natural History, is us'd, in a general Sense, for any thing dug up, or found under Ground. Such are all *Minerals*, *Metals*, *Rock Salts*, &c.

There are also *Fossil* Salt Petre, *Fossil* Borax, &c.

FOSSILS may be distinguish'd into 1° Such as are *Natives* of the Earth; and 2° Such as are *adventitious* and reposited therein by any extraordinary Means, as Earthquakes, Deluges, &c.

Native FOSSILS, or FOSSILS *properly so called*, are strictly defin'd to be sensible Bodies generated, and growing in, and of the Earth; whose constituent Parts are so simple, and homogeneous, that there is no apparent Distinction of Vessels, and Juices; between the Part, and the Whole.

Native *Fossils* are either *Simple*, or *Compound*.

Simple FOSSILS are those, whose Parts, however divided, are all of the same Nature, *i. e.* of the same Gravity, Magnitude, Figure, Hardness, and Mobility.

Such is Quicksilver, which, however divided, is always found the same.

Compound FOSSILS are those which may be divided into different, or dissimilar Parts.

As Antimony, which may be resolv'd by Fire into Sulphur, and a Metalline Part.

The Simple *Fossils* are all *Metals*, *Salts*, *Stones*, both vulgar and pretious, and *Earths*. See METAL, SALT, STONE, and EARTH.

The *Compound* FOSSILS are all Sulphurs, all Semimetals, or what we properly call *Minerals*; and all Bodies combin'd out of any two, or more of the preceding, either Simple, or Compound *Fossils*. See SULPHUR, and SEMIMETAL.

Adventitious, or *Foreign* FOSSILS, include the subterraneous Exuviæ of Sea and Land Animals, and even vegetables; as Shells, Bones, Teeth, Leaves, Stalks, &c. which are found in great Abundance, in divers Parts of the Earth.

These Extraneous *Fossils* have employ'd the Curiosity of several of our latest and best Naturalists, who have each their several System to account for the surprizing Appearances of petrify'd Sea-fishes, in Places far remote from the Sea, and on the Tops of Mountains: Shells in the Middle of Quarries of Stones: Elephants Teeth, and Bones of divers Animals, peculiar to the Southern Climates; and Plants only growing in the East, found in our Northern and Western Parts. See SHELL, &c.

Some will have these Shells, &c. to be real Stones, and Stone Plants, form'd after the usual manner of other figur'd Stones, and Stone Plants: Of which Opinion is our learned Dr. *Lister*.

That Author, tho' he allows of petrify'd Shells on the Sea Shores, will by no means agree, that there are any such Petrifactions in the Midland Countries. The Shell-like Stones, found in our Quarries, he contends, are *Lapides sui generis*; and never were any Part of an Animal.

His Reasons are, that their Matter, and Texture, is perfectly the same with that of the Rock, or Quarry, where they are taken; as Iron-stone Shells are all Iron-stone; Spar, or Crystalline, all Sparr, &c. That Quarries of different Stone yield different Sorts of these Shells: And that there are no Animals in Nature, which yield any thing exactly like them. See STONE, and STONE *Plant*.

But 1° These Shells found under Ground, are perfectly conformable to those in the Sea in Figure, Substance, Magnitude, &c. 2° The Substance of these *Fossils* differs essentially from the common Substance of Stones. 'Tis true, we frequently find them cover'd, or incrustated with a Mineral, or Stony Matter, which has gradually insinuated it self into the Pores; but it is easy distinguishing that Matter from the Substance of the Shell.

The common Opinion is, that these *fossil* Shells, with all other foreign Bodies, found within the Earth, as Bones, Trees, Plants, &c. were buried therein at the time of the universal Deluge; and that having been penetrated either by the Bituminous Matter, abounding chiefly in watery

Places; or by the Salts of the Earth, they have been preserv'd entire, and sometimes petrify'd. See DELUGE.

Others think, that those Shells, found at the Tops of the highest Mountains, could never have been carried thither by the Waters, even of the Deluge; inasmuch as most of these aquatic Animals, by reason of the Weight of their Shells, always remain at the Bottom of the Water, and never move but close along the Ground.

They imagine, that a Year's Continuance of the Waters of the Deluge, intermix'd with the salt Waters of the Sea, upon the Surface of the Earth, might well give occasion to the Production of Shells of divers kinds in different Climates; and that the universal Saltness of the Water was the real Cause of their Resemblance with the Sea Shells. The Lakes form'd dayly by the Retention of Rain, or Spring Water, produce different Kinds.

Others think, that the Waters of the Sea, and the Rivers, with those which fell from Heaven, turn'd the whole Surface of the Earth upside down; after the same manner as the Waters of the *Loire*, and other Rivers, which roll in a Sandy Bottom overturn all their Sands, and even the Earth it self, in their Swellings and Inundations: And that in this General Subversion, the Shells come to be interr'd here, Fishes there, Trees there, &c. See the *Journ. des Scavans, M DCC XV. p. 19.* and the *Mem. de Trev.* 1713.

But no body has set this Sentiment in a better Light, than Dr. *Woodward*, in his *Nat. History of the Earth.* That Ingenious Author maintains the whole Mass of Earth, with every thing belonging thereto, to have been so broke, and dissolv'd, at the Time of the Deluge, that a new Earth was form'd in the Bosom of the Water, consisting of different Strata, or Beds of terrestrial Matter, ranged over each other nearly, according to the Order of their specifick Gravities. See STRATA. By this means, Plants, Animals, and especially Fishes, and Shells, not yet dissolv'd among the rest, remain'd mix'd and blended among the Mineral and Fossil Matters; which preserv'd them, or at least assum'd and retain'd their Figures and Impressions, either indentedly, or in Relievo.

Camerarius attacks this Sentiment of Dr. *Woodward*, and goes yet higher. He supposes 1° That the greatest Part of the Shells now dug from under Ground, had been plac'd there before the Deluge, that is, at the Time of the Creation, when God separated the Earth from Waters. 2° That without having recourse to the Dissolution of the Earth by the Waters, one might suppose most of them to have slipp'd in at the Chinks and Crevices naturally happening after the Waters were retir'd, and the Earth sufficiently drain'd. 3° That particular Inundations might have swept most of these Shells into the Places where we now find them. 4° That the Sea may have wrought, or cast up most of these Shells through subterraneous Spiracles and Canals. 5° That GOD has created divers Stony and Metalline Bodies, perfectly like the Vegetables and Animals, we see on Earth, and in the Sea.——

To all these Suppositions, Dr. *Woodward* answers, 1° That it is no ways probable, God should create such a Number of Shell-fish of the same Species at once; and that purely with a Design to destroy them all again so soon after: That among the *fossil* Shells of the same Species, 'tis easy to distinguish different Ages: That some appear precisely such as we now find them in the Spring, the Season when the Deluge began: That 'tis not only Shells, we find under Ground, but also Bones of Quadrupeds, Plants, and Trees of extraordinary Sizes; and which are not of the Number of Aquaticks: And lastly, that the Waters were separated from the Earth on the third Day; and that none of these Things were created, till afterwards. 2° That, on the second Supposition, these Shells would be dispos'd perpendicularly, and not horizontally, as they are always found: That we should sometimes find of them in the Clefts of the Earth, of which there is none but where they are broke. 3° That we have no Acquaintance with any of these pretended Inundations: That they could never have brought Shells, Stags Horns, and Elephants from *America*, and the *East Indies*, to *England* and other Parts of *Europe*; Nor those Pines and Beeches, frequently found far greater than any of our Growth. Add, that these particular Inundations must have risen to the Tops of the highest Mountains, and of consequence must have been general. 4° On the fourth Supposition it must be held, that God did not only create all these several Bodies in the Entrails of the Earth; but their several Parts, and the separate Pieces and Fragments of those Parts; a Piece of a Shell, for Instance; a Side of a Shell, which consists of two; a Shell void of the Fish it should contain; Beards of Corn, without the Grain; Pieces of Cedar Bark, without Wood; Pieces of Bullocks Hides without Flesh and Bones; human Skins without Bodies; a Bone without the rest of the Skeleton; a Tooth without the Jaw, &c. Add, that the *fossil* Shells have not only external, but essential Resemblages to Sea Shells; both, *e. gr.* Yielding, by Analysis, a Quantity of Sea Salt: That among the *fossil* Teeth of Fishes, we meet with some apparently worn: And lastly, that the Shell Fish called *Purple*, has a long sharp Tongue, by means whereof it pierces other Shells, and picks the Fish out of them; and that in digging under Ground we actually meet with divers of these Shells thus piere'd. Can such minute, thoro' paced Resemblances be the accidental Effect of a *Lusus Naturæ*?

This is the Substance of what has hitherto been advanced on the Point.

FOSTERLEAN, antiently signify'd Nuptial Gifts: Much the same with what we now call Jointure. See JOINTURE.

The Word is originally *Saxon*, and signifies *Ciborum exhibitio*, that is, a Stipend which the Wife has for her Maintenance.

Postea sciendum est cui Fosterlean *pertineat, vadiet hoc Brigduniæ, & plegient amici sui.*

FOTUS, in Medicine, the same as *Fomentation.* See FOMENTATION.

FOVEA *Cordis*, the Hollow of the Heart. See HEART.

FOUGADE, or FOUGASS, in the Art of War; a kind of little Mine, in manner of a Well, scarce exceeding ten Foot in Width, and twelve in Depth; dug under some Work, or piece of Fortification, and charg'd with Barrels or Sacks of Gunpowder. 'Tis set on fire like other Mines, with a Saucidge. See MINE.

The Word is *French.* M. *Huet* derives it from *focata*, of *focus*, Fire.

FOULE, in the Sea Language, is us'd in various Senses; *viz.* When a Ship has been long untrimm'd, so that Grass, Weeds, Perriwinkles, Barnacles, or the like stick or grow to her Sides under Water, she is said to be *foule.* Again, a Rope is said to be *foule*, when it is either tangled in it self, or hindred by another, so that it cannot run, or be haled.— A Ship is said to make *foule Water*, when being under Sail, she comes into such Shole, or low Water, that tho' her Keel do not touch the Ground; yet she comes so near it, that the Motion of the Water under her raises the Mud from the Bottom, and so *fouls* the Water.

FOUNDATION, that Part of a Building under Ground: Or, the Mass of Stone, &c. which supports a Building; or upon which the Walls of a Superstructure are rais'd: Or, it is the Coffer, or Bed, dug below the Level of the Ground, to raise a Building upon; in which Sense the *Foundation* either goes the whole Area and Extent of the Building, as when there are to be Vaults, Cellars, or the like; or it is drawn in Cuts, or Trenches, as when only Walls are to be rais'd. See BUILDING.

The *Foundation* is properly so much of the Masonry, as reaches as high as the Surface of the Ground; and is always to be proportion'd to the Load, or Weight of the Building it is to bear.

Sometimes it is massive, and continued under the whole Building; as in the antique Arches, and Aqueducts, and some Amphitheatres: More usually it is only in Spaces, or Intervals; either to avoid Expence, or because the Vacuities are at too great a distance, in which latter case they make use of insolated Pillars, bound together by Arches.—

That we may found our Habitation firmly, says Sir *H. Wotton*, we must first examine the Bed of Earth, upon which we are to build; and then the Under-cielings, or Substruction, as the Antients call'd it. For the former, we have a general Precept in *Vitruvius, Substructionis* Fundationes *fodiantur, si queant inveniri ad solidum & in solido:* By which he recommends not only a diligent, but even jealous Examination of what the Soil will bear; advising us not to rest upon any appearing Solidity, unless the whole Mould thro' which we cut, have likewise been solid. But how deep we should go in this Search, he has no where determined, as perhaps depending more on Discretion, than Regularity, according to the Weight of the Work: Yet *Palladio* has ventur'd to reduce it to a Rule; allowing for the *Cavasione, i. e.* hollowing or under-digging, a sixth Part of the Height of the whole Fabrick, unless there be Cellars under Ground, in which case he would have it somewhat lower. Sir *H. Wotton's Elem. of Architecture.*——

The *Foundations* of Buildings are either *Natural*, or *Artificial.*

Natural, as when we build on a Rock, or a very solid Earth; in which case we need not seek for any further Strengthening.

But, if the Ground be sandy, or marshy, or have lately been dug; in such case recourse must be had to *Art.* In the former Case, the Architect must adjust the Depth of the *Foundation* by the Height, Weight, &c. of the Building: A sixth Part of the whole Height is look'd on as a Medium: And as to Thickness, double that of the Width of the Wall, is a good Rule.

Where the Natural *Foundation* may not be trusted, they either fortify the Ground by *pallifying* it, *i. e.* driving it full of Piles; see PALLIFICATION: Or else lay large wooden Planks at the Bottom of the Trenches, dug for the *Foundation.*

In

In ſome Places they *found* the Peers of Bridges, and other Buildings near the Water, on Sacks of Wool, laid like Matraſſes; which being well preſs'd, and greaſy, will never give way, nor rot in Water.

Foundation is alſo us'd for the Eſtabliſhment of a City, or Empire.

The *Romans* reckon'd their Years from the *Foundation* of *Rome*, *Ab Urbe Condita*; which we ſometimes expreſs by *ab U. C.* Chronologers make 479 Years from the paſſing out of *Egypt*, to the *Foundation* of *Rome*. See Epocha.

Foundation is alſo a Donation, or Legacy, either in Money, or Lands, for the Maintenance and Support of ſome Community, Hoſpital, School, Lecture, or other work of Piety. See School, Hospital, College, &c.

Among the Order of *Auguſtins*, there is a *Foundation* for the marrying of poor Maids; and another for the furniſhing of Truſſes to poor People, who have Ruptures, or Hernias.——

FOUNDER, He who lays a *Foundation*; or who *founds* and endows a Church, School, Religious Houſe, or other Work of Charity and Piety. See Foundation.

The *Founders* of Churches may preſerve to themſelves the Right of Patronage, or Preſentation to the Living. See Patronage.

Founder, is alſo an Artiſt that melts, or caſts Metals into various Forms, for divers Uſes; as Guns, Bells, Statues, Bombs, Types or Printing Characters, and other ſmall Works, as Candleſticks, Bitts, Buckles, &c.

The Word is form'd of the *French fondre*, to melt, or fuſe. In the *Roman* Law they are call'd *Flatuarii*.

From the different Productions, or Works of the *Founders*, they are differently denominated, as *Founders of ſmall Works*; *Bell Founders*; *Gun Founders*; *Letter Founders*; and even *Carvers*, or *Statuaries*.

What belongs to each, ſee under the Article Foundry.

Founder, in the Sea Language; A Ship is ſaid to *founder at Sea*, when by an extraordinary Leak, or by a great Sea breaking in upon her, ſhe is ſo filled with Water, that ſhe cannot be freed of it; nor is ſhe able to ſwim under it, but ſinks with the Weight thereof.——

Foundering, in the Manage, a Diſorder in Horſes, whereof there are two Kinds, *viz.* in *the Feet*, and in *the Cheſt*.

Foundering in the Feet, ariſes from hard Riding, ſore Labour, great Heats, ſudden Colds, &c. which inflame the Blood, melt the Greaſe, and make it deſcend downward to the Feet, and there ſettle; which cauſes ſuch a Numbneſs, and pricking in the Hoof, that the Horſe has no Senſe or Feeling thereof, being hardly able to ſtand; or when he does, ſhaking and trembling, as if he had an Ague.

A Horſe may likewiſe be *foundred* by wearing ſtraight Shoes, and travelling upon hard Ground.

It may be known when he is *founder'd* on his Forefeet, and not his Hindfeet, by his treading only on his Hindfeet, and ſparing the other; or his going crouching and crippling on his Buttocks.

Sometimes, tho' rarely, he is *founder'd* on his Hindfeet, and not his Fore; which is known by his ſeeming weak behind, and reſting as much as poſſible on the Forefeet.

The general Methods of curing this Diſtemper, are firſt by paring all the Horſe's Soles, ſo thin that the Quick may be ſeen; then bleeding him well at every Toe; ſtopping the Vein with Tallow and Roſin; and having tack'd hollow Shoes on his Feet, ſtopping them with Bran, Tar, and Tallow, as boiling hot as may be; which is to be renew'd once in two Days, for a Week together; after which he is to have good Exerciſe.

Or, after he is pared thin, and let Blood at the Toes, his Feet are to be ſtop'd with Cows Dung, Kitchen Fee Tar, and Soot boil'd together, and pour'd boiling hot into them.

Foundering in the Body, befals a Horſe by eating too much Provender ſuddenly, when too hot; as alſo by drinking too much upon travelling, when he is hot, and riding him after it.

The Effect of which, is, that his Body is oppreſs'd with ill Humors, which take away his Strength, and put him in ſuch Condition, that he can neither go, nor bow his Joints; and being once laid, cannot riſe again, &c. His Legs ſwell; and ſoon after begin to peel: He has a dry Cough, which makes his Eyes water; his Noſe runs with white phlegmatic Matter, &c.

FOUNDRY, or Foundery, the Art of melting and caſting all ſorts of Metals, particularly Braſs, Iron, Bell Metal, &c. See Metal, Fusion, &c.

The Word is alſo us'd for a Place, or Work-houſe, furniſh'd with Furnaces, or Forges for this Purpoſe. See Furnace.

Foundry *of Small Works, or the Manner of Caſting in Sand.*

The Sand us'd by the *Founders*, in caſting of Braſs, &c. is yellowiſh, pretty ſoft, and greaſy; but after it has been us'd, becomes quite black, by reaſon of the Charcoal Duſt us'd in the Moulds. Every time they would uſe this Sand, they work and tew it ſeveral times over in a Board about a Foot ſquare, plac'd over a kind of Trunk, or Box, into which it may fall from off the Board. This Tewing is perform'd with a Roller, or Cylinder, about two Foot long, and two Inches in Diameter; and a kind of Knife, made of the Blade of a Sword: With theſe two Inſtruments they alternatively roll and cut the Sand, and at length turn it down into the Box under neath.

Then, taking a wooden Board, or Table, of a Length and Breadth proportional to the Quantity of Things to be caſt; round this they put a Frame, or Ledge, and thus make a ſort of Mould. The Mould they fill with the Sand before prepar'd, and a little moiſten'd. This done, they take wooden, or metalline Models, or Patterns of the Things intended to be caſt; apply them on the Mould, and preſs them down into the Sand, ſo as to leave their Form indented. Along the Middle of the Mould is laid half a little Cylinder of Braſs, which is to be the Maſter Jet, or Canal for running the Metal; being ſo diſpos'd as to touch the Ledge at one Side, and only to reach to the laſt Pattern on the other. From this are plac'd ſeveral leſſer Jets, or Branches, reaching to each Pattern, whereby the Metal is convey'd thro' the whole Frame.

This firſt Frame thus finiſh'd, they turn it upſide down, to take out the Patterns from the Sand: In order to which they firſt looſen them a little all round, with a ſmall cutting Inſtrument.

After the ſame manner they proceed to work the Counter Part, or other Half of the Mould, with the ſame Patterns, in a Frame exactly like the former; excepting that it has Pins, which entring Holes, correſponding thereto in the other, make, that when the two are join'd together, the two Cavities of the Pattern fall exactly on each other.

The Frame thus moulded, is carried to the Founder, or Melter, who after enlarging the principal Jet, or Canal of the Counter Part, with a kind of Knife, and adding the Croſs Jets, or Canals to the ſeveral Patterns in both, and ſprinkling them over with Mill Duſt, ſets them to dry in a Furnace.

When both Parts of the Mould are ſufficiently dry'd, they join them together, by means of the Pins; and to prevent their ſtarting or ſlipping aſide by the Force of the Metal, which is to come in flaming hot thro' a Hole contriv'd at the Maſter Jet, they lock them in a kind of Preſs, either with Screws; or, if the Mould be too big, with Wedges.

The Moulds thus put in Preſs, are rang'd near the Furnace, to be in Readineſs, to receive the Metal as it comes out of the Crucible.

While the Moulds are thus preparing, the Metal is put in Fuſion in an earthen Crucible, about ten Inches high, and four in Diameter.

The Furnace wherein the Fuſion is made, is much like the Smith's Forge; having like that a Chimney, to carry off the Smoak; a pair of Bellows, to blow up the Fire; and a Maſſive, or Hearth, where the Fire is made, and the Crucible plac'd. 'Tis the Uſe of this Maſſive, that chiefly diſtinguiſhes the Furnace from the Forge. See Forge.

In the Middle thereof is a ſquare Cavity, ten or twelve Inches wide, which goes to the very Bottom. It is divided into two, by an iron Grate: The upper Partition ſerves to hold the Crucible and the Fewel; and the lower, to receive the Aſhes.

When the Fewel, which is to be of dry Wood, is pretty well lighted, they put the Crucible full of Metal in the Middle, and cover it with an earthen Lid: And to increaſe the Force of the Fire, beſide blowing it up with the Bellows, they lay a Tile over part of the Aperture or Cavity of the Furnace.

The Metal being brought to a *Fluor*, they fill the Crucible with pieces of Braſs, beaten in a Mortar. To put them in, they make uſe of a kind of iron Ladle, with a long Shank at the End thereof, form'd into a kind of hollow Cylinder, out of which the Ball is drop'd.

Nothing, now, remains, but for the Founder to take the Crucible out of the Fire, and carry it in a Pair of iron Tongues (whoſe Feet are bent, the better to embrace the Top of the Crucible) to the Mould: Into which he pours it, through the Hole anſwering to the Maſter Jet of each Mould.

Thus he goes ſucceſſively from one to another, till his Crucible is emptied, or there is not Matter enough left for another Mould.

Then, caſting cold Water on the Moulds; they take the Frames out of the Preſſes, and the Caſt-works out of the Sand, which they work again for another Caſting. Laſtly, they cut off the Jets, and ſell, or deliver the Work to thoſe who beſpoke it, without any further repairing.

Foundry *of Statues, Great Guns, and Bells.*

The Art of *Casting Statues* in Brass, is very antient; insomuch that its Origin was too remote and obscure, even for the Research of *Pliny*, an Author admirably skill'd at discovering the Inventors of other Arts.

All we can learn for certain, is, that it was practic'd in all its Perfection first among the *Greeks*, and afterwards among the *Romans*: And that the Number of Statues consecrated to the Gods and Hero's, surpass'd all Belief.

The single Cities of *Athens*, *Delphos*, *Rhodes*, &c. had each 3000 Statues; and *Marcus Scaurus*, tho' only Ædile, adorn'd the *Circus* with no less than 3000 Statues of Brass, for the time of the *Circensian* Games.

This Taste for Statues was carried to such a Pitch, that it became a Proverb, That in *Rome* the People of Brass were not less numerous than the *Roman* People.

Among us, the casting of Statues was but little known, or practic'd before the Seventeenth Century. See Statue.

As to the *Casting of Guns*, 'tis quite Modern; and it were perhaps to be wish'd, we were as ignorant of it as the Antients.

All the Authors agree, that the first Canon were cast in the fourteenth Century; tho' some fix the Event to the Year 1338; and others to 1380. See Canon, Ordnance, &c.

The *Casting of Bells* is of a middle Standing, between the other two.

The Use of Bells is certainly very antient in the Western Church; and the same were likewise us'd in the Church of the East. But at present Father *Vansleb* assures us, in his second Account of *Egypt*, he had found but one Bell in all the Eastern Church, and that in a Monastery in the upper *Egypt*. See Bell.

The Matter of these large Works is rarely any simple Metal, but commonly a Mixture of several, as Brass, Bell Metal, &c. We shall here give the Process in the *Foundry* of each.

Method of casting Statues, or Figures.

There are three things chiefly requir'd in casting of Statues, Busts, Basso-Relievo's, Vases, and other Works of Sculpture; *viz.* The Mould, Wax, and Shell or Coat.

The *Mould*, or *Core*, (thus call'd from *Cœur*, as being in the *Heart*, or Middle of the Statue) is a rude, lumpish Figure, a little resembling the Statue intended. 'Tis rais'd on an iron Grate, strong enough to sustain it, and is strengthen'd within-side by several Bars or Ribs of Iron.

It may be made indifferently of two sorts of Matter, at the Discretion of the Workmen, *viz.* Potters Earth mix'd up with Horses Dung and Hair; or of Plaister of Paris, mix'd with fine Brick Dust.

The Use of the Mould in Statues is to lessen the Weight, and save Metal. In Bells it takes up all the Inside, and preserves the vacant Space where the Clapper is hung. In Great Guns it forms the whole Barrel, from the Mouth to the Breech: And in Mortars, the Barrel, and Chamber.

The *Wax* is a Representation of the intended Statue in Wax.

If it be a piece of Sculpture, the Wax must be all of the Sculptor's own Hand, who usually fashions it on the Mould it self. Tho' it may be wrought a-part in Cavities moulded, or form'd on a Model, and afterwards dispos'd and arrang'd on the Ribs of Iron over the Grate, as before; filling the vacant Space in the Middle with liquid Plaister, and brick Dust; by which means the Mould, or Core is form'd in Proportion as the Sculptor carries on the Wax.

When the Wax (which is to be the intended Thickness of the Metal) is finish'd, they fit little waxen Tubes perpendicularly to it, from Top to Bottom; to serve both as Jets for the Conveyance of the Metal to all Parts of the Work, and as Vent Holes, to give Passage to the Air, which would otherwise occasion great Disorder, when the hot Metal came to encompass it. By the Weight of the Wax us'd herein, is that of the Metal adjusted; ten Pounds of this last being us'd to one Pound of the former.

The Work brought thus far, wants nothing but to be cover'd with its *Shell*; which is a kind of Coat, or Crust laid over the Wax; and which being of a soft Matter, and even at first liquid, easily takes and preserves the Impression of every Part thereof, which it afterwards communicates to the Metal, upon its taking the Place of the Wax between the Shell and the Mould.

The Matter of this outer Cover, or Shell, is varied according as different Lays, or Strata are apply'd. The first is a Composition of putty and old Crucibles well ground, and sifted, and mix'd up with Water, to the Consistence of a Colour fit for Painting. Accordingly, they apply it with a Pencil, laying it seven or eight times over; letting it dry betwixt whiles. For the second Impression they add Horse's Dung, and natural Earth to the former Composition: The third Impression is only Horses Dung and Earth. Lastly, the Shell is finish'd by laying on several more Impressions of this last Matter made very thick with the Hand.

The Shell thus finish'd is secur'd and strengthen'd by several Bands or Girts of Iron wound around it at half a Foot's Distance from one another, and fasten'd at Bottom to the Grate under the Statue, and a-top to a Circle of Iron, where they all terminate.

Here it must be observ'd, that if the Statue be so big, that it won't be easy to move the Mould when thus provided, it must be wrought on the Spot where it is to be cast.

This is perform'd two ways: In the first, a square Hole is dug under Ground, much bigger than the Mould to be made therein; and its Inside lined with Walls of Freestone or Brick. At the Bottom is made a Hole of the same Materials, with a kind of Furnace, having its Aperture outwards. In this is a Fire to be lighted, to dry the Mould, and afterwards melt the Wax. Over this Furnace is plac'd the Grate; and on this the Mould, &c. framed as above explain'd. Lastly, at one of the Edges of the square Pit is made another large Furnace to melt the Metal, as hereafter mention'd.

In the other way, 'tis sufficient to work the Mould above Ground; but with the same Precaution of a Furnace and Grate underneath. When finish'd, four Walls are to be run up around it; and by the Side thereof a Massive made for a melting Furnace.

For the rest, the Method is the same in both.

The Mould being finish'd and inclos'd between four Walls, whether under Ground, or above it; a moderate Fire is lighted in the Furnace under it; and the Hole cover'd with Planks, that the Wax may melt gently down, and run out at Pipes contriv'd for the purpose at the Foot of the Mould, which are afterwards very exactly clos'd with Earth, as soon as all the Wax is carried off.

This done, the Hole is fill'd up with Bricks thrown in at random, and the Fire in the Furnace augmented, till such time as both the Bricks and the Mould become red hot; which ordinarily happens in 24 Hours. Then, the Fire being extinguish'd, and every thing cold again, they take out the Bricks, and fill up their Place with Earth, moisten'd, and a little beaten, to the Top of the Mould, in order to make it the more firm and steady.

Things in this Condition, there remains nothing but to melt the Metal, and run it into the Mould.

This is the Office of the Furnace above; which is made in manner of an Oven, with three Apertures; one to put in the Wood, another for a Vent, and a third to run the Metal out at. From this last Aperture, which is kept very close all the time the Metal is in Fusion, a little Tube or Canal is laid, whereby the molten Metal is convey'd into a large earthen Bason over the Mould, into the Bottom of which all the big Branches of the Jets, which are to carry the Metal into all the Parts of the Mould, are inserted.

It must be added, that these Jets are all terminated, or stop'd with a kind of Plugs, which are kept close, that upon opening the Furnace, the Brass, which gushes out like a Torrent of Fire, may not enter any of them, till the Bason be full enough of Matter to run into them all at once: Upon which occasion they pull out the Plugs, which are long iron Rods, with a Head at one End capable of filling the whole Diameter of each Tube. The Hole of the Furnace is open'd with a long piece of Iron, fitted at the End of each Pole; and the Mould filled in an Instant.

The Work is now finish'd; at least so much as belongs to the *Casting*; the rest being the Sculptor's or Carver's Business; who, taking the Figure out of the Mould and Earth, it is encompass'd withal, saws off the Jets wherewith it appears cover'd over, and repairs it with Instruments proper to his Art, as Chissels, Gravers, Puncheons, &c.

Bell Foundry, *or the Manner of casting Bells.*

What has been hitherto shewn of the Casting of Statues, holds, in proportion, of the Casting of Bells: All that there is particular in these latter, is as follows.

First, then, the Metal is different; there being no Tin in the Metal of Statues; but no less than a Fifth Part in that of Bells. Secondly, the Dimensions of the Mould, or Core, and the Wax of Bells, especially if it be a Ring of several Bells that is to be cast, are not left to Chance, or the Caprice of the Workman; but must be measur'd on a kind of Scale, or Diapason, which gives the Height, Aperture, and Thickness necessary for the several Tones required.

It need not be added, that 'tis on the Wax, that the several Mouldings, and other Ornaments and Inscriptions to be represented in Relievo on the Outside of the Bell, are form'd.

The Clapper, or Tongue, is not properly a Part of the Bell, but is furnish'd from other Hands.

In *Europe*, it is usually of Iron, with a large Head at the Extreme, and is suspended in the Middle of the Bell.

In

In *China* it is only a huge wooden Mallet, ſtruck by Force of Arm againſt the Bell: Whence they can have but little of that Concordancy ſo muchad mir'd in ſome of our Rings of Bells. The *Chineſe* have an extraordinary way of increaſing the Sound of their Bells, *viz.* by leaving a Hole under the Canon; which our *Bell Founders* would reckon a Defect.

The Proportions of our Bells differ very much from thoſe of the *Chineſe*. In ours, the modern Proportions are to make the Diameter fifteen times the Thickneſs of the Ledge, and twelve times the Height.

The Manner of caſting great Guns, or Pieces of Artillery.

The Caſting of Canons, Mortars, and other Pieces of Artillery, is perform'd like that of Statues and Bells: Eſpecially as to what regards the Mould, Wax, Shell, Furnaces, *&c.*

As to the Metal, it is ſomewhat different from both; as having a Mixture of Tin, which is not in that of Statues; and only having half the Quantity of Tin that is in Bells, *i. e.* at the rate of ten Pound of Tin, to an hundred of Copper. A Canon is always ſhap'd a little Conical, being thickeſt of Metal at the Breech; where the greateſt Effort of the Gunpowder is made, and diminiſhing thence to the Muzzle: So that if the Mouth be two Inches thick of Metal, the Breech is ſix.

Its Length is meaſur'd in Callipers, *i. e.* in Diameters of the Muzzle. Six Inches at the Muzzle require 20 Calippers, or ten Feet in length: There is about $\frac{1}{8}$ of an Inch allow'd Play for the Ball.

Letter FOUNDRY, *or the Manner of caſting Printing Letters.*

The Invention of Printing Letters we ſhall ſpeak of under the Articles PRINTING, and LETTER.

Their Difference, Kind, *&c.* has already been explain'd under the Articles CHARACTER, &c.

The two Things principally to be regarded in the caſting of Letters, are the *Matter*, and the *Matrices*.

The Matter is a Compound Metal; partly Copper, and partly Lead, mix'd in a certain Proportion, which every *Letter Founder* regulates at his own Diſcretion, and to which he frequently adds a certain Quantity of ſome other Metal or Mineral, as his Experience directs him, to render his Compoſition the harder.——

The moſt uſual Proportion of the two Metals, is a hundred Pound of Lead to twenty or twenty five Pound of Braſs. Some (tho' not the beſt Founders) uſe Iron, inſtead of Braſs; in the Proportion of a hundred Pound of Lead, to thirty, or thirty five of Iron.—

Theſe Metals are melted ſeparately in large Crucibles; the Braſs, or Iron with Antimony, and the Lead by it ſelf. When in Fuſion, they are mix'd together: This Fuſion, and Mixture are the moſt laborious Parts of the Letter Founders Art.

The Matrices of the Letters are Pieces of Copper, whereon the Impreſſion of the intended Character has been cut, or ſtruck in Creux, by means of Punchions, *&c.* graven in Relievo. See MATRICE, PUNCHION, &c.

Each Letter has its proper Matrix; and there are particular ones for Points, Virgula's, Figures, Rules, Head-pieces and other Ornaments of Printing: Excepting the Quadrats, which being only of Lead, and not intended to leave any Impreſſion, are caſt without Matrices, and only in Moulds: And each Matrice has its Punchion, made of Steel, or Iron, well temper'd. See ENGRAVING *in Steel*.

The Matrices being ſtruck, and touch'd up, or repair'd, where needful, are put each at the End of an iron Mould, incloſ'd between two thin pieces of Board, two or three Inches ſquare; the two upper Angles being cut off, ſo as to compoſe an irregular Hexagon.

The principal Parts of theſe Moulds, which, as already mention'd, are hid between the pieces of Wood; are 1° Two Steel Plates, with each its Screw, to keep them faſt, at a diſtance from the Boards. 2° Long Pieces. 3° A Piece call'd the Blank, which is what properly forms the Body of the Character, and at the Extremity whereof the Matrice is put. 4° A Jet; which is a ſort of little Funnel, to receive and convey the melted Matter to the Matrice. 5° A Regiſter, ſerving to rejoin the two Parts of the Mould, after they have been open'd to take out the Letter, when caſt.

On the Outſide of the Moulds are three other Pieces, *viz.* the Bow, at bottom; and two Hooks a-top. The Bow is a thick Steel Wire, two or three Lines in Diameter; and eight or ten Inches long, bent in a manner of a Bow, or Arch; whereof the lower piece of Wood is as it were the Chord, or String. One End is faſten'd to the Board, and the other, which is left at liberty, ſerves, by its Spring, or Elaſticity to preſs and retain the Matrice of the Character againſt the Extremity of the Blank, where the melted Matter running in, makes the Impreſſion.

The Hooks a-top of the Mould are alſo of Wire, about the ſame Size with the Bow, and about an Inch and half long; being faſten'd, one of them to one Board, and the other to the other. Their Uſe is, to open the Mould, and to take out the Character when caſt, ſo as the Workman may not be incommoded with the Heat.

Every thing belonging to the Mould being thus diſpos'd, they begin to prepare the Matter.

The Furnace, whereon the Baſon is plac'd for the Metal to be melted in, is made of the ſame Matter as Crucibles. It is uſually 18 or 20 Inches high, and ten or twelve in Diameter. An iron Grate horizontally plac'd, divides it into two: The lower Part ſerves to hold the Aſhes, and is furniſh'd with a Hole to let in Air. The Wood is put in the upper Part, thro' an Aperture made over the Grate. An earthen Pipe ſerves to carry off the Smoak out at a Window, near which the Furnace is ordinarily plac'd. Laſtly, a Stone, or wooden Stool ſerves to ſupport the Furnace, and raiſe it to a proper Height for the Workman, to work ſtanding.

Over the Furnace is plac'd the Melting Baſon, or Copper. It is about nine Inches in Diameter, and takes up the whole Aperture a-top; being even luted to it all round, with Potters Earth. Its Matter is a kind of Pot Metal; and that it may be fit for melting both hard and ſoft Metals, it is divided into two equal Parts, by a perpendicular Partition.

In this Baſon they melt only the Matter already prepar'd; that is, the Mixture or Compoſition made in the Crucibles above mention'd. A little iron Ladle ſerves to ſkim off the Scoriæ or Impurities from the Surface of the melted Metal. Theſe Scoriæ are not all loſt, but ſerve to melt over again.

Two Workmen are uſually employ'd at each Furnace. Each of them has his Part of the Baſon to empty; and they have a Table or Bench in common, where they lay the Characters as faſt as they are caſt.

To run the Metal into the Mould, the Founder holds it in his left Hand; and in his right a little iron Ladle with a wooden Handle, containing juſt enough for one Letter.

Having now fill'd this Ladle with liquid Metal, he pours it into the Jet, or Funnel, whoſe Aperture is in the Middle of the two Hooks of the Mould; and thruſting his Hand briſkly forward wherewith he holds the Mould, makes the Metal run into the Matrix of the Character; which without ſuch Motion might grow cold before it arrived there.

He then unbends the Bow, opens the Mould, and with one of the Hooks takes out the Character; and without Loſs of Time ſhuts it again, replaces the Matrice, and caſts a new Letter. 'Tis incredible with what Expedition and Addreſs all this is done.

The Letter being caſt, they view it, before they break off the Jet; to ſee whether it be perfect; otherwiſe to throw it among the Refuſe of the Fount.

If it be found compleat, the Jet is broke off; the ſuperfluous Metal occaſion'd by the Mould's not being exactly cloſed, taken off with a Knife; the long-tail'd Letters, as *f* and *ſ* hollow'd at bottom, to give room for the Maſſive of the other Letters to be plac'd underneath.

With the ſame Knife they ſcrape the Letter, to ſmooth its two broadeſt Sides, or Faces, and fit them to be rub'd on the Stone. They take care only to rub thoſe Sides; for fear of damaging a Notch on one of the other Sides, which is to ſhew the Sides to the Compoſitor when he ſets his Forms.

The Stone they grind them on, is a ſort of hard, coarſe-grain'd Free-ſtone, plac'd horizontally; before which the Workman ſits. To ſave his Fingers from the Friction, he has a kind of Finger-ſtalls, made of ſome old piece of Leather; with which he covers the two Fingers next the Thumb: With theſe he works each Side of the Letter backwards and forwards: To ſhift Sides, he makes uſe of the Thumb, but without diſcontinuing the Motion; ſo that the By-ſtander would eaſily be deceiv'd, and be ready to ſwear they had all the while rub'd on the ſame Side.

The Letters thus ground are plac'd on the Compoſitor, to be ſcrap'd and brought to the proper Thickneſs on the two other Sides, *viz.* that of the Notch, and its Oppoſite. This they call *Compoſition*.

The Compoſitor is a wooden Ruſer, with a little Ledge at Bottom, againſt which the Letters are rang'd. On the ſame Inſtrument the Quadrats, Rules, Borders, *&c.* are adjuſted.

When the Letters are compoſed, they remain to be *juſtified*, both as to Thickneſs and Height. In order to this, they uſe a little Copper-plate, which is their Level. The Juſtification, as to Thickneſs, is made on a piece of Marble; and that for the Height, on an iron Compoſitor. The Juſtification of the Height, is guided by the *m* of ſome Body of Characters already juſtified.

Letters are said to be of their *just* Height, when the Part of the Plate, or Level bears equally on the standard *m* plac'd on its Foot, in the little Compositor, and on the Face of two Letters newly cast plac'd a-side of it to be justified: As to the Thickness, the Justification is perform'd by laying the Standard Letter flat on the little Marble, and two new Letters a-side of it; and thus levelling the three, with the Plate.

All that remains, is *to get ready the Letters, i. e.* to cut the Foot, or rather hollow it, and make that sort of Groove which every Letter has at bottom, precisely opposite to the Eye or upper Part, or Face of the Letter.

In order to this they turn a long Line of them upside down in the Justificator; which is an Instrument of polish'd Iron or Steel, consisting of two long Pieces join'd together by Screws. Between these two, they enclose as many Letters as it will hold, all plac'd against each other in the same Situation, as when compos'd for Books; excepting that the Face in the former case is downwards, and the Foot a-top. When the Justificator is full of Letters, they set it on the Table of the Cutter, between two Cheeks of Wood; which pressing it very tight, enable the Workman to run his Plane along the Line of the Letters thus inverted.

This Plane consists of three Parts; two of Steel, and the third Wood. Of the Steel ones, that at bottom consists of two moveable Steel Plates, which may be drawn closer, or set further off, at pleasure, by means of two Screws. Within the Interval between the two, they pass the Feet of the Row of Letters; and thus is the Plane kept from deviating.

The second Part of the Plane, answering to the Bit of Steel in the common Planes, consists of two Branches, and two Screws, which serve to raise or let down the Steel, as the Groove is to be cut deeper, or shallower. The Position of this piece of Steel, which is four or five Inches long, is almost perpendicular.

The last Part of the Plane, which is Wood, serves to join the other two. Its Form is that of an Arch: One End of it is fasten'd to the posterior Extreme of the Plates, and the other to the Branches, which carry the Bit of Steel: So that the three Parts together make a kind of Triangle, voided in the Middle.

The Cutter is a Steel Instrument, with a wooden Handle, in manner of a Chissel; serving to pare off the rough Wire Edge of the Letters when they are got ready.

The Letters are now fit for the Printer's Use. See PRINTING.

The Perfection of Letters thus cast, *&c.* consists in their being all severally square and strait, on every side; and all, generally of the same Height, and evenly lined, without stooping one way or other; neither too big in the Foot, nor the Head; well groov'd, so as the two Extremes of the Foot contain half the Body of the Letter; well ground, barb'd, and scrap'd; with a sensible Notch, *&c.*

The *Letter Founders* have a kind of Policy or Catalogue to regulate the Number of each kind of Lettes in a Fount. See FOUNT.

FOUNT, or FONT, among Printers, *&c.* a Set, or Quantity of Characters, or Letters of each Kind; cast by the Letter Founder, and sorted.

Thus we say, A Founder has cast a *Fount* of *Pica*, of *English*, of *Pearl*, &c. meaning, he has cast a Set of Characters of these Kinds. See LETTER, *Letter* FOUNDRY, &c.

A Compleat *Fount* does not only include the running *Letter*; but also *Majuscules*, or Large, and Small *Capitals*, *Single* Letters, *Double* Letters, *Points*, *Comma's*, *Lines*, *Borders*, *Head-pieces*, *Tail-pieces*, and *Numeral* Characters.

The Letter Founders have a kind of List, or Tarif, whereby they regulate their *Founts*.

The Occasion thereof is, that some Letters being in much more use, and oftener repeated than others; their Cells, or Cases should be better fill'd and stored than those of the Letters which do not return so frequently.

Thus the *o* and *i* for instance, are always in greater Quantity than the *k* or *z*.

This Difference will be best perceiv'd from a proportional Comparison of those Letters with themselves, or some others.

Suppose a *Fount* of a hundred thousand Characters, which is a common *Fount*: Here the *a* should have five thousand; the *c* three thousand; the *e* eleven thousand; the *i* six thousand; the *m* three thousand; the *k* only thirty; and the *x*, *y* and *z* not many more.

But this is only to be understood of the Letters of the Lower Case; those of the Upper having other Proportions, which it would be here too long to insist on. See LETTER, CHARACTER, *Letter* FOUNDRY.

FOUNTAIN, FONS, in Philosophy, a *Spring*, or Source of living Water, rising out of the Ground.

For the Phænomena, Theory, Origin, *&c.* of Springs or *Fountains*, see SPRING.

Among the Antients, the *Fountains*, or Sources of Rivers were held sacred, and even worship'd as a kind of Divinities.

Seneca observes as much in his Forty first Epistle: And *Cicero* L. III. *de Nat. Deor.* c. 20. mentions, that the *Roman* Priests and Augurs us'd in their Prayers and Invocations to call on the Names of the *Tiber*, and other Rivers, Brooks and Springs about *Rome*. The seveoth Inscription in *p. XCIV.* of *Gruter* has, *FONTI* DIVINO ET GENIO NUMINIS FONTIS. It was a Point of Religion, not to disturb or muddy the Waters in Washing or Bathing. See FONTINALIA.

Tacitus gives an Instance hereof in *Nero Annal.* L. IV. c. 22. And *Struvius Antiq. Rom. Syntag.* c. 1. p. 167.

FOUNTAIN, or *Artificial* FOUNTAIN, in Hydraulicks, a Machine, or Contrivance, whereby the Water is violently spouted, or darted up; call'd also *Jet d'Eau*. See JET *d'Eau*, FLUID, *&c.*

There are divers kinds of these Artificial *Fountains*; some founded on the Spring, or Elasticity of the Air; and others on the Pressure or Weight of the Water, *&c.*

The Structure of each hereof, being very pretty and curious, and affording a good Illustration of the Doctrine of Hydraulicks and Pneumaticks, shall be here explain'd.

Construction of an Artificial FOUNTAIN, *playing by the Spring, or Elasticity of the Air.*

A Vessel, proper for a Reservoir, as A B, *Tab. Hydraulicks Fig.* 17. is provided of Metal, Glass, or the like; ending in a small Neck *c*, a-top. Thro' this Neck a Tube is put, *c a*, traversing the Middle of the Vessel, till its lower Orifice, *d*, nearly, but not absolutely, reach the Bottom of the Vessel; the Vessel being first half fill'd with Water. The Neck is so contriv'd, as that a Syringe, or condensing Pipe may be screw'd upon the Tube; by means whereof, a large Quantity of Air may be intruded thro' the Tube into the Water; out of which it will disengage it self, and emerge into the vacant Part of the Vessel, and lie over the Surface of the Water, C D.

Now, the Water here contain'd, being thus press'd by the Air, which is *e. gr.* twice as dense as the external Air; and the Elastick Force of Air being equal to its gravitating Force: The Effect will be the same as if the Weight of the Column of Air over the Surface of the Water, were double that of the Column, pressing in the Tube; so that the Water must, of necessity, spout up, thro' the Tube, with a Force equal to the Excess of Pressure of the included, above that of the external Air. See AIR.

Construction of an Artificial FOUNTAIN, *playing by the Pressure of the Water.*

Having the Conveniency of a Fund, or Reservoir of Water, in a Place considerably higher than that where the *Fountain* is to be (whether that Fund have been plac'd there by Nature; or whether it have been rais'd for the Purpose, by a proper Engine, as a Pump, Syphon, Spiral Screw, or the like) from the Reservoir lay vertical Tubes for the Water to descend thro'; and to these vertical Tubes, fit other horizontal ones, under Ground, to carry the Water to the Place where the *Fountain* is to play. Lastly, from these horizontal Tubes erect other vertical ones, by way of Ajutages, Jets, or Spouts; their Altitude being much less than that of the Tubes whereby the Water was brought to the horizontal ones.

Then will the Water, by the Pressure of the superincumbent Column, be spouted up at these Jets; and that to the Height, or Level of the Water in the Reservoir; and this, howsoever any of the Tubes be bent or incurvated: *The Demonstration hereof, see under* FLUIDS.

Thus may Water be spouted to any given Height at pleasure: The Tubes may be so proportion'd as to yield any given Quantity of Water, in a given Time; or several Tubes of the same *Fountain* may be made to yield Water in any given Ratio: Or, lastly, different Tubes may project the Water to different Altitudes. Rules, for all which, the Reader will find among the Laws of FLUIDS.

These aerial, or aquatic *Fountains*, may be applied in various manners; so as to exhibit various Appearances: And from these alone, arise the greatest Part of our artificial Water-works.

An Instance or two, will not be disagreeable.

A FOUNTAIN *that shall spout the Water in various Directions.*

Suppose the Vertical Tube, or Spout in which the Water rises, to be A B (*Tab. Hydraulicks, Fig.* 18.) into this, fit several other Tubes; some Horizontal, others oblique; some inclining, others reclining, as O P, M N, F L, &c.

Then, as all Water retains the Direction of the Aperture, thro' which it is spouted: That, issuing thro' A, will rise perpendicularly; and that thro' L, H, N, P, E will describe Arches of different Magnitudes, and tending different ways.——

Or

Or thus: Suppose the Vertical Tube A B, *Fig.* 19. thro' which the Water arises, to be stop'd a-top, as in A; and instead of Pipes, or Jets, let it be only perforated with little Holes all around, or only half, its Surface. Then will the Water spin forth in all Directions thro' the little Apertures, and to a Distance proportional to the Height of the Fall of the Water.——

And hence if the Tube A B be suppos'd the Height of a Man, and be furnish'd with an Epistomium, or Cock at C: Upon opening the Cock, the Spectators, dreaming of no such Matter, will be cover'd with a Shower.

It must be here observ'd, that the Diameters of the Apertures, by which the Water is emitted, must be considerably less than those of the Tubes in which the Water is brought; lest the Resistance of the Air, and other Impediments, specify'd under FLUID, break the Force of the Water.——

A FOUNTAIN *playing by the Draught of the Breath.*

Suppose A B, *Fig.* 20. a Glass or Metal Sphere; wherein is fitted a Tube, C D, having a little Orifice in C, and reaching almost to D, the Bottom of the Sphere. If now the Air be suck'd out of the Tube C D, and the Orifice C be immediately immerg'd under cold Water; the Water will ascend thro' the Tube into the Sphere.

Thus proceeding, by repeated Exductions, till the Vessel be above half full of Water; and then applying the Mouth to C, and blowing Air into the Tube; upon removing the Mouth, the Water will spout forth.

Or, if the Sphere be put in hot Water; the Air being thereby rarify'd, will make the Water spout as before.

This kind of *Fountain* is call'd *Pila Heronis*, or *Hero*'s Ball, from the Name of its Inventor.

A FOUNTAIN, *the Stream whereof raises, and plays a Brass Ball.*

Provide a hollow Brass Ball A, *Fig.* 21. made of a thin Plate, that its Weight may not be too great for the Force of the Water. Let the Tube B C, through which the Water rises, be exactly perpendicular to the Horizon.

Then, the Ball being laid in the Bottom of the Cup, or Bason B; will be taken up in the Stream, and sustain'd at a considerable Height, as A; alternately vibrating, or playing up and down.

Hence, as the Figure of the Ball contributes nothing to its reciprocal Rise, and Fall: Any other Body, not too heavy, may be substituted in lieu thereof; *e. gr.* a Bird with its Wings stretch'd forth.

But, note, that as 'tis necessary the Globe, when on the Descent, shou'd keep the same precise Perpendicular, wherein it rose (since otherwise it wou'd miss the Stream, and fall downright); such a *Fountain* shou'd only be play'd in a Place free from Wind.

A FOUNTAIN *which spouts the Water in manner of a Shower.*

To the Tube wherein the Water is to rise, fit a Spherical, or Lenticular Head, A B, *Fig.* 22. made of a Plate of Metal, and perforated a-top, with a great Number of little Holes.

The Water rising with Vehemence towards A B, will be there divided into innumerable little Threads, and afterwards broke, and dispersed into the finest Drops.——

A FOUNTAIN *which spreads the Water in form of a Cloth.*

To the Tube A B, *Fig.* 23. solder two Spherical Segments C, and D, almost touching each other; with a Screw E, to contract, or amplify the Interstice or Chink at Pleasure.

Others chuse to make a smooth, even Nitch, in a Spherical, or Lenticular Head, fitted upon the Tube.

The Water spouting thro' the Chink, or Nitch, will expand it self in manner of a Cloth.

FOUNTAINS *wherein the Water spouts out of the Figures of Men and other Animals.*

Since Water may be deriv'd or convey'd by Tubes in any Situation; and always retains the Direction of the Aperture: All here requir'd, is to inclose Tubes within the Figures of Men, or other Animals, having their Orifices in those Parts whence the Water is to spout forth.

From the Principles hitherto laid down, it will be very easy to deduce whatever relates to the Furniture of *Fountains*, and the various Forms Water may be put into by their means: All depending on the Magnitude, Figure, and Direction of the Ajutages, or Apertures.——

A FOUNTAIN, *which when it has done spouting, may be turn'd like an Hour-glass.*

Provide two Vessels, L M, and N O, *Fig.* 24. to be so much the bigger as the *Fountain* is to play the longer; and plac'd at so much the greater Distance from each other, P N, as the Water is desir'd to spout the higher. Let B A C be a crooked Tube, furnish'd in C with a Cock; and F E D an other crooked Tube, furnish'd with a Cock in D. In I, and K are to be other lesser Tubes, open at both Ends, and reaching near to the Bottoms of the Vessels N O, and L M: To which the Tubes Q R, and S T are likewise to reach.

If, now, the Vessel L M be fill'd with Water; it will descend thro' the Tube B A, and upon opening the Cock C, will spout up near to the Height of K: And, after its Fall again, will sink thro' the little Tube I, into the Vessel N O, and expell the Air thro' the Tube Q O. At length, when all the Water is emptied out of the Vessel L M; by turning the Machine upside down, the Vessel N O will be the Reservoir, and make the Water spout up through the Cock D.

Hence, if the Vessels L M, and N O contain just as much Water as will be spouted up in an Hour's time; we shall have a spouting Clepsydra, or Water Clock, which may be graduated or divided into Quarters, Minutes, &c. as shewn under the Article CLEPSYDRA.

A FOUNTAIN *that begins to play upon the lighting of Candles, and ceases as they go out.*

Provide two Cylindrical Vessels, A B, and C D, *Fig.* 25. Connect them by Tubes, open at both Ends, K L, B F, &c. so that the Air may descend out of the higher, into the lower. To the Tubes solder Candlesticks, H, &c. And to the hollow Cover of the lower Vessel, C F, fit a little Tube, or Jet F E, furnish'd with a Cock G, and reaching almost to the Bottom of the Vessels. In G let there be an Aperture, furnish'd with a Screw, whereby Water may be pour'd into C D.

Then, upon lighting the Candles H, &c. the Air in the contiguous Tubes becoming rarify'd thereby; the Water will begin to spout thro' E F.

By the same Contrivance may a Statue be made to shed Tears upon the Presence of the Sun, or the lighting of a Candle, &c. All here requir'd, being to lay Tubes from the Cavity wherein the Air is rarify'd, to some other Cavities near the Eyes, and full of Water.——

FOUNTAIN, with regard to Architecture, is an Assemblage of Masonry, Sculpture, &c. either for the Decoration, or Conveniency of a City, Garden, or the like.

Fountains acquire various Denominations, according to their Form, and Situation; as,

Spring FOUNTAIN, a kind of plain Spout, or Stream of Water, issuing out of a Stone, or Hole in a Wall, without any Decoration.

Such is the *Fountain* of *Trevi* at *Rome*.

Coverd FOUNTAIN, a kind of Pavillion, built of Stone; either Insulate, and square; or round; or Multilateral; or back'd: And that, either with a Projecture, or Indenture: Inclosing a Reservoir, and spouting, or darting forth the Water thereof thro' one or more Cocks; in the Middle of a Street, Square, Garden, Court, or the like. Such is that in *Lincolns-Inn*, *London*.

Open FOUNTAIN, is any spouting *Fountain*, with a Bason, Cup, and other Ornaments; all open: As is frequent in our Gardens, and the Vineyards at *Rome*.

Spouting FOUNTAIN, or *Jet d'Eau*, is any *Fountain*, whose Water is darted forth impetuously thro' one, or more Jets, or Adjutages, and returns in Rain, Nets, Folds, or the like. See JET *d'Eau*.

Bason FOUNTAIN, is that with only a simple Bason, of any Figure whatever; in the Middle whereof is a Jet, or Spout, or perhaps a Statue; or even a Group of Figures: As in the Court of *Buckingham* House.

Cup FOUNTAIN, is that which beside a Bason, has likewise a Cup of one single piece of Stone, or Marble, supported on a Shaft, or Pedestal, and receiving a Jet, or Spout, rising out of the Middle thereof. As the *Fountain* in the Court of the *Vatican*; the Cup whereof is of Granate, and antique; being brought from the Baths of *Titus* at *Rome*.

Pyramidal FOUNTAIN, that form'd of several Basons, or Cups, rang'd in Stories over each other, and diminishing all the way; being supported by a hollow Stem, or Shaft.

As the *Fountain* of *Monte-Dragone* at *Frescati*: Or else supported by Figures, Fishes, or Consoles; the Water whereof in its Fall makes Nets in divers Stories, and represents a kind of Water Pyramid: As that at the Head of the Cascades at *Versailles*.

Statuary FOUNTAIN, that which being open and insulated

lated, or even back'd, is adorn'd with one or more Statues, by way of finishing, or crowning: As the *Fountain* of *Latona* at *Versailles*; and that of the Shepherd at *Caprarola*. There are also Statues, which spout forth Water at some of their Parts; or at Sea Shells, Vases, Urns, and other Attributes of the Sea.

Rustic FOUNTAIN, is that form'd, or enrich'd with Rock-work, Shell-work, Petrifactions, &c.

Satyric FOUNTAIN, a kind of Rustic *Fountain*, in manner of a Grotto; adorn'd with Termini, Mascaroons, Fauns, Sylvans, Bacchantes, and other Satyrical Figures, serving for Ornaments as well as Jets d'Eau.

Marine FOUNTAIN, that compos'd of Aquatic Figures, as Sea Divinities, Naiads, Tritons, Rivers, Dolphins, and other Fishes, and Shells. As the *Fountain* of the Place *Palestrina* at *Rome*; where a Shell supported by four Dolphins, serves as a Cup; and supports a Triton, that spouts Water out of his *Concha Marina*.

Naval FOUNTAIN, is that made in form of a Vessel. Such is that of the Place *d'Espagne* at *Paris*, representing a *Bark*: That at *Monte-Cavallo*, representing a *Galley*; or that before the Vineyard *Mattei* at *Rome*, resembling a Boat.

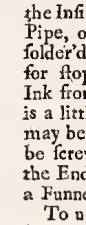
Symbolical FOUNTAIN, that where the principal Ornaments are the Attributes, Arms, or Cognizances of the Person who erected it. As the *Fountain* of St. *Peter* in *Montorio*, resembling a Castle flank'd with Towers; and *Doujons*, representing the Arms of *Castile*: And some other *Fountains* at *Rome*; among which are the *Flower-de-Lis*, and the *Dove*, tho Bearings of the Family of Pope *Innocent* X.

Arch'd FOUNTAIN, that whose Bason and Jet are plac'd perpendicularly under an Arch. Such are the *Fountains* of the *Colonnade*, and Triumphal Water Arch at *Versailles*.—

FOUNTAIN *Pen*, is a sort of Pen, contriv'd to contain a great Quantity of Ink, and let it flow by gentle Degrees; so as to supply the Writer a long time, without a Necessity of taking fresh Ink.——

The *Fountain* Pen, represented *Tab. Miscellany, Fig.* . consists of divers Pieces F G H of Brass, Silver, &c. whereof the middle Piece F carries the Pen, which is screw'd into the Inside of a little Pipe; which again is solder'd to another Pipe, of the same Bigness, as the Lid G; in which Lid is solder'd a Male Screw, for screwing on the Cover; as also for stopping a little Hole at the Place, and hindering the Ink from passing thro' it. At the other End of the Piece F is a little Pipe, on the Outside whereof the Top Cover H may be screw'd. In the Cover there goes a Port Crajon, to be screw'd into the last mention'd Pipe, in order to stop the End of the Pipe, into which the Ink is to be pour'd by a Funnel.

To use the Pen, the Cover G must be taken off, and the Pen a little shaken, to make the Ink run more freely.



FOURCHEE, or FOURCHY, in Heraldry. A Cross *Fourchee* is that forked at the Ends. See CROSS.

Upton rather represents it as *Anchor'd*, the Extremities turning in a circular manner to sharp Points; whereas the true Cross *Fourchee*, *i. e.* forked, has its Forks compos'd of strait Lines, and blunt Ends.

FOURCHER, an antient Law Term, signifying a putting off, prolonging, or delaying an Action.

As by stammering we draw out our Speech, not delivering that we have to say, in ordinary time, so by *fourching* we prolong a Suit, that might be ended in a shorter Space.

In *Westm.* 1. *cap.* 42. we have these Words: Coparceners and Jointenants shall no more *fourch*, but only shall have one Essoyn, &c. And Anno 6 *Ed.* 1. *cap.* 10. it is us'd in the same Sense; The Defendants shall be put to Answer without *fourching*, &c. In the *Latin* 'tis called *furcare*, and is us'd, Where a Man, and his Wife, or each of them cast a Essoin. 'Tis called *furcare*, because 'tis twofold. *Caveat vir & mulier implacitati, quod semper in Essonio alterius alter compareat, quamdiu* furcare *possint*; & *cum ultra non possint, concurrant coram Essonia in suis locis: Alter autem earum tantum unum Essonium de malo lecti habere potest.* Hengham Mag. cap. 9.

FOURTH, in Musick, one of the Harmonic Intervals, or Concords. See CONCORD.

The *Fourth*, is the Fourth, in order, of the Concords. It consists in the Mixture of two Sounds, which are in the Ratio of 4 to 3; *i. e.* of Sounds produc'd by Chords, whose Lengths are to each other as 4 : 3. See CHORD, and INTERVAL.

'Tis call'd *Fourth*, because containing *four* Terms, or Sounds between its Extremes; and three *Degrees*: Or, as being the *fourth* in the Order of the Natural Scale from the Fundamental. See DEGREE, and FUNDAMENTAL.

The Antients call the *Fourth*, *Diatessaron*, and speak of it as the first and principal of all Concords; and yet the Moderns find it one of the most imperfect. 'Tis so very barren, and jejune, that it affords nothing good, either by Multiplication, or Division. See DIATESSARON.

The *Redundant* FOURTH is a Discord compos'd of the Ratio's of 27 to 20; and of 4 to 5. See DISCORD.

FOUTGELD, or FOOT-GELD, antiently denoted an Amerciament, for not cutting out the Balls of great Dogs Feet, in the Forest. See EXPEDITATE.

To be quit of *Footgeld*, is a Privilege to keep Dogs within the Forest, unlawed, without Punishment, or Controul.

FOWL, in its general Sense, is of equal Import with *Bird*. See BIRD.

FOWL, is in a more peculiar manner understood of *Poultry*; or the larger sort of Birds, both Domestic, and Wild; either bred up, or hunted for the Table. Such are Turkeys, Geese, Cocks, Hens, and Ducks, both wild and tame; Pheasants, Partridges, Pidgeons, Snipes, &c. See POULTRY.

Tame FOWL, are a necessary Part of the Stock of a Country Farm; and yield considerable Service and Profit by their *Eggs*, *Brood*, *Feathers*, *Dung*, &c.

They may be kept at a very easy Expence near any Highway side; as being able to shift for themselves the greatest Part of the Year, by their feeding on Insects, Worms, Snails, Gleaning, or almost any thing eatable.

The eldest Hens are always the best for sitting; and the youngest for laying: But no sort will be good for either, if kept too fat.

The best Age to set a Hen for Chickens, is from two Years old to five; and the most proper Month to set them in, is *February*: Tho' it may be done to good purpose any time between that and *Michaelmas*. One Cock will serve ten Hens: A Hen sits twenty Days; whereas Geese, Ducks, Turkeys, sit thirty.

Buckwheat, or *French* Wheat, or Hemp-seed, 'tis said, make them lay faster than any other Food: And the same Buckwheat, either whole, or ground, and made into a Paste, fats them apace; tho' the common Food for that purpose is Barley-meal, or Wheat-flower, soak'd in Milk, or Water, made into a Paste, and cram'd down their Throats twice a day, till they will hold no mote. A Goose will will scarce sit on any, but her own Eggs: A Hen, indifferently on all.

The lightest colour'd Geese are the best: And those that begin to lay the soonest; as they have a Chance of hatching twice in one Year. They begin to lay in the Spring; and lay 12 or 16 Eggs. Green Geese are begun to be fatten'd at a Month old; and will be fat in a Month more. Old Geese are chiefly fatten'd at six Months old, in, or after the Harvest. A wild Goose, if red footed, is old, and harry; but if white footed, and not harry, she is young.

When the Eggs are set under a Hen, or other *Fowl*, 'tis necessary to mark the upper sides thereof; and when she goes to feed, to note whether she minds to turn them upside down, or not; that, if she neglect that Office, it may be done for her. See EGG, FEATHER, &c.

FOWLING, the Act, or Art of catching Birds with Nets, Birdlime, Decoys, and other Devices; as also of breeding up the same. See FOWL, NET, and BIRDLIME.

FOWLING is also us'd for the pursuing, and taking of Birds with Hawks, Falkons, and other Birds of Prey; more properly call'd *Falconry*. See FALCONRY.

FOWLING *Piece*, a portable Fire Arm for the shooting of Birds. See FIRE ARM.

Of *Fowling* Pieces, those are reputed the best, which have the longest Barrel, *viz.* from $5\frac{1}{2}$ Foot, to 6; with an indifferent Bore, under Harquebuss: Tho' for different Occasions they shou'd be of different Sorts, and Sizes. But in all, 'tis essential the Barrel be well polish'd and smooth within; and the Bore all of a Bigness, from one End to another; which may be prov'd by thrusting in a piece of Wood, cut exactly to the Bore of the Muzzle, down to the Touch-hole.

FOX *Hunting*, see *Fox* HUNTING.

FRACTION, in Arithmetic, a Part, or Division of an Unite, or Integer: Or, a Number which stands in the relation to an Unite, a Part to its Whole.

The Word literally imports a *Broken* Number. See NUMBER.

Fractions are usually divided into *Decimal*, *Sexagesimal*, and *Vulgar*.——

For *Decimal*, and *Sexagesimal* FRACTIONS, see DECIMAL, and SEXAGESIMAL *Fractions*.

Vulgar FRACTIONS, called also Simple *Fractions*, are always express'd by two Numbers, the one wrote over the other, with a Line between them.

The lower, call'd the *Denominator of the Fraction*, denotes the Unite, or Whole, that is divided into Parts; and the upper, called the *Numerator of the Fraction*, expresses the Parts given in the present Case. See NUMERATOR, &c.

Thus, two third Parts of a Line, or other Thing, are wrote $\frac{2}{3}$. Where the Denominator 3 shews, that the whole Line is suppos'd to be divided into three equal Parts; and the Numerator 2 indicates or assigns two of such Parts.

Again,

Again, twenty nine Sixtieths is wrote $\frac{29}{60}$; where the Numerator 29 expresses 29 Parts of an Integer divided into Sixty; and the Denominator 60 gives the Denomination to these Parts, which are call'd Sixtieths.

The real Design of adding the Denominator, is to shew what *aliquot* Part the broken Number has in common with Unity. See DENOMINATOR, &c.

In all *Fractions*, as the Numerator is to the Denominator; so is the *Fraction* it self; to the Whole, whereof it is a *Fraction*.

Thus, supposing $\frac{3}{4}$ of a Pound equal to 15 *s.* 'Tis evident, that 3 : 4 :: 15 : 20. Whence it follows 1° That there may be infinite *Fractions* of the same Value, one with another; inasmuch as there may be infinite Numbers found, which shall have the Ratio of 3 : 4. See RATIO.

Fractions are either *Proper*, or *Improper*.

A *Proper* FRACTION is that where the Numerator is less than the Denominator; and consequently the *Fraction* less than the Whole, or Integer; as $\frac{25}{40}$.

An *Improper* FRACTION is, where the Denominator is either equal to, or bigger than the Denominator; and, of course, the *Fraction*, equal to, or greater than the Whole, or Integer, as $\frac{25}{25}$; or $\frac{25}{20}$; or $\frac{90}{22}$.

Fractions, again, are either *Simple*, or *Compound*.

Simple FRACTIONS are such, as consist of only one Numerator, and one Denominator; as $\frac{2}{7}$, or $\frac{14}{30}$, &c.

Compound FRACTIONS, call'd also *Fractions of Fractions*, are such as consist of several Numerators, and Denominators; as $\frac{4}{7}$ of $\frac{15}{12}$ of $\frac{5}{9}$ of $\frac{15}{80}$ &c.——

Of *Fractions* those are *equal* to each other, whose Numerators have the same Ratio to their Denominators. Those are *greater*, whose Numerators have a greater Ratio; and those *less*, which have less: Thus, $\frac{3}{8} = \frac{4}{8} = \frac{5}{10} = \frac{25}{50} = \frac{1}{2}$. But $\frac{7}{24}$ is greater than $\frac{2}{8}$; and $\frac{4}{8}$ less than $\frac{10}{18}$.

Hence, if both the Numerator, and Denominator of a *Fraction*, as $\frac{2}{3}$, be multiply'd, or divided by the same Number, 2; the Facta in the former Case, $\frac{02}{12}$, and the Quotients in the latter, $\frac{2}{3}$, will constitute *Fractions*, equal to the first *Fraction* given.——

The Arithmetic of *Fractions* consists in the *Reduction*, *Addition*, *Subtraction*, and *Multiplication* thereof.

I. *Reduction of* FRACTIONS.

1° *To reduce a given whole Number into a* Fraction *of any given Denominator:* Multiply the given Integer, by the given Denominator: The Factum will be the Numerator.

Thus we shall find $3 = \frac{72}{24}$; and $5 = \frac{10}{06}$; and $7 = \frac{28}{04}$ &c.

If no Denominator be given, the Number is reduc'd to a *Fraction*, by writing 1 underneath it, as a Denominator. Thus $\frac{2}{1}$, $\frac{4}{1}$, $\frac{55}{01}$.

2° *To reduce a given* Fraction *to its lowest Terms; i. e.* to find a *Fraction*, equivalent to a given *Fraction*, ($\frac{20}{48}$) but express'd in less Numbers: Divide both the Numerator 20, and Denominator 48 by some one Number, that will divide them both without any Remainder, as here by 4. The Quotients 5 and 12 make a new *Fraction*, $\frac{05}{12}$, equal to $\frac{20}{48}$.

And if the Division be perform'd with the greatest Number that will divide them both; the *Fraction* is reduc'd to its lowest Terms.

Now, *To find the greatest common Divisor of two Quantities:* Divide the greater by the less: Then divide the Divisor of the Division by the Remainder thereof: Again, divide the Divisor of the second Division by the Remainder of the second; and so on, till there remain nothing. The last Divisor is the greatest common Measure of the given Numbers.

If it happen that Unity is the only common Measure of the Numerator and Denominator; then is the *Fraction* incapable of being reduc'd any lower.

3° *To reduce two, or more* Fractions *to the same Denomination; i. e.* to find *Fractions* equal to the given ones, and with the same Denominators: If only two *Fractions* be given, multiply both the Numerator, and Denominator of each, by the Denominator of the other: The Products given are the new *Fractions* requir'd.

Thus $5)\frac{2}{3}$ and $3)\frac{4}{5}$ make $\frac{10}{15}$ and $\frac{12}{15}$. If more than two be given, multiply both the Numerator and Denominator of each into the Product of the Denominators of the rest. Thus, $24)\frac{2}{3}$. $12)\frac{1}{6}$. $18)\frac{3}{4} = \frac{48}{72}$. $\frac{12}{72}$. $\frac{54}{72}$.

4° *To find the Value of a* Fraction *in the known Parts of its Integer:* Suppose, *e. gr.* It were requir'd to know what is $\frac{09}{16}$ of a Pound; Multiply the Numerator 9 by 20, the Number of known Parts in a Pound, and divide the Product by the Denominator 16. The Quotient gives 11 *s.* Then multiply the Remainder 4 by 12, the Number of known Parts in the next inferior Denomination; and dividing the Product by 16, as before, the Quotient is 3 *d.* So that $\frac{09}{16}$ of a Pound = 11 *s.* 3 *d.*

5° *To reduce a mix'd Number, as* $4\frac{11}{22}$ *into an improper* Fraction *of the same Value:* Multiply the Integer, 4, by 12, the Denominator of the *Fraction*: and to the Product 48 add the Numerator: The Sum 59 set over the former Denominator, $\frac{59}{12}$, constitutes the *Fraction* requir'd.

6° *To reduce an improper* Fraction *into its equivalent mixt Number:* Suppose the given *Fraction* $\frac{59}{12}$; divide the Numerator by the Denominator; the Quotient $4\frac{11}{12}$ is the Number sought.

7° *To reduce a Compound* Fraction *into a Simple one:* Multiply all the Numerators into each other for a new Numerator; and all the Denominators for a new Denominator. Thus $\frac{1}{2}$ of $\frac{3}{4}$ of $\frac{5}{8}$ reduc'd, will be $\frac{15}{48}$.

II. *Addition of Vulgar* FRACTIONS.

1° If the given *Fractions* have different Denominators, reduce them to the same. Then, add the Numerators together, and under the Sum write the common Denominator. Thus, *e. gr.* $\frac{2}{3} + \frac{4}{5} = \frac{10}{15} + \frac{12}{15} = 1\frac{07}{15}$. And $\frac{2}{3} + \frac{1}{6} + \frac{3}{4} = \frac{48}{72} + \frac{12}{72} + \frac{54}{72} = \frac{114}{072} = 1\frac{42}{72} = 1\frac{07}{12}$.

2° If Compound *Fractions* are given to be added; they must first be reduc'd to simple ones: And if the *Fractions* be of different Denominations, as $\frac{6}{8}$ of a Pound, and $\frac{2}{3}$ of a Shilling, they must first be reduc'd to *Fractions* of the same Denomination of Pounds.

3° *To add mixt Numbers:* The Integers are first to be added; then the fractional Parts: And if their Sum be a proper *Fraction*, only annex it to the Sum of the Integers. If it be an improper *Fraction*, reduce it to a mix'd Number; adding the integral Part thereof to the Sum of the Integers, and the fractional Part after it. Thus, $5\frac{2}{3} + 4\frac{2}{2} = 10\frac{2}{3}$.

III. *Substraction of* FRACTIONS.

1° If they have the same common Denominator, substract the lesser Numerator from the greater, and set the Remainder over the common Denominator.

Thus from $\frac{5}{16}$ take $\frac{1}{16}$, and there remains $\frac{4}{16}$.

2° If they have not a common Denominator, they must be reduc'd to *Fractions* of the same Value, having a common Denominator, and then as in the first Rule.

Thus, $\frac{6}{7} - \frac{2}{5} = \frac{30}{35} - \frac{14}{35} = \frac{16}{35}$.

3° *To substract a whole Number from a mix'd Number; or one mix'd Number from another:* Reduce the whole, or mix'd Numbers to improper *Fractions*, and then proceed as in the first and second Rule.

IV. *Multiplication of* FRACTIONS.

1° If the *Fractions* propos'd be both single, multiply the Numerators one by another for a new Numerator, and the Denominators for a new Denominator.

Thus $\frac{3}{4}$ into $\frac{5}{8}$ produces $\frac{15}{32}$.

2° If one of them be a mix'd, or whole Number, it must be reduc'd to an improper *Fraction*; and then proceed as in the last Rule.

Thus $\frac{7}{8}$ into $5\frac{2}{3}$, gives $\frac{41}{24}$; and $\frac{4}{9}$ into $\frac{10}{7} = \frac{40}{63}$.

In Multiplication of *Fractions* observe that the Product is less in Value, than either the Multiplicand, or Multiplicator; because in all Multiplications, as Unity, is to the Multiplicator; so is the Multiplicand, to the Product: Or, as Unity, is to either Factor; so is the other Factor, to the Product. But Unity is bigger than either Factor, if the *Fractions* be proper; and therefore either of them must be greater than the Product.

Thus in whole Numbers, if 5 be multiply'd by 8, it will be, as 1 : 5 :: 8 : 40; or 1 : 8 :: 5 : 40. Wherefore in *Fractions* also, as $1 : \frac{3}{4} :: \frac{5}{8} : \frac{15}{32}$; or as $1 : \frac{5}{8} :: \frac{3}{4} : \frac{15}{32}$. But 1 is greater than either $\frac{3}{4}$ or $\frac{5}{8}$: Wherefore either of them must be bigger than $\frac{15}{32}$.

V. *Division of* FRACTIONS.

1° If the *Fractions* propos'd be both simple, multiply the Denominator of the Divisor, by the Numerator of the Dividend; the Product is the Numerator of the Quotient. Then multiply the Numerator of the Divisor, by the Denominator of the Dividend, the Product is the Denominator of the Quotient.

Thus $\frac{3}{5})\frac{4}{9}(\frac{20}{27}$.

2° If either Dividend, Divisor, or both, be whole or mix'd Numbers, reduce them to improper *Fractions*: And if they be compound *Fractions*, reduce them to simple ones; and proceed as in the first Rule.

In Division of *Fractions*, observe that the Quotient is always greater than the Dividend; because in all Division, as the Divisor, is to Unity; so is the Dividend, to the Quotient; as if 3 divide 12, it will be, as 3 : 1 :: 12 : 4. Now 3 is greater than 1; wherefore 12 must be greater than 4: But in *Fractions* as $\frac{3}{5} : 1 :: \frac{4}{9} : \frac{20}{27}$; where, $\frac{3}{5}$ is less than 1; wherefore $\frac{4}{9}$ must also be less than $\frac{20}{27}$.

FRACTIONS *in Species*, or *Algebraic Quantities*.

1° *To reduce* Fractions *in Species to their least Terms*: The Numerators and Denominators are to be divided by the greatest common Divisor as in Numbers.

Thus the *Fraction* $\frac{a\,a\,c}{b\,c}$ is reduc'd to a more simple one $\frac{a\,a}{b}$ by dividing both $a\,a\,c$, and $b\,c$ by c; and $\frac{203}{667}$ is reduc'd to a more simple one $\frac{7}{23}$ by dividing both 203 and 667 by 29; and $\frac{203\,a\,a\,c}{667\,b\,c}$ is reduc'd to $\frac{7\,a\,a}{23\,b}$ by dividing by 29 c. And so $\frac{6\,a^3-9\,a\,c\,c}{6\,a\,a+3\,a\,c}$ becomes $\frac{2\,a\,a-3\,c\,c}{2\,a+c}$ by dividing by 3 a. And $\frac{a^3-a\,a\,b+a\,b\,b-b^3}{a\,a-a\,b}$ becomes $\frac{a\,a+b\,b}{a}$ by dividing by $a-b$.

2° *To reduce* Fractions *in Species to a common Denominator*.

The Terms of each are to be multiplied by the Denominator of the other.

Thus, having $\frac{a}{b}$ and $\frac{c}{d}$, multiply the Terms of one $\frac{a}{b}$ by d, and also the Terms of the other $\frac{c}{d}$ by b, and they will become $\frac{a\,d}{b\,d}$ and $\frac{b\,c}{b\,d}$, whereof the common Denominator is $b\,d$. And thus a and $\frac{a\,b}{c}$, or $\frac{a}{1}$ and $\frac{a\,b}{c}$ become $\frac{a\,c}{c}$ and $\frac{a\,b}{c}$.

But where the Denominators have a common Divisor, it is sufficient to multiply them alternately by the Quotients.

Thus the *Fraction* $\frac{a^3}{b\,c}$ and $\frac{a^3}{b\,d}$ are reduc'd to these $\frac{a^3\,d}{b\,c\,d}$ and $\frac{a^3\,c}{b\,c\,d}$, by multiplying alternately by the Quotients c and d, arising by the Division of the Denominators by the common Divisor b.

Addition and Substraction of FRACTIONS *in Species*.

The Process is in all respects the same in Species, as in Numbers. *E. gr.* Suppose it required to add the *Fractions* $\frac{a}{b}$ and $\frac{c}{d}$. These, when reduc'd to the same Denomination, will be $\frac{a\,d}{b\,d}$ and $\frac{b\,c}{b\,d}$. Consequently their Sum is $\frac{a\,d+b\,c}{b\,d}$.

So, if the *Fraction* $\frac{a}{b}$ were to be subtracted from $\frac{c}{d}$: Having reduc'd them, they will be $\frac{a\,d}{b\,d}$ and $\frac{b\,c}{b\,d}$, as before. Their Difference, therefore, is $\frac{b\,c-a\,d}{b\,d}$.

Multiplication and Division of FRACTIONS *in Species*.

Here too, the Process is perfectly the same as in Vulgar Arithmetic. Thus, *E. gr.* Suppose the Factors, or *Fractions* to be multiplied, $\frac{a}{b}$ and $\frac{c}{d}$: The Product will be, $\frac{a\,c}{b\,d}$.

Or, suppose the *Fractions* required to be divided, $\frac{a\,c}{b\,d}$ and $\frac{a}{b}$; the Quotient will be $\frac{a\,c}{b\,d}\,\frac{b}{a}=\frac{a\,b\,c}{a\,b\,d}=\frac{c}{d}$.

Hence, as $a=\frac{a}{1}$: The Product of a into $\frac{c}{d}$, that is, of an integral Quantity into a *Fraction*, $\frac{c}{d}\,\frac{a}{1}=\frac{a\,c}{d}$. Whence it appears, that the Numerator of the *Fraction* is to be multiplied by the Integer.

Hence also, the Quotient of $\frac{c}{d}$ by a, that is, of the broken Quantity, divided by the whole one, $\frac{c}{d}\,\frac{1}{a}=\frac{c}{a\,d}$.

Beside the common Notion of a *Fraction*, there is another necessary to be understood. Thus,

Suppose $\frac{3}{4}$ or 20 *s.* or a Pound Sterling, were the *Fraction*: This *Fraction* instead of three Quarters of one Pound may be consider'd as a fourth Part of three Pounds; that is, by taking as many of the Integers, as the Numerator expresses (*viz.* 3.) and dividing them by 4, the Denominator; for then the Quotient of the same Value will arise for 4) 60 *s.* 15 *s.* This shews the Reason of that manner of Expression us'd by Geamaters and Algebraists, who read $\frac{a}{b}$, thus, a divided by b.

Logarithm of a FRACTION, see LOGARITHM.

Summing of infinite FRACTIONS, see SUMMATORY *Calculus*.

FRACTURE, in Medicine, and Chirurgery, a Breach, or Rupture of a Bone: Or, a Solution of Continuity in a Bone, when it is crush'd or broken, by some external Cause. See BONE.

In *Fractures*, the Bone is either broken breadth-wise, that is, transversely; or length-wise, which last is properly call'd a *Fissure*. See FISSURE.

Transverse *Fractures* are more easy to discover, but more difficult to cure than longitudinal ones. A *Fracture* in the Middle of a Bone is less dangerous than towards the Articulation. When the *Fracture* is attended with a Wound, Contusion, *&c.* or when the Bone is shatter'd into several Pieces, 'tis highly dangerous. A *Fracture* of the Femur in Adults is very rarely, if ever cur'd; but there still remains a Lameness. *Fractures* of the lesser Bones are usually cur'd in seven or fourteen Days; those of the greater, in 20 or 40 Days.

In the Cure of *Fractures*, the Chirurgeon has two Things to attend to: First to restore the *fractur'd* Bone into its natural Situation; and to keep it tight with *Ferulæ*, or Splinters, and Bandages: In which case Nature takes on her self the Office of healing and conglutinating it, by forming a Callus thereon. See CALLUS.

If there be an Inflammation, it must be cur'd before any thing be attempted about the *Fracture*. If the Bone happen to be broke again, it never breaks in the Callus, but at a distance from it. After setting or replacing the *fractur'd* Bone, Bleeding is requir'd, to prevent any Lodgment of Blood on the Part aggriev'd, by the Violence upon the Fibres.

A *Fracture* of the Cranium is certain Death, without Trepanning. See TREPANNING.

FRÆNUM, BRIDLE, in Anatomy, a Name given to divers Ligaments, from their Office in retaining, and curbing the Motions of the Parts they are fitted to.

The *Frænum Linguæ*, or *Bridle of the Tongue*, is a membranous Ligament, which ties the Tongue to the Os Hyoides, Larynx, Fauces, and lower Part of the Mouth. See TONGUE.

In some Subjects, the *Frænum* runs the whole Length of the Tongue, to the very Tip: In which Cases, if it were not cut, it would take away all Possibility of Speech.

The *Frænum of the Penis* is a slender Ligament, whereby the Præpuce is tied to the lower Part of the Glans. See PENIS.

Nature varies in the Make of this Part; it being so short in some, that unless divided, it would not admit of perfect Erection. See ERECTION.

There is also a kind of little *Frænum*, fasten'd to the lower Part of the Clitoris. See CLITORIS.

FRAIGHT, FREIGHT, or FRET, in Navigation and Commerce, the Hire of a Ship, or of a Part of it; for the Conveyance and Carriage of Goods, from one Part, or Place to another: Or the Sum agreed on between the Master and the Merchant, for the Hire and Use of a Vessel.

The *Fraight* of a Vessel is usually agreed on at the Rate of so much for the Voyage; by the Month, or *per* Tun.

FRAIGHTING, or letting out of Vessels on *Fraight*, or Hire, is one of the principal Articles in the Trade of the *Hollanders*: They are the Carriers of all the Nations of *Europe*, and their Purveyors; notwithstanding that their Country produces nothing at all, and that they are forc'd to to have every thing necessary for the Building of a Vessel from other Countries.

The principal Laws and Rules relating to fraighting, are: That if a whole Vessel be hired, and the Merchant, or Person who hires it, don't give it its full Load, or Burthen; the Master of the Vessel cannot without his Consent take in any other Goods, without accounting to him for *Fraight*.

That, tho' the Merchant don't load the full Quantity of Good, agreed on in the Charter Party; yet he shall pay the whole *Freight*; and if he load more, he shall pay for the Excess.

That, the Master may set a-shore such Goods as he finds in his Vessel, which were not notify'd to him; or take 'em at a higher Rate, than was agreed on for the rest.

That, if a Ship be stopp'd or detain'd in its Course, either thro' the Master's, or the Merchant's Default; the Delinquent shall be accountable to the other.

That

That if the Master be oblig'd to refit his Vessel during the Voyage, the Merchant shall wait; or else pay the whole *Fraight*: If the Vessel could not be refitted, the Master is oblig'd to hire another immediately; otherwise only to be pay'd his *Fraight* in proportion to the Part of the Voyage perform'd (tho', in case the Merchant prove that the Vessel at the time it set sail, was not capable of the Voyage, the Master must loose his *Fraight*, and account for Damages to the Merchant.

That *Fraight* shall be paid for Merchandizes which the Master was oblig'd to sell for Victuals, or refitting, or other necessary Occasions; paying for the Goods at the Rate the rest were sold at, where they were landed.

That in case of a Prohibition of Commerce with the Country whither the Vessel is bound, so that it is oblig'd to be brought back again; the Master shall only be paid *Fraight* for going.

And if a Ship be stop'd or detain'd in its Voyage, by an Embargo by order of the Prince; there shall neither be any *Fraight* paid for the Time of the Detention, in case it be hired *per* Month: Nor shall the *Fraight* be increas'd, if hired for the Voyage; but the Pay, and Victuals of the Sailors during the Detention, shall be deem'd Average.

That the Master shall take no *Fraight* for any Goods lost by Shipwreck, plunder'd by Pyrates, or taken by the Enemy; unless the Ship and Goods be redeem'd; in which case he shall be paid his *Fraight* to the Place where he was taken; upon contributing to the Redemption.

That the Master shall be paid his *Fraight* for the Goods sav'd from Shipwreck; and in case he can't get a Vessel to carry them unto the Place where they were bound, that he shall be paid in Proportion to the Part of the Voyage already gone.

That the Master may not detain any Merchandize in his Vessel, in default of Payment of *Fraight*; tho' he may order them to be seiz'd any time, or any where afterwards. That if Merchandizes in Casks, as Wines, Oils, &c. have so run out in Carriage, that the Vessels are left empty; or almost empty, the Merchant may relinquish them, and the Master be oblig'd to take them for their *Fraight*; though this does not hold of any other Goods damag'd, or diminish'd of themselves, or thro' Accidents.

The Word *Fraight* is form'd of the French *Fret*, signifying the same thing; and *Fret*, of *Fretum*, an Arm of the Sea; tho' others chuse to derive it from the German *Fracht*, or the Flemish *Vracht*, signifying *Carriage*.

Fraight is also a Duty of 50 *Sols per* Tun, paid to the Crown of *France* by the Captains and Masters of all foreign Vessels at their Entrance and coming out of the Ports and Havens of that Kingdom. And note, that all Vessels not built in *France*, however they may belong to the Subjects of *France*, are reputed Foreigners, and subject to this Impost; unless it be made appear, that two Thirds of the Ship's Crew are *French*.

By the 11th Article of the Treaty of Commerce concluded at *Utrecht* between *England* and *France*, this Duty of 50 *Sols per* Tun should be remitted the *English*; and at the same time the Duty of 5 *s.* Sterling should be suppress'd in favour of the *French*: But the Execution of that Article, as well as the Tariff settled between the two Nations, has been suspended. The *Dutch* however and the *Hans Towns* are exempted from the Duty of *Fret*.

Fraight is also the Burthen, or Lading of a Ship; or the Burthen of Goods, &c. she has on board. See Burthen.

FRAIL, a Basket of Rushes; or such like Materials, to pack up Figs, Raisins, &c.

It is also a certain Quantity of Raisins, of about 75 Pounds.

FRAISE, in Fortification, a kind of Defence, consisting of pointed Stakes, driven parallel to the Horizon, into the Retrenchments of a Camp, a Half Moon, or the like; to send off and prevent any Approach or Scalade.

Fraises differ from Palissades chiefly in this, that the latter stand pependicular to the Horizon; and the former jet out parallel to the Horizon. See Palissade.

Fraises are chiefly us'd in Retrenchments, and other Works, thrown up of Earth: Sometimes they are found under the Parapet of a Rampart; serving instead of the Cordon of Stone, us'd in Stone Works.

He fortified all the weak Places of his Camp with *Fraises* and Palissades.——All the Outworks of the Place were *frais'd* and palissaded.

Fraising *of a Batallion*, is the lining of the Musqueteers all around with Pikes; in case of their being charg'd by a Body of Horse.

FRAME, in Joinery, &c. a kind of Case, wherein a thing is set, or inclos'd, or even supported; as a Window *Frame*, *Frame* of a Picture, of a Table, &c. See Window, &c.

The *Frame* is also a Machine, us'd in divers Arts. The Printers *Frame* is more usually call'd *Chase*. See Chase.

The Founders *Frame* is a kind of Ledge, inclosing a Board; which being fill'd with Sand, serves as a Mould to cast their Work in. See Foundery, and Mould.

Frame is particularly us'd for a Sort of Loom, whereon they stretch their Linens, Silks, Stuffs, &c. to be embroider'd, quilted, &c. See Embroidery, Tapestry *Work*, &c.

Frame, among Painters, &c. is a kind of a *Chassy*, or Square, compos'd of four long Pieces, or Slips of Wood, join'd together; the intermediate Space whereof is divided by little Strings or Threads into a great Number of little Squares, like the Mashes of a Net; and for that reason sometimes call'd *Reticula*.

Its Use is in the reducing of Figures from great to small; or from small to great. See Reduction.

Framing *of a House*, is all the Timber Work therein; *viz.* the *Carcase*, *Flooring*, *Partitioning*, *Roofing*, *Cieling Beams*, *Ashlering*, &c. See Carcase, Partition, Roof, Floor, &c.

FRAMPOLE *Fences* are such Fences as any Tenant in the Manor of *Writtel* in *Essex* hath against the Lords Demeans; whereby he hath the Wood growing on the Fence; and as many Trees or Poles as he can reach from the Top of the Ditch with the Helve of his Ax; toward the Repair of his Fence. The late Chief Justice *Brampton*, whilst Steward of this Court, acknowledg'd he could not find out the Reason, why these Fences were call'd *Frampole*.

It may come from the *Saxon* Fremful, profitable; or may be a Corruption of *Fran-pole*, because the Poles are free for the Tenant to take.

FRANCHISE, a Privilege, or Exemption from the ordinary Jurisdiction; or an Asylum, or Sanctuary, where People are secure of their Persons, &c. See Asylum.

Churches and Monasteries in *Spain* are *Franchises* for Criminals: So were they antiently in *England*; till they were abus'd to such a degree, that there was a Necessity for abolishing them. See Sanctuary.

One of the most remarkable Capitularies made by *Charlemain*, in his Palace of *Heristal*, in 779, was that relating to the *Franchises* of Churches.

The Right of *Franchises* was held so sacred, that even the less religious Kings observ'd it to a degree of Scrupulousness: But to such Excess in time was it carried, that *Charlemaign* resolv'd to bring it down. Accordingly he forbid any Provision being carried to Criminals retir'd into Churches for *Refuge*. See Refuge.

Franchise is also us'd for an Immunity from the ordinary Tributes and Taxes.

This is either Real, or Personal; that is, either belonging immediately to the Person; or else by means of this or that Place, or Office of Immunity.

Franchise *Royal*, is a Place where the King's Writ runs not; as at *Chester*, and *Durham*: And antiently at *Tyndal* and *Examshire* in *Northumberland*. See Sac.

Franchise *of Quarters*, is a certain Space, or District at *Rome*, wherein are the Houses of the Embassadors of the Princes of *Europe*; and where such as retire, cannot be arrested or seiz'd by the *Sbirri*, or Sergeants, nor prosecuted at Law.

The People of *Rome* look on this as an old Usurpation, and a scandalous Privilege, which Embassadors, out of a Jealousy of their Power, carried to a great length in the XVth Century, by enlarging insensibly the Dependances of their Palaces or Houses, within which the Right of Asylum was antiently confin'd. Several of the Popes, *Julius* III. *Pius* XIV. *Gregory* XIII. and *Sixtus* V. publish'd Bulls and Ordinances against this Abuse; which had rescued so considerable a Part of the City from their Authority, and render'd it a Retreat for the most Abandoned.

At length *Innocent* XI. expressly refused to receive any more Embassadors but such as would make a formal Renunciation of the *Franchise of Quarters*. See Priviledg'd *Place*.

FRANCHISING, see Enfranchising, and Manumission.

FRANCIGENA, or Frenchman, in out antient Customs, was a general Appellation of all Foreigners, *i. e.* all Persons who could not prove themselves *Englishman*. See Englecery.

FRANGIPANE, an exquisite kind of Perfume, frequently given to the Leather whereof Gloves, Purses, Bags, &c. are made.

It takes its Name from a *Roman* Nobleman, of the antient Family of *Frangipani*; who was the Inventor thereof.

There is also a kind of perfum'd Liquor of the same Denomination, said to have been invented by a Grandson of *Mutio Frangipani*; and a perfum'd kind of *Ros Solis*, call'd by the same Name. See Ros Solis.

FRANK, or Franc, a Term literally signifying free, open, and sincere, exempt from publick Impositions and Charges: as *Frank* Confession, *Frank* Fair, *Frank* Letter, &c. See Free.

The Term *Frank* is much us'd in our antient Customs and Tenures; where it receives various particular Modifications and Meanings, according to the Words it is combined with, as

Frank *Alleu*, or *Allodium*, is a Land, Tenement, or Demeasn, that does not hold of any superior Lord. See Allodium, and Free *Land*.

Frank *Almoin*, or *Free Alms*, is a Tenure of Lands or Tenements bestow'd on God; that is, given to such People as devote themselves to the Service of GOD, in pure and perpetual Alms.

Whence, the Feoffers, or Givers cannot demand any terrestrial Service, so long as the Lands remain in the Hands of the Feoffees. *Briton* mentions another kind of this Land given in Alms, but not *free* Alms; the Tenants being tied in certain Services to the Feoffer. See Almoin.

Frank *Bank*, see Free *Bench*.

Frank *Fee*, or *Feudum liberum*, is that for which no Service is perform'd to any Lord. See Fee.

According to *Fraehin. l. 7. c.* 39. Lands held in *Frank* Fee were exempted from all Services, except Homage.

Frank Fee, as defin'd by *Broke*, is that which is in the Hand of the King, or Lord of any Manor; being antient Demesne of the Crown: In Contradistinction to that in the Tenants Hands, which is only *Antient Demesne*. See Demesne.

In the *Reg. of Writs*, *Frank Fee* is said to be that which a Man holds at Common Law to him and his Heirs; and not by such Service as is requir'd in antient Demesne, according to the Custom of the Manor.

'Tis added, that the Land in the Hands of King *Edward* the Confessor, at the making of Domesday Book is Antient Demesne; and all the rest, *Frank* Fee. Upon this footing, all the Lands in the Realm are either Antient Demesne, or *Frank* Fee.——

Others define *Frank* Fee to be a Tenure in Fee Simple, of Lands pleadable at Common Law; and not in Antient Demesne.

Frank *Ferm*, or *Ferma libera*, is Lands or Tenements, wherein the Nature of the Fee is chang'd, by Feoffment, from Knights Services, to certain yearly Services; and whence neither Homage, Wardship, Marriage, nor Relief may be demanded: Nor any other Service, not contain'd in the Feoffment. See Fee *Farm*.

Frank *Fold*, is where the Lord hath the Benefit of *folding* his Tenants Sheep, within his Manor; for the manuring of his Land. See Faldage.

Frank *Law*, is the Benefit of the Free, and Common Law of the Land. See Law.

He that for any Offence, as Conspiracy, *&c.* looseth his *Frank Law*, incurs these Inconveniencies. 1° That he may not be impaneld upon any Jury or Assize; or otherwise us'd as an Evidence, or Witness to the Truth. 2° That if he have any thing to do in the King's Court, he must not approach it in Person, but appoint his Attorney. 3° That his Lands, Goods and Chattels be seiz'd into the King's Hands; and his Lands be estreated, his Trees rooted up, and his Body committed to Custody. See Conspiracy.

Frank *Marriage*, or *Liberum Maritagium*, is a Tenure in Tail Special, whereby Lands or Tenements are held to a Person and his Wife, and the Heirs of their Bodies, on condition of doing Fealty to the Donor from the fourth Degree.

This Tenure arises from these Words in the Gift: *Sciant*, &c. *me* T. B. *de* O. *dedisse ac concessisse, & præsenti charta mea confirmasse* A. B. *filio meo, & Mariæ uxori ejus, filiæ veræ* C. D. *in liberum maritagium unum Messuagium*, &c. See Tail.

Glanvil divides Marriage, *Maritagium*, into *liberum*, and *servitio obligatum*. See Marriage.

Fleta gives this reason, why the Heirs do not Service, till the fourth Degree: *Ne donatores vel eorum hæredes per homagii receptionem a reversione repellantur*: And why in the fourth Descent they shall do Service to the Donor, *Quia in quarto gradu vehementer præsumitur quod terra est pro defectu hæredum donatariorum reversura.*

Frank Marriage, or *Liberum Maritagium*, is more clearly express'd by *Bracton*, to be that where the Donor intends that the Land thus bestow'd, shall remain quiet, and free from all secular Service that might be affected to the Fee; so that he who gave it, shall claim no manner of Service from it, untill the third Heir, and the fourth Descent, or Degree; reckoning the Donee in the first Degree, his Heir in the second, the Heir of him in the third, and his, again, in the fourth: But afterwards the same Land to become subject to all the former Services; as being then suppos'd to revert to the Lord for want of Heirs.

The Lands otherwise given in Marriage, viz. *Servitio obligatæ* were with a Reservation of the Services due to the Lord, which the Donee and his Heirs were bound to perform for ever: Only, Homage was not to commence till the fourth Degree; when both Service and Homage were to be enjoin'd for ever.

Frank *Pledge*, signifies a Pledge, or Surety for a free Man; call'd also *Friburgh*. See Friburgh.

The antient Custom of *England*, for Preservation of the publick Peace, was, that every free born Man, at 14 Years of Age (religious Persons, Clerks, Knights, and their eldest Sons excepted) should find Surety for his Truth towards the King and his Subjects, or else he kept up in Prison.

Accordingly, a Number of Neighbours became interchangeably bound for each other, to see each Man of their Pledge forthcoming at all times; or to answer for the Offence committed by any one gone away: So that when ever one offended, it was presently enquir'd in what Pledge he was; and then those of the *Pledge* either brought him forth within one and thirty Days to his Answer; or satisfy'd for his Offence.

This Custom was call'd *Frank Pledge*; and the Circuit it extended to *Decenna*, by reason it usually consisted of ten Households; and every Person thus bound for himself and Neighbours, was call'd *Decennier*. See Decenna.

This Custom was so observ'd, that the Sheriffs at every County Court did from time to time take the Oaths of young Persons, as they arriv'd at the Age of 14; and see they were settled in one *Decenna*, or *Dozein* or another. Whereupon this Branch of the Sheriffs Office and Authority was call'd *Visus Franci Plegi*, i. e. *View of Frank Pledge*. See Leet, View *of Frank Pledge*, &c.

Omnis homo, sive liber, sive servus, aut est, vel debet esse in Franco Plegio, *aut de alicujus manupastu, nisi sit aliquis itinerans de loco in locum, qui non plus se teneat ad unum quam ad alium, vel quid habet quod sufficiat pro* Franco Plegio, *sicut dignitatem, vel ordinem, vel liberum tenementum, vel in civitate rem immobilem*, &c. *Bracton L. III. Tract. de Corona, c.* 10.

Frank *Chace*, is Liberty of Free Chace in a Circuit adjoining to a Forest, by which all Men, though they have Land of their own within that Compass, are forbidden to cut down Wood, without the View of the Forester; though it be their own Demesn.

FRANKINCENSE, or Incense, an odoriferous aromatic Gum, or Resin, antiently burnt in Temples, and still us'd in Pharmacy. See Gum, and Resin.

For all the great Use of this Gum, both in the antient Religion, and the modern Medicine; the Tree that produces it, or even the Place where the Tree grows, is but little known.

The most common Opinion has always been, that it was brought from *Arabia Fœlix*, and was found near the City of *Saba*; whence its Epithet *Sabæum*: And yet the Name *Olibanum*, which it sometimes bears, seems to intimate, that there are of these thuriferous, or Incense bearing Trees in the Holy Land near Mount *Libanon*. And Travellers are positive, that there are others in the *East Indies*.

Nor are we less at a loss as to the Form or Kind of the Tree from which it flows. *Pliny* contents himself to say, that it at first resembles the Pear Tree; then the Mastic Tree; then the Laurel; but that in reality it is the Turpentine Tree.

Frankincense, is either *Male*, or *Female*.

The *Male Incense*, call'd also *Olibanum*, is in fair, white Bits, or Tears, a little yellowish, of a bitter disagreeable Taste; and when chew'd, promotes the Flux of Saliva.

It is call'd *Male*, in respect of its Tears, which are larger than the common, or Female. See Olibanum.

That brought from the *Indies*, is not near so good as that from *Arabia*, or Mount *Libanon*. It is usually call'd *Incense of Mocha*, or Female Incense; tho' it be not brought from that City. 'Tis usually in a Mass, but sometimes in Drops or Tears; somewhat reddish, and bitter to the Taste.

Some sell it for the true *Bdellium*. See Bdellium.

The Manna of *Frankincense* is only little, round, clear, transparent Grains of the Incense it self.

Soot of Incense is the fine Flower, rub'd or ground off the Gum in Carriage, and burnt like Rosin, to make Lamp-black.——

Bark of Incense, is the Bark of the Tree that produces it. It has much the same Qualities, and the same Smell as the Incense it self.——

Jewish Incense is only red Storax. See Storax.

Male Incense, or *Olibanum*, is an Ingredient in divers *Galenical*, and Chymical Preparations. It is also us'd to assuage the Tooth-each: But it is apt to spoil the sound Teeth. The Female is inferior to it in all respects.

FRANKS, Francs, Frankis, or Franquis, a Name the *Turks*, *Arabs*, *Greeks*, &c. give to all the People of the Western Parts of *Europe*.

The Appellation is commonly supposed to have had its rise in *Asia*, at the time of the *Croisades*; when the *French* made the most considerable Figure among the *Croisees*: From which time the *Turks*, *Sarrazens*, *Greeks*, *Abyssineans*, &c. us'd it as a common Term for all the Christians of *Europe*; and call'd *Europe* it self, *Frankistan*.

The *Arabs* and *Mahometans*, says *Monsr. d'Herbelot*, apply the Term *Franks* not only to the *French* (to whom the Name originally belong'd) but to the *Latins* and *Europeans* in general.

Frank,

Frank, or *Frenk*, primarily denotes a *Frenchman*; and by Extension, an *European*, or rather a *Latin*, by reason, say they, the *French* distinguish'd themselves above the other Nations, engag'd in the Holy War. See CROISADE.

But Fa. *Goar*, in his Notes on *Codinus*, *c. V. n.* 43. furnishes another Origin of the Appellation *Franks*, of greater Antiquity than the former.

He observes that the *Greeks* at first confin'd the Name *Franks* to the *French*, i. e. the *German* Nations, who had settled themselves in *France*, or *Gaul*: But afterwards they gave the same Name to the *Apulians* and *Calabrians*, after they had been conquer'd by the *Normans*; and at length the Name was further extended to all the *Latins*.

In this Sense is the Word us'd by divers *Greek* Writers; as *Commenius*, &c. who, to distinguish the *French*, call them the *Western Franks*.

Du Cange adds, that about the time of *Charlemaign*, they distinguish'd Eastern *France*; Western *France*; and *Latin*, or *Roman France*, and *German France*, which was the antient *France*, afterwards call'd *Franconia*.

The FRANK *Language*, or *Lingua* FRANCA, is a kind of *Jargon*, spoke on the Mediterranean, and particularly thro'out the Coasts and Ports of the *Levant*; compos'd of *Italian*, *Spanish*, *French*, vulgar *Greek*, and other Languages.

The *Lingua Franca* is the *Trading Language*; and is thus call'd from the *Franks*, a common Appellation given in the *Levant* to all the *European* Merchants and Traders, who come thither to traffick.

In this Language, if it may be so call'd, nothing but the Infinitive Mond of each Verb is us'd; this serving for all the Tenses and Moods of the Conjugation: And yet this lame, mutilated Diction, this barbarous Medly, is learnt and understood by the Merchants and Mariners of all Nations who repair thither.

FRANK, or FRANC, is also an antient Coin, struck, and current in *France*; thus call'd from its Impression, which represented a *Frenchman*, sometimes on horseback, and sometimes on foot. See COIN.

The *Frank* was either of Gold, or Silver: The first was worth somewhat more than the Ecu d'Or, or Gold Crown; See ECU.

The second was a Third of the first: But the Money has been long disus'd.

The Term *Frank*, however, is still retain'd, as the Name of a Money of Account. In this Sense it is equivalent to a Livre, or 20 Sols, or $\frac{1}{3}$ of a *French* Crown.

Thus they say indifferently, a hundred *Franks*, or a hundred Livres. See LIVRE.

FRATERNITY, BROTHERHOOD, the Relation, or Union of Brothers, Friends, Partners, Associates, &c. See BROTHER, and COMPANY.

FRATERNITY, in a Civil Sense, is particularly us'd for a Gild, Association, or Society, of Persons, united into a Body, for some common Interest, Advantage, &c. For the Origin, Use, &c. of *Fraternities*, see GILD.

FRATERNITY, in a Religious Sense, is a Society of Persons, meeting together to perform some Exercises of Devotion, or Divine Worship. See SOCIETY.

In the *Romish* Church, such *Fraternities* are very numerous and considerable; being most of them establish'd by Royal Patents: As the *Fraternity* of the *Scapulary*; of St. *Francis's Cord*. The Bishop may hinder the Establishment of any such *Fraternity* in his Diocese. At *Rome* there is a *Fraternity* call'd the *Archi-Fraternity*, or Grand *Fraternity*, under the Title of *Our Lady of the Suffrages*, establish'd in favour of the Souls in Purgatory; approv'd and confirm'd by a Bull of Pope *Clement* VIII. in 1584.

There are nine different Sorts of *Fraternities*, or Confraieries in *France*, *viz.* 1° Of *Devotion*. 2° Of *Charity*, or *Mercy*. 3° Of *Penitents*, under divers Names. 4° Of *Pilgrimages*. 5° Of *Merchants*, to procure the Divine Favour on their Endeavours. 6° Of *Officers of Justice*. 7° Of *the Sufferings of Christ*. 8° Of *Arts* and *Trades* of divers kinds; and 9° Of *Factions*.

Fraternities, in *latin* call'd *Sodalitates*, derive their Origin from the Heathens; as is shewn by *Polydore Virgil*, in his Book de *Inventione Rerum*.

The good Use made of them by the Christians, has effectually purg'd them of any Impurities, deriv'd from so ill a Source.

Numa Pompilius is said to have establish'd *Fraternities* of all the Arts and Trades in antient *Rome*; and to have prescrib'd the Sacrifices each Profession was to perform to the Patrons or Tutelary Gods he had assign'd them. See COLLEGE.

FRATERNITY is also a Title, or Quality. See QUALITY.

Kings and Emperors gave it each other; so do Bishops, and Monks. We meet with it frequently in Authors under the Eastern Empire, both *Greek*, and *Latin*; ἀδελφότης, *Fraternitas*.

FRATERNITY *of Arms*, was an Alliance, or Association in Arms, antiently concluded between two Knights, who thereby agreed to go together, share their Fortune, and mutually assist each other against all the World.

Bertrand du Guesclin, and *Oliver Clisson* swore a *Fraternity* of Arms in the Year 1579. laying their Hands on the Gospels. *Hist. de Bret. T.* 1. *p.* 395.——

FRATICELLI, a Sect of Hereticks, who rose in the Marquisate of *Ancona*, about the Year 1294.

The Word is an *Italian* Diminutive, signifying *Fratriculi*, or little Brothers; and was here us'd, by reason they were most of them apostate Monks, whom the *Italians* call *Fratelli*.

The Founders were *P. Maurato*, and *P. de Fossombrone*; who having obtain'd of Pope *Celestin* V. a Permission to live in Solitude, after the manner of Hermits, and to observe the Rule of St. *Francis* in all its Rigor; several idle, vagabond Monks join'd them; who living after their own Fancies, and making all Perfection to consist in Poverty, were soon condemn'd by Pope *Boniface* VIII. and the Inquisitors order'd to proceed against them as Hereticks. Upon this, retiring into *Sicily*; *Peter John Oliva de Serignan* had no sooner publish'd his Comment on the Apocalypse, than they adopted his Errors.

They held the *Romish* Church to be *Babylon*; and propos'd to establish another far more perfect one; maintain'd that the Rule of St. *Francis* was the Evangelical Rule observ'd by Jesus Christ and his Apostles.

Some say they even elected a Pope of their New Church: At least they appointed a General, with Superiors: Built Monasteries, &c. Beside the Opinions of *Oliva*, they held that the Sacraments of the Church were useless; by reason those who administer'd them, had no longer any Power or Jurisdiction.

They were condemn'd a-fresh by Pope *John* XXII; but several of them returning into *Germany*, were sheltered by the Duke of *Bavaria*.

The *Fraticelli* had divers Denominations: They were call'd *Fraticelli*, by reason they liv'd in Community, in imitation of the Primitive Christians; *Dulcini*, from one of their Doctors; and *Bisoches*, for what reason we don't know.

FRATRAGE, FRATRIAGIUM, or FRERAGE, the Partition among Brothers, or Coheirs, coming to the same Inheritance or Succession. See PARTITION.

FRATRAGE is also us'd more particularly for that Part of the Inheritance, which comes to the youngest Brothers: For whatever the Cadets, or younger Brothers possess of the Father's Estate, they possess *ratione Fratragii*, and are to do Homage to the older Brother for it; in regard he is to Homage for the Whole to the Superior Lord. See HOMAGE.

FRATRES *Conjurati*, in our antient Law Books, &c. denote sworn Brothers, or Companions.

Sometimes they are also so call'd who were sworn to defend the King against his Enemies, *Leg. W.* 1. *cap.* 59. *Præcipimus ut omnes liberi homines sint* Fratres conjurati *ad Monarchiam nostram & Regnum nostrum contra inimicos pro posse suo defendendum.* Leg. Edu. cap. 35.

FRATRICIDE, the Crime of murthering ones Brother. See PARRICIDE.

Cain committed the first *Fratricide*: The Empire of *Rome* begun with a *Fratricide*.

FRAUD, a secret, under-hand, Deceit, or Injury, done any one.

To export, or import Goods by *Fraud*, or fraudulently, is to do it by indirect ways; in order to avoid the paying of Duty, &c. if they be permitted Goods; or if they be contraband Goods, to avoid the Penalties adjudg'd by the Laws. See DEFRAUD.

A *Fraudulent* ACTION, *Fraudulent* BANKRUPT, &c. see BANKRUPT.

FRAY, literally signifies to *fret*; as Cloth or Stuff does by rubbing, or over-much wearing.

Among Hunters a Deer is said to *fray her Head*, when she rubs it against a Tree, to cause the Pills of her new Horns to come off.

FRECKLES, a kind of little, hard, dusky Bubo's, or Pustles, arising on the Skin of the Face, or Hands; particularly in Persons of the fairest, finest Skins.

Some pick the *Freckles* out with a Pin; or squeeze them out with the Fingers.

Freckles, according to M. *Homberg*, are only the earthy, oily, and saline Part of the Sweat; retain'd in the Plexus, or Mashes of the Skin. While the aqueous Liquor, which was their Vehicle, is evaporated by the Heat of the Body, these grosser Parts are gradually accumulated, till the Mashes are full.

Some Parts of this Sweat, he observes, are continually oozing thro' the Cuticle; and being of a viscid nature, retain the Dirt, Dust, &c. that flies about the Face. This viscid Matter on the Surface of the *Freckles* will stick there, notwithstanding any repeated Wipings, which rather condense and press it into the Cavities thereof. 'Tis this Dust, thus incorporated with the glutinous Basis above-mentioned, that forms those black Specks on the Pores of most Peoples Noses in

Summer, call'd *Freckles*; which, as they may be squeez'd out by a dexterous Application of the Fingers, many People have been induc'd to take them for little Worms, generated in the Skin, whose Head is the little Speck above-mentioo'd; whereas, in reality, they are little Pelotoons of Sweat, dried io the Pores of the Skin; the outer Tip, or Extreme whereof is dirty, and blacken'd with the Dust continually floating in the Air, arrested by the glutinous Matter of the Sweat it self.——

They are found more about the Nose and Skin, than any where else; by reason the Skin is more stretch'd there, and consequently the Pores more patent, to receive the Dust, &c.

From this Theory it follows, that there can scarce be any such thing as an adequate Remedy or Preventive of *Freckles*. Temporary ones there may be, which shall draw out and dissipate, what Matter is already gather'd: But the Spaces will fill up again in time.

Bullocks Gall mix'd with Alum; and after the Alum has precipitated, expos'd three or four Months to the Sun in a close Phial, Mons. *Homberg* observes, is one of the best Remedies known for *Freckles*. It acts as a Lixivium; enters the Pores, and dilutes and dissolves the Coagulum of the *Freckles*. *Mem. de l'Acad. Royal des Scienc. An.* 1709. *p.* 472. &c.

FREE, a Term variously us'd; but generally in opposition to constrain'd, confined, necessitated. See FRANK.

Thus, a Man is said to be *free*, who is out of Prison: And a Bird is *free*, when let out of the Cage: *Free* from Pain, *i. e.* void of Pain: A *free* Air: *Free* Passage, &c.

But in speaking of Things endued with Understanding, the Word *Free* has a more peculiar relation to the Will, and implies its being at full Liberty. See LIBERTY.

The Stoicks maintain, that their sage or wise Man alone is *Free*. See STOIC.

Free is also us'd in opposition to *Slave*.

The Moment a Slave sets foot on *English* Ground, he becomes *free*. The finest Legacy the antient *Romans* could leave their Slaves, was their *Freedom*. See SLAVE, SERVITUDE, and MANUMISSION.

FREE *Will*, see WILL.

FREE *Thinker*, see DEIST.

FREE *Mason*, see MASON.

FREE *State*, is a Republick govern'd by Magistrates elected by the *free* Suffrages of the Inhabitants. See STATE.

Free, or *Imperial* Cities in *Germany*, are those not subject to any particular Prince; but govern'd, like Republicks, by their own Magistrates. See EMPIRE.

There were *Free Cities*, *Liberæ Civitates*, even under the antient *Roman* Empire: Such were those to whom the Emperor, by the Advice, or Consent of the Senate, gave the Privilege of appointing their own Magistrates, and governing themselves by their own Laws. See CITY.

FREE *Bench*, or *Franc Banc*, signifies that Estate in Copyhold Lands, which the Wife hath after the Death of her Husband, for her Dower, according to the Custom of the Manor. See DOWER.

Thus, at *Orleton* in the County of *Hereford*, the Relict of a Copyhold Tenant is admitted to her *Free* Bench, *i. e.* to all her Husband's Copyhold Land, during her Life, at the next Court after her Husband's Death. See BENCH.

Fitzherbert calls *Free* Bench a Custom, whereby, in certain Cities, the Wife shall have her Husband's whole Lands, &c. for her Dower.

Of this *Free Bench*, different Manors have different Customs: Thus, *E. gr.* in the Manors of East, and West *Emborne* in *Berks*, if a customary Tenant die, the Widow shall have her *Free Bench* in all his Copyhold Lands, *dum sola & casta fuerit*; but if she commit Incontinency, she forfeits her Estate: But if she will *come into Court riding backwards on a black Ram, with his Tail in her Hand*, rehearsing a certain Form of Words, the Steward is bound by the Custom to restore her to her *Free Bench*.

The like Customs are in the Manor of *Chadleworth* in *Berks*; that of *Tor* in *Devonshire*, and other Parts of the West.

FREE *Bord*, *Franc Bord*. In some Places three Feet, in some more, and in others less, is claim'd by way of *Free Bord* beyond, or without the Fence.—

Et totum Boscum, quod vocatur Brendewode, *cum* Franc Bordo *duorum pedum, & dimid. per circuitum illius bosci.* Mon. Ang. 2d Part, fol. 241.

FREE *Chapel*, is a Chapel founded by the King, and by him exempted from the Jurisdiction of the Ordinary. See CHAPEL.

Tho', a Subject may be licenc'd by the King to build such a Chapel; and by his Charter may exempt it from the Visitation of the Bishop, &c.

FREE *Stool*, see FRIDSTOLL.

FREE *Warren*, the Power of granting or denying Licence to any one to hunt in such and such Ground. See WARREN.

FREE *Fee*, see FEE.

FREE *Fair*, see FAIR.

FREE *Stone*, a white Stone, dug up in many Parts of *England*, that works like Alabaster; but more hard, and durable; being of excellent use in Building, &c. See STONE.

It is a kind of Greet, but finer sanded, and a smoother Stone.

FREEBOOTER, or FLIBUSTER, a Name given to the *Corsairs*, or Pirates, who scour the *American* Seas; particularly such as make War against the *Spaniards*. See BUCANEER.

The *French*, &c. call them *Flibustiers*, deducing the Word from the English *Flibote*, or *Flybote*; by reason the first Adventurers of this kind were the People of St. *Domingo*, who made their Excursions with *Flybotes*, which they had taken from the *English*.

FREEDOM, the Quality, or Habit of being *Free*. See FREE.

FREEDOM *of the Will*, a State, or Faculty of the Mind, wherein all the Motions of our Will are in our Power; and we are enabled to determine on this, or that; to do good, or evil, without any Force, or Constraint from any foreign Cause whatever. See LIBERTY.

The Schoolmen distinguish two kinds of *Freedom*.

Viz. FREEDOM *of Contradiction*, whereby we are at our choice to *will*, or *nill*; to love, or not love, &c.

Thus, if I give my Friend a Power to take my Horse; that Friend has *Freedom* of Contradiction, with respect to the Horse; since it is in his own Power, either to use him, or let him alone. See CONTRADICTION.

FREEDOM *of Contrariety*, or of *Contraries*, is that whereby we are at our choice to doo good, or evil; be virtuous, or vitious; take a Horse, or a Lion.

Thus if I offer my Friend a Horse, or a Lion; and give him his Option of the two, he is said to have a Liberty of Contrariety, over the Horse and Lion. See CONTRARIETY.

But the Logicians charge this as a faulty, or unartful Division; in regard one Member of the Division is contain'd in the other, as a Species in the Genus: For whatever is *free*, in respect of Contradiction, is also *free* in respect of Contrariety; tho' not *vice versa*: For if it be *free* for my Friend to take the Horse, or the Lion; it is also *free* for him, to let them both alone: But he may be *free* to take one of them, without a *Freedom* of chusing which to take.

Yet is the Distinction of some use; as it intimates that the Will is not always possess'd of both kinds of *Freedom*; and that the Matter, or Subject of the two is different.

The Will, tho' free, has not a Liberty of Contrariety: Thus, any evident Truth being propos'd to the Mind, *e. gr.* That the Whole is greater than a Part, we have a Power of not assenting thereto, by diverting our Attention to some thing else: But we have not a Power of dissenting from that Proposition, and judging that the Whole is not greater than the Part.

Hence, the Moralists commonly hold, that with respect to the Supreme Good, Mankind has a Liberty of Contradiction; inasmuch as he may abstain from the Love, or Pursuit thereof: But not a Liberty of Contrariety, whereby to hate Goodness.

Add, that tho' the human Mind may have a *Freedom* of Contradiction, with respect to all Objects, even the Supreme Good it self; yet the *Freedom* of Contrariety is restrain'd to certain Particulars, which either are, or appear to be Good: The Will having such a natural Propensity to Good, that it cannot desire evil, but under the Notion and Appearance of Good. See GOOD, and EVIL; see also NECESSITY.

FREEDOM *of Thinking*, see DEISM.

FREEDOM *of Conscience*, see LIBERTY, and TOLERATION.

FREEDOM *of a City*, *Town*, &c. A Right, or Capacity of exercising a certain Trade, or Employment in a City, or Town Corporate; and of being elected to the Dignities and Offices thereof, procur'd regularly by serving an Apprenticeship; but sometimes purchas'd with Money; and sometimes confer'd as a Favour or Complement. See CITY, CORPORATION, APPRENTICESHIP, &c.

FREEHOLD, FRANK TENEMENT, or *Liberum Tenementum*, is Land, or Tenement, which a Man holds in Fee, Fee Tail, or for Term of Life.

Freehold is of two kinds; *in Deed*, and *in Law*.

The first is the real Possession of Land, or Tenement in Fee, Fee Tail, or for Life: The other is the Right a Man has to such Land or Tenement before his Entry, or Seizure.

Freehold is likewise extended to such Offices as a Man holds in Fee, or for Life. See FEE.

Briton defines Franc Tenement to be a Possession of the Soil, or Services issuing out of the Soil, which a Free-man holds in Fee, or at least for Life, tho' the Soil be charg'd with *free* Services.——

FREEHOLD is also sometimes taken in opposition to *Villenage*. See VILLENAGE.

Lambard obſerves, that Land, in the *Saxons* time, was diſtinguiſh'd into *Bockland*, i. e. holden by Book, or Writing; and *Folk-land*, held without Writing.

The former, he ſays, was held on far better Condition, and by the better ſort of Tenants; as Noblemen and Gentlemen; being ſuch as we now call *Freehold*: The latter was moſtly in Poſſeſſion of Peaſants; being the ſame with what we now call *at the Will of the Lord*. See BOCKLAND, and FOLKLAND.

In *Reg. Judicial.* it is expreſs'd, that he who holds Land upon an Execution of a Statute Merchant, until he hath ſatisfy'd the Debt, *tenet ut liberum tenementum ſibi & aſſignatis ſuis*; and the ſame of a Tenant *per Elegit*: The Meaning of which ſeems to be, not that ſuch Tenants are *Freeholders*, but as *Freeholders* for the Time till they have receiv'd Profits to the Value of their Debt.——

In the antient Laws of *Scotland*, *Freeholders* are call'd *Milites*, Knights.——

FREEZE, or FRIZE, in Architecture, that Part of the Entablature of Columns, between the Architrave and Corniche. See ENTABLATURE.

The *Freeze* is properly a large, flat Face, or Member ſeparating the Architrave from the Corniche. See CORNICHE.

The Antients call'd it *Zophoros*, Ζωφορὸς, by reaſon it was uſually enrich'd with Figures of Animals; and our Denomination *Freeze* has a like Origin, being form'd of the Latin *Phrygio*, an Embroiderer, becauſe commonly adorn'd with Sculptures in Baſſo Relievo, imitating Embroidery.

The *Freeze* is ſuppos'd to be intended to repreſent the Heads of the tranſverſe Beams that ſuſtain the Roof or Covering.

In the *Tuſcan* Order it is quite plain: In the *Doric*, enrich'd with Triglyphs: In the *Ionic*, 'tis ſometimes made arch'd, or ſwelling; particularly in which caſe 'tis call'd by *Vitruvius*, *Pulvinatus*, *q. d.* pillow'd: In the *Corinthian*, and *Compoſite*, it is frequently join'd to the Architrave, by a little Sweep; and ſometimes to the Corniche. And in theſe richer Orders it it uſually adorn'd with Sculpture, Figures, Compartiments, Hiſtories, Foliages, Feſtoons, &c. See TUSCAN, DORIC, IONIC, &c.

As to the Height of the *Freeze*, 'tis in the general much the ſame with that of the Architrave.

The *Tuſcan* FREEZE, *Vitruvius* makes 30 Minutes; *Vignola*, 35; *Palladio*, who makes it ſwelling, gives it but 26; and *Scamozzi* 42. The *Doric*, in *Vitruvius* and *Vignola*, is 30 or 40 Min: In *Palladio*, &c. 45. The *Ionic*, *Vitruvius* makes flat, adorned with *Acanthus* Leaves, Lions, &c. and makes it 30 Minutes high: *Vignola*, who alſo makes it flat, gives it 45 Minutes: And *Palladio*, who makes it convex, or ſwelling, 27 Minutes; and *Scammozzi* 28. The *Corinthian*, *Vitruvius* enriches with *Acanthus* Leaves, human Figures, &c. and makes its Height 37 Minutes: *Vignola*, 45; *Palladio* 28; and *Scamozzi* 31¼. Laſtly, the *Compoſite*, which in *Vitruvius* is ſet with Cartouſes, and carv'd between them, is 52½ Min; *Vignola*, who makes it like *Vitruvius*, only gives it 45 Min. *Palladio* who makes it ſwelling, only 30: And *Scamozzi*, 32.

From the Variety of Enrichments practic'd on the *Freezes*, they become variouſly denominated.

Convex, or *Pulvinated* FREEZES, are thoſe whoſe Profile is a Curve; the beſt Proportion whereof, is, when drawn on the Baſe of an equilateral Triangle.

In ſome the Swelling is only a-top, as in a Conſole: In others at Bottom, as in a Balluſter.

Ruſtic FREEZES are thoſe whoſe Courſes are ruſticated, or imboſs'd; as in the *Tuſcan Freeze* of *Palladio*.——

Flouriſh'd FREEZES are thoſe enrich'd with Rinds of imaginary Foliages; as the *Corinthian Freeze* of the Frontiſpiece of *Nero*: Or with Natural Leaves, either in Cluſters; or Garlands: Or Continued, as in the *Ionic* of the Gallery of *Apollo* in the *Louvre*.

Marine FREEZES are thoſe repreſenting Sea Horſes, Tritons, and other Attributes of the Sea; or Shells, Baths, Grotto's, &c.——

Hiſtorical FREEZES are thoſe adorn'd with Baſs-Relievo's, repreſenting Hiſtories, Sacrifices, &c. as the Arch of *Titus* at *Rome*.——

Symbolical FREEZES are thoſe adorn'd with the Attributes of Religion; as the *Corinthian*, of the Temple behind the Capitol at *Rome*, whereon are repreſented the Inſtruments and Apparatus of Sacrifice.

FREEZE *of the Capital*, ſee HYPOTRACHELIUM.

FREEZE, in Commerce, a kind of Cloth, or Stuff; ſee FRIZE.

FREEZING, CONGELATION, in Phyſiology, the Fixing of a Fluid; or depriving it of its natural Mobility, by the Action of Cold: Or the Act of converting a fluid Subſtance into a firm, coherent, rigid one, call'd *Ice*. See ICE, and COLD.

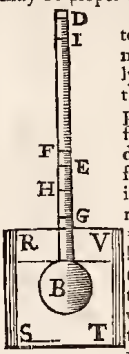
The *Carteſians* define *Freezing* to be the reſting of a fluid Body, harden'd by Cold; which follows naturally enough from their Notion of Fluidity, where the Parts are ſuppos'd to be in a continual Motion. See FLUID.

In effect, one may pretty ſafely ſay with ſome of thoſe Philoſophers, That Water only *freezes*, becauſe its Parts loſe their natural Motion, and adhere cloſe to each other. See FIRMNESS.

The Principal Phænomena of FREEZING are,

1° That Water dilated or rariſy'd, and all Fluids, Oil excepted, in *freezing*, *i. e.* take up more Space, and are ſpecifically lighter than before.

That the Bulk, or Dimenſions of Water is increas'd by *freezing*, is Matter of abundant Experiment; and here it may be proper to obſerve the Proceſs of Nature.



A Glaſs Veſſel, then, B D full of Water to D, being immerg'd in a Veſſel of Water, mix'd with Salt, R S T V, the Water preſently riſes from E to F; which ſeems owing to the ſudden Conſtriction of the Veſſel haſtily plung'd into ſo cold a Medium. Soon after, from the Point F it continually deſcends, condenſing, till it arives at the Point G; where, for ſome time, it ſeems to remain at reſt. But it ſoon recovers it ſelf, and begins to expand; riſing from G to H; and from thence, ſoon after, by one violent Leap, mounts to I. And here the Water in B is immediately ſeen all thick, and cloudy; and in the very Inſtant of this Leap, is converted into Ice. Add, that while the Ice is growing harder; and ſome of the Water near the Neck of the Veſſel B is *freezing*, the Flux of Water is continued above I, towards D, and it at length runs out at the Veſſel.

2° That they loſe not only of their Specifick, but alſo of their Abſolute Gravity, by *freezing*; ſo that when thaw'd again, they are found conſiderably lighter than before.

3° That *frozen* Water is nor quite ſo tranſparent, as when liquid; and that Bodies don't perſpire ſo freely thro' it.

4° That Water, when froze, evaporates almoſt as much as when fluid.

5° That Water does nor freeze in Vacuo; but requires the Preſence and Contiguity of the Air.

6° That Water which has been boiled, does not freeze quite ſo readily as that which has not.

7° That the Water being cover'd over with a Surface of Oil of Olives, does not freeze ſo readily as without it: And that Nut Oil abſolutely preſerves it under a ſtrong Froſt, when Olive Oil would not.

8° That Spirit of Wine, Nut Oil, and Oil of Turpentine don't freeze at all.

9° That the Surface of the Water, in *freezing*, appears all wrinkled; the *Rugæ*, or Wrinkles being ſometimes in parallel Lines, and ſometimes like Rays, proceeding from a Centre to the Circumference.

The Theories of FREEZING, or the Method of accounting for theſe Phænomena, are very numerous.

The great Principles different Authors have gone upon, are either, That ſome foreign Matter is introduc'd within the Pores of the Fluid, by whoſe means it is fix'd, its Bulk encreas'd, &c.

Or, that ſome Matter naturally contain'd in the Fluid, is now expell'd; by the Abſence whereof the Body becomes fix'd, &c.

Or, that there is ſome Alteration produc'd in the Texture or Form, either of the Particles of the Fluid it ſelf, or of ſomething contain'd within it.

To ſome one of which Principles all the Syſtems of *Freezing* are reducible.

I. The *Carteſians*, *e. gr.* who aſcribe all to the Quietude of the Parts of the Fluid, before in Motion; account for *Freezing* from the Receſs of the ætherial Matter out of the Pores of the Water. The Activity of that Æther, or ſubtle Matter, they hold to be that which gave the Particles of the Fluid their Motion: Conſequently, upon the Abſence of this Matter, the Fluidity muſt ceaſe.

Tho' others of the ſame Sect aſcribe *Freezing* to a Diminution of the uſual Force and Efficacy of the ætherial Matter, occaſion'd by an Alteration in the Temperature of the Air, whereby it is incapacitated for agitating the Parts of the Fluid as uſual.

II. The *Gaſſendiſts*, and other Corpuſcularians, with more Probability aſcribe the *Freezing* of Water to the Ingreſs of Multitudes of cold or frigorifick Particles, which entering the Liquor in Swarms; and diſperſing themſelves every way thro' it, do croud into the Pores of the Water, and hinder the wonted Agitation of its Parts; wedging it up, as it were, into the hard and conſiſtent Body of Ice. And hence its Increaſe of Dimenſions, Coldneſs, &c.

This

This Intromission of a foreign frigorifick Matter they suppose essential to *Congelation*; as that which characterises and distinguishes it from *Coagulation*: The former being effected indifferently by a hot, or cold Mixture; but the latter only by a cold one. See COAGULATION.

Of what kind these frigorific Particles are, or how they produce their Effect, is Matter of Debate; and has given occasion to various Systems.

Hobbs will have it common Air, which intruding into the Water in Congelation, entangles it self with the Particles of the Fluid; prevents their Motion, produces those numerous Bubbles observ'd in Ice; thus expanding its Bulk, and rendering it specifically lighter: But this Opinion is overturn'd by Mr. *Boyle*, who shews that Water will freeze in Vessels Hermatically seal'd, and into which the Air can have no Ingress; yet the Bubbles will be as numerous herein, as in that froze in the open Air. Add, that Oil is condens'd, in *freezing*: Consequently, the Air cannot there be the Cause.

Others, and those the greatest Number, will have the *freezing Matter* to be a Salt; arguing, that an Excess of Cold will render Water torpid; but never congeal it, without Salt. They are saline Particles, say they, and those dissolv'd and mix'd in a due Proportion, that are the chief Cause of *Freezing*: Congelation bearing a near relation to Crystallization. See CRYSTALLIZATION.

This Salt, they suppose of the Nitrous kind; and to be furnish'd by the Air, which is generally allow'd to abound in Nitre. See AIR, and NITRE.

How the Particles of Nitre may prevent the Fluidity of Water, is pretty easily accounted for: These Particles are suppos'd to be so many rigid, pointed Spicula, which are easily driven into the Stamina, or Globules of the Water; which thus becoming variously mingled and entangled therewith, by degrees infeeble and destroy the Motion thereof.

The Reason this Effect only arises in severe Winter Weather, is, that 'tis then only, that the retarding Action of the nitrous Spicula, is more than equal to the Power or Principle whereby the Fluid is otherwise kept in Motion, or dispos'd for Motion. See FLUID.

This Opinion is supported by the known Experiments of Artificial *Freezing*.

A Quantity of common Salt or Petre being mix'd with Snow, or Ice pulveriz'd; and the Mixture dissolv'd by the Fire: Upon immerging a Tube full of Water in the Solution; the Water, that Part of it next the Mixture, presently freezes, even in warm Air. Whence it is argued, that the Spicula of the Salt, by the Gravity of the Mixture, and of the incumbent Air, are driven thro' the Pores of the Glass, and mix'd with the Water: For that it is the Salt has the Effect, is evident; inasmuch as we know assuredly that the Particles of Water cannot find their Way thro' the Pores of Glass. In these *Artificial Freezings* whatever Part the Mixture is applied in, there is presently produc'd a Skin, or Lamina of Ice; whether at top, or bottom; or on the Sides: By reason there is always a Stock of saline Corpuscle, sufficient to overpower these Corpuscles of Fire: But *Natural Congelations* are confin'd to the Top of the Water, where the Salt most abounds.

Against this System the ingenious Author of the *Nouvelle Conjecture pour Expliquer la Nature de la Glace*, objects, That it does not appear, that Nitre always enters the Composition of Ice; but that if it did, it would come short of accounting for some of the principal Effects. For how, for instance, should the Particles of Nitre by entering the Pores of Water, and fixing the Parts, oblige the Water to dilate and render it specifically lighter? Naturally they should augment its Weight. This Difficulty, with some others, shew the Necessity of a new Theory. That Author, therefore, advances the following one, which seems to solve the Phænomena in a more easy, and simple manner; as not depending on the precarious Admission or Extrusion of any heterogeneous Matter.

III. Water, then, *freezes* in the Winter only, because its Parts being more closely join'd together, mutually embarrass one another, and lose all the Motion they had: And the Cause of this closer Union of the Water, is the Air; or rather an Alteration in the Spring and Force of the Air.

That there are an infinite Number of Particles of gross Air, interspers'd among the Globules of Water, is abundantly evident from Experiment: And that each Particle of Air has the Virtue of a Spring, is confess'd: Now, this Author argues, that the small Springs of gross Air mix'd with the Water, have more Force in cold Winter Weather, and unbend themselves more, than at other times. Hence, those Springs thus unbending themselves on one Side, and the external Air continuing to press the Surface of the Water on the other; the Particles of Water thus constring'd and lock'd up together, must lose their Motion and Fluidity, and form a hard consistent Body: Till a Relaxation of the Spring of the Air, from an Increase of Heat, reduce the Particles to their old Dimensions, and leave room for the Globules to flow again.

But this System has its Foible: The Principle on which it stands, may be demonstrated to be false. The Spring, or Elasticity of the Air is not increas'd by Cold; but diminish'd. Air expands it self by Heat; and condenses by Cold: And 'tis demonstrated in Pneumaticks, that the elastic Force of expanded Air, is to that of the same Air condens'd; as its Bulk when rarify'd, to its Bulk, condensed. See ELASTICITY, and AIR.

We don't know, whether it is worth mentioning, what some Authors have advanc'd, to account for the Increase of Bulk and Diminution of specific Gravity of frozen Water: *viz.* That the aqueous Particles, in their natural State, were nearly Cubes, and so fill'd their Space without the Interposition of many Pores: But that by Congelation they are chang'd from Cubes, to Spheres; whence a Necessity of a deal of empty Space between them. Cubic Particles are certainly much less proper to constitute a fluid, than spherical ones; and spherical Particles less disposed to form a fix'd, than cubic ones.

Thus much the Nature of Fluidity and Firmness easily suggests.

After all, for a consisting Theory of *Freezing*, we must recur either to the frigorific Matter of the Corpuscularians; consider'd under the Light and Advantages of the *Newtonian* Philosophy: Or to the ætherial Matter of the *Cartesians*, under the Improvements of Mons. *Gauteron*, in the *Memoires de l'Academie Royale des Sciences*, *An.* 1709.—

Each of which we shall here subjoin; and leave the Reader to make his Choice.

For the *first*: A Number of cold, saline Corpuscles being introduc'd into the Interstices between the Globules of Water; may be so near each other, as to be within the Spheres of one another's Attractions; the Consequence of which must be, that they will cohere into one solid, or firm Body: Till, Heat afterwards separating them, and putting them into various Motions, breaks this Union, and separates the Particles so far from one another, that they get out of the Distance of the attracting Force, and into the Verge of the repelling Force; and then the Water re-assumes its fluid Form.

For, that Cold and *Freezing* do arise from some Substance of a saline Nature floating in the Air, seems probable hence, that all Salts, and more eminently some particular ones, when mix'd with Snow, or Ice, do prodigiously increase the Force and Effects of Cold: Add, that all saline Bodies do produce a Stiffness and Rigidity in the Parts of those Bodies, into which they enter.

Microscopical Observations upon Salts manifest, that the Figures of some Salts, before they shoot into Masses, are thin, double, wedge-like Particles, which have abundance of Surface with respect to their Solidity (the Reason why they swim in Water, when once rais'd in it, tho' specifically heavier). These small Points of the Salt getting into the Pores of the Water, whereby also they are in some measure suspended in the Winter time (when the Heat of the Sun is not strong enough to dissolve the Salts into a Fluid, to break their Points, and to keep them in perpetual Motion) being less disturbed; are more at Liberty to approach one another; and by shooting into Crystals of the Form above mention'd, do, by their Extremities, insinuate themselves into the Pores of Water, and by that means *freeze* it into a solid Form.

Further, there are many little Volumes or Particles of Air, included at several Distances both in the Pores of the watry Particles, and in the Interstices made by the spherical Figures. By the Insinuation of these Crystals, the Volumes of Air are driven out of the watry Particles; and many of them uniting, form larger Volumes, which thereby have a greater Force to expand themselves, than when dispers'd; and so both enlarge the Dimensions, and lessen the specifick Gravity of the Water, thus congealed into Ice.

Hence also we may conceive, how Water impregnated with Salts, Sulphurs, or Earths, which are not easily dissolveable, may form itself into Metals, Minerals, Gums, and other Fossils; the Parts of these Mixtures becoming a Cement to the Particles of Water, or getting into their Pores, change them into these different Substances.

For the *second*: As an ætherial Matter or Medium is generally allow'd the Cause of the Motion of Fluids; see MEDIUM: And as the Air it self has all its Motion from the same Principle; it follows, that all Fluids must remain in a State of Rest, or Fixity, when that Matter loses of its necessary Force. Of consequence, the Air being less warm'd in the Winter time, from the Obliquity of the Rays of the Sun; the Air is denser, and more fix'd in Winter, than any other Season of the Year.

But further, from divers Experiments we have learnt, that the Air contains a Salt, suppos'd to be of the Nature of Nitre. This granted, and the Density of the Air allow'd, it follows, that the Molecules of this Nitre must likewise be

be brought nearer together, and thickn'd by the Condensation of the Air: As, on the contrary, a Rarefaction of the Air, and an Augmentation of its Fluidity, must divide and separate them.

If now the same Thing happen to all Liquors that have imbibed, or dissolv'd any Salt; if the Warmth of the Liquid keep the Salt exactly divided; and if the Coolness of a Cellar, or of Ice give occasion to the Molecules of the dissolv'd Salt to approach, run into each other, and shoot into Crystals: Why should the Air, which is allow'd a Fluid, be exempt from the general Law of Fluids?

'Tis true, the Nitre of the Air being grosser in cold Weather, than hot; must have less Velocity: But still, the Product of its augmented Mass, into the Velocity remaining, will give it a greater Momentum, or Quantity of Motion. Nor is any thing further requir'd to make this Salt act with greater Force against the Parts of Fluids: And probably, this is the Cause of the great Evaporation in frosty Weather.

This aerial Nitre must promote the Concretion of Liquids: For 'tis not the Air, nor yet the Nitre it contains, that gives the Motion to Fluids: 'Tis the Etherial Medium. From a Diminution of the Force of that, therefore, arises a Diminution of Motion of the rest.

Now the etherial Matter, weak enough of it self in the Winter time, must lose still more of its Force by its Action against Air condens'd and loaded with large Molecules of Salt. It must, therefore, lose of its Force in cold Weather, and become less dispos'd to maintain the Motion of Fluids. In a Word, the Air, during Frost, may be esteem'd like the Ice impregnated with Salt, wherewith we ice our Liquors in Summer time. Those Liquors, in all Probability, *freeze* from a Diminution of the Motion of the etherial Medium, by its acting against the Ice and Salt together: And the Air, for all its scorching Heat, is not able to prevent its Concretion.——

Freezing *Rain*, or *Raining Ice*, a very uncommon kind of Shower, which fell in the West of *England*, in *December*, *Anno* 1672; whereof we have divers Accounts in the *Philosophical Transactions*.

This Rain, as soon as it touch'd any thing above Ground, as a Bough, or the like; immediately settled into Ice; and by multiplying and enlarging the Icicles, broke all down with its Weight. The Rain that fell on the Snow, immediately froze into Ice, without sinking in the Snow at all.

It made an incredible Destruction of Trees, beyond any thing in all History: "Had it concluded with some Gust of Wind", says a Gentleman on the Spot, "it might have been of sad importance."

"I weigh'd the Sprig of an Ash Tree, of just three Quarters of a Pound; the Ice on which weigh'd 16 Pound."— "Some were frighted with the Noise in the Air; till they "discern'd it was the Clatter of icy Boughs, dash'd against "each other."

Dr. *Beale* observes, that there was no considerable Frost observ'd on the Ground during the whole; whence he concludes, that a Frost may be very fierce and dangerous on the Tops of some Hills, and Plains; while in other Places it keeps at two, three, or four Foot distance above the Ground, Rivers, Lakes, &c. And may wander about very furious in some Places, and remiss in others, not far off. The Frost was followed by glowing Heats, and a wonderful Forwardness of Flowers and Fruits. See Frost.

Freezing, in Commerce and Manufactures; see Frizing.

Freezing *Mixture*, a Preparation for the artificial Congelation of Water, and other Liquors.——

All kinds of Salts, whether alcalizate, or acid; and even all Spirits, as those of Wine, &c. as also Sugar, and *Saccharum Saturni*, mix'd with Snow, are capable of *freezing* other Bodies: And the same Effect is produc'd in a very great Degree by a Mixtion of Oil of Vitriol, or Spirit of Nitre with Snow: Thus Mr. *Boyle*.

Mons. *Homberg* observes the same of equal Quantities of corrosive Sublimate, and *Sal* Ammoniac, with four times the Quantity of Vinegar distill'd. See Waters.

FREEZELAND *Horse*, in War, the same with *Cheval de Frise*. See Cheval *de Frise*.

FRENCH, absolutely us'd, signifies the Language of the People of *France*. See Language.

The *French*, as it now stands, is no Original, or Mother Language; but a Medley of several: Scarce any Language, but it has borrowed Words, or perhaps Phrases, from.

The Languages that prevail most, and that are, as it were, the Basis thereof, are 1° The *Celtic*; whether that were a particular Language it self, or whether it were only a Dialect of the *Gothic*, as spoke in the West, and North. 2° The *Latin*, which the *Romans* carried with them into the *Gauls*, when they made the Conquest thereof. And 3°, The *Teutonic*, or that Dialect of the *Teutonic* spoke by the *Franks*, when they pass'd the *Rhine*, and establish'd themselves in the *Gauls*.

Of these three Languages, in the space of about thirteen hundred Years, was the *French* form'd; such as it is now found.

Its Progress was very slow; and both the *Italian* and *Spanish* were regular Languages long before the *French*.

Pasquier observes, it was under *Philip de Valois*, that the *French* Tongue first began to be polish'd; and that in the Register of the Chamber of Accounts of that Time, there is a Purity seen almost equal to that of the present Age.

However, the *French* was still a very imperfect Language, till the Reign of *Francis* I. The Custom of speaking *Latin* at the Bar, and of writing the publick Acts and Instruments of the Courts of Justices in that Language, had made them overlook the *French*, their own Language. Add, that the preceding Ages had been remarkable for their Ignorance, owing in good measure to the long and calamitous Wars, which *France* had been engag'd in: Whence, the *French* Noblesse deem'd it a kind of Merit, not to know any thing; and the Generals regarded little, whether or no they wrote and talk'd politely, provided they could but fight well.

But *Francis* I. who was the Restorer of Learning, and the Father of the Learned; chang'd the Face of Things; and after his Time *Henry Stevens* printed his Book *De la Precellence du Langage Francois*.

The Change was become very conspicuous at the End of the XVI Century; and under *Henry* IV. *Amyot*, *Coeffeteau*, and *Malherbe* contributed towards bringing it to Perfection: Which the Cardinal *de Richelieu* compleated, by the Establishment of the *French* Academy; an Assembly, wherein the most distinguish'd Persons of the Church, the Sword, and the Gown have been Members.

Nor did the long Reign of *Louis* XIV. contribute a little to the Improvement of the Language. The personal Qualities of that Prince, and his Taste for the polite Arts, and that of the Princes of the Blood, render'd his Court the politest in the World. Wit and Magnificence seem'd to vye; and his Generals might have disputed with the *Greeks*, *Romans*, &c. the Glory of Writing well, if they could not that of Fighting.

From Court, the Elegance, and Purity of the Language spread it self into the Provinces; and now there is no Body but writes and speaks good *French*.

One of the Characters of the *French* Language is to be natural, and easy. The Words are rang'd in it much in the same Order as the Ideas in our Minds; in which it differs exceedingly from the *Greek* and *Latin*, where the Inversion of the natural Order of the Words is a Beauty.

Indeed, the *Hebrew* surpasses even the *French* in this Point; but then it comes short of it in Copiousness and Variety.

It must be added, however, that as to the Analogy of Grammar, and the Simplicity wherewith the Moods of Verbs are form'd; the *English* has the Advantage, not only over the *French*, but over all the known Languages in the World: But then the Turns, the Expressions, and the Idioms of the *English* are sometimes so quaint, and extraordinary, that it loses a good deal of the Advantage which its grammatical Simplicity gives it over the rest. See English.

The *French* has but few compound Words; wherein it differs widely from the *Greek*, *High Dutch*, and *English*. This the *French* Authors own a great Disadvantage in their Language; the *Greek* and *Dutch* deriving a great Part of their Force and Energy from the Composition of Words; and frequently expressing that in one sounding Word, which the *French* cannot express but by a Periphrasis. And the Diminutives in the *French* are as few as the Compounds: The greatest Part of those remaining in use having lost their diminutive Signification. But what distinguishes the *French* most, is its Justness, Purity, Accuracy, and Flexibility.

French is the most universal and extensive Language in *Europe*. The Policy of States and Courts has render'd it necessary for the Ministers of Princes, and their Officers, &c. And the Taste of Arts and Sciences has had the same Effect with regard to the Learned.

In *Germany*, and elsewhere, the Princesses and Persons of Distinction value themselves on understanding *French*: And in several Courts of *Europe*, *French* is almost as much known as the Language of the Country; tho' the Court of *Vienna* is an Exception from this Rule. *French* is there very little us'd: The Emperor *Leopold* could not bear to hear it spoke in his Court: The *Latin* and *Italian* are there cultivated instead of it.

This Extensiveness of the *French* Language is no modern Advantage: *William* the Conqueror gave Laws to *England* in the *French* Language; and the ancient Customs of most of the Provinces of the *Netherlands* are wrote in the same.

Lastly, the *French* is the same Language every where; not only in all the Provinces of *France*, but in all the Places where 'tis spoke, out of *France*.

The ſeveral Nations who ſpeak *Sclavonic*, don't ſo much ſpeak the ſame Language, as different Dialects of the ſame Language. In ſeveral Parts of *Europe* there are as many different Languages, as there are States; and in *Italy* there are reckon'd no ſewer than ten or twelve Dialects, ſome of which differ as much from the common *Italian* as from the *French*, or *Spaniſh*. In *Holland*, the Seamen of *Rotterdam*, and the Banks of the *Meuſe*, don't underſtand thoſe of *Amſterdam*, and the Coaſts of the *Zuyder Zee*. They who underſtand *Caſtillan*, will not underſtand the Language of *Catalonia* and *Cerdagnia*. The *High Dutch* is not the ſame in *Sweeden*, as in *Jutland*: In the Low Countries, as at *Lubeck*. *Bohemia*, *Hungary*, *Croatia*, &c. are Countries belonging to the Emperor; yet ſpeak a Language different from that ſpoke at *Vienna*. The King of *Sweden*, when he ſpeaks the Language of his Country, will not be underſtood by his Subjects in *Pomerania*, *Lapland*, &c. And the like may be obſerv'd of the King of *Denmark*, with regard to his Subjects of *Norway* and *Iceland*: Whereas, at *Quebec*, the *Louiſiana*, *Martinico*, *St. Domingo*, *Pondicheri*, &c. they ſpeak the ſame Language as at *Paris*, and throughout the reſt of *France*.

For a critical Acquaintance with what regards the *French* Tongue, ſee the *Remarques* of M. *Vangelas*; and the *Obſervations* M. *Corneille* has made on thoſe Remarks: The *Remarques* of Fa. *Bouhours*; and the *Doubts* of a *Bas-Breton* Gentleman by the ſame Father: The *Converſations* of *Ariſte* and *Eugene*: The *Obſervations* of M. *Menage*, and his *Etymologies*; with thoſe of M. *Huet*: Fa. *Buffier's French* Grammar; and that of the Abbe *Regnier*. And the two Diſcourſes of the Abbe *de Dangeau*; one on the Vowels, and the other on the Conſonants.

FRENCH *Bread*, a Sort of Bread, valued for its Delicacy. See BREAD.

It is prepar'd by taking half a Buſhel of fine Flower, to ten Eggs, and a Pound and half of freſh Butter; and into that putting as much Yeſt with a Manchet.

Then, tempering the whole Maſs with new Milk pretty hot, let it lie half an Hour to riſe. Which done, make it into Loaves or Rolls, and waſh it over with an Egg, beaten with Milk. The Oven not to be too hot. See BAKING.

FRENCH-*Man*, ſee FRANCIGENA, and ENGLECERY.

FRENDLES *Man*, was the old *Saxon* Name for him whom we call an *Outlaw*. See OUTLAW.

The Reaſon is, becauſe he was, upon his Excluſion from the King's Peace and Protection, deny'd all Help of Friends after certain Days: *Nam foris fecit amicos*.

FRENZY, and FRENETIC, ſee PHRENZY, and PHRENETIC.

FRESCO, a kind of Painting; perform'd on freſh Plaiſter; or on a Wall laid with Mortar not yet dry; and with Water Colours. See PAINTING.

This ſort of Painting has a great Advantage: By its incorporating with the Mortar, and drying along with it, it is render'd extremely durable; and never fails or falls, but along with it. The *Italians*, from whom we borrow the Term, call it *a Freſco*: *Vitruvius*, *lib.* 7. *c.* 3. calls it *Udo Sectorio*.

Painting in *Freſco* is very antient; having been practiced in the earlieſt Ages of *Greece* and *Rome*.

It is chiefly perform'd on Walls and Vaults, newly plaiſter'd with Lime and Sand: But the Plaiſter is only to be laid, in proportion as the Painting goes on; no more being to be done at once, than the Painter can diſpatch in a Day, while it is dry.

Before he begins to paint, a Cartoon or Deſign is uſually made on Paper; to be calk'd, and transfer'd to the Wall, about half an Hour after the Plaiſter is applied.

The Antients painted on Stuck; and we may remark in *Vitruvius*, what infinite Care they took in making the Incruſtation or Plaiſtering of their Buildings to render them beautiful and laſting: Tho' the modern Painters find a Plaiſter made of Lime and Sand preferable thereto; both as it does not dry ſo haſtily; and as being a little browniſh, it is fitter to lay Colours on, than a Ground ſo white as Stuck.

In this kind of Painting, all the Compound and Artificial Colours, and almoſt all the Minerals are ſet aſide; and ſcarce any thing us'd but Earths; which are capable of preſerving their Colour, defending it from the burning of the Lime, and reſiſting its Salt, which *Vitruvius* calls its Bitterneſs.

For the Work to come out in all its Beauty; the Colours muſt be laid on quick, while the Plaiſter is yet moiſt: Nor muſt they ever be retouch'd, dry, with Colours mix'd up with the White of an Egg, or Size, or Gum, as ſome Workmen do; by reaſon ſuch Colours grow blackiſh: Nor do any preſerve themſelves, but ſuch as were laid on haſtily at firſt.

The Colours us'd, are *White* made of Lime ſlack'd long ago, and white Marble Duſt; *Oker*, both red, and yellow; Violet *Red*; Verditer; *Lapis Lazuli*; Smalt; Earth Black, &c. All which are only ground, and work'd up with Water; and moſt of them grow brighter and brighter, as the *Freſco* dries. See COLOUR, WHITE, BLACK, VERDITER, LAPIS, &c.

FRESH-*Water*, is that not tinctur'd or impregnated with Salt, or ſaline Particles, enough to be diſcoverable by the Senſe. See WATER.

Such generally is that of Springs, Rains, Wells, Lakes, &c. See SPRING, RAIN, WELL, LAKE, &c.

Dr. *Liſter* is of Opinion, that the natural and original State of Water is to be Salt: The *Freſhneſs* he ſuppoſes to be accidental, and to be owing to the Vapours of Plants, and the Breath of Animals therein; and to the Exhalations raiſed by the Sun.

Others will have Water originally *freſh*; and take its Saltneſs to be accidental: To account for which, a great Number of Hypotheſes have been fram'd. See SALTNESS.

The Saltneſs of Water is a foreign, and in moſt Caſes a hurtful Quality. It renders it not only nauſeous to the Taſte, but greatly prejudicial to the Body: And it is generally agreed, that thoſe Waters, *cæteris paribus*, are beſt, not only for drinking, but for œconomical Uſes, as Waſhing, Boiling, Brewing; which are the free'ſt from Saltneſs.—

Hence, various Methods have been contrived for examining the *Freſhneſs* of Waters; and of making ſalt Water *freſh*.

Mr. *Boyle* gives us a Method of examining the *Freſhneſs* of Water, by means of a Precipitate, which caſts down any ſaline Particles before floating therein.

Into 1000 Grains of diſtilled Water, he puts one Grain of Salt; and into the Solution lets fall a few Drops of a ſtrong well filtrated Solution of well refin'd Silver, diſſolv'd in clear *Aqua Fortis*; upon which there immediately appears a whitiſh Cloud, which, tho' but ſlowly, deſcends to the Bottom, and there ſettles to the Bottom in a white Precipitate, which is the ſaline Matter of the Fluid.

This Method, if it were requir'd, would examine Water to a greater Nicety, than that here ſpecify'd. It has diſcover'd Salt in Water, where there was but one Grain of the Salt in 2000, nay 3000 times the Weight of Water. in

The Experiment was tried before the Royal Society, in 1692. by Dr. *Sloan*; where it was likewiſe found that a Drop or two, even of Spirit of Salt, mix'd with common Water, would be diſcover'd by the ſame Method.——

Dr. *Hook*, in the ſame Year, read a Lecture before the Royal Society, on a Method of his own, for diſcovering the ſmalleſt Quantity of Salt contain'd in Water, on a Principle of Hydroſtaticks.

The Operation was perform'd by means of a large Poiſe of Glaſs, of the Shape of a Bolt Head; the Ball thereof three Inches in Diameter, and the Neck $\frac{3}{4}$ of a Inch. This being ſo pois'd, with red Lead put in it, as to make it very little heavier than *freſh* Water; and then ſuſpended by the ſmall Stem, which was graduated, to the End of a nice Beam of a Balance; and the Degree or Diviſion of the Neck, contiguous to the Surface of the Water, noted: Upon infuſing a Quantity of Salt, only equal to the two thouſandth Part of the Weight of the Water, the Neck of the Poiſe ſunk near half an Inch lower in the Water.

The Dulcifying, or making of ſalt Water *freſh*, is a Secret, and has been long ſought with great Attention.

Dr. *Liſter* takes the moſt eaſy, ſafe, and natural way of procuring *freſh* Water from the Sea, to be by putting Sea Plants, as *Alga Marina*, or common Sea Weed into a Quantity of the Water, in a Glaſs Body, with a Head, Beak, and Receiver: From which a *freſh*, ſweet, and potable Liquor will continually diſtill.

Monſ. *Hauton* has at length declared his Secret of making Sea Water *freſh*.

It conſiſts firſt, in a Precipitation, made with Oil of Tartar, which he can prepare at a ſmall Expence. Next he diſtills the Sea Water, with a Furnace contriv'd to take up little Room, and which, with a very little Fire, will diſtill 24 *French* Quarts of Water in a Day. For the Cooling thereof, inſtead of making the Worm paſs thro' a Veſſel full of Water, he makes it paſs thro' a Hole made on purpoſe out of the Ship, and enter it again at another; ſo that the Sea Water does the Office of a Refrigeratory. To the two proceeding Operations he joins Filtration, which is performed by a peculiar kind of Earth, mix'd and ſtirred with the diſtilled Water; and at length ſuffer'd to ſettle. This *Filtration* leaves it perfectly ſalubrious. *Phil. Tranſ.* N° 67.

FRESH *Fine*, is that which was levied within a Year paſt. *Weſtm.* 2. *c.* 45. See FINE.

FRESH *Force*, *Friſca Fortia*, in Law, is a Force done within forty Days. See FORCE.

If a Man be diſſeis'd of any Lands or Tenements, within any City or Borough; or before'd from them after the Death of his Anceſtors, to whom he is Heir; or after the Death of his Tenant for Life, or in Tail; he may, within forty Days after his Title accrued, have his Remedy by an Aſſize, or Bill of *Freſh Force*.

Fresh *Suite*, *Recens Insecutio*, is such a present and active Prosecution of an Offender, as never ceases, from the Time of the Offence committed, or discover'd, till he be apprehended. See Suite.

The Benefit of such Persuit of a Felon, is, That the Party persuing shall have his Goods restor'd to him, whereas otherwise they are the King's.

Fresh Suite may continue for seven Years.——

Fresh Suite is either within the View, or without. *Manwood* says, That upon *fresh* Suite within the View, Trespassers in the Forest may be attached by the Officers persuing them, tho' without the Limits of the Forest.

Fresh *Spell*, in the Sea Language, a *fresh* Gang, to relieve the Rowers in the Longboat. See Spell.

Fresh *Shot*, in the Sea Phrase, signifies the falling down of any great River, into the Sea; by means whereof the Sea hath *fresh* Water a good way from the Mouth of the River.

As this is more or less, they call it a *great* or *small Fresh Shot*.

FRET, or Frette, in Architecture, a kind of Knot, or Ornament, consisting of two Lists, or small Fillets variously interlac'd, or wove; and running at parallel Distances, equal to their Breadth.

A necessary Condition of these *Frets* is, that every Return, and Intersection be at Right Angles. This is so indispensible, that they have no Beauty without it; but become perfectly *Gothic*.

Sometimes the *Fret* consists but of a single Fillet; which, if well managed, may be made to fill its Space exceedingly well.

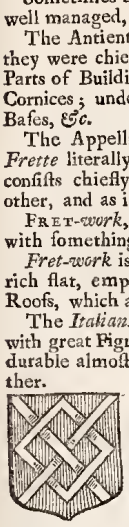
The Antients made great use of these *Frets*: The Places they were chiefly applied on, were even, flat Members, or Parts of Building; as the Faces of the Corona, and Eves of Cornices; under the Roofs, Soffits, *&c.* on the Plinths of Bases, *&c.*

The Appellation was occasion'd hence, that the Word *Frette* literally signify'd the Timber Work of a Roof, which consists chiefly, of Beams, Rafters, *&c.* laid a-cross each other, and as it were, *fretted*.

Fret-*work*, an Enrichment of *Frets*; or a Place adorn'd with something in manner thereof. See Fret.

Fret-work is sometimes used among us, to fill up, and enrich flat, empty Spaces; but 'tis principally practiced in Roofs, which are *fretted* over with Plaister Work.

The *Italians* also apply it to the Mantlings of Chimneys with great Figures: A cheap Piece of Magnificence, and as durable almost within Doors, as harder Matters in the Weather.



Fret, or Frette, in Heraldry, is a Bearing consisting of six *Bars*, cross'd, and interlac'd, *fret*-wise; as in the adjoining Figure.

He bears Diamond a *Fret* Topaz: The Coat Armor formerly of the Lord *Maltrevers*, and now quarter'd by the Duke of *Norfolk*.

When it consists of more than six Pieces, the Number must be specified.

Some call this the true Lovers Knot; others, *Harrington's* Knot, because 'tis their Arms, and *Nodoformo* the Motto. *Gibbon* is for calling it *Heraldorum Nodus Amatorius*.

FRETTY, or Frettee, in Heraldry, is where there are divers Bars laid a-cross each other.

Frettee is of six, eight, or more Pieces. Azure, *Fretty* of eight Pieces Or: The Coat of the Lord *Willoughby*.

Colombiere observes, that *Fretty* absolutely us'd, without any Addition, is suppos'd to be of six Pieces; that is, so many Bars or Pieces crossing each other: Which, therefore, need not be express'd; but if there be more, as much must be mention'd.

And yet *Guillim* has Azure, *Fretty* of six, Argent: The Coat of the antient Lords *Elthingham* of *Sussex*.

Guillim derives the Word from the French *Rets*, Net: But the Reader will easily furnish himself a better Etymology from the Word Fret, *in Architecture*.

FRIABLE, is applied to Bodies, to denote them tender and brittle; easily crumbled, or reduc'd to Powder between the Finger: Their Force of Cohesion being such as easily exposes them to Solution.

Such is Pumice, and all calcin'd Stones, burnt Alum, *&c.*

Friability is suppos'd to arise hence, that the Body consists wholly of dry Parts, irregularly combined, and which are readily separated, as having nothing unctuous, or glutinous to bind them together. See Cohesion.

FRIAR, or Frier, by the *Latins* call'd *Frater*, the *Italians Fraticello*, and the *French*, *Frere*, that is, *Brother*, is a Term common to the Monks of all Orders; founded on this, that there is a kind of Fraternity, or Broderhood presumed between the several religious Persons of the same Convent, or Monastery. See Brother, Monk, &c.

The kinds of *Friars* are very numerous, *Augustin Friars*; *Dominican*, or *Black*, or *Preaching Friars*; *Franciscan*, or *Grey*, or *Minor*, or *Begging Friars*; *Carmelites*, or *White Friars*, &c. See *Religious* Orders; see also Dominican, Franciscan, Carmelite, &c.

Friar, in its more peculiar and proper Sense, is restrain'd to such Monks, as are not Priests; for those in Orders, are usually dignify'd with the Appellation of *Father*. See Father.

Friars, or Friers *Observant*, *Fratres Observantes*, were a Branch of the *Franciscans*, which are *Minores tam Observantes*, *quam Conventuales & Capucini*. See Minor, and Observant.

They were called *Observants*, because not combined together in any Cloister, Convent, or Corporation, as the Conventuals are; but only agreed among themselves to observe the Rules of their Order, and that more strictly than the Conventuals did; from whom they separated themselves out of a Singularity of Zeal; living in certain Places of their own chusing.

FRIBURGH, or Frithborg, among our *Anglo-Saxon* Ancestors, denoted the same as *Frank-pledge* did after the Time of the Conquest. See Frank-pledge.

Præterea est quædam summa & maxima securitas, per quam omnes statu firmissimo sustinentur, viz. *ut unusquisq; stabiliat se sub fidejussionis securitate, quam Angli vocant* Freoborghes: *soli tamen Eboracenses dicunt eandem* Tienmannatale, *quod sonat latine decem hominum Numerum. II Edu. per Lam.*

Every Man in this Kingdom was antiently associated in some Decennary, or Company of ten Families, who were pledg'd or bound for each other, to keep the Peace, and observe the Law. See Decenna.

If any Offence was done by one, the other nine were to answer it: That is, if the Criminal fled from Justice, they had thirty Days allow'd to apprehend him: If he was not taken in that time, he who was the *Friburgh*, i. e. the principal Pledge of the ten, should take two of his own Number, and the chief Pledges of three neighbouring *Friburghs*, with two others out of each of the said *Friburghs*; who were to purge themselves and their *Friburgh* of the Forfeiture and Flight of the Criminal. If they could not do this, the principal Pledge, with the other eight, were to make Satisfaction.

Great Men were not combined in any ordinary *Decenna*, or Dozein; as being deem'd a sufficient Assurance for themselves and their menial Servants. See Dozein.

FRICASSEE, a Dish, or Mess, hastily dress'd in a Pot, or Frying-pan, and season'd with Butter, Oil, or the like.

Thus we say, a *Fricassee* of Pullets, of Rabbits, of Tenches, of Tripe, of Frogs, of Eggs, of Peas, *&c.*

The Word is pure *French*, form'd of the Latin *Frigatura*, frying. Others will have *Fricassee* form'd in imitation of the Noise made by Butter, or other Fat, when melted in the Pan.

FRICTION, the Act of rubbing, or grating the Surface of one Body against that of another; called also *Attrition*.

The Phænomena arising upon the *Friction* of divers Bodies under divers Circumstances, are very numerous and considerable.

Mr. *Hawksbee* gives us a Number of Experiments of this Kind: Particularly that of the Attrition, or *Friction* of Glass, under various Circumstances; the Result of which was, that it yielded Light, became Electrical, *&c.* See Attrition, Electricity, &c.

All Bodies by *Friction* are brought to conceive Heat; many of them to emit Light; particularly a Cats-back, Sugar, beaten Sulphur, Mercury, Sea Water, Gold, Copper, *&c.* But above all, Diamonds, which when briskly rubb'd against Glass, Gold, or the like, yield a Light, equal to that of a live Coal, when blowed by the Bellows. See Fire, Light, Heat, Phosphorus, Diamond, &c.

Friction, in Mechanicks, the Resistance a moving Body meets withal from the Surface whereon it moves. See Resistance.

Friction, arises from the Roughness or Asperity of the Surface of the Body mov'd on, and that of the Body moving. For such Surfaces consisting alternately of Eminences, and Cavities; either the Eminences of the one must be raised over those of the other; or they must be both broke and wore off: But neither can happen without Motion; nor can Motion be produc'd without a Force impress'd. Hence, the Force applied to move the Body, is either wholly, or partly spent on this Effect; and consequently there arises a Resistance, or *Friction*: Which will be greater, *cæteris paribus*, as the Eminences are the greater, and the Substance the harder. And as the Body, by continual *Friction* grows more and more Polite, the *Friction* diminishes.

Hence it follows, that the Surfaces of the Parts of Machines that touch each other, should be as smooth and polish'd as possible. But, as no Body can be so much polish'd, as quite to take away all Inequality; witness those numerous Ridges discover'd by the Microscope on the smoothest Surfaces: Hence arises the Necessity of anointing the Parts that touch, with Oil, or other fatty Matter.

Laws of Friction.

1° *As the Weight of a Body moving on another, is increased, so is the* Friction.

This we see experimentally in a Balance; which when only charged with a small Weight, easily turns; but with a greater, a greater Force is required.

Hence, if the Line of Direction of a moving Body be oblique to the Surface moved on; the *Friction* is the greater; this having the same Effect as an Increase of Weight.

And hence, again, as a perpendicular Stroke, or Impression is to an oblique one as the whole Sine, to the Sine of the Angle of Incidence; and the Sine of the greater Angle is greater, and that of the lesser, less: The *Friction* is the greater, as the Line of Direction approaches nearer to a Perpendicular.

This is easily observable, and especially in the Teeth of Wheels, which are frequently broke on this very account. The *Friction*, therefore, is taken away, if the Line of Direction of the moving Body be parallel to the Surface.

2° *The* Friction *is less in a Body that rolls, than it would be were the same Body to slide*, as is easily demonstrated.

For suppose a dented Ruler, A B, *Tab. Mechanicks, Fig.* 38. and suppose a Wheel D E to move along it, with its Teeth perpendicular to the Circumference. If now the Body were to slide; the Tooth F, when it touch'd the Ruler, would describe a Right Line on the Surface thereof: And, as the Tooth of the Ruler, H, resists the same; it could not proceed without removing, or breaking either the Tooth H; or that F. And the same will hold in the sliding of any rough Surface upon another; where all the *Friction* will take place, than can any way arise from the Roughness of the Surface. But if the Wheel E D roll along the Ruler, then the Tooth H will no longer resist its Motion, only as it is to be hoisted out of the Cavity F over the Eminence of the Tooth H: And the same holds in the robbing of any rough Body over the Surface of another.

Hence, in Machines, left the *Friction* should employ a good Part of the Power; Care is to be taken, that no Part of the Machine slide along another; if it can be avoided: But rather that they roll, or turn upon each other. With this View it may be proper to lay the Axes of Cylinders, not, as is usually done, in a Groove, or Concave Matrix; but between little Wheels, A B C D *Fig.* 39. moveable on their respective Axes. This was long ago recommended by *P. Casatus*; and Experience confirms, that we save a deal of Force by it. Hence also it is that a Pully moveable on its Axis resists less than if it were fix'd. And the same may be observ'd of the Wheels of Coaches, and other Carriages.

From these Principles, with a little further Help from the higher Geometry, *Olaus Roemer* determined the Figure of the Teeth of Wheels, that should make the least Resistance possible; and which should be epicycloidal. And the same was afterwards demonstrated by *de la Hire*; tho', which is to be lamented, the Thing is not yet taken into Practice.

Hence in Sawing-Mills, the Sides of the wooden Rectangle the Saws are fitted into, should be furnish'd with *Rotulæ*, or little Wheels; which would greatly lessen the *Friction*; and the like in other Cases. Add, that as Winches, or curved Axes prevent all *Friction*; those should be used in lieu of Wheels, as often as it is possible. See Winch.

Calculation of the Quantity or Value of Friction.

The *Friction* is a Point of the utmost Importance in Machines; and by all means to be consider'd, in calculating the Force thereof: Yet it is generally overlook'd in such Calculations: But this, principally, by reason its precise Value is not known.

It is not yet reduc'd to certain, and infallible Rules: The common Method is, barely to compute the Advantage, which a moving Power has from the Machine; either on account of its Distance from a fix'd Point; or of the Direction in which it acts. And in all the Demonstrations it is suppos'd that the Surfaces of Bodies are perfectly smooth and polish'd. Indeed the Engineers expect, that in the Practice they should lose part of the Advantage of their Force, by the *Friction*: But how much, it is suppos'd nothing but the Practice can determine. M. *Amontons*, indeed, has made an Attempt to settle, by Experiment, a Foundation for a precise Calculation of the Quantity of *Friction*; and M. *Parent* has confirm'd it from Reasoning, and Geometry: But their Theory, however warranted, is not generally, and fully received.

M. *Amonton*'s Principle, is, that the *Friction* of two Bodies depends on the Weight, or Force wherewith they bear on each other; and only increases as the Bodies are more strongly press'd, or applied against each other; or are charged with a greater Weight: And that it is a vulgar Error, that the Quantity of *Friction* has any Dependance on the Bigness of the Surfaces rub'd against each other; or that the *Friction* increases as the Surfaces do.

Upon the first Proposal of this Paradox, M. *de la Hire* had Recourse to Experiments, which succeeded much in favour of the new System. He laid several Pieces of rough Wood, on a rough Table: Their Sizes were unequal; but he laid Weights on them, so as to render them all equally heavy. And he found, that the same precise Force, or Weight, applied to them by a little Pully, was requir'd to put each in Motion; notwithstanding all the Inequality of the Surfaces. The Experiment succeeded in the same manner in Pieces of Marble, laid on a Marble Table.

Upon this, M. *de la Hire* betook himself to the Rationale of the Thing; and has given us a Physical Solution of the Effect: And M. *Amontons* settled a Calculus of the Value of *Friction*, and the Loss sustain'd thereby in Machines, on the footing of the New Principle.

In Wood, Iron, Lead, and Brass, which are the principal Materials us'd in Machines, he finds the Resistance caused by *Friction*, to be nearly the same; when those Materials are anointed with Oil, or other fatty Matter: And this Resistance, independant of the Quantity of Surface, he makes to be nearly equal to a third Part of the Force wherewith the Bodies are press'd against each other.

Beside the Pression, the Magnitude whereof determines that of the *Friction*; there is another Circumstance to be consider'd, *viz.* the Velocity. The *Friction* is the greater; and the more difficult to surmount, as the Parts are rub'd against each other with the greater Swiftness: So that this Velocity must be compared with that of the Power necessary to move the Machine, and overcome the *Friction*. If the Velocity of the Power be double that of the Parts rub'd; it acquires, by that means, an Advantage that makes it double; or, which amounts to the same, diminishes the contrary Force of *Friction* by one half; and reduces it to a sixth Part of the Weight or Pression. But this Velocity M. *Amontons* only considers as a Circumstance that augments or diminishes the Effect of the Pression, *i. e.* the Difficulty of the Motion: So that the *Friction* still follows the Proportion of the Weight. Only, we are hereby directed to dispose the Parts of Machines that rub against each other, in such manner as that they may have the least Velocity possible: And thus the Diameter of the Axis of a Wheel should be as small as possible, with regard to that of the Wheel; in that the lesser the Axis, the slower will be the Motion of the Surfaces rubbing against each other: since the Velocity of a circular Motion always goes diminishing from the Circumference to the Centre. And for the same Reason the Teeth of dented Wheels should be as small and thin as possible: For a Tooth catching on a Notch, &c. rubs one of its Sides against a Surface equal to its own; and is to disengage it self in a certain time by passing over a Space equal to the Surface: Consequently, the less the Surface, the less Space it has to move; the littleness of the Surface diminishing the Resistance of the *Friction*; not as it is a less Surface that rubs, but as there is a less Space to move.

But notwithstanding all the Confirmations and Illustrations of this Theory of *Friction*; the Publick, nor even the Academy it self where it was proposed, could not be brought fully to acquiesce in it. 'Tis granted, the Pression has a great Effect; and is, in many Cases, the only Thing to be consider'd in *Frictions*: But 'twill be hard to persuade us absolutely to exclude the Consideration of the Surface. In effect, the Contrary seems capable of a Metaphysical Demonstration.

If two Bodies with plain Surfaces, supposed infinitely hard, and polish'd, be moved along each other; the *Friction* will be none, or infinitely small: But, if in lieu of such Supposition, which has no Place in Nature, we suppose two Bodies with rough, uneven Surfaces; the Difficulty of moving one of them on the other, must either arise from this, that the first is to be rais'd, in order to disengage the Parts catch'd or lock'd in the second; or that the Parts must be broke and wore off; or both.

In the first Case, the Difficulty of raising one of the Bodies, makes that of the Motion; and of consequence, the *Friction* arises wholly from the Weight, or Pression; and the Surface has nothing to do.

In the second Case, the Magnitude of the Surface would be all; were it possible this second Case could be absolutely abstracted from the first; *i. e.* could the Parts of one Body be rub'd and wore against those of the other, without raising one of them; it being visible that a greater Number of Parts to be broke would make a greater Resistance, than a less. But as in Practice we never rub, or grind without raising the Body; the Resistance arising from the Greatness of the Surface is always combined in the second Cause with that from the Pression: Whereas in the former Case that arising from the Pression, may be alone, and uncompounded.

Add, that what is wore off a Body, is ordinarily very little; with regard to the great Number of times the Body must have been raised during the *Friction*; and all the little Heights added together, which the Body must have been raised to.

Hence,

Hence, as the Resistance from Pression may be single; and as the same always accompanies that arising from the Magnitude of the Surfaces; and is usually much the more considerable of the two, when it does accompany it: For these Reasons in most of the Experiments that are made, it is the only one perceived, and the only one that need to be consider'd.

But then, as 'tis possible, in certain Cases, for the Pression to be very slender; and the Number of Parts to be rub'd very great: It must be own'd there are Cases wherein the *Friction* follows very sensibly the Proportion of the Surfaces.

For the Friction *of the Parts of Fluids*, see Resistance, and Retardation *of Fluids*.

Friction, in Medicine, and Chirurgery, the Act of rubbing a diseased Part with Oils, Unguents, or other Matters, in order to ease, relieve, and cure it. See Unguent.

Frictions are much used, especially abroad, in Venereal Cases; where they prefer the applying of Mercury externally, by way of *Friction*; to that of giving it internally to raise a Salivation. See Salivation, and Mercury.

There are also *Frictions with the Flesh-brush*, a *linen Cloth*, or the *Hand* only: For the Effect of which last, see Stroaking.

Frictions in the general, and of any kind, are a sort of Exercise that contributes very greatly to Health; as they excite and stir up the natural Warmth, divert Defluxions, promote Perspiration, open the Pores of the Skin, and carry off Humors.

The *Flesh-brush*, Dr. *Cheyne* observes, is an Exercise most useful for promoting a full and free Perspiration and Circulation. Every Body knows the Effect of currying of Horses; that it makes them sleek, gay, lively, and active; so as to be judg'd equivalent to half the Feeding.

This it can no otherwise effect, but by assisting Nature to throw off the Recrements of the Juices which stop the free Circulation; and by constant *Friction*, Irritation and Stimulation, to call the Blood and Spirits to the Parts most distant from the Seat of Heat, and Motion, and so plump up the superficial Muscles. And the same Effects it would have in other Creatures, and Man himself, if managed in the same manner, and with the same Care and Regularity.

Persons, therefore, of weak Nerves and sedentary Lives, would do well to supply the Want of other Exercise with spending half an Hour, Morning and Night, in currying and rubbing their whole Body, especially their Limbs, with a Flesh-brush. See Exercise.

Friction, or Frixion, in Chymistry, is the same with what in Cookery we call *Frying*, *viz.* a Preparation of certain Matters in a Pan, with the Addition of some unctuous thing, as Oil, Fat, *&c.*

The *Frixion* of Medicines is perform'd over a slow, moderate Fire; and that of Foods over a quick one.

FRIDSTOLL, and Frithstow, in our antient Writers, signifies a Seat, Chair, or Place of Peace. See Sanctuary.

In the Charter of Immunities granted to the Church of St. *Peter* in *York*, by *Hen.* 1. and confirmed *An.* 5. *H.* 7. we read thus,—*Quod si aliquis vesano spiritu agitatus diabolico ausu quemquam capere præsumerit in Cathedra lapidea juxta Altare, quod Anglici vocant* Fridstol, *i. e.* Cathedra quietudinis *vel* pacis; *hujus tam flagitiosi sacrilegii emendatio sub nullo judicio erat, sub nullo pecuniæ numero claudebatur, sed apud Anglos* Botelee, *hoc est, sine emenda, vocabatur.*

Of these there were many others in *England*; but, the most famous was at *Beverly*, which had this Inscription, *Hæc sedes lapidea* Freedstoll *dicitur, i. e.* Pacis Cathedra, *ad quam reus fugiendo perveniens, omnimodam habet securitatem.* Camb.

It signifies also a Palace, which is usually a privileg'd Place.

FRIENDLY *Society*, see Office of Insurance.

FRIEZE, or Frize, or Freeze, in Architecture, a Member, or Division of the Entablature of Columns, by the Antients call'd *Zophoros*. See Freeze.

FRIGATOON, a *Venetian* Vessel, commonly us'd in the *Adriatick*.

It is built with a square Stern, and without any Fore-mast; having only a Main-mast, Missen-mast, and Bowsprit.

FRIGID, of the Latin *frigidus*, cold, is variously used.

A *frigid* Style, is a low, jejune manner of Diction, wanting Force, Warmth of Imagination, Figures of Speech, *&c.* See Style.

Frigid *Zone*, or *Frozen Zone*, in Geography. See Zone.

FRIGIDITY, is also used in the same Sense with *Impotency*; see Impotency.

FRIGORIFIC, in Physicks; something that occasions cold. See Cold.

Some Philosophers, particularly *Gassendus*, and other Corpuscularians, denying Cold to be a mere Privation or Absence of Heat, contend that there are actual *frigorific* Corpuscles, or Particles as well as fiery ones: Whence proceed Cold and Heat. But the later Philosophers allow of no other *frigorific* Particles, beside those nitrous Salts, which float in the Air in cold Weather, and occasion Freezing. See Freezing.

FRIPPERY, a *French* Term, sometimes used in our Language.

Frippery, or *Fripperie*, properly imports the Trade, or Traffick of old second-hand Cloaths, and Goods.

The Word is also used for the Place, where such sort of Commerce is carried on, and even for the Commodities themselves.——

The Company of *Frippiers*, or *Fripperers* at *Paris*, are a regular Corporation, of an antient Standing, and make a considerable Figure among the *Communautes* of that City. See Broker.

FRIT, or Fritt, in the Glass Manufacture, is the Matter, or Ingredients, whereof Glass is to be made, calcined, or baked in a Furnace. See Glass.

A Salt drawn from the Ashes of the Plant Kali, or from Fern, mix'd with Sand, or Flints, and baked together, make an opake Mass, called by Glassmen *Frit*; probably from *frittare*, to fry; or by reason the *Frit*, when melted, runs into lumps like *Fritters*, called by the *Italians*, *Fritelli*.

By the Antients it was called *Hammonitrum*, or *Ammonitrum*, of ἄμμος, Sand, and νίτρον, Nitre: Under which Name it is described by *Pliny* thus: Fine Sand from the *Volturnian* Sea, mix'd with three times the Quantity of Nitre, and melted, makes a Mass call'd *Ammonitrum*; which being re-boiled, makes pure Glass. *Hist. Nat. L.* 36. *c.* 26.

Frit, *Neri* observes, is only the Calx of the Materials which make Glass; which, tho' they might be melted, and Glass be made without thus calcining them, yet would it take up much more Time. This Calcining, or making of *Frit*, serves to mix and incorporate the Materials together, and to evaporate all the superfluous Humidity. The *Frit* once made, is readily fused and turned into Glass.——

There are three kinds of *Frits*: The First, *Crystal Frit*, or that for Crystal Metal, made with Salt of Polverine and Sand.

The Second, and ordinary *Frit* is made of the bare Ashes of Polverine, or Barillia, without extracting the Salt from them. This makes the ordinary white, or crystal Metal.

The Third, is *Frit* for Green Glasses, made of common Ashes, without any Preparation. This last *Frit* will require 10 or 12 Hours baking.

The Materials in each, are to be finely powder'd, wash'd, and sierced; then equally mix'd; and frequently stirr'd together in the Melting Pot. For the rest see Glass, and Crystal.

FRITHBURGH, see Friburgh.

FRITHGILD, was antiently the same we now call a *Guild*, or a *Fraternity*, or *Company*. See Gild.

FRIZE, or Frieze, in Architecture, a Part of the Entablature of Columns, more usually wrote, and pronounced *Freeze*. See Freeze.

Frize, or Freeze, in Commerce, a kind of woollen Cloth, or Stuff, for Winter Wear, being *frized* or nap't on one Side; whence, in all Probability, it derives its Name.

Of *Frizes*, some are cross'd; others not cross'd. The former are chiefly of *English* Manufacture: The latter of *Irish*. See Frizing.

FRIZING *of Cloth*, a Term in the Woolen Manufactury, applied to the forming of the Nap of a Cloth, or Stuff, into a number of little hard Burs, or Prominences, covering almost the whole Ground thereof.

Some Cloths are only *frized* on the Back-side; as black Cloths: Others on the right Side, as colour'd and mix'd Cloths, Rateens, Bays, Frizes, *&c.*

Frizing may be perform'd two ways: One *with the Hand*, *i. e.* by means of two Workmen, who conduct a kind of Plank, that serves as a *frizing* Instrument.

The other *by a Mill*, work'd either by Water, or a Horse; or sometimes by Men. This latter is esteem'd the better way of *frizing*; by reason the Motion being uniform, and regular, the little Knobs of the *Frizing* are form'd more equably, and alike. The Structure of this useful Machine is as follows.

The three principal Parts are, The *Frizer*, or Crisper; the *Frizing* Table; and the *Drawer*, or Beam.

The two first are two equal Planks or Boards, each about ten Foot long, and fifteen Inches broad; differing only in this, that the *Frizing* Table is lined, or cover'd with a kind of coarse Woolen Stuff, of a rough, sturdy Nap; and that the Frizer is incrustated with a kind of Cement, composed of

Glue, Gum Arabick, and yellow Sand, with a little *Aqua Vitæ*, or Urine. The *Beam*, or Drawer, is thus called, by reason it draws the Stuff from between the *Frizer* and *Frizing* Table, which is a wooden Roller, beset all over with little, fine, short Points or Ends of Wire, like those of Cards, used in carding of Wool.

The Disposition and Use of the Machine is thus: The Table stands immoveable, and bears, or sustains the Cloth to be frized, which is with that Side uppermost, on which the *Frize* is to be raised. Over the Table is plac'd the *Frizer* at such Distance from it, as to give room for the Stuff to be pass'd between them: So, that the *Frizer* having a very slow semicircular Motion, meeting the long Hairs or Nap of the Cloth, twists and rolls them into little Knobs, or Buttons; while, at the same time, the Drawer, which is continually turning, draws away the Stuff from under the Frizer, and winds it over its own Points.

All that the Workman has to do while the Machine is going, is to stretch the Stuff on the Table, as fast as the Drawer takes it off; and, from time to time, to take off the Stuff from the Points of the Drawer.

It has already been observ'd, that the *Frizing* Table is lined with Stuff of a short, stiff, stubby Nab; the Use whereof is to detain the Cloth between the Table, and Frizer long enough for the Grain to be form'd; that the Drawer may not take it away too readily; which must otherwise be the Case, inasmuch as it is not held by any thing at the other End.

It were needless to say any thing particular of the manner of *frizing* Stuffs with the Hand; it being the Aim of the Workmen to imitate as near as they can, with their wooden Instrument, the slow, equable, and circular Motion of the Machine. It needs only be added, that their Frizer is but about two Foot long, and one broad; and that to form the Nap more easily, they moisten the Surface of the Stuff lightly with Water, mingled with Whites of Eggs, or Honey.

FRONT, the *Forehead*, or that Part of the Face above the Eyebrows. See *Os* FRONTIS.

The Word is form'd of the Latin *Frons*, and that from the *Greek* φρονεῖν, to think, perceive; of φρὴν, *mens*, the Mind, Thought. *Martinius*, to make out this Etymology, observes, that from the Forehead of a Person we perceive what he is, what he is capable of, and what he thinks of. *DuLaurens* chuses to derive it from *ferre*, by reason it *bears* the Marks of what we have in our Head.

FRONT is also us'd where several Persons, or Things are ranged Side by Side, and shew their *Front*.

Those Troops ranged in form of Battel made a large *Front*: The three Legions were here dispos'd in two Lines, as *Cæsar* us'd to do, when with a few Forces he had occasion to extend his *Front*. The *Front* of the Army consisted of so many Battalions, and so many Squadrons.

The Military Evolutions teach how to make a *Front* of any Side, *i. e.* How to present the Face and Arms to the Enemy, what Side soever he attack on. They attack'd the Enemy in *Front*, and in *Flank*. See FLANK,

FRONT, in Architecture, the principal Face, or Side of a Building: Or that presented to the chief Aspect, or View. See FACE.

The Palace consists of a large Pile in *Front*, flank'd with two Wings. See FRONTISPIECE.

FRONT, in Perspective, a Projection, or Representation of the Face or Fore-part of an Object; or of that Part directly opposite to the Eye; call'd also, and more usually, *Orthography*. See ORTHOGRAPHY.

FRONTAL, in Architecture, a little *Fronton*, or Pediment, sometimes placed over a little Door, or Window. See PEDIMENT.

FRONTALE *Os*, in Anatomy, see *Os* FRONTIS.

FRONTALE, or FRONTAL, in Medicine, an external Form of Remedy, applied on the Forehead, with a Bandage; for the Cure of the Head Ach, Megrim, Vapours, &c.

Frontals are composed of Roses, Elder Flowers, Betony, Marjoram, Lavender, &c. wrap'd in a Linen Cloth, and applied over the Forehead and Temples.

There are also *Frontals* in manner of Linements, made of *Unguentum populeum*, Extract of Opium; or of Pastes, Powders, Seeds, &c.

In *Frontals* applied to ease the Violence of the Head-ach in the height of Fevers, they frequently mix the Kernels of Cherries.

FRONTAL, FRONTLET, or BROW-BAND, is also us'd in speaking of the Jewish Ceremonies.

The *Frontal* consists of four several Pieces of Vellum, on each whereof is wrote some Text of Scripture. They are all laid on a piece of black Calves Leather, with Thongs to tye it by. The Jews apply the Leather with the Vellum on their Foreheads, in the Synagogue, and tie it round the Head with the Thongs.

FRONTALES, in Anatomy, two Muscles, one on each Side the Forehead; commonly supposed to spring from the Skull, but now known to arise from the Occipital Muscles; or rather, it appears that the *Frontales* and Occipitales are only one continued Digastric Muscle, on each Side, moving the Scalp and Skin of the Forehead and Eyebrows. See OCCIPITALIS.

The *Frontales* begin to be thus denominated after they have begun to pass the Coronal Suture, with Fibres passing obliquely to the Eyebrows, where they terminate, and in the lower Part of the Skin of the Forehead.

They have each two Appendages; the superior, or external is commonly fix'd to the Bone of the Nose; the lower is fix'd to the *Os Frontis*, and is by *Volcherus Coiter* made a distinct Muscle, and called *Corrugator*, from its Use in drawing the Eyebrows to each other.

FRONTATED, a Term us'd by the Botanists, to express that the Petalum or Leaf of a Flower grows broader and broader; and at last, perhaps, terminates in a Right Line.

In opposition to *cuspidated*, which expresses that the Leaves terminate in a Point. See PETALA.

FRONTIER, the Border, Confine, or Extreme of a Kingdom, or Province; which the Enemies find in *Front*, when they would enter the same.

A *Frontier* Town: *Frontier* Province. *Frontiers* were antiently called *Marches*. See MARCHES.

The Word is derived from the French *Frontiere*, and that of the Latin *Frontaria*, as being a kind of Front opposed to the Enemy. *Skinner* derives *Frontier* from *Front*; inasmuch as the *Frontier* is the exterior, and most advanced Part of a State, as the Front is that of the Face of a Man.

FRONTIS *Os*, in Anatomy, the Bone of the Forehead. See FRONT.

The *Os Frontis* is a Bone of the Cranium, in form almost round: It joins the Bones of the Sinciput and Temples by the Coronal Suture, and the Bones of the upper Jaw by the transverse Suture, and the Os Sphænoides, by the Sphænoidal Suture. See CRANIUM.

It forms the upper Part of the Orbit, and has four Apophyses, which are at the four Angles of the two Orbits.

It has two Holes above the Orbits, thro' which pass the Vein, Artery, and some Twigs of the first Branch of the fifth Pair. It has also one in each Orbit, a little above the Planum, thro' which a Twig of the Opthalmick Branch of the fifth Pair of Nerves passes to the Nose.

It has two Sinus's above the Eyebrows, between its two Tables; they are lined with a thin Membrane, in which there are several Blood Vessels and Glands, which separate a mucous Serosity, that falls into the Nostrils.

The Inside of this Bone has several Inequalities, made by the Vessels of the Dura Mater. It has two large Dimples made by the anterior Lobes of the Brain. Above the Crista Galli, it has a small blind Hole, into which the End of the Sinus *longitudinalis* is inserted.

FRONTISPIECE, in Architecture, the *Portail*, or principal Face of a fine Building. See PORTAIL.

The *Frontispiece* of the *Louvre* is the finest Piece of Architecture in *France*.

The Word is form'd of the Latin *Frontispicium*, q. d. *Frontis hominis inspectio*. Hence, by a Figure, we say the *Frontispiece* of a Book, meaning an Ornament with an engraven Title on the first Page.

FRONTLET, see FRONTAL.

FRONTON, in Architecture, an Ornament among us, more usually called *Pediment*. See PEDIMENT.

FROST, an excessive cold State of the Weather, whereby the Motion and Fluidity of Liquors is suspended: Or, it is that State of the Air, &c. whereby Fluids are converted into Ice. See FREEZING, and ICE.

Metals contract, or are shorten'd in *Frost*. Mons. *Auzout* found by Experience, that an iron Tube twelve Foot long lost two Lines of its Length, upon being exposed to the Air, in a frosty Night. But this we suppose wholly the Effect of the Cold.

Frost does not contract Fluids, as was formerly imagined: On the contrary, it swells or dilates them by nearly $\frac{1}{10}$ of their Bulk.

Scheffer assures us, that in *Sweden* the *Frost* pierces into the Earth two Cubits, or *Sweedish* Ells; and turns what Moisture is found therein, into a whitish Substance, like Ice. He adds, that standing Waters freeze to a greater Depth; even to three Ells, or more: But those that have a Current, less; and rapid Waters, and bubbling Springs, never.

Mr. *Boyle* gives us several Experiments of Vessels made of Metals, exceeding thick and strong; which being fill'd with Water, close stop'd, and exposed to the Cold: The Water, in freezing, coming to be expanded; and not finding either Room, or Vent, burst the Vessels.

A strong Barrel of a Gun, with Water in it, close stop'd and *frozen*, was rent the whole Length: And a small Brass Vessel, five Inches deep, and two in Diameter, fill'd with Water, &c. lift up its Lid, which was press'd with a Weight of 56 Pounds.

Olearius assures us, that in the City of *Moscow* he observ'd the Earth to be cleft by the *Frost* many Yards length, and a Foot broad. *Scheffer* mentions sudden Cracks or Rifts in the Ice of the Lakes of *Sweden*, nine or ten Foot deep, and many Leagues long; and adds, that the Rupture is made with a Noise not less terrible than if many Guns were discharged together. By such means the Fishes are furnish'd with Air; so that they are rarely found dead.

In the great *Frost* of 1683, Oaks, Ashes, Walnut Trees, *&c.* Mr. *Bobart* tells us, were miserably split, and cleft, so that one might see thro' them; and this frequently with terrible Noises, like the Explosion of Fire Arms. The Clifts were not only in the Bodies, but continued to the larger Boughs, Roots, *&c.* See an Inquiry into the Circumstances and Causes hereof in the *Philos. Transact.* N° 165. See also FREEZING *Rain*.

The Natural History's of *Frosts* furnish very extraordinary Effects thereof. The Trees are frequently scorch'd and burnt up as with the most excessive Heat; of which there are divers Instances in so warm a Climate as that of *Provence*. *Mezeray, Hist. de France*, An. 1570.

The Year 1708 was remarkable throughout the greatest Part of *Europe* for a severe *Frost*. Mr. *Derham* says, it was the greatest in Degree, if not the most universal in the Memory of Man. It extended throughout *England, France, Germany, Denmark, Italy*, &c. But was scarce felt in *Scotland* or *Ireland*. All the Orange Trees, and Olives in *Italy, Provence*, &c. And all the Walnut Trees throughout *France*, with an Infinity of other Trees, perish'd by *Frost*.

They had a kind of Gangrene grew on them; which Mons. *Gauteron* takes to have been the Effect of a corrosive Salt, corrupting and destroying their Texture. He adds, there is so much Resemblance between the Gangrene befalling Plants thro' *Frost*, and that which the Parts of Animals are liable to, that they must have some analogous Cause. Corrosive Humors burn the Parts of Animals; and the aerial Nitre condensed, has the same Effect on the Parts of Plants. *Penetrabile* Frigus *adurit. Memoires de l'Academie Royale des Sciences*, An. 1709.

In *Germany* the Fresh-water Fish were every where killed; and a vast Destruction befell the smaller Birds. The Spittle was no sooner out of a Man's Mouth, than it was froze. The *Lusatian* Letters add, that many Cows were froze to death in their Stalls; and many Travellers on the Road were some quite froze to death, others lost their Hands, Feet, Noses, or Ears.

G. Remus, the Author of an Academical Exercise on this Subject, publish'd at *Hall* in *Saxony*, entitled *Consideratio Physico-Mathematica Hyemis proximæ præterlapsi*, gives Instances from the News Papers, of two Gentlemen and a Smith in *England*; and above 60 Men, and many Cattle near *Paris*; and the like at *Venice*, and 80 *French* Soldiers near *Namur*; all kill'd on the Road with *Cold*. On the Coasts of *Italy* many of the Mariners abroad the *English* Men of War died of the Cold; and several lost part of their Fingers and Toes.

In *England*, the greatest Sufferers in the animal Kingdom, Mr. *Derham* observes, were Birds and Insects; particularly Larks and Robin-red-breasts: Much the greatest Part of which perish'd. But the Vegetables were much the greatest Sufferers. Few of the tender Sorts escaped: Bays, Hollies, Rosemary, Cypress, Alaterni, Phyllyrea's, Arbuti, Laurustines, and even Furze, with most of the frutescent Herbs, as Lavenders, Abrotonums, Rue, Thyme, *&c.* Mr. *Bobart* informs us, were generally destroyed. The same Writer adds, that the Sap of the finer Wall Fruit was so congealed, and disorder'd, that it stagnated in the Limbs and Branches, and produced Disorders like to Chillblains in human Bodies, which in many Parts of Trees would turn to Mortifications: That the very Buds of the finer Trees, both the Leaf Buds, and Blossom Buds, were quite killed and dried into a farinaceous Matter.

In *Switzerland*, *Scheuchzer* relates, that not only the Walnut Trees and Vines, but even the Beech, Laryx, *&c.* were undone. And yet in some Parts of those Cantons, he adds, there never was a milder Winter Season known.

Mr. *Derham* relates it as a common Observation, that Vegetables suffer'd more from the Sun, than the *Frost*; in that the Sun-shine melting the Snow, and opening the Ground, left it more exposed to the Rigours of the ensuing Night. And at a Meeting of the Royal Society, it was observed, that the Calamities which befel Trees, arose not purely from their being frozen; but principally from the Winds shaking and rocking them, when they were so; which rent and parted their Fibres. *Philosoph. Transact.* N° 324.

Hoar FROST, or *White* FROST, *Pruina*, is the Dew, *froze* or congealed early in cold Mornings; chiefly in Autumn.

Hoar Frost, Mr. *Regis* observes, consists of an Assemblage of little Parcels of Ice, or Crystals; which are of various Figures, according to the different Disposition of the Vapours, when met and condensed by the Cold. See CRYSTALLIZATION.

Dew, is in all appearance the Matter of *Hoar Frost*: Tho' many of the *Cartesians* will have it form'd of a Cloud, and either congealed in the Cloud, and so let fall; or ready to be congealed assoon as it arrives at the Earth. See DEW.

FROTH, a white, light Substance, form'd on the Surface of Fluids, by vehement Agitation. See BOILING.

Froth consists wholly of little Spherules, or Globules; and accordingly, may be defined an Assemblage of *Aqueo-aereal* Bubbles. See BUBBLE; see also SCUM.

FROZEN, or FRIGID *Zone*, see ZONE.

FRUGIVOROUS *Birds*, according to Mr. *Willoughby*, are those of the Parrot kind, which tho' they have a crooked Beek and Talons, and therefore belong in general to the Birds of Prey, as being rapacious, and carnivorous; yet because they eat *Fruit* too, he distinguishes them from the rest by the Title of *Frugivorous*. See BIRD.

FRUIT, in its general Sense, includes whatever the Earth produces, for the Nourishment and Support of Men, and other Animals; as Herbs, Grains, Pulse, Hay, Corn, Flax, and every thing, express'd by the *Latins* under the Name *Fruges*. See HERB, GRAIN, PULSE.

The Devotion and Solemnity of Rogation Week, were instituted to procure a Blessing on the Fruits of the Earth. See ROGATION.

In the Civil Law, we distinguish three kinds of *Fruits*: Natural *Fruits*, which the Earth produces spontaneously, and without any Culture; as those of Trees.

Fruits of Industry, which, tho' Natural, require some Culture to perfect them.

And Civil *Fruits*, which are only *Fruits* in the Eye of Law, as Rents, Salaries, Wages, *&c.*

In the Canon Law, *Fruits* include every thing whereof the Revenue of a Benefice consists; as Glebe, Tythes, Rents, Offerings, Mills, *&c.* See FIRST *Fruits*.

FRUIT, in Nat. History, is the Production of a Tree, or Plant; for the Propagation, or Multiplication of its Kind: In which Sense *Fruit* includes all kinds of Seeds, with their Furniture, *&c.* See SEED.

FRUIT, in Botany, is properly that Part of a Plant wherein the Seed is contain'd; called by the Latins *Fructus*, and the *Greeks* καρπὸς.

The *Fruit* of a Plant is sometimes single, as in the Poppy; and sometimes in great Number, as in the Apple Tree, *&c.* Sometimes dry; and sometimes soft, and fleshy.

The Word also implies an Assemblage of Seeds, in a Plant, as in a Ranuncula, Pea, *&c.* And in the general, all kinds of Grains, whether naked, or inclosed in a Cover, Capsula or Pod, whether bony, fleshy, skinny, membranous, or the like. See SEED, GRAIN.

The *Fruit* is the Product, or Result of the Flower; or that for whose Production, Nutrition, *&c.* the Flower is intended. See FLOWER, and GENERATION *of Plants*.

The Structure and Parts of different *Fruits* are somewhat different; but in all the Species, the essential Parts of the *Fruit* appear to be only Continuations, or Expansions of those observ'd in the other Parts of the Tree.

Dr. *Beal* suggests some very good Reasons for a direct Communication between the remotest Parts of the Tree and the *Fruit*; so that the same Fibres or Stamina, which constitute the Root, Trunk and Boughs are extended into the very Fruit. See PLANT.

Thus, cutting open an *Apple* transversely, it will be found to consist of four Parts, *viz.* 1° A *Skin*, or Cortex, which is only a Production of the Skin, or outer Bark of the Tree. 2° A *Parenchyma*, or Pulp; which is an Expansion, and Intumescence of the Ble or inner Bark of the Tree. 3° *Fibres* or Ramifications of the woody Part of the Tree, dispersed throughout the Parenchyma.

Of these last, Authors generally reckon fifteen principal Branches: Ten whereof penetrate the Parenchyma, and incline to the Basis of the Flower; the other five ascend more perpendicularly from the Pedicle, or Stalk, meet with the former at the Base of the Flower: To which Branches are fasten'd the Capsulæ or Coats of the Kernels.

These Branches being at first extended through the Parenchyma to the Flower, furnish the necessary Matter for the Vegetation thereof; but, the *Fruit* increasing, it intercepts the Aliment, and thus the Flower is starved, and falls off.

4° The *Core* which is the Produce of the Pith or Medulla of the Plant; indurated and strengthen'd by Twigs of the Wood and Fibres, inosculated therewith. It serves to furnish a Cell, or Lodge for the Kernels; filtrates the Juice of the Parenchyma, and conveys it thus prepared to the Kernel.——

In a *Pear* we distinguish five Parts, *viz.* the Skin, Parenchyma, Ramification, Stone, and Acetarium.

The three first Parts are common to the Apple. The *Stone*, observ'd chiefly in Choak Pears, is a Congeries of stony Corpuscles, dispers'd throughout the whole Parenchy-

ma,

ma, but in the greatest Plenty, and closest together, about the Centre or Acetarium. It is form'd of the stony or calculous Parts of the nutritious Juice of the Parenchyma, extravasated in Masses.

The *Acetarium*, is a Substance of a tart, acid Taste, of a globular Figure, inclos'd in an Assemblage of several of the stony Parts above-mention'd.

In the *Plumb*, *Cherry*, &c. there are four Parts, *viz.* A *Coat*, *Parenchyma*, *Ramification*, and *Stone*, or *Nucleus*. The Stone consists of two very different Parts; the inner, call'd the *Kernel*, is soft, tender, and light; being derived from the Pith or Medulla of the Tree by seminal Branches, which penetrate the Base of the Stone: The external or harder Part, called the *Stone*, or *Shell*, is a Concretion of the stony, or calculous Parts of the nutritious Juice; like the Stone in Pears, and like that, contains a soft, parenchymous Matter within it.——

The *Nut*, analogous to which is the *Acorn*, consists of a *Shell*, *Cortex*, and *Medulla*. The *Shell* consists of a Coat and Parenchyma, derived from the Bark and Wood of the Tree. The *Cortex* consists of an inner, and outer Part: The first is a Duplicature of the inner Tunic of the Shell; the second is a mossy Substance, derived from the same Source as the Parenchyma of the Shell. But whether the Medulla or Pulp of the Kernel arise from the Pith of the Tree, or the cortical Part of the *Fruit*, is not agreed.

Lastly, *Berries*, as Grapes, *&c.* beside three general Parts, *viz.* Coat, Parenchyma, and Ramification, contain *Grains* of a stony Nature, to do the Office of Seeds.

As to the Use of *Fruits*, beside the Pleasure and Advantage they afford Men, *&c.* they are of service in guarding, preserving, and feeding the Seed inclosed; in filtrating the coarser, more earthy and stony Parts of the nutritious Juice of the Plant, and retaining it to themselves; sending none to the Seed but the purest, most elaborated and spirituous Parts for the Support and Growth of the tender delicate Embryo, or Plantule contain'd therein.

So that the *Fruit* does the same Office to the Seed that the Leaves do to the *Fruit*. See PLANT, GENERATION, FLOWER, LEAVES, &c.

FRUIT, in Gardening, is the Production of *Fruit-Trees*; as the *Apple*, *Pear*, *Plumb*, *Peach*, *Apricock*, *Cherry*, *Grape*, *Currant*, *Orange*, *Fig*, *Almond*, &c. See FRUIT-*Tree*.

Fruits are distinguish'd into *Stone Fruit*, and *Kernel Fruit*; *Summer Fruit*, and *Winter Fruit*; *Wall Fruit*, and *Dwarf Fruit*, &c.

Mons. *Quintinye* observes, that cold, heavy, moist Lands produce the fairest and largest *Fruit*; but the hotter, dryer, and lighter, the more delicious and rich tasted.

FRUITS, with regard to Commerce, are distinguish'd into Recent, or *Fresh*; and *Dry*.

Recent *Fruits* are those sold just as they are gather'd from the Tree, without any further Preparation: As are most of the Productions of our Gardens and Orchards, sold by the *Fruiterers*.

Dry *Fruits* are those dried in the Sun, or by Fire, with other Ingredients, sometimes added to them, to make them keep; imported chiefly from beyond Sea, and sold by the *Grocers*. Such are *Raisins*, *Currants*, *Figs*, *Rice*, *Capers*, *Olives*, *Cloves*, *Nutmegs*, *Pepper*, and other *Spices*: Which see under their respective Articles, RAISIN, CURRANT, FIG, *&c.* See also SPICERY.

Under the Denomination of Dry *Fruits* are also frequently included Apples, Pears, Almonds, Filberds, *&c.*

FRUIT *Trees* are distinguish'd, like the *Fruits* they bear, into Wall *Fruit* Trees, Standard *Fruit* Trees, *&c.* See FRUIT, and TREE.

With regard to *Fruit Trees*, Mons. *Quintinye* observes, 1° That the cutting and trimming of young Trees hinders them from quick bearing; tho' it contributes both to the Beauty of the Tree, and the Richness and Flavour of the *Fruit*.

2° That Kernel *Fruit* Trees come later to bear, than Stone *Fruit* Trees; the Time required by the first before they arrive at a fit Age for bearing, being, one with another, about four or five Years: But that when they do begin, they bear in greater Plenty than Stone *Fruit*.

3° That *Stone Fruit*, Figs and Grapes commonly bear considerably in three or four Years; and bear full Crops the fifth and sixth Year; and hold it for many Years, if well order'd.

4° That *Fruits* in the same Neighbourhood will ripen a fortnight sooner in some Grounds, than others of a different Temperature.

5° That in the same Spot, hot or cold Summers set considerably forward, or put backwards the same *Fruit*.

6° That the *Fruits* of Wall Trees generally ripen before those on Standards; and those on Standards before those on Dwarfs.

7° That the *Fruits* of Wall Trees planted in the South and East Quarters commonly ripen about the same time; only those in the South rather earlier than those in the East: Those in the West are later by eight or ten Days, and those in the North by 15 or 20. See EXPOSURE.

For the *Planting*, *Pruning*, *Engrafting*, &c. of *Fruit Trees*, see PLANTING, TRANSPLANTING, PRUNING, ENGRAFTING, &c. See also ORCHARD, GARDEN, SEMINARY, &c.

Mons. *de Ressons*, in the *Memoires de l'Academie Royale des Sciences*, An. 1716. gives us a Method of *Grafting Stone Fruit Trees*, without losing of Time; so that a Tree which bore sorry *Fruit* the preceding Year, shall bear the choicest the Year following.

It frequently happens, that Persons are deceiv'd in their *Fruit* Trees; especially those bought of the Nursery Men: And it is a melancholy thing, after having waited three Years for *Fruit*, to find it naught at last; and to be oblig'd to graft the Tree again, and wait four Years more, for the second Hopes. In effect, in the common Methods of grafting, they know nothing better than to cut off the Head of a Tree, and make it put forth new Wood, to graft in: This necessarily makes a long Delay; which Mons. *Ressons* shews how to abridge.

Upon considering the Union of the Sap in Grafts, that Author was led to think, that all the Office the Bark has in grafting, is to receive the Scutcheon; so that if the Bark be not quite hard, dry, and inflexible, and incapable of yielding without Cracking, or Bursting; it should seem indifferent, whether one grafted on new Wood, or old: The Sap passing equally into both. Which Reasoning had the Fortune to be verify'd by a Number of Experiments made with that View.

We are at liberty, then, to graft almost at any Age, and in any Wood. Accordingly, a Peach Tree of a worse Kind or Quality, may be grafted from another of the best, in Autumn, in the Height of its *Fruit*, and Sap, without cutting off any Branches; the Graft soon cements to the Tree by the Union of the Saps, without shooting at all: So that cutting off the Branches above the Grafts the Spring following; the same Graft inserted the preceding Autumn will shoot vigorously; and being on a Wood of the same Kind, the *Fruit* thenceforth produc'd will be much the larger and finer. But this is not the great Point: For the Tree thus ingrafted will not bear till the third Year; and we want *Fruit* the first.

In order to this, it is to be observ'd, that there are three kinds of Branches: *Wood Branches*, growing immediately from the Stem or Stock of the Tree: *Fruit Branches*, and Branches *half Wood*, *half Fruit*, being such as arising from the largest Wood Branches, preserve the Character thereof, but which, in two Years time will produce *Fruit* Branches. Now, 'tis these intermediate kind of Branches, that we are to chuse for Scutcheons or Grafts. They are easily known by being bigger than the *Fruit* Branches; and less than the Wood Branches: They have each of them two, three, four, or even five Leaves to each Eye; and the Eyes are further distant from each other than those of the *Fruit* Branches, but closer than those of the Wood Branches. It must be added, that the Eyes on such Branch are three; one, intended for a Wood Branch, being situate between the two Leaves, and advancing further than the other two, which are intended for *Fruit*, and are plac'd without-side the Leaves.

'Tis these last are the precise Subject to be chosen for the Grafting withal. Twelve of these Scutcheons, more or less, according to the Strength of the Tree to be grafted on, being duly applied; we may depend on a Crop of good *Fruit*, the very next Year, on the same Tree which last Year produced the worst.

Stone-FRUIT-*Trees*, see STONE *Fruit*, and TREE.
Wall-FRUIT-*Trees*, see WALL *Fruit*, and WALL.

FRUITERY, a Place for the laying up and keeping of *Fruit*.

The *Fruitery* should be inaccessible to any thing of Moisture, or even Frost.

FRUITFULNESS, the Quality of bearing plenty of Fruit; call'd also Fertility, and *Fecundity*. See FECUNDITY.

FRUMENTACEOUS, a Term applied to all Plants which have a Conformity with Wheat, or *Frumentum*; either in respect of their Fruits, Leaves, Ears, or the like.

Thus Barley, Dogs-grass, *&c.* are *Frumentaceous Plants*.

FRUMENTARII, in Antiquity, a kind of Soldiers, or Archers, under the Western Empire.

St. *Cyprian* relates, in one of his Letters, that some of these *Frumentarii* were sent to take him.

The first time we read of *Frumentarii*, as Officers, is in the Time of the Emperor *Adrian*. *Spartian*, in his Life of that Prince, assures us, that he made use of them to inform himself of what pass'd: Before, the Name *Frumentarius* was only given to the Corn Merchants, or Measurers of Corn.

These *Frumentarii* did not make any particular Corps, distinct from the other Forces: But there were a certain Number of them in each Legion; as, among us, there are a certain Number of Grenadiers in each Battalion. Accordingly, in antient Inscriptions, we meet with *Frumentarii* of this or that Legion.

'Tis suppos'd they were originally a Number of young Persons dispos'd by *Augustus* throughout the Provinces, particularly on all the grand Roads, to advertise the Emperor with all Expedition of every thing that happen'd. In order to this, they had a kind of Intendance of all the Carriages: And on this account came to be employ'd for the Conveyance of Corn, *Frumentum*, to the Armies: Whence their Appellation.

Afterwards they were incorporated into the Troops themselves; where they still retain'd their antient Name.

Their principal Office was the giving of Intelligence; in which they agreed with those call'd *Curiosi*, with whom they were frequently join'd. See CURIOSI.

FRUMENTY, popularly FURMETY, a kind of Pottage, or Broth, the Basis whereof is Wheat, boil'd up with Milk, Sugar, and sometimes Spice.

Pliny tells us, that in his Time they mix'd Chalk among it. *Galen* describes it as a very nutritious sort of Corn or Pulse, boil'd with Water, Wine, and Oil.

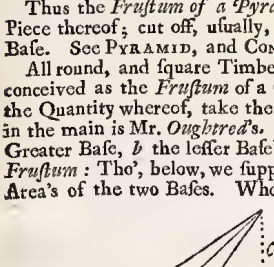
The *Latins* call'd it *Alica*, which *Festus* derives *ab alendo*; as being very feeding. But then it must be observ'd, they made it of any kind of Corn.

Ours being restrain'd to Wheat, we have given its Denomination accordingly, from *Frumentum*.——An Emulsion, wherein Wheat were an Ingredient, would be a kind of *Frumenty*.

FRUSTUM, in Mathematicks, a Piece cut off or separated from a Body.

Thus the *Frustum of a Pyramid*, or *Cone*, is a Part, or Piece thereof; cut off, usually, by a Plane, parallel to the Base. See PYRAMID, and CONE.

All round, and square Timber that goes tapering, may be conceived as the *Frustum* of a Cone, or Pyramid; to find the Quantity whereof, take the following Theorem; which in the main is Mr. *Oughtred's*. Given, B, the Side of the Greater Base, *b* the lesser Base's Side, A the Height of the *Frustum*: Tho', below, we suppose B and *b* to represent the Area's of the two Bases. Whole Height $a + A = H$.



First, to find *a*, say, as $B - b : b :: A : \frac{bA}{B-b}$, or $\frac{bA}{x}$. Now B H = 3 times the whole Pyramid, because any Prism is 3 times a Pyramid of the same Base, and Height with it, by 7 and 10 Euclid, and $ba = 3$ times the upper Pyramid.

Wherefore $\frac{BH - ba}{3}$ equal to the *Frustum* of the Pyramid required; which Theorem in Words is this.

Multiply the lower Base by the whole Height; and from the Product subtract the upper Base multiply'd by the Height of the Top-piece wanting; and then one third of the Remainder shall give the *Frustum*.

And the same way you may proceed for the *Frustum* of a Cone; only it will be more difficult to find the Circular Bases.

FRUTEX, SHRUB, a Vegetable, of a Genus between a Tree, and Herb; but of a woody Substance. See SHRUB.

FRUTICOSE *Stalks*, of Plants, are those of a hard woody Substance. See STALK.

FRYTH, or FRITH, is explain'd by Sir *Edward Coke*, as a Plain between two Woods; a *Lawnd*. *Chaucer* uses it for a Wood.

Camden, for an Arm of the Sea; or a Streight, between two Lands: from *Fretum*.—Maketh his Issue into the Estuary or *Frith* of *Thames*.

Smith, in his *England*'s Improvement, makes it signify all Hedge-wood, except Thorns.

How to reconcile these different Sentiments, we know not; but we are sure the *Saxon* Word signifies *Peace*; and that *Fryth*, in our Records, is often us'd for a Wood: *Lector, tu tibi Oedipus esto.*

FUAGE, or FOCAGE, a Tax, or Imposition, laid on Hearths, or Chimnies; *i. e.* Fire-places, or Families, call'd also *Hearth Silver*, and *Chimney Money*. See HEARTH *Silver*, and CHIMNEY *Money*.

Edward III, the Black Prince, having *Acquitain* granted him, laid an Imposition of *Fuage*, or *Focage* upon the Subjects of that Dukedom, *viz.* One Shilling for every Fire. After his Example, *Charles* V. of *France* laid a like Tax of a Franc for each Fire for one Year only. His Successor *Charles* VI. augmented it under the same Name: *Charles* VII. render'd it perpetual, and call'd it *Taille*.

By an Ordinance of *Humbert* II. Dauphin of *France*, the Imposition of *Fouage*, or *Feuage*, was then laid *per Feu*, i. e. *per Fire*, or Family, *seu per Lares focum habentes*. In *Latin* it was call'd *Focagium*, q. d. *pro singulis focis*.

Sometimes it was also call'd *Fournage*, on account of the Oven, or Furnace: In *Greek* καπνικὸν, of κάπνος, *fumus*, Smoak.

In *Will. Tyr. de Bello Sacro*, it is call'd *Foagium*: For it was also impos'd by the Kings of *Jerusalem*. The Counts, and other Lords likewise impos'd it on their Feudataries, or Vassals. *Zonaras* assures us, that the General *Nicephorus* first establish'd it among the *Greeks*.

FUCUS, in Natural History, a Sea-plant, call'd also *Alpa*. See *Marine* PLANT.

The Flowers of the *Fucus* grow on the whole Extent of its Leaves; in form of little Tufts, composed of a great Number of exceedingly fine Filaments, about the length of a Line. The Seed is inclos'd in a viscid Matter, at the Extremity of the Leaves. See MUSHROOM, CORAL, GENERATION *of Plants*, SEED, &c.

FUCUS is also us'd for a *Paint*, or a Composition applied on the Face, to beautify it, and heighten the Complexion. See COSMETIC.

Old Women make use of *Fucus's* and Pomatums, to appear young. The *Fucus* made with Ceruss, is corrosive, and pernicious to the Skin.

The Chymists abuse the Ladies in selling them Oil of Bricks, as an excellent *Fucus*. *Pliny* says, that the *Fucus* of the *Roman* Ladies was a kind of white Earth, or Chalk brought from *Chio*, and *Samos*, dissolv'd in Water.

The *Fucus Solimanni* is a Composition of prepared Sublimate, in great Repute among the *Spaniards* of *Peru*.

FUEL, or FEWEL, the Pabulum of Fire; see FEWEL.

FUGA *Vacui*, in the antient School Philosophy, a Principle, whereby various Effects were produced, arising from a supposed Aversion, in Nature, to a Vacuum. See VACUUM.

The *Fuga Vacui* was a very fertile, and extensive Principle; and solved abundance of Difficulties with a deal of Ease. Suppose, *e. gr.* a Syringe; immerse one Extreme of it in Water; and draw up the Embolus, or Sucker: Then hear how the Antients will reason upon it. They first laid it down for granted, that there can be no Vacuum; then arguing, that there must be a Vacuum, unless the Water should follow the Embolus; they conclude, that the higher the Embolus is drawn, the higher shall the Water ascend; and this, *Fugâ Vacui*, to keep out a Vacuum.

In after times, the Matter was stated in other Terms; and the Water was said to rise, *Metu Vacui*, for fear of the Vacuum; which must otherwise ensue. And at length, as if this were not enough, instead of *Fuga*, and *Metus*, they substituted the Word *Horror*; and affirm'd, that the Water rose out of Natures *Abhorrence* of a Vacuum. Which was just as good Sense, as if a Person being ask'd, Why Coals were brought to *London*? should answer, That it was done *fuga*, or *metu*, or *horrore frigoris*; for *fear* of Cold. Which is giving the Final Cause, when the Efficient one was required.

Most of the Phænomena, which the Antients ascribed to the *Fuga Vacui*, the Moderns have demonstrated to arise from the Gravity and Pressure of the Air. This is the Case in the Ascent of Water in Syringes, Pumps, &c. See AIR; see also PUMP, SYRINGE, &c.

FUGALIA, in Antiquity, a Feast, celebrated among the *Romans*. See FEAST.

Hoffman, after *Festus*, takes the *Fugalia* to be the same with the *Regifugium*, a Feast held on the 24th of *February*, in Memory of the Expulsion of the Kings, and the abolishing of the Monarchical Government. But *Struvius*, *Antiq. Roman. Syntag. c. 9.* distinguishes the *Fugalia* from the *Regifuge*: And even doubts, whether the *Regifugium* were thus called on account of the Expulsion of the Kings; or, by reason the *Rex Sacrorum*, after the Sacrifice was ended, fled hastily out of the *Forum*, and *Comitia*. See REGIFUGIUM.

Be this as it will, the only antient Author of Note, that makes express mention of the *Fugalia*, is St. *Augustin*, *De Civit. Dei*, L. II. c. 6. And his Commentator *Vives*, shews a great Inclination to correct the Reading of the Word, were it not, that St. *Augustin* adds, that the Feast was a true *Fugalia*; all Decency and Modesty being banish'd therefrom.

That learned Person conjectures, that the *Fugalia* were the same thing with the *Poplifugia*, or the Feast of *Fugia*, the Goddess of Joy; occasioned by the Rout of an Enemy; which was the Reason why the People abandon'd themselves to Riot and Debauchery: And that the Feast was first instituted on occasion of the Victory gain'd over the *Ficulneates*, *Fidenates*, and neighbouring Nations, upon their Attempt to take Possession of *Rome*, the Day after

ter the People had withdrawn from it. As related by *Varro L. V. de Ling. Lat.*

But *Varro* relates, that the *Poplifugia*, which fell on the Month of *June*, were held in Memory of the Flight, or Retreat of the People, in a Sedition rais'd among them: 'Tis true, he adds, that the Day followed soon after the Retreat of the *Gauls*, and the time when the neighbouring Nations conspir'd against them: But this does not appear to have any relation to the *Poplifugia*, being only meant to mark the *Æra*, or Time when the Sedition and Flight of the *Roman* People happen'd.

After all, tho' the *Poplifugia* might have been originally establish'd in Commemoration of the Flight of the People; and not that of the Enemies; this does not hinder, but the *Fugalia* of St. *Augustin* may probably be the *Poplifugia* of *Varro*: according to the Conjecture of *Vives*.

FUGITIVE, a Wanderer, or Renegado; a Person oblig'd to fly his Country, or remove from a Place where he had some Aboad, or Establishment; on account of his Crimes, Debts, or other Occasions.

A Person who has broke open, or escaped out of Prison, is oblig'd to be a *Fugitive*. *Cain* became a *Fugitive*, after the Murther of his Brother.

Among the Learned, *fugitive* Pieces are those little Compositions, on loose Sheets, or half Sheets; thus call'd, because easily lost, and soon forgot.

In the *Roman* Law, a *Fugitive* Slave was such a one as was apt to run away from his Master. In selling a Slave, the Master was oblig'd to declare, whether or no he were *fugitive*. The Term is also apply'd to Deserters in an Army; or those who fly from the Combat.

FUGITIVES *Goods*, *Bona Fugitivorum*, are the proper Goods of him that flies upon Felony; which after the Flight lawfully found, do belong to the King, or Lord of the Manor. See WAIF.

FUGUE, in Music, is when the different Parts of a musical Composition follow each other; each repeating what the first had perform'd.

There are three kinds of *Fugues*: The Single *Fugue*; Double *Fugue*, and *Counterfugue*.

The *Single*, or *Simple* FUGUE, is some Point consisting of 4, 5, 6, or any other Number of Notes, begun by one single Part, and then seconded by a third, fourth, fifth, and sixth Part, if the Composition consists of so many, repeating the same, or such like Notes; so that the several Parts follow, or come in, one after another in the same manner, the leading Parts still flying before those which follow.

FUGUE-*Double*, is when two or more different Points move together in a *Fugue*, and are alternately interchanged by several Parts.

For the Counter FUGE, see COUNTER *Fugue*.

The *Italians* say, a *Fugue of Rooms*, or *Chambers*, meaning a Series, or Range of Rooms, the Doors whereof answer in a Right Line behind each other; so as they may be all seen at once, from one Extreme to the other.

FULCRUM, Prop, in Mechanicks; see LEVER.

FULIGINOUS, an Epithet applied to a thick Smoak, or Vapour, replete with Soot, or other crass Matter. See SMOAK, SOOT, and VAPOUR.

The Word is form'd from the Latin *Fuligo*, Soot; and is rarely used but when join'd with *Vapour*. In the first Fusion of Metals there exhales a great deal of *fuliginous* Vapour; which retain'd and collected, makes what we call *Litharge*. See LITHARGE.

Lampblack is what is gather'd from the *fuliginous* Vapours of Pines, and other resinous Woods, when burnt. See *Lamp* BLACK.

Some Physicians talk of *fuliginous* Vapours, emitted from the Spleen to the Brain; which they will have the Cause of the Hypocondriac and Hysteric Disorders: Thence called the *Vapours* and *Spleen*. See HYPOCONDRIAC, &c.

FULL, is variously us'd, in opposition to empty, narrow, confin'd, &c.

The *Cartesians* hold, that the Universe is *full*, i. e. every Part, or Point has Matter in it. See PLENUM.

When the Body is *full* of Humors, it should be purged. See PLENITUDE, and PLETHORA.

An Embassador has *full* Power given him to act, transact, &c.——The Army was in *full* March, *i. e.* the whole Army was in March, with all the Forces it consisted of.—

A Man is said to bear the Arms of a Family, *full*, i. e. without any Differences. See DIFFERENCE.

FULL *Moon*, *Plenilunium*, the Phasis of the Moon, when her whole Disk, or Face is illumined; which is in the Time of her Opposition to the Sun. See PHASIS, MOON, and OPPOSITION.—

Eclipses of the Moon, happen at the time of *full Moon*, See ECLIPSE.

FULLER, a Workman employ'd in the Manufactories, to *full*, mill, or scour Cloths, Rateens, Serges, and other woolen Stuffs, by means of a Mill; to render them thicker, more compact, and durable. See FULLING.

The *Fullers*, among the *Romans*, wash'd, scour'd, and fitted up Cloaths; and their Office was judged of that Importance, that there were formal Laws prescrib'd them for the manner of performing it.

Such was the *Lex Metella de Fullonibus*. See also *Pliny* L. VII. c. 56. *Ulpian* lib. 12. ff. *de Furtis*, l. 13. §. 6. *Locati*, l. 12. §. 6. ff. &c.

The Word is form'd of the Latin *Fullo*, which signifies the same thing.

FULLERS *Earth*, a fatty, fossile Earth, abounding in Nitre; of great Use in the woolen Manufacture.

It serves to scour Cloths, Stuffs, &c. and imbibe all the Grease, and Oil necessarily used in the preparing, dressing, &c. of the *Wool*. See WOOL, CARDING, WEAVING, CLOTH, &c.

Fullers Earth is only dug out of certain Pitts near *Brickhill* in *Staffordshire*; no other Country affording any.

It is absolutely necessary to the well dressing of Cloth; and hence, Foreigners, who can procure Wool to be clandestinely exported out of the Kingdom, can never reach to the Perfection of the *English* Cloths, &c. without *Fullers* Earth.

For this reason, it is made a contraband Commodity; and the Export made equally criminal, with that of exporting Wool. See CONTRABAND.

Abroad they make great use of Urine, in lieu of *Fullers* Earth. This Earth abounds much in the vegetative Salt, which promotes the Growth of Plants; and is therefore reckon'd by Sir *H. Plat*, and others, a great Improver of Land. When dissolv'd in Vinegar, it disperses Pimples and Pushes; checks Inflammations, and cures Burns.

FULLERS *Weed*, *Thistle*, or *Teazle*. See TEAZLE.

FULLERY, a Work-house, or Place where Cloths, &c. are *fulled*.

The Term is principally understood of the Fulling Mill. Thus, when they say, Carry that Cloth, Serge, or the like, to the *Fullery*, they mean it is to be sent to the Mill, to be scour'd and fulled. See *Fulling* MILL.

FULLING, the Art, or Act of cleansing, beating, and pressing Cloths, Stuffs, Stockings, to render them stronger, closer, and firmer; call'd also *Milling*. See MILL.

Pliny, *lib. 7. cap. 16.* assures, that one *Nicias*, the Son of *Hermias*, was the first Inventor of the Art of *Fulling*: And it appears by an Inscription, quoted by Sir *G. Wheeler*, in his Travels thro' *Greece*, that this same *Nicias* was a Governour in *Greece*, in the time of the *Romans*.

The *Fulling of Cloths*, and other Stuffs, is perform'd by a kind of Water Mill; thence call'd *Fulling*, or *Scouring Mill*.

These Mills, excepting in what relates to the Mill Stones and Hopper, are much the same with Corn Mills. And there are even some, which serve indifferently for either Use; Corn being ground, and Cloths full'd by the Motion of the same Wheel.

Whence, in some Places, particularly *France*, the Fullers are call'd Millers; as grinding Corn, and milling Stuffs at the same time.

The principal Parts of the *Fulling* Mill, are, The *Wheel*, with its Trundle; which gives Motion to the *Tree*, or Spindle, whose Teeth communicate it to the *Pestles*, or Stampers, which are hereby raised, and fallen alternately according as its Teeth catch on, or quit a kind of Latch in the Middle of each Pestle. The Pestles and Troughs are of Wood; each Trough having at least two, sometimes three Pestles, at the Discretion of the Master, or according to the Force of the Stream of Water.

In these Troughs are laid the Cloths, Stuffs, &c. intended to be *fulled*: Then, letting the Current of Water fall on the Wheel, the Pestles are successively let fall thereon, and by their Weight and Velocity stamp, and press the Stuffs very strongly; which by this means become thickned and condensed.

In the Course of the Operation, they sometimes make use of Urine; sometimes Fullers Earth, and sometimes Soap.

To prepare the Stuffs, to receive the first Impressions of the Pestle, they are usually laid in Urine; then in Fullers Earth, and Water; and lastly in Soap, dissolv'd in hot Water.

Soap alone would do very well; but this is expensive; though Fullers Earth, in the way of our dressing, is scarce inferior thereto; but then it must be well clear'd of all Stones and Grittinesses, which are apt to make Holes in the Stuff.

As to Urine, 'tis certainly prejudicial, and ought to be entirely discarded; not so much on account of its ill Smell, as of its Sharpness, and Saltness; which is apt to render the Stuffs dry and harsh.

The true Method of *Fulling* with Soap, is deliver'd by Mons. *Colinet*, in an authentic Memoir on that Subject, supported by Experiments made by order of the Marquis *de Louvois*, then Super-Intendent of the Arts and Manufactories of *France*. The Substance of which we shall here subjoin.

Method

Method of Fulling *Cloths and Woolen Stuffs, with Soap.*

A colour'd Cloth, of about 45 Ells, is to be laid, in the usual manner, in the Trough of a *Fulling* Mill; without first soaking it in Water, as is commonly practiced in many Places.

To full this Trough of Cloth, 15 Pounds of Soap are requir'd; one half of which is to be melted in two Pails of River or Spring Water, made as hot as the Hand can well bear it. This Solution is to be pour'd by little and little upon the Cloth, in proportion as 'tis laid in the Trough: And thus it is to be fulled for at least two Hours; after which it is to be taken out, and stretch'd.

This done, the Cloth is immediately return'd into the same Trough; without any new Soap; and there full'd two Hours more. Then taking it out, they wring it well, to express all the Grease and Filth.

After this second *Fulling*, the Remainder of the Soap is melted, as the former, and cast at four different times, on the Cloth; remembring to take out the Cloth every two Hours, to stretch it, and undo the Plaits and Wrinkles it has acquired in the Trough. When they perceive it sufficiently full'd, and brought to the Quality and Thickness required, they scour it out for good, in hot Water, keeping it in the Trough, till it be quite clean.

As to white Cloths; in regard these *full* more easily, and in less time, than colour'd ones, a third Part of the Soap may be spared.—

FULLING *of Stockings, Caps*, &c. should be performed somewhat differently; *viz.* either with the Feet, or the Hands; on a kind of Rack, or wooden Machine, either arm'd with Teeth of the same Matter, or else Horses, or Bullocks Teeth.

The Ingredients made use of herein, are Urine, green Soap, white Soap, and Fullers Earth. But the Urine also is reckon'd prejudicial here.

Note, woven Stockings, *&c.* should be full'd with Soap alone: For those that are knit, Earth may be us'd with the Soap.

Indeed, 'tis frequent to full these kinds of Works with the Mill, after the usual manner of Cloths, *&c.* But that is too coarse and violent a Manner, and apt to damage the Work, unless it be very strong. See STOCKINGS.

FULMINANT, FULMINANS, or FULMINATING, an Epithet applied to something that *thunders*, or makes a Noise like that of Thunder. See THUNDER.

Jupiter Fulminans: Aurum Fulminans: Pulvis Fulminans. Pericles was call'd the *fulminating* Orator.

Aurum FULMINANS, is a Preparation of Gold, thus called, because when laid on the Fire, it produces a huge Noise. It consists of Gold dissolv'd in *Aqua Regia*, and precipitated by means of Oil of Tartar *per Deliquium*; or Volatile Spirit of Sal Ammoniac. See GOLD.

Pulvis FULMINANS, is a Composition of three Parts of Nitre, two Parts of Salt of Tartar, and one of Sulphur. See GUN-POWDER.

Both the *Aurum* and *Pulvis Fulminans* produce their Effect principally downwards: In which they differ from Gunpowder, which acts *in orbem*; but principally upwards. If they be laid in Brass Ladles, and so set a fire; after Fulmination, the Ladles will be found perforated.—

FULMINATING *Legion*, was a Legion in the *Roman* Army, consisting of Christian Soldiers; who, in the Expedition of the Emperor *Marcus Aurelius* against the *Sarmatæ*, *Quadi* and *Marcomanni*, saved the whole Army, then ready to perish of Thirst; by procuring, with their Prayers, a very plentiful Shower thereon: And, at the same time, a furious Hail, mix'd with Lightning and Thunderbolts on the Enemy. See LEGION.

This is the Account commonly given by Ecclesiastical Historians: And the whole History is engraven in Bass-Relivo's, on the *Anthonine* Column. And hence arose the Denomination *Fulminants*: Tho' some say, that the Legion those Christians were of, was called the *Fulminating Legion* before.

FULMINATION, in the *Romish* Canon Law, a Sentence of a Bishop, Official, or other Ecclesiastic appointed by the Pope; whereby it is decreed, that some Bull sent from the Pope, shall be executed. See BULL.

Fulmination is the same thing with the *Verification*, or Recognition of a Letter, or Instrument of a Prince in a Lay Court.

FULMINATION is also us'd for the Denunciation, or Execution of a Sentence of Anathema, made in publick, with due Solemnity.

In fulminating Anathema's, the Bishop who pronounces Sentence, is to be cloathed in his Episcopalia. See ANATHEMA, EXCOMMUNICATION, &c.

FULMINATION, or FULGURATION, in Chymistry, a vehement Noise, or Shock made by divers Preparations; as *Aurum fulminans*, &c. when set on Fire. See DETONATION.

FUMIGATION, in Medicine, and Chymistry, is understood of Things taken in *Fume*, or Smoak; or that are turn'd into Smoak: And particularly for the Corrosion of a Metal, by the Fumes, or Steam of Lead, Mercury, Vinegar, or other acrimonious Matter.

'Tis dangerous taking Mercury by *Fumigation*. This *Fumigation* is a kind of potential Calcination; the Vapour of Mercury laid on the Fire, corroding and reducing into a Calx, the little Laminæa of Metals suspended over it. See MERCURY.

Cerus is made by the *Fumigation*, or Vapour of Vinegar, gnawing and corroding Plates of Lead. See CERUSS.

Alexander Severus made a very severe Decree against Physicians who sold Smoak, that is, *Fumigations*. The Decree imported, Fumo *pereat qui* Fumum *vendidit*. A Northern Physician has an express Treatise to justify the Physicians in this respect.

FUMIGATION is also used for the Act of making a suspended Body receive the Fumes, or Steam of one or more other Bodies; in order to calcine them, to correct them, or impart to them some new Quality.

FUNAMBULUS, among the *Romans*, was what we call a Rope-dancer, and the Greeks, *Scænobates*. See *Rope*-DANCER.

The Term is also us'd for such as letting themselves down by a Rope, or Cord; make their Escape out of a City, or Place besieged: as observ'd by *Du Cange*.

Julius Capitolinus, and *Horace*, make mention of *Funambuli*. *Acron*, on *Horace*, assures us, that it was the Orator *Messala*, who first introduc'd the Word *Funambulus*, in lieu of *Schænobates*, us'd by the *Greeks*. For the *Greeks* seem to have had of these Rope Dancers from the first Institution of their Scenic Games, which are said to have been invented about the time of *Ischarius*, Son of *Erigon*; or of *Dionysius*, surnamed *Liber Pater*, whom *Theseus* first introduced into *Athens*.

At *Rome*, the *Funambuli* first appear'd under the Consulate of *Sulpitius Peticus*, and *Licinius Stolo*, who were the first Introducers of the Scenic Representations. It is added, that they were first exhibited in the Island of the *Tiber*: And that the Censors *Messala* and *Cassius* afterwards promoted them to the Theatre.

In the *Floralia*, or *Ludi Florales*, held under *Galba*, there were *funambulatory* Elephants, as we are inform'd by *Suetonius*. *Nero* shewed the like, in honour of his Mother *Agrippina*. *Vopiscus* relates the same of the Time of *Carinus* and *Numerianus*.

There was a *Funambulus*, it seems, of that Mankind, who perform'd at the time when the *Hecyra* of *Terence* was acted; and the Poet complains, that the Spectacle prevented the People from attending to his Comedy. *Ita populus studio stupidus in* funambulo *animum occuparat*.

FUNCTION, the Act of doing something, for which the Agent was destined, or which he was obliged to. See ACTION.

Thus we say, the Stomach performs its *Function*; *i. e.* digests, well. The Fumes of Wine disturb the Brain in the Performance of its *Functions*.

Physicians divide the *Functions* of the human Body into *Vital*, *Natural*, and *Animal*.

Vital FUNCTIONS are those necessary to Life; and without which it cannot subsist: As the Actions of the Heart, Brain, Lungs, *&c.* See LIFE.

Natural are those which change the Food, *&c.* so as to assimilate it to our own Nature: Such are the Actions of the Viscera, and the Vessels which receive, retain, secern, *&c.* the Humors. See NATURAL.

Animal, are those without which we cannot perceive, will, remember, *&c.* Such are *Feeling*, *Seeing*, *Imagining*, *Judging*, *Passions*, *voluntary Motion*, &c.

FUNCTION is also us'd figuratively in speaking of the Offices, Duties, or Occupations a Person is engaged in.

He acquitted himself of all the *Functions* of the Magistracy with Applause. The Actions of an Embassador must be distinguish'd from his *Functions*; the one regard his Character; the other his Person.

FUND, FUNDUS, a *Latin* Term, us'd for the *Bottom* of certain Things; and particularly of certain Parts of the Body.

FUND *of the Eye*, is that Part possess'd by the Choroeides and Retina. See EYE, RETINA, &c.

The Images of Objects are represented in an inverted Situation, in the *Fund* of the Eye. See VISION.

FUNDUS *Uteri*, or *Fund of the Womb*, is the Body, or principal Part thereof; in contradistinction to the *Cervix*, or Neck; the *Osculum*, or Mouth; and the *Vagina*. See UTERUS.

FUNDUS *Vesicæ*, or *of the Bladder*, is the Cavity thereof, wherein the Urine is contained. In Men it is placed over the Rectum; and in Women over the Matrix. See BLADDER.

FUND *of the Gall Bladder*, the *Stomach*, &c. See GALL *Bladder*, STOMACH, &c.

FUNDUS *Plantæ*, is that Part of a Plant, where the Stalk just meets, and joins the Root.

FUNDUS *Cœli*, is the Point opposite to the Point of Culmination; or the Point of the Ecliptick, wherein it is intersected by the Meridian, beneath the Horizon.—

FUND, in Commerce, is used for the Capital, or Stock of a Merchant, Company, or Corporation; or the Sum of Money they put into Trade. See STOCK, CAPITAL, &c.

In this Sense we say absolutely, the *Funds*, the *Publick Funds*; meaning the Stock of the great Companies, or Corporations, as the *Bank*, *South Sea*, *East India*, &c. See BANK, COMPANY, &c.

FUNDAMENT, the *Anus*, or Aperture, thro' which a Man voids his Excrements. See ANUS.

FUNDAMENTAL, something that serves as a Base, Rest, Support, or Foundation for any thing. See FOUNDATION.

The Apostles Creed contains the *fundamental* Points of Religion. The *Salic* Law is the *fundamental* Law of the Polity of *France*.

FUNDAMENTAL, in Music, the principal Note of a Song, or Composition, to which all the rest are in some measure adapted, and by which they are sway'd; call'd also the *Key* of the Song. See KEY.

FUNERAL, the Ceremonies perform'd at an Interment; or the last Offices paid the Deceased. See OBSEQUIES.

The Word is form'd of the Latin *Funus*; and that of *Funalia*, by reason of the Torches (which were *Funes*, *cera circumdati*) us'd in the *Funerals* of the *Romans*. Tho' others derive *Funus* from the *Greek* φόνος, Death, or Slaughter.

The *Funeral Rites* among the antient *Romans* were very numerous.

The Deceas'd was kept seven Days; and every Day wash'd with hot Water, and sometimes anointed with Oil, that in case he were only in a Slumber, he might thus be waked; and every now and then his Friends meeting, made a horrible Outcry, or Shout, with the same View: Which last Action they call'd *Conclamatio*.

The third Conclamation was on the seventh Day; when, if no Signs of Life appear'd, the Defunct was dress'd and embalmed by the Pollinctores, plac'd in a Bed near the Door, with his Face and Heels outward, toward the Street; and the Outside of the Gate, if the Deceas'd were of Condition, garnish'd with Cypress Boughs.

In the course of these seven Days an Altar was rais'd near his Bed side, call'd *Acerra*; on which his Friends every day offer'd Incense; and the *Libitinarii* provided Things for the *Funeral*.

On the seventh Day a Crier was sent about the City to invite the People to the Solemnization of the *Funeral* in these Words, *Exequias L. Tito L. Filio, quibus est commodum, ires. Jam tempus est. Ollus ex ædibus efferitur.*

The People being assembled, the last Conclamation ended, and the Bed cover'd with Purple; a Trumpeter march'd forth, followed by old Women, call'd *Præficæ*, singing Songs in praise of the Deceas'd: And lastly, the Bed followed, bore by the next Relations. And if the Person were of Quality and Office, the waxen Images of all his Predecessors were carried before him on Poles. See IMAGE.

The Bed was followed by his Children, Kindred, *&c. atrati*, or in Mourning: From which Act of following the Corps, these *Funeral* Rites were called *Exequiæ*.

The Body thus brought to the *Rostra*, the next of Kin *laudabat Defunctum pro rostris*, made a *Funeral* Oration in his Praise, and that of his Ancestors.

This done, the Body was carried to the *Pyra*, or *funeral* Pile, and there burnt: His Friends first cutting off a Finger, to be buried with a second Solemnity. See PYRA, and ROGUS.

The Body consumed, the Ashes were gather'd; and the Priest sprinkling the Company thrice with clean Water, the eldest of the *Præficæ* crying aloud, *Ilicet*, dismiss'd the People, who took their leave of the Deceas'd in this Form, *Vale, Vale, Vale: Nos te ordine quo natura permiserit, sequemur.*

The Ashes, inclos'd in an Urn, were laid in the Sepulcher, or Tomb. See URN, SEPULCHER, and TOMB.

The first *Romans* did not burn their Dead, but interr'd them, as we do. See BURNING.

Pliny, lib. 7. c. 54. assures us, that the Custom of Burning was not introduced till after they had learnt, that their Enemies dug up, and expos'd the Bodies of their Soldiers buried in remote Countries. And yet *Plutarch*, in his Life of *Numa*, observes, that *Numa* was buried; as having expressly forbid them by his Testament to burn him: Which shews that the *Romans* had practiced Burning before him.

This Custom of burning the Dead, so religiously observ'd by the *Greeks* and *Romans*, was held in Abhorrence by several other Nations.

Herodotus relates, that the *Persians* detested it; as holding Fire to be a God. The *Egyptians* declined to burn their Dead; as taking Fire for an inanimate Beast; and judging it Impiety to commit the Bodies of the Deceased to be devour'd by Beasts. The Custom of burning among the *Romans* ceas'd under the Empire of the *Anthonines*.

FUNERAL *Oration*, or *Sermon*, a Discourse pronounced in praise of a Person deceased, at the Ceremony of his *Funeral*.

The Custom of making *funeral* Orations is very antient. The *Romans* had it of a long standing; and it was always one of the nearest Relations that made it. *Augustus* did the Office to his Grandmother *Julia*, when only twelve Years of Age. *Suet. Aug. c. 8.* And we have divers parallel Instances.

The Custom seems to have begun with the Republic; at least, the first *funeral* Oration we read of, was that of *Brutus*, who expell'd the Kings, and was the first Consul; who having been kill'd in a Battle against the *Hetrurians*, was *laudatus pro rostris*, prais'd in the *Forum* by *Valerius Publicola* his Collegue.

Indeed, some Authors will have the Practice more antient. They maintain it to have been in use among the *Greeks*; and that *Solon*, who, according to *Aulus Gellius*, gave Laws to the *Athenians* in the Time when the elder *Tarquin* reign'd at *Rome*, was the first Author thereof: Something like which, it seems, the Orator *Anaximenes* has left in Writing. See *Polydore Virgil de Invent. Rer. L. III. c. 10.*

FUNERAL *Games*, or *Ludi Funebres*, were a Part of the Ceremony of the antient *Funerals*. See GAMES.

They consisted in mortal Combats of Gladiators around the *funeral* Pile. See GLADIATOR.

The Custom was very antient; tho' it had not always been the same. At first, they cut the Throats of a Number of Captives before the *Pyra*, as Victims to appease the *Manes* of the Deceas'd. This *Achilles* does in *Homer*, *Iliad*, φ, at the *Funeral* of *Patroclus*: And *Æneas*, in *Virgil*, *L. XI.* at that of *Pallas*, Son of *Evander*. *Cæsar*, in his Commentaries *L. VII.* relates, that the *Gauls* did the same.

But at length it appear'd barbarous, thus to butcher Men; and therefore to save the Horror of the Spectacle, yet without the Dead's losing any thing thereby; they made the poor Captives fight and kill one another, only saving some few of such as came off Victors.

This Custom was borrowed of the *Greeks* by the *Romans*; among whom the cruel Diversion was call'd *Munus*.

The first who introduc'd it at *Rome*, was *Junius Brutus*, at the Obsequies of his Father; or, according to others, *Ap. Claudius*, and *M. Fulvius*, during their Consulate.

The like horrible Combats were also occasionally exhibited by the Magistrates; and sometimes added to the Theatrical Pieces.

The Emperor *Claudius* decreed, that whereas these accursed Games were till then arbitrary; it should be the Practice for the future, to perform them regularly every Year, at the Expences of the State; and that the Ædiles should have the Care and Direction thereof. But he conceiv'd a Horror for them himself; and soon after abolish'd them: Tho' it was still allow'd particular Persons to have them, provided they were worth forty thousand Sesterces *per Annum*.

They were not finally abolish'd before *Theodoric* King of the *Goths*, at the End of the fifth Century.

FUNERAL *Column*, a Column crown'd with an Urn, wherein the Ashes of some deceas'd Person are suppos'd to be inclos'd; the Fust, or Shaft being set with Tears, or Flames; the Symbols of Grief, and Immortality. See COLUMN.

FUNGUS, in Natural History; see MUSHROOM.

FUNGUS, in Medicine, a fleshy Tumor, or Excrescence, very spongeous, soft, and pale; arising on the Membranes, Tendons, and other nervous Parts, in consequence of Ulcers, Wounds, Contusions, and Strains.

Fungus's are frequently form'd on the Meninges, or Membranes of the Brain, in Wounds of the Head when not well cover'd, or defended from the external Air: They are also frequent about the Joints; which last grow very insensibly. But where the Skin is open, finding more room, they grow to a prodigious degree in a very little time, assuming the Form of a Mushroom or *Fungus*.

There are also *Fungus's* of the *Anus*, and *Uterus*. They are all suppos'd to proceed from a Retention and Depravation of the nutritious Juice.

The *Fungus* is a general kind of Excrescence, whereof there are divers particular Species; as the *Ficus*, *Sarcoma*, *Condyloma*, &c. See FICUS, &c.

FUNGOUS *Flesh*, is a spongeous, excrescent, or (as we popularly call it) *proud* Flesh, frequently growing on the Lips of Wounds, Ulcers, *&c.* See FUNGUS.

The *Sarcocele* is sometimes the Result of a *fungous* Flesh. See SARCOCELE.

In Ulcers, *Wiseman* obſerves, there frequently ariſes a ſpongious, or *fungous* Fleſh, either from the too great Afflux of Humors; or thro' the Surgeon's Unskilfulneſs.

It muſt be ſuppreſs'd, or taken off by drying Medicines, or even Cauſticks: As *Lapis Tutiæ*, burnt Alum, Precipitate of Mercury, *Roman* Vitriol, *&c.* See ULCER.

There is alſo a malignant kind of *Fungus* rooted in the *Rectum*. See RECTUM.

FUNNEL *of a Chimney*, the Shaft, or ſmalleſt Part of the Chimney, from the Waſt upwards. See CHIMNEY.

Palladio orders, that the *Funnel* be carried three, four, or five Foot at leaſt above the Roof, that it may carry the Smoak clear from the Houſe into the Air.

Care too is to be taken, as to the Width; for that if they be too wide, the Wind will drive back the Smoak into the Room; and if too narrow, the Smoak will not be able to make its way.

Chamber Chimneys therefore are not to be made narrower than ten or eleven Inches; nor broader than fifteen.

FURBISHER, a Perſon who *furbiſhes* or poliſhes Arms, and gives them a Brightneſs and Luſtre. See FURBISHING.

In the general Senſe of the Word, it includes what we now call Armorers and Sword Cutlers: In a more reſtrain'd Senſe, it is appropriated to thoſe who clean, and ſcour up old Swords, Guns, Halberds, and put them in order.

Among the Officers of the Tower is a *Furbiſher of ſmall Arms*, and another *of Swords*. And the like is at moſt of the Palaces and Armories of *England*; as St. *James*'s, *Windſor*, *Cheſter*, *Plymouth*, *Hull*, and *Berwick*.

FURBISHING, the Act of cleaning, ſcouring, and poliſhing Arms; as Guns, Piſtols, Swords, *&c.* See FURBISHER; ſee alſo SWORD, GUN, *&c.*

Furbiſhing is principally perform'd with Emery. See EMERY.

The Word is form'd of the French *Fourbiſſure*, which *Hicks* derives from *Furben*; which in the Language of the antient *Franks* ſignify'd to clean and poliſh.

M. *Huet* chuſes rather to derive the French *Fourbir* and *Fourbeſſure*, from the Engliſh *Furbiſh*, and *Furbiſhing*.

Skinner obſerves, that ſome Authors derive the Engliſh *Furbiſh* from the Latin *furvus*, and *fervor*; but for his part he rather derives it from the German *Farb*, Colour, and *farben*, to give a colour.

FURCA, FORK, in Antiquity, a kind of Puniſhment, or rather Inſtrument of Puniſhment, among the *Romans*.

The Form of the *Roman Furca* is very obſcurely deſcribed by the Antients, and much controverted by the Moderns.

All we know for certain, is that it was of Wood, and reſembled a Fork; whence it is called in Writers ξύλον διπλῶν, δικῶν, δίδυμον, that is, *lignum duplex*, *bicornutum*, *geminum*, a double fork'd or horned Timber.

Plutarch, treating of the *Furca*, ſays, it is originally a piece of Timber, wherewith the Beam of the Waggon was upheld: He adds, that it is the ſame with what the *Greeks* call *Hypoſtate* and *Sterigma*: And the Sterigma is deſcribed by *Heſychius* as the forked Piece of Timber put under the Yoke of the Waggon.

From the two, *Goodwin* takes the *Furca* to have been the Beam of a Waggon, to which the Yokes were faſten'd.

The Puniſhment of the *Furca* was of three kinds: The firſt, only *Ignominious*, was when a Maſter forc'd his Servant for ſmall Offences to carry a *Furca*, or Fork on his Shoulders, about the City; confeſſing his Fault, and warning others to beware of the like; whence ſuch Servant came to be denominated *Furcifer*.

The ſecond kind was *Penal*; when the Party having the *Furca* on his Neck, was lead about the Circus, or other Place, and whip'd all the way.

The third was *Capital*; the Malefactor having his Head faſten'd to the *Furca*, and ſo whip'd to death.

In After-times of the Empire, when Crucifying became interdicted, the Form of the *Furca* was changed, and made like our Gibets or Gallows. See CROSS, CRUCIFYING, GIBET, &c.

FURCA, in our antient Cuſtoms, was the ſame with *Catifurcia*, or *Foſſa*, *i. e.* Gallows, and Pit; *viz.* a Right or Juriſdiction of puniſhing Felons; that is, Men with hanging; Women with drowning. See GALLOWS.

FURCHE, in Heraldry, a Croſs in the Form here repreſented. See CROSS.

FURCULA, in Anatomy; ſee JUGULUM.

FURFUR, literally ſignifies Huſk, or Chaff; and therefore is uſed for the Scales, Scurf, or Dandriff, which grows upon the Skin with ſome Likeneſs thereto. See CUTICLE. Hence

FURFURATION, the falling off of Furfures in Combing, *&c.*

FURIES, EUMENIDES, DIRÆ, in the Heathen Theology, and Poetry, were infernal Deities, ſuppoſed to enter, and poſſeſs Men; to torment, and puniſh them. See GOD.

The *Furies* were reputed the Miniſters of *Pluto*; and the Avengers of Crimes. *Strabo* paints them cloathed in long Robes falling to their Heels, but girt about the Breaſt. They were three in Number: *Tyſiphone*, *Megæra*, and *Alecto*.

Patin, *Spanheim*, &c. will have it to be them, which we ſee on a Medal of the Emperor *Philip*, ſtruck at *Antioch*, on whoſe Reverſe are repreſented three Women dreſs'd as above-mentioned, and arm'd with a Key, burning Torches, Poniards, and Serpents.

Struvius, *Antiq. Rom. Synt. C. I. p.* 182. adds, that the three *Furies* may probably be no other than the triple *Hecate*, whom the Antients believ'd to purſue and torment the Wicked in Hell, on Earth, and in Heaven.

Some of the Poets add a fourth *Fury*, call'd *Lyſſa*; a *Greek* Word, ſignifying Madneſs, Rage. They repreſent them with Eyes inflam'd; their Heads twiſted round with Snakes, with Whips and burning Torches in their Hands to puniſh the Guilty.

The Daffodil was ſacred to the *Furies*; and ſuch as offer'd Sacrifices to them, were crown'd therewith. This we learn from *Euſtathius*, on the firſt Book of the Iliad, *p.* 87.

Theſe *Furies* were alſo call'd *Pœnæ*, Ποιναι, by reaſon of the Puniſhments they inflicted on Criminals: As their Denomination *Furies* aroſe from the Rage and Madneſs, which they threw into the Conſcience. *Voſſ. de Idolol. L. VIII. c.* 18.

The *Greeks* call'd them *Eumenides*; the Origin of which Name is much controverted among the Learned: The Etymology that ſeems beſt authorized, derives it from εὐμενὴς, gentle, mild; which was applied to them on occaſion of *Oreſtes*'s being abſolv'd of the Murther committed by him on the Perſon of his Mother. *Minerva*, it ſeems, appeas'd and pacified the *Furies*; ſo that they ceas'd to purſue him: Upon which the *Athenians* ever after denominated them *Eumenides*.

But it muſt be added, that the *Athenians* called them by the ſame Name, long before *Oreſtes*'s time; as appears from the *Oedipus* of *Sophocles*. There was a Temple in *Athens*, near the *Areopagus*, conſecrated to the *Eumenides*, whom the *Athenians* call'd *Venerable Goddeſſes*. *Ariſtides* and the Scholiaſt of *Thucydides* ſpeak of this Temple as erected in Memory of the Judgment of *Oreſtes*. See EUMENIDES.

FURLING *Lines*, are ſmall Lines made faſt to the Top-ſails, Top-gallant Sails, and to the Miſen-yard Arms, ſerving to *furle* up thoſe Sails.

The Miſen hath but one *Furling Line*, but all the reſt have two, one at each End.

FURLONG, an *Engliſh* long Meaſure, containing the eighth Part of a Mile. See MILE, and MEASURE.

The *Engliſh Furlong* is equal to forty Poles, or Perches; and the Perch to $16\frac{1}{2}$ Feet. See PERCH, FOOT, &c.

Hercules is ſaid to have run a Stadium or *Furlong* at one breath. See STADIUM.

FURLONG is alſo us'd for the eighth Part of an Acre, now called a Rood. See ROOD.

Tho', in an old Law Book, printed in *Henry* the VIII's time, we read, that ſix hundred Foot, of five Score to the Hundred, make a *Furlong*. See ACRE.

In the former Signification the *Romans* call it *Stadium*; in the latter, *Jugerum*.

FURLONG is alſo us'd for a piece of Land, of more, or leſs Acres.

Omnibus Chriſti Fidel. Johannes Blunt de Eyc, Arm. —Dedit Thomæ Croft & Franciſco Lovel, Arm. unum Furlongum *terræ arabilis continen. per æſtimationem quatuor Acras*, &c. *Dat.* 20 *Jan.* 3 *Eliz.*

FURLOUGH, a Licence granted by an Officer to a Soldier, to be abſent for a while.

FURNACE, an Utenſil, or Veſſel, proper to contain Fire; or to raiſe and maintain a vehement Fire in; whether of Coal, or Wood. See FIRE.

There are divers kinds of *Furnaces*, of various Forms, and for various Uſes.

The Domeſtick *Furnace*, us'd in making Confections, *&c.* is uſually of Iron, or Earth.

Thoſe us'd by the Goldſmiths, Refiners, *&c.* are much larger, and of a different Structure.

Thoſe wherein Lime, Bricks, *&c.* are burnt, are called *Kilns*. See LIME, BRICK, &c.

FURNACE is particularly us'd for a kind of Oven, wherein the Ores of Metals, after beating, waſhing, *&c.* are melted down, by a huge Coal or Wood Fire. See FUSION.

The Structure and Application of theſe *Furnaces* is ſomewhat different in the different Metals. See GOLD, SILVER, COPPER, TIN, &c.

FURNACE is more ſtrictly applied to thoſe us'd in the melting of Iron; which Authors frequently confound with Iron *Forges*; tho' there is a conſiderable Difference between them.

The *Furnace* is a Brick Structure, much in the Shape of an Egg set an end, wherein the Iron Ore, after it has been burnt in a Kiln, is put, intermix'd with Cinders and Charcoal; and the whole melted, till it trickle down into a Receiver underneath; where, the Scum and Dross being taken away, the Metal is thrown into Furrows made in a Bed of Sand, and thus cast into Sows or Pigs of Iron. See Iron-*work*.

The *Forge* is a Place, where the Pigs are heated and fused a second, and even third time, to prepare and fit them further for use. See Forge.

Glass-house Furnace, is the Place wherein the Materials of Glass are fused, and vitrified. See Glass.

There are three kinds of *Furnaces* us'd in the Glass-works.

The first called the *Calcar*, serves to prepare or calcine the *Frit* in. It is made in fashion of an Oven, ten Foot long, seven broad, and two deep. The Fuel, which is Sea Coal, is put in a Trench, on one Side of the *Furnace*; and the Flame reverberates from the Roof back upon the Frit. The Coals burn in an iron Grate, and the Ashes fall hence into a Hole underneath. See Frit.

The second, is the *Working Furnace*, serving to melt the Metal in, or make the Glass. Its Figure is round, three Yards in Diameter, and two high, being arch'd over. Round the Inside are eight, or more Pots plac'd, and piling Pots on these. The Number of Pots is always double that of the *Boccas* or Mouths, or that of the Workmen; that each may have one Pot refined, to work out of; and another for Metal, to refine in, while he works out the former.

The *Furnace* has two Partitions; the lower, seperating the Pots from the Fire Place, has a circular Hole in the Centre, cover'd with a Grate, through which the Flame passes from the Fire Place into the *Furnace*; from the arched Sides and Roof whereof it is reverberated into the Melting-pots.

The second Partition divides this from the *Leer*, or *Annealing Furnace*. Thro' the Boccas, or Working-holes the Metal is taken out of the Pots, and the Pots put in the *Furnace*. These Boccas are stop'd with moveable Covers, made of Lute and Brick, to screen the Workmens Eyes from the Fire. On each Side the Bocca is a Boccarella, out of which, colour'd Glass, or the finer Metal is taken from the Piling-pot. To the *Furnace* likewise belong Ovens or Holes near the Leer, for the calcining of Tartar, Iron, *&c.*

The *Leer*, which serves to anneal and cool the Vessels; and which *Agricola* makes a particular *Furnace*, consists of a *Tower*, and the Leer. The Tower lyes directly over the Melting *Furnace*, with a Partition betwixt the Aperture; having an Aperture, call'd *Occhio*, or *Lumella*, thro' which the Flame or Heat ascends out of the *Furnace* into the Tower: On the Floor or Bottom of this Tower, the Vessels fashion'd by the Masters, are set to anneal. It has also two *Boccas* or Mouths, by which the Glasses are put in with a Fork, and set on the Floor.

The *Leer* is an Avenue, five or six Yards long, continued to the Tower: Thro' this the Glasses, when anneal'd, are drawn in iron Pans, called *Fraches*; by which they come to cool by degrees; being quite cold, by that time they reach the Mouth of the Leer, which enters the *Sarosel*, or Room where the Glasses are to be set.

The third, is the *Green Glass Furnace*, which is a kind of Compound of all the former. It is made square (the two former being circular) having an Arch, at each Angle thereof, for annealing and cooling the Glasses. The Metal is wrought on two opposite Sides; and on the other two, they have their Calcars, into which are made *Linnet Holes* for the Fire to come from the *Furnace* to bake the Frit; as also to discharge the Smoak. Fires are made in the Arches to anneal the Vessels; so that the whole Process is done in one *Furnace*.——

The Stones wherewith the Insides of these *Furnaces* are built, are not Brick (which would soon melt down into Glass, as also all the softer Stones); but hard, and sandy, by *Imperat.* call'd *Pyrachnia*.——

Founders Furnace, is of divers kinds, according to the different kinds of Work to be cast.

That us'd by the Founders of Small Work, is much like the Smiths Forge, with this only Difference, that the Fire is made on the Massive, built in a Cavity in the Middle of the *Furnace*, to which the Pipe of the Bellows reaches.

This Cavity goes to the Bottom of the Massive: A-cross the Middle of it is plac'd a Grate, which holds the Fire and the Crucible: And below is the Place for the Ashes, *&c.* See Foundry.

The Statuaries, or Figure-makers, use two kinds of *Furnaces*; which see describ'd under the Article Foundry *of Statues*.

Glass-Painters Furnace, is made of Brick, nearly square, and about two Foot and a half each way.

It is cut horizontally in the Middle by a Grate, which sustains the Pan or Shovel the Glass is baked in. This *Furnace* has two Apertures; one below the Grate, to put the Fuel in at; the other above it, thro' which the Workman spies how the Coction of the Colours goes on. See *Painting on* Glass.

Letter Founders Furnace, is very small, not exceeding a Foot and half in Height, and one in Diameter; being plac'd on a wooden Stand, or Bench, to raise it to a proper Height for the Artist, who works standing. It is made of the same Earth with Crucibles. See *Letter* Foundry.

Plumbers Furnace is of three Kinds: In the first, they melt the Lead, whereof Sheets are to be cast.

This is only a sort of large Copper, or Receptacle like a Copper, made of Free-stone and Potters Earth, well plaister'd round with a little iron Pan at bottom.

In the second, they melt the Lead to be cast in Moulds, for Pipes, *&c.* which are not to be solder'd.

The third, is the Tinning *Furnace*, which is a square Frame of Wood, or sometimes a Massive of Stone work, with a Brick Hearth, whereon is made a Charcoal Fire, which serves them for the applying of thin Tin Leaves on their Works. See Plumbery.

Hatters Furnaces are of three Kinds: A little one under the Mould, whereon they form their Hats: A larger, in the Fullery under a little Copper full of Water and Lees: And a very large one under the great Copper they dye their Hats in. See Hat.

Bellows-Furnace, is one of the two kinds of *Furnaces* us'd in the Mintage, for the fusing of Metals.

It consists of a flat Hearth at Bottom, into which the Air may be admitted by a Hole contriv'd therein.

On a Level with the Hearth is a second Aperture, which gives Passage to the Pipe of the *Bellows*, from which the *Furnace* is denominated. About a Foot over this is a moveable Grate, which may be taken off and put on at pleasure. Lastly, over this is the Place where the Crucible is set; which is square, and made of the same Earth with the Crucible; of Breadth sufficient to bear a Range of Coals around the Crucible.

To melt a Metal in this *Furnace*, they lay a little Plate of forged Iron over the Grate; and on this they set the Crucible, which is likewise cover'd with an iron, or earthen Lid. Then they fill the *Furnace* with Charcoal; and when it is well lighted, and the Crucible sufficiently hot, they stop the Vent-hole. Lastly, throwing on fresh Coals, they stop the *Furnace* with an iron Lid: Thus, continuing to work the Bellows, and supply fresh Fuel, till the Metal be in Fusion. See Coining.

Wind-Furnace is the second *Furnace* us'd in the Fusion of Metals for Coinage. At Bottom it has a Hearth made hollow, in manner of a Coupel, with a Vent-hole in the Fore-part thereof. Over the Vent-hole, is a Grate seal'd in the Massive of the *Furnace*. Over the Grate is the Place for the Crucible, which is usually of forged Iron.

The Fire being lighted, the Crucible is set in, with a Cover over it; and a Capital or Cover of Earth or Iron laid likewise over the *Furnace*. A-top of this Capital is a Hole five or six Inches in Diameter.

It is called *Wind Furnace*, by reason the Air entring thro' the Vent-hole at bottom, which is always open, serves the same purpose as the Bellows in other *Furnaces*,

Gold is usually melted in the *Bellows Furnace*, as requiring an intenser Heat before it fuses. See Gold.

Silver, and Copper, are commonly melted by the *Wind-Furnace*. See Coinage.

Furnace, in Chemistry, is an earthen Vessel, wherein the Fire necessary for the several Operations, is contain'd, determined, and directed. See Fire.

The *Furnace* consists of several Parts; as, a Place for the Vessel, or Body to be wrought on; a *Focus* or Hearth for the Ashes; a *Chimney*; a *Grate*; a *Door*; a *Dome*, and a *Fan*; or else *Registers*, whereby to let in Air, to increase, or abate the Fire.

The Perfection of a *Furnace* consists in its maintaining a constant equable Fire; and this easily temper'd; and at an easy Expence.

To have the *Expence* easy, the whole Action of the Fire or Fuel must be employ'd on the Subject or Matter of the Operation.

It must be *equable*, since different Degrees of Fire have different Effects; so that if any given Degree would answer any given Intention; an Alteration of that Degree will prevent the Intention from taking place. And on these Circumstances does all the Variety of *Furnaces* depend.

Furnaces are either fix'd and immoveable, call'd *Athanors*; or portable, call'd *Catholic*, or Universal, being proper for all Operations, where the Body to be operated on is not too large.

The first Species of Athanor, or fix'd *Furnace* is fitted to give a Heat equal to that of a healthy Man.

The second is the *Furnace* of the *Balneum Mariæ*, fit for the Destillation of the more subtile Spirits. See Balneum *Mariæ*.

The third is the *Digesting Furnace*. See Digesting.

The

The fourth, the Anema, or *Wind Furnace*, call'd alſo Melting *Furnace*, and Metallic *Furnace*; us'd in the Fuſion of Metals, Minerals and Vitrifications.

It is call'd *Wind Furnace*, by reaſon the Air drives forcibly in at the ſame, to blow up the Coals: Its Form is much like that of the Reverberatory *Furnace*, only leſs.

For the Reverberatory Furnace, *ſee* REVERBERATORY.

FURNACE *of a Mine*, in the Art of War; ſee CHAMBER and MINE.

FURNITURE, in Dialling, certain additional Points and Lines, drawn on a Dial, by way of Ornament. See DIAL.

Such are the Signs of the Zodiac, Length of Days, Parallels of Declination, Azimuths, Meridians of the principal Cities, *Babylonick* and *Italian* Hours, Points of the Compaſs, *&c.* See DIALLING.

For drawing *Furniture* on Dials, the *Analemma*, or Trigon of Signs is an Inſtrument of principal Uſe. See ANALEMMA.

FUROR *Uterinus*, a Species of Madneſs, peculiar to Women, exciting them to a vehement Deſire of Venery, and rendering them inſatiate therewith. See UTERINE *Fury*.

It is owing, according to *Sennertus*, to a too great Abundance of Semen, and a præternatural Heat and Pungency thereof.

FURR, the Skin of divers kinds of Wild Beaſts, dreſs'd with the Hair on; to be us'd as a Lining, or Doubling of Garments, Robes, *&c.* either for Warmth, Ornament, or Diſtinction of Rank and Dignity.

The Robes of Kings, Dukes and Peers are lined with divers kinds of *Furrs*, and particularly Ermine, to render them more magnificent. See ERMINE, &c.

The ſame may be obſerv'd of ſeveral chief Magiſtrates; Judges, and Doctors of different Faculties in the Univerſities.

The Kinds of *Furrs*, or the Skins chiefly dreſs'd in Alum, and with the Hair on, are thoſe of the *Ermine*, *Sable*, *Squirrel*, *Cony*, *Caſtor*, *Otter*, *Dog*, *Fox*, *Wolf*, *Tiger*, *Bear*, &c. See SKIN.

The Word is form'd of the French *Fourrure*, a Lining; which *Du Cange* derives from *Furrura*,, us'd, in the barbarous *Latin*, for the ſame thing. We alſo meet with *Forratura*, *foderata*, *fodratum*, and *fodratura*, in the ſame ſenſe.

FURR, in Heraldry, a Repreſentation of the Skins of certain wild Beaſts, ſeen, both in the Doublings of the Mantles of Coat Armour, and in the Armour it ſelf.

The Heralds uſe two Metals, five Colours, and two *Furrs*, or hairy Skins, *Ermin* and *Vaire*.

The Origin of theſe *Furrs*, *Mackenzy* aſcribes to the Shield's being antiently cover'd with Skins; which Skins or Coverings were afterwards repreſented in the Shields: A more probable Derivation, in our Opinion, than to ſay they were plac'd on Shields, becauſe they had been wore in Mantles and Garments.

Furrs either conſiſt of one Colour, which is *white*; or more than one; and theſe either two, or more than two.

Furrs of two Colours are either *Ermine*, being white with black Spots; *Ermines*, black with white Spots; *Erminois*, whoſe Ground is yellow; or *Pean*, which is black, pouder'd with yellow. See ERMINE, PEAN, *&c.*

Furrs of more than two Colours are *Vair*. See VAIR, and VAIRY.

FURRIER, a Perſon who trades, or works in *Furrs*, or lines Robes, *&c.* therewith. See FURR.

FURRING, in Architecture, the making good the Rafters Feet in the Cornice. See RAFTER.

Thus, when Rafters are cut with a Knee, theſe *Furrings* are Pieces which go ſtrait along with the Rafter, from the Top of the Knee, to the Cornice.

Alſo, when Rafters are rotten, or ſunk hollow in the Middle, there are Pieces cut thickeſt in the Middle, and tapering towards each End, which are nailed upon them to make them ſtrait. Such Pieces are called *Furrs*; and the Putting them on, *Furring the Rafters*.

FUSAROLE, in Architecture, a Moulding, or Ornament, placed immediately under the Echinus, in the *Doric*, *Ionic*, and Compoſite Capitals

The *Fuſarole* is a round Member, carved, in manner of a Collar or Chaplet, with oval Beads. The *Fuſarole* ſhould always anſwer exactly under the Eye of the Volute in the *Ionic* Capital.

The *Italians* call it *Fuſciolo*; and the *French*, from whom we borrow it, *Fuſarole*.

FUSEE, or FUSY, in Watch-work, is that conical Part, drawn by the Spring, and about which the Chain, or String is wrapp'd. See WATCH.

The Spring of a Watch is the firſt Mover. It is roll'd up in a Cylindrical Box, againſt which it acts, and which it turns round in unbending itſelf. The String, or little Chain, which at one End is wound about the *Fuſee*, and at the other faſten'd to the Spring-box, diſengages itſelf from the *Fuſee*, in proportion as the Box is turn'd. And hence the Motion of all the other Parts of the Spring Watch. See SPRING.

Now the Effort, or Action of the Spring is continually diminiſhing from firſt to laſt; and of conſequence, unleſs that Inequality was rectify'd, it would draw the String with more Force, and wind a greater Quantity of it upon the Box at one time than another; ſo that the Movement would never keep equal time.

To correct this Irregularity of the Spring; nothing could be more happily contriv'd than to have the Spring applied to the Arms of Levers, which are continually longer as the Force of the Spring is weaker. This foreign Aſſiſtance, always increaſing as 'tis moſt needed, maintains the Action, and Effect of the Spring in an Equality.

'Tis for this reaſon, that the *Fuſy* is made of a conical Figure. Its Axis, which is immoveable, is the Series of the Centres of all the unequal Circumferences, which compoſe the Surface of the *Fuſy*. According as the Part of a String which is untwiſting, is applied to a larger Circumference, it is at a greater Diſtance from the ſix'd Point in the Axis, correſponding thereto; and of conſequence the Power which draws by this String, *viz.* the Spring, acts with the more Advantage. The Spring begins to draw by the Top of the Cone; the moſt diſadvantageous Part, by reaſon its own Force is then the greateſt. See LEVER.

If the Action of the Spring diminiſh'd equally, as the Parallel Baſes of a Triangle do; the Cone, which is generated of a Triangle, would be the preciſe Figure required for the *Fuſee*. But 'tis certain the weakening of the Spring is not in that Proportion; and of conſequence the *Fuſy* ſhould not be conical.

In effect, Experience ſhews, that it ſhould not be ſtrictly ſo; but that it be a little hollow toward the Middle, *i. e.* the Arm of the Lever muſt be there a little ſhorten'd; by reaſon the Action of the Spring is not ſufficiently diminiſh'd of it ſelf.——

'Tis a Matter of Inquiry among Geometricians what the preciſe Figure of the *Fuſy* ſhould be; that is, what the Curve is, by whoſe Revolution round its Axis, the Solid, whoſe Figure the *Fuſy* is to have, ſhall be produced.

M. *Varignon* has determ'd this Curve. The Axis of the *Fuſee* is alſo the Axis of the Curve, which is convex on the Side toward the Axis, and of conſequence concave all the way on the other, or outer ſide; and the Ordinates are the different Diſtances wherein the String is to be with regard to all the ſucceſſive fix'd Points of the Axis.

The Force of the Spring multiplied by the Arm of the Lever it is applied to, each Moment, being always to make an equal Product; it follows that when the Solid of the Curve ſhall be form'd, an Ordinate multiplied by the Surface of the Solid comprized between that Ordinate, and the greateſt of all the Ordinates, *viz.* that of the Baſe, will always yield a Product equal to that of any other Ordinates multiplied in the ſame manner. For the Ordinates are only Arms of the Lever; and the Parts of the Surface comprehended between them and the Baſe are equal to the Lengths of the String, which cover them; *i. e.* to the correſpondent Forces of the Spring: Which is what conſtitutes the Equation, and the Eſſence of the Curve.

FUSEE, FUSIL, or FUSE, in War, an Appendage of a Bomb, or Granado-Shell, by which the Powder or Compoſition in the Shell is ſet on Fire, to do the deſign'd Execution. See BOMB, and GRANADO.

The *Fuſee* is a wooden Pipe or Tap, fill'd with Wild-fire, or the like Compoſition; and is deſign'd to burn ſo long, and no longer, as is the time of the Motion of the Bomb from the Mouth of the Mortar, to the Place, where it is to fall; which Time is about 27 Seconds: So that the *Fuſe* muſt be contriv'd, either from the Nature of the Compoſition or the Length of the Pipe which contains it, to burn juſt that time.——

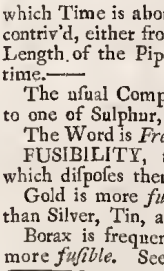
The uſual Compoſition of *Fuſees* is two Ounces of Nitre, to one of Sulphur, and three of Gunpowder Duſt.

The Word is *French*, and literally denotes a *Spindle*.

FUSIBILITY, that Quality in Metals, and Minerals, which diſpoſes them for Fuſion. See FUSION.

Gold is more *fuſible* than Iron, or Copper; but leſs ſo than Silver, Tin, and Lead. See GOLD, SILVER, &c.

Borax is frequently mix'd with Metals, to render them more *fuſible*. See BORAX.



FUSIL, in Heraldry, by the *French* called *Fuſee*, *q. d.* Spindle, is a bearing of a Rhomboidal Figure, more ſlender than the *Lozenge*; its upper and lower Angles being more acute than the two collateral or middle ones: as repreſented in the adjoining Figure.

FUSILIERS, in an Army, are the ſame with Muſquetteers; and are called ſo from the Word Fuſil, a *Fire-arm*, or Muſquet. See MUSQUET.

FUSILLY, or Fusilée, is when a Field or Ordinary is entirely cover'd over, or divided into *Fusils*.—

FUSION, the Solution, or melting of Metals, Minerals, &c. by means of Fire: Or, the Act of changing them from their solid State to a Fluor. See Solution, and Dissolution.

To give the Ore its metallic Form, they *fuse* it: When it is in *Fusion*, the metalline Substance, being the heaviest, sinks to the Bottom of the Furnace; the other terrestrial Matters rising in Form of Scoria to the Surface. See Metal.

'Tis commonly imagin'd, that the *Fusion* and metalline Form of *Minerals* is wholly the Effect of Fire; and we have Theories of Fusibility built on this Principle: But 'tis a mistaken one. Fire, no doubt, is the principal Agent: But Fire alone is not sufficient.

A Mineral, or piece of Metal not purify'd, being put alone in a Crucible, melts with a world of Difficulty, and never becomes a perfect Metal: Copper Ore, for instance, being thus applied, its impure Part forms a Scoria, and vitrifies; the metalline Part residing at Bottom, under the Appearance of a black Regulus.

To promote the *Fusion* and Separation, they mix Coals, or Stones, or Cinders, or old Scoria along with the Ore; the inflammable Principle in which, by help of the Fire, fuses them perfectly, sets the heterogeneous Part at liberty, and attaches it to the Top.

The general reason of *Fusion* is pretty easily assign'd. The Firmness, or Solidity of the Body arises from the Force wherewith its Particles cohere. See Firmness. And the Cohesion in all Bodies is as the Quantity of Contact in the component Particles. See Cohesion.

Now, the Corpuscles of Fire entering with Rapidity into the Pores of the Metal agitates, and by degrees, loosens, divides, and diminishes their Contact, till at length there is not enough to hinder their rolling over each other; and giving way upon the least Impulse. See Fluidity.

The Dilatation observable in all *Fusions*, is a Proof that their Particles are separated and set at a distance from each other, and consequently their Contacts and Cohesions diminish'd.

In effect, Rarefaction and Dilatation is the necessary Consequence of Fire and Heat. See Fire, Dilatation, Rarefaction.

From the Difference of Cohesion proceeds that Variety we observe in the *Fusion* of Bodies: for such as have least Contact of Parts, soonest give way to the Fire; and some will melt away by the Warmth of a Vapour only, when others, which have a stronger Contact, are not to be separated, but with Difficulty. Upon this account, Vegetables very easily disunite; Minerals slower, and Metals slowest of all: And of the last, those wherein the Contact of Parts is least, as in Lead and Tin, most readily melt; but those which are more compact as Gold, and Silver, are not to be managed, but by a violent Heat.

If now the Force of Cohesion were proportional to the Quantity of Matter, or to the Weight of Bodies, we might from Staticks account for all the Variety that occurs in *Fusion*; for by knowing the specifick Gravity of a Body, we should then know, what Force is required to melt it: But because the same Quantity of Matter may be so variously disposed, that in one Body there shall be a much greater Contact, than in another, tho' the Gravity be equal, or even less at the same time; therefore the Force of Cohesion cannot be estimated by Gravity: For Lead, tho' more ponderous than all other Metals, except Gold; yet in the Fire is more easily melted, than any other: So that it necessarily follows, that in this Metal there must be a less Cohesion, or Contact of Parts, how much soever it may exceed others in the Quantity of its Matter. See Lead.

Bodies after *Fusion* return again into a solid Mass, upon removing them from the Fire; because their Particles hereupon approach nearer to one another by their attractive Force, and are so compelled to unite.

Such as consist of homogeneous and unalterable Parts, as Wax, Gums, and the purer Metals, recover their antient Form: For when the same Texture of Parts remains in the whole Body, it must of course reassume the same Appearance, when the separating Power ceaseth to act; but other Bodies, whose Parts, with respect to Density and Surface, are extremely different from one another, while some are carried off by the Force of Heat, and others are changed as to Figure and Position, must be forced to appear in another Form: For they cannot recover their original Phases, unless every Particle could reinstate it self in that very Situation it had before, which may be hindered infinite ways; as may be experienced easily in heterogeneous Bodies.

The Difference, therefore, observ'd even in homogeneous Bodies after Liquefaction, is no ways to be accounted for but from the changeableness of Surface in its Parts: For those Bodies whose Parts constantly retain the same Surfaces, never lose their Form; but others, by having the Surfaces of their Parts altered, have a different Texture, and put on another Appearance.

FUST, in Architecture, the *Shaft* of a Column; or that Part comprehended between the Base, and the Capital; called also the *Naked*. See Shaft.

The *Fust* is that cylindrical Part, which makes, as it were, the Body, or Trunk of the Column, exclusive of the Head and Foot. See Column.

The Word is *French*, and literally signifies a *Cask*.

FUSTIAN, in Commerce, a kind of Stuff, which seems, as it were, cross'd, on one Side.

Right *Fustians* should be made altogether of Cotton Thread, both Woof, and Warp.

There are *Fustians* of divers Kinds, wide, narrow, coarse, fine; with Shag, or Nap, and without it. There are also a great many made whereof the Warp is Flax, or even Hemp.

Fustian cross'd, and napp'd on both Sides, is called *Bombasin*.——

The Plumbers use *Fustian* to cast Lead on. See Plumbery.

Menage derives the Word from *Fustanum*, which in the corrupt *Latin* Writers is used in the same Sense; and is supposed to be form'd from *Fustis*, on account of the Tree whereon the Cotton grows. See Cotton.

Bochart derives it from *fustat*, which in *Arabic* signifies the antient City of *Memphis*, where Cotton is produced in great Abundance.

FUSTICK, or Fustoek, a yellow Wood, us'd by the Dyers. See Dying.

The Colour it yields is a fine golden Yellow; but there should be some other Ingredients mix'd with it, to make it lasting. See Yellow.

The Tree that yields it, grows in all the *Antilles* Islands; but particularly that of *Tabago*, where it rises to a great Height.

The Dyers use it chiefly for Blacks. See Black. But some of the ablest, and honestest among them, who would dye none but the best, and most lasting Colours, are of Opinion it should be absolutely excluded out of all Dying.

Beside this, there is another kind of *Fustick* or *Fustel*, growing in *Italy*, *Provence*, &c. used to dye a Coffee Colour.

F-UT-FA, in Musick, one of the Clefs. See Clef.

FUTURE, something *to come* hereafter. A *future* Contingency. There is none but God to whom *future* Things are present. A *future* State. See Resurrection, and Immortality.

Future, or Future *Tense*, in Grammar, an Inflexion of Verbs, whereby they denote, that a Thing *will be*, in some Time yet to come. The last Day will come. I shall see an End. See Tense.

The *future* Time admits of two Cases: Either we may have a mind to express a thing that shall come to pass in a short time; or a thing that shall happen in any indefinite Time.

Thus the *Greeks* have their *paulo post Future*, ὀλίγον μέλλων, which marks a thing about to be done; as ποιήσομαν; beside the common, indefinite *Future* ποιήσω, I will do it; *amabo*, I will love.

In *Latin*, *Italian*, *French*, and even *English*, the *Future* of the *Indicative* expresses only the Design, or Intention of doing a thing, or simply that the Thing will be; as, I will praise, I will be approved: And the *Future* of the Subjunctive shews that the thing will be done under certain Circumstances; when I shall have seen *Versailles*, I will tell you. Sometimes the *Future* is express'd by the Present; If I meet your Friend; *si offendero*; *si incidero*.

G.

G, Is the seventh Letter of the Alphabet, and the fifth Consonant: But in the Alphabets of all the Oriental Languages, the *Hebrew*, *Phœnician*, *Chaldee*, *Syriac*, *Samaritan*, *Arabic*, and even *Greek*, G 'tis the third Letter. See LETTER.

The *Hebrews* call it *Ghimel*, or *Gimel*, *q. d.* Camel; by reason it resembles the Neck of that Animal: And the same Appellation it bears in the *Sarmatian*, *Phœnician*, and *Chaldee*: In *Syriac* 'tis pronounced *Gomal*; in *Arabec*, *Giim*, and in *Greek*, *Gamma*.

The Letter *G* is of the mute Kind, and cannot be any way sounded without the Help of a Vowel. 'Tis form'd by the Reflection of the Air against the Palate, made by the Tongue, as the Air passes out of the Throat: Which *Martianus Capella* expresses thus, *G, spiritus, cum palato*; so that the *G* is a palatal Letter. See LETTER, MUTE, and PALATAL.

The *Latins* took the Liberty to drop the Letter *G* at the Beginnings of Words, before an *n*; as in *gnatus*, *gnosco*, *gnobilis*, *gnarrat*, &c. which they ordinarily wrote, *natus*, *nosco*, *nobilis*, &c. They also frequently changed it into *C*, as *Gamelus*, into *Camelus*; *Grogulus*, *Graculus*; *Quingentum*, *quincentum*, &c. Sometimes it is put instead of *N*, before a *C*, and another *G*; as *Agchises*, *Agcora*, *Agguilla*, &c. for *Anchises*, *Ancora*, *Anguilla*, &c. Instead of *P*; as *Magilia*, for *Mapilia*, &c. *G* is also used instead of *Q*, and *Q* instead of *G*, as *Anquina*, *Angina*, *Anguina*, &c. Instead of *R*, as *Aquagium*, for *Aquarium*; *Agger*, *Arger*, &c. And instead of *S*, as *Spargo*, *sparsi*, *sparsum*; or, rather, it is retrench'd from those last Words, to avoid the Cacophony of *spargsi*, or *sparesi*.

G, is also put for *C*; as *Cneius*, for *Gneius*; *Caius*, for *Gaius*; *Gaeta*, for *Caieta*: for *V*, as *figere*, for *fivere*.

The Northern People frequently change the *G* into *V*, or *W*; as in *Gallus*, *Wallus*, *Gallia*, *Wallia*, *Vallia*, &c. For in this Instance it must not be said that the *French* have changed the *W* into *G*; by reason they wrote *Gallus* long before *Wallus*, or *Wallia* were known; as appears from all the antient *Roman* and *Greek* Writers.

And yet, 'tis equally true, that the *French* change the *W* of the Northern Nations, and the *V* Consonant into *G*; as *Willielmus*, *William*, into *Guillaume*,; *Wulphilas*, into *Gulphilas*; *Vasco*, into *Gascon*, &c. It may be added, that the antient *Gauls*, and *Celtæ* changed the ו or *v* of the primitive Language into *G*: Accordingly, in the Bas Breton they still say *gouin*, of יין Wine, from יי, by changing the latter י into ו.

Diomed. L. II. de Litera, calls *G*, a new Letter: His Reason was, that the *Romans* had not introduc'd it before the first *Punic* War; as appears from the Rostral Column, erected by *C. Duilius*, on which we every where find a *C* in lieu of *G*. It was *Sp. Carvilius*, who first distinguish'd between those two Letters; and invented the Figure of the *G*: as we are assured by *Terentius Scaurus*. The *C* served very well for *G*; it being the third Letter of the *Latin* Alphabet, as the *g* or *γ* was of the *Greek*.

The *G* is found instead of *C* in several Medals: *Vaillant Num. Imperat. T. I. p.* 39. M. *Reger* produces a Medal of the *Familia Ogulnia*, where GAR is read instead of CAR, which is on those of M. *Patin*. But the *C* is more frequently seen on Medals, in lieu of *G*; as AUCUSTALIS CALLAECIA CARTACINENCES, &c. for AUGUSTALIS, &c. Not that the Pronunciation of those Words was alter'd; but only that the *G* was unartfully or negligently cut by the Workmen. As is the Case in divers Inscriptions of the Eastern Empire; where AUC, AUCC, AUCCC, are frequently found for AUG, &c.

The Form of our *G* is taken from that of the *Latins*, who borrowed it from the *Greeks*; the *latin G* being certainly a Corruption of the *Greek* Gamma Γ, as might easily be shewn, had our Printers all the Characters and Forms of this Letter, which we meet withal in the *Greek* and *Latin MSS.* thro' which the Letter pass'd from Γ to *G*.

As to the Gamma of the *Greeks*, 'tis manifestly the ג Ghimmel of the *Hebrews*, or *Samaritans*. All the Difference between the Gamma and Ghimel consists in this, that the one is turn'd to the Right, and the other to the Left, according to the different manners of writing and reading, which obtain'd among those different Nations: so that all the pains *Salmasius* has taken on *Solinus*, to prove that the *G* was derived from *Greek* Kappa, is lost.

G has also been us'd as a Numeral Letter, signifying 400, according to the Verse,

GAB.

G *Quadringentos demonstrativa tenebit.*

When a Dash was added a-top the $\bar{G}$, it signify'd forty thousand. See A.

G is also us'd in Music, to signify one of the Clefs. See CLEF.

G is the Clef of the highest Part, call'd the *Treble*, or *Alt*. See TREBLE.

GABBARA, a Name the *Egyptians* gave the dead Bodies, which they kept by them, instead of burying them.

That People, out of a Custom which they had receiv'd from their Ancestors, and which arose in some measure from the Disposition of their Country, which is exposed to the Inundations of the *Nile*; us'd to wrap up the Bodies of Persons of Piety and Eminence, particularly those of Saints, and Martyrs, in a great Number of linen Cloths, with Balms, and Spices; and instead of interring them, preserved them in their Houses: thinking, that thereby they did them much more Honour. And these, St. *Augustin* tells us, were what they call'd *Gabaras*. Sermon CXX. *De diversis*, *c.* 12.

Pliny makes mention of the same thing, *L. VII. c.* 16. where he relates, that in the time of *Claudius* a *Gabbara* was brought from *Arabia*, almost ten Foot long.

Fa. *Hardouin* imagines, that *Pliny* here took the Word for a proper Name; and accordingly searches in *Tacitus*, for one *Abbarus*, a King of *Arabia*: But *Hardouin* himself is not of that Opinion; taking the Word to be rather the גבור *Ghibbor*, of the *Hebrews*; or גבאר *Ghabbar*, of the *Arabians*; and to signify a *Gyant*.

But the Jesuite *Rosweyd* has given us a much better Account in his learned Notes, on the Life of St. *Anthony*, *c.* 7; and in his Onomasticon, under the Word *Gabbara*; where he shews that we meet with both *Gabbara*, *Gabbares*, *Gabarus*, and *Gabbarus*; and that they all signify a Body embalm'd; which he proves from the Testimonies of *Cicero*, *Tuscul. Quest.*; of *Pompon. Mela*, *L. I. c.* 9.; of *Sextus Empiricus*, *L. III.*; *Pyrrhon Hypothes. c.* 24.; of *Lucian*, *de Luctu*; of *Coripus*, *L. III. De funere Justiniani*; of St. *Augustin*, *Cassian*, *Damascenus*, &c. See MUMMY.

The Word is *Arabic*, *Syriac*, and *Hebrew*, form'd of גבר Gaber, a Man.

GABEL, or GABELLE, in the *French* Customs, a Duty or Imposition on Salt. See SALT.

The *Gabelles* is let out to Farm; and make the second Article in the King's Revenue. See DUTY, FARM, &c.

There are three Farms of *Gabels*; the first comprehends the greatest Part of the Kingdom: The 2[d] is that of the *Lyonnois* and *Languedoc*; and the 3[d] that of *Dauphine* and *Provence*. There are several Provinces exempt from the *Gabel*; having purchased the Privilege of *Henry* II.

This Duty is said to have had its Rise in *France*, in 1286. under *Philip* the Fair. *Philip* the Long took a Double *per* Livre on Salt, by an Edict in 1331; which he promis'd to remit when he was deliver'd from his Enemies; and which he did accordingly in 1345. King *John* resum'd it in 1355; and it was granted the Dauphin in 1358, to ransom King *John*. *Charles* V. made it perpetual. *Charles* VII. rais'd it to six Deniers: *Louis* XI. to twelve; and *Francis* I. to 24 Livres *per* Muid. And it has been considerably augmented since. *Philip de Valois* first establish'd Granaries and Officers of the *Gabelles*, and prohibited any Persons from selling Salt: From which time the whole Commerce of Salt, for the Inland Consumption, has lain wholly in the King's Hands, who sells and distributes every Grain thereof by his Farmers, and Officers created for the purpose.

The Produce of this Impost is so considerable, that it is computed to make one Fourth of the whole Revenue of the Kingdom; and yields the Crown as much as all the Mines of *Peru*, *Chilly Potosi*, and the rest of *America* does the *Spaniards*.

Etymologists are extremely divided as to the Origin of the Word. Some derive it from the Hebrew *Gab*, a Present; others from קבל to deliver; others from קבלה *Kabbalah*, Receipt; others from *Ghauel*, or *Gabe*, unjust Law; others from the corrupt latin *Gabella*, or *Gablum*, Tribute.—

GABEL is also us'd in some of our antient Writers, for any sort of Tax, or Imposition: As *Gabel* of Wines, of Silks, &c. See DUTY.

GABIONS, in Fortification, &c. large Baskets, made of Osier Twigs, wove of a cylindrical Form, six Foot high, and four wide; which being fill'd with Earth, serve as a Defence, or Shelter from the Enemy's Fire.

They are commonly used in Batteries, to screen the Engineers, &c. In order to which one is placed on either Side each Gun, only leaving room for the Muzzle to appear thro'. See BATTERY.

There are also a smaller sort of *Gabions*, us'd on Parapets, in Trenches, &c. to cover the Musqueteers; being placed so near as that a Musquet can but just peep thro'.

They also serve as a Parapet on Lines, Lodgments, &c. where the Ground proves too hard to dig into. See PARAPET.

To render the *Gabions* useless, they endeavour to set them on fire, by throwing pitched Faggots among them.

GABLE, or GABLE-*End* of a House, is the upright triangular End; from the Cornice, or Eaves, to the Top of its Roof. See HOUSE.

GAGE, in our antient Customs, signifies a Pledge, or Pawn, given by way of Security.

The Word is only properly us'd for Moveables; for Immoveables, *Hypotheca* is us'd. If the *Gage* perish, the Person who received it is not to answer for it, but only for extreme Negligence, &c. See PLEDGE.

The Word *Gage* is particularly us'd for a Challenge, to Combat; in which Sense it was a Pledge, which the Accuser, or Challenger cast on the Ground, and the other took up, as accepting the Challenge: It was usually a Glove, Gantlet, Chaperoon, or the like. See COMBAT, and DUEL.

The Grand Customary mentions *Gages Pleiges de Duel*. These were Gentlemen, of their Relations or Friends: If he who had given the *Gages Pleiges*, was overcome, he was to pay a Mulct agreed on.

The Word *Gage* is only retain'd as a Substantive: As a Verb, the G is chang'd into W; and of *Gage* is form'd *Wage*; as, to *wage* Law; to *wage* Deliverance, *q. d.* to give Security a thing shall be deliver'd. See WAGE.

Thus, if a Person who has distrain'd be sued for not having deliver'd what he had took by Distress, he shall *wage* or *gage* Deliverance; that is, put in Surety that he will deliver them. See LAW; see also *Mort* GAGE.

Mort-GAGE, it that which is left in the Hands of the Proprietor, so that he reaps the Fruits thereof; in opposition to *Vif-gage*, where the Fruits or Revenues are reap'd by the Creditor, and reckon'd on the Foot of the Debt, which diminishes in proportion thereto.

The second, acquits, or discharges it self; the first does not.

Pomey also uses *Mort-gage* for the Possession of any Effects, on condition of surrendring them up at the good pleasure of the Person who gave them. See MORTGAGE.

GAGE, in the Sea Language. When one Ship is to windward of another, she is said to have the *Weather-gage* of her.

The Seamen also call trying how much Water a Ship draws, *gaging*, or rather *gauging* of her; and it is done thus:

They drive a Nail into a Pike, near the End, and then put down this Pike by the Rudder, till the Nail catch hold under it; for then as many Feet as the Pike is under Water, is the Ship's *Gage*, or Depth of Water she draws.

GAGE, in Joinery, is an Instrument made to strike a Line truly parallel to the streight Side of any Board or Piece of Stuff.

Its chief Use is for *gaging* of Tenants true, to fit into Mortisses; and for *gaging* Stuff of an equal Thickness.

It is made of an oval piece of Wood, fitted on upon a square Stick, to slide up and down stiffly thereon, and with a Tooth in the End of a Staff, to score, or strike a Line upon the Stuff at any Distance, according to the Distance of the Oval from it.

GAGER *del Ley*; see WAGE, and WAGER *of Law*.

GAGER, and GAGING, in Geometry, see GAUGER. GAUGING.

GAÏANITES, GAÏANITÆ, or GAÏNITES, a Sect of antient Hereticks, sprung from the *Eutychians*.

This Sect was of an older Standing than *Gaian*, or *Gain*, a Bishop of *Alexandria*, in the VIth Century, from whom they took their Name. They adhered to the Opinions of *Julian Halicarnasseus*, the Chief of the *Incorruptibiles* and *Phantastici*; and came at length to be deoominated *Gaianites*, upon *Gaian*'s putting himself at their Head. They denied that Jesus Christ, after the Hypostatical Union was subject to any of the Infirmities of human Nature. See PHANTASTICI.

GAIN, the Profit, or Lucre a Person reaps from his Trade, Employment, or Industry.

There are legal and reputable *Gains*, as well as sordid and infamous ones. What is *gain'd* by Gaming, is all liable to be restored again, if the Loser will take the Benefit of the Law. *Menage* derives the Word from the German *Gewin*; whereof the *Italians* have made *Guadagno*; the *French*, and *English*, *Gain*.

GAIN, in Architecture, is the Workmens Term for the Bevelling Shoulder of the Joist, or other Timber.

It is us'd also for the lapping of the End of the Joist, &c. upon a Trimmer, or Girder: and then the Thickness of the Shoulder is cut into the Trimmer also bevelling upwards, that it may just receive the *Gain*; and so the Joist and Trimmer lie even and level with their Surface. This way of working is us'd in Floors and Hearths.

GAINAGE, in our antient Writers, signifies the Draught-oxen, Horses, Wain, Plough, and Furniture for carrying on the Work of Tillage by the baser sort of Sokemen and Villains; and sometimes the Land it self, or the Profit rais'd by cultivating it.

Bracton, lib. 1. cap. 9. speaking of Lords and Servants, says, *Ut si eos destruant, quod salvum non possit eis esse* Wainagium *suum*. And again, *Lib. 3. Tract. 2. cap. 1. Villanus non amerciabitur, nisi salvo* Wainagio *suo*. For antiently, as it appears both by *Mag. Char.* and other Books, the Villain, when amerced, had his *Wainage* free; to the end his Plough might not stand still: And the Law, for the same Reason, does still allow a like Privilege to the Husbandman, that is, his Draught-horses are not, in many Cases, distrainable. See DISTRESS.

GALACTITES, in Natural History, a Stone, thus called by reason when broke or ground, it resolves into a white Liquor, like *Milk*, which the *Greeks* call γαλα.

The Stone is of an Ash Colour, and pretty soft, and sweet to the Taste. 'Tis found in *Tuscany*, *Saxony*, and other Parts. Authors recommend it as good in Defluxions of the Eyes, and for Ulcers: It is supposed to make the Milk more copious in Nurses; and when hung to the Necks of Children, promotes Salivation.

GALACTOPHAGI, and GALACTOPOTÆ, in Antiquity, Persons who lived wholly on Milk, without Corn, or the use of any other Food.

Certain Nations, in *Scythia Asiatica*, as the *Getæ*, *Nomades*, &c. are famous in antient History, in quality of *Galactophagi*, Milk-eaters. *Homer* makes their Eloge, *Iliad. lib. III.* *Ptolomy*, in his Geography, places the *Galactophagi* between the *Riphæan* Mountains, on one Side; and the *Hircanian* Sea on the other.

The Words are compounded of γαλα, γαλάκτος, Milk; φάγομαι, I eat; and πίνω, of πίνω, I drink.—

GALACTOPHEROUS *Ducts*, are such Vessels as serve to convey Milk. See MILK.

Such are the Lacteals, and Mamillary Vessels. See LACTEALS, and MAMMÆ.

GALACTOSIS, the changing into Milk; or the Production of Milk. See MILK.

The Term properly denotes the Action whereby the Food, or Chyle, is converted into Milk.

GALANGA, or GALANGAL, a Medicinal Root, brought from the *East Indies*; the Produce of a Tree of the same Name.

There are two kinds of *Galanga's*; the small, and the great: The small is a rough, knotty Root, of a ruddy Colour both within, and without, and of a very pungent aromatic Taste, and Smell. It is brought from *China*, and is used with good Success in all Disorders of the Stomach, Bowels, and Womb, arising from the Weakness of the Nerves.

The greater *Galanga*, growing chiefly in *Java* and *Malabar* inclines more to an Ash Colour. Its Qualities are of the same kind with those of the other; only less efficacious, and much less used. The Vinegar-makers use both. See ACORUS.

GALAXY, in Astronomy, That long, white, luminous Track, which seems to incompass the Heavens like a Swath, Scarf, or Girdle; and which is easily perceiveable in a clear Night, especially when the Moon does not appear.

It passes between Sagittary, and Gemini, and divides the Sphere into two Parts: It is unequally broad; and in some Parts is single, in others double.

The *Greeks* call it Γαλαξίας, *Galaxy*, of Γαλα, γαλάκτος, *Milk*; on account of its Colour, and Appearance: The *Latins*, for the same reason, call it *Via Lactea*; and we, the *Milky Way*.—

The antient Poets, and even Philosophers, speak of the *Galaxy*, as the Road, or Way, by which the Hero's went to Heaven.

Aristotle makes it a kind of Meteor, form'd of a Croud of Vapours, drawn into that Part by certain large Stars disposed in the Region of the Heavens answering hereto.

Others, finding that the *Galaxy* was seen all over the Globe; that it always corresponded to the same fix'd Stars; and that it transcended the Height of the highest Planets; set aside *Aristotles*'s Opinion, and placed the *Galaxy* in the Firmament, or Region of the fixed Stars, and concluded it to be nothing but an Assemblage of an infinite Number of minute Stars.

Since

Since the Invention of the Telescope, this Opinion has been abundantly confirmed. By directing a good Telescope to any Part of the Milky Way; where, before, we only saw a confused Whiteness, we now descry an innumerable Multitude of little Stars. These Stars are so remote, that a naked Eye confounds them: The like we observe in those other Spots, called Nebulose Stars, which when examined with the Telescope, are distinctly perceived to be Clusters of little Stars, too faint to affect the Eye singly. See STAR.

GALBANETUM, a Composition, or Preparation of Galbanum, formerly prescribed, but now much out of Use. See GALBANUM.

GALBANUM, in Pharmacy, A Gum issuing from an Incision in the Root of a ferulaceous Plant, call'd in Latin, *Ferula Galbanifera*; growing in *Arabia*, *Syria*, &c. See GUM.

There are two kinds of *Galbanum*; the one in Tears; the other in Mass: The first is to be chose of a golden Yellow without side, but much paler within; of a bitter Taste, and strong, disagreeable Smell. For the second, take that which is fullest of Tears, very dry, clear, and not stinking. This last is easily sophisticated with broken Beans, Rosin, and Gum Ammoniac.

Galbanum is of an emollient, and resolutive Nature; good in all Hysteric Cases, and in Asthma's and inveterate Coughs: It provokes the Menses, and brings on Delivery: But it is chiefly used externally, in Plasters for the Belly, which it loosens, what way soever applied.

The Word is derived, according to *Martinius*, from the *Hebrew* Chelbenah, *Fat*.

GALE, a Sea Phrase, for the blowing of the Wind at Sea: When the Sea doth not blow so hard, but that a Ship can carry her Top-sails a-trip, that is, hoisted up to the highest, they say it is a *Loom Gale*: When it blows very strong, they say it is a *Stiff Gale*, or at least a *Fresh Gale*; but when it blows so hard, and violently, that a Ship cannot bear any Sail, they say, it blows *a Storm*.

When two Ships are near one another at Sea, and there being but little Wind blowing, one feels more of it than the other; they say, the Ship *gales* away from the other.

GALEARII, or GALIARII, in Antiquity, a Name the *Romans* gave to the Black Guards or Servants of the Soldiers. *Vegetius III*, 6. *Salmasius* on the third Chapter of the Life of *Adrian* by *Spartian*.

GALEASSE, or GALEAGE, a large, low built, heavy Vessel; the biggest of all Vessels that go with Ores. See VESSEL.

It may carry twenty Guns; with a Stern, capable of lodging a great Number of Musqueteers. It uses both Sails and Oars; and the Rowers are under Cover. It has three Masts; the Main, Mizzen, and Bowsprit, which are never to be taken down, or lowerd, as they may be in Galleys. It has 32 Benches of Rowers, and to each Bench five or six Slaves; tho' *Will. of Tyre* makes mention of *Galeasses*, with 100 Benches of Oars.

It has three Tire of Guns, in the Head, one over the other, of two Guns each, bearing Balls of 36, 24, and 10 Pounds. It has but two Tire in the Stern; each containing three Guns, carrying Balls of 18 Pounds. See GALLEY.

The *Venetians* are the only People who have *Galeasses*: Antiently, the *French* likewise made use of them.

GALENIC *Medicine*, is properly the Manner of considering and treating Diseases, founded on the Principles of *Galen*; or introduced by *Galen*. See MEDICINE.

Claud. Galen, was of *Pergamus* in *Asia*, the Son of a famous Architect, and Pupil of *Satyron* and *Pelops*, two able Physicians. He first distinguish'd himself at *Athens*; then at *Alexandria*, and lastly at *Rome*; where he wrote a great deal; where he also died, in the Year of Christ 140.

He is said to have composed 200 Treatises, whereof there are 170 still extant. There have been 23 several Editions of this Author: The first is that of *Venice*, in Folio, in the Year 1525: The best is that of *Paris*, in 13 Volumes in Folio, *Greek* and *Latin*, publish'd in 1639.

This Author, collecting and digesting what the Physicians before him had done; and explaining every thing according to the strictest Doctrines of the Peripateticks, set Physic on a new Footing; introduced the Doctrine of the four *Elements*; the Cardinal *Qualities*, and their *Degrees*; and the four *Humors* or Temperaments. See ELEMENT, QUALITY, DEGREE, HUMOR, &c.

GALENIC is now more frequently us'd in a wider Signification, *viz.* for that Method of Physick, contradistinguish'd from *Chymical*. See MEDICINE.

In this Sense, *Galenical Medicine*, *Galenical Pharmacy*, &c. are those which go upon the easier Preparations of Herbs, Roots, &c. by Infusion, Decoction, &c. and attain their Ends, and make their Remedies effectual, by the combining and multiplying of Ingredients: In opposition to *Chemical Medicine*, or *Pharmacy*, which torture the *Materia Medica* by Fire, and draw their more intimate and remote Virtues by elaborate Preparations; as Calcination, Digestion, Fermentation, &c. See CHEMISTRY, and PHARMACY.

Medicine was wholly *Galenical*, till the Time of *Paracelsus*. *Geber*, indeed, and after him *Raymund Lully*, *Arnoldus de Villa Nova*, and *Basil Valentine*, made some Attempts to apply Chemistry to Medicine; especially the last of them; but no great Advance was made. *Paracelsus*, and after him *Van Helmont*, alter'd the whole of Medicine; exploded *Galenism*, and the Peripatetic Doctrine, and render'd Medicine wholly *Chemical*. See CHEMISTRY.

The late Improvements in Philosophy, have reform'd, and retriev'd the *Galenical* Medicine, which has now very little of *Galen*'s in it. 'Tis now all Mechanical and Corpuscular: Instead of Qualities and Degrees, every thing is now reduced to mechanical Affections; to the Figures, Bulks, Gravities, &c. of the component Particles, and to the great Principle of Attraction. See MECHANICAL, and CORPUSCULAR; see also MEDICINE.

GALENISTS, a Denomination given such Physicians, as practice, prescribe, or write on *Galenical* Principles. See GALENICAL.

The *Galenists* stand opposed to the Chymists: The *Materia Medica* of the first, is chiefly of the Vegetable Kind; the Virtues of which they procure by the more simple and easy means; and seldom go beyond Decoction. The latter take in Minerals, Salts, Stones, and even Metals, and Semimetals: These, they hold, afford more efficacious Remedies; and their Virtues, procured by long, artful, labour'd Processes, with the Help of Fire, are had more pure, and in a lesser Compass. See CHEMIST.

At present, the *Galenists* and Chemists are pretty well accommodated; and most of our Physicians use the Preparations and Remedies of both. See PHYSICIAN, REMEDY, &c.

GALENISTS, GALENASTS, or GALENITES, are also a Branch of the *Mennonites*, or Anabaptists, who take in several of the Opinions of the *Socinians*, or rather *Arians*, touching the Divinity of our Saviour. See MENNONITE.

They are thus call'd from their Leader *Galenus*, a learned, and eloquent Physician of *Amsterdam*, who is accused of being a thorough *Socinian*. *Jovet T. I. p.* 413. &c.

GALERICULATE *Flowers*; see FLOWERS.

GALILÆANS, a Sect among the antient Jews, denominated from *Judas* of *Galilee*, their Chief; who, esteeming it unworthy, that the Jews should pay Tribute to Strangers, rais'd up his Countrymen against the Edict of the Emperor *Augustus*, which had order'd a Census and Enumeration to be made of all his Subjects.

Their Pretence was, that God alone should be own'd as Master, and called by the Name of *Lord*. In other respects, they had much the same Doctrines as the *Pharisees*; but as they judg'd it unlawful to pray for infidel Princes, they separated themselves from the rest of the Jews, and perform'd their Sacrifices apart. See PHARISEE.

As our Saviour, and his Apostles were of *Galilee*, they were suspected to be of the Sect of *Galilæans*; and it was on this Principle, as St. *Jerom* observes, that the *Pharisees* laid a Snare for him, asking, whether it was lawful to give Tribute to *Cæsar*; that in case he denied it, they might have an Occasion of accusing him. *Joseph. Ant. Jud. L.* 18.

GALL, a yellow, bitter Juice, or Humor, call'd also *Bile*, secreted from the Blood, in the Glands of the Liver, and deposited in a peculiar Reservoir, call'd the *Gall-bladder*. See LIVER, and GALL-*Bladder*.

The Bile contain'd in the *Gall* Bladder, properly call'd *Gall*, is somewhat different from the Bile deposited in the Porus Biliarius; being of a brighter Yellow, a greater Consistence, and more bitter and acrimonious. For the rest; the manner of Secretion with the Qualities, Use, &c. of the two Juices, are the same; which see under the Article BILE.

The *Gall* of divers Animals, is found of divers Uses: That of a Hog is said to make the Hair grow; deterges and heals Ulcers of the Ears: That of a Lamb is recommended for the Epilepsy: That of the Pike, for intermitting Fevers: That of the Carp, clears and strengthens the Sight: That of a Kid, mix'd with the white of an Egg, Bread, and Oil of Laurel, and applied in form of Poultice on the Navel; is an approved Remedy for a quotidian Fever: That of a Cock, and a Bullock, reputed good in Diseases of the Eyes, and to take away Freckles and other Disfigurements of the Skin. See FRECKLE. That of a Roebuck, or Hare, deterges and carries off Clouds, Specks and Cataracts of the Eyes: That of the Boar, externally applied, is resolutive, and good in scrophulous Tumors: Those of the Sheep and Partridge, serve to deterge and cleanse Ulcers of the Eyes. Fa. *Roger* adds, that the *Mahometans* of *Palestine* use no other Remedy against Poisons, but seven, or eight Drops of the *Gall* of a Bear.

GALL *Bladder*, call'd also *Vesicula* and *folliculus fellis*, is a membranous Receptacle, in Figure somewhat like a Pear; situate at the lower Margin of the Liver, on the concave Side, and about the Bigness of a Pullet's Egg. See BLADDER.

The

The *Gall* Bladder adheres to the Liver, both by its Vessels, which it receives from it; and likewise by its Membranes, whereof the external is common with that of the Liver. The lower Part, which hangs out of the Liver, rests on the Pylorus of the Stomach, which it dies yellow with the *Gall* transuding thro' its Membranes.

Its Membranes are reckon'd five: An outer, or common one, from the Peritonæum; an inner one, from the Capsula of the Porta, and Porus Biliarius; and three proper ones: The first, *Vasculous*, consisting of white Fibres, interwove with Vessels; the second, *Muscular*, consisting of a double Row of fleshy Fibres, the one longitudinal, the other annular; the third, or inner Coat, *Glandulous*, consisting of a great Number of Glands, like the Crusta Villosa of the Stomach, which seperate a Mucus that lines the Inside of the *Gall* Bladder, and defends it from the Acrimony of the Bile.

The Bladder is usually divided into two Parts, the *Fundus*, or Bottom; and the *Collum*, or Neck: At the Orifice of which latter is plac'd a Ring, or Circle of muscular Fibres, which serve as a Sphincter to constringe the Orifice of the *Gall* Bladder, and hinder the too liberal Discharge of the Bile. See Cystic, Hepatic, &c.

There are some Animals without *Gall* Bladders; as Deer, Horses, Asses, Mules, Camels; and among Fishes, the Sea Calf, and Dolphin. The *Gall* of these Animals is inclos'd in Ducts, which terminate in the Intestines.

GALLANT, or Galant, a *French* Term, signifying civil, polite, well bred; a Person of Wit, and Address; that does every thing with a good Grace. A *galant* Man is a civil Man, somewhat brighter, gayer, and more agreeable than ordinary.

'Tis very difficult to define all the Qualities attach'd to the Idea of a *galant* Man: It frequently implies an Air of the World; a Disposition to please, and particularly the Ladies; and a great Devotion to the Sex. The *French* Authors are very nice on the Point: They distinguish *galant Homme*, and *Homme galant*.——

Mercure Galant, is the Title of a Book, which has appear'd Monthly at *Paris* for several Years. See Journal.

It contains abundance of very pretty, curious Things; tho' several of the Wits have made it their Business to decry it. M. *de Vize* was the first Projector, and Author, or rather Collector: Since his Death, it has been continued by three other Persons successively.

GALLEATE *Flowers*; see Flowers.

GALLEON, see Gallion.

GALLERY, in Architecture, a cover'd Place in a House, much longer than broad, and which is usually on the Wings of the Building; serving to walk in.

The *Galleries* of the *Louvre* are magnificent: A *Gallery* of Painting: A compleat Apartment is to consist of a Hall, Antichamber, Chamber, Cabinet, and *Gallery*. See Apartment.

Savot, in his Architecture, derives the Word *Gallery* from *Gaul*, as supposing the antient *Gauls* to have been the first who us'd them: *Nicod* fetches it from the *French aller*, to *go*, *q. d. Allerie*. Others bring it from *Galere*, Gally, by reason it bears some Resemblance thereto in respect of Length. In the corrupt *Latin* we meet with *Galilæa*, for the *Gallery* of a Monastery.

Gallery, is also a little Isle, or Walk, serving as a common Passage to several Rooms, placed in a Line, or Row.

The *Gallery of a Church* is a kind of continued Tribune, with a Balustrade; built along the Sides or lower End of a Church, to hold the more People: And, in the *Greek* Churches, to seperate the Women from the Men.—*Gallery of a Theatre*, see Church, Theatre, &c.

Gallery, in Fortification, is a cover'd Walk, made of Timber; serving for the safe Passage of a Ditch.

The Sides of the *Gallery* are to be Musket proof, and consist of a double Row of Planks, lined with Plates of Iron; and the Top is sometimes cover'd with Earth, or Turf, to hinder the Effect of the Stones, artificial Fires, *&c.* of the Enemy.

Galleries are chiefly used to secure and facilitate the Miners Approach to the Face of the Bastion, over the Moat, which is already supposed fill'd up with Faggots and Bavins, and the Artillery of the opposite Flank dismounted. Sometimes it is called a *Traverse*. See Traverse.

Gallery *of a Mine*, is the Passage, or Canal of a Mine; or any Branch thereof. See Mine.

The Besiegers, and Besieged do each of them carry *Galleries*, or Branches under Ground, in search of each others Mines, which sometimes meet and destroy each other.

Gallery *in a Ship*, is a kind of Balcony, made upon the Stern, without Board, into which there is a Passage out of the Captain's Cabin, called the Great Cabin.

These *Galleries* are indeed for Shew, and the Captain's Pleasure, rather than any other Benefit; for in Ships of War, all open *Galleries* of this kind are to be avoided; in regard of the Facility of an Enemy's Entrance, and boarding of the Ship that way.

GALLEY, a low built Vessel, going both with Oars and Sails; chiefly us'd by the States bordering on the Mediterranean. See Vessel.

Galleys have usually from 25 to 30 Benches of Oars, on each Side; and four or five *Galley* Slaves, to each Bench.

The *Galley* carries a large Gun, called the *Courser*; two Bastard Pieces; and two small Pieces, with two Masts and two Latin, or square Sails. It it usually from 20 to 22 Fathoms long; three broad; and one deep.

All the *Galleys*, both antient, and modern, are of a finer, and slenderer Make than Ships. Formerly they made divers kinds; at present the *Galleys* are all alike: All the Difference between them is as to Size, and nothing as to Figure. They usually keep towards the Coasts; tho' sometimes they cross the Sea.

The King of *France* keeps up forty *Galleys* for the Use of the Mediterranean, the Arsenal thereof being at *Marseilles*: The General of the *Galleys* bears a double Anchor, placed in Pale, behind the Escutcheon of his Arms, as a Mark of his Authority.

Galleys, in *Latin* are called *Biremes*, *Triremes*, and *Quadriremes*; not on account of their having two, three, or four Ranges of Oars before one another, as many learned Men have imagin'd, and particularly *Scaliger* and *Snellius*, tho' this last has wrote excellently on the Subject of Navigation; for this were impracticable: Nor yet on account of their having but two, three, or four Oars; for then there would want Strength: But by reason there were two, three, or four Rowers fasten'd to each Oar, as in the *Galleys* used among us; as is very well shewn by the Jesuite *Dechales*, in his Art of Sailing.

This Error was occasioned by some antient *Galleys*, represented on Medals, or in Basso-Relievo's, wherein are several Ranges of Rowers placed over each other: But all the Mathematicians, Pilots, and Ship-builders look on this as a mere Vision; inasmuch as *Pliny* makes Mention of *Galleys* of 15, 20, 30, 40, 50 Rows of Rowers; so that if they were ranged over each other, tho' we were only to allow four Feet for each Deck, there would be a Distance of 160 Feet between the lowest Rowets, and the highest: And yet we are assured, that the highest Ship ever built, was only 72 Feet high.—

Scaliger affirms, that the first *Triremis*, or *Galley* of three Stories, was built at *Corinth*; and is of opinion, that what *Pliny* calls *Long Ships*, were what we call *Galeasses*; the first whereof was that of the *Argonauts*. *Vegetius* mentions a *Galley* of five Decks; and *Memnon*, another with eight, and only one Man to each Oar.

The *Galley* is called by the *Greek* Authors under the Eastern Empire, Γαλαία, and Γαλέα; and by the *Latin* Authors of the same Time, *Galea*; whence the modern Denomination.

Some say, it was called *Galea*, on account of the Figure of a Cask, or Helmet, which it bore on its Head, or Prow, as *Ovid.* attests, *De Tristib.* The *French* call it *Galere*, by reason, they say, that the Top of the Masts is usually cut in manner of a Hat, which the *Italians* call *Galero*. Others derive both *Galea* and *Galere* from a Fish, by the *Greeks* call'd Γαλεώτης, or ξίφιας; and by us, the *Sword-fish*, whose Shape this Vessel resembles. Lastly, others derive *Galley*, *Galea*, *Galere*, *Galeasse*, &c. from the *Syriac* and *Chaldee Gaul*, and *Gallin*, a Man exposed on the Water, or in a Vessel of Wood.

The *Captain*-Galley is the principal *Galley* of a State, commanded by the Captain General of the *Galleys*: In *France*, the *Royal Galley* is the first.

The *Patroon* Galley is the second *Galley*, both of *France*, *Tuscany*, and *Malta*. The General of the *Gallies* is on Board the Royal *Galley*; and the Lieutenant, on the Patroon.

The Terms peculiar to *Galleys*, are very numerous; and make a new System of Sea Language, quite different from that used in Ships. Mons. *de Baras*, an antient Officer on Board the King of *France*'s *Galleys*, we hear, is engaged in writing a New Dictionary of the Dialect of the *Galleys*.

Condemnation to the Galleys, is a Penalty imposed on Criminals and Delinquents, particularly in *France*; whereby they are adjudg'd to serve the King, or State, as Slaves, on Board the *Galleys*; either for ever; or for a limited Time. See Punishment, and Slave.

Condemnation to the *Galleys* for ever, imports Confiscation of Lands, Goods, *&c.* For in *France*, he that confiscates the Person, confiscates the Goods. A Man *condemn'd to the Galleys* for Perpetuity, is dead in a Civil Sense. He cannot dispose of any of his Effects; cannot inherit; and if he be married, his Marriage is null: Nor can his Widow have any of her Dower out of his Goods. The Ecclesiastical Courts cannot sentence to the *Galleys*: It is out of their Jurisdiction, and Resort. By an Ordinance of *Charles* IX. in 1564, the Judges

Judges are enjoin'd, not to condemn a Criminal to the *Galleys* for less than ten Years: And *Henry* III. by another, of 1579, injoins the Captains, not to detain their *Galley* Slaves, after their Time is expired. But neither of these Laws are now observ'd.—

GALLEY, in Printing, a wooden Frame, or Instrument, into which the Compositor empties the Letters out of his Composing Stick, as often as it is filled. The *Galley*, when fill'd, contains the Matter of one Page; and when they have composed as many Pages, as are required for a Whole Sheet, Half Sheet, *&c.* they impose them, *i. e.* take the several Pages out the *Galleys*; put them into a Chase; lock them up with the Furniture; and so make Forms, ready for the Press. See PRINTING; see also COMPOSING-STICK, CHASE, and FORM.

GALLI, in Antiquity, a Name given in *Phrygia* to the Eunuch Priests of the Goddess *Cybele*.

The Principal of them was called *Archi-gallus*. The *Galli* were also call'd *Dactyli Idæi*, *Corybantes*, &c. See DACTYLI, CORYBANTES, CURETES, &c.

Authors are not agreed as to the Reason of this Denomination. St. *Jerom*, on the fourth Chapter of *Hosea*, says, it was, because they took *Gauls* for the Priest of this Goddess; and by way of Punishment and Derision for burning of *Rome*, castrated them. *Foreatulus* maintains the same Opinion, *L. V. de Gallor. Imp. & Philos.* But *Valla*, *Eleg. V. e.* 6. and *Vossius de Idolol. L. I. c.* 20. reject it, with reason; as the *Phrygians* were no ways interested in the burning and sacking of *Rome*.

Others derive the Name from the River *Gallus*; by reason they drank of its Waters, which inspir'd them with, I know not what religious Fury and Enthusiasm, and deprived them of their Senses to such Degree, that they mutilated themselves. Others hold, that the first Priest of *Cybele* having been nam'd *Gallus*; the Name became appropriated to all his Successors. *Vossius*, who proposes these two Opinions, seems to incline most to the latter; tho' *Ovid*, in the fourth of his *Fasti*, and *Herodian*, *L. I.* favour the former.

These Priests threw themselves into a kind of Phrenzy, when they perform'd the Ceremonies of the Goddess; apparently, in imitation of the young *Atys*, her Favourite: whom they likewise imitated, by mutilating themselves.

For Authors relate, that *Cybele* being desperately in Love with that young *Phrygian*, she gave him the Superintendance of her Sacrifices, on condition he would keep his Virginity; but that soon after, forgetting his Promise, he had an Affair with the Nymph *Sangaritis*: That *Cybele* provoked hereat, struck him mad: That in a vehement Access of his Phrenzy he was going to kill himself; and that the Goddess relenting, restored him to his Understanding: That out of his own Remorse, he castrated himself; and that after his Example all the Priests of *Cybele* from that Time did the like.

Their Phrenzy, at the time of the Sacrifices, consisted in throwing round the Head with great Rapidity, and making violent Contorsions of the whole Body: They had also Drums and Flutes, wherewith they play'd, and danced to them; as already observ'd under the Articles CORYBANTES, and CURETES.

GALLIAMBIC, in the antient Poetry. A *Galliambic* Poem is a Composition in *Galliambic* Verses.——A *Galliambic* Verse consists of six Feet; 1° An *Anapest*, or a Spondee; 2° An *Iambus*, or an Anapest, or Tribrach. 3° An *Iambus*. 4° A *Dactyl*. 5° A *Dactyl*; and 6° An *Anapest*.

Tho', one might measure the *Galliambic* Verse in another manner; and make a different Arrangement and Combination of Syllables; which would give different Feet.——'Tis certain, the Antients regarded little more in the *Galliambic* Verse, beside the Number of Measures, or Intervals; without troubling themselves about the Number of Syllables, or the Kinds of *Feet*, whereof it was composed.

GALLIAMBUS, in Poetry, a pleasant kind of Verse, us'd to be sung by the Priests, in honour of the Goddess *Cybele*.——

Galliambus is also a Piece, or Composure in *Galliambic* Verses. See GALLIAMBIC.

The Word is a Compound of *Gallus*, a Priest of *Cybele*; and *Jambus*, a Foot in the *Greek* and *Latin* Verse.

GALLIARD, or GAILLARDE, in Music, and Dancing, a sort of Dance, antiently in great Request; consisting of very different Motions, and Actions, sometimes proceeding *terra a terra*, or smoothly along; sometimes capering; sometimes along the Room, and sometimes a-cross.

It was also called *Romanesque*, because brought from *Rome*.

Thoinot Arbeau, in his Orchesography, describes it as consisting of five Steps, and five Positions of the Feet, which the Dancers perform'd before each other, and whereof he gives us the Score, or Tablature, which is of six Minims, and two triple Times.—

The Word is *French*, and literally signifies gay, merry, sprightly.—

GALLICAN, a Term chiefly us'd in the Phrase *Gallican Church*, *q. d.* the *French* Church; or the Assembly, or Convocation of the Prelates of *France*. M. *du Puy* has an express Treatise of the Liberties of the *Gallican* Church.

The *Gallican* Breviary is the Breviary us'd by the Church of *Agrigentum*, in *Sicily*; which the modern Writers call *Breviarium Gallicanum*.

The Reason, no doubt, is its having been introduced by St. *Gerlan*, who was made Bishop of *Agrigentum*, after Earl *Roger* had been driven out of *Sicily* by the *Sarazens*; and by the other *French* Bishops, which the *Norman* Princes brought thither. See BREVIARY.

The *Gallican* Liturgy is the manner of performing the divine Offices antiently observed in the *Gauls*. Fa. *Mabillon* shews wherein it differ'd from the *Roman* Liturgy. *I. Liturg. Gall. c.* 5. &c.

GALLICISM, a Phrase, or Construction, peculiar to the *French* Language; or which has something contrary to the ordinary Rules of Grammer of the other Languages. See PHRASE, and IDIOTISM.

Thus, *Cet homme est sur sa Bouche*, is a *Gallicism*, having no regular Construction: And the same may be said of *Faire de la terre le fosse*; which no Grammar could never find out. See ANGLICISM.

GALLIMATHIAS; a dark, perplex'd Discourse, where Words, and Things are huddled together so as to make an inconcivable Jargon,

The Word is *French*, form'd, as some will have it, from *Polymathia*, which signifies Diversity of Sciences; by reason such as have their Memory charged with several kind of Sciences, are usually confused, and express themselves ill.

M. *Huet* takes the Word *Gallimathias* to have had the same Origin with *Auborum*; and to have first arose at the time when all the Pleadings at the Bar were in *Latin*. There was a Cause, it seems, upon the Carpet, about a Cock, belonging to the Plaintiff *Matthias*. The Council in the Heat of his Harangue, by often repeating the Words *Gallus*, and *Matthias*, happen'd to blunder; and instead of saying *Gallus Matthiæ*, said *Galli Matthias*; which at length became a general Name for all confused, imbroil'd Diction, and Discourse.

GALLIMAUFRY, a Ragout, Hache, or Hotch-potch, made of the Remains of several kinds of Meats. See RAGOUT.

Hence the Word is used in a figurative Sense for a Piece, or Composition, of several different Parts, ill digested, and embarass'd.——

The Word is French, *Galimafree*.

GALLION, or GALLEON, a large Vessel or Ship of War, of three, or four Decks. See VESSEL.

The Term is now only used in speaking of the *Spanish* Fleet; the *Gallions* being a Part of the Ships employ'd in the Commerce of the West Indies.

The *Spaniards* send every Year two Fleets; the one for *Mexico*, which they call the *Flota*; and the other for *Peru*, which they call the *Gallions*. The first, we have already given an Account of under the Article FLOTA.

The *Gallions* are eight in Number, the principal whereof are the *Capitane*, the *Amirante*, *il Governo*, the *Patach*, and *Marguarita*, of fifty Pieces of Brass Canon: Beside which there is a Patache of Advice. These are all Ships of War, and go on the King's account; but are so loaden and embarrass'd with Merchandices, that in case of an Attack, they would find it difficult to defend themselves.

Beside the King's *Gallions*, there are usually twelve, or sixteen Merchant Ships, call'd *Register Ships*, belonging to private Persons, who obtain leave for the same, or rather buy it; there being no West India Company in *Spain*. See REGISTER.

The *Gallions* are loaded at *Cadix*, from whence they may put out at any time: They are about two Years in the whole Voyage. Their Departure is usually some Months before that of the Flota; which cannot put out before *August*, by reason of the Winds. When they put out together, they seperate about the *Antilles* Islands; the *Gallions* for *Carthagena*, and *Porto Bello*; and the Flota for *Vera Crux*. At their Return, they rejoin at the *Havana*, in the Isle of *Cuba*.

The Loading of the *Gallions* is always the richest: An Estimate of the yearly Returns or Cargo's, both of the Flota and *Gallions*, is as follows.

Of *Gold*, the *Gallions* bring yearly about two or three Millions of Crowns; and the *Flota* about one. Of *Silver*, the *Gallions* bring 18 or 20 thousand Crowns; and the *Flota* 10 or 12. Of precious Stones, the *Gallions* brig as follow; two hundred thousand Crowns worth of Pearls; two or three hundred thousand Crowns of Emeralds; and twenty or thirty thousand Crowns worth of Bezoards, Amethysts, and other Stones of less Value: The *Flota* brings none at all. Of Wools, the *Gallions* bring forty or fifty thousand Crowns: The *Flota*, none. Of Quinquina, the *Gallions* bring for twenty thousand Crowns: The *Flota*, none. Of Skins and

Leathers, the *Gallions* bring for seventy thousand Crowns: The *Flota* as much. Of Campeche Wood, the *Gallions* bring for sixty thousand Crowns: The *Flota* none. Of Skins and Leathers from *Buenos Ayres*, the Register Ships may bring for about two hundred thousand Crowns: Of Cochineel, about a Million of Crowns: And of Indigo, about six hundred thousand Crowns. See COMMERCE.

GALLIOT, a small Galley; or a sort of Brigantine, built very slightly, and design'd for Chace. See BRIGANTINE.

She hath but one Mast, and can both sail, and row. She usually carries two or three Pedrero's, and hath sixteen or twenty Oars.

Some call the Bomb-ketches, *Galliots*.

GALLOGLASSES, a kind of Militia, or Soldiery in *Ireland*. *Cambden*, in his Annals of *Ireland*, p. 792. relates that the *Irish* Militia consists of Cavalry, or Horsemen, call'd *Galloglasses*, or *Galloglassii*, who use a very sharp sort of Hatchet; and Infantry, call'd *Kernes*.

GALLON, an *English* Measure, for things both liquid and dry. See MEASURE.

The *Gallon* always contains eight *Pints*, or four *Quarts*; but those Pints, and Quarts, and consequently the *Gallon* it self, are different, according to the Quality of the Things measur'd: The Wine *Gallon*, for instance, contains 231 Cubic Inches, and holds eight Pound, Averdupois, of pure Water: The Beer, and Ale *Gallon*, contain 282 solid Inches: And the *Gallon* for Grains, Meals, &c. 272 Inches, and hold nine Pound, 130 Ounces of pure Water.——See ALE *Measure*, WINE *Measure*, and DRY *Measure*.

GALLOON, in Commerce, a thick, narrow kind of Ferret, Ribband, or Lace, us'd to edge, or border Clothes.

The Term is ordinarily understood of that made of Woolen; sometimes, that of Thread; or even Gold, or Silver.

GALLOP, in the Manage, is the swiftest natural Pace of a Horse, perform'd by Reaches, or Leaps; the two Forefeet being rais'd almost at the same time; and the Hindfeet, the like.——

In *Galloping*, the Horse may lead with which Foreleg he pleases; the most usual way is that with the Right: But which soever it be, the Hindleg of the same Side must follow it next; otherwise the Legs are said to be *disunited*. To remedy which Disorder, the Rider must stay the Horse a little on the Hand, and help him with the Spur on the contrary Side to that on which he is disunited.

In a Circle, the Horse is confined always to lead with his Foreleg, within the *Turn*; otherwise he is said to *gallop false*. But here, too, the Hindleg of the same Side must follow.

We say, a *Hand Gallop*, a *Canterbury Gallop*, a *School Gallop*, &c. A smooth *Gallop* close to the Ground, the *French* call, the *English Gallop*, *Gallop a l'Angloise*.

The Word is borrowed from the Barbarous Latin *calupare*, or *calpare*, to run. Some derive it from *caballicare*: Others from the *Greek* καλπάζειν, or καλπᾶν, to spur a Horse.

GALLOWS, an Instrument of Punishment, whereon Persons convicted capitally of Felony, &c. are executed by *Hanging*. See PUNISHMENT, FELONY, HANGING, &c.

Among our Ancestors it was called *Furca*, Fork; a Name by which it is still denominated abroad, particularly in *France* and *Italy*. In this latter Country, the Reason of the Name still subsists; the *Gallows* being a real Fork drove into the Ground, a-cross the Legs whereof is laid a Beam, to which the Rope is tied. See FURCA.

GALLS, or GALL *Nuts*, in Natural History, &c. a kind of morbid Tumors or Excrescencies, found on divers Vegetables; as the Oak, Willow, &c. in form of Balls, Cones, or little Apples.

The manner of the Production of *Galls*, is well described by *Malpighi*, in an express Treatise, *de Gallis*.

The Process, as observ'd, in the *Galls*, or Apples on the Gems of Oaks, is also given us by Mr. *Derham*.

These Cones, says that Author, are in outward Appearance perfectly like the Gems, or Buds themselves, only vastly bigger; and, in effect, they are no other than the Gems swell'd out in Bulk, which naturally ought to be push'd out in length. The Cause of which Obstruction of Vegetation is this: Into the very Heart of the young, tender Bud, which begins to be turgid in *June*, and shoots out in a Month more, an Insect of the Ichneumon Fly-kind, thrusts one, or more Eggs; and in all Probability, some venomous Ichor therewith. This Egg soon becomes a Maggot; which eats it self a little Cell in the very Heart or Pith of the Gem; which should be the Rudiment of the Branch, Leaves, and Fruit.

The Branch thus destroy'd, or at least, its Vegetation obstructed; the Sap that was to nourish it, is diverted into the remaining Parts of the Bud, which are only the Scaly Teguments; and which by this means grow large and flourishing, and become a Covering to the Insect Case, as before they were to the tender Branch, &c. The Case lying within this Cone, is, at first, but small; but, by degrees, as the included Maggot increases, so does the Case; till it comes to the Size of a large white Pea, shaped like an Acorn.

It may be added, that even Nettles, Ground-ivy, &c. have a kind of Balls or Cases produced on their Leaves, by the Injection of the Eggs of a Fly of the same Kind. These Cases always grow in, or adjoining to some Rib of the Leaf; and their Production, *Malpighi*, and Mr. *Derham* describe thus:

The parent Insect, with its stiff setaceous Tail, terebrates the Rib of the Leaf, when tender, and makes way for its Eggs into the very Pith, or Heart thereof; emitting along with it a proper Juice to pervert the regular Vegetation.

From this Wound rises a small Excrescence; which, when the Maggot is hatch'd, increases, and swells on each Side the Leaf, between the two Membranes; extending it self into the parenchymous Parts thereof: till it be grown as big as two Grains of Wheat. In this Case lies a small white, rough Maggot; which turns to an Aurelia, and afterwards to an Ichneumon Fly.

GALLS, or *Aleppo* GALLS, are a particular kind of vegetable Tumors, or Excrescences; used in Dying, making Ink, &c.

These *Galls* are produced on the hardest Species of Oak, called *Rouvre*, from the Latin *Robur*. Those on other Oaks are less fit for the Purposes. They are hard as Shells; and yet are no other than the Cases of Insects, which are bred in them after the manner above described; and which, when come to Maturity, gnaw their Way out: Which is the Cause of those little Holes observable in them.

Of the Insects bred in them, we have a particular Account in *Philos. Transact.* N° 245.

There are three Sorts of these *Galls*: The first, Blackish; the second, bordering on Green; the third, Whitish. The Dyers use them all, according to their respective Qualities: The Green and Black, serve to dye in Black; and the White, for Linnens. 'Tis the Black, and Green, that are used in the making of Ink. See INK.

The *English* and *Dutch* import yearly from *Aleppo*, ten thousand Quintals of *Galls*. The *Turks* have likewise a kind of ruddy *Gall*, of the Size of a small Nut; which they mix with Cochineel, and Tartar, to dye in Scarlet withal. See DYING.

GAMBEZON, GAMBESO, or GAMBA, in the antient Military Language, was a kind of Coat, or Doublet, wore under the Cuirass, to make it sit easy, and prevent its hurting the Body. It was made of Wool, or Cotton, quilted between two Stuffs; and was likewise called *Counter-Point*.

Others define the *Gambeson* a kind of soft, quilted Waistcoat, wore under the Coat of Mail, and hanging down over the Thighs.

Pectora tot Coriis, tot Gambesonibus *ornant.*

—*Ego Johannes Becondo Testamentum*——*Je done m'alme a Deo & mon Corps a enseveli al Abby de Kirkstede en le Chapel St. Maurice, oue mon meleur Chival pris de xl Marks, mon Haubert de Guerre, mes Chancons, mes Couvertures de Fer, mon* Gambeyson, *ma Targe, et tout mon Harneys de Guerre q' a mon Corps appent*, &c.

The Word is form'd of the German *Wambon*, or *Saxon Wambes*, the Belly; *quasi Wambasium*, a Covering of the Belly and Breast.

GAME, PLAY, LUDUS, a regular Diversion; or a Sport prescribed, and limited by Rules. See GAMING.

Games may be distinguish'd into those of *Exercise*, and *Address*; and those, of *Chance*, or *Hazard*. See EXERCISE, and HAZARD.

To the *first*, belong *Tennis*, *Billiards*, *Chess*, *Bowls*, *Cudgels*, *Wrestling*, *Quoits*, *Shooting with Bows*, &c. See TENNIS, BILLIARDS, &c.

To this also belong'd the antient *Jousts* and *Tournaments*. See JOUST, and TOURNAMENTS.

Under the *second*, come *Cards*, and *Dice*, &c. See CARDS, DICE, &c.

Under Cards, again, come several subordinate *Games*; the principal whereof are, *Ombre*, *Picquet*, *Basset*, *Whist*, &c. See OMBRE, and PICQUET.

GAMES, *Ludi*, in the Plural, were Shews, or publick Representations, used among the Antients, on Religious, Funerary, and other solemn Occasions. See SPECTACLE.

Such, among the *Greeks*, were the *Olympic*, *Pythian*, *Isthmæan*, and *Iselastic Games*. See OLYMPIC, PYTHIAN, ISELASTIC, and ISTHMÆAN.

Among the *Romans*, there were three Sorts of *Games*; *Sacred*, *Honorary*, and *Ludicrous*: And *Ausonius* observes a Difference, somewhat of the same Kind, among those of the *Greeks*; two of their celebrated *Games* being dedicated to *Gods*; and two to *Hero's*. See GOD, and HERO.

The Sacred *Games* were instituted immediately in honour of some Deity; of which kind were the *Cerealia*, or *Ludi Cereales*, *Florales*, *Martiales*, *Apollinares*, *Megalenses*, *Romani*,

mani, or *Consuales*, or *Circenses*, *Capitolini*, *Sæculares*, *Plebeii*, *Compitalitii*, *Augustales*, *Palatini*, *Votivi*. See each described in its Place.

To this Class may also be refer'd those, celebrated in Memory of some Illustrious Person, or Action; as the *Ludi Nerodiani* and *Actiaci*, &c. See ACTIACI, &c.

Authors mention a Decree of the *Roman* Senate, by which it was enacted, that the Publick *Games* should be consecrated, and united with the Worship of the Gods, as a Part thereof; and accordingly, Feasts, Sacrifices, and *Games* appear to have made up the greatest Part, or rather the whole, of the external Worship, or Service, offer'd to the Deities of the *Romans*. See FEAST, SACRIFICE, &c.

The Honorary *Games*, *Ludi Honorarii*, were those exhibited by private Persons, out of their own Purse; in order to gratify the People, or ingratiate themselves with them, to make way for their own Preferment. Such were the Combats of *Gladiators*, *Scenic Games*, *Tragedies*, *Comedies*, and other Theatrical and Amphitheatrical Sports. See GLADIATOR, SCENIC, TRAGEDY, COMEDY, &c.

The Ludicrous *Games* were of the same Kind with the *Games* of Exercise and Hazard among us. Such were the *Ludus Trojanus*, or *Pyrrhicus*; the *Tessaræ*, and *Tali*, *Sortes*, or Dice; and the *Latrunculi*, or Chess; the *Discus*, or Quoit; the *Pila*, Ball; *Trochus*, Top; *Nuces*, odd, and even with Nuts; *Harpastum*, Foot-ball; *Capita vel Navim*, Cross and Pile, &c. See TROJANUS, LATRUNCULI, &c.

Others, distinguish the antient *Games* into three Classes, viz. *Races*, *Combats*, and *Spectacles*.

The first were called *Equestrian*, or *Curule*, *Ludi Equestres*, or *Curules*; being Races of Horses, and Chariots, perform'd in the Circus, in honour of the Sun and Neptune. See CIRCENSES.

The second were called *Agonales*, or *Gymnici*; being Combats of Men, or Beasts, in the Amphitheatre, dedicated to *Mars* and *Minerva*. See AMPHITHEATRE.

The last, called *Scenici*, *Poetici*, and *Musici*, were Tragedies, Comedies, Balls, &c. represented on the Theatres, sacred to *Venus*, *Bacchus*, *Apollo*, and *Minerva*. See THEATRE, &c.

Homer gives us a fine Description of the *Games* which *Achilles* instituted at the Funeral of his Friend *Patroclus*, in his *Iliad*; and others of the different *Games* held among the *Pheaci*, *Ithacans*, and at the Court of *Alcinous*, in his *Odyssee*. *Virgil*'s Description of the *Games* celebrated by *Æneas*, at the Funeral of old *Anchises*, is nothing inferior to any of them. See FUNERAL.

GAME is also used for all kinds of wild Beasts and Birds, fit for eating; and which are sought after on that account. See BEAST.

Game includes Wild Beasts of Venery, and Chase; and also Beasts and Fowls of Warren. See VENERY, CHASE, and WARREN.

Some Authors divide *Game* into *Large*; which includes Red, and Fallow Deer: And *Small*; to which belong Hares, Rabbets, Pheasants, and Partridges.

A Forest is a Place set apart for the preserving, feeding, breeding, &c. of all sorts of *Game*; and consists of divers Things, *viz.* Soil, Covert, Laws, Courts, Judges, Officers, *Game*, Bounds. A Chase differs from a Forest, in this, among other Things, that it has not such Variety of *Game*. See FOREST, &c.

Ways of catching *Game*, are by *Hunting*, *Hawking*, *Fowling*, &c. See HUNTING, CHASING, HAWKING, &c.

Laws for the Preservation of the GAME.

There are abundance of Laws made for the Security and Preservation of the *Game*: The Forest Laws of King *Canutus*, and the *Charta de Foresta* of King *Henry* III. we have elsewhere mentioned. See FOREST *Law*, and CHARTA *de Foresta*; see also PURLIEU, and POURALLEE.

By a Stat. in 33 *Hen.* 8. it is enacted, That no Person shoot with, or keep in his House any Cross-bow, or Stone-bow, Hand-gun, or Hagbut, under the Length of one Yard; unless he have Lands of the yearly Value of 100 *l.* on Pain of a Forfeiture of 10 *l.* for every Offence: Nor shall any Person travel with a Cross-bow, bent; or Gun, charged; or shoot within a Quarter of a Mile of a Citty or Town, except at a dead Mark, or in defence of his House; under the like Forfeiture; to be divided between the King and the Prosecutor.—None, under the Degree of a Baron, shall shoot with any Hand-gun, within a City, or Town; or shoot at any Fowl whatever with Hail-shot; on the same Forfeiture. *Id. Stat.*

Any Person shooting in the Night-time, or disguised, shall be deem'd a Felon, if he deny; if he confess, he is fineable at the next General Sessions. 1 *Hen.* 7.

None shall kill or take Pheasants or Partridges, with any Net, or Engine, in the Night-time; on Forfeiture of 20 *s.* for every Pheasant; and 10 *s.* for every Partridge. 33 *Eliz.*

None shall hawk or hunt with Spaniels in standing Corn, or before it be shock'd, unless on his own Ground; on the Penalty of 40 *s.* half to the King; and the other Half to the Proprietor of the Ground.

He that is convicted of killing or taking a Pheasant, Partridge, Duck, Heron, Hare, or other *Game*; or of taking and destroying the Eggs of Swans, Pheasants, or Partridges, shall pay 20 *s.* for every such Fowl, Hare, &c. to the use of the Poor. 1 *Jac.* 1.

Every Person convicted to have kept a Greyhound, Dog, or Net, to kill, or take Deer, Hare, Pheasant, or Partridge, unless he have Inheritance of 10 *l. per Annum*; a Lease for Life of 31 *l. per Annum*; or be worth 200 *l.* in Goods; or be the Son of a Knight, or Heir apparent of an Esquire, shall pay 40 *s.* for the Use aforesaid.—Nor shall any sell, or buy to sell again any Deer, Hare, Pheasant, or Partridge, on pain of 40 *s.* *Id. Stat.*

The Lord of a Manor, or one having Inheritance of 40 *l. per Annum* Freehold of 80 *l.* or Goods worth 400 *l.* or their Servants licens'd by them, may take Pheasants, or Partridges within their own Lands or Precincts, in the Day-time, between *Michaelmas* and *Christmas*. 7 *Jac.* 1.

No Lay-man, who hath not Lands of 40 *s. per Annum*; nor Clerk, who hath not 10 *l.* Revenue, shall keep any Greyhound, Hound, Ferret, Net, or Engine, to destroy Deer, Hares, Conies, or other Gentlemans *Game*; on pain of a Years Imprisonment. 13 *Jac.* 1.

They that kill and take away Red, or Fallow Deer, without Consent of the Owner, shall forfeit 20 *l.* to be taken by Distress; one half to the Owner, and the other to the Informer; or for Want of such Distress suffer a Years Imprisonment. 13 *Car.* 2.

Lords of Manors, or other Royalties, not under the Degree of Esquire, may commission one or more *Game-keepers*, who may seize all Guns, Dogs, Bows, &c. of Persons not having Estates of 100 *l. per Ann.* Freehold; or 150 *l. per Ann.* Leasehold; or are not Sons and Heirs of Esquires; and destroy, or convert such Guns, &c. to the Use of the Lord. 22 *Car.* 2.

If any enter a Coney-warren, tho' not inclosed, and chase or kill Conies, he shall forfeit treble Damages, and be imprison'd three Months: And they that kill Conies in the Night-time upon the Borders of Warrens, or Grounds used for keeping Conies, shall be amerced at the Discretion of the Justice of Peace, in any Sum not exceeding 10 *s.* *Id. Stat.*

He who unlawfully hunts, takes in Toyles, kills, or takes away any Deer, in any Forest, Chase, Park, Purlieu, or other inclosed Ground; or shall be aiding and assisting therein, shall forfeit 30 *l.* for every Deer killed, taken, or even wounded; and 20 *l.* tho' none shall be wounded or taken: To be levied by Distress. 3 *Will.* and *Mar.*——And if the Keeper of a Forest, &c. be an Offender herein, or be aiding thereto, he shall forfeit 50 *l.* 5 *Georg.* Levied as above.

In case any Hare, Partridge, Pheasant, Fish, Fowl, or other *Game* shall be found in any Offender's House, he shall forfeit a Sum not less than 5 *s.* nor more than 20. to be levied by Distress; or in Want thereof be committed to the House of Correction for a Space of Time not greater than a Month; nor less than 10 Days. And if any Person, not qualified by Law, shall keep or use any Bows, Greyhounds, Setting Dogs, Ferrets, Tumblers, Snares, &c. he shall be subject to the same Penalties.

If any Higler, Chapman, Carrier, Inokeeper or Victualler shall have in his keeping any Hare, Pheasant, Partridge, Heath *Game*, or Growse, not put in his Hands by a Person qualified by Law, he shall forfeit 5 *l.* for every such Hare, &c. half to the Informer, and half to the Poor, levied by Distress; or for want thereof be sent to the House of Correction for three Months. 5 *Annæ.*

Persons not qualified keeping Greyhounds, Lurchers, Setting Dogs, or Engines to destroy *Game*; and *Game-keepers* who under colour of Office kill and sell *Game*, without their Masters Knowledge, are liable to the like Penalty. *Id. Stat.*

No Lord of a Manor to appoint more than one *Game-keeper*, and his Name to be enter'd with the Clerk of the Peace, who is to give a Certificate thereof; otherwise he is liable to the Penalties against Higlers. 5 *Annæ.*

If any Hare, Pheasant, &c. be found in the Possession of a Person not qualified; or be entitled to it by some Person that is qualified; the same shall be adjudg'd an Exposing it to Sale. Persons destroying a Hare in the Night, shall incur the Forfeiture of 5 *l.* 5 *Ann.*

No Lord of a Manor shall appoint a *Game-keeper*, with Power to kill or destroy *Game*, unless he be truly a Servant of such Lord; or be immediately employ'd to kill *Game* for the sole Use of such Lord: Nor shall any Lord authorize a Person not qualified to keep or use Gun, Greyhounds, &c. And such Persons as shall be found offending in either of these Points, shall for every Offence forfeit 5 *l.* 3 *Geo.*

Lastly, if any Person enter a Park, Paddock, or other inclosed Ground, where Deer are usually kept, and wilfully wound or kill any Red, or Fallow Deer, he shall be transported to the Plantations for seven Years. 5 *Georg.*

GAME-

GAMELIA, Nuptial Feasts, held among the Antient *Greeks*, in the Month *Gamelion*.

They were thus called from γάμος, Marriage; whence Γαμηλιος, an Epithet, or Surname, given to *Jupiter* and *Juno*, consider'd as presiding over Marriages.

GAMELION, or GAMELIUM, is a Poem, or Composition in Verse, on the Subject of a Marriage; more usually call'd *Epithalamium*. See EPITHALAMIUM.

GAMING, the Art, or Act of performing, or practising a *Game*; particularly a *Game* of Hazard. See GAME.

All publick *Gaming* is severly prohibited; and what Money is thus lost, is recoverable again by Law. See PLAY.

In *China*, *Gaming* is equally prohibited the common People, and the Mandarins; and yet this does not hinder their Playing, and frequently losing all they have; their Lands, Houses, Children, and even Wife, which are all sometimes, laid on a single Card. *F. le Comte*.

The Business of Chance, or Hazard, is of Mathematical Consideration; inasmuch as it admits more, and less. It is, or is suppos'd to be, an Equality of Chance; upon which the Gamesters set out: This Equality is to be broke in upon in the Course of the Game by the greater good Fortune, or Adress of one of the Parties; upon which he comes to have a better Chance; so that his Share in the Deposit, or Stakes, is now proportionably more, or better than at first: This more and less is continually varying, and runs thro' all the Ratio's between Equality, and infinite Difference; or from an infinitely little Difference till it arrives at an infinitely great one, upon which the Game is ended. The whole Game, therefore, with respect to the Event or Issue thereof, is only a Change of the Quantity of each Person's Share, or Chance; or of the Proportion their two Shares bear to each other; which Mathematicks alone can measure. See CHANCE.

Hence several Authors have computed the Variety of the Chance in several Cases and Circumstances that occur in *Gaming*; particularly M. *de Moivre*, in a Treatise, *De Mensura Sortis*: Which, as it may either be of service to the practical *Gamester*, or the *Better*, in teaching them on what Side the Advantage lies; and whether they may lay on the square; or to the speculative one, in letting him into the way of thinking and determining in such cases, we shall here give the Reader an Abstract thereof.

Laws of Chance applied to GAMING.

Suppose p the Number of Cases wherein an Event may happen, and q the Number of Cases wherein it may not happen; both Sides, the contingent and non-contingent, have their Degree of Probability: And if all the Cases wherein the Event may, and may not happen, be equally easy; the Probability of the happening, to that of the not-happening, will be as p to q.

If two *Gamesters*, A and B, engage on this footing, that if the Cases p, happen, A shall win; but if q happen, B shall win; and the Stake be a: The Chance, or Expectancy of A will be $\frac{pa}{p+q}$; and that of B $\frac{qa}{p+q}$; consequently if A or B sell their Expectancies, they should have for them $\frac{pa}{p+q}$ and $\frac{qa}{p+q}$ respectively.

If there be two independent Events; and p be the Number of Cases wherein the first may happen; and q the Number of those wherein it may not happen; and r the Number of Cases wherein the second Event may happen, and s the Number of those wherein it may not happen; multiply $p+q$ by $r+s$; the Product, *viz.* $pr+qr+ps+qs$ will be the Number of Cases wherein the Contingency or non-Contingency of the Events may be varied.

Hence, if A lay with B, that both Events shall happen, the Ratio of the Chances will be as pr to $qr+ps+qs$. Or if he lay that the first shall happen, but not the second; the Ratio of the Chances will be as ps to $pr+qr+qs$. And if there were three, or more Events; the Ratio of the Chances would be found by Multiplication alone.—

If all the Events have a given Number of Cases wherein they may happen, and also a given Number of Cases wherein they may not; and a be the Number of Cases wherein any one may happen, and b the Number of Cases wherein it may not; and n be the Number of all the Events: Raise $a+b$ to the Power of n.

If now A and B agree, that if one or more of the Events happen, A shall win; if none, B: The Ratio of the Chances will be as $\overline{a+b}|^n - b^n$ to b^n; for the only Term where a is not found, is b^n.

Prob. I. *If A and B play with a single Die, on this condition, that if A throw two or more Aces at eight Throws, he shall win; otherwise B shall win: What is the Ratio of their Chances?*

Sol. Since there is but one Case wherein an Ace may turn up; and 5 wherein it may not; let $a=1$, and $b=5$. And again, since there are eight Throws of the Die, let $n=8$; and you will have $\overline{a+b}|^n - b^n = na\,b^{n-1}$ to $b^n + na\,b^{n-1}$. That is, *The Chance of A, will be to that of B, as 663991, to 1015625; or nearly as 2, to 3.*

Prob. II. *A and B are engaged at single Quoits, and after playing some Time, A wants 4 of being up, and B, 6; but B is so much the better Gamester, that his Chance against A upon a single Throw, would be as 3 to 2: What is the Ratio of their Chances?*

Sol. Since A wants 4, and B, 6, the Game will be ended in 9 Throws at the most; therefore raise $a+b$ to the ninth Power, and it will be $a^9 + 9a^8b + 36a^6bb + 84a^6b^3 + 126a^5b^4 + 126a^4b^5 + 84a^3b^6 + 36aab^7 + 9ab^8 + b^9$. And take all the Terms wherein a has 4 or more Dimensions, for A; and all those wherein it has 6 or more, for B: And the Ratio of the Chances will be as $a^9 + 9a^8b + 36a^7bb + 84a^6b^3 + 126a^5b^4 + 126a^4b^5$, to $84a^3b^6 + 36aab^7 + 9ab^8 + b^9$. Call a, 3; and b, 2; and you will have *the Ratio of the Chances in Numbers* 1759077 *to* 194048.

Prob. III. *A and B are to play with single Quoits; and A is the best Gamester; so that he can give B, 2 in 3: What is the Ratio of their Chances, then, in a single Throw?*

Sol. Suppose the Chances as z to 1; and raise $z+1$ to its Cube; it will be $z^3+3zz+3z+1$. Now since A could give B 2 out of 3; A might undertake to win three Throws running; and consequently the Chances in this Case will be as z^3 to $3zz+3z+1$. Consequently, $z^3 = 3zz+3z+1$. Or, $2z^3 = z^3+3zz+3z+1$. And therefore $z\sqrt[3]{2} = z+1$; and consequently $z = \frac{1}{\sqrt[3]{2}-1}$. *The Chances therefore are* $\frac{1}{\sqrt[3]{2}-1}$ and 1 respectively.

Prob. IV. *To find at how many Trials it is probable any Event will happen; so that A and B may lay a Wager upon even Terms.*

Sol. Let the Number of Cases, wherein the thing may happen at the first Trial, be a, those wherein it may not, b; and x the Number of Trials, wherein it is an even Chance, whether the Thing happen or not. By what is above shewn $\overline{a+b}|^x - b^x = b^x$: Or, $\overline{a+b}|^x = 2b^x$. Therefore, $x = \frac{Log.\ 2.}{Log.\ a+b - Log.\ b}$. Again, resume the Equation $\overline{a+b}|^x = 2b^x$, and let $a : b :: 1 : q$, and the Equation will change into this $\overline{1+\frac{1}{q}}|^x = 2$. Raise $1+\frac{1}{q}$ to the Power of x, by Sir *I. Newton*'s Theorem, and let $1 + \frac{x}{q} + \frac{x}{1} \times \frac{x-1}{2qq} + \frac{x}{1} \times \frac{x-1}{2} \times \frac{x-2}{3q^3}$, &c. $= 2$.

In this Equation, therefore, if $q=1$, then $x=1$: If q be infinite, x will also be infinite. Supposing x, to be infinite, the Equation above will be $1 + \frac{x}{q} + \frac{xx}{2qq} + \frac{x^3}{6q^3}$, &c. $= 2$. Again, let $\frac{x}{q} = z$, and we shall have $1 + z + \frac{1}{2}zz + \frac{1}{6}z^3$ &c. $= 2$. But $1 + z + \frac{1}{2}zz + \frac{1}{6}z^3$, &c. &c. is a Number whose hyperbolical Logarith. is z; consequently $z = Log.\ 2$. But the hyperbolical Logarithm of 2 is 7 very nearly; and therefore $z = 7$ nearly.

Hence where q is 1, there $x = 1q$; and where q is infinite, $x = 7q$ nearly. Thus are the Limits of the Ratio of x to q fix'd; for that Ratio begins with Equality, and when rais'd to Infinity, ends at length in the Ratio of 7 to 10 nearly.

Examp. 1. *To find in how many Throws A may undertake to throw two Aces with two Dice?*

Sol. Since A has but one Case wherein he may throw two Aces with two Dice; and 35 wherein he may not, $q=35$: Therefore multiply 35 by .7; the Product 24. 5. shews that *the Number of Throws required is between* 24 *and* 25.

Lem. *To find the Number of Cases, wherein any given Number of Points may be thrown with a given Number of Dice?*

Sol. Let $p+1$ be the given Number of Points; n the Number of Dice; and f the Number of Sides or Faces of each Die: Let $p-f=q$, $q-f=r$, $r-f=s$, $s-f=t$, &c. The Number of Cases requir'd will be,

$$+\frac{p}{1} \times \frac{p-1}{2} \times \frac{p-2}{3}, \text{ \&c.}$$

$$-\frac{q}{1}\times\frac{q-1}{2}\times\frac{q-2}{3},\ \&c.\times\frac{n}{1}.$$

$$+\frac{r}{1}\times\frac{r-1}{2}\times\frac{r\ 2}{3}\ \&c.\times\frac{n}{1}\times\frac{n-1}{2}$$

$$-\frac{s}{1}\times\frac{s-1}{2}\times\frac{s-2}{3}\ \&c.\times\frac{n}{1}\times\frac{n-1}{2}\times\frac{n-2}{3}$$

Which Series is to be continued, till some of the Factors either become equal to nothing, or negative. And note, so many Factors of the several Products $\frac{q}{1}\times\frac{p-1}{2}\times\frac{p-2}{3}$ $\&c.\frac{r}{1}\times\frac{r-1}{2}\times\frac{r-2}{3}\ \&c.\frac{s}{1}\times\frac{s-1}{2}$ $\&c.$ are to be taken as there are Units in $n-1$.

Prax. Suppose the *Number of Cases required wherein 16 Points may be thrown with four Dice?*

$$+\frac{15}{1}\times\frac{14}{2}\times\frac{13}{3} = 455$$
$$-\frac{9}{1}\times\frac{8}{2}\times\frac{7}{3}\times\frac{4}{1} = -336$$
$$+\frac{3}{1}\times\frac{2}{2}\times\frac{1}{3}\times\frac{4}{1}\times\frac{3}{2} = +6$$

Now, $455-336+6=125$; so that 125 *is the Number required.*

Examp. 2. *To find at how many Casts A may undertake to throw 15 Points with six Dice?*

Sol. Since A has 1666 Cases, wherein he may turn up 15 Points, and 44990 against him; divide 44990 by 1666; and the Quotient 27 will be $=q$. Therefore, multiply 27 by 7; the Product 18, 9 *shews the Number of Throws required to be nearly* 19.

Prob. V. *To find the Number of Trials wherein it is probable any Event may happen twice; so that A and B may lay a Wager thereon with an equal Chance?*

Sol. Suppose the Number of Cases wherein the Event may happen the first Trial, to be a; and those wherein it may not, b; and call the Number of Trials required, x: It appears from what is above shewn, that $\overline{a+b}|^x=2b^x+2axb^{x-1}$. Or, making $a:b::1:q$, $1+\frac{1}{q}\Big|^x=2+\frac{2x}{q}$ 1° Let $q=1$, and then $x=3$. 2° Let q be infinite, and x will also be infinite: Suppose x infinite, and $\frac{x}{q}=z$, and then $1+z+\frac{1}{2}z^2+\frac{1}{6}z^3$, $\&c.=e^z+2z$; and therefore $z=Log.\ 2+Log.\ \overline{1+z}$: If then $Log.\ 2$ be called y; the Equation will be transform'd into the following fluctional one $\frac{z^z}{1+z}=y$. And investigating the Value of z by the Powers of y, we shall find $z=1.678$, nearly; and therefore x will always be between the Limits $3q$ and $1.678q$; but x will soon converge to $1.678q$; and therefore if q have not a very small Ratio to 1, we may take $x=1.678q$. Or if there be any Suspicion of x being too small, substitute its Value in the Equation $1+\frac{1}{q}\Big|^x=2+\frac{2x}{q}$, and note the Error, if it be worth regarding: Thus will x be a little increased; substitute the thus increas'd Value for x in the foresaid Equation, and note the new Error: Thus, from the two Errors, may the Value of x be corrected with sufficient Accuracy.

Here we shall add a *Table of Limits*, that will carry the Intent of this Problem much further.—

If the Wager be upon happening once, the Number of Trials will be between

	$1q$ and $0.693q$
If upon twice, between	$3q$ and $1.678q$
If upon trice, between	$5q$ and $2.675q$
If upon four times, between	$7q$ and $3.671q$
If upon five times, between	$9q$ and $4.673q$
If upon six times, between	$11q$ and $5.668q$

Examp. *To find at how many Throws A may undertake to throw three Aces, twice, with three Dice?*

Sol. Since A has but one Case, wherein he may throw three Aces; and 215, wherein he may not; $q=215$. Therefore multiply 215 by 1.678. The Product 360, 7 will shew the Number of Throws required to be between 360 and 361.

Prob. VI. *A, and B deposit each 12 pieces of Money, and play with three Dice, on this footing, that every time 11 Points are thrown, A shall give B one Piece; and every time 14 Points are thrown, B shall give A a Piece; and that he shall win the whole, that first gets all the Money in his Hands: We demand the Ratio of the Chances of A to that of B.*

Sol. Let p be the Number of Pieces each severally takes; and a and b the Number of Cases wherein A and B may respectively gain each a piece; the Ratio of their Chances will be as a^p to b^p: In this case, $p=12$, $a=27$, $b=15$; or if when $27:15::9:5$. you make $a=9$, $b=5$; and therefore the *Ratio of the Expectancies will be as* 9^{12} *to* 5^{12}, *or as* 24414062 5 *to* 282429536481.

NB. Great Care must be taken to avoid the confounding of different Problems together, from some Appearance of Affinity between them. The following one seems very like the former.

Prob. VII. *C having 24 Pieces, or Counters, throws three Dice; and every time 27 Points turn up, gives one Counter to A; and every time 14 turn up, gives one to B; and A and B engage on this footing, that he who first gets 12 Counters, shall win the Stake: We require the Ratio of their Expectancies?*

This Problem differs from the preceding one, in that the Game must necessarily end in 23 Throws; whereas, in the former, it might hold out to Eternity, by reason of the Reciprocations of Loss and Gain, which destroy one another.

Sol. Raise $a+b$ to the 23 Power, and the 12 former Terms will be to the 12 latter as the Expectancy of A to that of B.

Prob. VIII. *Three Gamesters, A B and C, have each twelve Balls, 4 of them white, and 8 black; and being hoodwink'd, play on this condition, that the first who chuses a white Ball, shall win the Stake; and that A shall have the first Choice, then B, then C; and so round again: What, then, is the Ratio of the Chances of A, B, C?*

Sol. Let n be the Number of Balls, a the Number of white ones, b of black ones, and n the Stake. Here 1° A, has the Cases a, wherein he may chuse a white Ball; and the Cases b for a black one: Consequently, his Expectancy, from the first Choice, is $\frac{a}{a+b}$, or $\frac{a}{n}$. Wherefore, subtracting $\frac{a}{n}$ from 1; the Value of the remaining Expectancies will be $1-\frac{a}{n}=\frac{n-a}{n}=\frac{b}{n}$.

2° B, has the Cases a for a white, and the Cases $b-1$ for a black one; but the first Election is in A; and 'tis uncertain, whether or no he may have won the Stake; and therefore the Stake, in respect of B, is not 1, but only $\frac{b}{n}$; so that his Expectancy from the first Choice is $\frac{a}{a+b-1}\times\frac{b}{n}=\frac{ab}{n\times n-1}$. Subtract $\frac{ab}{n\times n-1}$ from $\frac{b}{n}$ and the Value of remaining Expectancies will be $\frac{nb-b-ab}{n\times n-1}=\frac{b\times\overline{-1}}{n\times n-1}$.

3° C, has the Cases a for a white; f the Cases $b-2$ for a black one; and therefore his Expectancy from the third Choice is $\frac{a\times b\times\overline{b-1}}{n\times\overline{n-1}\times\overline{n-2}}$.

4° After the like manner, A has the Cases a for a white, and $b-3$ for a black; so that at the fourth Choice, the Expectancy will be $\frac{a\times b\times\overline{b-1}\times\overline{b-2}}{n\times\overline{n-1}\times\overline{n-2}\times\overline{n-3}}$. And so of the rest.

Write down, therefore, the Series $\frac{a}{n}+\frac{b}{n-1}P+\frac{b-1}{n-2}Q+\frac{b-2}{n-3}R+\frac{b-3}{n-4}S$, &c. Where P, Q, R, S, &c. denote the preceding Terms, with their Characters; and take as many Terms of this Series, as there are Units in $b+1$ (for there cannot be more Choices than there are Units in $b+1$) and the Sum of all the third Terms, skipping the two Intermediates, beginning from $\frac{a}{n}$, will be the whole Expectancy of A; the Sum likewise of all the third Terms, commencing from $\frac{b}{n-1}$ P, will be the whole Expectancy of B; and the Sum of the Thirds, commencing from $\frac{b-1}{n-2}$ Q, the whole Expectancy of C.

Lastly, making $a=4$, $b=8$, $n=12$; and the General Series will change into the following one $\frac{4}{12}+\frac{8}{11}P+\frac{7}{10}Q+\frac{6}{9}R+\frac{5}{8}S+\frac{4}{7}T+\frac{3}{6}V+\frac{2}{5}X+\frac{1}{4}Y$.

Or into this other (by multiplying all the Terms by some common Number judg'd most expedient for the throwing out of Fractions, *viz.* in the present Case, by 495)

$$165+120+84+56+35+20+10+4+1$$

And therefore A will have $165+56+10=231$; B will have $120+35+4=159$; and C will have $84+20+1=105$. *So that their several Expectancies will be as* 231, 159, 105; or as 77, 53, 35.

Prob. IX. *A and B having* 12 *Counters, four of them white, and eight black; A wagers with B, that taking out seven Counters, blindfold, three of them shall be white: What is the Ratio of their Expectancies?*

Sol. 1° Seek how many Cases there is for seven Counters, to be taken out of 12; they will be found from the Doctrine of Combinations, to be 792.

$$\frac{12}{1}\times\frac{11}{2}\times\frac{10}{3}\times\frac{9}{4}\times\frac{8}{5}\times\frac{7}{6}\times\frac{6}{7}=792.$$

2° Set aside three white ones, and find all the Cases wherein 4 of the eight black ones may be combined therewith; they will be found to be 70.

$$\frac{8}{1}\times\frac{7}{2}\times\frac{6}{3}\times\frac{5}{4}=70.$$

And since there are four Cases, in which three white may be taken out of four; multiply 70 by 4: Thus, the Cases, wherein 3 Whites may come out with 4 Blacks, are found to be 280.

3° By the common Laws of *Gaming*, he is reputed Conqueror, who produces an Effect oftener than he undertook to do, unless the Contrary be expressly agreed on; and therefore, if A take out 4 Whites with 3 Blacks, he wins. Set aside 4 Whites, then, and find all the Cases wherein 3 of the 8 Blacks may be combined with four Whites: These Cases will appear to be 56.

$$\frac{8}{1}\times\frac{7}{2}\times\frac{6}{3}=56$$

4° A, therefore, has $280+56=336$ Cases, wherein he may win; which subtracted from the whole Number of Cases 792, leaves 456 the Number of Cases wherein he may lose. The *Ratio of the Chance of A, therefore, to that of B, is as* 336 *to* 456; *or as* 14 *to* 19.

To avoid too much Prolixity in this Article, we must desist from further Investigations, which in the following Problems grow very long, and more perplex'd. In the rest, therefore, we shall content ourselves to give the Answer, or Result, without the Process of arriving at it; which may be of use, as it furnishes so many Data, from whence, as Standards, we may be enabled occasionally to judge of the Probability of Events of the like Kinds: Tho', without letting the Mind into the precise Manner, and Reason thereof.

Prob. X. *A and B play with two Dice on this Condition, that A shall win, if he throw six; and B, if he throw seven: A to have the first Throw, in lieu of which B to have two Throws; and both to continue with two Throws each turn, till one of them wins: What is the Ratio of the Chance of A to that of B?*

Ans. As 10355 to 12276.

Prob. XI. *If any Number of Gamesters, A, B, C, D, E, &c. equal in point of Dexterity, deposit each one piece of Money, and engage on these Conditions, that two of them, A and B, beginning the Game; which ever of them shall be overcome, shall give place to the third, C, who is to play with the Conqueror; and the Conqueror here, to be taken up by the fourth Man, D, and thus on; till some one, having conquer'd them all round, draws the Stake: What is the Ratio of their Expectancies?*

Sol. This Problem, M. *Bernoulli* solves analytically. Here, calling the Number of Gamesters $n+1$, he finds that the Probabilities of any two immediately following each other in the Course of playing, are in the Ratio $1+2^n$ to 2^n; and therefore the Expectancies of the several Gamesters A B C D E &c. are in a Geometrical Progression $1+2^n : 2^n :: a : c :: c : d :: d : e$ &c.

Hence it is easy to determine the State of the Probabilities of any two Gamesters, either before the Game, or in the Course thereof. If *c. gr.* there be three Gamesters, A, B, C, then $n=2$ and $1+2^n : 2^n :: 5 : 4 :: a : c$: That is, *Their several Probabilities of winning, before A have overcome B, or B, C; are as the Numbers* 5, 5, 4; and therefore their Expectancies are $\frac{5}{14}, \frac{5}{14}, \frac{4}{14}$: For all of them taken together, must make 1, or absolute Certainty. *After A has overcome B, the Probabilities of A, B and C will be* $\frac{1}{7}, \frac{2}{7}, \frac{4}{7}$, as in the Answer above. If there be four Gamesters, A B C D, their Probabilities from the Beginning will be as 81, 81, 72, 64. After A has beat B, the several Probabilities of B D C A, will be as 25, 32, 36, 56, respectively. After A has beat B and C, the Probabilities of C B D A will be as 16, 18, 28, 87.—

Prob. XII. *Three Gamesters, A, B and C, whose Dexterities are equal, deposit each one Piece, and engage upon these Terms, That two of them shall begin to play, and that the vanquish'd Party shall give place to the third, who is to take up the Conqueror; and the same Condition to go round; each Person when vanquish'd, forfeiting a certain Sum to the main Stake; which shall be all swept by the Person who first beats the other two successively. How much, now, is the Chance of A and B better or worse, than that of C?*

Ans. 1° If the Forfeiture be to the Sum each Person first deposited, as 7 to 6, the Gamesters are upon an equal footing. 2° If the Forfeiture be in a less Ratio to the Deposit, A and B are on a better footing than C: If in a greater Ratio, the Advantage is on the Side of C. 3° After A has overcome B once, the Probabilities are as $\frac{12}{7}, \frac{6}{7}, \frac{3}{7}$; or as 4, 2, 1; *viz.* that of A the greatest, and of B the least.

M. *Bernoulli* gives an analytical Solution of the same Problem, only made more general; as not being confined to three Gamesters, but extending to any Number at pleasure.

Prob. XIII. *A and B, two Gamesters of equal Dexterity, play with a given Number of Balls; and after some time A wants* 1 *of being up, and B,* 3: *What is the Ratio of their Chances?*

Ans. A's Expectancy is worth $\frac{7}{8}$ of the Stake, and B's only $\frac{1}{8}$; so that their Chances are as 7 to 1.

Prob. XIV. *Two Gamesters, A and B, of equal Dexterity, are engaged in play, on this Condition, that as often as A exceeds B, he shall give him one Piece of Money; and that B shall do the like, as oft as A exceeds him; and that they shall not leave off, till one has won all the other's Money: Each now having four Pieces; two Bystanders, R and S, lay a wager on the Number of Turns, in which the Game shall be finish'd; viz. R, that it shall be over in* 10 *Turns: What is the Value of the Expectancy of S.*

Ans. $\frac{560}{1024}$ or $\frac{35}{64}$ of the Wager; or it is to that of R as 560 to 464.—

If each Player had 5 Pieces, and the Wager were, that the Game should end in ten Turns, and the Dexterity of A were double that of B; the Expectancy of S would be $\frac{3800}{6561}$.

If each Gamester have 4 Pieces; and the Ratio of the Dexterities be required to make it an even Wager that the Game shall end in 4 Turns: It will be found that the one must be to the other as 5.274 to 1.

If each Gamester have 4 Pieces, and the Ratio of their Dexterities be requir'd to make it an even Lay that the Game shall be ended in 6 Turns; the Answer will be found to be, as 2.576 to 1.

Prob. XV. *Two Gamesters, A and B, of equal Dexterity, being agreed not to leave off playing till ten Games are over; a Spectator, R, lays a Wager with another, S, that by that time, or before, A shall have beat B by three Games: What is the Value of the Expectancy of R?*

Ans. $\frac{352}{1024}$ of the Wager; or it is to that of S as 352 to 672.

GAMM, Gammut, Gamut, or Gam-*ut*, in Music, a Scale, whereon we learn to sound the Musical Notes, *Ut, re, mi, fa, sol, la,* in their several Orders, and Dispositions. See Note, and Scale.

The Invention of this Scale is owing to *Guido Aretin*, a Monk of *Aretium*, in *Tuscany*; tho' it is not properly an Invention, as an Improvement on the Diagramma or Scale of the Antients. See Diagram.

The *Gammut* is also call'd the *Harmonical Hand*; by reason *Guido* first made use of the Figure of the Hand, to arrange his Notes on.

Finding the *Greek* Diagramma of too small Extent, *Guido* added five more Chords, or Notes to it: One, below the Proslambanomenos, or graveſt Note of the Antients; and four, above the Nete, or Acutest. The first, he call'd Hypo-proslambanomenos; and denoted it by the Letter G, or rather the *Greek* Γ, *Gamma*: Which Note being at the head of

of the Scale, occasion'd the whole Scale to be call'd by the barbarous Name *Gamm*, or *Gammut*.

Some say, *Guido*'s Intention in calling his first Note Γ, *Gamm*, was to shew, that the *Greeks* were the Inventors of Musick: Others, that he meant hereby to record himself; this being the first Letter of his own Name.—

Guido's Scale is divided into three Series, or Columns; the first call'd *Molle*, or flat; the second *Natural*; and the third *Durum*, or Sharp, as represented in the Scheme, *Tab. Musick, Fig.* 3. But since his Time, some Alterations have been made there.

The Use of this Scale, is to make the Passages, and Transitions from B Molle, to B Durum, by means of the Tones and Semitones. The Series of B Natural standing betwixt the other two, communicates with both; so that to name the Chords of the Scale by these Syllables, if we would have the Semitones in their natural Places, *viz. b c* and *e f*, then we apply *ut* to *g*; and after *la* we go into the Series of *b* natural at *fa*; and after *la* of this, we return to the former at *mi*, and so on: Or, we may begin at *ut* in *c*, and pass into the first Series at *mi*, and then back to the other at *fa*: By which means the one Transition is a Semitone, *viz. la, fa*; and the other a Tone, *la, mi*. To follow the Order of *b* Molle, we may begin with *ut* in *c*, or *f*, and make Transitions after the same manner. See TONE, and SEMITONE.

Hence came the barbarous Names of *Gammut, Are, Bmi*, &c. But what a perplex'd Work is here, with so many different Syllables applied to every Chord; and all to mark the Places of the Semitones, which the simple Letters *a b c* &c. do as well, and with more Ease?

Several Alterations have since been made in the *Gamut*. M. *le Maire*, particularly, has added a seventh Note, *viz. si*; and the *English* usually throw out both *ut* and *si*, and make the other five serve for all: As will be shewn under the Article SOL-FA-ING.

GAMM, GAMMA, or GAMMUT, is also the first, or gravest Note in the modern Scale of Music; the Reason whereof is shewn under the preceding Article.—

GANG, in the Sea Language: To man a Boat, is call'd to *put a Gang of Men* (which is a Company) into her: They are commonly called the *Coxswain*'s *Gang*, who has the Charge of her.

GANG-*way*, signifies all the several Entrances, Ways, or Passages, from one Part of the Ship to the other; and whatsoever is put in one of these Passages, is said to be laid, or put in the *Gang-way*.

GANGLION, or GANGLIUM, in Medicine, a small, hard, knotty Tumor, form'd on the nervous and tendinous Parts, without any discolouring of the Skin, or Sense of Pain. See TUMOR.

The Cause of the *Ganglion* is a too great Distention of the Pores of the Part; or the too great Compression, or a Laceration, thereof: Any of these occasion the nutritious Juice to be there stop'd and retain'd; and even to exsude, condense, and harden into a Tumor. The same Effect is sometimes produced by a Bruise, hard Labour, or the like. Most Authors fix the next Cause of the *Ganglion* to be a heavy, viscid Pituita.

The *Ganglion* is sometimes removed, and resolved by mere dry Friction, long continued; and sometimes by Friction with Saliva. Some chuse to apply a Plate of Lead, anointed with Mercury: Others use Gum Ammoniac; or Emplaster of Vigo, with Mercury. If these don't succeed, Recourse is had to Section.

The Word is *Greek*, γάγγλιον, signifying the same thing. The Tumor, when on the Nerves, Tendons, Articulations, or any of the membranous Parts, retains its Name, *Ganglion*; every where else, it is call'd *Nodus*. See NODE.

GANGRENE, GANGRÆNA, in Medicine, is a Mortification in its first, or beginning State; while yet the Part retains some Sense of Pain, and a Share of natural Heat: By which this Disease is distinguish'd from a *Sphacelus*, or thorough Mortification; where there is no Sense or Warmth left at all. See MORTIFICATION, and SPHACELUS.

The *Gangrene* is a Disease in the Flesh of the Part, which it corrupts, consumes, and turns black; spreading, and seizing itself of the adjoining Parts: And is rarely cured without Amputation.

It arises from a Stoppage, or Interception of the circulatory Motion of the Blood; which by this means, fails to furnish the Part with the nutritious and spirituous Juices, necessary to preserve its Warmth, and Life.

This Interception of Circulation, which is the next Cause of the *Gangrene*, is it self occasion'd divers ways; as, by large Tumors, Erisypela's, great Inflammations, violent Cold, tight Bandages or Compressions, sudden Fluxions of some malignant Humor, Bites of venomous Beasts, Fractures, Wounds, and Ulcers ill managed, &c.

It is distinguish'd by the Colour of the Flesh, which now turns pale, dusky, or sublivid; and by its growing loose, and flabby of vehemently Tense which it was before. In the Progress of the Disease, the Part distils a fetid, discolour'd Water; and emits a cadaverous Smell.

Upon the first Seizure, the Skin turns pale, afterwards livid; Vesications arise, and the Colour at length changes to black; the Flesh becomes fetid, sanious, and moist; then withers, and soon becomes insensible: The Heat and Pulsation of the Part being likewise diminish'd. *Shaw.*

If in a large Wound, the Tumor of the Lips do not suppurate, nor any Flux of Matter, or Inflammation arise; if the Lips do not swell, or after Swelling grow lank and flaccid again on a sudden: 'Tis reckon'd a sure Sign of an approaching *Gangrene*. See WOUND.

When a *Gangrene* proceeds from extreme Cold, the Part affected is first benumbed, or seiz'd with a pricking Pain, followed by a Redness, which gradually changes to a Black. See COLD.

When a tight Bandage is the Cause, a Flaccidity of the Part is join'd to the Insensibility thereof: When the Scurvy, it often begins in the great Toe, and appears in form of a blackish Spot, which turns to a dry Crust, succeeded by a Stupor of the Part, &c.—When the Bite of any venomous Creature is the Cause, a continual Fever attends, &c. Pain is felt in the Part; which usually brings on a Syncope, or Delirium: Pustles arise about the Bite, &c.

By the Microscope, the *Gangrene* has been discover'd to consist of an infinite Number of little Worms, ingender'd in the morbid Flesh; and which continually producing new Broods, they swarm, and over-run the adjacent Parts.

To stop the Progress of the *Gangrene*, the Physicians prescribe, internally, Sudorificks, and Alexipharmicks; externally, Decoctions of Quick-lime, either simple, or with the Addition of Sulphur, Mercurius dulcis, and Spirit of Wine camphorated.

In a severe Stage of the Distemper, they scarify deep, to the very Quick; and afterwards apply hot Liquors, Cataplasms, &c. Some recommend Horses Dung, boil'd in Wine, or Urine. The Unguent Ægyptiacum also comes into Use.

Belloste prescribes the following, as the most efficacious Remedy, known for *Gangrenes*; *viz.* Quicksilver dissolved in double the Quantity of Spirit of Nitre, or Aqua fortis; a linen Cloth dipt therein, and applied to the *gangrenous* Part. This alone, he assures us, is sufficient.—If the *Gangrene* be occasion'd by an intense Frost; Snow Water, or a linen Cloth dipt in cold Water, and applied to the Part affected, *Boerhave* directs as the best Cure.

If the *Gangrene* proceed to an utter Sphacelation, and be seated in any of the Limbs, or extreme Parts, recourse must be had to the Operation of *Amputation*. See AMPUTATION.

The Word *Gangræna, Gangrene*, is derived by some Authors from the *Paphlagonean Gangra*, a Goat; it being the Character of a Goat to brooze the Grass all around, without shifting its Place. It is juster, perhaps, to derive it from the *Greek* Verb γεύω, γεύειν, *manduco, absumo*, I eat, I consume: But 'tis yet safer, to bring it from the Word γαγγραίνω, which signifies the same thing.

GANTLET, or GAUNTLET, a large, stronge Glove, made to cover the Arm, or Hands of a Cavalier, when arm'd at all Points. The *Gauntlet* is of Iron; and the Fingers, plated.

The Casks, and *Gauntlets* were always bore in the antient Marches in Ceremony. *Gauntlets* were not introduc'd, till about the 13th Century.

The *Gauntlet* was frequently thrown, like the Glove, by way of Challenge. See GLOVE, CHALLENGE, CHAMPION, COMBAT, &c.

The Word is derived of the French *Gantelet*; and that of *Gand*, or *Gant*, Glove.—

GANTLET, in Chirurgery, is a kind of Bandage for the Hand.

'Tis a sort of Swathe, four or five Yards long; wherewith they wrap up the Hand, and all the Fingers, one after another.

GANYMEDE, a Term lately come into Use, to express a Catamite, or Bardachio. See CATAMITE, SODOMY, &c.

The Expression takes its rise from a young, beautiful *Trojan* Shepherd, thus called; whom *Jupiter* ravish'd, or carried off by his Eagle, or rather by himself under the Figure of an Eagle, as he was hunting on Mount *Ida*; and made him his Cup-bearer, in the place of *Hebe*; who, having made a false Step, and spilt her Liquor, was turn'd out of Office.

Some say, that the *Jupiter*, who ravish'd *Ganymede*, was *Tantalus*, King of *Phrygia*: The Eagle express'd the Swiftness, wherewith he was carried off. *Vossius, De Idolol. L. I. c.* 14, &c. And *Barthius*, on the *Thebaid. L. I. v.* 548.—

GARBE, in Heraldry, a Representation of a Sheaf of Corn, or other Grain; sometimes bore in Coat Armour, to signify Summer, or the Month of *August*; as the Bunch of Grapes does Autumn.

He bears Azure, a *Garbe*, or; the Arms of the *Grosvenors* of *Eaton*, in *Cheshire*.

GARBLER *of Spices*, is an Officer of great Antiquity, in the City of *London*, who is empower'd to enter any Shop, Ware-house, &c. to view, and search Drugs, &c. and to *garble* and cleanse them.

GARBLES, the Dust, Soil, or Uncleanness that is severed from good Spice, Drugs, &c.

GARBLING of Spice, Drugs, &c. is the purifying it from the Dross and Dust mix'd therewith; and severing the good from the bad.

Garbling *of Bow Staves*, is the sorting, or culling out the good from the bad.

The Word may come from the *Italian Garbo*, Finery, or Neatness.

GARCON, or, as we pronounce it, Garsoon, a *French* Term, literally signifying *Boy*, or a Male Child, any time before his Marriage.—The *Italians* use *Garsone* in the same Sense.

Pontanus remarks, that they antiently wrote it *warçon*: But the Etymologists can't agree as to its Origin.—To say nothing of all the rest, *Martinius* alone proposes seven Derivations; without pitching upon any, *viz.* the Latin *garrire*, to prattle; the *Chaldee* גרס, Student, Learner; the French *Garder*, to guard; the German *warten*, to tarry, or wait; the Greek ἀνεψὸς, Young-man; the Arabic גריה, Young-man; and the Hebrew גור, the young of any Brute.

Garçon is also applied to divers inferior Officers: Thus, all the People in the King's Chamber, Wardrobe, &c. who do the lesser Offices thereof under the proper Officers, are called *Garçons de la Chambre*, *de la Garderobbe*, &c.

GARD,	see	Guard.
GARDS,		Guards.
GARDIAN,		Guardian.
GARDEROBE, &c.		Ward-robe.

GARDANT, in Heraldry. See Guardant.

GARDEN, an Inclosure, or Plot of Ground, curiously cultivated, and furnish'd with Variety of Plants, Flowers, Fruits, &c. See Gardening; see also Orchard.

Gardens are distinguish'd into *Flower Gardens*, *Fruit Gardens*, and *Kitchen Gardens*: The first for Pleasure, and Ornament; and therefore placed in the most conspicuous Parts: The two latter, for Service; and therefore made in By-places. See Flower, Fruit, &c.

In a *Garden*, the principal Things to be consider'd, are, the *Form*, *Soil*, *Situation*, and *Aspect* or *Exposure*.

For the *first* Point, the *Form*: A Square, or rather Oblong, is most eligible; leading from the Middle of the House, with a Gravel Walk in the Midst; narrow Grass-borders on each Side; and on either Side of these, Rows of Variety of Winter Greens. If the Ground be irregular, it may be made uniform so as to afford a Prospect nothing inferior to the most regular; strait Lines will reduce any Figure to Order. A Triangle has its Beauty, as well as a Square; and the most irregular Spots may be brought by Borders, and Walks to those two Figures.

Indeed, an Irregularity is easily hid in a large *Garden*, by long Walks, and tall Hedges, interrupting a distant View: And the little Corners, and Triangular Spaces, may be agreeably fill'd up with Borders of Flowers, Dwarf Trees, flowring Shrubs, or Ever-Greens. Nor is it prudent, to be solicitous to throw the whole *Garden* into a single View; as Irregularities, and Unevennesses, afford many uncommon, pretty Devices, &c. See Walks, and Borders.

For the *second* Point, or the *Soil*: A deep, rich, black Mould is best for Plants; sandy Land is warm and forward, and good for Flowers; chalky Land is cold and backward. But both are easily corrected by Compost's, or Materials of opposite Kinds. See Soil, and Compost.

For the *Situation*: If the *Garden* be too high, it will be expos'd to the Winds, which are highly prejudicial to Trees; if too low, the Dampness will be injurious, beside the breeding of Vermine: A Flat, therefore, or the Side of a Hill, are the happiest Situation; especially the latter, as it is usually well water'd, and shelter'd from the Extremes of Weather; beside that the Water descending from on high, will supply Fountains, Cascades, and other Ornaments of a *Garden*. See Fountain, &c.

For the *Aspect*, or *Exposure*, we have already consider'd what relates thereto, under the Article *Exposure*: See Exposure.

Of all things, the Ground, or Soil of the Garden is the most important: Unless this be rich, and fertile, all the other Advantages will be vain. To judge of the Quality of the Soil, some direct us to look, whether there be any Heath, Thistles, or other Weeds growing spontaneously therein, as a certain Sign of a poor Ground: The Growth of the Trees, too, thereabout, is to be consider'd; if they grow cooked, ill shap'd, and grubby, of a faded Green, and full of Moss; the Place is to be immediately rejected. If the Contrary be found; you must proceed to examine the Depth of the Soil, by digging Holes under Ground. The Soil should be three Foot deep; but less than two, is not sufficient.

The chief Furniture of Pleasure Gardens are, *Parterres*, *Vista's*, *Glades*, *Groves*, *Compartiments*, *Quinconces*, *Verdant Halls*, *Arbour Work*, *Mazes*, *Labyrinths*, *Fountains*, *Cabinets*, *Cascades*, *Canals*, *Terrasses*, &c. See each under its proper Article, Terrass, Cascade, Fountain, &c.

In the *planting of a Fruit or Kitchen Garden*, if the Soil be a hungry Gravel, or Sand, Mr. *Switzer* directs the Holes where the Trees are to be planted, to be dug two Foot deep, and three or four over, and filled with rotten Horses or Cows Dung, mix'd with rich Mould: If it be Marle or stiff Clay, a Compost of Rubbish, Lime, Pieces of Brick, Ashes, Sand, &c. will be best to mix with Dung and Mould; tho' he is of opinion, that untried Earth, dug from a Waste or Common where Cattle has been fed, would prove the best Soil for young Trees. See Fruit *Tree*.

The Trees being now taken out of the Nursery, the biggest Roots are to be shorten'd to about six Inches; all the small Fibres taken off; and the Head to be pruned, so as not to leave above two Branches; and those not above six Inches long. See Planting.

The *Wall Trees*, to be placed as far from the Wall, as possible; that there may be the more Room for the Roots to spread. Then, filling up the Hole with Mould, there remains nothing but to secure the Roots from the Winter's Frost, by covering the Spot with Straw, Fern, Dung, &c. And in Summer, from the Sun; by Sand, and Pebble Stone. See Wall *Fruit*.

For Trees planted in Borders, the common Practice is to make a Trench by the Wall-side, two Foot broad, and as many deep. This Trench they fill with old Dung, mix'd with Earth, lightly laid, near as high as the Borders are intended to be; and then trodden down to half the Height in the Places where the Trees are intended to be. 'Tis prudent, to plant the Trees shallow, and to raise the Earth about them; especially in a wet, clayey Soil.—See Planting, Seminary, &c.

'Tis an Observation of some Importance, that Wall Trees, and Fruit thrive best, when the Walks that run parallel to them, are Gravel; more of the Rays of the Sun being thereby reflected to them, than if they were Grass. Add, that no sort of tall Trees are to be suffer'd to grow in any of the opposite Borders, or intermediate Spaces, so, as their Shade might reach to the South East, or South West Walls. The Places near the Walls are most advantageously filled with Dwarfs.—See Dwarf, Espalier, &c.

GARDENING, Horticulture, the Art of cultivating a *Garden*. See Garden.

Gardening has in all Ages been esteem'd an Employment, worthy the greatest Hero's, and Philosophers: The Emperor *Diocletian*, at *Salona*; and *Epicurus*, and *Metrodorus*, at *Athens*, have ennobled the Art beyond all Encomium.

Goetzius, Superintendant of *Lubeck*, printed a Dissertation in 1706, entitled Κηποφίλων, *seu De Eruditis Hortorum Cultoribus*, Of the Learned Men who have loved, and cultivated Gardens; among which Number he ranks *Adam*, *Gregory Nazianzen*, St. *Augustin*, *Pliny*, and *Cicero*: Nor should he have forgot the elder *Cato*, *Democritus*, *Plato*, and his Academy.

The Sieur *le Nostre* first carried *Gardening* to any thing of Perfection: M. *la Quintinie* has gone yet further; nor have our own Countrymen of late been wanting to its Improvement; as *London*, and *Wise*, *Bradley*, *Laurence*, *Fairchild*, &c.

M. *Fatio* has lately applied Mathematical Reasoning to *Gardening*, and shewn how to make the best use of the Sun's Rays in Gardens. See Wall.

The principal Operations in *Gardening*, are *Planting*, *Transplanting*, *Engrafting*, *Inoculating*, *Pruning*, *Sowing*, &c. Which see under their proper Articles, Planting, Transplanting, Engrafting, Pruning, &c.

Other Particulars, relating to the Art of *Gardening*, see under Pinching, Variegating, Nursery, Seed, Green-house, Hot-bed, &c. See also Plant, Tree, Fruit-tree, Wall-tree, Dwarf, &c. See also Sallade, &c.

Gardening, in Falconry. To *garden a Hawk*, is to put her on a Turf of Grass to chear her.—Some also use the same Phrase for the giving her an Airing, or letting her fly at large.

GARDEVISURE, in Heraldry; see Vizor.

GARGARISM, Gargle, in Medicine, a liquid Form of Remedy, for Disorders of the Mouth, Gums, Throat, &c.

Gargarisms are composed of Honey, Salts, Syrups, Spirits, Vinegar, Waters, and Decoctions; and produce their Effect by cleansing, lubricating, &c, the Parts.

An Astringent *Gargarism*, Detergent *Gargarism*, Refrigerent *Gargarism*, &c.

The Word is form'd of the *Greek* γαργαλίζειν, *colluere*, to wash.—Or of the Hebrew *Garghera*, the Throat.—

GARLAND, an Ornament for the Head, in manner of a Crown. See CROWN.

Garlands are a sort of Chaplets, made of Flowers, Feathers, or even of pretious Stones; but especially Flowers: To which the Word in our Language is more immediately affected.

Janus passes, in Antiquity, for the Inventor of *Garlands*. *Athen. Dipnos. L. XV.*

The Word is form'd of the Barbarous Latin *Ghirlanda*; which is still retain'd in the *Italian*. *Menage* traces its Origin from *Girus*, thro' *girulus*, to *girulare*, *girlare*, *ghirlandus*, *ghirlanda*, and at length *guirlande*, and *Garland*; so that *Guirland*, or *Garland* are descended in the eighth Degree from *Gyrus*.—

Hicks rejects this Derivation, and brings the Word from *Gardel handa*, which in the Northern Languages signify, a *Nosegay artfully wrought with the Hand*.—

GARLAND, in a Ship, a Collar of Rope, which is wound about the Head of the Main-mast, to keep the Shrouds from galling.

GARNISH. In some antient Writings and Statutes, to *garnish the Heir*, signifies to warn the Heir.

GARNISHEE, in Law, the Party, in whose Hands Money is attach'd within the Liberties of the City of *London*; so call'd in the Sheriff of *London*'s Court, because he has had *Garnishment*, or Warning, not to pay the Money, but to appear and answer to the Plaintiff-Creditor's Sute. See ATTACHMENT.

GARNISHING, or GARNISHMENT, is popularly used for the Furniture of any thing; or an Assemblage, or Sortment necessary for the using, or adorning of any thing. See FURNITURE.

The GARNISHING *of a Dish*, consists of certain Things which accompany it; either as a Part, and Ingredient thereof; In which Sense Pickles, Mushrooms, Oysters, *&c.* are *Garnishing*: Or as a Circumstance, or Ornament; as when Leaves, Flowers, Roots, *&c.* are laid about a Service, to amuse the Eye.

The same Word is us'd for the finer Herbs, Fruits, *&c.* laid about a Sallad: *Garnishing* of Lemon, Pistacho's, Pomgranate, Yolks of hard Eggs, Artichoak Bottoms, Capers, Truffles, Sweat-bread, &c.

The Word is *French*, form'd of the Verb *Garnir*, to furnish, or fit out.

GARNISHMENT, in Law, a *Warning* given any one to appear; and that for the better furnishing the Cause, and Court. Suppose, *e. gr.* one is sued for the Detinue of certain Charters, and says, they were deliver'd to him, not only by the Plaintiff, but *J. S.* also; and therefore prays, that *J. S.* may be warn'd to plead with the Plaintiff, whether the Conditions are perform'd, or no.

In this Petition he is said to pray *Garnishment*; which may be interpreted, a Warning to *J. S.* to provide himself of a Defence; or else a furnishing the Court with all Parties to the Action, whereby it may throughly determine the Cause.—

GARRISON, a Body of Forces, disposed in a Fortress, to defend it against the Enemy; or to keep the Inhabitants in Subjection; or even to be subsisted during the Winter Season. See FORTRESS,

The Words *Garrison*, and *Winter Quarters*, are sometimes used indifferently for the same thing; and sometimes they denote different Things.

In the latter Case, a *Garrison* is a Place wherein Forces are maintain'd, to secure it; where they keep regular Guard: As, a *Frontier Town*, a *Cittadel*, *Castle*, *Tower*, &c. The *Garrison* should always be stronger than the Towns-men.

Winter Quarters, signify a Place where a Number of Forces are laid up in the Winter Season, without keeping the regular Guard. The Soldiers like better to be in Winter Quarters, than in *Garrison*. See FORTIFIED *Place*, *Winter* QUARTERS, &c.

Du Cange derives the Word from the corrupt Latin *garnicio*, which the later Writers use to signify all manner of Munition, Arms, Victuals, *&c.* necessary for the Defence of a Place, and the sustaining of a Siege.

GARTER, literally signifies the same with the *Greek* Περίσκελις, Periscelis, a Ligature, to keep up the Stockings; and is particularly used for the Badge, or Cognizance of a Noble Order of Knights, hence denominated the *Order of the Garter*. See the following Article.

GARTER, or *Order of the* GARTER, is a Military Order, instituted by King *Edward* III. in 1350; under the Title of the *Sovereign*, and *Knights-Companions of the most Noble Order of the Garter*. See ORDER.

This Order consists of 26 Knights, or Companions; generally, all Peers, or Princes; whereof the King of *England* is the Sovereign, or Chief.

They wear a blue *Garter* on the left Leg, with this Motto, or Device, *Honi soit qui mal y pense*; *q. d.* Shame to him, that thinks evil hereof. See MOTTO.

They are a College, or Corporation; having a Great, and Little Seal: Their Officers are, a *Prelate*, *Chancellor*, *Register*, *Dean*, *King at Arms*, and *Usher*. See PRELATE, CHANCELLOR, &c.

Beside which, they have a *Dean*, and twelve *Canons*, with *Petty Canons*, *Vergers*, and 26 *Pensioners*, or *poor Knights*. See CANON, *&c.*

The Order is under the Patronage, or Protection of St. *George*, the Tutelary Saint of this Kingdom. See PATRON.

Their College is held in the Castle of *Windsor*, within the Chapel of St. *George*, and the Chapter-house, erected by the Founder for that Purpose. Their Robes, *&c.* are the *Garter*, deck'd with Gold, Pearl, and precious Stones; and a Buckle of Gold, to be worn daily on the left Leg; and, at Feasts and Solemnities, a *Sur-coat*, *Mantle*, *high Velvet Cap*, *Collar of SS's*, composed of Roses enamel'd, *&c.* See SURCOAT, COLLAR, *&c.*

When they wear not their Robes, they are to have a silver Star on the left Side; and they commonly bear the Picture of St. *George*, enamel'd on Gold, and beset with Diamonds, at the End of a blue Ribbon, crossing the Body from the left Shoulder. They are not to appear abroad without the *Garter*, on Penalty of 6 *s.* 8 *d.* paid to the Register.

The Order of the *Garter* appears the most antient and noble Lay Order in the World. 'Tis prior to the *French* Order of St. *Michael*, by 50 Years: To that of the *Golden Fleece*, by 80 Years: To that of St. *Andrew*, by 190 Years; and to that of the *Elephant*, by 209 Years. See *Order of* St. MICHAEL, GOLDEN *Fleece*, St. ANDREW, ELEPHANT, &c.

Since its Institution, there have been eight Emperors; and 27 or 28 foreign Kings; beside numerous Sovereign Princes enroll'd as Companions thereof.

Its Origin is somewhat differently related: The common Account is, that it was erected in Honour of a *Garter* of the Countess of *Salisbury*, which she dropt in Dancing, and the King pick'd up: But our best Antiquaries set this aside as fabulous.

Cambden, *Fern*, &c. take it to have been instituted on occasion of the Victory obtain'd over the *French*, at the Battle of *Cressy*: That Prince, say some Historians, order'd his *Garter* to be display'd, as a Signal of Battle; in commemoration whereof, he made a *Garter* the Principal Ornament of the Order, erected in memory of this Signal Victory; and a Symbol of the indissoluble Union of the Knights.—

Fa. *Papebroch*, in his *Analecta* on St. *George*, in the third Tome of the *Acta Sanctorum*, publish'd by the *Bollandists*, has a Dissertation on the *Order of the Garter*. This Order, he observes, is not less known under the Name *of St. George*; than under that *of Garter*; and that, tho' it was only instituted by K. *Edward* III; yet it had been projected before him, by K. *Richard* I. in his Expedition to the Holy Land; if we may credit an Author, who wrote under *Henry* VIII. *Papebroch* adds, however, that he does not see what that Author grounds his Opinion on; and that tho' the Generality of Writers fix the Epocha of this Institution to the Year 1350, he chuses, with *Froissard*, to refer it to the Year 1344; which agrees better with the History of that Prince; where we read, that he call'd an Extraordinary Assembly of Knights that Year.

In 1551 *Edward* VI. made some Alterations in the Ritual of this Order: That Prince compos'd it in Latin; the Original whereof is still extant in his own Hand Writing. He there ordain'd, that the Order should no longer be call'd the Order of St. *George*; but that of the *Garter*; and instead of the *George*, hung at the Collar, he substituted a Cavalier, bearing a Book on the Point of his Sword, with the Word *Protectio* graven on the Sword; and *Verbum Dei* on the Book; with a Buckle in the left Hand, and the Word *Fides* thereon.— *Larrey.*

Authors on this Order are, *Cambden*, *Ashmole*, *Leland*, *Polydore Virgil*, *Heylin*, *Legar*, *Glover*, and *Favyn*.

Erhard, *Cellius*, and the Prince of *Orange*, adds *Papebroch*, have given Descriptions of the Ceremonies used at the Installment of Knights; and a *Cistercian* Monk, named *Mendocius Bealetus*, has a Treatise, intitled *la Garretiere*, or *Speculum Anglicanum*, since printed under the Title of the *Catechism of the Order of the Garter*: Wherein he explains all the Allegories, real, or pretended of those Ceremonies, with the Moral Significations thereof.

GARTER, *Principal King at Arms*; see KING *at Arms*.

Garter, and *Principal King at Arms*, are two distinct Offices, united in one Person: *Garter's* Employment is to attend the Service of the *Garter*; for which he is allowed a Mantle and Badge, a House in *Windsor* Castle, and Pensions both from the Sovereign, and Knights, and lastly, Fees. He also carries the Rod and Sceptre at every Feast of St. *George*, when the Sovereign is present: Notifies the Election of such as are new chosen: Attends the Solemnity of their Installations, and takes care of placing their Arms over their Seats: Carries the *Garter* to foreign Kings and Princes;

for which Service, it has been usual to join him in Commission with some Peer of the Realm.

Garter's Oath relates only to Services to be perform'd within the Order; and is taken in Chapter before the Sovereign and Knights. His Oath, as King at Arms, is taken before the Earl Marshal.

GARTER is also a Term in Heraldry, signifying the Moiety, or half of a *Bend*. See BEND.

GAS, in Chemistry, a Term us'd by *Van Helmont*, to express the Seeds, or Fermentations, or first Principles of Things: But he applies it so obscurely, and precariously, that 'tis hard reducing it to any one Sense.

Thus, he calls the vital Principle in Man, *Gas Vitale*; and the same Denomination *Gas* he gives to the sulphurous Steams, which occasion Damps: Add, that he calls the Air, *Gas Ventosum*; and Water, the *Gas of Salts*.

Some would fix his Meaning to the Spirit, or subtle and most volatile Part of a Body: And thus, *Gas Cerevisiæ*, is the spirituous Steam, which flies off from Ale, while in working; but this does not take in the whole Idea of *Gas*.

GASCOIN, or GASKOIN, the hinder Thigh of a Horse; commencing from the Stifle, and reaching to the Ply, or bending of the Ham.

GASCONADE, a boasting or vaunting of something very improbable. He pretended he had fought singly against three Men; a downright *Gasconade*.

The Term has its Rise from the *Gascoons*, or People in *Gascony*, in *France*, who are distinguish'd for Bragging, and Rhodomontado.—

GASTALDUS, or CASTALDUS, an Officer, antiently entertain'd in the Courts of divers Princes; wrote also *Gastaldius*, *Gastaldio*, *Gastaldatus*, *Guastaldus*, &c.

The *Gastaldus* was what in *Italy* and *Spain* is now call'd *Majordomo*, *viz.* the Master, or Steward of a Houshold. The *Gastaldus* was a *Comes*, or Count, which shews his Office to have been very considerable.—

In the Laws of *Italy* we sometimes meet with *Gastaldus*, in the Sense of a Courier; and sometimes as an Ecclesiastical Officer, so that it is somewhere express'd to be Simony, to buy the Function of *Gastaldus*.

Macri derives the Word from the Arabic *Chasendar*, Purveyor of a House: Others, from the German *Gast*, and *halten*, to retain Travellers.—

GASTEREPIPLOICA, in Anatomy, a Vein, which opens into the Trunk of the Vena Porta; form'd of several Branches; derived from the Stomach, and Epiploon; whence its Name, γαστὴρ, and ἐπίπλοον. See VEIN.

GASTEROCNEMIUS, in Anatomy, a Name common to two Muscles, constituting the Sura, or Calf of the Leg; the one called *Externus*, the other *Internus*.

GASTEROCNEMIUS *Externus*, call'd also *Suralis Externus*, and *Gemellus*, has two distinct, fleshy Originations, from the superior, and hindermost Part of each Tubercle of the lower Appendage of the Thigh-bone; which in their Descent are each dilated into two small fleshy Bellies, the innermost of which is thickest and largest; having each a different Series of fleshy Fibres, which at length uniting, make a broad, strong Teodon; which narrowing itself, joins the great Tendon of the Solæus, four Fingers breadth above its Insertion into the Os Calcis.

When this Muscle acts, the Foot is said to be extended or pulled backwards; which Motion is very necessary in walking, running, leaping, or standing on tip-toe, &c. whence it is, that those who walk much, or carry heavy Burdens; and who wear low-heel'd Shoes, have these Muscles larger than others.

GASTEROCNEMIUS, or *Suralis Internus*, call'd also *Solæus*, from its Figure, resembling a Sole-Fish, is placed under the external. Its external fleshy Part is cover'd with a transparent tendinous Expansion, which makes it appear of a livid Colour.

It begins partly tendinous, chiefly from the hindermost Part of the upper Appendix of the Fibula, and back-part of the Tibia, that is, below the Insertion of the Subpoplitæus; and increasing to a large fleshy Belly, composed of various Orders of fleshy Fibres, some of them underneath aptly expressing the Figure of the Top of a Feather, whose Stamina, being here tendinous, join with the great Tendon, which is about a Finger's Breadth long; and inserted into the superior and hindermost Part of the Os Calcis.

The Foot, together with the Toes, being, as it were, a Lever to the whole Body, ought therefore to be attended with Muscles of great Strength to extend it; which is the Reason that these Muscles so much exceed their Antagonists.

GASTRIC, GASTRICUS, in Anatomy, is applied to divers Veins, on account of their proceeding from the Stomach, or Ventricle, which the *Greeks* call γαστὴρ. See STOMACH.

The *Gastricus major*, or greater *Gastric* Vein is inserted into the Splenic Vein; and the *minor*, or lesser *Gastric*, into the Trunk of the Vena Porta.

GASTRILOQUUS, or GASTRILOQOUS, a Person who speaks inwardly, or within his Stomach; and whose Voice seems to come a-far off; more usually called *Ventriloquus*. See VENTRILOQUUS.

The Word is form'd of the Greek γαστὴρ, Belly; and the Latin *loqui*, to speak.

GASTROLATER, a Glutton, or Belly-god: *Cujus Deus venter est*. See IDOLATER.

GASTROMANCY, or GASTROMANTIA, a kind of Divination, practiced among the Antients, by means of Words, coming, or seeming to come, out of the Belly. See DIVINATION.

The Word is form'd of γαστρομαντεία, composed of γαστὴρ, Belly, and μαντεία, Divination.

There is another kind of Divination, call'd by the same Name, *Gastromancy*, which is perform'd by means of Glasses, or other round, transparent Vessels; at the Bottom whereof certain Figures appear, by Magic Art. 'Tis thus called, by reason the Figures appear as in the Belly of the Vessels.—

GASTROTOMY, the Operation of cutting open the Belly; the same with what is otherwise called the *Cæsarian Section*. See CÆSARIAN *Section*.

GATE, a large Door, leading, or giving Entrance, into a City, Town, Castle, Palace, or other considerable Building. See DOOR.

Thebes, in *Egypt*, was antiently known by the Appellation, *With an hundred Gates*. *Fez*, in *Africa*, has 31 *Gates*. In Antient *Rome* there was a *Triumphal Gate*, *Porta Triumphalis*. See TRIUMPH. In the Modern *Rome* there is the *Jubilee Gate*, which is only open'd the Year of a Grand Jubilee. See JUBILEE.

The *Gates* of *London* are many of them converted into Goals, or Prisons; as *Ludgate*, *Newgate*, &c. See PRISON. The lesser, or By-gates, are call'd *Posterns*. See POSTERN.

Gates thro' which Coaches, &c. are to pass, should not be less than seven Foot broad; nor more than twelve: The Height to be $1\frac{1}{2}$ the Breadth.

GAVEL, in Law, signifies Tribute, Toll, Custom, yearly Rent, Payment, or Revenue; of which there are several Kinds, as *Gavel-Corn*, *Gavel-Malt*, *Out-Gavel*, *Gavel-Fodder*, &c.

GAVEL, is sometimes us'd for what we more usually call the *Gable*. See GABLE.

GAVEL-KIND, a Tenure, or Custom, whereby the Lands of the Father are equally divided, at his Death, among all his Sons; or the Land of the Brother among all the Brethren, if he have no Issue of his own. See CUSTOM, and TENURE, DESCENT, &c.

Teutonicis priscis patrios succedit in agros
Mascula stirps omnis, ne foret ulla potens.

This Custom, which antiently obtain'd throughout *England*, is still of Force in the greatest Part of *Kent*, *Urchenfeild* in *Herefordshire*, and elsewhere; tho' with some Difference: But by the Stat. 34 and 35 *Hen.* 8. all *Gavelkind* Lands in *Wales* are made descendible to the Heir, according to the Course of common Law. See HEIR, &c.

Cambden in his *Britan.* gives the Origin and Nature of *Gavelkind* thus: 'The People of *Kent*, upon the *Norman* 'Invasion, could not be reduced to surrender to the Con'queror, but on these Conditions, that they should retain 'their antient Country-customs without any Infringement 'or Diminution; and especially that call'd *Gavelkind*. The 'Lands held under this Denomination, descend equally, and 'are divided, share and share alike, among all the Male 'Children; and in defect of these, among the Females.' He adds, 'That they are of Age, or qualified to take the 'Lands upon them, at Fifteen; and may then give, vend, 'or alienate the same to any Person, without the Consent of 'any Lord: And Children here inherit their Fathers Land, 'tho' convicted of Felony, Murther, &c. The Tenants in 'Gavelkind are to do Fealty; and to be in the Tuition of 'the next a-kin, who is not next Heir after them, till 15 'Years of Age; to pay Acknowledgment to the Lord for 'the Lands', &c.

In an antient Book of Records in *Christ-Church*, *Canterbury*, of the time of *Henry* VIII. our *Saxon* Ancestors are said to have either held their Lands by Writing, or without: The first were called *Bockland*; whose Owners were Men, whom we now call *Freeholders*: The second was called *Folkland*; the Owners whereof were of servile Condition, and possess'd *ad voluntatem Domini*. See BOCKLAND, FREEHOLD, FOLKLAND, &c.

Now, the Inheritance, or Freehold, did not, in those Days, descend to the eldest Son, but to all alike; which in *Saxon* was called Lande Scyptean, and in *Kent*, *To shift Land*; whence came the Custom *Gavelkind*. And the Reason why it was retained in *Kent* more than other Places, was that the *Kentishmen* were not conquer'd by the *Normans*: For, say our Historians, *Stigand*, the Arch-Bishop of *Canterbury*;

terbury, and one *Egelsine*, an Abbot, who commanded the Forces in that County; ordering every Man, fit to bear Arms, to march and cover themselves, with green Boughs in their Hands: In this Disguise they met the Conqueror unaware at *Swainscomb*; where, discovering themselves, the Archbishop and Abbot acquainted him with their Resolution of standing and falling in defence of the Law of their Country. Upon this the Conqueror, imagining himself encompass'd in a Wood, granted, that they, and their Posterity, should enjoy their Rights, Liberties, and Laws: Some of which, as particularly that of *Gavelkind*, continues to their Descendents to this Day.

GAVELMAN, a Tenant, who is liable to Tribute.—*Villani de Terring, qui vocantur* Gavelmanni. *Somner*, Gavelkind.

GAVELET, in Law, a special, and antient kind of *Cessavit*, us'd in *Kent*, where the Custom of Gavel-kind continues; whereby the Tenant shall forfeit his Lands and Tenements to the Lord, if he withdraw from him his due Rents and Services. See FEE, SERVICE, and GAVELKIND.

The Process of the *Gavelet* is thus: The Lord is first to seek by the Steward of his Court, from three Weeks to three Weeks, to find some Distress upon the Tenement; till the fourth Court; and if in that time he find none, at this fourth Court, it is awarded, that he take the Tenement into his hand in name of a Distress, and keep it a Year and a Day without manuring; within which time, if the Tenant pay his Arrears, and make reasonable Amends for the Withholding, he shall have and enjoy his Tenement as before: If he come not before the Year and Day be past, the Lord is to go to the next County Court, with Witnesses of what pass'd at his own Court, and pronounce there his Process, to have further Witnesses; and then by the Award of his own Court, he shall enter and manure the Tenement as his own: So that if the Tenant desire afterwards to have and hold it as before, he must agree with the Lord, according to this old Saying:

Has he not since any thing given, or any thing paid,
Then let him pay five Pound for his Were, e're he become Healder again.

Other Copies have the first Part with some Variation;

Let him nine times pay, and nine times repay.

GAUGE-*Point, of a solid Measure*, is the Diameter of a Circle, whose Area is equal to the solid Content of the same Measure. See MEASURE, and CONTENT.

Thus, the Solidity of a Wine Gallon being 231 Cubic Inches; if you conceive a Circle to contain so many Inches, the Diameter of it will be 17. 15; and that will be the *Gauge* Point of Wine Measure.

And an Ale Gallon containing 288 Cubic Inches; by the same Rule, the *Gauge* Point for Ale-measure will be found to be 19. 15: And after the same manner may the *Gauge*-Point of any other Measure be determined.

Hence we deduce, that when the Diameter of a Cylinder in Inches is equal to the *Gauge*-Point in any Measure, (given likewise in Inches) every Inch in length thereof will contain an Integer of the same Measure. In a Cylinder, whose Diameter is 17. 15 Inches, every Inch in Height contains one intire Gallon in Wine-measure; and in another, whose Diameter is 19. 15, every Inch in length contains one Ale Gallon.

GAUGE *Line*, a Line on the common Gauging Rod, whose Description and Use see under the Article GAUGING.

GAUGER, an Officer of the King's Excise, whose Business it is to *gauge*, *i. e.* to examine, survey, or measure all Casks of Beer, Wine, Oil, *&c.* and to give them a Mark of Allowance (which is a Circle burnt with an Iron, before they be sold in any Place within the Extent of this Office. See EXCISE, and GAUGING.

GAUGING, the Art, or Act of measuring the Capacities, or Contents of all kinds of Vessels; and determining the Quantity of Fluids, or other Matters, contain'd therein. See MEASURING, CONTENT, *&c.*

Or, *Gauging* is the Art of reducing the unknown Capacity of Vessels of divers Forms; cubical, parallelipipedal, cylindrical, spheroidal, conical, *&c.* to some known cubic Measure; and of computing, for instance, how many Gallons, Quarts, Pints, or the like, of any Liquor, *e. gr.* Ale, Beer, Wine, Brandy, *&c.* are contain'd therein. See CUBE, PARALLELIPIPED, &c.

Gauging is a Branch of *Stereometry*. See STEREOMETRY.

The principal Vessels that come under its Operation, are *Pipes*, *Barrels*, *Rundlets*, and other *Casks*; *Backs*, *Coolers*, *Vats*, &c. See BARREL, &c.

The solid Content of cubical, parallelipipedal and prismatical Vessels, we have already observ'd, is easily found in Cubic Inches, or the like, by multiplying the Area of the Base by the perpendicular Altitude. See SOLID, PRISM, *&c.*

And for cylindrical Vessels, the same is found by multiplying the Area of the circular Base, by the perpendicular Altitude, as before. See CYLINDER.

Casks of the usual Form of Hogsheads, Kilderkins, *&c.* may be consider'd as Segments of a Spheroid cut off by two Planes, perpendicular to the Axis; which brings them to *Oughtred*'s Theorem, for measuring Ale and Wine Casks; which is thus: Add twice the Area of the Circle at the Bung, to the Area of the Circle of the Head. Multiply the Sum by one third of the Length of the Cask: The Product is the Content of the Vessel in Cubic Inches.

But, for Accuracy, Dr. *Wallis*, Mr. *Caswel*, &c. think, that most of our Casks had better be consider'd as Frusta of parabolic Spindles; which are less than the Frusta of Spheroids of the same Base, and Height; and give the Capacity of Vessels nearer the Truth, than either *Oughtred*'s Method, which supposes them Spheroids; or than that of multiplying the Circles at the Bung and Head, into half the Length of the Cask, which supposes them parabolic Conoids; or than that of *Clavius*, &c. who takes them for two truncated Cones; which is furthest off of all.

The common Rule for all Wine or Ale Casks, is to take the Diameters at the Bung, and at the Head; by which you may find the Areas of the Circle there: Then taking two Thirds of the Area of the Circle at the Bung, and one Third of the Area of the Circle at the Head; and adding them together into one Sum; this Sum multiplied by the internal Length of the Cask, gives the Content in solid Inches: Which are converted into Gallons, by dividing by 282 for Ale, and by 231 for Wine Gallons.

But *Gauging*, as now practised, is chiefly done by means of Instruments, call'd *Gauging Rods*, or *Rules*, which do the Business at once, and answer the Question without so much Calculation; which is no inconsiderable Addition, both to the Ease and Dispatch of the Work. This Instrumental way of *Gauging*, therefore, we shall here chiefly insist upon.—

Construction of a Gauging Rod, *whereby the Content of any Cylindrical, or other common Vessel is easily had.*

Take the Diameter A B of a Cylindrical Vessel, A B D A, *Tab. Surveying, Fig.* 26. that holds one of the Measures wherein the Fluid is estimated, *e. gr.* Gallons; and at the Extremity A, erect an indefinite Perpendicular, A 7. From A to 1, set off a Right Line, equal to A B; then will B 1 be the Diameter of a Vessel, that holds two Measures, or Gallons, of the same Height as the former.

Again, let A 2=B 2; then, B 3 will be the Diameter of a Vessel that holds three Measures, but of the same Height as that which only holds one: And, after the same manner, find the Diameters of other larger Vessels, A 4, A 5, A 6, A 7, &c.

Lastly, set off the several Divisions thus found, A 1, A 2, A 3, &c. upon one Side of a Rod, or Rule; and on the other the Height, or Depth of a Cylinder, that holds one Measure or Gallon, repeated, as oft as it will go. *Thus is the* Gauging Rod *compleat.*

Demonstration. For Cylinders, that have the same Altitude, are to each other as the Squares of their Diameters; consequently the Square of the Diameter that holds 2, 3, or 4 Gallons, must be double, triple, or quadruple of that which only holds one. And since in the first, A B= A 1, the Square of B 1 is double, that of B 2 triple, that of B 3 quadruple, *&c*; it is evident, that the Right Lines A 2, A 3, A 4, &c. are the Diameters of the Vessels required.

These Divisions, therefore, being applied to the Side of a cylindrical Vessel, it will immediately appear how many Measures, *e. gr.* Gallons, a cylindrical Vessel of that Base and of the Height of that which holds one Gallon, will contain.

Wherefore, finding by the Divisions on the other Side of the Rod, how often the Height of one Gallon is contained in the Height of the given Vessel; and multiplying the Diameter before found by this Number: The Product will be the Number of Gallons the Vessel contains.

Thus, *v. gr.* if the Diameter of the cylindrical Vessel be 8, and its Height 12, its Content will be 96 Gallons.

Note, 1° The less you take the Height of the Cylinder, containing one Gallon, the greater will the Diameter of the Base be: Whence both that, and the Diameters of the Cylinders, containing several Gallons, will be the more easily divisible into lesser Parts. *Bayer* directs such Height to be only one Digit, or Tenth of an Inch.

2° The Diameters of Vessels holding one or more decimal Parts of a Gallon, will be had by dividing one or more decimal Parts of the Vessel holding a whole Gallon, by its Height; which gives us the Area of the circular Base; from whence the Diameter is easily found by the Rules deliver'd

livered under DIAMETER, CIRCLE, &c. And after the same manner the Diameters are found for the Divisions of Vessels that hold two or more Gallons.

Use of the *Gauging Rod.*

To find the Content of a Cask; that is, to determine the Number of Measures *e. gr.* Gallons, it will hold: Apply the *Gauging Rod* to the Vessels, as directed in the preceding Article; and find both the Length of the Cask A C, *Fig.* 27. and both Diameters G H, and A B. Now, as we find by Experiment, how far soever it may be from Geometrical Exactness, that a common Cask of this Form, may safely enough be reputed as a Cylinder, whose Base is a Medium between the Head and the Belly; find such Medium, which call the *equated Diameter*.

Then, multiplying the Number thus found by the Length of the Cask A C; the Product will be the Number of Measures the Vessel contains.

Suppose *e. gr.* A B=8, and G H=12, and A C=15; the equi-different Mean will be 10; which multiplied by 15, gives the Capacity of the Cask, 150 Measures.

If it happen that the Diameters of the two Ends be not equal; measure them both, and take half their Sum for the Diameter to work by.

There is another Method, whereby the Content of a Vessel is had even without any Calculation at all, which obtains in divers Parts of *Germany* and the Low Countries: But as this supposes all Vessels to be similar to each other; and their Length double of the equated Diameter, that is, of half the Sum of the Diameters A B, and G H; it is not safe to use it in all places. *Kepler*, however, prefers it so much before all others, as including all the Precautions possible; that he recommends it to the Publick, to enact it by Law, that all Casks be made in this Proportion.

The Methods of *Gauging*, which chiefly obtain among us, are by the *Four Foot Gauging Rod*, and *Everard's Sliding Rule*.

Description and Use of the Four Foot *Gauging Rod.*

The Four Foot *Gauging* Rod, represented in *Tab. Surveying, Fig.* 28. is usually made of Box, and consists of four Rules, each a Foot long, and about three Eighths of an Inch square, join'd together by three brass Joints; by which means the Rod is render'd four Foot long, when the four Rules are quite open'd; and but one Foot, when they are folded together.

On the first Face of this Rod, mark'd 4. are plac'd two Diagonal Lines; one for Beer, and the other for Wine: By means of which the Content of any common Vessel in Beer or Wine Gallons may be readily found, by putting the Rod in at the Bung-hole of the Vessel, till it meets the Intersection of the Head of the Vessel with the Staves opposite to the Bung-hole. For distinction of this Line, there is writ thereon, *Beer and Wine Gallons*.

On the second Face, 5, are, a Line of Inches, and the *Gauge Line*; which is a Line expressing the Areas of Circles, whose Diameters are the correspondent Inches in Ale Gallons. At the Beginning is writ, *Ale Area*.

On the third Face, 6, are three Scales of Lines; the first, at the End of which is write *Hogshead*, is for finding how many Gallons there is in a Hogshead, when it is not full, lying with its Axis parallel to the Horizon. The second Line, at the End of which is wrote B. L, signifying a *Butt lying*, is for the same Use as that for the Hogshead. The third Line is to find how much Liquor is wanting to fill up a Butt when it is standing: At the Ends of it is wrote B. S. signifying a *Butt standing*. Half way the fourth Face of the *Gauging* Rod, 7, are three Scales of Lines, to find the Wants in a Firkin, Kilderkin, and Barrel, lying with their Areas parallel to the Horizon. They are distinguish'd by Letters F. K. B. signifying a *Firkin, Kilderkin*, and *Barrel*.

Use of the Diagonal Lines on the *Gauging Rod.*

To find the Content of a Vessel in Beer or Wine Gallons. Put the Brass End of the *Gauging Rod* into the Bung-hole of the Cask, with the Diagonal Lines upwards; and thrust the Brass End to the Meeting of the Head and Staves: Then, with Chalk, make a Mark on the Middle of the Bung-hole of the Vessel; and also on the Diagonal Lines of the Rod, right against, or over one another, when the brased End is thrust home to the Head and Staves. Then turn the *Gauging* Rod to the other End of the Vessel, and thrust the brased End home to the End as before.

Lastly, see if the Mark made on the *Gauging* Rod come even with the Mark made on the Bung-hole, when the Rod was thrust to the other End; which if it be, the Mark made on the Diagonal Lines, will, on the same Lines, shew the whole Content of the Cask in Beer or Wine Gallons.—

If the Mark made on the Bung-hole, be not right against that made on the Rod, when you put it the other way; then, right against the Mark made on the Bung-hole, make another on the Diagonal Lines: And the Division on the Diagonal Line, between the two Chalks, will shew the Vessel's whole Content in Beer or Wine Gallons.

Thus, *e. gr.* if the Diagonal Line of a Vessel be 28 Inches four Tenths, its Content in Beer Gallons will be near 51, and in Wine Gallons 62.

If a Vessel be open, as a Half-barrel, Tun, or Copper, and the Measure from the Middle on one Side, to the Head and Staves, be 38 Inches; the Diagonal Line gives 122 Beer Gallons; half of which, *viz.* 61, is the Content of the open half Tub.

If you have a large Vessel, as a Tun, or Copper, and the Diagonal Line taken by a long Rule, prove 70 Inches: The Content of that Vessel may be found thus:

Every Inch at the Beginning-end of the Diagonal Line, call ten Inches. Thus, ten Inches become 100 Inches; and every Tenth of a Gallon call 100 Gallons; and every whole Gallon, call 100 Gallons.

Exam. at 44. 8 Inches, on the Diagonal Beer-Line, is 200 Gallons; so also 4 Inches 48 Parts, now called 44 Inches 8 Tenths, is just two Tenths of a Gallon, now called 200 Gallons: So also, if the Diagonal Line be 76 Inches and 7 Tenths, a close Cask, of such Diagonal, will hold 1000 Beer Gallons: But an open Cask, but half so much, *viz.* 500 Beer Gallons.

Use of the *Gauge Line.*

To find the Content of any Cylindrical Vessel in Ale-Gallons: Seek the Diameter of the Vessel in the Inches, and just against it, on the *Gauge Line*, is the Quantity of Ale Gallons contained in one Inch deep: This multiplied by the Length of the Cylinder, will give its Content in Ale Gallons.

For Example: *Suppose the Length of the Vessel* 32. 06, *and the Diameter of its Base* 25 *Inches*; *what is the Content in Ale Gallons*?

Right against 25 Inches, on the *Gauge Line*, is one Gallon, and .745 of a Gallon; which multiplied by 32. 06, the Length, gives 55 .9447 Gallons for the Content of the Vessel.

The Bung *Diameter of a Hogshead being* 25 *Inches, the Head Diameter* 22 *Inches, and the Length* 32. 06 *Inches*; *to find the Quantity of Ale Gallons contain'd in it.*

Seek 25, the Bung Diameter, on the Line of Inches; and right against it on the Gauge Line you will find 1.745: Take one Third of it, which is .580, and set it down twice: Seek 22 Inches the Head Diameter, and against it you will find on the Gauge Line, 1.356; one Third of which added to twice .580, gives 1.6096; which multiplied by the Length 32.06, the Product will be 51.603776, the Content in Ale Gallons.

Note, This Operation supposes, that the aforesaid Hogshead is in the Figure of the middle Frustum of a Spheroid.

The Use of the Lines on the two other Faces of the Rod, is very easy; you need only put it down right into the Bung-hole (if the Vessel you desire to know the Quantity of Ale Gallons contained therein be lying) to the opposite Staves; and then, where the Surface of the Liquor cuts any one of the Lines appropriated for that Vessel, will be the Number of Gallons contained in that Vessel.

The Description and Use of Everard's *Sliding Rule for* GAUGING, *see under the Article* SLIDING *Rule*.

GAUGING *Rod*; see GAUGING.

GAULISH *Language*; see ROMAN, and FRENCH.

GAUNT, an old Word for *lean*, or lank: Thus we say, a *gaunt*-belly'd or light-belly'd Horse, when his Belly shrinks up towards his Flanks.

GAURES, GAVRES, a religious Sect in *Turkey, Persia*, &c. The Turks call the Christians, *Gaures*; *q. d.* Infidels, or People of a false Religion; or rather, as *Leunclavius* observes, *Heathens*, or *Gentiles*: The Word *Gaure* among the *Turks* having the same Signification, as *Pagan*, or *Infidel*, among the Christians; and denoting any thing not *Mahometan*.

In *Persia*, the Word has a like general Signification; and beside a more peculiar one, wherein it is applied to a Sect dispersed thro' the Country, and said to be Remains of the antient *Persians*, Worshipers of Fire: Tho', upon the whole, they rather appear to have been *Persians* converted; who being afterwards left to themselves, mingled their antient Superstitions with the Truths and Practices of Christianity; and so form'd themselves a Religion a-part.

The *Gaures* pretend they derive their Religion from one *Azer*, a *Frank* by Nation, and by Profession a Sculptor: This Man coming to *Babylon*, where they then dwelt, married a Maid of the Country, named *Dogdon*; who, after a Visit which she received from an Angel, was fill'd with a Divine Light;

Light; and soon afterwards found herself with Child. The Astrologers, at the same time, perceiving that the Child wou'd be a great Prophet, and the Founder of a new Religion; *Neubrout*, the Prince then reigning, was advertis'd hereof; who gave immediate Orders for all the Women with Child to be put to death, throughout his Empire.

The Order was executed accordingly; but the Mother of the future Prophet, shewing no Tokens of Pregnancy, escaped; and was at length happily deliver'd of a Son, call'd *Ebrahim Zer-Ateucht*.

After his Birth, new Dangers arose: The King, being inform'd thereof, had him brought before him; and drawing his Sabre, would have slain him with his own Hand; but his Arm grew motion-less upon the Spot: Upon this, a huge Fire was lighted, and the Child cast into the same; but he rested therein, as on a Bed of Roses. He was afterwards deliver'd from other kinds of Death, by a sort of Flies, which infested the Kingdom; one whereof, entring the King's Ear, render'd him frantic, and at length killed him.

Cha Glochtes, his Successor, made the like Attempts on the Child; but was so struck with the Miracles which he saw him work, that he began to adore him, as all the rest of the People already did.

At length, after a great Number of Miracles, the Prophet disappear'd.—Some held he was translated into Heaven, Body, and Soul: Others, that he found an iron Coffin near *Bagdat*, where shutting himself up, he was carried away by the Angels.

After he was in Possession of Paradise, God sent them, thro' his means, seven Books; which contain'd all the Matters of Religion; and afterwards, seven more, of the Explication of Dreams; and lastly, seven of Medicine. *Alexander* the Great burnt the first seven, by reason no body understood the Language, and kept the other fourteen for his own Use.

After his Death, some of the Priests and Doctors among the *Gaures*, retriev'd as much as their Memory would allow them, of the lost Books; and composed a large Volume, still extant among the modern *Gaures*; tho' they understand nothing, either of the Words, or the Character.

Throughout the whole, we see the Marks, and Traces of Christianity; tho' grivously defaced: The *Annunciation*; the *Magi*; the *Massacre of the Infants*; Our Saviour's *Miracles*; his *Persecutions*, *Ascension*, &c.

GAWZE, in Commerce; a very thin, slight, transparent kind of Stuff, wove sometimes of Silk, and sometimes only of Thread. See STUFF.

To warp the Silk for making of *Gawze*, they use a kind of Mill, upon which the Silk is wound: This Mill is a wooden Machine, about six Foot high; having an Axis perpendicularly placed in the Middle thereof, with six large Wings, on which the Silk is wound from off the Bobbins, by the Axis turning round.

When all the Silk is on the Mill, they use another Instrument, to wind it off again on to two Beams: This done, the Silk is pass'd thro' as many little Beads as there are Threads of Silk; and thus rolled on another Beam, to supply the Loom.

The *Gawze Loom* is much like that of the common Weavers, tho' it has several Appendages peculiar thereto. See LOOM.

There are *Figur'd Gawze's*; some with Flowers of Gold and Silver, on a Silk Ground: These last are chiefly brought from *China*.

GAYAC, GAYACUM, or GAYACAN, a Medicinal Wood, brought from the *Indies*; much used in Venereal Disorders; called also *Lignum Sanctum*; and by the *Spaniards*, *Ligno Santo*. See WOOD.

Gayac grows equally in the East and West *Indies*: That of the latter is brought in large Pieces, some of them weighing four or five hundred Pound; by which it is distinguish'd from the former.

The *Gayac* Tree, is the Heigth of our Walnut Tree; and is distinguish'd into two Kinds, Male and Female; only differing, as their Leaves are more or less round; being all equally green, the Flowers blue, and of a starry Form; having a little Orange-colour'd Fruit, about the Size of a small Nut, at the Tip thereof.

The Wood *Gayac* is extreamly hard and heavy, and on that account used as Ebony, in Mosaic Work, &c. as also for the making of Button Moulds. See EBONY.

But its principal Use is in Medicine, being found to warm, rarify, attenuate, attract and promote Sweats and Urine. The usual way of applying it, is in Decoction.

The best is that in large Pieces, of a dusky Colour, fresh, gummy, heavy, of an agreeable Smell, and a brisk pungent Taste; the Bark sticking close to the Wood.

The Bark of *Gayac* is held of as much Virtue, as the Wood it self: The Rind is of no Efficacy; so that to make a Sudorific Decoction or Prisan of the Wood, they first pare off all the white Part, which in Reality is the Rind; and only chip or rasp the hard, solid Part, which is black, heavy and resinous.

The Chirurgeons frequently substitute Box-wood, instead of *Gayac*, and, 'tis said, with equal Success.

The Resin drawn from *Gayac*, is held much more effectual in Venereal Cases, than either the Wood, or Bark. 'Tis brought us in large Pieces, not unlike common Rozin; but very different in respect of Smell: The former, when cast on the Coals, yielding a very agreeable balsamick Fume.

GAZETTE, a *News Paper*, or printed Account of the Transactions of divers Countries, in a loose Sheet.

Thus we say, the *London Gazette*, *Paris Gazette*, *Gazette a la main*, &c.

Gazettes, which most People look on as Triffles, are really the most difficult kind of Compositions that have appear'd. They require a very extensive Acquaintance with the Languages, and all the Terms thereof; a great Easiness and Command of writing, and relating, Things cleanly, and in a few Words.

To write a *Gazette*, a Man should be able to speak of War both by Land and Sea; be thoroughly acquainted with every thing relating to Geography, the History of the Time, and that of the Noble Families; with the several Interests of Princes, the Secrets of Courts, and the Manners and Customs of all Nations.

Vigneul de Marville recommends a Set of *Gazettes* well wrote, as the fittest Books for the Instruction of young Persons, coming into the World.

The Word is form'd of *Gazetta*, a kind of Coin, formerly current at *Venice*; which was the ordinary Price of the first News Papers printed there: Tho' others derive it by corruption from the Hebrew *Izgad*, which signifies *Nuntius*, a Messenger; but this Etymology is too much forced, and the former ought to be preferred.

The first *Gazette* publish'd in these Parts, is said to be that of *Paris*, begun in the Year 1631 by *Theophrast Renaudot*, a Physician of *Montpelier*, in his Office of Intelligence. See INTELLIGENCE.

GAZONS, in Fortification, Pieces of fresh Earth cover'd with Grass, cut in form of a Wedge, about a Foot long, and half a Foot thick; to line Parapets, and the Traverses of Galleries. See PARAPET, GALLERY, &c.

GEERS, a general Term for Trappings, Harness, and all other Things, that belong to Draught-horses or Oxen.

GEHENNA, a Scripture Term, which has given some pain to the Criticks. It occurs in St. *Matthew* v. 22, 29, 30. x. 28. xviii. 9. xxiii. 14. 33. *Mark* ix. 42. 44. 46. *Luke* xii 5. *James* iii. 6.

The Authors of the *Lovain*, and *Geneva* Versions, retain the Word *Gehenna*, as it stands in the *Greek*; the like does Mons. *Simon*: The *English* Translators render it by *Hell*, and *Hell-Fire*; and the like do the Translators of *Mons*, and Father *Bouhours*.

The Word is form'd from the Hebrew *Gehinnom*, *i. e.* Valley of *Hinnom*. In that Valley, which was near *Jerusalem*, there was a Place named *Tophet*, where some Jews sacrificed their Children to *Moloch*, by making them pass through the Fire. King *Josias*, to render this Place for ever abominable, made a Cloaca, or common Shore thereof, where all the Filth, and Carcasses in the City were cast. The *Jews* observe further, that there was a continual Fire kept up, to burn and consume those Carcasses; for which reason, as they had no proper Term in their Language, to signify *Hell*, they made use of that of *Gehenna*, or *Gehinnom*, to denote a Fire unextinguishable.—

GELATINOUS, among Physicians, is applied to any thing approaching the glutinous Consistence of a Jelly.

GELD, in our antient Customs, a Mulct, or Compensation for a Crime, or Delinquency. See MULCT.

Hence, *Wergild* was antiently used for the Value or Price of a Man slain; and *Ortgild* of a Beast.

Et sint quieti de Geldis, *&* *Danegeldis*, *Horngeldis*, *&* *Fortgeldis*, *&* *de Blodwita* *&* *Flitwita*, *&* *Leirwita*, *&* *Heingwita*, *&* *Fremineseuda*, *&* *Werdpeni*, *&* *Averpeni*, *&* *Hundredpeni*, *&* *Tolingpeni*. Charta Ric. a. Priorat. de Hatland in Devon.

GELDABLE, see GILDABLE.

GELDING, the Operation of Castrating, and particularly Horses. See CASTRATION.

The same Term is also applied to a Horse thus castrated; or whose Testicles are cut out; to disable him from being a Stallion.

In *gelding* of Horses, regard is had to their Age, the Season of the Year, and the State of the Moon.

For the First, If it be a Colt, the Operation may be perform'd at nine, or fifteen Days old, if the Testicles be come down; in regard the sooner he is *gelt*, the better it will be for his Growth, Shape, and Courage; tho' a Horse may be *gelded* at any Age, if care be taken in the Cure.

As for the Second, The best Time is about *April*, or *May*; or else about the latter End of *September*.

For the Third, The Wane of the Moon is prefer'd as the fittest Time.

The manner of gelding is thus: The Beast being cast on some soft Place, the Operator takes the Testicles between his fore and great Finger; slits the Cod, and presses out the Stones; then with a pair of Nippers made very smooth, either of Steel, Box, or Brazil, claps the Strings of the Stones between them, very near to where the Stones are set on; and presses them so hard, that there may be no Flux of the Blood; then sears away the Stone with a thin drawing cauterizing Iron, made red hot.

This done, he takes a hard Plaster, made of Wax, Rosin, and wash'd Turpentine melted together, and melts it on the Head of the Strings with the hot Iron; and afterwards sears the Strings, and melts more of the Salve, till there is a good Thickness of the Salve laid on the Strings.

This being done to one Stone, the Nippers are loosen'd, and the like done to the other; and the two Slits of the Cod fill'd with white Salt; and the Out-side of the Cod anointed with Hogs Grease: And thus they let him rise, and keep him in a warm Stable, without tying him up.

If he swells much in his Cod, or Sheath, they chase him up and down, and make him trot an Hour in a Day; and he soon recovers.

GELOSCOPY, Geloscopia, a kind of Divination, perform'd by the means of Laughter: Or, a Knowledge of any Person's Character and Qualities, acquired from the Consideration of his Laughter. See Physiognomy.

Metaposcopy, Chiromancy, *Galoscopy*, Ophthalmoscopy, Idemgraphy; *Mascurat.* p. 607.

GEM, Gemma, a common Name for all precious Stones, or Jewels. See Precious *Stones*.

Among *Gems*, the principal are the *Diamond*, *Ruby*, *Saphir*, *Emerald*, *Turcoise*, *Opal*, *Agat*, *Crystal*, &c. See each under its proper Article, Diamond, Ruby, Saphir, Emerald, &c.

Pearls are also ranked among *Gems*; tho' not Stones. See Pearl.

Several Authors, both Antient and Modern, relate Wonders of the Virtues and Medicinal Properties of *Gems*: But their Reputation, in this respect, is now not a little fallen; and many even deny them any Virtue at all. Yet are the Fragments of such Stones still preferv'd by the Physicians, in some of the most celebrated Compositions; and there are several Chemical Preparations made of them.

In effect, as several Persons of the greatest Candour and Experience, have related some considerable Effects of certain *Gems*, on their own particular Observations; and, as it is no ways improbable that some of the softer Stones may have considerable Operations on the human Body; it might be imprudent indiscriminately to exclude them from any Medicinal Vertue at all.

When much the greatest Part of their traditionary Qualities are set aside as fabulous; there will still remain some, on as real, and well warranted a footing, as many of our other Medicines.

On such Considerations, Mr. *Boyle* was induced to give us a Treatise of the *Origin and Virtue of Gems*; the Purport whereof is to make appear, that such Stones were originally in a fluid State; or made up of such Substances as were formerly fluid; and that many of their general Virtues are probably derived from the Mixture of Metalline, and other Mineral Substances usually incorporated with them; while the great Variety, and the particular Efficacy of their Virtues arise from some happy concurrent Circumstances of that Commixture; *e, gr.* the peculiar Nature of the impregnating Liquor, the Proportion wherein it is mix'd, with the petrescent Juice, and the like.

To support this Hypothesis of the Virtues of *Gems*, he shews that several of them are not simple Concretions of any petrescent Liquors, but consist also of other mineral adventitious Parts; which he argues from the Separableness of such Substances in some Stones; the specific Gravity in others; and the different Waters or Tinctures to be met with in *Gems* of the same Species, as Rubies, Saphires, Granates, and even Diamonds; of which some are yellow; some of other Colours; and some green, almost like Emeralds.

There may therefore be in some *Gems* numberless adventitious Corpuscles: But there is great reason to think that some of these Corpuscles may be endued with several Properties and Medicinal Virtues: There is a great Difference among these impregnating Particles; and probably a greater Variety than is known by us: And lastly, many *Gems* are very richly impregnated with these Particles; why, then, may not they exert some Power? This is the Substance of what is directly alledg'd, in behalf of *Gems*.

The Stress of what is objected against them, is, that the Mineral Substances they contain, are so closely locked up, that they can communicate nothing to the Body, and so can have no medicinal Operation, being unconquerable by so small a Heat, as that of the Stomach, and other Parts of the Body. See Digestion.

Which Objection might be plausible enough to prevent one's ascribing any Medicinal Virtues to them *a priori*; but can conclude nothing against what is warranted by so many Facts, and Observations; especially, when there are several Particulars, that obviate this Objection.

For, a vigorous Loadstone, tho' frequently harder than many *Gems*, is known to emit copious Effluvia: And there are many which have been found to have a manifest and inconvenient Operation on the human Body, by being wore in the Pocket, or long held in the Hand. Mr. *Boyle* has found many transparent Pebbles, which, when cut, would resemble Diamonds, that might be immediately brought to emit copious, and strong-scented Steams. And if electrical Attractions be owing to the Effluvia of Bodies excited by rubbing; very slight Alterations may suffice to procure Expirations from transparent *Gems*, many of which are electrical, and even the hardest of all, *viz.* Diamonds; one of which Mr. *Boyle* kept by him, which upon a little Friction would attract very vigorously. See Magnet, Effluvia, Electricity, Diamond, &c.

To that Part of the Objection, which pretends *Gems* not to be digestable by the Heat of the Stomach, it may be replied, that we do not know how far the Digestion of Things in the Stomach is owing to Heat: Nor is it proved, that such Materials can have no Operation on the Body, without being digested, *i. e.* in passing thro' it, without undergoing any sensible Change of Bulk, Figure, *&c.* as *Gems*, when swallow'd, are supposed to do.

For some Chemists make a kind of Bullets of Regulus of Antimony, which they call *Pillulæ perpetuæ*, because when they have perform'd their Operation in the Body, and are cast forth with the Excrements, they may be applied again and again to the same purpose. Nor do we know, what Analogy there may be between some Juices in the Body, and those mineral Parts which impregnate *Gems*: For tho' *Oculus Mundi* be reckon'd among the rare *Gems*; yet if one of the best sort, be, for a while, kept in common Water, it will receive an Alteration, obvious to the Eye.

Add that Mr. *Boyle* has, without Heat, obtain'd a manifest Tincture from several hard Bodies, and even from a transparent sort of *Gems*, by means of a faint Liquor, distilled from a Vegetable Substance; as harmless, and as plentifully eaten as Bread. And whether some Juices of the Body, assisted by the natural Heat thereof, may not serve for Menstrua to some *Gems*, we will not say; but even the natural Heat of a human Stomach, nay perhaps of the external Parts of the Body, may be able, tho' not to digest pretious Stones, yet to fetch out some of their Virtues: For 'tis certain, it makes a sensible Alteration in the hardest Sort of them: Witness a Diamond of Mr. *Boyle*'s; which might have its electrick Faculty excited without rubbing, only by a languid Degree of adventitious Heat: And another, which, by means of Water, made a little more than luke warm, might be brought to shine in the dark. See Phosphorus.

Lastly, if it be yet objected, that 'tis not likely *Gems* should part with any Effluvia, or Portions of themselves, inasmuch as they lose none of their Weight: It may be answer'd, that the Antimonial Glass and Cup imbue Wine and other Liquors, with a strong emetic Quality, without undergoing any sensible Diminution of Weight. Add, that though common Water be not allow'd a Menstruum fit to draw any thing from Mercury; yet, both *Helmont*, and others inform us, that a large Quantity of it being kept a Day or two upon a small Proportion of that Drug, will acquire a Virtue of killing Worms; tho' the Mercury retains its former Weight. See Mercury.

Gem, or Germen, in Botany, a Shoot, or Bud of a Plant. See Plant, Germen, Bud, Germination, *&c.*

GEMARA, or Ghemara, the second Part of the *Talmud* of *Babylon*. See Talmud.

The Word גמרה *Gemara*, is commonly suppos'd to denote a *Supplement*; but, in Strictness, it rather signifies *Complement*, Perfection; as being form'd of the *Chaldee* גמר *Gemar*, or *Ghemar*, to finish, perfect, or compleat any thing: In which Sense it is that the Rabbins use the Word.

For, the Pentateuch, they call simply the *Law*; the first Part of the *Talmud*, which is only an Explication of that Law, or an Application thereof to particular Cases, with the Decisions of the antient Rabbins thereon, they call the *Mischna*, *i. e.* Second Law; and the second Part, which is a more extensive and ample Explication of the same Law, and a Collection of Decisions of the Rabbins, posterior to the Mischna, they call *Gemara*, *i. e.* Perfection, Completion, Finishing; by reason they esteem it the Finishing of the Law, or an Explication, beyond which there is nothing further to be desired. See Mischna.

The *Gemara* is usually call'd *Talmud*, the common Name of the whole Work. In this Sense we say, there are two

Gama-

Gemara's, or Talmuds; that of *Jerusalem*, and that of *Babylon*: Tho' in Strictness, the *Gemara* is no more than an Explication of the Mischna, made by the Jewish Doctors in their Schools: Much as the Commentaries of our School Divines on St. *Thomas*, or the Master of the Sentences, are an Explication of the Writings of those Authors.

A Commentary, Mons. *Tillemont* observes, was wrote on the *Mischna*, by one *Johanan*, whom the *Jews* place about the End of the second Century: But Fa. *Morin* proves from the Work it self, wherein mention is made of the *Turks*, that it was not wrote till the time of *Heraclius*, about the Year 620: And this is what is called the *Gemara*, or *Talmud of Jerusalem*, which the *Jews* do not use or esteem much, by reason of its Obscurity.

They set a much greater Value of the *Gemara*, or *Talmud of Babylon*, begun by one *Asa*; discontinued for 73 Years, on occasion of the Wars with the *Saracens* and *Persians*; and finish'd by one *Josa*, about the Close of the seventh Century.

Tho' the Name *Talmud*, in its Latitude, include both the *Mischna*, and the two *Gemara's*; yet is it properly that of *Asa* and *Josa* alone which is meant under that Name.

This the *Jews* prise above all their other Writings; and even set it on a Level with Scripture itself: In effect, they conceive it as the Word of God, derived by Tradition from *Moses*, and preserved without Interruption to their time. See TRADITION.

Ra. *Jehuda*, and afterwards R. *Jehanan*, R. *Asa*, and R. *Josa*, fearing the Traditions should be lost in the Dispersion of the *Jews*, collected them into the *Mischna* and *Gemara*.

GEMATRIA, or GAMETRIA, the first kind of arithmetical Cabbala, used by the Cabbalistick *Jews*. See CABBALA.

Gematria is a Geometrical, or Arithmetical manner of explaining Words; whereof there are two Kinds: The first bearing a more immediate Relation to *Arithmetick*; and the latter, to *Geometry*.

The *first* consists, in taking the Numerical Value of each Letter in a Word, or Phrase; and giving it the Sense of some other Word, whose numerical Letters, taken after the same manner, make the same Sum.

For it is to be observ'd, that neither the *Hebrews*, nor *Greeks*, have any other Numeral Figures, beside the Letters of the Alphabet. See LETTER, and CHARACTER.

Thus, a Cabbalist, taking the two first Words in *Genesis*, בראשית ברא, and by Addition getting the Sum total of all the Numbers, signify'd by those Letters; finds that these two Words signify the same as those other three, נראש השנה נברא: For, as to the first; ב, is 2; ר, 200; א, 1; ש, 300; י, 10; ת, 400; ב, 2; ר, 200; and א, 1: Which, together make 1116. And as to the latter; ב, signifies 2; ר, 200; א, 1; ש, 300; ה, 5; נ, 50; ש, 300; ה, 5; נ, 50; ב, 2; ר, 200; and א, 1: Which, summ'd up, yield the same ber 1116.

Whence the Cabbalist concludes, בראשית ברא, *in the Beginning he created*; signifies the same thing as נראש השנה נברא, *it was created at the beginning of the Year*; and accordingly, the received Opinion of the Cabbalists, is, that the World was created at the beginning of the Month *Thisri*, which was antiently the first Month in the Year, and answers to our first Month in Autumn, *viz. September*.

So, again, in the Prophecy of *Jacob*, *Gen.* xl. 9, the Words יבא שילה are understood of the *Messiah*; by reason they make the same Number with משיח, which signifies the Messiah.—

The *second* kind of *Gematria* is much more obscure, and difficult; and accordingly less used: 'Tis employ'd in seeking for abstruse, and hidden Interpretations in the Dimensions and Parts of the Buildings mention'd in Scripture, by dividing, multiplying, &c. those Magnitudes by each other. Of this we shall give an Example from some Christian Cabbalists.

The Scripture says, that *Noah's* Arch was 300 Cubits long, 50 wide, and 30 high: Now, the Cabbalist takes the Length for the Basis of his Operations: 300, in the *Hebrew*, is express'd by the Letter ש; which Length, divided by the Height 30, gives the Quotient 10: The *Hebrew* Character whereof is י, to be placed on the right Side of ש. He then divides the same Length by the Width, 50; the Quotient whereof, 6, is express'd by a ו; which being placed on the left Side of ש, makes, together with the other two Letters, the Name JESUS, ישו'. Thus, by the Rules of Cabbala, it appears, that there is no Salvation, but in Jesus Christ; as, at the Deluge, no Person was saved but those in the Ark.

After the same manner, is the same Name ישו' found in the Dimensions of *Solomon's* Temple. But it is rather an Injury, than an Advantage to the christian Religion, to support it by such frivolous Evidences.

The Word *Gematria* is derived from the Rabbinical *Hebrew* גימטריא, form'd by Corruption of the *Greek* Γεωμετρία *Geometry*.

GEMELLES, in Heraldry, a bearing of Bars by Pairs, or Couples, in a Coat of Arms: As, he beareth Gules on a Chevron Argent, three Bars *Gemelles* Sable, by the Name of *Throgmorton*.

GEMELLUS, in Anatomy, a Muscle of the Arm, call'd also *Biceps externus*, as having two Heads. See BICEPS.

One of the Heads of this Muscle rises tendinous from the upper Part of the inferior Costa of the Scapula, whence passing between the Muscles to the back Part of the Humerus, it joins the other Head; and both run together to their Insertion at the Anco or Tip of the Elbow.

The *Gemellus* is the first Extensor of the Cubit; and is by many reckon'd two distinct Muscles; the first called *Longus*; the latter, *Brevis*.

GEMINI, in Astronomy, *the Twins*; a Constellation, or Sign of the Zodiac: The third in Order; representing *Castor* and *Pollux*. See SIGN, and CONSTELLATION.

The Stars in the Sign *Gemini*, in *Ptolomy's* Catalogue are 24; in *Tycho's* 29; in the *Britannic Catalogue* 79. The Order, Names, Longitudes, Latitudes, Magnitudes, &c. whereof, are as follow.

Stars in the Constellation GEMINI.

	Signs.	Longitude			Latitude.			Magn.
		°	′	″	°	′	″	
That preced. *Castor's* Foot πεπτὸς	♊	26	37	24	0	12	19 A	4
		27	13	25	0	9	50 L	8
		27	54	29	0	21	05 A	8
		28	5	24	0	28	05 A	7
		28	18	11	0	57	59 L	7
5								
		28	30	25	0	32	35 A	7
In preced. Foot of *Castor*		29	6	43	0	56	00 A	4
		29	23	55	0	32	20 B	7 8
		29	33	5	0	18	48 B	7
		00	0	9	0	11	25 B	8
10								
	♋	0	5	39	0	3	40 B	8
		0	6	35	0	8	05 A	8
Subseq. in the same Foot		0	58	10	0	51	22 A	3
		1	38	30	1	42	18 A	7 8
		1	54	12	0	32	25 A	7
15								
		2	9	43	2	32	13 A	7
		2	13	30	2	50	09 A	7
In Extrem. of *Castor's* hind Foot		2	28	20	3	06	03 A	4
		3	19	16	7	22	33 A	7
		3	23	4	5	29	15 A	7 8
20								
		3	38	19	5	28	26 A	7
		3	27	46	4	46	30 B	6
		3	50	57	3	48	39 A	7
		4	20	7	6	14	57 A	7
		4	6	16	5	47	05 B	6
25								
Lucid Foot of *Pollux*		4	46	18	6	47	19 A	2 3
		4	24	39	5	4	50 B	6
		4	48	34	5	2	43 B	7
In *Castor's* upper Knee		5	48	02	5	27	34 A	5
		5	36	37	2	1	30 B	3
30								
		5	30	22	5	52	00 B	6
		5	35	25	5	51	40 B	6 7
		6	31	48	9	50	24 A	7
In Extrem. of *Pollux's* hind foot		6	52	53	10	07	57 A	5 4
		7	2	57	10	20	13 A	7
35								
		7	41	5	6	45	50 A	6 7
In *Castor's* Fore-arm		6	47	30	10	58	25 B	4 3
		8	5	48	9	31	38 A	7
That preced. *Pollux's* Knee		7	37	39	1	11	15 A	6
		8	9	46	2	29	09 B	6
40								
In the Heel of *Pollux's* hind-foot		9	8	19	9	40	15 A	6
		8	53	7	3	15	36 B	6 7
		9	2	13	3	7	12 B	6
In *Castor's* Thigh		9	52	20	1	30	14 B	6
In Hind-knee of *Pollux*		10	39	40	2	5	27 A	3
45								
In *Castor's* Groin		10	42	25	0	0	11 B	6 7
		12	11	13	6	34	25 A	6 5
In Fore-arm of *Castor*		11	9	53	7	43	03 B	5
		11	34	30	4	21	25 B	6
Lowest in *Castor's* Loins		12	9	12	1	41	05 B	6
50								
		12	3	8	3	17	36 B	7
		13	13	35	7	13	25 A	7
		13	21	51	6	13	13 A	6 7
Upper in *Castor's* Loins		12	33	46	2	29	56 B	5
That against *Pollux's* Leg.	♊	14	27	14	5	40	37 A	5

Names

Names and Situations of the Stars.	Signs.	Longitude. °	′	″	Latitude. °	′	″		Mag.
	♊	14	11	20	0	13	07	A	3
In *Pollux*'s Belly		14	49	35	1	40	58	A	6 7
That against *Pollux*'s Side		14	32	05	2	55	41	B	5 6
		14	49	3[illegible]	0	50	57	B	7 8
		14	23	25	5	31	06	B	7
50									
In hind Shoulder of *Castor*		14	38	10	5	43	35	B	4 5
South against *Pollux*'s Side		16	00	4[illegible]	1	41	55	A	6
Against *Castor*'s Ear		14	44	46	9	45	10	B	5
North against *Pollux*'s Side		16	01	2[illegible]	0	29	28	A	6
Against *Castor*'s hind Shoulder		15	22	58	6	09	23	B	6
55									
Contiguous thereto, but more S.		15	30	51	5	58	20	B	7
In the preced. Head of *Castor*		15	55	20	10	03	48	B	1 2
		18	13	58	6	02	17	A	7 8
Preced. of 4 under *Pollux*'s Side		18	15	24	5	50	21	A	6
Subseq. in *Castor*'s Shoulder		17	01	34	5	11	01	B	5
60									
		16	10	28	13	18	13	B	6
Over *Castor*'s Head		16	23	22	12	52	49	B	5
		17	35	36	6	26	15	B	6
		17	43	29	6	14	26	B	7
Second under *Pollux*'s Side		19	20	32	3	47	19	A	6
65									
Between the two Heads		18	17	56	7	25	46	B	5
Over *Pollux*'s hind Shoulder		19	01	13	4	24	00	B	6
In the hind Shoulder of *Pollux*		19	20	18	3	02	23	B	4 5
In the Head of the 2[d] of *Pollux*		18	56	09	6	39	27	B	2
		20	12	59	0	57	03	A	7
70									
Over *Pollux*'s Head		18	20	47	12	01	41	B	6
Third under *Pollux*'s Side		20	45	53	2	40	59	A	6
		20	29	59	1	57	19	B	6
Preced. of those that follow *Pollux*		20	55	12	5	44	38	B	6
		21	40	57	1	21	33	B	5
75									
Last of 4 under *Pollux*'s Side		22	43	34	0	54	41	A	7
Middle of those y[t] follow *Pollux*		22	54	28	7	11	26	B	5
		24	07	46	7	08	01	B	6
North of those y[t] follow *Pollux*		24	35	27	9	27	22	B	6

GEMINI, in Anatomy, two Muscles of the Thigh, which arise from the Protuberance of the Ischium, and are inserted with the Pyriformis into the Dent at the Root of the great Trochanter.

GEMMA, or *Sal* GEMMÆ, is peculiarly used for Rock Salt, or Salt dug out of Mines.—See SALT.

The Name *Gemma* is applied hereto, on occasion of its Lustre, and Brillant; which is not unlike that of Crystal.

The principal Mines of this Salt are those of *Wilisca*, in *Poland*; of *Eperie*, in *Upper Hungary*; and of *Cardonna*, in *Catalonia*.——The principal Use of this Salt is for the powdering, or pickling of Meats, in Places destitute of Salt-Springs, &c.

GEMMA, among Botanists, the turgid Bud of any Tree, when it is beginning to bear; call'd also *Oculus*, or Eye. See BUD, EYE, &c.

GEMONIÆ, call'd also *Scalæ* GEMONIÆ, and *Gradus* GEMONII, among the *Romans*, were much the same as *Gallows*, or *Gibbets* in *England*. See GALLOWS, and GIBBET.

The *Gradus Gemonii*, according to *Publius Victor*, or *Sextus Rufus*, was a Place rais'd on several Steps, from whence they precipitated their Criminals. Others represent it as the Place whereon they were executed, and afterwards exposed to publick View.

The *Gemoniæ* were in the tenth Region of the City, near the Temple of *Juno*. *Camillus* first appropriated the Place to this Use, in the Year of *Rome* 358.

Some say, they were thus denominated from the Person who rais'd them: Others, from the first Criminals, that suffer'd on them: Others, from the Verb *gemo*, I sigh, or groan.

GEMOTE, *Conventus*, a *Saxon* Word, denoting a *Meeting*. *Omnis homo pacem habeat eundo ad* Gemotum *& rediens de* Gemoto, *nisi probatus fur fuerit*. LL. Ed. Conf.

GENDARMES, or GENS D'ARMES, *q. d. Men of Arms*, a Term used among the *French*, for the King's Horse Guards; by reason they succeeded the antient *Men of Arms*, who were arm'd at all Points, and thence call'd *Gendarmes*. See GUARDS.

At present, the Companies of the King's *Gard de Corps*, the Musqueteers, and Light Horse, are reputed to belong to the *Gendarmerie*. See GENDARMERIE.

The *Grand Gendarmes*, sometimes call'd simply the *Gendarmes*, are a Company of Gentlemen, to the Number of about 250, who guard the King's Person. The King himself is their Captain; and one of the prime Peers, the Lieutenant Captain. When the King marches with all his Houshold Troops, the *Gens d'Armes* close the March.

Their Device is, a Thunderbolt, falling from Heaven, with the Motto, *Quo jubet iratus Jupiter*. There are also *Gens d'Arms* of the Queen, the Dauphin, &c.

GENDARMERIE, or GENS D'ARMERIE, the *French* Cavalry, and particularly that of the King's Houshold. See GENDARMES.

The *Gendarmerie*, at present, is a Body of Horse, consisting of 16 Companies, *viz.* the *Scotch* Gendarmes; the *English* Gendarmes; the *Burgundy* Gendarmes; and the *Flemish Gend'Armes*: Which four Companies compose the King's *Gens d'Armes*, or Life Guard.

The other Companies take their Names from the Princes who command them, as Captains; *viz.* the Queen's *Gens d'Armes*; the Queen's Light Horse: The Dauphins *Gens d'Armes*; the Dauphins Light Horse: The Duke of *Burgundy*'s *Gens d'Armes*; the Duke of *Burgundy*'s Light Horse: The Duke of *Orlean's Gens d'Armes*, &c. Each Company, at a Medium, consists of 76 *Gens d'Armes*, or Light Horse.

GENDER, GENUS, in Metaphysicks; see GENUS, and KIND.

GENDER, in Grammar, a Division, or Distinction of Nouns or Names, according to the different Sexes of the Things they denote. See NOUN.

It has been thought proper, in order to render Discourse more express, and distinct, as also to embellish it by a Variety of Terminations; to contrive certain Diversities in Adjectives, accommodated to the Substantives they are applied to: Whence, from a Regard to that notable Difference there is between the two Sexes, all Nouns Substantives have been distinguish'd into Masculine, and Feminine; and the Nouns Adjectives also varied to correspende therewith. See ADJECTIVE.

But as there was an Infinity of Words, which had no proper Relation, either to the one Sex, or the other; they had *Genders* assigned them, rather out of Caprice, than Reason: And hence it is that the *Gender* of a Noun is frequently dubious and fluctuating. See MASCULINE, and FEMININE.

It should here however be observed, that this Institution of *Genders* was not made with Design and Deliberation, by the Masters of Language; but was introduced by Custom and Usage. At first, there was only a Difference between the Names of Animals, when spoke of Males, and Females; by degrees, the same Regulation was extended to other Things: The Grammarians have only observed and followed, what Usage had establish'd.

The Oriental Languages frequently neglect the Use of *Genders*; and the *Persian* Language has none at all, which is no Disadvantage; the Distinction of *Genders* being intirely useless.

The *Latins*, *Greeks*, &c. generally content themselves to express the different *Genders* by different Terminations, as *Bonus equus*, a good Horse; *bona equa*, a good Mare, &c. But in *English*, we frequently go further, and express the Difference of Sex by different Words; as Boar, Sow; Boy, Girl; Buck, Doe; Bull, Cow; Cock, Hen; Dog, Bitch, &c.

We have only about 24 Feminines, distinguish'd from the Males, by the Variation of the Termination of the Male into *ess*; of which Number are Abbot, Abbess; Count, Countess; Actor, Actress; Heir, Heiress; Prince, Princess, &c. which is all that our Language knows of any thing like *Genders*.

The Eastern Languages, as well as the vulgar Languages of the West, have only two *Genders*; the *Masculine Gender*, and *Feminine Gender*. The *Greek* and *Latin* have likewise the *Neuter*, *Common*, and the *Doubtful Gender*; and beside these, they have the *Epicene*, or Promiscuous, which under one single *Gender* and Termination includes both the Kinds. See MASCULINE, FEMININE, NEUTER, EPICENE, &c.

GENDER, in Geometry. Geometrical Lines are distinguish'd into *Genders*, Classes, or Orders, according to the Number of the Dimensions of an Equation, expressing the Relation between the Ordinates, and the Abscissæ. See GEOMETRICAL *Line*.

GENDER, in Botany, GENDER, in Musick, &c. } see } GENUS.

GENEALOGY, a Series, or Succession of Ancestors, or Progenitors: Or, a Summary Account of the Relations and Alliances of a Person, or Family, both in the Direct, and Collateral Lines. See LINE, COLLATERAL, DIRECT, DEGREE, &c.

In divers Chapters, and Military Orders, 'tis required that the Candidates produce their *Genealogy*; to shew that they are Noble by so many Descents. See DESCENT.

The Word is *Greek*, γενεαλογία, which is form'd of γενὸς, *Genus*, *Prosapia*, Race, Lineage; and λόγος, *Sermo*, Discourse.

Genealogical Tables, *Genealogical Tree*, *Genealogical Column*: The *Genealogical* Degrees are represented in Circles, ranged over, under, and aside of each other. The Antients had the like; which they called *Stemmata*, from a *Greek* Word, signifying *Crown*.—

GENERAL,

GENERAL, something that comprehends all, or extends to a whole Genus. See GENUS; see also UNIVERSAL.

Thus we say, a *General* Rule, *q. d.* an universal Rule, A *general* Loss, &c. 'Tis disputed, whether *Noah's* Flood was *general*, or no. See DELUGE.

All the Sciences have some *general* Principles, or Maxims. See MAXIM. A *general* Court: *General* Councils are particularly called *Oecumenical*. See OECUMENICAL.

GENERAL *Issue*, in Law; see ISSUE.

General is particularly applied to divers Officers and Dignitaries.

States GENERAL, GENERAL *Council*, GENERAL *Assembly*, *Vicar* GENERAL, &c. } see { STATES. OECUMENICAL. ASSEMBLY. VICAR.

GENERAL *Officers*, in an Army, are those who do not only command over a single Company, or Regiment; but whose Office and Authority extends over a Body of several Regiments of Horse, and Foot.

Such are *Lieutenant Generals*, *Major Generals*, *Generals* of the Horse, of the Foot; *Paymaster General*, *Commissary General*, *Chirurgeon General*, &c.

The Word is also now used in a more extensive Sense; and comprehends such as may command, by virtue of their Rank, over several Bodies of Forces, tho' all of the same Kind; in which Sense Brigadiers are *General Officers*; notwithstanding that they are attach'd to one kind of Forces, either Infantry, or Cavalry, See BRIGADIER.

The Pay of a *Lieutenant General*, when in Service, is 4 *l. per* Day: Of a *Major General*, 2 *l.* Of a *Brigadier General*, 1 *l.* 10 *s.* Of a *Captain General*, 10 *l.* See LIEUTENANT *General*, MAJOR *General*, &c.

We have also Officers in the Law, in the Revenues, &c. distinguish'd by the Appellation of *General*: As, Attorney *General*, Solicitor *General*, &c. See ATTORNEY, and SOLICITOR.

Receiver *General*, Controller *General*, &c. See RECEIVER, and CONTROLLER.

GENERAL is also used in a *Monastic* Sense, for the Chief of an Order; or of all the Houses, or Congregations establish'd under the same Rule. Thus we say, the *General* of the *Cistercians*, the *Franciscans*, &c. See ORDER.

Fa. *Thomassin* derives the Origin of *Generals* of Orders, from the Privileges granted by the antient Patriarchs to the Monasteries situate in their capital Cities. By such means they were exempted from the Jurisdiction of the Bishop, and immediately subjected to that of the Patriarch alone.

GENERAL is also used in the *Military* Art for a particular March, or Beat of Drum.

To beat the *General*, is to give Notice to the Infantry to march. See DRUM.

GENERAL *Terms*, or *Words*, are such as express, or denote *general* Ideas. See WORD.

Ideas become *general*, by separating from them, the Circumstances of Time, Place, or any other Ideas that may determine them to this or that particular Existence. See IDEA.

By this way of Abstraction they become capable of representing more Individuals, than one; each of which having a Conformity to that abstract Idea, is of that Sort. See ABSTRACTION, INDIVIDUAL, &c.

All Things, Mr. *Lock* observes, that exist, being Particulars, it might be expected, that Words should be so too in their Signification: But we find it quite contrary; for most of the Words, that make all Languages, are *general* Terms.

This is the Effect of Reason and Necessity: For, 1° It is impossible that every particular Thing should have a distinct, peculiar Name; because it is impossible to have distinct Ideas of every particular Thing, to retain its Name with its peculiar Appropriation to that Idea. 2° It would be useless, unless all could be supposed to have these same Ideas in their Minds: For Names, applied to particular Things, whereof one alone has the Ideas in his Mind, could not be significant or intelligible to another, who is not acquainted with all those particular Things which had fallen under his Notice. 3° It would be of no great use for the Improvement of Knowledge; which, tho' founded in particular Things, enlarges itself by *general* Views, to which Things, reduced into Sorts under general Names, are properly subservient.

In Things, where we have occasion to consider and discourse of Individuals, and Particulars, we use proper Names: As in Persons, Countries, Cities, Rivers, Mountains, &c. Thus wee see that Jockeys have particular Names for their Horses, because they have often occasion to mention this or that Horse particularly, when he is out of sight.

The first Ideas Children get, are only particular, as of the Nurse, or Mother; and the Names they give them, are confined to these Individuals: Afterwards, observing, that there are a great many other Things in the World that resemble them in Shape, and other Qualities, they frame an Idea, which they find those many Particulars do partake in; to that they give, with others, the Name, Man, for Example. In this they make nothing new, but only leave out of the complex Idea they had of *Peter*, *James*, *Mary*, &c. that which is peculiar to each, and retain only what is common to all: And thus they come to have a *general* Name, and a *general* Idea.

By the same Method they advance to more *general* Names and Notions: For, observing several Things that differ from their Idea of Man, and which cannot, therefore, be comprehended under that Name, to agree with Man in some certain Qualities; by retaining only those Qualities, and uniting them into one Idea, they have another, more *general* Idea; to which, giving a Name, they make a Term of a more comprehensive Extension.

Thus, by leaving out the Shape, and some other Properties signified by the Name, Man; and retaining only Body, with Life, Sense, and spontaneous Motion; we form the Idea signified by the Name Animal. After the same manner, the Mind proceeds to Body, Substance, and at last to Being, Thing, and such universal Terms, which stand for any Ideas whatsoever, See ENS, ESSE, &c.

Hence we see the whole Mystery of Genus and Species, is nothing but abstract Ideas, more or less comprehensive, with Names annexed to them: This shews us the Reason, why in defining Words, we make use of the Genus; namely, to save the Labour of enumerating the several simple Ideas, which the next general Term stands for.

From what has been said, it is plain, that *General* and Universal belong not to the real Existence of Things; but are the Inventions of the Understanding, made by it for its own Use, and concerns only Signs, either Words, or Ideas. See UNIVERSAL.

General Words do not barely signify one particular Thing; for then they would not be *general* Terms; but proper Names: Neither do they signify a Plurality; for then Man and Men would signify the same thing; but what they signify, is a sort of Things: And this they do, by being made a Sign of an abstract Idea in the Mind, to which Idea, as Things existing are found to agree, so they come to be ranked under that Name, or to be of that sort.

The Essences then of the Sorts, or Species of Things, are nothing but these abstract Ideas. See ABSTRACT.

It is not denied here, that Nature makes Things alike; and so lays the Foundation of this sorting and classing: But the Sorts or Species themselves are the Workmanship of human Understanding; so that every distinct abstract Idea, is a distinct Essence; and the Names that stand for such distinct Ideas, are the Names of Things essentially different. Thus Oval, Circle, Rain and Snow are essentially different. See this further illustrated under ESSENCE, SUBSTANCE, &c.

GENERALISSIMO, call'd also *Captain* GENERAL, and simply, the GENERAL; is an Officer, who commands all the military Powers of the Nation; who gives Orders to all the other General Officers; and receives no Orders himself but from the King.

Mons. *Balzac* observes, that the Cardinal *de Richelieu* first made this Word, of his own absolute Authority, upon his going to command the *French* Army in *Italy*.

GENERATED, or GENITED, is used in Mathematicks, for whatever is produced, either in Arithmetick, by the Multiplication, Division, or Extraction of Roots; or in Geometry, by the Invention of the Contents, Areas, and Sides; or of extreme and mean Proportionals, without arithmetical Addition, and Subtraction.—

GENERATING *Line*, or *Figure*, in Geometry, is that which by its Motion or Revolution produces any other Figure, Plane, or Solid. See GENESIS.

GENERATION, in Physicks, the Act of procreating, or producing a thing, which before was not: Or, as the Schoolmen define it, the total Change, or Conversion of a Body, into a new one, which retains no sensible Part or Mark of its former State. See BODY.

Thus, Fire is said to be *generated*, when we perceive it to be, where before was only Wood, or other Fuel; or, when the Wood is so changed, as to retain no sensible Character of Wood: Thus also, A Chick is said to be *generated*, when we perceive the Chick, where before was only an Egg; or the Egg is changed into the Form of the Chick.

In *Generation*, there is not properly any Production of new Parts, but only a new Modification or manner of Existence of the old ones; by which *Generation* is distinguish'd from *Creation*. See CREATION.

It is distinguish'd from *Alteration*, in that the Subject, in this latter, remains apparently the same; and only the Accidents, or Affections are changed: As when the same Body is to day well, and to morrow sick; or Brass, which before was round, is now square. See ALTERATION.

Lastly, *Generation* stands opposed to *Corruption*; which is the utter Extinction of a former Thing: As, when that which before was Wood, or an Egg, is no longer the one or the other: Whence it appears, that the *Generation* of one Thing is the Corruption of another. See CORRUPTION.

The Peripateticks explain *Generation* by a Change or

Passage from a Privation, or Want of a substantial Form, to the having of such a Form. See *Substantial* FORM.

The Moderns allow of no other Change in *Generation*, than what is *local*: According to them, 'tis only a Transposition, or new Arrangement of Parts; and thus, the same Matter shall successively undergo an Infinity of *Generations*.

A Grain of *Wheat*, *e. gr.* is committed to the Ground; this imbibing the Humidity of the Soil, becomes turgid, and dilates to such Degree, that it becomes a *Plant*, and, by a continual Accession of Matter, ripens by degrees into an Ear; and at length into new *Seed*. This Seed, ground in the Mill, appears in form of *Flower*; which, mix'd up with Water, makes a *Paste*; whereof, with the Addition of Yest, Fire *&c.* *Bread* is *generated*: And this Bread, broke with the Teeth, digested in the Stomach, and convey'd thro' the Canals of the Body, becomes *Flesh*.

Now, in all this Series of *Generations*, the only thing effected, is a local Motion of the Parts of the Matter, and their settling again in a different Order; so that, in Reality, wherever there is a new Arrangement, or Composition of Elements, there is a new *Generation*; and therefore *Generation* is reduced to Motion. See ELEMENT, and MOTION.

GENERATION is more immediately understood of the Production of Animal and Vegetable Bodies, from Seed, or the Coition of others of different *Sexes*, but the same Genus, or *Kind*. See ANIMAL, and VEGETABLE; see also SEX, &c.

Some of the modern Naturalists maintain, after Mons. *Perrault*, that there is not properly any new *Generation*: That God created all Things at first: And that what we call *Generation*, is only an Augmentation and Expansion of the minute Parts of the Body of the Seed; so that the whole Species to be afterwards produced, were really all form'd in the first, and inclosed therein; to be brought forth and exclosed to view in a certain Time; and according to a certain Order and Oeconomy. See SEED.

Thus, Dr. *Garden*: 'It is most probable, that the Stamina of all the Plants and Animals that have been, or ever shall be in the World, have been form'd *ab origine Mundi*, by the Almighty Creator, within the first of each respective Kind. And he who considers the Nature of Vision, that it does not give us the true Magnitude, but only the Proportion of Things; and that what seems to our naked Eye but a Point, may truly be made up of as many Parts as seem to be in the whole Universe, will not think this an absurd or impossible Thing." *Mod. Theor. of Generat.*

The Manner, wherein the Seed of the Male Animal acts on that of the Female, to impregnate, and render it prolifick, has long been inquir'd after; and yet remains still a Mystery. Some, with *Aristotle*, hold the Male Semen to do the Office of a Coagulum; and the Female that of Milk: Which some later Authors have improved on, by supposing the Male Seed an Acid; and the Female an Alcali. Others, consider the thicker Seed of the Male, as the Flower; and the thinner Seed of the Female, as Water, out of which two an animal Paste is wrought, and baked by the Heat of the Womb. But the Moderns are generally agreed, that what Effect soever the Male Seed produces on the Female, 'tis by Motion and Mechanicks that it produces it.

GENERATION *of Animals*, or *Animal* GENERATION, is a Process in the Oeconomy of Nature, very difficult to be traced. The Parts concurring hereto, are numerous; and their Functions mostly discharg'd in the Dark.

The Antients distinguish'd two kinds of *Generation*: *Regular*, called *Univocal*; and *Anomalous*, called also *Equivocal*, or *Spontaneous*.

The first was effected by Parent Animals of the same kind; as that of Men, Birds, Beasts, *&c.* The second was supposed effected by Corruption, the Sun, *&c.* as that of Insects, Frogs, *&c.* But this latter Kind is now generally exploded. See EQUIVOCAL, SPONTANEOUS, UNIVOCAL, &c.

There are two principal Theories, or Methods of accounting for the *Generation* of Animals: The one supposes the Embryo, or Fœtus to be originally in the *Seed* of the Male; the other, in the *Ovum*, or Egg of the Female.

The first supposes Animalcules in the Male Seed, to be the first Rudiments of the Fœtus; and that the Female only furnishes a proper Nidus, and Nutriment to bring them forwards. See SEED, and ANIMALCULA.

The second supposes the first Rudiments of the Animal to be in the Ova; and that the Male Seed only serves to warm, cherish and ripen the Ova, till they fall off out of the Ovary into the Womb. See EGG, OVARY, &c.

The first System is well illustrated by Dr. *Geo. Garden*: That Author, upon comparing the Observations, and Discoveries of *Harvey*, *Malpighi*, *De Graaf*, and *Leewenhoeck* together, concludes it most probable, "That all Animals are "*ex animalculo*: That these Animalcules are originally in "*Semine Marium*, and not in that of the Female; but "that they can never come forward, nor be form'd into Animals, without the Ova in the Female."

The I^st of these Points he argues from the three following Observations:

1° That something has often been observed by *Malpighi*, in the Cicatricula of an Egg before Incubation, like the Rudiments of an Animal, in form of a Tadpole. See CICATRICULA.

2° From the sudden Appearance and Displaying of all the Parts, after Incubation, it seems probable, that they are not then actually formed out of a Fluid; but that the Stamina of them have been formerly there existent, and are now expanded—The first Part of the Chick, which is discover'd with the naked Eye, is the *Punctum Saliens*, and that not till three Days and Nights of Incubation are past; on the fifth Day the Rudiments of the Head and Body appear. This made Dr. *Harvey* conclude, that the Blood had a Being before any other Part of the Body, and that from it all the Organs of the Fœtus were both formed and nourish'd; but by *Malpighi*'s Observations it appears that the Parts are then only so far extended, as to be made visible to the naked Eye; and that they were actually existent before, and discernable by Glasses. After an Incubation of 30 Hours, we see the Head, the Eyes, and the Carina, with the Vertebræ, distinct, and the Heart. After 40 Hours, its Pulse is visible, and all the other Parts more distinct, which cannot be discerned by the naked Eye, before the Beginning of the fifth Day: From whence it seems very probable, that even the so early Discovery of those Parts of the Fœtus by the Microscope, is not the discerning of those Parts newly form'd; but only more dilated and extended by receiving of Nutriment from the Colliquamentum; so that they seem all to have been actually existent before the Incubation of the Hen. And what *Swammardam* has discover'd in the Transmutation of Insects, gives no small Light to this; since he makes appear, that in those large Eruca's which feed upon Cabage, if they be taken about the Time they retire to be transformed into Aurelias, and plunged often in warm Water to make a Rupture of the outer Skin; you will discern, thro' the Transparency of their second Membrane, all the Parts of the Butterfly, the Trunk, Wing, Feelers, *&c.* folded up: But, that after the Eruca is chang'd into an Aurelia, none of these Parts can be discerned; being so much drench'd with Moisture; tho' they be there actually form'd. See FŒTUS, AURELIA, &c.

3° As to the Analogy between Plants and Animals: All Vegetables, we see, do proceed *ex Plantula*; the Seeds of Vegetables being no other but little Plants of the same kind, folded up in Coats and Membranes: Whence we may infer, that so curiously an organiz'd Creature, as an Animal, is not the sudden Product of a Fluid, or Colliquamentum, but does much rather proceed from an Animalcule of the same kind, and has all its little Members folded up according to their several Joints and Plicatures, which are afterwards enlarged and distended, as we see in Plants.

The II^d Point, which our late Discoveries have made probable, is, that these Animalcules are originally in the Seed of the Male, and not in the Female: For 1° There are observ'd innumerable Animalcula in *semine masculino*, of all Animals. *Leewenhoeck* has made this so evident, that there seems little room to doubt thereof.

2° We observe the Rudiments of a Fœtus in Eggs which have been fœcundated by the Male; tho' no such Thing is visible, in those not fœcundated. *Malpighi*, in his Observations, makes it very probable, that these Rudiments proceed originally from the Male, and not from the Female.

3° The Resemblance between the Rudiments of the Fœtus in Ovo, both before and after Incubation, and the Animalcule, makes it very probable that they are one and the same. The same Shape and Figure, which M. *Leewenhoeck* gives us of the Animalcule, *Malpighi* gives of the Rudiments of the Fœtus, both before and after Incubation; yea, and even the Fœtus's of viviparous Animals appear so at first to the naked Eye; whence Dr. *Harvey* acknowledges, that all Animals, even the most perfect, are begotten of a Worm.

4° This gives a rational Account of many Fœtus's at one Birth, especially that of the Countess of *Holland*: And how, at least, a whole Cluster of Eggs in a Hen are fœcundated by one Coition of the Male. See FŒTUS.

5° This gives a new Light, as it were, to the first Prophecy concerning the *Messiah*, that *the Seed of the Woman shall bruise the Head of the Serpent*; all the rest of Mankind being thus most properly and truly the Seed of the Man.

6° The Analogy already mention'd, which we may rationally suppose between the manner of the Propagation of Plants and Animals, does likewise make this probable. Every Herb and Tree bears its Seed after its Kind; which Seed is nothing else but a little Plant of that Kind; which being thrown into the Earth, as into its Uterus, spreads forth its Roots, and receives thence its Nourishment; but has its Form within it self: And we may rationally conjecture some such

such Analogy in the Propagation of Animals. See VEGETATION.

The III^d Thing, which our Discoveries make probable, is, That Animals cannot be form'd of these Animalcula without the *Ova in Feminis*, which are necessary for supplying them with proper Nutriment; and this is evinced from the following Considerations.

1° It appears, that an Animalcule cannot come forward, if it do not fall into a proper Nidus: This we see in the Cicatricula in Eggs; and tho' a Million of them should fall into one Egg, none of them would come forward, but what were in the Center of the Cicatricula; and perhaps the Nidus, necessary for their Formation, is so proportioned to their Bulk, that it can hardly contain more than one Animalcule; which may be the Reason why there are so few Monsters. This, we see, is absolutely necessary in the Oviparous Kinds; and the only Difference which lies between them and the Viviparous, seems to be this, that in the latter the Ova are properly nothing but the Cicatricula, with its Colliquamentum, so that the Fœtus must spread forth its Roots into the Uterus, to receive its Nourishment; but the Egg in Oviparous Animals may be properly termed an Uterus, in relation to the Fœtus; as it contains not only the Cicatricula, with its Amnion and Colliquamentum, which is the immediate Nourishment of the Fœtus, but also the Materials which are to be converted into that Colliquamentum; so that the Fœtus spreads forth its Roots no farther than into the White and Yolk of the Egg, from whence it derives all its Nourishment. Now, that an Animalcule cannot come forward without some such proper Nidus, will not be deny'd; for if there were nothing needful but their being thrown into the Uterus, we do not see why many hundreds of them should not come forward at once, at least while scatter'd in so large a Field.

2° That this Cicatricula is not originally *in Utero*, seems evident from the frequent Conceptions which have been found *extra Uterum*: Such as the Child which continued 26 Years in the Woman of *Tholouse's* Belly: And the little Fœtus found in the Abdomen of Mad. *de St. Mere*, together with the Testicle torn, and full of clotted Blood: Such also seem to be the Fœtus in the Abdomen of the Woman of *Copenhagen*, mention'd in the *Nouvelles des Lettres*, for *Sept.* 85. All the Members of which were easily to be felt thro' the Skin of the Belly, and which she had carried in her Belly for four Years: And the seven Years Gravidation related by Dr. *Cole*. Now, granting once the Necessity of a proper Nidus for the Formation of an Animalcule into an Animal, these Observations make it probable, that the Testes are the Ovaria appropriated for this Use: For tho' the Animalcule's coming thither in such Cases, may seem to be extraordinary, and that usually the Impregnation is in Utero; yet it may be collected from hence, that the Cicatricula or Ova to be impregnated, are in *Testibus fœmineis*; for if they were not so, the Accidental coming of Animalcules thither, could not make them come forward more than in any other Part of the Body; since they cannot be form'd and nourish'd without a proper Nidus.

3° It is acknowledg'd, that the Fœtus *in Utero*, for some considerable Time after Conception, has no Connexion with the Womb; that it fits wholly loose to it, and is perfectly a little round Egg, with the Fœtus in the midst; which sends forth its umbilical Vessels by degrees, and at last lays hold on the Uterus. Now, from hence it seems evident, that the Cicatricula, which is the Fountain of the Animalcules Nourishment, does not sprout from the Uterus, but has its Origin elsewhere; and falls in thither as into a fit Soil: from whence it may draw Nutriment for the Growth of the Fœtus; else it cannot be easily imagin'd how it should not have an immediate Connexion with the Uterus, from the Time of Conception.

It is indeed difficult to conceive, how these Eggs should be impregnated *per semen maris*, both because there is no Connexion between the Fallopian Tubes, and the Ovary, for its Transmission; and for that Dr. *Harvey* could never discover any thing of it *in Utero*: But as to the last, M. *Leewenhoeck* has cleared that Difficulty by the Discovery of innumerable Animalcula in the Tubæ, or Cornua Uteri, and those living a considerable Time after Coition. And as to the former, we may either suppose that there is such an Inflation of the Tubæ, at the Time of Coition, as makes them embrace the Ovaries; and such an Approach of the Uterus and its Cornua, as that it may easily transmit the Seed into the Ovary: Or else, that the Ova are impregnated by the Animalcules after they descend into the Uterus, and not in the Ovary. The former seems probable for this Reason, that at least a whole Cluster of Eggs in a Hen will be fœcundated by one Tread of the Cock: Now this Fœcundation seems to be in the Vitellary, and not in the Uterus, as the Eggs pass along from day to day: For it can hardly be supposed, that the Animalcules should subsist so long, being scatter'd loosely in the Uterus, as to wait there, for many Days, for the Fœcundation of the Eggs as they pass along. The latter Conjecture has this to strengthen it: That the Animalcules are found to live a considerable Time in the Uterus, and that if they should impregnate the Ova in the Ovary it self, the Fœtus would encrease so fast; that the Ova could not pass thro' the Tubæ Uteri; but would either burst the Ovary, or fall down into the Abdomen from the Orifices of the Tuba: And from hence probably proceed those extrrordinary Conceptions in the Abdomen, out of the Uterus. See FALLOPIAN *Tube*.

Thus much is urged for the *System ab Animalculo*.

The Retainers to the *System of* Generation *ab Ovo*, contend that the Rudiments of the Fœtus are laid in the Ovary, and that the Female furnishes the whole Matter of the Body; which they chiefly support from the Conformation in Rabbits, Sheep, Cows, *&c.* where the Vagina of the Womb is so long, and sinuous, that it is scarce possible the Male Seed should ever arrive within the Body of the Uterus; especially in Cows, whose Vagina is fill'd with a thick, viscid Ichor, and the inner Orifice of the Womb exactly closed: Beside that, the Thickness of the Membranes of the Ova should seem impenetrable to so crass a Matter as the Male Seed. Add, that if Animalcula be found in the Male Seed, which, however, will admit of some Dispute (that intestine Motion and Agitation of the grosser Particles thereof, which give rise to the Opinion being accountable for from the common Laws of warm Fluids) yet are the same observ'd in Vinegar, Pepper, Water, *&c.* Add, that it is highly improbable, those Animalcules should contain the Rudiments of a future Body; since their large Numbers would produce too plentiful an Offspring; insomuch that it would be necessary for 9999 Parts of them to be in vain, and perish: Which is contrary to the Oeconomy of Nature in other Things.

Analogy is likewise urged in favour of this System: Thus, all Plants are maintained to arise from Eggs; Seeds being no other than Eggs under another Denomination. All Oviparous Animals do unexceptionably arise from Eggs, which the Female casts forth; and 'tis highly probable, that the Viviparous only differ from Oviparous, in that the Females lay and hatch their Eggs within themselves. See VIVIPAROUS, and OVIPAROUS.

Against this Hypothesis it is urged, that what are usually called Ova, or Eggs, in Women, are no other than little Cells, or Bladders, full of a certain Liquor: And how can a Drop of Liquor pass for an Egg? Add, that these imaginary Eggs have no proper Membrane belonging to them, nor any Covering but that of the Cell; which seems so inseparable therefrom, that when they are discharged, it is hard to conceive how they should take it with them. And beside, how should they make themselves a Passage through the commom Membrane wherewith the Ovary is invested, which is of so close a Texture, that it must seem absolutely impenetrable by a round Body of so soft a Consistence, as one of these Vesicles. Lastly, Veiculæ, in all respects perfectly like Ova, have been found in other Parts of the Body, where it is apparent they could not serve for any purposes of *Generation*. *Mem. del Acad. Royal des Scien, An.* 1708, 1709.

To this it is answer'd, that Ova or Veiculæ have been actually found in Dissections, detach'd and separated from the Ovary, and the Ruptures in the Membrane of the Ovary, thro' which they had pass'd, still visible. M. *Littre* even observed some of these separated Ova spread with Blood Vessels, like those in the Yolks of Birds Eggs. Nay more, the same Author is positive, that he saw an Embryo in one of the Ova not yet separated; could discern its Head, Mouth, Nose, Trunk, and Funiculus Umbilicalis, whereby it adhered to the Membranes of the Ovary. See EMBRYO. But this will come to be further consider'd under GENERATION *of Man*.

Sir *John Floyer* starts a Difficulty, which seems to press equally against each System, taken singly: 'Tis fetch'd from Monsters: In a Mule, for instance, which is the Production of a Venereal Copula between an Ass, and a Mare, the Bulk of the Body partakes of the Form of the Dam; and the Feet, Tail, and Ears of that of the Sire: Hence it is argued, that the Rudiments of the greater Part of the Fœtus are laid in the Ovum; and that the Inpregnation either conveys, or changes the Extremities. If the Male supplied the Animalcula, the Fœtus should always be of the same Species as the Male: If the Female supply it, it should be of her kind; whereas Monsters are of both. See MONSTER.

GENERATION *of Man*. As 'tis in human Subjects, that the gradual Process of *Generation* has been principally inquired into; and the Structure, and Office of the Organs subservient thereto, chiefly examined: What the latest Naturalists, and Anatomists have settled with regard thereto, is reserved for this Head.

The *Parts of Generation*, then, are different in the different Sexes.

Those, *proper to the Male*, are the *Penis*; the *Testicles*; the *Vesiculæ Seminales*; the *Vasa deferentia*; the *Parasta-*

tæ, and the *Vasa præparantia*; which see described each under its proper Article, PENIS, TESTICLES, &c.

The *Parts of* Generation *proper to the Female*, are the *Pudendum*, the *Clitoris*, *Nymphæ*, *Hymen*, *Uterus*, *Fallopian Tubes*, and *Ovaries* or *Testes*. See PUDENDUM, CLITORIS, NYMPHÆ, HYMEN, UTERUS, FALLOPIAN *Tubes*, and OVARIES.

The Process of *Generation*, so far as the Male contributes to it, is as follows: The Penis being erected by an Affusion of Blood; as shewn under ERECTION; the Glans, at the same time tumified; and the nervous Papillæ in the Glans much rubbed, and highly excited in Coitu; an ejaculatory Contraction follows, by which the Seed is press'd out of the Seminal Vesicles, and expell'd with some Force. See PAPILLÆ, EJACULATION, &c.

The Process of *Generation* on the part of the Female, is thus: The Clitoris being erected, after the like manner as the Penis in Man; and the neighbouring Parts all distended with Blood, they more adequately embrace the Penis in Coitu; and by their Intumescence press out a Liquor from the Glands about the Neck of the Womb, to facilitate the Passage of the Penis.

At the same time, the Fibres of the Womb contracting, open its Mouth (which at other times is extremely close) for the Reception of the finer Part of the Seed.

Thus, the Seed, pregnant with Animalcules, is convey'd, with some Impetus, into the Uterus; where being retain'd by the convulsive Constriction of the inner Membrane thereof, and further heated and agitated therein; it is prepared to impregnate the Ovum.

During the Act of Coition, the Fallopian Tubes growing stiff, embrace the Ovaries with their strong musculous Edges, like Fingers; and compress them; till, their Mouths being dilated, and expanded by this Embrace, force the Egg, now ripen'd, into their Cavities, and gradually drive it forwards by their Vermicular Motion, till at last they protrude it into the Cavity of the Womb, to meet the Seed, some of the Animalculas whereof entering the dilated Pores of the glandulous Membrane of the Egg, are there retain'd, nourish'd, grow to its Navel, and suffocate the rest of the less lively Animalcula. And thus is *Conception* perform'd. See CONCEPTION.

Others rather suppose the Seed convey'd from the Uterus thro' the Fallopian Tubes to the Ova; and thus take the Inpregnation to be first perform'd in the Ovaries; or even the Tubæ themselves, the Ova and Seed meeting by the way.

Others, considering the Closeness of the Mouth of the Womb, and the Thickness of the Membranes of the Ovaries, judge it impossible for the Seed to pass that way; and therefore suppose it taken up by the Veins, which open into the Cavity of the Vagina, or even Womb; where circulating, it ferments with the Mass of Blood; and hence all the Symptoms which appear in Conception. At length it enters and impregnates the Egg by the small Twigs of Arteries, which are upon its Membranes. This Fermentation swelling the Membranes of the Tubæ, they open their Cavity, and make room for the Ova, to pass into the Womb.

The Egg inpregnated, and close shut up in the Womb, swims in the Humors thereof; which growing more and more subtil, enter the patent Pores found on one Side the Ovum, distend, fill, and augment it; and there being still further attenuated, nourish the Embryo; thicken and expand the Membranes of the Ovum, especially in that Part by which it grew to the Ovary, and thus form the Rudiments of a *Placenta*. See PLACENTA.

The same Causes still continuing, and the Pores both of the Placenta, and the Membranes being enlarged; the Egg begins to fill the Capacity of the Womb; and at length its Stem or Calyx grows to the concave Surface thereof: And thus is the Navel-string, or Funiculus form'd. See *Funiculus* UMBILICALIS, &c. See also FŒTUS.

This System is founded on the Supposition of the *Animalcula* in the Male Seed.

They who set them aside as unconcern'd in *Generation*, account for it thus: The Seed, containing volatile, oily, and saline Parts, as appears from its fetid Smell, oleaginous Substance, &c. being lodg'd in the Womb, and there further digested and exalted; grows yet more volatile, fetid, pungent, and stimulating; and thus, adding to the Heat occasioned by Coition, vellicates the nervous Fibres of that Part, and occasions a Fermentation, and gentle Inflammation; and by that means an extraordinary Flux of Humors to that, and the adjacent Parts.

By this means the Tubæ become rigid, and fit to grasp the Ovaries, which are also heated by the Effluvia of the Semen, and the Warmth of the Parts surrounding. Upon this, a greater Flux into the Ovaries; till at length, the Ova, some of them at least, by such greater Supply of Nourishment, increase in Bulk; and as those grasp'd by the Edges of the Tubæ, will be kept warmest, and the greatest Flux be made thereto, they will soonest be ripen'd, fall off, and be received by the Tubæ, and convey'd to the Womb: Where, growing, after the manner of the Seeds of Plants, the Placenta at length takes hold of, and adheres to the Uterus; from which time the Embryo begins to be nourish'd after a different manner. See GESTATION; see also NUTRITION, CIRCULATION, &c.

GENERATION *of Insects*; see INSECT.

GENERATION *of Plants* bears an admirable Analogy to that of Animals: See the Process deliver'd at length under the Article *Generation of* PLANTS.

The *Parts of* Generation *of Plants*, are the *Flowers*; and particularly the *Stamina*, *Apices*, *Farina fœcundans*, and *Pistils* thereof. See FLOWER; see also STAMINA, FARINA, and PISTIL.

GENERATION *of Mushrooms*, see MUSHROOM.

GENERATION *of Minerals*, or *Fossils*, see MINERAL, and FOSSIL.

GENERATION *of Stones*, see STONE; see also SPAR, TROCHITES, and CRYSTAL.

GENERATION *of Shells*, see SHELL.

GENERATION, in Theology. The Father is said to have produc'd his *Word*, or *Son*, from all Eternity, by way of *Generation*; on which occasion the Word *Generation* raises a peculiar Idea: That Procession, which is really effected in the way of Understanding, is called *Generation*, by reason the *Word*, in virtue thereof, becomes like to him from whom he takes his Original; or as St. *Paul* expresses it, the Figure, or Image of his Substance, *i. e.* of his Being and Nature. See TRINITY, PERSON, PROCESSION, &c.

And hence it is, that the Second Person in the Trinity is called the *Son*. See SON, &c.

GENERATION is also us'd, tho' somewhat improperly, for *Genealogy*; or the Series of Children, issued from the same Stock: Thus, the Gospel of St. *Matthew* commences with *the Book of the* Generation *of Jesus Christ*, &c.

The later, and more accurate Translators, instead of *Generation*, use the Word *Genealogy*. See GENEALOGY.

GENERATION is also us'd to signify a People, Race, or Nation; especially in the literal Translations of the Scripture: Where the Word generally occurs, wherever the *Latin* has *Generatio*; and the *Greek*, γένεα, or γένεσις.

Thus, *A wicked and perverse* Generation *seeketh a Sign*, &c. *One* Generation *passes away, and another cometh*, &c.

GENERATION is also us'd in the Sense of an Age, or the ordinary Period of Man's Life.

Thus, we say, To the third and fourth *Generation*: In this Sense, Historians usually reckon a *Generation* the Space of thirty Years, or there abouts. See SECULUM.

Herodotus makes three *Generations* in an hundred Years; which Computation appears from the later Authors of political Arithmetic, to be pretty just. See ANNUITY, and POLITICAL *Arithmetick*.

GENEROSA, Gentlewoman; see GENTLEMAN.

Generosa is a good Addition; and if a Gentlewoman be named *Spinster*, in any original Writ, Appeal, or Indictment, she may abate and quash the same. 2 *Inst. fol.* 668.

GENESIS, the first Book of Holy Scripture, or the Bible; containing the History of the Creation; and the Lives of the first Patriarchs. See BIBLE, and SCRIPTURE.

The Book of *Genesis* makes the Head of the *Pentateuch*. See PENTATEUCH.

Its Author is *Moses*: It contains the Relation of 2367 Years; *viz.* from the Beginning of the World, to the Death of *Joseph*.

The *Jews* are forbid to read the Beginning of *Genesis*, and the Beginning of *Ezekiel*, before 30 Years of Age.

The *Hebrews* call this Book *Beresith*, in regard it begins with that Word, which in their Language signifies *in principio*, in the Beginning. 'Twas the *Greeks* gave it the Name *Genesis*, Γένεσις, *q. d.* Production, Generation; by reason it begins with the History of the Production, or *Generation* of all Beings.—

Cedrenus makes mention of an Apocryphal Book, entitled *little Genesis*, *Genesis parva*, containing several Incidents, not in the other: Some of which he has preserv'd; particularly, that *Cain* was buried under the Ruins of a House: That an Angel taught *Abraham* the *Hebrew* Tongue: That *Mastiphal*, Prince of the Devils, advised God to order *Adam* to sacrifice his Son, for a Trial of his Obedience: That the Children were only cast into the *Nile* for ten Months, &c.

GENESIS, in Geometry, the Formation of a Line, Plane, or Solid, by the Motion, or Flux of a Point, Line, or Surface. See LINE, and SURFACE; see also POINT, and FLUXION.

The *Genesis*, or Formation, *e. gr.* of a Globe, or Sphere, is conceived by supposing a Semi-circle to revolve upon a Right Line, drawn from one Extreme thereof to the other; call'd its *Axis*, or the Axis of Circumvolution: The Motion, or Revolution of that Semi-circle, is the *Genesis* of the Sphere, &c. See AXIS; see also SPHERE, GLOBE, &c.

In the *Genesis* of Figures, &c. the Line, or Surface that moves, is called the *Describent*; and the Line around which, or according to which the Revolution, or Motion is made, the *Dirigent*. See DESCRIBENT, and DIRIGENT.

GENET, in the Manage, &c. a small sized, well proportioned *Spanish* Horse.

Some also give the Term *Geneta* to well made *Italian* Horses.

To *ride a la Genette*, is to ride in the *Spanish* Fashion; *i. e.* with the Stirrups so short, that the Spurs bear upon the Flanks of the Horse. This is deem'd a Piece of Gallantry in *Spain*, but not among us.

GENETHLIACI, in Astrology, Persons who erect Horoscopes; or foretel what shall befal Men, by means of the Stars which presided at their Nativity. See HOROSCOPE, and NATIVITY.

The Antients call'd them *Chaldæi*, and by the general Name *Mathematici*: Accordingly, the several Civil, and Canon Laws, which we find made against the Mathematicians, only respect the *Genethliaci*, or Astrologers.

They were expell'd *Rome* by a formal Decree of the Senate; and yet found so much Protection from the Credulity of the People, that they remain'd therein unmolested.

Hence an antient Author speaks of them as *Hominum genus quod in civitate nostra semper & vetabitur, & retinebitur*. See ASTROLOGY.

Antipater, and *Achinapolus* have shewn that *Genethliology* should rather be founded on the Time of Conception, than that of the Birth. *Vitruvius*.

The Word is form'd of the *Greek* γενέθλη, Origin, Generation.

GENETHLIACUM, GENETHLIAC *Poem*, GENETHLIACUM *Carmen*, is a Composition in Verse, on the Birth of some Prince, or other Illustrious Person; wherein the Poet promises him great Honours, Advantages, Successes, Victories, &c. by a kind of Prophesy or Prediction.

Such is the *Eclogue* of *Virgil* to *Pollio*, beginning,

Sicelides Musæ paulo majora canamus.

There are also *Genethliac Speeches*, or *Orations*; made to celebrate a Person's Birth-day.

GENEVA, a popular Name for a distill'd Water; procur'd from the Seeds, or Berries of the Juniper Tree; which the *French* call *Genevrier*, and the Berry *Genevre*: Whence the *English* Appellation *Geneva*.—See WATER, and JUNIPER.

GENEVIEVE, St. GENEVIEVE, or St. GENEVIEFVE. The *Fathers* or *Religious* of St. *Genevieve*, is a Congregation of Regular Canons of the Order of St. *Augustin*; established in *France*.

The Congregation of St. *Genevieve* is a Reform of the *Augustin* Canons, begun by St. *Charles Faure*, in the Abby of St. *Vincent de Senlis*, whereof he was a Member, in the Year 1618. See AUGUSTINES.

The Reform soon spread into other Houses; particularly that of *Notre Dame d'Eu*, and the Abby of St. *Genevieve* at *Paris*, chiefly by the Interest of the Cardinal *de la Rochefoucaud*, who was chose Abbot thereof in 1619; and in 1621 proposed the Reform to the Religious of his Abby.

In the Year 1634 the Abby was made elective; and a General Chapter, composed of the Superiors of 15 Houses who had now receiv'd the Reform, chose F. *Faure* Co-adjutor of the Abby of St. *Genevieve*, and General of the whole Congregation. Such were its Beginnings.

It has since increas'd very much, and now consists of above an hundred Monasteries; in some whereof the Religious are employ'd in the Administration of the Parishes, and Hospitals; and in others, in the Celebration of Divine Service, and the Instruction of Ecclesiasticks in Seminaries for the purpose.

The Congregation takes its Name from the Abby of St. *Genevieve*, which is the Chief of the Order; and whose Abbot is the General thereof. The Abby it self took its Name from St. *Genevieve*, the Patroness of the City of *Paris*; who died in the Year 512. Five Years after her Death, *Clovis* erected the Church of St. *Genevieve*, under the Name and Invocation of St. *Peter*; where her Relicks are still preserv'd; her Shrine visited, and her Image carried with great Processions and Ceremonies, upon extraordinary Occasions, as when some great Favour is to be intreated of Heaven.

GENIAL, GENIALIS, an Epithet, applied by the Antients to certain Deities, whom they suppos'd to preside over the Affair of *Generation*. See GOD.

Among the *Genial* Gods, *Dii Geneales*, says *Festus*, were Water, Earth, Fire, and Air, which the Greeks call'd *Elements*.

The twelve Signs were also rank'd in the Number; as also the Sun and Moon.

They were thus called *a Gerendo*, from Bearing: Or, according to the Correction of *Scaliger* and *Vossius*, *a genendo*, to yean, produce.—

Yet *Festus* says, they were also call'd *Gerules*, or *Geruloi*; which seems to require the former Reading. M. *Dacier*, in a Note, shews that *gerere* has the Sense of φέρειν.—

GENICULI, in Botany, the Knots, which appear on Herbs: Whence Botanists call those mark'd therewith *Geniculate Plants*. See PLANT.

GENIOGLOSSI, in Anatomy, a Pair of Muscles, proceeding inwardly from the Fore-part of the lower Jaw, under another called *Geniohyoides*; and which, enlarging themselves, are fasten'd into the Basis of the Tongue. See TONGUE.

They serve to pull the Tongue forward; and to thrust it out of the Mouth; being thus called from γένυς, *Mentum*, the Chin, and γλῶσσα, *Lingua*, the Tongue.

GENIOHYOIDÆUS, in Anatomy, a Muscle of the Os Hyoides, which, with its Partner, is short, thick, and fleshy; arising from the internal Parts of the lower Jaw-bone, called the Chin; and dilating themselves, are soon lessen'd again; and inserted into the superior Part of the Fore-bone of the Os Hyoides. See MUSCLE.

These pull upwards and forwards the Os Hyoides, and assist the Genioglossi in thrusting the Tongue out of the Mouth. See HYOIDES.

They take their Name from γένυς, *Mentum*, the Chin; and ὑοειδὲς, Hyoides.

GENITAL, GENITALIS, in Medicine, something that relates to Generation. Thus we say, the *Genital* Parts, *q. d.* the Parts imploy'd in the Affair of Generation. See PARTS and GENERATION.

The *Genital* Gods, *Dii Genitales*, are sometimes used in the antient *Roman* Poets for those we otherwise call *Indigetes*. See INDIGETES.

Ausonius, in the Argument of the fourth Book of the *Eneid*, takes the Word in a different manner: The *Dii Genitales*, he observes, were not such as were born of human Parents, were not thus called *quasi geniti ex hominibus*; but rather because they themselves had begot human Children.

GENITALIA, or GENITORIES, in Anatomy, a Name sometimes given the Testes, or Testicles of Man; on account of their Office in Generation. See TESTICLE.

GENITES, or GENITEI, among the *Hebrews*, were those who descended from *Abraham*, without any Mixture of foreign Blood.

The *Greeks* distinguish'd by the Name of *Genites* such of the *Jews*, as were issued from Parents, who, during the *Babylonish* Captivity, had not allied with any Gentile Family.

The Word is form'd of the *Greek* γενέτες.—

GENITIVE, the second Case of the Declension of Nouns. See CASE.

The Relation of one thing consider'd as belonging in some manner to another, has occasion'd a new Termination of Nouns, call'd the *Genitive* Case. See NOUN.

In *English*, the *Genitive* Case is made by prefixing the Particle *of*; in *French*, *de*, or *du*, &c. though, in Strictness, there are no Cases at all in either of those Languages, inasmuch as they do not express the different Relations of Things by different Terminations, but by additional Prepositions.

In the *Latin*, this Relation is express'd in divers manners: Thus we say, *Caput Hominis*, the Head of a Man; *Color Rosæ*, the Colour of a Rose; *Opus Dei*, the Work of God, &c.

As the *Genitive* Case serves to express very different, and even opposite Relations, there sometimes arises an Ambiguity therefrom: Thus in the Phrase *Vulnus Achillis*, the Wound of *Achillis*, the *Genitive Achillis* may either signify the Relation of Subject, in which Sense it is taken passively for the Wound *Achilles* has receiv'd; or the Relation of a Cause, in which Sense it is taken actively for the Wound *Achilles* has given: Thus in that Passage of St. *Paul*, *Certus sum quod neque mors, neque vita*, &c. *nos poterit separare a charitate Dei in Christo*, &c. The *Genitive DEI*, has been taken by Interpreters in two different Senses; some giving it the Relation of Object, and understanding the Passage of the Love which the Elect bear to God in Jesus Christ, whereas others give it the Relation of Subject, and explain it of the Love which God bears the Elect in Jesus Christ.

In the *Hebrew* Tongue, the *Genitive* Case is marked after a manner very different from that of the *Greek*, and *Latin*; for whereas in those Languages the Noun Govern'd is varied; in *Hebrew* they change the Noun Governing.

GENITURA, or GENITURE, a Name some Authors give to the Seed; both that of the Male, and Female. See SEED.

GENIUS, a good, or evil Spirit; or a Dæmon, whom the Antients suppos'd set over each Person, to direct his Birth, accompany him in Life, and to be his Guard. See DÆMON.—

Among the *Romans*, *Festus* observes, the Name *Genius* was given to the God who had the Power of doing all things, *Deum qui vim obtineret rerum omnium gerendarum*; which *Vossius*, *de Idolol.* rather chuses to read *genendarum*, who has the Power of producing all Things; by reason *Censorinus* frequently uses *genere* for *gignere*.

Accordingly, St. *Augustin de Civitat. Dei*, relates, from *Varro*, that the *Genius* was a God who had the Power of generating all things; and presided over them when produced.

Festus adds, that *Augustius* spake of the *Genius* as the Son of God, and the Father of Men, who gave them Life; others, however, represented the *Genius* as the peculiar or tutelary God of each Place: And 'tis certain, this last is the most usual Meaning of the Word.

They had their *Genii* of Nations, of Cities, of Provinces, *&c.* Nothing is more common than the following Inscription on Medals, *GENIUS* POPULI ROM. the *Genius* of the *Roman* People: Or, *GENIO* POP. ROM. *to the* Genius *of the* Roman *People.*—

In this Sense, *Genius* and *Lar* were the same thing; as, in effect, *Censorinus* and *Apuleius* affirm they were. See LARES, and PENATES.

The *Platonists*, and other Eastern Philosophers, supposed the *Genii* to inhabit the vast Region, or Extent of Air, between Earth and Heaven. They were a sort of intermediate Powers, who did the Office of Mediators between Gods and Men. They were the Interpreters, and Agents of the Gods; communicated the Wills of the Deities to Men; and the Prayers, and Vows of Men, to the Gods. As it was unbecoming the Majesty of the Gods to enter into such trifling Concerns; this became the Lot of the *Genii*, whose Nature was a Mean between the two; who derived Immortality from the one, and Passions from the other; and who had a Body framed of an aerial Matter.

Most of the Philosophers, however, held that the *Genii* were born, and died; and *Plutarch* attributes the ceasing of Oracles partly to the Death of the *Genii*. See ORACLE.

The Heathens who consider'd the *Genii* as the Guardian Spirits of particular Persons, believed that they rejoyc'd, and were afflicted at all the good, and ill Fortune that befel their Wards. They never, or very rarely appear'd to them; and then only in favour of some Person of extraordinary Virtue or Dignity.

They likewise held a great Difference between the *Genii* of different Men; and that some were much more powerful than others; on which Principle it was, that a Wizzard in *Appian* bids *Anthony* keep at a distance from *Octavius*, by reason *Anthony*'s *Genius* was inferior to, and stood in Awe of that of *Octavius*.

There were also *Evil Genii*, who took a pleasure in persecuting Men, and bringing them evil Tidings: Such was that in *Paterculus*, &c. which appear'd to *Brutus* the Night before the Battle of *Philippi*. These were also call'd *Larvæ*, and *Lemures*. See LARVÆ, and LEMURES.

GENIUS is more frequently us'd for the Force or Faculty of the Soul, consider'd as it thinks, or judges.

Thus we say, A happy *Genius*, a superior *Genius*, an elevated *Genius*, a narrow confin'd *Genius*, &c. In the like Sense we say, A Work of *Genius*; a Want of *Genius*, &c.

GENIUS is also us'd in a more restrain'd Sense for a natural Talent, or Disposition to one Thing more than another. In this Sense we say, A *Genius* for Verse; for the Sciences, *&c.*

GENS D'ARMES, see GEND'ARMES.

GENTIAN, a Medicinal Root, the Product of a Plant of the same Name; which the Antients, to render it the more considerable, denominated from *Gentius*, King of *Illyria*, who is suppos'd to have been the first that discover'd the admirable Virtues thereof.

The Root *Gentian* is of a yellowish Colour, and intolerably bitter; is sometimes as thick as the Arm, but more commonly divided into Branches no bigger than the Thumb: Its Stem is several Feet high, being very smooth and polish'd, tho' divided by Knots from Space to Space, out of which arise the Leaves, which resemble those of *Plantain*. Its Flowers, which likewise accompany the Knots, are yellow; and its Seed, flat, round, smooth, and light.

This Root is held excellent against Poisons, and even against the Plague. It stands at the Head of the Stomachicks, warming and strengthning the Stomach, and helping Digestion. It is sudorifick, and us'd with Success in intermitting Fevers, whence some call it the *European Quinaquina*; and is also an Ingredient in Treacle. Externally, it is used for Wounds.

The Plant affects moist Places, and is found commonly enough in some Parts of *England*, *Burgundy*, the *Alps*, and *Pyrenæans*: The Root is to be chose dry, new, of a moderate Thickness, free from Earth, and furnish'd with five little Branches or Fibres; and, if possible, that which is dry'd by the Air, which is distinguishable by the Colour, it being blackish within Side, when dry'd in the Oven, and of a golden Yellow, when in the Air.

GENTILE, GENTILIS, a *Pagan*, or Person who adores Idols. See IDOL, PAGAN, &c.

This Name the *Jews* gave to all who were not of their Religion; as the Christians give that of *Infidel*. St. *Paul* is called the *Doctor*, or *Apostle of the Gentiles*, which Appellation he first gave himself. *Rom.* xi. 13. *As I am the Apostle of the* Gentiles, *I magnify mine Office.*

The Calling of the *Gentiles* to Christianity, had been predicted in the Old Testament, as it was accomplish'd in the New. See *Psal.* ii. 8. xix. 48. *Is.* ii. 2. lxvi. 18. *Joel* ii. 29. *Matth.* viii. 11. xii. 17. *Acts* xi. 40. xiii. 47, 48. xxviii. 8. *Rom.* i. 5. iii. 29. xi. 12, 13, 25. *Eph.* ii. 11. *Revel.* xi. 2. xxii. 2.

In the *Roman* Law, and History, the Name *Gentile*, *Gentilis*, sometimes expresses those whom the *Romans* otherwise called *Barbarians*; whether they were Allies of *Rome*, or not: In this Sense the Word occurs in *Ammianus*, *Ausonius*, and the *Notitia Imperii*.

The same People us'd the Word *Gentilis* in a more peculiar Sense, for all Strangers, or Foreigners, not subject to their Empire; as we see in the *Theodosian* Code, in the Title *De Nuptiis Gentilium*, where the Word *Gentiles* stands opposed to *Provinciales*, or the Inhabitants of the Provinces of the Empire.

The Word is likewise us'd in the *Greek*; but was not introduced either into that, or the *Latin* Tongue, till after Christianity was establish'd; it being taken from Scripture.

The *Hebrews* apply the Name גוים, *Gentes*, to all the other People of the Earth, who were not *Israelites*, or *Hebrews*. Some will have it, that the *Gentiles* were thus called in Contradistinction to the *Jews*, and *Christians*, by reason these latter have a positive Law to observe in Matters of Religion, whereas the *Gentiles* have only the natural Law; hence they are called *Gentiles*, *quia sunt uti geniti fuerunt*.

GENTLEMAN, a Person of noble Birth, or descended of an antient Family, which has long bore Arms. See NOBLE, and ARMS.

In Strictness, *Chamberlain* observes, a *Gentleman* is one whose Ancestors have been Freemen, and have owed Obedience to none but their Prince: So that in Propriety of Speech, no Man is a *Gentleman* who is not born so.

But, in *England*, the King, being the Fountain of Honour, can make a *Gentleman* by Charter, or by bestowing an honourable Employment on him.—*Guillim* is even of Opinion, that if a *Gentleman* be bound Apprentice to a Merchant, or other Trade, he does not lose his Degree of *Gentility*.

By the Custom of *England*, Nobility is either *greater*, or *less*: The greater contains all from Barons upwards, inclusive: The lesser, all from Baronets downwards, consisting of Baronets, Knights, Esquires, and *Gentlemen*. See NOBILITY; see also KNIGHT, &c.

The Word is form'd of the French *Gentilhomme*, or rather of *Gentil*, fine, fashionable, or becoming; and the *Saxon*, *Man*, *q. d. honestus*, or *honesto loco natus*.

The same Signification has the Italian *Gentil huomini*, and the Spanish *Hidalgo*, or *Hijo d'Algo*, that is, the Son of a Person of Note.

Among us, the Term is applicable to all above Yeomen; so that Noblemen may be properly called *Gentlemen*. See YEOMAN.

If we go further back, we shall find *Gentleman* originally derived from the Latin *Gentilis homo*, which was used among the *Romans* for a Race of noble Persons of the same Name, born of free or ingenuous Parents, and whose Ancestors had never been Slaves, or put to death by Law.

Thus, *Cicero*, in his *Topicks*; Gentiles *sunt*, *qui inter se eodem sunt nomine ab Ingenuis oriundi*, *quorum majorum nemo servitutem servivit*, *qui capite non sunt diminuti*, &c.

Some hold, that it was formed from *Gentile*, *i. e.* Pagan, and that the antient *Franks*, who conquer'd *Gaul* which was then converted to Christianity, were called *Gentiles* by the Natives, as being yet Heathens.

Others relate, that towards the Declension of the *Roman* Empire, as recorded by *Ammianus Marcellinus*, there were two Companies of Brave Soldiers, the one called *Gentilium*, and the other *Scutariorum*; and that it was hence we derived the Names *Gentleman*, and *Esquire*. See ESQUIRE.

This Sentiment is confirmed by *Pasquier*, who supposes the Appellations *Gentils* and *Ecuyers* to have been transmitted to us from the *Roman* Soldiery; it being to the *Gentiles* and *Scutarii*, who were the bravest of the Soldiery, that the principal Benefices and Portions of Lands were assigned. See BENEFICE.

The *Gauls* observing, that during the Empire of the *Romans*, the *Scutarii* and *Gentiles* had the best Tenements, or

or Appointments of all the Soldiers on the Frontiers of the Provinces, became insensibly accustomed to apply the same Names *Gentilhommes*, and *Ecuyers*, to such as they found their Kings gave the best Provisions or Appointments to. *Pasq. Rech. L. II.C.* 15.

In our Statutes, *Gentilis homo* was adjudg'd a good Addition for a *Gentleman*. 27 *Edw.* 3. The Addition of Knights is very antient, but that of Esquire or *Gentleman*, rare, before 1 *Hen.* 5. See ADDITION.

GENTLEMEN *of the Chapel*, are Officers, whose Duty and Attendance is in the Royal Chapel; being in Number 32: Twelve whereof are Priests, and the other twenty called *Clerks of the Chapel*, who assist in the Performance of Divine Service. See CHAPEL.

One of the first twelve is chosen for Confessor of the Houshold, whose Office it is to read Prayers every Morning to the Houshold Servants; to visit the Sick; examine, and prepare Communicants, and administer the Sacraments.

Another, well versed in Musick, is chosen first Organist; who is Master of the Children to instruct them in Musick, and what is necessary for the Service of the Chapel: A second is likewise an Organist: A third a Lutanist; and a fourth a Violist.

There are likewise three *Vergers*, so called from the Silver Rods they usually carry in their Hands, being a Serjeant, Yeoman, and Groom of the Vestry: The first attends the Dean, and Sub-Dean, finds Surplices, and other Necessaries for the Chapel: The second has the whole Care of the Chapel, keeps the Pews, and seats the Nobility and Gentry: The Groom has his Attendance within the Chapel Door, and looks after it.

GENUFLEXION, the Act of bowing, or bending the Knee; or rather, of kneeling down. See KNEELING.

The Jesuit *Rosweyd*, in his Onomasticon, shews that *Genuflexion*, or Kneeling, was a very antient Custom in the Church; and even under the Old Testament Dispensation: And that this Practice was observ'd throughout all the Year, excepting on Sundays, and during the time from Easter to Whitsuntide, when kneeling was forbid by the Council of *Nice*.

Others have shewn, that the Custom of not kneeling on Sundays had obtain'd from the Time of the Apostles; as appears from St. *Irenæus* and *Tertullian*: And the *Æthiopic* Church, scrupulously attach'd to the antient Ceremonies, still retains that of not kneeling at Divine Service. The *Russians* esteem it an indecent Posture, to worship God on the Knees. Add, that the *Jews* usually pray'd standing.

Rosweyd gives the Reasons of the Prohibition of *Genuflexion* on Sundays, *&c.* from St. *Basil*, *Anastasius*, St. *Justin*, &c.

Baronius is of opinion that *Genuflexion* was not establish'd before the Year of Christ 58, from that Passage in *Acts*, chap. xx. 36. where St. *Paul* is expresly mention'd to kneel down at Prayer; but *Saurin* shews that nothing can be thence concluded.

The same Father remarks, that the primitive Christians carried the Practice of *Genuflexion* so far, that some of them had wore Cavities in the Floor where they pray'd: And St. *Jerom* relates of St. *James*, that he had contracted a Hardness of his Knees, equal to that of Camels.

GENUS, *Kind*, in Logicks, and Metaphysicks, is that which has Species under it: Or, it is the Origin, and Radix of divers Species, join'd together by some Affinity or common Relation betwen them. See SPECIES.

Or, *Genus* is a Nature, or Idea, so common and universal, that it extends to other general Ideas, and includes them under it. See GENERAL.

Thus, *Animal* is said to be a *Genus*, in respect of *Man*, and *Brute*; in regard Man and Brute agree in the common Nature and Character of Animal: So, a *right lined Figure of four Sides*, is a *Genus*, in respect of a *Parallelogram*, and a *Trapezium*; and so likewise is *Substance*, in respect of *Substance extended*, which is a *Body*; and *thinking Substance*, which is *Mind*. See SPECIES.

In the general, *Genus* may be said to be a Class of a greater Extent than *Species*; and which is not convertible therewith. For though we may say, that *all Body is Substance*; yet it cannot be said *all Substance is Body*.

Add, that whatever may be said of the *Genus*, may likewise be said of the Species under it; *e. gr.* whatever is said of *Ens*, Being, will equally hold of Body.

The Schoolmen define the *Genus Logicum* to be an Universal which is predicable of several Things of different Species; and divide it into two kinds: The one, *summum*, which is the highest or most general; and has nothing above it to respect as a *Genus*: The other *subaltern*, which they likewise call *Medium*.

The *Genus summum* is that which holds the uppermost Place in its Class, or Predicament; or it is that which may be divided into several Species, each whereof is a *Genus* in respect of other Species plac'd below it. See PREDICAMENT.

Thus in the Predicament of things subsisting of themselves, *Substance* has the Place and Effect of *Genus summum*, and is predicated of all the Things contain'd in that Class; for both *Plato*, and *Man*, and *Animal*, and even *Spirit*, are properly call'd Substance.

Accordingly there are so many *summa genera*, as there are Classes of Predicaments or Categories. See CATEGORY.

A *Subaltern Genus* is that which being a Medium between the highest *Genus*, and the lowest Species; is sometimes consider'd as a *Genus*, and sometimes as a Species.

Thus Bird, when compar'd with Animal, is a Species; when to a Crow, an Eagle, or the like, a *Genus*.

Genus, again, is divided into *Remotum*, remote, where, between it and its Species, there is another *Genus*; and *Proximum*, or next, where the Species is immediately under it; as Man, under Animal.

A good Definition, say the Schoolmen, consists of *Genus*, and Difference. See DEFINITION, and DIFFERENCE.

GENUS is also us'd for a Character or Manner, applicable to every thing of a certain Nature: In which Sense it serves to make capital Divisions in divers Sciences; as Musick, Rhetorick, Botany, Anatomy, *&c.* See ART, and SCIENCE.

GENUS, GENDER, in Botany, a System, or Assemblage of several Plants, agreeing in some one common Character, in respect of the Structure of certain Parts; whereby they are distinguish'd from all other Plants. See PLANT.

The Distribution of Plants into *Genera*, and Species, is absolutely necessary to ease the Memory, and prevent its being oppress'd, and overburthen'd with an Infinity of different Names.

The Knowledge of a *Genus*, comprehends, in a kind of Miniature, that of all the Plants belonging thereto; each being denominated from some Circumstance, common to the whole Kind, to save the Embarrass of so many particular Names.

Something like this, even the common People do, especially in the instance of *Ranunculas*; but in most other Plants the Difficulty is infinitely greater, as 'tis hard to find any thing in common among them, whereon to found their *Genus*.

Hence Botanists differ as to the Manner of regulating these *Genera*, and the Characters whereon they are to be establish'd: Mr. *Ray*'s Distribution, see under the Article PLANT.

One of the latest, and best Writers, Mons. *Tournefort*, after a long and accurate Discussion, has chose in Imitation of *Gesner*, and *Columna*, to regulate them by the Flowers, and Fruit consider'd together; so that all Plants, which bear a Resemblance in those two respects, are of the same *Genus*: After which the respective Differences as to Root, Stem, or Leaves, make the different Species, or Sub-divisions. See SPECIES.

Mr. *Ray* made some Objections to this Distribution; which grew into a considerable Controversy between the two Authors. The Question was, Whether the Flowers and Fruits were sufficient to establish *Genera*, and to determine whether a Plant was of this *Genus*, or that?

The same M. *Tournefort* introduces another higher kind of *Genus*, or Class, which is only regulated by the Flowers: He observes, that he has never hitherto met with above fourteen different Figures of Flowers; which, therefore, are all that are to be retain'd in the Memory; so that a Person who has a Plant in Flower, whose Name he does not know, will immediately see what Class it belongs to in the *Elements of Botany*: The Fruit appearing some Days afterwards, determines its *Genus*, in the same Book; and the other Parts give its Species.

It is a wonderful Ease to the Memory, to have only fourteen Figures of Flowers to retain, and by means hereof to be inabled to descend to 673 *Genera*, which comprehend 8846 Species of Plants; which is the Number of those yet known by Land and Sea.

GENUS, in Musick, by the Antients called *Genus Melodiæ*, is a certain manner of subdividing the Principles of Melody, *i. e.* the consonant Intervals, into their concinnous Parts. See INTERVAL, CONCORD, and CONCINNOUS.

The Moderns, considering the Octave, as the most perfect Interval, and that whereon all the other Concords depend in the present Theory of Musick; the Division of that Interval is consider'd as containing the true Division of the whole Scale. See OCTAVE, and SCALE.

But the Antients went to work somewhat differently: The Diatessaron, or Fourth, was the least Interval which they admitted as Concord; and therefore they sought first how that might be most concinnously divided; from which they constituted the Diapente, or Fifth; and Diapason, or Octave.

The Diatessaron being thus, as it were, the Root or Foundation of the Scale; what they call the *Genera*, Kinds, arose from its various Divisions; and hence they defined the *Genus modulandi*, the manner of dividing the Tetrachord, and disposing

disposing its four Sounds as to Succession. See TETRACHORD.

The *Genera* of Musick were three, *viz.* the *Enharmonick*, *Chromatick*, and *Diatonick:* The two last whereof were variously subdivided; and even the first, though 'tis commonly reckon'd to be without any Species, yet different Authors have propos'd different Divisions under that Name, tho' without giving particular Names to the Species as was done to the other two. See SPECIES.

For the Character, &c. *of the several* Genera, *see* ENHARMONICK, CHROMATICK, and DIATONICK.

The Parts, or Divisions of the Diatessaron they call'd the *Diastems* of the several *Genera*, upon which their Differences depend; and which in the Enharmonick are particularly call'd the *Diesis*, and *Ditonum*; in the Chromatic, the *Hemitonium*, and *Triemitonium*; and in the Diatonic, the *Hemitonium*, or *Limma*, and the *Tonus*.

But under these general Names, which distinguish the *Genera*, there are other different Intervals, or Ratio's which constitute the *Colores Generum*, or Species of Enharmonic, Chromatic, and Diatonic. Add, that what is a Diastem in one *Genus*, is a System in another. See DIASTEM, SYSTEM, CHROAI; see also DIAGRAMMA.

GENUS, in Rhetorick. Authors distinguish the Art of Rhetorick, as also Orations, or Discourses produced thereby, into three *Genera*, or Kinds, *Demonstrative*, *Deliberative*, and *Judiciary*.

To the *Demonstrative* Kind belong *Panegyricks*, *Genethliacons*, *Epithalamiums*, *Funeral* Harangues, &c. See each under its Head, PANEGYRIC, EPITHALAMIUM, *&c.*

To the *Deliberative* Kind belong *Persuasions*, *Dissuasions*, *Commendations*, &c. See PERSUASION, *&c.*

To the *Judiciary* Kind belong *Defences*, and *Accusations*. See RHETORIC, ORATION, *&c.*

GENUS, in Algebra. The antient Algebraists distributed that Art into two *Genera*, or Kinds; the *Logistic*, and *Specious*. See LOGISTIC, and SPECIOUS.

GENUS, in Anatomy. The *Genus nervosum*, or *nervous kind*, call'd also the *nervous System*, is an Expression, pretty frequent among Authors; signifying the Nerves, consider'd as an Assemblage or System of similar Parts, distributed throughout the Body. See NERVE, and SIMILAR *Part*.

Tobacco contains a deal of sharp, caustic Salt, proper to cause Irritations in the nervous Kind: Vinegar, taken in too great Quantity, incommodes the nervous Kind.

GEOCENTRIC, in Astronomy, is applied to a Planet, or its Orbit, to denote it concentric with the Earth; or, as having the Earth for its Centre, or the same Centre with the Earth.

Thus we say, that all the Planets are not *geocentric*. See PLANET.

GEOCENTRIC *Place* of a Planet, is the Place wherein it appears to us, from the Earth; supposing the Eye there fix'd: Or, it is a Point in the Ecliptick, to which a Planet, seen from the Earth, is referr'd. See PLACE, and HELIOCENTRIC.

GEOCENTRIC *Latitude* of a Planet, is its Latitude seen from the Earth; or the Inclination of a Line connecting the Planet and the Earth, to the Plane of the Earth's (or true) Ecliptick.

Otherwise, it is the Angle, which the aforesaid Line (connecting the Planet, and the Earth) makes with the Line which is drawn perpendicular to the Plane of the Ecliptick. See LATITUDE.

Thus, in *Tab. Astronomy, Fig.* 40. the Angle ♀ *T e* is the Measure of that Planet's *Geocentric* Latitude, when the Earth is in *T*, and the Angle *e T* ♀, the Measure of it when the Earth is in *t*. See LATITUDE.

GEODÆSIA, that Part of Geometry, which contains the Doctrine, or Art of measuring Surfaces; and finding the Contents of all kinds of plain Figures. See SURFACE; see also MEASURING.

It is usually called *Surveying*, when employ'd in measuring of Lands, Grounds, Roads, Countries, Provinces, *&c.* See SURVEYING.

The Word is *Greek*, γεωδαισία, form'd of γῆ, *terra*, Earth, and δαία, *divido*, I divide.—

GEOGRAPHICAL *Mile*, is the Minute, or sixtieth Part of a Degree of a great Circle. See MILE, and DEGREE.

GEOGRAPHICAL *Table*, see MAP.

GEOGRAPHY, the Doctrine or Knowledge of the *Earth*, both as in it self, and as to its Affections; or a Description of the Terrestrial Globe, and particularly of the known inhabitable Part thereof, with all its Parts.

The Word is form'd of the *Greek* γῆ, *terra*, Earth, and γράφω, *scribo*, I write.

Geography makes a Branch of Mathematicks, of the mix'd kind; in that it considers the Earth, and its Affections, as depending on Quantity, and consequently measurable, *viz.* its Figure, Place, Magnitude, Motion, cœlestial Appearances, *&c* with the several Circles imagin'd on its Surface. See MATHEMATICKS.

Geography is distinguish'd from *Cosmography*, as a Part from the Whole: This latter considering the whole visible World, both Heaven, and Earth. See COSMOGRAPHY.

From *Topography*, and *Chorography*, it is distinguish'd as the whole from a Part. See TOPOGRAPHY, and CHOROGRAPHY.

Golnitzius considers *Geography* as either *Exterior*, or *Interior:* But *Varenius* more justly divides it into *General*, and *Special*; or, *Universal*, and *Particular*.

General, or *Universal* GEOGRAPHY is that which considers the Earth in General, without any Regard to particular Countries; or the Affections, common to the whole Globe, as its Figure, Magnitude, Motion, Land, Sea, *&c.* See GLOBE.

Special, or *Particular* GEOGRAPHY, is that which considers the Constitution of the several *Regions*, or *Countries*; their Bounds, Figure, *&c.* with the *Mountains*, *Forests*, *Mines*, *Waters*, *Plants*, *Animals*, &c. therein: As also their *Climates*, *Seasons*, *Heat*, *Weather*, *Distance from the Equator*, &c. And their *Inhabitants*, *Arts*, *Foods*, *Commodities*, *Customs*, *Language*, *Religion*, *Policy*, *Cities*, &c.

Geography is very antient; at least the Special Part thereof: For the antient Writers scarce went beyond the Description of Countries.

It was a Custom among the *Romans*, after they had conquer'd and subdued any Province, to have a Map, or painted Representation thereof carried in Triumph, and exposed to the View of the Spectators. See MAP.

Historians relate that the *Roman* Senate, about a hundred Years before Christ, sent Geographers into divers Parts, to make an accurate Survey and Mensuration of the whole Globe; but they scarce ever saw the twentieth Part thereof.

Before them, *Neco*, King of *Egypt*, order'd the *Phœnicians* to make a Survey of the whole Coast of *Africa*, which they accomplish'd in three Years: *Darius* procured the *Ethiopic* Sea, and the Mouth of the *Indus* to be examin'd: And *Pliny* relates, that *Alexander*, in his Expedition into *Asia*, took two Geographers, *Diognetus*, and *Beto*, to measure and describe the Roads; and that from their Itineraries the Writers of the following Ages took many Particulars. Indeed, this may be observed, that whereas most other Arts are Sufferers by War, *Geography* and Fortification alone are improved thereby.

The Art, however, must need have been exceedingly defective; as a great Part of the Globe was then unknown; particularly all *America*, the *Northern* Parts of *Europe*, and *Asia*; with the *Terra Australis*, and *Magellanica:* And as they were ignorant of the Earth's being capable of being sail'd round, of the Torrid Zone's being habitable, *&c.*

The principal Writings on this Art, among the Antients, are *Ptolomy*'s eight Books: Among the Moderns, *Johannes de sacro Bosco*, *De Sphæra*, with *Clavius*'s *Comment*; *Riccioli*us's *Geographia*, and *Hydrographia Reformata*; *Weigelius*'s *Speculum Terræ*; *De Chales*'s *Geography*, in his *Mundus Mathematicus*; and above all, *Varenius*'s *Geographia Generalis*, with *Jurin*'s Additions: To which may be added *Liebknecht*'s *Elementa Geographiæ Generalis*; *Sturmius*'s *Compendium Geographicum*; and *Wolfius*'s *Geographia*, in his *Elementa Matheseos*.—

GEOMANCY, GEOMANTIA, a kind of Divination, perform'd by means of a Number of little Points, or Dots, made on Paper, at random; and considering the various Lines and Figures, which those Points present; and thence forming a Judgment of Futurity and deciding any Question proposed. See DIVINATION.

The Word is form'd of the *Greek* γῆ, *terra*, Earth; and μαντεία, Divination; it being the antient Custom to cast little Pebbles on the Ground, and thence to form their Conjectures; instead of the Points now made use of.

Polydore Virgil defines *Geomancy* a kind of Divination perform'd by means of Clefts or Chinks made in the Ground; and takes the *Persian* Magi to have been the Inventors thereof. *De Invent. Rer. L.* 1. *c.* 23.

GEOMETRY, the Science, or Doctrine of Extention, or extended things; that is, Lines, Surfaces, and Solids. See LINE, SURFACE, and SOLID.

The Word is form'd of the *Greek* γῆ, *terra*, Earth, and μετρεῖν, *metiri*, to measure; it being the Necessity of measuring the Earth, and the Parts and Places thereof that gave the first occasion to the Invention of the Principles and Rules of this Art, which has since been extended and applied to numerous other Things; insomuch that *Geometry* with Arithmetick, are now the general Foundation of all Mathematicks. See MATHEMATICKS.

Geometry is commonly divided into four Parts, or Branches, *Planimetry*, *Altimetry*, *Longimetry*, and *Stereometry*. See each under its proper Article, PLANIMETRY, ALTIMETRY, LONGIMETRY, and STEREOMETRY.

Geometry, again, is distinguish'd into *Theoretical*, or *Speculative*, and *Practical*.

The first contemplates the Property of Continuity; and demonstrates the Truths of General Propositions, call'd *Theorems*. See THEOREM.

The

TAB. GEOGRAPHY & HYDROGRAPHY.

Fig. 2. Map.

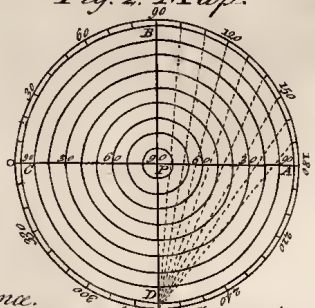


Fig. 3. Map.

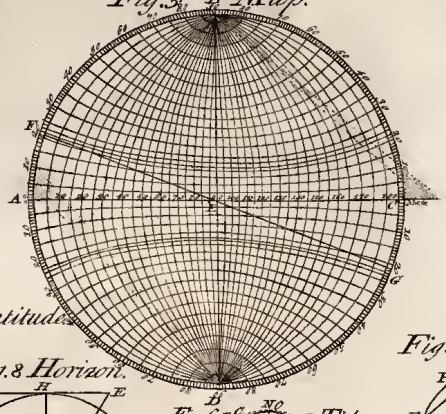


Fig. 4. Map.

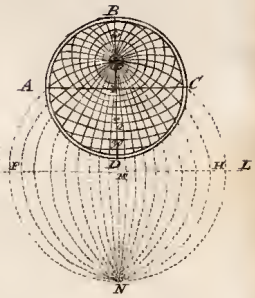


Fig. 4. Distance.

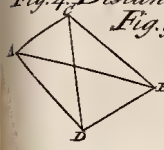


Fig. 9. Distance & Attitude.

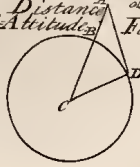


Fig. 5. Geography & Latitude.

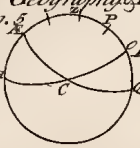


Fig. 8. Horizon.

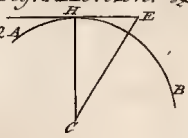
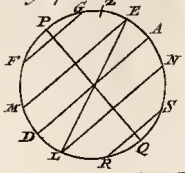


Fig. 6. Tides.

Fig. 7. Meridian.



NAVIGATION.

Fig. 1. Compass.

Fig. 2. Azimuth Compass.

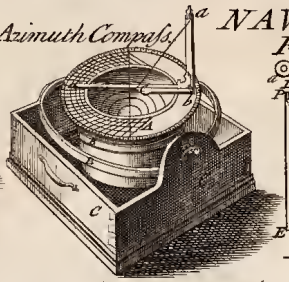


Fig. 3. Sailing.

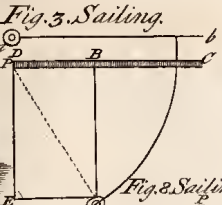


Fig. 5. Sailing.

Fig. 4. Sailing.

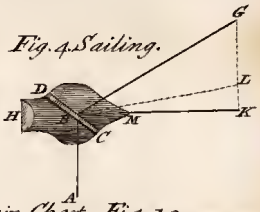


Fig. 6. Backstaff.

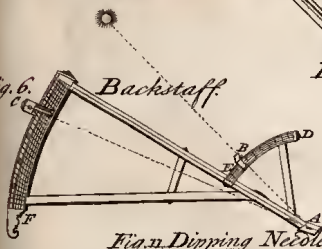


Fig. 7. Mercators Charts & Sailing.

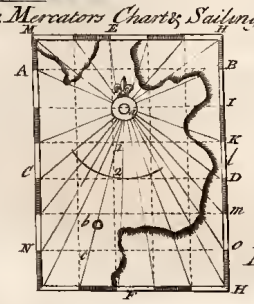


Fig. 8. Sailing.

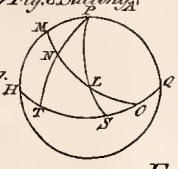


Fig. 9. Plain Chart.

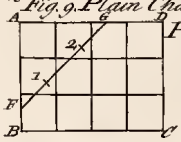


Fig. 10. Plain Chart.

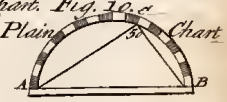


Fig. 11. Mercators

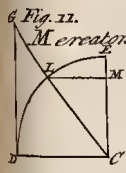


Fig. 11. Dipping Needle.

Fig. 14. Forestaff.

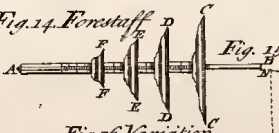


Fig. 15. Current.

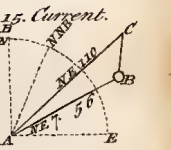


Fig. 13. Nocturnal.

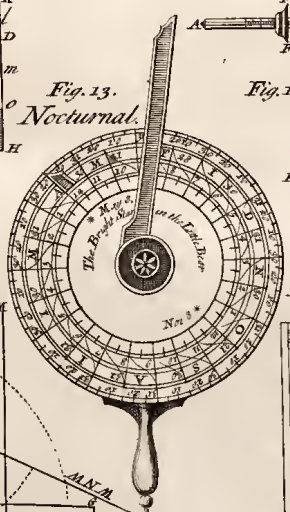


Fig. 16. Variation

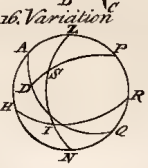


Fig. 17. Traverse

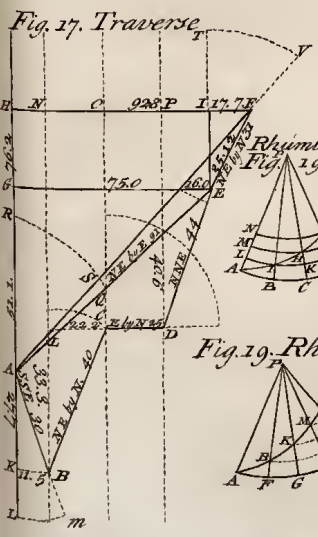
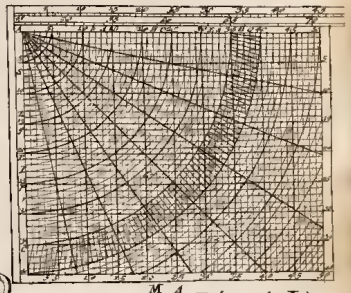


Fig. 17. Traverse

Fig. 18. Sinecal Quadrant.



Rhumb Line. Fig. 19. *

Fig. 19. Rhumb Line.

Fig. 22. Astrolabe.

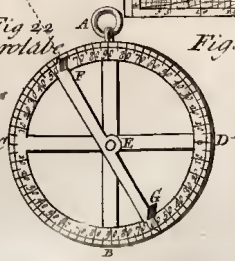


Fig. 20. Rhumb Line

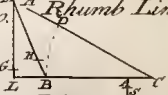
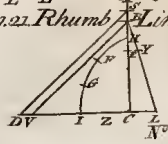


Fig. 21. Rhumb Line



The second applies those Speculations and Theorems to particular Uses in the Solution of Problems. See PROBLEM.

Speculative Geometry, again, may be distinguish'd into *Elementary*, and the *Sublimer*.

Elementary, or *Common* GEOMETRY, is that employed in the consideration of Right Lines, and plain Surfaces, and Solids generated therefrom. See PLAIN, &c.

The *Higher*, or *Sublimer* GEOMETRY is that employ'd in the consideration of Curve Lines, Conic Sections, and Bodies form'd thereof. See CURVE, &c.

Herodotus, *lib. II.* and *Strabo*, *lib. XVII.* assert the *Egyptians* to have been the first Inventors of *Geometry*; and the annual Inundations of the *Nile* to have been the Occasion: For that River bearing away all the Bounds and Landmarks of Mens Estates, and covering the whole Face of the Country, the People, say they, were obliged to distinguish their Lands by the consideration of their Figure, and Quantity; and thus by Experience and Habit, form'd themselves a Method, or Art, which was the Origin of *Geometry*.—A farther Contemplation of the Draughts or Figures of Fields thus laid down and plotted in Proportion, might naturally enough lead them to the Discovery of some of their excellent and wonderful Properties; which Speculation continually improving, the Art became gradually improved, as it continues to do to this Day. *Josephus*, however, seems to attribute the Invention to the *Hebrews*: And others among the Antients make *Mercury* the Inventor. *Polid. Virgil. de Invent. Rer. L. I. C.* 18.

The Province of *Geometry* is almost infinite: Few of our Ideas, but may be represented to the Imagination by Lines, upon which they straight become of *Geometrical* Consideration; it being *Geometry* alone that makes Comparisons, and finds the Relations, of Lines. See LINE.

Astronomy, Music, Mechanicks, and, in a Word, all the Sciences which consider Things susceptible of more, and less; *i. e.* all the precise and accurate Sciences, may be refer'd to *Geometry*: For all Speculative Truths only consisting in the Relations of Things, and in the Relations between those Relations, they may be all referred to Lines. Consequences may be drawn from them; and these Consequences, again, being render'd sensible by Lines, they become permanent Objects, constantly exposed to a rigorous Attention and Examination: And thus we have infinite Opportunities both of enquiring into their Certainty, and pursuing them further. See ART, and SCIENCE.

The Reason, for instance, why we know so distinctly, and mark so precisely, the Concords call'd Octave, Fifth, Fourth, *&c.* is, that we have learnt to express Sounds by Lines, *i. e.* by Chords accurately divided; and that we know that the Chord, which sounds Octave, is double of that which it makes Octave withal; that the Fifth is in the sesquialterate Ratio, or as three to two; and so of the rest.

The Ear it self cannot judge of Sounds with such Precision; its Judgments are too faint, vague, and variable to form a Science. The finest, best tuned Ear, cannot distinguish many of the Differences of Sounds; whence many Musicians deny any such Differences; as making their Sense their Judge. Some, for instance, admit no Difference between an Octave and Three Ditones: And others, none between the greater and lesser Tone; so that the Comma, which is the real Difference, is insensible to them; and much more the Schisma, which is only half the Comma.

'Tis only by Reason, then, that we learn, that the Length of Chord which makes the Difference between certain Sounds, being divisible into several Parts, there may be a great Number of different Sounds contained therein, useful in Music, which yet the Ear cannot distinguish. Whence it follows, that had it not been for Arithmetic and *Geometry*, we had had no such thing as regular, fix'd Music; and that we could only have succeeded in that Science by good Luck, or Force of Imagination, *i. e.* Music would not have been any Science founded on incontestable Demonstrations: Tho' we allow that the Tunes composed by Force of Genius and Imagination, are usually more agreeable to the Ear, than those composed by Rule. See SOUND, TUNE, GRAVITY, CONCORD, *&c.*

So, in Mechanicks, the Heaviness of a Weight, and the Distance of the Centre of that Weight from the Fulcrum, or Point it is sustained by, being susceptible of *plus*, and *minus*, they may both be express'd by Lines; whence *Geometry* becomes applicable hereto; in virtue whereof, infinite Discoveries have been made, of the utmost use in Life. See BALANCE, STILYARD, *&c.*

Geometrical Lines and Figures, are not only proper to represent to the Imagination the Relations between Magnitudes, or between Things susceptible of more and less; as Spaces, Times, Weights, Motions, *&c.* but they may even represent Things which the Mind can no otherwise conceive; *e. gr.* the Relations of incomensurable Magnitudes. See INCOMMENSURABLE.

We do not, however, pretend, that all Subjects Men may have occasion to inquire into, can be express'd by Lines. There are many not reducible to any such Rule: Thus, the Knowlege of an infinitely powerful, infinitely just GOD, on whom all Things depend, and who would have all his Creatures execute his Orders to become capable of being happy, is the Principle of all Morality, from which a thousand undeniable Consequences may be drawn, and yet neither the Principle, nor the Consequences can be express'd by Lines, or Figures. *Mallebranche Recherche de la Verite, T. II.*

Indeed, the antient *Egyptians*, we read, used to express all their Philosophical, and Theological Notions by *Geometrical* Lines. In their Researches into the Reason of Things, they observ'd, that GOD, and Nature affect Perpendiculars, Parallels, Circles, Triangles, Squares, and harmonical Proportions; which engaged the Priests and Philosophers to represent the Divine and Natural Operations by such Figures: In which they were followed by *Pythagoras*, *Plato*, &c. Whence that Saying of *Boethius*, *Nullum Divinorum scientiam ἀγεωμέτρητον attingere posse.* See PLATONIC, PYTHAGOREAN, &c.

But it must be observ'd, that this Use of *Geometry* among the Antients was not strictly Scientifical, as among us; but rather Symbolical: They did not argue, or deduce Things and Properties unknown from them; but represented or delineated Things that were known. In effect, they were not used as Means or Instruments of discovering, but Images or Characters, to preserve, or communicate the Discoveries made. See SYMBOL, and HIEROGLYPHIC.

" The *Egyptians*, (*Gale* observes) used Geometrical Figures, not only to express the Generations, Mutations, " and Destructions of Bodies; but the Manner, Attributes, " *&c.* of the Spirit of the Universe, who diffusing himself " from the Centre of his Unity, thro' infinite concentric " Circles, pervades all Bodies, and fills all Space. But of " all other Figures they most affected the Circle, and Tri- " angle; the first, as being the most perfect, simple, capa- " cious, *&c.* of all Figures: Whence *Hermes* borrowed it to " represent the Divine Nature; defining GOD to be an in- " tellectual Circle or Sphere, whose Centre is every where, " and Circumference no where." See *Kirch. Oedip. Ægyptiac.* and *Gale Phil. General. Lib. I. c. II.*

The Antient *Geometry* was confined to very narrow Bounds, in comparison of the Modern. It only extended to Right Lines and Curves of the first Order, or Conic Sections; whereas into the modern *Geometry* new Lines of infinitely more and higher Orders are introduced. See CURVE.

The Writers, who have cultivated and improved *Geometry*, may be distinguish'd into *Elementary*, *Practical*, and those of the *sublimer Geometry*.

The principal Writers of *Elements*, see enumerated under the Article ELEMENTS.

Those of the *Higher Geometry* are *Archimedes*, in his Books *de Sphæra*, *Cylindro*, and *Circuli Dimensione*; as also *de Spiralibus*, *Conoidibus*, *Sphæroidibus*, *de Quadratura Parabolæ*; and *Arenarius*: *Kepler*, in his *Stereometria Nova*; *Cavalerius*, in his *Geometria Indivisibilium*; and *Torricellius*, *de Solidis Sphæralibus*; *Pappus Alexandrinus*, in *Collectionibus Mathematicis*; *Paulus Guldinus*, in his Mechanicks and Staticks; *Barrow*, in his *Lectiones Geometricæ*; *Huygens*, *de Circuli Magnitudine*; *Bullialdus*, *de Lineis Spiralibus*; *Schooten*, in his *Exercitationes Mathematicæ*; *de Billy*, *de Proportione Harmonica*; *Lalovera*, *de Cycloide*; *Fer. Ernest. Com. ab Herbenstein*; in *Diatome Circulorum*; *Viviani*, in *Exercit. Mathemat. de Formatione*, and *Mensura Fornicum*; *Bap. Palma*, in *Geomet. Exercitation.* and *Apoll. Pergæus*; *de Sectione Rationis*.

The Writers on the *Sections of the Cone*, and *Sphere*; see under CONICKS, and SPHERICKS.

For *Practical Geometry*, the fullest and compleatest Treatises are those of *Mallet*, written in *French*; but without the Demonstrations: And those of *Schwenter*, and *Cantzlerus*, both in *High-Dutch*.—In this Class are likewise to be rank'd *Clavius's*, *Tacquet's*, and *Ozanam's* *Practical Geometries*; *De la Hire's Ecole des Arpenteurs*; *Reinboldus's Geodesia*; *Hartman Beyer's Stereometria*; *Voigtel's Geometria Subterranea*, all in *High-Dutch*; *Hulsius*, *Gallileus*, *Goldmannus*, *Scheffelt*, and *Ozanam*, on the *Sector*.—

GEOMETRICAL, something that has a relation to *Geometry*. See GEOMETRY.

Thus we say, a *Geometrical* Method, a *Geometrical* Genius, a *Geometrical* Strictness, a *Geometrical* Construction, and *Geometrical* Demonstration, *&c.* See DEMONSTRATION, *&c.*

Geometry it self leads us into Errors: After once reducing a thing to *Geometrical* Consideration, and finding that it answers pretty exactly, we pursue the View, are pleas'd with the Certainty and Agreeableness of the Demonstrations; and apply the Geometry further and further, till we outrun Nature. Hence it is, that all Machines do not succeed: That all Compositions of Music, wherein the Concords are the most rigidly observ'd, are not agreeable: That the most exact Astronomical Computations do not always foretel the precise Time and Quantity of an Eclipse.

The Reason is, that Nature is not abstracted; Mechanical Levers and Wheels are not *Geometrical* Lines and Circles, as they are supposed to be: Our Taste for Tunes is not the same in all Men; nor at all times in the same Man: And as to Astronomy, there is no perfect Regularity in the Motions of the Planets; their Orbits do not seem reducible to any fix'd known Law, *&c.*

The Errors, therefore, we fall into in Astronomy, Music, Mechanicks, and the other Sciences to which Geometry is applied, do not properly arise from Geometry, which is an infallible Science; but from the false Misapplication of it. *Mallebranch, Recherche de la Ver.*

Geometrical *Line*, or *Curve*, call'd also *Algebraic Line*, or *Curve*, is that wherein the Relation of the Abscisses to the Semi-ordinates may be express'd by an Algebraick Equation. See *Algebraic* Curve.

Thus, suppose in a Circle, *Tab. Geometry, Fig.* 51. AB$=a$ AP$=x$ PM$=y$; then will PB$=a-x$, and consequently, since $PM^2 = APPB$; $y^2=ax-x^2$.— Again, suppose in *Fig.* 52. PC$=x$, AC$=a$ PM$=y$; then will $MC^2=PM^2$, that is $a^2-x^2=y^2$. See Equation.

Geometrical Lines are distinguish'd into Classes, Orders, or Genders, according to the Number of the Dimensions of the Equation that expresses the Relation between the Ordinates and the Abscisse; or which amounts to the same, according to the Number of Points in which they may be cut by a Right Line.

Thus, a *Line of the first Order* will be only a Right Line: Those of the *second*, or *Quadratick Order*, will be the *Circle*, and the *Conick Sections*; and those of the *third*, or *Cubick Order*, will be the *Cubical* and *Nelian Parabolas*, the *Cissoid* of the Antients, *&c.* See Circle, Conic *Section*, Parabola, Cissoid, *&c.*

But a Curve of the first Gender (because a Right Line can't be reckon'd among the Curves) is the same with a Line of the second Order; and a Curve of the second Gender, the same with a Line of the third Order; and a Line of an infinitesimal Order is that, which a Right Line may cut in infinite Points; as the Spiral, Cycloid, the Quadratrix, and every Line generated by the infinite Revolutions of a Radius. See Line.

However, it is not the Equation, but the Description, that makes the Curve a *Geometrical* one: The Circle is a *Geometrical* Line, not because it may be expressed by an Equation, but because its Description is a Postulate: And it is not the Simplicity of the Equation, but the Easiness of the Description, which is to determine the Choice of the Lines for the Construction of a Problem. The Equation, that expresses a Parabola, is more simple than that which expresses a Circle; and yet the Circle, by reason of its more simple Construction, is admitted before it.

The Circle, and the Conick Sections, if you regard the Dimension of the Equations, are of the same Order; and yet the Circle is not numbered with them in the Construction of Problems, but by reason of its simple Description is depress'd to a lower Order, *viz.* that of a Right Line; so that it is not improper to express that by a Circle, which may be express'd by a Right Line: But it is a Fault to construct that by the Conic Sections, which may be constructed by a Circle.

Either, therefore the Law must be taken from the Dimensions of Equations, as observed in a Circle, and so the Distinction be taken away between plane and solid Problems: Or the Law must be allow'd not to be strictly observed in Lines of superior Kinds; but that some, by reason of their more simple Description, may be preferr'd to others of the same Order, and be numbered with Lines of inferior Orders.

In Constructions that are equally *Geometrical*, the most simple are always to be preferr'd: This Law is so universal as to be without Exception. But Algebraick Expressions add nothing to the Simplicity of the Construction; the bare Description of the Lines here are only to be consider'd; and these alone were consider'd by those Geometricians, who joined a Circle with a Right Line. And as these are easy or hard, the Construction becomes easy, or hard: And therefore it is foreign to the Nature of the Thing, from any thing else to establish Laws about Constructions. See Construction.

Either, therefore with the Antients, we must exclude all Lines besides the Circle, and perhaps the Conic Sections, out of Geometry; or admit all according to the Simplicity of the Description: If the Trochoid were admitted into Geometry, we might, by its means, divide an Angle in any given Ratio: Would you therefore blame those, who would make use of this Line to divide an Angle in the Ratio of one Number to another, and contend that this Line was not defin'd by an Equation, but that you must make use of such Lines as are defin'd by Equations? See Transcendental.

If, when an Angle were to be divided, for instance, into 1001 Parts, we should be oblig'd to bring a Curve defin'd by an Equation of above an hundred Dimensions to do the Business; which no body could describe, much less understand; and should prefer this to the Trochoid, which is a Line well known, and described easily by the Motion of a Wheel, or Circle. Who would not see the Absurdity?

Either therefore the Trochoid is not to be admitted at all in Geometry, or else in the Construction of Problems, it is to be preferr'd to all Lines of a more difficult Description: And the Reason is the same for other Curves.

Hence, the Trisections of an Angle by a Conchoid, which *Archimedes* in his Lemma's, and *Pappus* in his Collections have preferr'd to the Invention of all others in this Case, must be allow'd good, since we must either exclude all Lines, beside the Circle, and Right Line, out of Geometry, or admit them according to the Simplicity of their Descriptions; in which Case, the Conchoid yields to none, except the Circle.

Equations are Expressions of arithmetical Computation, and properly have no Place in Geometry, except as far as Quantities truly Geometrical (that is, Lines, Surfaces, Solids, and Proportions) may be said, to be some equal to others: Multiplications, Divisions, and such sort of Computations are newly received into Geometry, and that apparently contrary to the first Design of this Science; for whoever considers the Construction of Problems by a Right Line, and a Circle found by the first Geometricians, will easily perceive, that Geometry was invented, that we might expeditiously avoid by drawing Lines the Tediousness of Computation.

It should seem therefore, that the two Sciences ought not to be confounded: The Antients so industriously distinguish'd them, that they never introduced arithmetical Terms into Geometry; and the Moderns by confounding both, have lost a deal of that Simplicity, in which the Elegancy of Geometry principally consists. Upon the whole, that is arithmetically more simple which is determined by more simple Equations; but that is geometrically more simple which is determined by the more simple drawing of Lines; and in Geometry, that ought to be reckon'd best, which is geometrically most simple.

Geometrical *Plane*, see Plane.

Geometrical *Solution* of a Problem, is when the Problem is directly solved, according to the strict Principles and Rules of Geometry; and by Lines that are truly *Geometrical*. See Problem, and Solution.

In this Sense we say, *Geometrical* Solution, in Contradistinction to a *Mechanical*, or *Instrumental Solution*, where the Problem is only solved by Rules and Compasses. See Mechanical.

The same Term we likewise use in opposition to all indirect, and inadequate Solutions, as by infinite Series's, *&c.* See Series.

We have no *Geometrical* Way, of finding the Quadrature of the Circle; the Duplicature of the Cube, or finding of two mean Proportionals: Mechanical ways, and others, by infinite Series's, we have. See Quadrature, Duplicature, and Proportional.

The Antients, *Pappus* informs us, in vain endeavour'd at the Trisection of an Angle, and the finding out of two mean Proportionals by a Right Line, and a Circle. Afterwards they began to consider the Properties of several other Lines, as the Conchoid, the Cissoid, and the Conic Sections, and by some of these endeavour'd to solve those Problems. At length, having more throughly examined the Matter, and the Conic Sections being received into Geometry, they distinguish'd *Geometrical* Problems into three Kinds, *viz.*

1° Into *Plane* ones, which deriving their Original from Lines on a Plane, may be solved by a Right Line, and a Circle. See Plane.

2° *Solid* ones, which were solved by Lines deriving their Original from the Consideration of a Solid, that is, of a Cone. See Solid.

3° *Linear* ones, to the Solution of which were required Lines more compounded. See Linear.

According to this Distinction, we are not to solve solid Problems by other Lines than the Conic Sections; especially if no other Lines but Right ones, a Circle, and the Conic Sections must be received into Geometry.

But the Moderns advancing much farther, have received into Geometry all Lines that can be express'd by Equations; and have distinguish'd according to the Dimensions of the Equations, those Lines into Kinds; and have made it a Law, not to construct a Problem by a Line of a Superior kind, that may be constructed by one of an inferior one. See Geometrical *Line*.

Geometrical *Proportion*, call'd also absolutely and simply, *Proportion*; is a Similitude or Identity of Ratio's. See Ratio.

Thus, if A be to B, as C to D, they are in *Geometrical* Proportion: So 8, 4, 30 and 15 are *Geometrical* Proportionals. See Proportion.

Geome-

TAB. GEOMETRY.

1 Line
2 Elliptick Compasses
3 Proportional Compasses
4 Proportional Compassis
5 Gnomon
5 Complement
6 Chord
7 Circle
8 Line
9 Multiplication
10 Multiplication
12 Secant
13 Sector
14 Sector
15 Sector
16 Prism
17 Division
18 Vertical Angle
19 Vertex, Base &c.
20 Evolute
21 Evolute
22 Rhomboides
23 Segment of a circle
23 Dia caustic
24 Diagonal
25 Diagonal
25 Catenaria
26 Diagonal
27 Diameter
28 Circle
29 Circumscribing
31 Circumscribing
32 Solid Angle
32 Solidity
33 Dirigent
34 Sphere
35 Divisibility
36 Parallels
37 Parallel
38 Parallelopiped
39 Spiral
40 Spiral
41 Parallellogram & Triangle
42 Square
43 Contact
44 Subcontrary Position
45 Pelicoides
46 Opposite Angles
47 Pentagon
48 Oval
49 Cube
50 Tangent
51 Curve
52 Curve
53 Curve
54 Curve
56 Cylinder
55 Cycloid
57 Perpendicular
58 Epicycloid
59 Tetraedron
60 Rectangle
61 Rectangle
62 Proportional
63 Proportional
64 Extreme Proportion
65 Reduction
66 Reduction
67 Reduction

Fig 64 Reduction
Fig. 68 Triangle.
Fig. 69 Triangle
Fig 70 Triangle
Fig. 71 Triangle
Fig. 72 Triangle
Fig. 73 Triangle
Fig. 74 Triangle
Fig. 75 Triangle
Fig. 76 Triangle
Fig. 77 Triangle
Fig 78 Triangle
Fig. 78 Pyramid
Fig 79 Pyramid
Fig. 80. Quality
Fig. 81 Regular body
Fig. 82 Retrogradation of Curves
Fig. 83 Rhombus
Fig. 84 Hexagon
Fig. 86 Acute Angle
Fig. 87 Similar Ch.
Fig 88 Altitude
Fig 89 Altitude
Fig 91 Angle
Fig 92 Angle
Fig 93 Angle
Fig 97 Angle
Fig 94 Angle
Fig. 95 Angle
Fig. 96 Angle
Fig 97 Angle

Fletcher. Sculp.

GEOMETRICAL *Progression* is a Series of Quantities, in continued *Geometrical* Proportion, *i. e.* increasing or decreasing in the same Ratio. See RATIO.

Thus, *e. gr.* 1, 2, 4, 8, 16, 32, 64, and 128 : And 729, 243, 81, 27, 9, 3, 1, are *Geometrical Progressions*. See *Geometrical* PROGRESSION.

GEOMETRICAL *Locus*, or *Place*, called also simply *Locus*, is a Line whereby an indeterminate Problem is constructed. See LOCUS.

GEOMETRICAL *Construction* of an Equation, is the contriving and drawing of Lines and Figures, whereby to demonstrate the Equation, Theorem, or Canon to be geometrically true. See CONSTRUCTION *of Equations*.

GEOMETRICAL *Osculum*, see EVOLUTA, and OSCULUM.

GEOMETRICAL *Scale*, see DIAGONAL *Scale*.

GEOMETRICAL *Table*, see PLAIN *Table*.

GEOMETRICAL *Pace*, is a Measure consisting of five Feet. See PACE, and FOOT.

GEOMETRICALLY *Proportionals*, are Quantities in continual Proportion; or which proceed in the same constant Ratio; as 6, 12, 24, 48, 96, 192, &c. See PROPORTIONALS. They are thus called, in Contradistinction to equidifferent Quantities; which are called, tho' somewhat improperly, *Arithmetically Proportionals*. See *Arithmetically* PROPORTIONAL.

GEOPONIC, something relating to *Agriculture*.—Thus *Cato*, *Varro*, *Columella*, *Palladius*, and *Pliny* are sometimes called *Geoponic* Writers. See GEORGIC.

St. GEORGE, a Name whereby several Orders, both Military and Religious, are denominated. It has its Rise from a Saint, famous throughout all the East; and called by the *Greeks* Μεγαλομάρτυς, *q. d. Great Martyr*.

On some Medals of the Emperors *John*, and *Manuel Commenii*, we have the Figure of St. *George* arm'd, holding a Sword, or Javelin in one Hand, and in the other, a Buckler, with this Inscription, an O, and therein a little A, and P ΓΕ—ΓΙΟC, making O ΑΓΙΟΣ ΓΕΟΡΓΙΟΣ, *O Holy George*. O

He is generally represented on Horseback, as being supposed to have frequently engaged in Combats in that manner.

He is adored throughout *Armenia*, *Muscovy*, and all the Countries which adhere to the *Greek* Rite: From the *Greek*, his Worship has long ago been received into the *Latin* Church; and *England* and *Portugal* have both chose him for their Patron Saint. See PATRON.

St. GEORGE is particularly used for an *English* Order of Knights; more usually now called the *Order of the Garter*. See *Order of the* GARTER.

Our King *Edward* VI. out of a Spirit of Reformation, made some Alterations in the Ceremonial, Laws, and Habit of the Order, that the *Romish* Saint might have less Share therein. 'Twas he first commanded that the Order should no longer be called the *Order of* St. *George*, but that of the Garter.

Knights of St. GEORGE. There have been various Orders under this Denomination, most of which are now extinct; particularly, one founded by the Emperor *Frideric* III. in the Year 1470, to guard the Frontiers of *Bohemia* and *Hungary* against the *Turks*.—Another, called St. *George* of *Alfalma*, founded by the Kings of *Arragon*.—Another in *Austria* and *Carinthia*.—And another in the Republic of *Genoa*, still subsisting, &c.

Religious of the Order of *St.* GEORGE. Of these there are divers Orders, and Congregations; particularly Canons Regular of St. *George in Alga*, at *Venice*, established by two Noble *Venetians*, in the Year 1404.—Another Congregation of the same Institute in *Sicily*, &c.

GEORGICK, something that relates to the Culture or Tilling of the Ground. See AGRICULTURE.

The *Georgicks* of *Virgil*, are the 4 Books composed by that Poet on the Subject of Agriculture.

The Word is borrowed from the Latin *Georgicus*; and that of the *Greek* γεωργικὸς, of γῆ, *terra*, Earth, and ἐργάζομαι, *opero*, I work, labour; of ἔργον, *opus*, Work.—

GEOSCOPY, a kind of Knowledge of the Nature, and Qualities of the Earth, or Soil, gain'd by viewing and considering it. See SOIL.

Geoscopy is only conjectural; but its Conjectures are very well grounded.

The Word is form'd of the *Greek* γῆ, Earth, and σκόπεω, I see, view.

GERESOL, in Music, one of the Clefs. See CLEF.

GERFALCON, or GYRFALCON, a Bird of Prey, of a Size between a Vultur and an Hawk; and of the greatest Strength next the Eagle. See FALCON, and HAWK.

GERMAN. A *Brother German* is a Brother both by the Father's and Mother's side; in Contradistinction to *Uterine Brothers*, &c. who are only so, by the Mother's side. See BROTHER.

So, likewise, *Cousins German* are those in the first, or nearest Degree; being the Children of Brothers or Sisters-*German*. See COUSIN, &c.

Among the *Romans* we have no Instance of Marriage between Cousins *German*, before the Time of the Emperor *Claudius*; when, they were very frequent. See MARRIAGE.

Theodosius prohibited them under very severe Penalties, even Fine, and Proscription. See CONSANGUINITY.

GERMAN *Language*, see TEUTONIC, and LANGUAGE.

GERMAN *Empire*, &c. see EMPIRE, &c.

GERMANICUS, an antient Title of Honour, given to several Emperors, on account of the Victories obtain'd by them over the *Germans*, or in *Germany*.

Gallian bears this Title on Medals; and the Argument for its being on occasion of a Victory in *Germany*, is, that on the Reverse we find the Words, VICTORIA GERMANICA. VICTORIA GER. VICTORIA. G. M. that is, *Germanica maxima*.

Claudius Gothicus bore the same Title, *Germanicus*, and accordingly on the Reverse of his Medals we find *Victoria Germanica*; as on others of his Medals we read, *Victoria Gothica*.

GERMEN, or GERM, or GEM, that Part of a Seed which germinates, *i. e.* sprouts or shoots out the first, for the Production of a new Plant. See SEED.

Botanists call it the *Plume*, see PLUME; see also PLANT, and SEED; see also GERMINATION.

GERMINATION, the Act of *Germinating*; that is, of a Plant's sprouting, or shooting in the Ground. See PLANT, and GERMEN.

Some use the Word in a more extensive Sense; so as likewise to include the shooting of Leaves, Blossoms, Branches, Flowers, Fruits, and Seeds. See SEED, LEAF, FLOWER, BRANCH, &c.

The Modern Philosophers have been very attentive to the *Germinations* of Plants, as well of the Formation of the Chick in the Egg. See PLANT.

The Progress of *Germination* has been very accurately observ'd by the Curious *Malpighi*, in the Seed of a Gourd. The Day after it was committed to the Ground, he found the Outer-coat or Integument a little tumid, and in its Tip there appear'd a small Gap or Aperture, thro' which the Plume or Gem was seen.

The second Day, the outward Coat, or Secundine was much softer, the inner torn and corrupted, the Plume, or Plantule somewhat longer and more tumid, and the Beginning of the Roots shew'd themselves.

The third Day, the outer Secundine was become dusky, and the Leaves of the Plantule inflated, and the Root or Radicle had made itself a Passage thro' the Secundines, near the former Aperture; the Plume, or Stem, as also the Seed Leaves being now grown much bigger.

On the sixth Day, more of the Seed Leaves had broke thro' the Secundines, and were found thicker and harder; the Root having now emitted a great Number of Fibres, and the Stem grown a Finger's Length.

The following Days, the Roots still shot further, other Roots arising from them, and others from these; and the Stem, in its Progress, grew hollow, or fistulous, and the Seed Leaves broader and greener.

About the twenty first Day, the Plant seemed compleat; from which time the Seed Leaves began to droop, and at length died away. See PLANT.

GERON, GERONTES, in Antiquity, a kind of Magistracy in antient *Greece*.

The *Gerontes* were at *Sparta*, what the *Areopagites* were at *Athens*. See AREOPAGITE.

The *Gerontes* were instituted by *Lycurgus*: Their Number, according to some, was twenty eight; and according to others, thirty two. They govern'd in Conjunction with the King, whose Authority they were intended to ballance, and to watch over the Interests of the People.

None were to be admitted into this Office under sixty Years of Age, and they held it for Life.

They were succeeded by the *Ephori*. See EPHORI.

The Word is formed of the *Greek* γέρων, which signifies old Man.

Whence also the Words GERONTIC, something belonging to an old Man; and GERONTICON, a famous Book among the Modern *Greeks*, containing the Lives of the antient Monks.

The Senate of *Gerontes* was called *Gerusia*, that is Assembly or Council of old Men.

GERUND, in Grammar, a Tense, or Time of the Infinitive Mood; like to the Participle, but indeclinable. See MOOD, and INFINITIVE.

The *Gerund* expresses not only the Time, but also the Manner of an Action; as, He fell *in running Post*.

It differs from the Participle, in that it expresses the Time which the Participle does not. See PARTICIPLE.

And from the Tense properly so called, in that it expresses the Manner which the Tense does not. See TENSE.

The

The Grammarians are very much imbarrass'd to settle the Nature and Character of the *Gerunds*: 'Tis certain, they are no Verbs, nor distinct Moods of Verbs, in regard they do not mark any Judgment, or Affirmation of the Mind, which is the Nature of a Verb.—And beside, they have Cases, which Verbs have not. See VERB.

Some therefore will have them to be Adjectives passive, whose Substantive is the Infinitive of the Verb: On this footing they denominate them Verbal Nouns, or Names formed of Verbs and retaining the ordinary Regimen thereof. See NOUN.

Thus, say they, *tempus est legendi libros*, or *librorum*, is as much as to say, *tempus est τοῦ legere libros, vel librorum.* But others stand up against this Decision.

The Word is form'd of the Latin *Gerundivus*, and that from the Verb *gerere*, to bear.

GESSES, in the Furniture belonging to an Hawk. See JESSES.

GESTATION, the Time of a Woman's going with Child; or the Interval between Conception, and Delivery. See DELIVERY; see also FŒTUS, and CONCEPTION.

GESTATION is also a Term in the antient Medicine, used for a sort of Exercise. See EXERCISE.

Asclepiades first brought Frictions, and *Gestation* into Practice.—The Design of *Gestation* was to recover Strength after a Feaver, &c. was gone.

It consisted in making the Patient walk, or ride in a Chariot, or in a Boat; or even in rocking him in his Bed, if he could not indure a more violent Agitation.

GESTICULATION, the Act of making indecent or unsuitable Gestures, or in too great Number. See GESTURE.

Gesticulation is a grievous Fault in an Orator.

GESTURE, a Motion of the Body, intended to signify some Idea, or Passion of the Mind.

Quintilian defines *Gesture, totius corporis motus & conformatio. Gestures* are a kind of Natural Language which supplies the Use of Speech in those naturally dumb. The *Mimes* and *Pantomimes* were great Proficients in the Style of *Gesture*. See MIME, and PANTOMIME.

Gesture consists principally in the Actions of the Hands, and Face. See ACTION, and PRONUNCIATION.

GIAGH, or JEHAGH, a Cycle of twelve Years, in use among the *Turks* and *Cathayans*. See CYCLE.

Each Year of the *Giagh* bears the Name of some Animal: The first, that of a Mouse; the second, that of a Bullock; the third, of a Lynx, or Leopard; the fourth, of a Hare; the fifth, of a Crocodile; the sixth, of a Serpent; the seventh, of a Horse; the eighth, of a Sheep; the ninth, of a Monkey; the tenth, of a Hen; the eleventh, of a Dog; and the twelfth, of a Hog.

They also divide the Day into twelve Parts, which they call *Giagh's*; and distinguish them by the Names of the same Animals.

Each *Giagh* contains two of our Hours, and is divided into eight *Keh*, as many there are Quarters of Hours in our Day.

GIANT, or GYANT, a Man of extraordinary, enormous Stature and Bulk. See STATURE.

The Reality of *Giants*, and of Nations of *Giants*, is much controverted among the Learned. Travellers, Historians, and Relations both sacred and profane furnish various Instances thereof; a great Part of which, Naturalists and Antiquaries set aside.

Those among the Antients who speak of *Giants*, as Historians, and affirm there were such Things, are *Cæsar, de Bello Gallico, L. I. Tacitus, de Morib. Germanor. & Annal. L. II. Florus, L. III. c.* 3. St. *Augustin de Civit. Dei L. XV. c.* 9. and *Saxo Grammaticus*, at the End of his Preface: And among the Moderns, *Hieron. Magius, Miscellan. de Gigantibus; Chassagnonus, de Gigantibus; Kircher Mund. Subterran. L. VIII. S. II. c.* 4. and so many others; that *Stephanius* in his Notes on *Saxo Grammaticus*, affirms nothing can be more extravagant than to deny, or allegorize the Authorities we have thereof.—

Mr. *Derham* observes that though we read of *Giants* before the Flood, *Gen.* vi. 4. and more plainly after it, *Numb.* xiii. 33; yet 'tis highly probable, the Size of Man has always been the same from the Creation; for as to the *Nephilim, Gen.* vi. the Antients vary about them; some taking them for Monsters of Impiety, Atheism, Rapine, Tyranny: And as to those *Num.* xiii. which were evidently spoke of as Men of a *Gigantic* Size, 'tis probable the Fears of the Spies might add thereto.

But be this as it will, 'tis manifest that in both these Places *Giants* are spoken off as Rarities and Wonders of the Age, not of the common Stature: And such Instances we have had in all Ages; excepting some fabulous Relations; such as we take to be that of *Theutobocchus*, who is said to be dug up Anno 1613, and to have been higher than the Trophies, and 26 Foot long: And no better we suppose the *Giants* to have been, which *Ol. Magnus* gives an Account of in his 5th Book, such as *Harthen* and *Starchater* among the Men; and among the Women, *Reperta est* (saith he) *Puella—in capite vulnerata, mortua induta chlamyde purpurea, longitudinis cubitorum* 50, *latitudinis inter humeros quatuor.* Ol. Mag. *Hist. L.* 5. *c.* 2.

But, as for the more credible Relations of *Goliath* (whose Height was six Cubits, and a Span, 1 *Sam.* xvii. 4. which, according to Bishop *Cumberland*, is somewhat above eleven Feet *English*); of *Maximinus* the Emperor (who was nine Feet high), and others in *Augustus* and other Reigns, of about the same Hight: To which might be added the Dimensions of a Skeleton, dug up lately in the Palace of a *Roman* Camp near St. *Albans* by an Urn inscribed *Marcus Antoninus*; of which an Account is given by Mr. *Cheseldon*, who judg'd by the Dimensions of the Bones, that the Person was eight Foot high. *Philos. Transact* N° 333. For these antique Examples and Relations, we say, they may be match'd, nay outdone, with modern Examples; of which we have divers in *J. Ludolph. Comment. in Hist. Æthiop. L.* 1. *c.* 2. §. 22. *Magus, Conringius*, D. *Hackewill*, and others; which last relates from *Nannez*, of Porters and Archers belonging to the Emperor of *China*, of Fifteen Foot high; and others from *Purchas*, of ten and twelve Foot high, and more. See the Learned Author's *Apolog. p.* 208.

GIBBOUS, in Medicine, is used to denote a Person bunch'd or hump-back'd. See VERTEBRA.

That Part of the Liver out of which the Vena Cava arises, is also called the *gibbous* Part. See LIVER.

GIBBOUS is also used in reference to the enlightened Parts of the Moon, while she is moving from Full to the first Quarter, and from the last Quarter to Full again; for all that time the dark Part appears horned, and falcated, and the light one bunch'd out, Convex, or *Gibbous*. See PHASES, and MOON.

GIBELINS, GIBELLINS, or GIBELLING, a famous Faction in *Italy*, opposite to the *Guelphs*. See GUELPH.

The *Guelphs*, and *Gibellins* ravaged, and laid waste *Italy* for a long Series of Years; so that the History of the Country, for the space of two Centuries, is only a Detail of their mutual Violences, and mortal Wars.

We have but a very obscure Account, of their Origin, and the Reason of their Names: The Generality of Authors affirm, that they arose about the Year 1240, upon the Emperor *Frideric* the Second's being excommunicated by Pope *Gregory* the Ninth.

That Prince, say they, making a Tour among the Cities of *Italy*, gave the Name *Gibelins* to such as he found well affected to him; and that of *Guelphs* to those who adhered to the Pope.

But as to the Reason, and Signification of those Words, there is a deep Silence: *Gibelin* might possibly be form'd of *Ghebieder, Imperator*; whence *gubiedolijken, imperiose.* Of *Ghebiedelin*, the *Italians* might make, by Corruption, *Gibelin*; so that *Gibelins*, in this Light, should be the same with Imperialists, or such as follow'd the Emperor's Party.

By the way, some Writers maintain, that the two Factions arose ten Years before; tho' still under the same Pope, and Emperor.

Other Historians relate, that *Conrad* III[d] marching into *Italy*, in the Year 1139, against the *Neapolitans, Roger*, Count of *Naples* and *Sicily*, in order to defend his States, called to his Assistance *Guelph*, Duke of *Bavaria*; and that one Day when the two Armies were ready to join Battle, the *Bavarians* cried out in *High-Dutch, Hie Guelph*; or as others say in *Flemish, Hier Guelph*, that is, *Here Guelph*: And that the Imperialists answer'd, on their Side, with the Words *Hie*, or *Hier, Gibelin, here Gibelin*; calling the Emperor by the Name of the Place where he had been bred.

Hornius refers the Names to the War in 1140, between *Henry* the Proud, Duke of *Bavaria*, and *Saxony*; and *Conrad* the Third, Duke of *Suabia*: The two Princes being preparing to engage near the Town of *Winsberg*, the *Bavarians* began to cry out, *Guelph*, which was the Name of Duke *Henry*'s Brother, and the Partisans of the Emperor, *Weiblingen*, the Name of the Place where that Prince was born and bred in the Dutchy of *Wirtenberg*, whose Surname he bore: From which *Weiblingen*, the *Italians* at length form'd *Gibelin*.

This Account is confirm'd by *Martin Crusius: Initium* Gibelinæ *(Weibelinæ a Patria Conradi Regis)* & Welfiæ *concertationis. Conrad* being of *Weiblingen*, that Word, says *Crusius*, gave rise to *Gibellingue*, and that to *Gibelling, Gibelins, Gibellini.*

Platina, on the other Hand, assures us, that the Name *Gibelins* arose from that of a *German* at *Pistoya*; whose Brother, named *Guelph*, gave likewise his Name to the opposite Faction; the two Brethren, it seems, bearing an irreconcilable Hatred.

Others maintain, that the Emperor gave the Appellation *Gibelins* to those of his Party, from the *German* Word *Gipfel*, signifying Ridge, or Top; by reason the Empire rested on them, as the Rafters of a House lean on the Ridge, which joins them a-top.

Kraus,

Kraus, a learned Canon of *Strasbourg*, in the Lives of the Emperor of the House of *Brunswick*, is of the second Sentiment above related: In a Battle, says he, between *Welff*, or *Guelff*, and *Friderick*, the Army of the first crying out, *Hie Welff! Hie, Welff!* the second commanded his, to cry out *Hie, Gibeling! Hie, Gibeling*, the Name of his Birth Place; and the *French* and *Lombards* asking the Signification of those Words, they were answer'd, that by *Welff* was meant the Pope's Party; and by *Gibeling*, the Emperor's.

Yet others contend, that the Word *Gibelin* is only a softning of the Word *Gibertin*, or *Gubertin*; and that it arose from *Gubert*, an Anti-Pope, set up by the Emperor *Henry* III[3], in the Year 1080, *Acta Sanct. Propyl. Mai*, *p.* 198.

Maimbourg, in his *Hist. de la Decad. de l'Emp.* advances another Opinion: The two Factions, and their Names, says he, arose from a Quarrel between two Antient and Illustrious Houses, on the Confines of *Germany*, that of the *Henry's* of *Gibelung*, and that of the *Guelfes* of *Adorf*: Which Account appears the most probable of them all.

GIBET, a Machine, in manner of a Gallows, whereon notorious Criminals after Execution, are hung in Irons, or Chains; as Spectacles, *in terrorem*. See GALLOWS.

The Word in French, *Gibet*, properly denotes what we call *Gallows*: It is supposed to come originally from the Arabic *Gibel*, Mount, Elevation of Ground; by reason they are usually made on Hills, or Eminences.

GIBLETS, the Offalls or Entrails of a Goose; including the Heart, and Liver, with the Feet, Gizzard, &c.

The Word is suppos'd to be form'd of *Goblets*, from the French *Gobeau*, mouth-full.

Giblets make a considerable Article in Cookery: They boil *Giblets*, stew *Giblets*, make Ragoos of *Giblets*, *Giblet* Pies, &c.

GIGANTIC, see GIANT.

F. *Bouhours* relates, that one of the Artifices of the *Indian Bramans* consists in persuading the simple People, that the Gods eat like us; and, that they may bring them Store of Victuals, they represent those Gods of a *Gigantic* Size, and above all, give them a huge Tun Belly.

GIGANTOMACHIA, the Battle of the Giants against the fabulous Gods of the antient Heathens.

Several of the Poets have composed *Gigantomachia's*: That of *Scarron* is the finest of all his Pieces.

The Word is *Greek*, γιγαντομαχία, form'd of γίγας, γιγάντος, Giant, and μάχη, Combat, of μάχομαι, *pugno*, I fight.

GIGG, GIGUE, or JIG, in Music and Dancing, a gay, brisk, sprightly Composition, and yet in full Measure, as well as the *Allemand*, which is more serious. See DANCE.

Menage takes the Word to arise from the Italian *Giga*, a musical Instrument mentioned by *Dante*.

GILBERTINES, an Order of Religious, thus call'd from St. *Gilbert*, of *Simpringham*, in the County of *Lincoln*, who founded the same, about the Year 1148.

Antiently, none were received into it but married People: The Monks observed the Rule of St. *Augustin*; and were accounted Canons; and the Nuns that of St. *Benedict*.

The Founder erected a double Monastery, or rather, two different ones, contiguous to each other, the one for Men, the other for Women, but parted by a very high Wall.

The Order, afterwards, consisted of ten such Monasteries: All which were suppress'd at the general Dissolution of Monastic Orders under King *Henry* VIII.

GILD, or GUILD, originally signify's a Fraternity, or Company; form'd from the *Saxon Gildan*, to pay, because every Man was *gildare*, *i. e.* to pay something towards the Charge and Support of the Company. See COMPANY, and FRATERNITY.

Thence comes our *Guild-hall*, *q. d.* the Hall of the Society or Fraternity, where they meet and make Orders and Laws among themselves. See GUILD-*Hall*.

The Original of *Gilds* is thus related: It being a Law amongst the *Saxons*, that every Freeman of fourteen Years old should find Sureties to keep the Peace, or be committed; certain Neighbours entred into an Association, and became bound for each other, either to produce him who committed an Offence, or to make Satisfaction to the injur'd Party: This, that they might the better do, they rais'd a Sum of Money among themselves, which they put into a common Stock; and when one of their Pledges had committed an Offence, and was fled, then the other nine made Satisfaction out of this Stock, by Payment of Money, according to the Offence. See FRANK-*Pledge*.

Because this Association consisted of ten Families, it was called a *Decennary*: And from hence came our Fraternities. See DECENNA.

But, as to the direct Time when these *Gilds* had their Origin in *England*, there is nothing of Certainty to be found; since they were in use long before any formal Licence was granted to them for such Meetings.

Edward the third, in the fourteenth Year of his Reign, granted Licence to the Men of *Coventry*, to erect a Merchants *Gild* and Fraternity, of Brethren and Sisters, with a Master, or Warden; and that they might make Chantries, bestow Alms, do other Works of Piety, and constitute Ordinances touching the same, &c.

So *Henry* the fourth, in his Reign, granted a Licence to found a *Gild* of the *Holy Cross*, at *Stratford* upon *Avon*.

In the Royal Beroughs of *Scotland*, a *Gild* is still used for a Company of Merchants, who are Freemen of the Borough. See BOROUGH.

Every Royal Borough has a *Dean of Gild*, who is the next Magistrate below the Bailiff. He judges of Controversies among Men concerning Trade; disputes between Inhabitants touching Buildings, Lights, Water-courses, and other Nusance; calls Courts, at which his Brethren of the *Gild* are bound to attend; manages the common Stock of the *Gild*, and amerces and collects Fines.

GILD, or GELD, according to *Cambden*, does also signify a Tribute, or Tax; and the Statutes of 27 *Edw.* 3. Stat. 2. cap. 13; and 11 *Hen.* 7. cap. 9. use *Gildable* in the same Sense with *Taxable*. See GELD.

GILD, according to *Crompton*, does also signify an Amercement: As in *Footgeld*, which he interpretes a Prestation within the Forest, in these Words,—To be quit of all manner of *Gild*, is to be discharged of all manner of Prestations to be made for gathering Sheafs of Corn, Lamb, and Wool, to the use of Foresters.

GILD, or GELD, is also used among our antient Writers for a Compensation, or Mulct for a Fault committed.—— *Quicquid in amore in alterum furatum habent in duos* Geldos *compenere faciat*.

Hence, *Weregeld*, is the Price of a Man; *Orfgeld*, is the Price of Cattle; *Angild*, the single Value of a thing; *Twigeld*, the double Value. See WERGILD, &c.

There are likewise many Words, which end with *Geld*, and that shew the several kinds of Payments; as *Danegeld*, *Vadegeld*, *Seregeld*, *Hornegeld*, *Sotgeld*, *Penigeld*, &c. See DANEGELD, &c.

GILD, or GUILT *Rents*, are Rents payable to the Crown by any *Gild*, or Fraternity; or such Rents as formerly belonged to Religious *Gilds*, and came to the Crown at the general Dissolution, order'd for Sale by the Stat. 22 *Car.* 2.

GILDABLE, or GELDABLE, denotes *Tributary*, that is, liable to Pay, Tax, or Tribute.

Cambden, dividing *Suffolk* into three Parts, calls the first *Gildable*, because liable to Tax; from which the other two Parts were exempt, because *Ecclesiæ Donatæ*.

Guildable is also explained in an antient MS. to be that Land or Lordship which is *sub districtione Curiæ Vice-Com.*

GILGUL *Hammethin*, a *Hebrew* Phrase, literally signifying the *Rolling of the Dead*.

To conceive the Use of this Diction, it is to be observ'd that the *Jews* have a Tradition, that at the coming of the *Messiah*, no *Israelite* shall rise any where but in the Holy Land. What, then, shall become of all the Faithful inter'd in other Parts? Shall they perish, and remain in the State of Death?

No, say the Jewish Doctors: But GOD will dig them subterraneous Canals, or Cavities, thro' which they shall *roll* from their Tombs to the Holy Land; and when arrived there, GOD will blow on them, and raise them again.

This imaginary Passage of the Carcasses, or Ashes of the *Jews*, from their Tombs, to the Holy Land, by *rolling* under Ground, is what they call *Gilgul Hammethin*, the rolling of the Dead.

GILHALDA *Teutonicorum*, was us'd for the Fraternity of Easterling Merchants in *London*; called the *Stillyard*. See STILLYARD.

GILD-*Hall*, *q. d. Gildæ Aula*, the chief Hall in the City of *London*. See GUILD-*Hall*.

—Gildarum *nomine continentur non solum minores Fraternitates, & sodalitia, sed ipsæ etiam civitatum Communitates*, says the learned *Spelman*. See GILD.

GILD-*Merchant*, *Gilda Mercatoria*, was a certain Privilege, or Liberty, granted to Merchants, whereby they were enabled among other Things to hold certain Pleas of Land within their own Precincts.

King *John* granted *Gildam Mercatoriam* to the Burgesses of *Nottingham*.

GILDING, or GUILDING, the Art, or Act of spreading or covering a Thing over with Gold, either in Leaf or Liquid. See GOLD.

The Art of *gilding* was not unknown among the Antients, tho' it never arrived among them at the Perfection to which the Moderns have carried it.

Pliny assures us, that the first *gilding*, seen at *Rome*, was after the Destruction of *Carthage*, under the Censorship of *Lucius Mummius*; when they began to *gild* the Ceilings of their Temples, and Palaces; the Capitol being the first Place on which the Enrichment was bestow'd. But he adds, that Luxury advanced on them so hastily, that in a little time you might see all, even private and poor Persons, *gild* the very Walls, Vaults, &c. of their Houses.

We need not doubt but they had the ſame Method with us, of beating Gold, and reducing it into Leaves; though it ſhould ſeem they did not carry it to the ſame Height; if it is true which *Pliny* relates, that they only made five-hundred Leaves four Fingers ſquare of a whole Ounce. Indeed he adds that they could make more; that the thickeſt were called *Bracteæ Præneſtinæ*, by reaſon of a Statue of that Goddeſs at *Præneſte* gilt with ſuch Leaves; and that the thinner ſort were called *Bracteæ Queſtoriæ*.

The modern Gilders do alſo make uſe of Gold Leaves of divers Thickneſſes; but there are ſome ſo fine, that a thouſand don't weigh above four or five Drachms. The thickeſt are uſed for *gilding* on Iron, and other Metals; and the thinneſt, on Wood.—

But we have another Advantage over the Antients, in the manner of uſing, or applying the Gold: The Secret of painting in Oil, lately diſcover'd, furniſhes us with means of *gilding* Works that ſhall endure all the Injuries of Time and Weather, which to the Antients was impracticable. They had no way to lay the Gold on Bodies that would not endure the Fire but with Whites of Eggs, or Size; neither of which will endure the Water: So that they could only *gild* ſuch Places as were ſhelter'd from the Moiſture of the Weather.—

The *Greeks* called the Compoſition which they uſed for *gilding* on Wood, *Leucopheum*, or *Leucophorum*; which is deſcribed as a ſort of glutinous, compound Earth, ſerving, in all Probability, to make the Gold ſtick, and bear poliſhing. But the Particulars of this Earth, its Colour, Ingredients, &c. the Antiquaries and Naturaliſts are not agreed upon.

There are ſeveral Methods of *Gilding* in uſe among us; *viz. Gilding in Oil*; *Water Gilding*; *Gilding by the Fire*, which is peculiar to Metals; *Gilding of Books*, &c.

Method of GILDING *in Oil.*

The Baſis, or Matter whereon the Gold is applied, in this Method, is the Remains of Colours found ſettled to the Bottom of the Pots wherein the Painters waſh their Pencils. This Matter, which is very viſcid, they firſt grind; then paſs it thro' a linen Cloth; and thus lay it with a Pencil on the Matter to be gilt, after having firſt waſh'd it once or twice over with Size; and if it be Wood, with ſome white Paint.

When almoſt dry, but yet unctuous enough to catch and retain the Gold, they ſpread their Gold Leaves thereon, either whole, or cut in pieces: To take up and apply the Leaves, they make uſe of a Piece of fine, ſoft, well carded Cotton; or of a Palet for the purpoſe; or barely the Knife, wherewith the Leaves were cut, according to the Parts of the Work they are to *gild*, or the Breadth of the Gold to be applied.

In proportion as the Gold is laid, they paſs over it a coarſe, ſtiff Pencil or Bruſh, to make it ſtick, and, as it were, incorporate, with the Ground: With the ſame Pencil, or a ſmaller one, they mend any Cracks that may happen therein, after the ſame manner as will be hereafter ſhewn in *Water* GILDING.

This ſort of *Gilding* is chiefly uſed for Domes, and Roofs of Churches, Courts, Banquetting Houſes, &c. and for Figures of Plaſter, Lead, &c. that are to ſtand expoſed to the Weather.

Method of GILDING *in Water.*

Water *Gilding* is not perform'd without more Apparatus; nor can it be uſed ſo ordinarily, nor on ſuch large Works, as the former: Wooden Works, and thoſe of Stuc, are almoſt the only ones *gilt* in this way: which, beſide, muſt be ſhelter'd from the Weather.

The Size made uſe of for *gilding*, is to be made of Shreds, &c. of Parchment, or Gloves, boil'd in Water, to the Conſiſtence of a Gelly. See GLUE.

If it be Wood that is to be *gilt*, they firſt give it a *Waſh* of this Size, boiling hot; and when this is dry, another of white Paint, mix'd up with the ſame Size. For this White, ſome uſe Plaſter of Paris, well beaten and ſifted; others Spaniſh White, &c. It is laid on with a ſtiff Bruſh, and oftener, or ſeldomer repeated, according to the Nature of the Work: For Pieces of Sculpture, ſeven or eight Lays ſuffice; for flat, or ſmooth Works, ten, or twelve. In the latter Caſe they are applied by drawing the Bruſh over the Work; in the former by dabbing it.

When the whole is dry, they moiſten it with fair Water, and rub it over with ſeveral Pieces of coarſe Linen, if it be on flat; otherwiſe, they beat or ſwitch it with ſeveral Slips of the ſame Linen tied to little Sticks, to make it follow and enter all the Cavities and Depreſſures thereof.

The White thus finiſh'd, they proceed to yellow it; obſerving, that if it be a Piece of Sculpture in Relievo, they firſt touch up, and repare the ſeveral Parts which the white Ground may have diſfigur'd, with little iron Inſtruments, as Gouges, Chiſſels, &c.

The Yellow, which they uſe, is only common Oker well ground and ſifted, and thus mix'd up with the Size us'd for the White, only weaker by one half. This Colour is laid on hot; and in Works of Sculpture ſupplies the Place of Gold, which frequently cannot be carried into all the Cavities and Dentings of Foliages and other Ornaments.

Over this yellow is applied a Lay, which is to ſerve for the Ground whereon the Gold is to be immediately laid: It is uſually compoſed of the *Armenian* Bole, Blood-ſtone, Black Lead, and a little Fat, to which ſome add Soap and Oil of Olives; others, burnt Bread, Biſtre, Antimony, Glaſs of Tin, Butter and Sugar Candy. Theſe Ingredients being all ground together, with hot Size, they apply three Lays of the Compoſition upon the Yellow, each after the other is dried; taking Care not to put any in the ſmall Cavities of the Work, to hide the yellow. The Bruſh uſed in this Application, is to be ſoft; and when the Matter is well dried, they go over it with a ſtronger Bruſh, to rub it down, and take off the little prominent Grains, and thus facilitate the burniſhing of the Gold.

In order to proceed to *gild*, they muſt have three ſorts of Pencils; one, to wet; another to touch up, and amend; and a third to flatten: There is alſo required a Cuſhion, to ſpread the Gold Leaves on, when taken out of the Book; a Knife to cut them; and a Squirrel's Tail fitted with a Handle; or elſe a piece of fine Stuff on a Stick, to take them up, direct, and apply them.—

They begin with the wetting Pencils, by which they moiſten the Lay laſt laid on with Water, that it may the better receive and retain the Gold: The Leaves are then laid on the Cuſhion; and taken up, if whole, with the Squirrel's Tail; if in pieces, with the other Inſtrument, or even the Knife they are cut withal, and laid, and ſpread gently on the Parts of the Work before moiſten'd.

When the Leaves happen to crack, or break in laying on, they make up the Breaches with little Pieces of Leaf taken up on the repairing Pencil; and with the ſame Pencil, or another ſomewhat bigger, they ſmooth the whole; preſſing the Gold into the Dents, where it could not ſo well be carried with the Squirrel's Tail.

The Work thus far *gilt*, when dry, remains either to be burniſh'd, or flatted.—

To *burniſh* it, is to ſmooth, and poliſh with a Burniſher, which is uſually a Dog's, or Wolf's Tooth, or a Blood-ſtone fitted in a Handle for the purpoſe. See BURNISHING.

To *flat*, is to give it a light Lick in the Places not burniſh'd, with a Pencil dipt in Size, wherein a little Vermillion ſometimes has been mix'd. This helps to preſerve and prevent its flawing, when handled.

The laſt thing is to apply the Vermeil in all the little Lines, and Cavities; and to ſtop and amend any little Faults with Shell Gold.

The Compoſition here call'd *Vermeil*, is made of Gum Gutta, Vermillion, and a little of ſome ruddy, brown Colour, ground together, with *Venice* Varniſh, and Oil of Turpentine. Some *Gilders*, in lieu hereof, content themſelves with fine Lacca, or Dragons Blood, with Gum Water.

Sometimes, inſtead of burniſhing the Gold, they burniſh the Ground or Compoſition laid on laſt before it; and content themſelves afterwards to waſh the Part over with the Size. This Method is chiefly practiced for the Hands, Face, and other Nudities in Relievo; which, by this means, don't appear ſo very brillant as the Parts burniſh'd; though much more ſo than the Parts perfectly flat.

To *gild* a Work, and yet preſerve white Grounds; they uſe to apply a Lay of Spaniſh White mix'd with a weak Fiſh Glue, on all the Parts of the Ground whereon the yellow, or the laſt Lay might run.—

Method of GILDING *by the Fire.*

There are two ways of *Gilding by Fire*, *viz.* that with Liquid Gold, and that with Leaf Gold.

The firſt is perform'd with Gold, reduc'd to a Calx, and amalgamated with Mercury, in the Proportion of about an Ounce of Mercury to a Drachm of Gold.

In order to the Operation, they heat a Crucible red hot, then put the Gold and Mercury in it, and ſtir them gently about, till the Gold be found melted and incorporated into a Maſs with the Mercury. This done, they caſt them into Water, to waſh and purify; and thence into other Waters, where the Amalgama which is almoſt as liquid as if there were nothing but Quickſilver in it, may be preſerved a long time for Uſe.

Before they proceed to apply this amalgamated Gold, they firſt *roughen* the Metal it is to be applied on; which is done by waſhing it over with *Aqua fortis*, or *Aqua ſecunda*: Then rincing the Metal in fair Water, and ſcouring it a little with ſmall Sand, it is ready for the Gold.—

They now cover over the Metal with the Mixture of Gold, and Mercury, taking it up with a Slip of Copper, or a Bruſh made of braſs Wire, and ſpreading it as equably thereon as poſſible; in order to which they wet the Bruſh from time to time in fair Water.—

Thus

Thus far advanc'd, the Metal is set to the Fire, upon a Grate, or in a sort of a Cage, under which is a Pan of Coals: In proportion as the Mercury evaporating and flying off discovers Places where Gold is wanting, they take Care to supply them, by adding new Pieces of Amalgama.—

The Work is then rubb'd over, with the Wire Brush dipt in Beer, or Vinegar, which leaves it in a Condition to be brought to Colour, which is the last Part of the Process, and which the Gilders keep to themselves as a mighty Secret; tho' we know it cannot differ much from what we shall hereafter shew of the manner of giving Gold Species their Colour, under the Article COINING.

GILDING *by the Fire with Gold Leaves.*

To prepare the Metal for this *Gilding*, it must be first well scratch'd, or raked; then polish'd, with a Polisher; and then set to the Fire to *blue*, *i. e.* to heat, till it appear of a blue Colour. This done, the first Lay of Gold is clap'd thereon, and lightly rubb'd down with a Polisher; and thus exposed to a gentle Fire.

They usually only give it three such Lays, or four at most; each Lay consisting of a single Leaf for the common Works, and of two for the extraordinary ones: After each Lay they set it a-fresh to the Fire. After the last Lay, the Gold is in a Condition to be burnish'd.

GILDING *of Books*; see BOOK-*binding*.

GILL, or *Ground-Ivy*, a Medicinal Plant, which gives the Denomination to a sort of medicated Ale, or Drink, called *Gill*, or *Gill Ale*, made by infusing the dried Leaves of the Plant therein. See ALE.

Gill is held very abstersive and vulnerary, and is prescribed in all Disorders of the Lungs, and Breast; and is also esteem'd good in Obstructions of the Viscera: Whence it also passes for Hepatic, Diuretic, Splenetic, and Nephritic. It is said to do Wonders in Tubercles and tartarous Indurations of the Lungs. *Willis* commends its Powder in obstinate Coughs; and *Etmuller* gives the History of a Scorbutic Consumption cured by a strong Decoction of this Herb after a Vomit.

GILLA, in Chymistry and Pharmacy, is an *Arabic* Term for *Salt*; peculiarly used among us for the Emetic Salt of Vitriol. See VITRIOL.

This Salt is prepared from that Mineral, by three, or four repeated Operations, *viz.* Dissolution, in *May* Dew; Filtration; and Crystallization. In default of *May* Dew, Rain Water may serve.

Gilla is used in Tertian Agues, and all Fevers arising from a Corruption of the Humors of the first Region. It destroys Worms, and prevents Putrefaction. The Dose is from 20 Grains to half a Drachm, taken in Broth, or in Cordial Waters.—

GILLS, BRANCHIÆ, in Natural History, those membranous, cartilaginous Parts in Fishes, whereby they respire, hear, *&c.* See FISH; see also BRANCHIA.

What we call *Gills* in Fishes, are properly their Lungs: Respiration of Air is as necessary to Fishes, as to terrestrial Animals: There is always a deal of Air inclosed among Water; and 'tis this Air that Fishes respire. The whole Mechanism of their *Gills* is contrived with this View, *viz.* to separate and imbibe this Air from the Water, and present it to the Blood, after the same manner as it is presented to the Lungs of other Animals. See LUNGS.

M. *du Verney* has unravel'd this infinitely complicated Piece of Mechanism, in the *Gills* of a Carp: The first thing that offers, is a sort of Timber-work, consisting of a great Number of bony Laminæ, each subdivided into an Infinity of bony Fibres, whose Office is to sustain the innumerable Ramifications of an Artery dispatch'd hither from the Heart. The Use of these Ramifications is to present the Blood extremely subdivided, and, as it were, each Globule of Blood by it self, to the Water. Between these Laminæ, and throughout the whole Contexture of the *Gills*, are an infinite Number of very narrow Passages, destined to receive and subdivide the Water which the Fish takes in by the Mouth, into little Parcels. In this State the Air, its Prison Doors being now in some measure open'd, makes its Escape, and joins it self with the Blood of all the little Arteries.—

These *Gills* have necessarily an alternate Motion of Dilatation and Compression, which is effected by another very curious Piece of Mechanism; when they dilate, the Water is taken in, and when they contract, it is expell'd again. Hence 'tis probable that it is in the very Instant of Contraction, that the Air express'd from the Water is forc'd to enter the Pores of the little Blood Vessels, by reason the Force is then greater than at any other time; and this Action requires a considerable Force. The same Reason holds with respect to the Lungs of Men; accordingly M. *du Verney* maintains, that tho' the Air enter the Lungs in the time of Inspiration, it is only received into the Blood in that of Expiration, when the superfluous Air is carried off by the Trachea; so that the real Inspiration, *i. e.* the Entrance of the Air into the Blood, should be the Expiration. See RESPIRATION.

The Water is taken in by the Mouth, and carried off again, strip'd of its Air, by the *Gills*; and the Air gain'd from it, is distributed first to the Arteriolæ of the *Gills*, and thence by the Law of Circulation to all the little Veins inosculated therewith. See CIRCULATION, &c.

GINGER, GINGIBER, an Aromatic Root, of considerable Use both as a Spice, and a Medicine.—

It is brought chiefly from *Calicut*, in the East Indies; tho' of late it has been cultivated with good Success in the *Antilles* Islands.

The Plant which affords it, resembles our Rush, both in respect of Stem, and Flower.—The Root goes no depth under Ground, but spreads itself near the Surface, in form not unlike a Man's Hand; but very knotty.

When arrived at Maturity, they dig it up, and dry it in Hurdles, either in the Sun, or Oven: The best is that which is new, dry, well fed, hard to break, of a ruddy, brown Colour without, resinous within, and of a hot, pungent Taste.

They use to comfit the Root, when green, with Sugar, and Honey; having first steep'd it some time in Water, to take away part of its Acrimony, and dispose it to part with the Outer-skin. They also make a Marmelade of it, and dry Cakes.

The Northern People make great use of this Confection, as holding it soveraign against the Scurvy. The *Indians* eat the Root, when green, by way of Salade, first chipping it small, mixing it with other Herbs, and seasoning it with Oil and Vinegar.

As to its Medicinal Use, it is held good to strengthen the Stomach, and awaken Appetite. It promotes Digestion, prevents Putrefaction, *&c.*

GINGER-*Bread*, a richer kind of Bread, the Flavour and Taste whereof are heighten'd and improv'd with Spices, and particularly *Ginger*; whence the Name. See BREAD.

There are various Forms and Preparations of *Ginger*-Bread: We shall content ourselves with the following one, which is well recommended.

Into a Pound of Almonds, grate a penny white Loaf, sift, and beat them together: To the Mixture add an Ounce of *Ginger*, scraped fine, and Liquorice and Annis Seed in Powder, of each a quarter of an Ounce: Pour in two or three Spoonfuls of Rose-water, and make the whole into a Paste, with half a Pound of Sugar: Mould, and roll it, print it, and dry it in a Stove.

Others make it of Treacle, Citron, Lemon, and Orange Peel, with candied *Ginger*, Coriander, and Carroway Seeds, mix'd up with as much Flower as will make it into a Paste.

GINGIVA, in Anatomy, the *Gums*; a hard sort of Flesh, investing the Alveoli, or Sockets of the Teeth. See FLESH, and TEETH.

The *Gingivæ* are form'd by the Union of two Membranes; one of which is a Production of the Periosteum, and the other of the internal Membrane of the Mouth. See MOUTH.

GINGLYMUS, in Medicine, one of the Species of Articulation. See ARTICULATION.

The *Ginglymus* is that Jointure of the Bones, where each Bone mutually receives the other; so that each both receives, and is received. See BONE.

There are three Species of *Ginglymus*: The first, when the same Bone, at the same Extremity, receives and is reciprocally received by another Bone; after the manner of a Hinge: Such is that of the Cubitus and Humerus. See CUBITUS, and HUMERUS.

The second, when a Bone receives another at one of its Extremes, and is received into another, at the other: As the Vetebræ do. See VERTEBRÆ.

The third is that where a Bone is received into another, after the manner of a Wheel, or Axis of a Wheel in a Box: Such is that of the second Vertebra of the Neck in the first. See AXIS.

GIN-SENG, or GIN-SEM, in Natural History, a very extraordinary and wonderful Plant, hitherto only found in *Tartary*.

The *Gin-seng* is one of the principal Curiosities of the *Chinese*, and *Tartars*: Their most eminent Physicians have wrote many a Volume of its Virtues.

It is known among them by divers other Names, as the *only spirituous*; the *pure Spirit of the Earth*; the *Plant that gives Immortality*, &c. It makes, in effect, the whole *Materia Medica*, for the People of Condition; being too pretious for the Populace.

All the Writers of the *Chinese* Affairs make mention of the *Gin-seng*: As *Martinius*, in his *Atlas*; F. *Kircher*, in his *China Illustrata*; F. *Tachard*, in his *Voyages*; and F. *le Comte*, in his *Memoirs*.

And yet we knew but very little of this Plant, before F. *Jartoux*, a Jesuit, and Missionary in *China*; who being employ'd by Order of the Emperor, in making a Map of *Tartary*, in the Year 1709, had an Opportunity of seeing it growing

growing in a Village about four Leagues from the Kingdom of *Corea*, inhabited by *Tartars*, call'd *Calca-Tatze*.

That Father took the occasion to design the Plant, and give an accurate Description thereof, with its Virtues, and the manner of preparing it; which, being a great Curiosity, we shall here gratify the Reader withal.

The *Gin-seng*, represented *Tab. Nat. History*, *Fig.* 10. has a white Root, somewhat knotty, about thrice the Thickness of the Stem, and which goes tapering to the End: At a few Inches from the Head, it frequently parts into two Branches, which gives it some Resemblance of a Man, whose Thighs the Branches represent: And 'tis hence it takes the Denomination *Gin-seng*.

From the Root rises a perfectly smooth, and tolerable round Stem: Its Colour is a pretty deep Red, except toward the Foot, where, by the Neigbourhood of the Earth, it is turn'd somewhat whiter. At the Top of the Stem is a sort of Joint, or Knot, form'd by the shooting out of four Branches, which spread as from a Centre: The under Side of each Branch is green, mix'd with white; and the upper Part, much like the Stalk, of a deep Red: The two Colours gradually decrease, and at length unite on the Sides.

Each Branch has five Leaves, well enough represented in the Figure; and 'tis observable that the Branches divide equally from each other, both in respect of themselves, and of the Horizon; and with the Leaves make a circular Figure, nearly parallel to the Surface of the Ground.

The Fibres of the Leaves are very distinguishable, and on the upper Side are set with small whitish Hairs: The Membrane, or Pellicle between the Fibres, rises a little in the Middle, above the Level of the Fibres.

The Colour of the Leaf is a dark Green, above, and a shining, whitish Green underneath; and all the Leaves are finely jagged or indented.

On the Edges, from the Centre of the Branches, arises a second Stalk, D E, very straight, smooth, and whitish, from Bottom to Top, bearing a Bunch of round Fruit, of a beautiful red Colour. This Bunch, in the Plant viewed by our Missionary, was composed of twenty four Berries; two of which are here represented 9, 9.

The Red Skin, that covers the Berry, is very thin, and smooth, and contains within it a white Pulp: As these Berries were double (for they are sometimes single) each had two rough Stones, of the Size and Figure of our Lentils. The Pedicles, whereon the Berries were supported, all arose from the same Center; and spreading exactly like the Radii of a Sphere, made the Bunch of Berries of a circular Form. The Fruit is not good to eat; and the Stone includes a Kernel: It has also a small Beard at the Top, diametrically opposite to the Pedicle.

The Plant dies away every Year; the Number of its Years may be known by the Number of Stalks it has shot forth; of which there always remains some Mark, as is shewn in the Figure, by the Letters *b b b*, &c. From whence it appears, that the Root A was seven Years old; and the Root H fifteen.

As to the Flowr, F. *Jartoux* owns he had never seen it; and therefore could not describe it: Some have assured him, that it is white, and very small; others, that there is no Flower at all, and that no body had ever seen it. He rather inclines to think it so small as to have escap'd Notice; and, what confirms him in the Opinion, is, that those who seek the *Gin-seng*, having nothing in view but its Root, overlook and despise the rest as useless.

As they have sowed the Seed in vain, without any Plant ever arising therefrom; 'tis probable this might give occasion to the Fable which is current among the *Tartars*:—They say, that a Bird eats it, as soon as in the Earth; and not being able to digest it, it purifies in its Stomach, and afterwards springs up in the Place where it was cast by the Bird with its Dung.—The Missionary rather believes that the Stone remains a long time in the Ground, before it takes root; which Opinion appears the more probable, as there are some Roots no longer or bigger than ones little Finger, which yet have shot forth at least ten Stalks.

Tho' the Plant, here described, had four Branches; yet there are some which have but two; others, three; and others, five, six, or seven: But each Branch has always five Leaves.

The Heighth of the Plant is proportionable to its Bigness, and the Number of Branches the Root has: The larger and more uniform it is, and the fewer small Strings or Fibres it has, the better it is accounted.

'Tis hard, to say, why the *Chinese* should call it *Gin-seng*, a Word which signifies *Form*, or *Representation*: Neither that Father, nor any he inquir'd of, could ever find that it bore more Resemblance to the Figure of a Man, than is ordinarily seen among other Roots. The *Tartars*, with more Reason, call it *Ochota*, that is, the *first of Plants*.

Those who gather the *Gin-seng*, preserve only the Root; and all they can get of it in ten, or fifteen Days time, they bury together in some Place under Ground. Then they take care to wash it well, and scour it with a Brush: Then dip it in scalding Water, and prepare it in the Fume of a sort of yellow Milet, which gives it Part of its Colour.

The Milet is put in a Vessel, with a little Water, and boil'd over a gentle Fire; the Roots being laid over the Vessel upon small, transverse Pieces of Wood, being first cover'd with a linen Cloath, or some other Vessel, plac'd over them.

They may also be dried in the Sun, or by the Fire; but then, tho' they retain their Virtue well enough, they have not that yellow Colour, which the *Chinese* so much admire. When the Roots are dried, they must be kept close in some very dry Place; otherwise they are in danger of corrupting, or being eaten by Worms.

As to the Place where this Root grows, it is between the thirty ninth and forty seventh Degree of North Latitude, and between the tenth and twentieth Degree of East Longitude, reckoning from the Meridian of *Peking*. Here is found a long Tract of Mountains, which the thick Forrests that cover and encompass them, render almost unpassable. It is upon the Declivities of these Mountains, and in these thick Forrests, upon the Banks of Torrents, or about the Roots of Trees, and amidst a thousand other different Sorts of Plants, that the *Gin-seng* is found. It is not to be met with in Plains, Vallies, Marshes, the Bottoms of Rivulers, or in Places too much exposed and open.

If the Forest take fire, and be consumed, this Plant does not appear till two or three Years after: It also lies hid from the Sun as much as possible, which shews that Heat is an Enemy to it.

The Places where the *Gin-seng* grows, are on every Side separated from the Province of *Quan-tong*, by a Barrier of wooden Stakes, which incompasses this whole Province, and about which Guards continually patroll, to hinder the *Chinese* from going out, and looking after this Root.

Yet, how vigilant soever they are, their Greediness after Gain incites the *Chinese* to lurk about privately in these Deserts, sometimes to the Number of two or three thousand; at the hazard of loosing their Liberty, and all the Fruit of their Labour, if they are taken, either as they go out of, or come into the Province.

The Emperor having a mind that the *Tartars* should reap all the Advantage that is to be made of this Plant, rather than the *Chinese*, gave Orders, in 1709, to ten thousand *Tartars*, to go and gather all that they could of the *Gin-seng*, upon Condition that each Person should give him two Ounces of the best, and that the rest should be paid for Weight for Weight, in pure Silver.

It was computed that by this means the Emperor would get this Year about twenty thousand *Chinese* Pounds of it, which would not cost him above one fourth Part of its Value.

We met, by chance, with some of these *Tartars*, in the Midst of those frightful Deserts; and their Mandarins, who were not far out of our Way, came one after another, and offer'd us Oxen for our Subsistance, according to the Commands they had received from the Emperor.

This Army of Herbarists observed the following Order: After they had divided a certain Tract of Land among their several Companies, each to the Number of an hundred Persons, spread itself out in a Right Line, to a certain fix'd Place, every ten of them keeping at a distance from the rest.

Then they search'd carefully for the Plant, going on leisurely in the same Order; and in this manner, in a certain Number of Days, they run over the whole space of Ground appointed them.

When the Time is expired, the Mandarins, who are encamp'd with their Tents in such Places as are proper for the Subsistance of their Horses, send to view each Troop, to give them fresh Orders, and to inform themselves if their Number is compleat.

If any one of them is wanting, as it often happens, either by wandring out of the way, or being attack'd by wild Beasts, they look for him a Day or two, and then return again to their Labour, as before.

The *Gin-seng*, we have observ'd, is an Ingredient in most of the Medicines which the *Chinese* Physicians prescribe to the better sort of Patients: They affirm that it is a sovereign Remedy for all Weaknesses occasion'd by excessive Fatigues, either of Body, or Mind; that it attenuates and carries off pituitous Humours; cures Weakness of the Lungs, and the Pleurisy; stops Vomitings; strengthens the Stomach, and helps the Appetite; dispersles Fumes, or Vapours; fortifies the Breast; is a Remedy for short and weak Breathing; strengthens the vital Spirits, and is good against Dizziness of the Head, and Dimness of Sight, and that it prolongs Life to extreme old Age.

No body can imagine, that the *Chinese* and *Tartars* would set so high a Value upon this Root, if it did not constantly produce a good Effect: Those that are in Health, often make use of it to render themselves more vigorous and strong; and I am persuaded it would prove an excellent

Medicine

Medicine in the Hands of any *European* who understands Pharmacy, if he had but a sufficient Quantity of it to make such Trials as are necessary to examine the Nature of it chymically, and to apply it in a proper Quantity, according to the Nature of the Disease for which it may be beneficial.

It is certain that it subtilises, increases the Motion of, and warms, the Blood; that it helps Digestion, and invigorates in a very sensible manner.

After I had designed the Root, I observed the State of my Pulse, and then took half of the Root, raw as it was, and unprepar'd; in an Hour after, I found my Pulse much fuller and quicker: I had an Appetite, and found myself much more vigorous, and could bear Labour better and easier than before. Four Days after, finding myself so fatigued and weary, that I could scarce sit on Horseback, a Mandarin who was in Company with us, perceiving it, gave me one of these Roots: I took half of it immediately, and an Hour after I was not in the least sensible of any Weariness. I have often made use of it since, and always with the same Success: I have observ'd also, that the green Leaves, and especially the fibrous Part of them, chewed, would produce nearly the same Effect. The *Tartars* often bring us the Leaves of *Gin-seng*, instead of Tea; and I always find myself so well afterwards, that I should readily prefer them before the best Tea. Their Decoction is of a grateful Colour; and when one has taken it twice, or thrice, its Taste and Smell become very agreeable.

As for the Root, it is necessary to boil it a little more than Tea, to allow time for extracting its Virtue; as is practis'd by the *Chinese*, when they give it to sick Persons; on which occasion they seldom use more than the fifth Part of an Ounce of the dried Root.

To prepare the Root for Exhibition, cut it into thin Slices, and put it into an earthen Pot well glazed, with about half a Pint of Water; the Pot to be well cover'd, and set to boil over a gentle Fire; and when the Water is consumed to the Quantity of a Cup full, a little Sugar to be mix'd with it, and to be drank: Immediately after this as much more Water to be put on the Remainder, and to be boiled as before, to extract all the Juice, and what remains of the spirituous Part of the Root. These two Doses to be taken, the one in the Morning, and the other in the Evening.

GIRDERS, in Architecture, the largest Pieces of Timber in a Floor—Their Ends are usually fasten'd into the Summers, or Brest-Summers, and the Joists are framed in at one End to the *Girders*. See JOIST.

By the Statute *for rebuilding London*, no *Girder* is to lie less than ten Inches into the Wall; and their Ends to be always laid in Lome, *&c.*

	From		to		must be in			
	F.	In.	F.	In.	Breadth	Inches.	Depth	Inches.
Girders and *Summers* in Length.	10	0	15	0	11		8	
	15	0	18	0	13		9	
	18	0	21	0	14		10	
	21	0	24	0	16		12	
	24	0	26	0	17		14	

GIRDING-*Beams*, in Building, the same as *Girders*. See GIRDER.

GIRDLE, CINGULUS, or ZONA, a Belt, or Band, of Leather, or other Matter, tied about the Reins; to keep the Part more firm, and tight.

It was antiently the Custom for Bankrupts, and other Cessionaries, to put off, and surrender their *Girdle*, in open Court—The Reason hereof, was, that our Ancestors used to carry all their necessary Utensils, as Purse, Keys, *&c.* tied to the *Girdle*; whence the *Girdle* became a Symbol of the Estate. History relates, that the Widow of *Philip* I. Duke of *Burgundy*, renounced her Right of Succession, and put off her *Girdle* on the Duke's Tomb. See INVESTITURE.

The *Romans* always wore a *Girdle*, to tuck up the Gown when they had occasion to do any thing. This Custom was so general, that such as went without *Girdles*, and let their Gowns hang loose, were reputed idle, dissolute Persons.

Maidens or *Virgins* GIRDLE—It was the Custom among the *Greeks*, and *Romans*, for the Husband to untie his Bride's *Girdle*.

Homer, lib. II. of the *Odyssey*, calls this *Girdle* παρθένιον ζωνον. Maid's *Girdle*. *Festus* relates, that this *Girdle* was made of Sheep's Wool; and that the Husband untied it in Bed. He adds, that it was tied in the *Herculian* Knot; and that the Husband untied it, as a happy Presage of his having as many Children as *Hercules*, who at his Death left seventy behind him.

The Poets attribute to *Venus* a particular kind of *Girdle*, called *Cestus*; to which they annex a Faculty of inspiring the Passion of Love. See CESTUS.

Quicksilver GIRDLE, in Medicine, is a sort of *Girdle* smeered over with Mercury, or having Mercury inclosed within it. See MERCURY.

It is made of Leather, Linen, Cloth, Cotton, Stuff, or the like, and the Mercury prepared or killed various ways; as with fasting Spittle, Fat, or the like.

It is applied as a Topical Medicine about the Waste, sometimes with good Effect, but frequently proves dangerous, principally in weak Constitutions, and those subject to Convulsions.

Its Intention is, the Cure of the Itch, driving away Vermin, killing Lice, *&c.*

Queens GIRDLE, is an antient Duty, or Tax, rais'd at *Paris* every three Years, at the rate of three Deniers upon each Muid of Wine, and fix for each Queue. It was intended for the Maintenance of the Queen's Houshold: Afterwards they augmented and extended it to other Commodities, as Coals, *&c.*

Vigenere supposes it to have been originally thus called, by reason the *Girdle* antiently served for a Purse; but he adds, that a like Tax had been raised in *Persia*, and under the same Name, above two thousand Years ago; as appears from *Plato*, in his *Alcibiades*, *Cicero*, *Atheneus*, &c.

Christians of the GIRDLE. *Motavackkel*, tenth Calif of the Family of the *Abassides*, enjoin'd the Christians, and *Jews* in the Year of the Hegira, 235; of Jesus Christ, 856, to wear a large leathern *Girdle*, as a Badge of their Profession; which they bear to this Day throughout the East: From which time the Christians of *Asia*, and particularly those of *Syria* and *Mesopotamia*, who are almost all *Nestorians*, or *Jacobites*, have been called *Christians of the Girdle*.

Order of the GIRDLE, the Order of *Cordeliers*; see CORD, and CORDELIER.

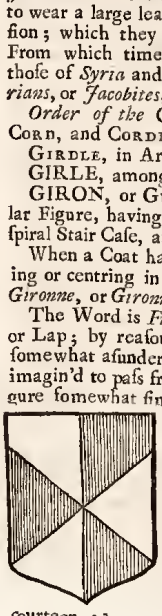
GIRDLE, in Architecture; see CINETURE.

GIRLE, among Hunters, is a Roe buck of two Years.

GIRON, or GUIRON, in Heraldry, a Gore, or triangular Figure, having a long, sharp Point, like the Step of a spiral Stair Case, and ending in the Centre of the Escutcheon.

When a Coat has six, eight, or ten of these *Girons*, meeting or centring in the Middle of the Coat, it is said to be *Gironne*, or *Gironny*. See GIRONNE.

The Word is *French*, and literally signifies the *Gremium*, or Lap; by reason, in sitting, the Knees being supposed somewhat asunder, the two Thighs, together with a Line imagin'd to pass from one Knee to the other, forms a Figure somewhat simular hereto.



GIRONNE, GIRONNY, in Heraldry, is when a Shield or Coat is divided into several *Girons*, which are alternately Colour and Metal; as in the adjoining Figure, which we Blazon, *Gironne* of six Argent and Sable.

When there are eight pieces or *Girons*, it is absolutely said to be *Gironne*; when there are more, or fewer, the Number is to be express'd—*Gironne* of four, of fourteen, *&c.*

Some, instead of *Gironne*, say, *Parti*, *Couppé Trenché*, and *Faillé*, by reason the *Girons* are form'd by such Divisions of the Field.

Four *Girons* form a *Salteer*, and eight, a *Cross*, See SALTEER, &c.

GIVEN, *Datus*, a Term frequently used in Mathematicks, signifying something which is supposed to be known. See DATA.

Thus, if a Magnitude be known, or we can find another equal to it, we say, it is a *given Magnitude*, or that such a Thing is *given* in Magnitude. See MAGNITUDE.

If the Position of any thing be supposed as known, we say, *Given in Position*. See POSITION.

Thus, if a Circle be actually described on a Plain, its Centre is *Given in Position*; its Circumference *Given in Magnitude*; and the Circle is *Given* both *in Position*, and *Magnitude*.

A Circle may be *given* in Magnitude only, as when only its Diameter is *given*, and the Circle not actually described.

If the Kind, or Species of any Figure be *given*, they say, *given in Specie*.—If the Ratio between any two Quantities is known, they are said to be *given in Proportion*.

GLACIALIS, Icy, something relating to Ice; and particularly, a Place that abounds in Ice.

Thus, we say, the *Mare Glaciale*, or *Congelatum*, that is, the Icy, or Frozen Sea; call'd also *Chronian* Sea, or *Sarmatian* Sea. See SEA.

The Word is form'd of the Latin *Glacies*, Ice. See ICE.

GLACIS, in Building, *&c.* is an easy, insensible Slope, or Declivity. See DECLIVITY.

The Descent, or Inclination of the *Glacis* is less steep than that of the *Talut*. See TALUT.

In Gardening, a Descent sometimes begins in *Talut*, and ends in *Glacis*.

The Glacis *of the Cornich* is an easy, imperceptible Slope in the Cymaise of a Cornich, to promote the Descent and draining off of the Rain-Water. See Cymaise.

Glacis, in Fortification, is particularly used for that of the Counterscarp.

The *Glacis* of the Counterscarp, or cover'd Way, is the Sloping Bank that reaches from the Parapet of the Corridor, or Counterscarp, to the level Side of the Field. See Counterscarp.

The *Glacis* is about six Foot high, and loses itself by an insensible Diminution in the space of ten Fathoms. See Esplanade.

GLADE, in Agriculture, Gardening, *&c.* a *Vista*, or open, and light Passage, made thro' a thick Wood, Grove, or the like, by lopping off the Branches of Trees along the Way. See Vista, *&c.*

GLADIATOR, in Antiquity, a Person who fought with naked Swords on the *Arena*, at *Rome*, to entertain the People. See Arena, Spectacle, &c.

The *Gladiators* were usually Slaves, and fought out of Necessity; tho', sometimes, Freemen made Profession thereof, like our Prize-fighters, for a Livelihood.

After a Slave had serv'd on the Arena three Years, he was dismiss'd. See Slave.

The *Romans* borrow'd this cruel Diversion from the *Asiaticks:* Some suppose that there was Policy herein; the frequent Combates of *Gladiators* tending to accustom the People to despise Dangers, and Death.

The Origin of such Combats seems to be as follows: From the earliest Times, we have any Acquaintance withal in profane History, it had been the Custom to sacrifice Captives, or Prisoners of War, to the Manes of the Great Men who had died in the Engagement: Thus *Achilles*, in the Iliad, *L. XXIII.* sacrifices twelve young *Trojans*, to the Manes of *Patroclus*; and in *Virgil*, *L. XI. v.* 81. *Æneas* sends Captives to *Evander*, to be sacrificed at the Funeral of his Son *Pallas*.

In length of Time they came to sacrifice Slaves at the Funerals of all Persons of Condition: This was even esteemed a necessary Part of the Ceremony; but as it would have appeared barbarous to have massacred them like Beasts, they were appointed to fight with each other, and do their best to save their own Lives, by killing their Adversary. This seem'd somewhat less inhuman, by reason there was a Possibility of avoiding Death; and it only lay on themselves, if they did not do it. See Funeral.

This occasion'd the Profession of *Gladiator* to become an Art: Hence arose Masters of Arms; and Men learn'd to fight, and exercise therein.

These Masters, whom the *Latins* call'd *Lanistæ*, bought them Slaves, to train up to this cruel Trade; whom they afterwards sold to such as had occasion to present the People with so horrible a Shew.

Junius Brutus, who expell'd the Kings, is said to have been the first who honour'd the Funeral of his Father with these inhuman Diversions—They were at first perform'd near the Sepulchre of the Deceased, or about the Funeral Pile; but were afterwards removed to the Circus and Amphitheatres, and became ordinary Amusements. See Circus, Amphitheatre, *&c.*

The Emperor *Claudius* restrain'd them to certain times, but he soon afterwards annull'd what he decreed, and private Persons began to exhibit them at Pleasure, as usual; and some carried the brutal Satisfaction so far as to have them at their ordinary Feasts. See Feast.

And not Slaves only, but other Persons would hire themselves to this infamous Office.

The Master of the *Gladiators* made them all first swear, that they would fight to death; and if they fail'd therein, they were put to death, either by Fire, or Swords, Clubs, Whips, or the like.

It was a Crime for the Wretches to complain when they were wounded; or to ask for Death; or seek to avoid it, when overcome: But it was usual for the Prince, or the People to grant them Life, when they gave no Signs of Fear, but waited the fatal Stroke with Courage and Intrepidity. *Augustus* even decreed, that it should always be granted them.

From Slaves, and free'd Men, the wanton Sport spread to People of Rank and Condition; and *Nero* is related to have brought upwards of 400 Senators, and 600 *Roman* Knights upon the Scene; yet *Domitian*, that other Monster of Cruelty, refined upon him, exhibiting Combats of Women in the night-time.

Constantine the Great is said to have first prohibited the Combats of *Gladiators*, in the East; at least, he forbad those condemn'd to death for their Crimes, to be employ'd herein: There being an Order still extant to the *Præfectus Prætorii*, rather to send them to work in the Mines in lieu thereof: It is dated at *Beryta* in *Phœnicia*, the first of *October* 325.

The Emperor *Honorius* first forbad them at *Rome*, on occasion of the Death of St. *Telemachus*, who, coming out of the East into *Rome*, at the time of one of these Spectacles, went down into the Arena, and us'd all his Endeavours to prevent the *Gladiators* from continuing the Sport: Upon which the Spectators of that Carnage, fired with Anger, stoned him to death. *Theodoret. Hist. Eccles. L. V. C.* 26.

It must be observ'd, however, that the Practice was not entirely abolish'd in the West before *Theodoric*, King of the *Ostrogoths.*—*Honorius*, on the occasion first mentioned, had prohibited them; but the Prohibition does not seem to have been executed. *Theodoric*, in the Year 1500 abolish'd them finally.

Some time before the Day of Battle, the Person who presented the People with the Shews, gave them Notice thereof, by Programma's, or Bills, containing the Names of the *Gladiators*, and the Marks whereby they were to be distinguish'd; for each had his several Badge, which was most commonly a Peacock's Feather, as appears from the *Scholiast* of *Juvenal*, on the 158th Verse of the III^d *Satyr*; and *Turnebius Advers. L. III. c.* 8.

They also gave notice what time the Shews would last, and how many Couples of *Gladiators* there were: And it even appears from the 52d Verse of the 7th *Satyr* of the II^d Book of *Horace*, that they sometimes made Representations of these Things in Painting; as is practic'd among us, by those who have any thing to shew at Fairs.

The Day being come, they began the Entertainment by bringing two kinds of Weapons; the first were Staves, or wooden Files, call'd *Rudes*; and the second, effective Weapons, as Swords, Poniards, *&c.*

The first were call'd *Arma lusoria*, or *Exercitoria*; the second, *Decretoria*, as being given by Decree, or Sentence of the *Prætor*; or of him at whose Expence the Spectacle was given.

They began to fence, or skirmish with the first, which was to be the Prelude to the Battle: From these, when well warm'd, they advanc'd to the second, with which they fought naked.

The first Part of the Engagement was called *ventilare*, *præludere*; and the second, *dimicare ad certum*, or *versis armis pugnare:* And some Authors think with much Probability, that it is to these two kinds of Combat that St. *Paul* alludes in the Passage 1 *Cor.* ix. 26, 27. *I fight, not as one that beateth the Air; but I keep under my Body, and bring it into Subjection.*

If the Vanquish'd gave up his Arms, it was not in the Victor's Power, to grant him Life: It was the People, during the time of the Republic; and the Prince, or People, during the time of the Empire, that were alone impower'd to grant the Boon.

The Reward of the Conqueror was a Crown, or a Branch of the *Lentisk* Tree: Sometimes they gave them his Conge, or dismiss'd him, by putting one of the wooden Files, or *Rudes* in his Hand; and sometimes they even gave him his Freedom.

The Sign, or Indication whereby the Spectators shew'd that they granted the Favour, was, to fall the Thumb; or clench it between the other Fingers: And when they would have the Combat finish'd, and the Vainquish'd slain, they rais'd the Thumb, and directed it towards the Combatants: Which we learn from *Juvenal*, *Sat. III. v.* 36.

The *Gladiators* challeng'd, or defied each other, by shewing the little Finger; which same, during the Combat, was to own themselves overcome. *Pliny*, L. XXVIII. c. 2. *Prudentius*, L. II. contra Symm. v. 1098. *Horace*, L. I. Ep 18. v. 66. *Politian.* Miscell. c. 42. *Turneb.* Advers. L. XI. c. 6. *Lipsi.* Satum. L. II. c. 22.

There were divers kinds of *Gladiators*, distinguish'd by their Weapons, Manner, and Time of fighting, *&c.* as,

The *Andabatæ*, of whom we have already given an account under the Article Andabatæ.

The *Catervarii*, who fought in Troops, or Companies; Number, against Number. *Lipsi.* Lib. II. c. 16.

The *Consummati*, whom Authors mention as a Species of *Gladiators*, the same with the *Rudiarii* and *Veterani*; founding the Opinion on a Passage in *Pliny*, L. VIII. c. 7. But *Lipsius* shews, that they have mistaken *Pliny*. *Saturn.* Lib. II. c. 16. and *Turneb. Advers.* L. XXX. c. 6.

The *Cubicularii*, which are a little precarious, being chiefly founded on a Passage in *Lampridius*, in the Life of the Emperor *Commodus: Inter hæc habitu Victimarii, victimas immolavit, in arena rudibus, inter* Cubicularios *Gladiatores pugnavit lucentibus aliquando mucronibus.*

Turnebius reads *Rudiarios*, in lieu of *Cubicularios*, and understands it of those who had been dismiss'd, and could no longer be oblig'd to fight, except with Files.

Salmasius reads *Gladiator*, and refers it to the Emperor, who fought not only on the Arena, and with Files, or blunted Instruments; but at home, with his Servants, and Valets de Chambre, and with Sharps.

Lipsius will have nothing alter'd in the Text: The *Gladiatores Cubicularii*, he observes, were those who fought at private Houses, during Feasts, &c. Accordingly, *Dion* says expressly, that *Commodus* sometimes fought at home, and even kill'd some Person on such a Rencounter; but that in publick he only fought with blunted Weapons.

The *Dimachæ*, or *Dimachæres*, who fought arm'd with two Poniards, or Swords; or with Sword and Dagger. *Lipf. Saturn.* L. II. c. 13.

The *Essedarii*, who fought in Carrs; call'd also, in an Inscription lately discover'd at *Lyons*, *Assedarii*. *Saturn. Serm.* L. II. c. 13.

The *Fiscales*, or *Cæsariani*, who belong'd to the Emperor's Company, and who being more robust and dexterous than the rest, were frequently call'd for; and therefore named *Postulatitii*. *Saturn.* L. II. c. 16.

The other Kinds were, the *Heptomachi*, *Meridiani*, *Mermillones*, *Ordinarii*, *Provocatores*, *Retiarii*, *Rudiarii*, *Secutores*, *Spectatores*, and *Thraces*: Which see described under their several Articles MERIDIANI, RETIARII, SECUTORES, &c.

Some Authors, and particularly *Vigenere* on *Livy*, rank the *Obsequentes*, mention'd by *Spartan* in his Life of *Marcus Aurelius*, among the Number of *Gladiators*. *Lipsius* laughs at him, *Saturn.* L. II. c. 16. and with some Reason: The *Obsequentes* properly were the Troops which that Emperor rais'd among the *Gladiators*, or whom of *Gladiators* he made Soldiers.

The War of the GLADIATORS, *Bellum Gladiatorium*, or *Spartacium*, call'd also the *Servile War*, was a War which the *Romans* sustained about the Year of their City 680.

Spartacus, *Crinus*, and *Oenomaus*, having escaped with thirty *Gladiators* more, out of the Place where they had been kept, at *Capua*, gather'd together a Body of Slaves, put themselves at their Head, render'd themselves Masters of all *Campania*, and gain'd several Victories over the *Roman* Prætors.

At length they were defeated, in the Year 682, at the Extremity of *Italy*, having in vain attempted to pass over into *Sicily*.

This War proved very formidable to the *Romans*. *Crassus* was not able to finish it: The Great *Pompey* was forc'd to be sent as General.—

GLADIUS, SWORD; or *Jus* GLADII, *q. d. Right of the Sword*, is used in our antient *Latin* Authors, and in the *Norman* Laws, for a supreme Jurisdiction.

Cambden, in *Britannia*, writes, *Comitatus Flint pertinet ad* Gladium *Cestriæ*. And in *Selden*, *Tit.* of *Honour*, p. 640. *Curiam suam liberam de omnibus placitis*, &c. *exceptis ad* Gladium *ejus pertinentibus*.

And it is probably from hence, that at the Creation of an Earl, he is *Gladio succinctus*, to signify that he had a Jurisdiction over the County. See EARL, COUNT, &c.

GLAND, GLANDULA, in Anatomy, a soft, spungy, lax kind of Body; serving to separate some particular Humor from the Mass of Blood. See BLOOD, and HUMOR.

The Antients took the *Glands* to be nothing more than a kind of *Pillows*, or *Cushions*, for the neighbouring Parts to rest on—Some of them, at length, began to fancy them *Sponges*; to receive and imbibe the superfluous Moisture of the other Parts.

Later Physicians came to assign them nobler, and more important Uses—They consider'd them as *Cisterns*, which contain'd proper Ferments, whereby the Blood, upon its mixing therewith, was put into a Fermentation, in the Progress whereof it work'd, or threw off certain of its Parts, and sent them away by their excretory Ducts.

The Moderns, who allow'd them the Organs whereby the vital Fluids are separated for the Uses of the Body, consider'd them as *Filtres*, the Pores whereof being all of different Figures, would only admit of similarly figur'd Particles, to pass thro' them.

But the latest Authors rather conceive the *Glands* as *Sieves*, whose Perforations being of different Sizes, tho' of the same Figure, only separate such Particles whose Diameters are less than their own.

The *Glands*, to the Eye, appear a sort of whitish, membranous Masses, composed of an outer Cover, or Integument, within which a vascular plexus Matter is contain'd. They are denominated from their Resemblance in form, to *Acorns*, which the *Latins* call *Glandes*.

By Dissection, and the Microscope, they are found to be real Plexus's, or Pelotoons of Vessels, variously wound, and implicated among themselves. But the modern Anatomists, *Malpighi*, *Bellini*, *Wharton*, *Nuck*, *Peyer*, &c. have gone further, and discover'd them to be no more than continued Convolutions of the capillary Arteries. See ARTERY.

Their Formation appears to be thus—An Artery arriving at a certain Part, is divided into an infinite Number of exceedingly fine Branches, or Ramifications: These capillary Branches are laid in various Bends and Circumvolutions; and from the Returns thereof, arise new Branches, or Vessels, for Veins; which, a little further, unite, or terminate in some larger Branch.

All these Ramifications, both Veins and Arteries, are rolled up in a Bundle; making numerous Gyres, and Circumvolutions: And from the various Bends and Angles form'd by both Kinds, arise numerous other minute Vessels, which make the principal and most essential Part of the *Gland*.

The Blood brought from the heart-ward, by the Artery, into the *glandular* Plexus, pursues all the Turns, and meanders in the arterial Part thereof, till arriving at the venal Part, it is brought back again to the Heart. In the mean time, during its Progress thro' the Arterial and Venal Folds, some Part of it is absorbed, or drain'd off, at the Orifices of the Tubules arising from the Flexures thereof.

What is thus received into these, which we may call the *Secretory Ducts*, is commonly taken up by other Tubules, springing out of them: These, joining together, form a single Canal, call'd the *Excretory Duct*; which, passing out of the Body of the *Gland*, carries off the secreted Matter into some proper Receptacle destined to retain, or receive it.

Tho', sometimes, the Secretory Vessels themselves terminate in a Bason, or Reservoir; and deposite their Contents therein.

Such is the general Structure, and Office of the *Glands*; which we shall further illustrate under the Article SECRETION.

A *Gland*, then, is a Composition of divers kinds of Vessels; *viz.* an *Artery*, and a *Vein*; *Secretory*, and *Excretory Ducts*: To which may be added a *Nerve*, which is found in every *Gland*, diffused thro' the whole Substance thereof, to furnish Spirits for the promoting the Secretion; and a *Membrane*, which supports the Convolutions of the Vein and Artery, accompanying them thro' all their minutest Divisions; and *Lymphaticks*, which have been discover'd in several *Glands*. See VEIN, ARTERY, NERVE, SECRETORY, EXCRETORY, and LYMPHATIC.

The Secretory Tubes, however, are what we principally consider as the Organ of the *Gland*. These alone do sometimes form the greatest Part of what is called a *Gland*, or *glandulous* Body.

M. *Winslow* has discover'd a kind of *Tomentum*, or Down within their Cavity; which he supposes to do the Office of a Philtre, and to be that whereby such a certain Humor is separated from the common Mass of Blood.—His System will be explained when we come to treat of SECRETION.

The *Down-Vessel* being the grand Organ of Secretions, its Structure and Application is diversified according to the different Purposes Nature has in view. Sometimes the Liquor filtrated thro' it, trickles out, Drop by Drop, upon a Membrane, to which one Extremity of the Vessel is fasten'd; as where the Filtration is only intended for moistening and lubricating the Part, with that Liquor: In which case the Down-Vessel is both Secretory, and Excretory; which is the most simple Case.—Such are those innumerable *Glands* spread thro' the greatest Part of the Viscera.—

Sometimes a great Number of these Down-Vessels is spread over the inner Surface of a little, membranous Cell, into which they pour their Liquor, which is discharged hence at a little Aperture in the Cell: Such are the solitary *Glands* of the Intestines, which appear like so many little separate Grains.

Sometimes a Vessel is bent, and has only Down in the first Part thereof, which alone is Secretory, and the rest excretory, pouring the Liquor into some other common Cavity—Such are the *Glands* that compose a Cavities Kidney.

The Secretory Vessels are sometimes of a very great Length, notwithstanding that they take up but little room, being wound over themselves again and again; sometimes in a single Pelotoon, or Knot, and sometimes in several, inclosed in a common Membrane—Whence the Distinction of *Glands* into *Conglobate*, and *Conglomerate*.

The *Glands* are of several Kinds, in respect of their Form, Structure, Office, and Use: Authors usually divide them into *Conglobate*, and *Conglomerate*.

Conglobate, or *Simple* GLANDS, are those consisting of one continuous Mass, with an uniform Surface—Such are the *Subcutaneous Glands*.

A Conglobate *Gland*, is, more strictly, a little, smooth Body, wrap'd up in a fine, double Skin, by which it is separated from all the other Parts; only admitting an Artery, and Nerve to pass in, and a Vein and excretory Duct to go out.—These *Glands* either discharge their secreted Humor into the Chyle, or venous Blood; or else it transpires thro' the Pores of the Skin, or the Coats of the looser Membranes found in most Parts of the Body.

Of the Conglobate Kind are the *Glands* in the cortical Part of the Brain, where the animal Spirits are supposed to be secreted. See CORTEX, BRAIN, and SPIRITS.

Such also are the *Labial Glands*, and the *Testes*. See TESTICLE.

Conglomerate, or *Compound* GLAND, is an irregular Assemblage of several simple *Glands*, tied together, and wrap'd

wrap'd up under one common Membrane—Such are the *Maxillary Glands*, &c.

The Humors secreted in these *Glands*, are sometimes discharged at a common excretory Duct, form'd of an Union of the excretory Ducts of all the particular ones; as the *Pancbreas* and *Carotides* do. See PANCHREAS and CAROTIDES.

Sometimes, the Ducts uniting form several Tubes, only communicating with each other by cross Canals; as in those of the Breasts. See MAMMÆ.

Some, again, have several excretory Tubes, without any Communication together; as the *Glandulæ lachrymales*, and *prostatæ*. See PROSTATÆ, &c.

Others, have their several excretory Ducts inserted into a common Canal, which opens at last into some of the greater Cavities; as the *Salival Glands*, *Intestinal Glands*, &c. See SALIVA, INTESTINES, &c.

Lastly, in others, each *Gland* has its own excretory Duct, thro' which it transmits its Liquor to a common Bason; such are those of the Kidneys. See KIDNEY, PELVIS, &c.

The *Glands* are again divided into *Vascular*, and *Vesicular*.

Vascular GLANDS are only Clusters of little Vessels, which uniting together, form the Canal or excretory Duct through which their secreted Juice is discharged.

Vesicular GLANDS are Assemblages of Vesiculæ communicating with each other, and all terminating in two or three larger Vessels; by a Prolongation whereof the excretory Duct is form'd.

The *Glands*, again, are divided into *Adventitious*; and *Perpetual*, or *Natural*.

Adventitious GLANDS are those Kernels arising occasionally under the Arm-pits, on the Neck, &c. Such are the *Strumæ*, and the Tumors sometimes found on the Larynx, and Middle of the Trachea.

Perpetual, or *Natural* GLANDS are of two Kinds, *Conglobate*, and *Conglomerate*. See CONGLOBATE, and CONGLOMERATE.

A List of the divers Sorts of Glands *in the human Body; each whereof filtrates a different Humor.*

1 CErebri.
2 Plexus Choroidæi.
3 Sebaceæ.
4 Meatus Auditorii.
5 Ciliares.
6 Lachrymales.
7 Humorem aqueum } secernentes.
8 Crystallinum } secernentes.
9 Vitreum } secernentes.
10 Atrum Choroidis } secernentes.
11 Nasales.
12 Buccales, Labiales, Palatinæ.
13 Parotides, Maxillares, Sublinguales.
14 Tonsillarum.
15 Oesophagi.
16 Asperæ Arteriæ.
17 Pericardii.
18 Mammarum.
19 Ventriculi.
20 Intestinorum.
21 Pancreatis.
22 Hepatis.
23 Vesicæ Fellis.
24 Renum.
25 Renales.
26 Ureterum.
27 Vesicæ Urinariæ.
28 Urethræ.
29 Testiculorum.
30 Prostatarum.
31 Uteri.
32 Vaginæ.
33 Lymphaticæ.
34 Pinguedinales.
35 Medullares.
36 Artuum.
37 Cutis Milliares.

Lumbal GLANDS, or GLANDULÆ *Lumbares*, are three *Glands*, thus called by *Bartholine*, as lying on the Loins. See LOINS.

The two largest lie upon one another betwixt the descending Cava and Aorta, in the Angle made by the Emulgents with the Cava: The third and smallest stands over the former under the Appendices of the Diaphragm. They communicate, and are connected together by small lacteal Vessels. *Bartholine* had concluded them to serve as a common Receptacle of the Chyle; but Dr. *Wharton*'s Opinion is more probable, *viz.* that they supply the Place of those larger *Glands* found in the Mesenteries of Brutes.

Miliary GLANDS, GLANDULÆ *Miliares*. See MILIARY *Glands*.

Mucilaginous GLANDS are a kind of *Glands* first described by Dr. *Havers*. See MUCILAGINOUS *Glands*.

Mucous GLANDS, GLANDULÆ *Mucosæ*; see MUCOUS *Glands*.

Myrtiform GLANDS, are Contractions of the Hymen, broke by the first Act of Venery. See MYRTIFORMES *Glandulæ*; see also HYMEN.

Odoriferous GLANDS, GLANDULÆ *Odoriferæ*, are certain small *Glands* discover'd by Dr. *Tyson*, in that Part of the Penis, where the Præpuce is contiguous to the Balanus. See PRÆPUTIUM.

He gave them this Name from the brisk Scent which their separated Liquor emits. In such Persons as have the Prepuce longer than ordinary, they are not only more in Number, but larger, and separate a greater Quantity of Juice; which, lodging there, often grows rancid, and corrupts the *Glands*. These *Glands* are very conspicuous in most Quadrupeds, especially Dogs, and Boars.

Pineal GLAND, GLANDULA *Pinealis*. See PINEAL *Gland*, and CONARIUM.

Pituitary GLAND, GLANDULA *Pituitaria*. See PITUITARY *Gland*.

Renal GLANDS, GLANDULÆ *Renales*; call'd also *Capsulæ atrabilares*, are two *Glands*, first discover'd by *Eustachius*, between the Aorta, and the Kidneys, a little above the emulgent Vessels; tho' their Situation and Figure is varied: In some they are round; in others square, triangular, &c. The right is usually bigger than the left, and each about the Size of a *Nux Vomica*: They are inclos'd in Fat.

Their Use is not certainly known: 'Tis suppos'd to be to separate a Liquor from the Arterial Blood, before it go to the Kidneys.—See ATRABILARES.

GLANDERS, a filthy Disease in a Horse, consisting in a running of corrupt Matter from the Nose, of a different Colour, according to the Degree of the Malignity, or as the Infection has been of shorter or longer Continuance; being white, yellow, green, or black.—

Authors ascribe it to various Causes; some to Infection; some, to a Disorder of the Lungs; others, to the Spleen; some, to the Liver; and others, to the Brain—After it has been of so long standing, that the Matter is become of a blackish Colour, which is usually in its last Stage, they suppose it to come from the Spine; and hence call it the *Mourning of the Chine*.

Kernels and Knots are usually felt under the Caul in this Disorder: And as these grow bigger and more inflamed, so the *Glanders* increase more under the Horse's Body.

A late Author is of opinion, that the chief Seat of this Distemper is in a little, soft, spungy Flesh, which is easily dilated by the least Influx of the Blood: And thence it is that some Horses have a running at the Nose from a very slight Cold; but when this spungy Substance happens to be very much relaxed, the Running is increased in Proportion.

GLANDULA, in Anatomy, the same as *Gland*. See GLAND.

The Word is a Diminutive of the Latin *Glans*, Acorn; and is here us'd on account of some external Resemblance between the Glands of the Body, and the Fruit of the Oak.

GLANDULÆ *Sebaceæ*, are a Number of *Glands* under the Skin of the Auricle of the Ear, first discover'd by *Valsalva*, and thus denominated, by reason they separate a greasy Matter, like *Sebum*, or Tallow. See AURICLE.

This *Sebum*, he asserts, being carried to the Surface of the Skin, turns into a scaly Substance, not unlike that of Bran.

GLANDULA *Guidonis*, among Surgeons, is a Tumor resembling a *Gland*, soft, single, moveable, without Roots, and separated from the adjacent Parts.—

GLANDULE, in Anatomy, &c. a Diminutive of the Word *Gland*; signifying a little *Gland*.

Thus, the *Amygdalæ*, or Almonds of the Ears are called *Glandules*. See TONSIL.

GLANDULOUS, or GLANDULAR, something composed of *Glands*; or that abounds with *Glands*. See GLAND.

Thus, the Breasts are said to be *Glandulous* Bodies. See BREASTS.

The Cortical Substance of the Brain is commonly reputed to be *glandulous*: Tho' the Excellent *Ruysch*, from the Discoveries made by his admirable Injections, holds that there is no such thing therein. See BRAIN.

The Antients distinguish'd a particular kind of Flesh, which they call'd *Caro glandulosa*, or *glandulous* Flesh. See FLESH.

GLANDULOUS *Body*, GLANDULOSUM *Corpus*, the same with *Prostata*. See PROSTATA.

GLANS, *Acorn*, in Natural History, a Fruit contain'd within a smooth, but hard Bark, including a single Seed; its Hind-part being cover'd with a kind of Cup, and the Fore-part bare. See FRUIT, and SEED; see also TIMBER, &c.

GLANS, in Anatomy, is the Tip, or Button of the Penis; or that Part cover'd with the Præpuce; call'd also *Balanus*. See BALANUS, and PENIS.

The *Glans* is only a Dilatation of the Extremity of the spongeous Substance of the Urethra, bunch'd and turn'd back on the two conical Tips of the *Corpora cavernosa*, which terminate therein. See URETHRA, and CAVERNOSA *Corpora*.

The Extremity of the Præpuce is apt to grow so straight in old Men, that it cannot bear the *Glans*; perhaps thro' the Defect of frequent Erections. See PRÆPUCE; see also ERECTION.

GLANS is also used for the Tip, or Extremity of the Clitoris, from its Resemblance both in Form and Use, to that of the Penis. See CLITORIS.

The principal Difference consists in this, that it is not perforated: This *Glans* is also cover'd with a Præputium, form'd of the inner Membrane of the Labia. See PRÆPUTIUM.

GLASS,

GLASS, *Vitrum*, a transparent, brittle, factitious Body, produc'd of Salt and Sand, by the Action of Fire. See VITRIFICATION.

The Word *Glass* is form'd of the Latin *Glastum*, a Plant call'd by the Greeks *Isatis*, by others, *Aogignome*, by the *Romans*, frequently, *Arosion*, sometimes *Vitrum*, by the antient Britains, *Guadum*, and the English, *Wood*.

We find frequent Mention of this Plant in antient Writers, particularly *Cæsar*, *Vitruvius*, *Pliny*, &c. who relate, that the antient *Britains* painted, or died their Bodies with *Glass*, *Glastum*, *Guadum*, *Vitrum*, &c. *i. e.* with the *Blue* Colour procured from this Plant.

And hence, the factitious Matter we are speaking of, came to be call'd *Glass*; as having always somewhat of this Blueishness in it. See WOAD.

The Chymists hold that there is no Body but may be *vitrified*, *i. e.* converted into *Glass*—By intense Heat even Gold it self gives way to the Sun's Rays collected in a Burning-Glass, and becomes *Glass*. See GOLD, and BURNING-*Glass*.

Add, that as *Glass* is the Effect, or Fruit of Fire, so 'tis the last Effect: All the Chymists Art, and all the Force of Fire not being able to carry the Change of any natural Body beyond its Vitrification. Whence Dr. *Merret* mentions it as a merry Saying of a very great Artist in the Business of *Glass*, That their Profession would be the last in the World: For that when God should consume the Universe with Fire, all things therein should be turn'd to *Glass*. See VITRIFICATION.

Nature, Character, and Properties of GLASS.

Naturalists are divided, in what Class of Bodies to rank *Glass*—*Agricola* makes it a concrete *Juice*: *Belvacensis*, a *Stone*: *Fallopius* ranks it among the Media *mineralia*; and the Workmen, when in Fusion, call it *Metal*. But Dr. *Merret* with Reason sets aside all these Opinions, from this Consideration, that all the forementioned Bodies are natural Concretes; whereas *Glass* is a Compound made by Art, and never found in the Earth, as the others are.

Fallopius, indeed, contends, that *Glass* is no more artificial than a Metal; and that they are both equally extracted, or educed from other Bodies: The one from Sand; the other from its Ore.—He adds, that tho' Ashes be added to Sand, for the making of *Glass*, yet it is false that they contribute to the Composition of *Glass*; their Use, according to him, being only for the better extracting of the *Glass* from the mineral Stone.

This, Dr. *Merret* easily confutes: For if *Glass* were extracted from the Stones, or Sand only, the Weight of the Metal must be much less than that of the Stones alone; whereas, it is much greater, an hundred Weight of Sand, sufficing for 150 of *Glass*.

In effect, the Ashes contribute a deal of Salt to the Composition of *Glass*—Accordingly, in Pieces of old *Glass*, one may sometimes pick out Grains of Salt, easily discoverable to the Taste; beside that the finest *Glass*, standing long in a subterraneous Place, will moulder or resolve into its first Ingredients, Salt and Sand, by the Decay of the Union thereof. Whence it appears that the Salt remains in the *Glass*, *in Specie*: To which may be added that Experiment of *Van Helmont*. "Melt *Glass*-Dust with Sandever, and "set them in a moist Place; and the *Glass* will resolve into "Water. Pour on *Aqua regia*, enough to saturate the "Sandever; and the Sand will precipitate to the Bottom "in the same Quantity, and Weight, as was first used." *Helm. Cap. De Terra.*

Here, then, is a true Analysis of *Glass*; or a Solution into its first Principles, or Ingredients: The Salt being imbibed by the Sandever, and *Aqua Regia*. *Merret. in Ant. Neri De Art. Vitrar.*

The learned, and curious Author just mentioned, gives us the following Characters, or Properties of *Glass*; whereby it is distinguish'd from all other Bodies; *viz.* 1° That it is an *Artificial Concrete* of Salt, and Sand, or Stones: 2° *Fusible*, by a strong Fire. 3° When fused, *tenacious*, and coherent. 4° It does not waste, or *consume* in the Fire. 5° When melted, it *cleaves* to Iron. 6° *Ductile*, when red hot, and fashionable into any Form; but not malleable: And capable of being *blown* into a Hollowness; which no Mineral is. 7° *Frangible*, when thin, without annealing. 8° *Friable*, when cold. 9° Always *diaphanous*, whether hot, or cold. 10° *Flexible*, and *Elastic*. 11° *Dissoluble by Cold* and *Moisture*. 12° Only capable of being *graven*, or *cut with Diamond*, and Emery. 13° Receives any *Colour*, or *Dye*, both externally, and internally. 14° Not dissoluble by *Aqua fortis*, *Aqua regia*, or *Mercury*. 15° Neither *Acid Juices*, nor any other Matter *extract either Colour*, *Taste*, nor any other Quality from it. 16° It admits of *polishing*. 17° *Neither loses of Weight, nor Substance* by the longest, and most frequent Use. 18° Gives *Fusion to other Metals*, and softens them. 19° The most *ployable thing in the World*, and that which best retains the Fashion given it. 20° Not *capable of being calcined*. 21° An open *Glass*, fill'd with Water in the Summer-time, will *gather Drops of Water* on the Out-side so far as the Water on the Inside reaches; and a Man's Breath blown upon it will manifestly moisten it. 22° Little Glass Balls fill'd with Water, Mercury, or other Liquor, and thrown into the Fire; as also Drops of Green *Glass* broken, *fly asunder* with a loud Noise. 23° Neither Wine, Beer, nor any other *Liquor will make it musty*, nor *change its Colour*, nor *rust it*. 24° It may be *cemented* as Stones, and Metals. 25° A Drinking *Glass*, partly fill'd with Water, and rubb'd on the Brim with a wet Finger, *yields musical Notes*, higher, or lower, as the *Glass* is more or less full, and makes the Liquor frisk and leap.—

For the Flexibility of GLASS, see further under FLEXIBILITY *of Glass*.

For the Malleability of GLASS, see MALLEABILITY, &c.

History, and Antiquity of GLASS.

De Neri will have *Glass* as antient as *Job*: For that Writer, *c. XXVIII. v.* 17. speaking of Wisdom, says, *Gold and Glass shall not be equall'd to it.*

This, we are to observe, is the Reading of the *Septuagint*, Vulgate *Latin*, St. *Jerom*, *Pineda*, &c. For in the *English* Version, instead of *Glass*, we read *Crystal*; and the same is done in the *Chaldee*, *Arias Montanus*, and the King of *Spain*'s Edition: In other Versions, &c. it is read a *Stone*; in others, a *Beryl*: In the *Italian*, *Spanish*, *French*, *High* and *Low Dutch*, &c. a *Diamond*; in others, a *Carbuncle*; and in the *Thargum*, a *Looking Glass*.

In effect, the Original Word is *Zechuchih*, from the Root *Zacac*, to purify, cleanse, shine, be white, transparent: And the same Word, *Exod. XXX.* 34. is applied to *Frankincense*, and render'd in the Septuagint, *pellucid*.—Hence the Reason of so many different Rendrings: For the Word signifying *beautiful*, and *transparent* in the general, the Translators were at liberty to apply it to whatever was valuable and transparent.

Most Authors will have *Aristophanes* to be the first Author who mentions *Glass*: That Poet, in his Comedy call'd *the Clouds*, *Scen. I. Act* 2. uses the Word *Hyalus*, ὕαλος, which is now ordinarily render'd *Glass*. He there introduces *Strepsiades*, teaching *Socrates* a new way to pay old Debts, *viz.* "by placing a fair transparent Stone sold by the Druggists, "from which Fire is struck, between the Sun and the Writ-"ing; and so melting away the Letters thereof." This Stone *Socrates* calls ὕαλος; which the *Scholiast* on *Aristophanes* derives from ὕειν, to *rain*, from the Likeness it bears to Ice, which is Rain, or Water congeal'd; tho' it must be own'd the Word ὕαλος is ambiguous, and signifies Crystal as well as *Glass*: And *Gorræus* relates that they had a kind of yellow Amber, transparent as *Glass*, call'd by some, ὕαλος.

Aristotle has two Problems upon *Glass*; the first, Why we see through it? The second, Why it cannot be beaten? If these Problems be *Aristotle*'s, which the Learned doubt very much; this would probably be the earliest Piece of Antiquity of *Glass*: But the first Author, who makes unquestion'd Mention of this Matter, is *Alexander Aphrodiseus*, who uses it in a Simile: "As the Floridness of a Colour is seen thro' "*Glass*," &c.

After him the Word occurs commonly enough: *Lucian* mentions large Drinking *Glasses*; and *Plutarch*, in his *Symposiacon*, says that the Fire of *Tamarisk* Wood is fittest for the making of *Glass*.

Among the *Latin* Writers, *Lucretius* is the first that takes notice of *Glass*. —*Nisi recta foraminu tranant—Qualia sunt Vitri.*—

Dr. *Merret*, however, adds, that *Glass* could not be unknown to the Antients; but that it must needs be as antient as Pottery it self, or the Art of making Bricks: For scarcely can a Kiln of Bricks be burnt; or a Batch of Pottery Ware be made, but some of the Bricks, and Ware, will be at least superficially turn'd to *Glass*: And therefore, without doubt it was known at the Building of *Babel*.

Hence, *Ferrant Imperatus*, *lib.* 25. *c.* 7. "*Glass*, like the "artificial Kind, is found under Ground, in Places where "great Fires have been.—Other *Glasses* are found in round "Clods, like Firestone, some brittle, others firm, &c. This "Fossil *Glass* is wrought by the *Americans*, and used in-"stead of Iron." *lib. XXV. c.* 7. And no doubt, but Vitrifications were more common in the antient Bricks than ours: as they temper'd their Earth two Years together, and burnt them better. See BRICK.

Pliny relates the manner of the Discovery of *Glass*—It was found, according to that Author, by accident, in *Syria*, at the Mouth of the River *Belus*, by certain Merchants driven thither by the Fortune of the Sea. Being obliged to live there, and dress their Victuals, by making a Fire on the Ground; and there being Store of the Plant Kali upon the Spot; this Herb being burnt to Ashes, and the Sand or

Stones of the Place, accidentally mix'd with it, a Vitrification was undesignedly made. From whence the Hint was taken, and easily improved.

Indeed, how old soever *Glass* may be; the Art of making, and working it, appears of no great Antiquity—The first Place mention'd for the making hereof, is *Sidon* in *Syria*, which was famous for *Glass* and *Glass-houses*, as observ'd by *Pliny*, *L. XXXVI. c. 26.*—The first Time we hear of *Glass* made among the *Romans*, was in the Time of *Tiberius*; when *Pliny* relates that an Artist was put to death for making *Glass* Malleable. See MALLEABILITY.—

Venice, for many Years, excell'd all *Europe* for the Fineness of its *Glasses*. The great *Glass-works* were at *Muran*, or *Mouran*, a Village near the City; which furnish'd all *Europe* with the finest and largest *Glasses*. But within this fifty Years the *French* and *English*, have not only come up to, but even surpass'd the *Venetians*; so that we are now no longer supplied from abroad.

The *French* made a considerable Improvement in the Art of *Glass*, by the Invention of a Method to cast very large Plates; till then unknown; and scarce practic'd yet, by any but themselves, and the *English*.

That Court applied itself with a laudable Industry to cultivate and improve the *Glass* Manufacture.—A Company of Glass-men was establish'd by Letters Patents; and it was provided by an Arret, not only that the working in *Glass* should not derogate any thing from Nobility, but even, that none but Nobles should be allowed to work therein.

Ingredients of GLASS, *with the Method of preparing them.*

The Materials used in the Composition of *Glass*, we have observ'd, are *Salt*; and *Sand*, or Stone. See SALT, and SAND.

The Salt is of the fix'd Kind; such as will not evaporate with the most intense Heat.—The Sand, or Stone must be such as will melt easily: This is what gives Firmness and Consistence to the *Glass*.

1° This Salt is procured chiefly from a kind of Ashes, call'd *Polverine*, or *Rochetta*, brought from the *Levant*, and particularly from *Alexandria* and *Tripoli*—The Ashes are those of a Vegetable, frequent in the Country, commonly call'd *Kali*; sometimes *Kalli*; *Kallu*; *Cali*; by *Gesner*, *Alkali*; by *Lobel*, *Soda*; by *Dodonæus*, *Salsola*; and by *Camer. Cordus*, *Fuchsius*, &c. *Anthyllis*. Dr. *Merret* calls it English *Salt-wurt*, from its Saline Taste; and *Glass-weed*, from the Use made of its Ashes in making of *Glass*. See KALI and POLVERINE.

Bauhin mentions ten Species of this Plant; whereof there are four used by the *Alexandrians*, &c. for the making of *Polverine*, and Soap; *viz. Kali geniculatum*; *Kali secunda species*; *Kali Ægyptiacum*; and *Kali Spinosum*.

The first and last, our own Coasts affords, where they are call'd by the People *Frog-grass*, and *Sea-grass*; but they are of no use for making of *Glass*: Being laid on a hot Iron, they fly off almost wholly in Fumes, leaving no Ashes at all; whereas the Kalies brought from the *Levant*, applied on the same Iron, are soon converted almost wholly into *Polverine*, *i. e.* very saline Ashes, of a dark Colour. See SOAP.

To get the Salt from this *Polverine*, they pulverize, and sift it very fine; then boil it in a Brass Copper, with fair Water and Tartar, till a third Part of the Water is consumed; taking care to stir it from time to time. Then, filling up the Copper with fresh Water, they boil it a second time, till half be consumed: This done, they have a Lee impregnated with Salt. To get the Salt from the Lees, they boil them, till the Salt shoots at the Top; which they scum off as it rises. An hundred Pounds of Ashes, this way, usually yields eighty or ninety of Salt.

When the Salt is dry, they beat it grosly, and put it into a Furnace, to dry it further with a gentle Heat. When sufficiently dry, they pound and sift it very fine, and lay it by to make *Frit*. See FRIT.

Note. Instead of the Ashes of the Plant *Kali*, those of *Fern* will also yield a Salt, which makes excellent *Glass*; nothing inferior to that of Polverine. The Method of Preparation is the same. Add, that the Ashes of the Cods, and Stalks of Beans; as also those of Coleworts, Bramble Bush, Millet Stalks, Rushes, Fern Rushes, and many other Plants may be us'd for the like Purpose, and after the same manner.

2° For *Stone*, the second Ingredient in *Glass*.—The best, we have observ'd, is that which will melt, is white, and transparent. This is found principally in *Italy*, being a sort of Marble, call'd *Tarso*: The next is *Quocoli*, or *Cuogele*, a sort of Pebbles found at the Bottoms of Rivers.

Indeed, nothing makes finer and clearer *Glass* than Flint, but the Charge of preparing it, deters the Glass-men from using it. The Preparation necessary for Stone, is to calcine, powder, and sierce it.

Ant. Neri observes, that all white, transparent Stones, which will not burn to Lime, are fit to make *Glass*; and that all Stones which will strike Fire with Steel, are capable of being employ'd in making of *Glass*. But this latter Rule, Dr. *Merret* observes, does not hold universally.

Where proper Stone cannot be had, *Sand* is us'd: The best for the purpose is that which is white and small; for green *Glass*, that which is harder, and more gritty: It is to be well wash'd; which is all the Preparation it needs—Our Glass-houses are furnish'd with white Sand for their Crystal *Glasses* from *Maidstone*; and with the coarser, for green *Glass*, from *Maidstone*.

Some mention a third Ingredient in *Glass*, *viz. Manganese*, or *Sydera*, a kind of *Pseudo* Loadstone, dug up in *Germany*, *Italy*, and even in *Mendip* Hills in *Somersetshire*. But the Proportion hereof to the rest, is very inconsiderable; beside, that it is not used in all *Glass*. Its Office is to purge off the natural greenish Colour, and give it some other Tincture requir'd.

Method of making White, and Crystal GLASS.

There are three sorts of Furnaces us'd in the *Glass-works*: One to prepare the *Frit*, call'd the *Calcar*: A second to work the *Glass*; and a third, call'd the *Leer*, to anneal it. See them all described under the Article FURNACE.

To make Crystal *Glass*, take of the whitest *Tarso* pounded small, and sierced as fine as Flower, two hundred Pounds; and Salt of *Polverine*, an hundred and thirty Pounds. Mix them together, and put them into the Furnace call'd *Calcar*, first heating it. For an Hour keep a moderate Fire, and keep stirring the Materials, that they may incorporate and calcine together. Then increase the Fire for five Hours: After which take out the Matter; which being now sufficiently calcined, is called *Frit*.—From the Calcar put the Frit in a dry Place, and cover it up from the Dust, for three or four Months. See FRIT.

Now, *to make* the *Glass*, or Crystal: Take of this Crystal Frit, call'd also *Bollito*; set it in Pots in the Furnace, adding to it a due Quantity of Manganese: When the two are fused, cast the Fluor into fair Water, to clear it of the Salt, call'd *Sandever*; which would otherwise make the Crystal obscure, and cloudy. This Lotion must be repeated again, and again, as oft as needful, till the Crystal be fully purged. Then set it to boil four, five, or six Days; which done, see whether it have Manganese enough; and if it be yet greenish, add more Manganese, at Discretion, by little and little at a time; taking care not to overdose it, by reason the Manganese inclines it to a blackish Hue. Then let the Metal clarify, till it become of a clear, and shining Colour: Which done, it is fit to be blown, or form'd into Vessels at pleasure.

There are three principal Kinds of *Glasses*, distinguish'd by the Form, or manner of working them; *viz. Round Glass*, as these of our Vessels, Phials, Drinking *Glasses*, &c. *Table* or *Window Glass*, of which there are divers Kinds, *viz. Crown Glass*, *Jealous Glass*, &c. and *Plate Glass*, or *Looking Glass*.

Method of Working or Blowing Round GLASS.

The Working Furnace, we have observ'd, is round, and has six *Boccas*, or Apertures: At one of these, call'd the *great Bocca*, the Furnace is heated, and the Pots of Frit set in the Furnace: Two other, smaller Holes, call'd *Boccacellas*, serve to lade or take out the melted Metal, at the End of an Iron, to work the *Glass*. At the other Holes, they put in Pots of other fusible Ingredients, to be prepared, and at last emptied into the Lading Pot.

There are six Pots in each Furnace, all made of Tobacco-Pipe Clay, proper to sustain not only the Heat of the Fire, but also the Effect of the Polverine, which penetrates every thing else. There are only two of these Pots that work: The rest serve to prepare the Matter for them. The Fire of the Furnace is made and kept up with dry, hard Wood, cast in, without Intermission, at the six Apertures. This they never omit, not even on the most solemn Festivals.

When the Matter contain'd in the two Pots is sufficiently vitrified, they proceed to blow, or fashion it: The Process whereof we shall here deliver from *Agricola*, Dr. *Merret*, the French *Diction. de Commerce*, &c,

The Operator, or *Servitor* (the Metal being now sufficiently refined) takes his Blowing Iron, which is a hollow Tube, about two Foot and a half long; and dipping it in the Melting-pot, there turns it about: The Metal sticks to the Iron, like some glutinous, or clammy Juice, much like but more firmly, than Turpentine, or *Venice* Treacle.

For each *Glass* he dips four times, and at each Dip rolls the End of his Instrument, with the *Glass* thereon, on a piece of Iron, over which is a Vessel of Water; the Coolness whereof helps to consolidate the *Glass* more readily, and disposes it the better to bind with the next to be taken out of the Pot.

After

After they have dipp'd the fourth time, and there is now Matter enough on the Instrument, the Operator begins to blow gently thro' the Iron; by which he raises or lenghtens it nearly a Foot; much as we do by blowing in a Bladder, or Globe: And to give it a Polish, he rolls it to and fro on a Stone, or Marble.

This done, he blows a second time, and thus forms the Bunch, or Belly of the *Glass*. The Matter by this second Blast assumes the Figure of a Gourd, or Callebass, eighteen or twenty Inches in Diameter. As often as the Operator blows into the Iron (which must be very often) he removes it hastily from his Mouth to his Cheek, lest he should draw the Flame into his Mouth, when he re-applies it to the Iron.

The Operator whirls his Iron many times round his Head, to lengthen and cool the *Glass*; sometimes the *Glass* thus blown round, is return'd to the Fire, where it flattens a little of itself: When flatted, it is taken out, and cooled; and if needful for the Design, the Workman flats its Bottom, by pressing it on the Marble; or moulds it in the *Stamp-irons*: And thus delivers it to the Master Workman, to break off the Collet.

The Collet, or Neck, is the narrow Part which clove to the Iron: To set the *Glass* at liberty, they lay a Drop of cold Water on the Collet; which by its Coldness, cuts, or cracks about a Quarter of an Inch: After which, giving it a slight Blow, the Fracture is communicated all around the Collet. The waste Piece to be thrown by to make green *Glass*.

This done, they dip an Iron Rod, or *Ponteglo* in the Melting Pots, and with the Matter that sticks thereto, they apply and fasten it to the Bottom of the Vessel, opposite to the Collet.—The Vessel thus sustained by the Iron Rod, is carried to the great Bocca to be heated, and scalded; and while another Person takes care thereof, the former Operator rests and prepares himself for the *Branching*.

To *branch*, or make the Bowl, they thrust in an Iron Instrument, call'd *Passago*; and the Aperture, open'd thereby, they further augment, and widen with the *Procello*: In turning this Instrument about, to form the Bowl, the Edge becomes thickned; the *Glass* being, as it were, doubled in that Part: Whence the Hem observed on the Circumference of our *Glasses*.—What is superfluous, they cut off with the Shears.

The Vessel thus open'd, is return'd to the great Bocca; where, being sufficiently heated a second time, the Workman gives the Bowl its finishing, by turning it about with a circular Motion; which it increases, in proportion as the Bowl opens, and enlarges by means of the Heat and Agitation.

The *Glass* thus finish'd, they carry it from the Bocca, still turning it round, to a kind of earthen Bench, cover'd with Brands, or Coals extinguish'd: Here they let it cool a little, and come to its Consistence, having first detach'd it from the Iron Rod, by a Stroak or two with the Hand.

Thus, with *blowing*, *pressing*, *scalding*, *amplifying*, and *cutting*, the *Glass* is framed into the Shape preconceived in the Workman's Mind. If need be, he proceeds to put on a *Foot* and *Handle*; and with the *Spici* puts on *Rigarines*, and *Marblings*.

When the Master has finish'd a Number of them, another Servitor takes them with an Iron Fork, and speedily places them in the Tower, or *Leer* to anneal and harden. See FURNACE, ANNEALING, &c.

What has been here said of White, or Crystal *Glass*, holds equally of common, or Green *Glass*; the working being the same in all; and the Difference only in the Salt, or Polverine made use of.

So many Masters as there are, so many Pots, at the least, and so many Bocca's there must be; each Man having his proper Station; where, says Dr. *Merret*, they receive those scorching Heats sallying directly into their Faces, Mouths, and Lungs; whence they are forc'd to work in their Shirts, like the *Cyclopes*, and *Nudi-membra Pyrracmones*, with a Straw broad-brimm'd Hat on their Heads, to defend their Eyes from the excessive Heat and Light.—They sit in large, wide, wooden Chairs, with two long Elbows, to which their Instruments are hung. They work six Hours at a time, measur'd by a single Glass; after which they are relieved by others, for the like Time: So that the Furnaces are never idle.

Method of working, or blowing WINDOW, or TABLE GLASS.

The Method of making Crown Window *Glass*, now practis'd in *England*, is said to have been borrowed from the *French*.—An *English* Glass-maker went over, to work in *France*, on purpose to get into the Secret; which, when he had attain'd to, he return'd, and set up a Glass-work, wherein he far outdid the *French*, his Teachers.

This *Glass* is blown much after the manner of Looking *Glass*. Some Writers, from wrong Intelligence, have said that it was run, or cast in Sand: But the real Process is as follows.—

The Furnace, Melting-pots, Materials, and Fire are the same for Window, or Table *Glass*, as for Round *Glass*; and the Difference in the Operation only commences after the Servitor has dip'd his Blowing-iron the fourth time in the melted Metal.

The *Glass*, then, being in this Condition, they blow it; but instead of rounding, or forming it into a Bunch; the particular Motion the Workman gives it in the directing and managing the Wind, and the way of rolling it on the Iron; make it extend in length two or three Foot, and form a Cylinder, which at first is but two Inches in Diameter; but which, by being recommitted to the Fire, and blown a-fresh when taken out, becomes of the Extent required for the Table of *Glass* to be form'd. With this Circumstance however, that the Side which is fasten'd to the Iron, goes gradually diminishing, and ends in a kind of Cone, or Pyramid.

To render the two Ends nearly of the same Diameter, after adding a little *Glass* to that opposite to the Iron, they draw it out with a Pair of Iron Pinchers. Then they incide, or cut off the same End with a little Water; and carrying the Cylinder back to the Bocca, they incide it likewise with Water in two other Places; one, eight, or ten Inches from the Iron; and the other, the whole Length.

The *Glass* Cylinder thus abridg'd of both its Extremities, is, next, heated on a kind of earthen Table, somewhat rais'd in the Middle, in order to promote its Opening at the Place incided longitudinally. The Workman, here, makes use of an Iron, wherewith he alternately lowers and raises the two Sides, or Halves of the Cylinder, which now begin to open, and unfold like a Sheet of Paper, and at length grow perfectly flat.—The Table of *Glass* is now in its last Perfection, and needs nothing farther but to be heated over again. When taken out, they lay it on a Table of Copper; whence, after it has cool'd and come to its Consistence, they carry it on Forks to the Tower of the Furnace, where they leave it to anneal for 24 Hours.

The Number of Tables anneal'd at a time, which sometimes amount to an hundred, with the perpendicular Situation they are set in, occasion'd, antiently, that those set in first, sustaining in some measure, the Pressure of all the last, were bent; and thus render'd inconvenient for Use: But this Inconvenience is now remedied, by separating them into Tens, with an Iron Shiver; which diminishing the Weight, by dividing it, keeps the Tables as flat, and even as they were put in.

Kinds of Table, *or* Window GLASS.

There are divers Sorts of this *Glass*, made in divers Places, for the use of Building: Those most known among us, are given us, by the Author of the *Builders* Dictionary, as follows:

Crown-GLASS, of which, says that Author, there are two Kinds; distinguish'd by the Places where they are wrought, *viz.* 1° *Ratcliff Crown Glass*, which is the best and cleanest; and was first made at the Bear Garden, on the Bank-side, *Southwark*; but since at *Ratcliff*: Of this there are 24 *Tables* to the *Case*, the Tables being of a circular Form, about three Foot six Inches in Diameter. See TABLE, and CASE.

2° *Lambeth Crown Glass*, which is of a darker Colour than the former, and more inclining to green.

French GLASS, also call'd *Normandy Glass*, and formerly *Lorrain Glass*, because made in those Provinces. At present it is made wholly in the *Nine Glass Works*; five whereof are in the Forest of *Lyons*; four in the County of *Eu*; the last, at *Beaumont*, near *Rouen*.—It is of a thinner Kind than our Crown *Glass*; and when laid on a Piece of white Paper, appears of a dirtyish green Colour. There are but 25 Tables to the Case.

German GLASS, is of two Kinds, White, and Green: The first is of a whitish Colour, but subject to those small, curved Streaks, observed in our *New-Castle Glass*; tho' free from the Spots and Blemishes thereof. The *Green*, beside its Colour, is liable to the same Streaks as the White: But both of them are straighter, and less warped than our *New-Castle Glass*.—

Dutch GLASS, is not much unlike our *New-Castle Glass*, either in Colour, or Price. 'Tis frequently much warped, like that, and the Tables are but small.—

New-Castle GLASS, is that most used in *England*. 'Tis of an Ash Colour, and subject to Specks, Streaks, and other Blemishes; and beside is frequently warp'd. *Leybourn* says, there are 45 Tables to the Case, each containing five superficial Feet: Some say there are but 35 Tables, and six Foot in each Table.

Method of working PLATE-*or* LOOKING GLASS.

The Materials whereof *Looking Glass* is made, are much the same as those of other Works of *Glass*; *viz.* an Alkali Salt, and Sand.

The

The Salt, however, it is to be obſerv'd, ſhould not be that extracted from *Polverine*, or the Aſhes of the *Syrian* Kali; but that from *Barillia*, or the Aſhes of a Plant of that Name, of the Genus of Kalies, but growing about *Alicant* in *Spain*.—'Tis very rare that we can have the Barillia pure; the *Spaniards*, in burning the Herb, make a Practice of mixing another Herb along with it, which alters its Quality; or of adding Sand to it, to increaſe the Weight: Which is eaſily diſcover'd, if the Addition be only made after the boiling of the Aſhes, but next to impoſſible, if made in the boiling. It is from this Adulteration that thoſe Threads and other Defects in *Plate Glaſs* ariſe.—To prepare the Salt, they clean it well of all foreign Matters; pound or grind it with a kind of Mill, and ſift it pretty fine.

As to the Sand, 'tis to be ſifted, and waſh'd, till ſuch time as the Water come off very clear; and when it is well dried again, they mix it with the Salt, paſſing the Mixture thro' another Sieve. This done, they lay them in the annealing Furnace for about two Hours; in which time the Matter becomes very light, and white: In which State they are called *Frit*, or *Fritta*, and are to be laid up in a dry, clean Place, to give them time to incorporate, for at leaſt a Year. See FRIT.

When they would employ this *Frit*, they lay it for ſome Hours in the Furnace, adding to ſome, the Fragments, or Shards of old, and ill made *Glaſſes*; taking care firſt to calcine the Shards, by heating them red hot in the Furnace, and thus caſting them into cold Water. To the Mixture muſt likewiſe be added Manganeſe, to promote the Fuſion, and Purification.

The Matter thus far prepared, is equally fit for Plate-*Glaſs* to be form'd either by Blowing, or Caſting.—

Method of blowing LOOKING-GLASS-PLATES.

The Work-houſes, Furnaces, *&c.* uſed in the making of this kind of *Plate Glaſs*, are the ſame as thoſe in the following Article, to which the Reader is refer'd.

The Melting-pots, wherein the Materials to be blown, are fuſed, are 38 Inches in Diameter, and 35 high. After thoſe Materials are vitrified by the Heat of the Fire; and the *Glaſs* is ſufficiently refined; the Maſter Workman dips in his Blowing-iron, once, and again, till he has got Matter enough thereon.

This done, he mounts on a kind of Block, or Stool, five Foot high, to be more at liberty to ballance it, as it lengthens in the blowing. If the Work be too heavy for the Workman to ſuſtain on his Blowing-iron, two or more Attendants aſſiſt him, by holding Pieces of Wood under the *Glaſs*, in proportion as it ſtretches, for fear it ſhould fall off the Iron by its own Weight.

When, after ſeveral repeated Heatings, and Blowings, the *Glaſs* is at length brought to the Compaſs, proper for its Thickneſs, and the Quantity of Metal taken out; they cut it off with Forces, at the Extremity oppoſite to the Iron, in order to *point* it with the *Pointil*.

The Pointil is a long, firm Piece of Iron, having a Piece going a-croſs one of its Ends, in manner of a T: To point the *Glaſs*, they plunge the Head of the T into the Melting-pot; and with the Liquid *Glaſs* ſticking thereto, they faſten it to the Extremity of the *Glaſs* before cut off. When it is ſufficiently faſten'd, they ſeparate the other Extremity of the *Glaſs* from the Blowing-iron; and inſtead thereof, make uſe of the Pointil to carry it to the Furnaces appointed for that end; where, by ſeveral repeated Heatings, they continue to enlarge it, till it be equally thick in every Part.

This done, they cut it open with the Forces; not only on the Side by which it ſtuck to the Blowing-iron, but likewiſe the whole Length of the Cylinder: After which, giving it a ſufficient Heating, it is in a condition to be entirely open'd, extended, and flatten'd. The manner of doing which is much the ſame as for *Table Glaſs*, and need not be here repeated.

Laſtly, the *Glaſs* being ſufficiently flatted, is laid to anneal, for ten, or fifteen Days, according to the Size and Thickneſs.

It may be obſerv'd, that *Looking Glaſſes* thus blown, ſhould never be above 45, or at moſt 50 Inches long, and of a Breadth proportionable. Thoſe exceeding theſe Dimenſions, as we frequently find among the *Venice Glaſſes*, cannot have the Thickneſs ſufficient to bear the Grinding; and beſide are ſubject to warp, which prevents them from regularly reflecting Objects.

Method of caſting, or running large LOOKING-GLASS-PLATES.

This Art is of *French* Invention; and not above fifty Years old. 'Tis owing to the Sieur *Abraham Thevart*, who firſt propoſed it to the Court of *France*, in 1688.

It is perform'd much like the caſting of Sheet Lead, among the Plumbers: By means hereof we are not only enabled to make *Glaſſes* of more than double the Dimenſions of any made the *Venetian* way of blowing; but alſo to caſt all kinds of Borders, Mouldings, *&c.*

The Furnaces for melting the Materials of this Manufacture, are of enormous Size; and thoſe for annealing the *Glaſſes* when form'd, are much more ſo. Round a Melting-Furnace, there are at leaſt twenty four Annealing Furnaces; each from 20 to 25 Foot long: They are called *Carquaſſes*: Each Carquaſſe has two *Tiſſarts*, or Apertures, to put in Wood, and two Chimnies. Add, that beſide the Annealing Furnaces, *&c.* there are others for the making of *Frit*, and calcining old Pieces of *Glaſs*.

All theſe Furnaces are cover'd over with a large Shed; under which are likewiſe Forges, and Work-houſes for Smiths, Carpenters, *&c.* continually employ'd in repairing, and keeping up the Machines, Furnaces, *&c.* As alſo Lodges, and Apartments, for theſe, and the other Workmen employ'd about the *Glaſs*; and in keeping up a perpetual Fire in the great Furnace: So that the Glaſs-houſe, as that in the Caſtle of St. *Gooen*, in the Foreſt of *Fere*, in the *Shiſſonois*, appears more like a little City, than a Manufactory.

The Inſide of the Furnaces are form'd of a ſort of Earth, proper to ſuſtain the Action of the Fire; and the ſame Earth ſerves for Melting-pots, Ciſterns, *&c.* The Furnaces ſeldom laſt above three Years; after which they are to be rebuilt, from Bottom to Top: And to keep them good even for that Time, the Inſide muſt be refitted every ſix Months. The Melting-pots are as big as Hogſheads, and contain above two thouſand Weight of Metal. The Ciſterns are much ſmaller, and ſerve for the Conveyance of the liquid *Glaſs*, which is drawn out of the Pots, to the Caſting Tables.

When the Furnace is in a condition to receive the Pots, and Ciſterns, they heat it red hot: This done, they fill the Pots with Materials; which is done at three times, to facilitate the Fuſion. When the Matter is ſufficiently vitrified, refined, and ſettled, which uſually happens in twenty four Hours; they fill the Ciſterns, which are in the ſame Furnace, and which are left there about ſix Hours longer, till ſuch time as they appear all white, through the exceſſive Heat.

To get the Ciſterns with the Metal out of the Furnace; they make uſe of a large Iron Chain, which opens and ſhuts with Hooks, and Eyes. From the Middle hereof, on each Side, ariſe two maſſive iron Pins, whereby, with the Aſſiſtance of Pullies, the Ciſterns are rais'd on a kind of Carriage of a proper Height; and thus conducted to the Table where the Glaſs is to be run. Here, ſlipping off the Bottom of the Ciſtern, there ruſhes out a Torrent of Matter, all in Fire, wherewith the Table, prepared for that purpoſe, is preſently cover'd.

The Table, whereon the *Glaſs* is to be run, is of Pot Metal, about nine Foot long, and broad in proportion. It is ſupported on a wooden Frame, with Truckles, for the Convenience of removing from one Carquaſſe, or Annealing Furnace to another, in proportion as they are fill'd.—

To form the Thickneſs of a *Glaſs*, there are two iron Rulers, or Rims, placed a-round the Edge of the Table; and on theſe, reſt the two Extremes of a kind of Roller, which ſerves to drive the liquid Matter before it to the End of the Table, or Mould. The iron Rulers, being moveable, and capable of being ſet cloſer, or further a-part at pleaſure, determine the Width of the *Glaſſes*, and retain the Matter, that it does not run off at the Edges.

As ſoon as the Matter is arrived at the End of the Table, and the *Glaſs* is come to a Conſiſtence, which is in about a Minute; they ſhove it off into the Annealing Furnace, where it ſlides with eaſe enough, by reaſon of the Sand ſtrew'd thereon.

What is moſt ſurpriſing throughout the whole Operation, is the Quickneſs, and Adreſs, wherewith ſuch maſſy Ciſterns, fill'd with ſo flaming a Matter, are taken out of the Furnace, convey'd to the Table, pour'd therein, the *Glaſs* ſpread, *&c.* The whole is inconceivable to ſuch as have not been Eye witneſſes of that ſurprizing Manufacture.

As faſt as the Ciſterns are emptied, they carry them back to the Furnace, and take freſh ones, which they empty as before. This they continue to do, ſo long as there are any full Ciſterns; laying as many Plates in each Carquaſſe as it will hold, and ſtopping them up as ſoon as they are full; to let them anneal, and cool again, which requires at leaſt ten Days.

The firſt Running being diſpatch'd, they prepare another, by filling the Ciſterns a-new, from the Matter in the Pots: And after the ſecond, a third; and even a fourth time, till the Melting-pots are quite empty.

The Ciſterns, at each Running, ſhould remain at leaſt ſix Hours in the Furnace, to whiten; and when the firſt Annealing Furnace is full, the Caſting-table is to be carried to another. It need not here be obſerv'd, that the Carquaſſes, or Annealing Furnaces muſt firſt have been heated to the Degree proper for them. When the Pots are emptied, they take them out, as well as the Ciſterns, to ſcrape off what

what *Glass* remains, which otherwise would grow green by Continuance of Fire, and spoil the *Glasses*.

The manner of heating the large Furnaces, is singular enough: The *Tasor*, or Person employ'd for that purpose, quite naked to his Shirt, runs round the Furnace without making the least Stop, with a Speed scarce inferior to that of the lightest Courier: As he goes along, he takes two Billets, or pieces of Wood, cut for the purpose; which he throws into the first Tissart; and continuing his Course, does the same for the second. This he holds on without Interruption for six Hours, successively; after which he is reliev'd by another, *&c.* It is surprizing that two such small pieces of Wood, and which are consumed in an instant, should keep the Furnace to the proper degree of Heat; which is such, that a large Bar of Iron, laid at one of the Mouths of the Furnace, becomes red hot in less than half a Minute.

'Tis computed that a Furnace, before it be fit to run *Glass*, costs above three thousand five hundred Pounds: That at least six Months are requir'd for the building it a-new; and three Months for the refitting it: And that when a Pot of Matter bursts in the Furnace, the Loss of Matter and Time amounts to above 250 Pounds.

The *Glass*, when taken out of the Melting Furnace, needs nothing further but to be *ground*, *polish'd*, and *foliated*.

For the Grinding of Glass, see Grinding *of Glass*.
For the Polishing of Glass, see Polishing *of Glass*.
For the Foliating of Glass, see Foliating.

Painting on Glass.

The primitive manner of painting on *Glass* was very simple, and of consequence very easy: It consisted in the mere Arrangement of pieces of *Glass* of different Colours, in some sort of Symmetry; and constituted a kind of what we call *Mosaic Work*. See Mosaic *Work*.

Afterwards, when they came to attempt more regular Designs, and even to represent Figures rais'd with all their Shades, their whole Adress went no further than to the drawing the Contours of the Figures in Black, with Water-colours, and hatching the Draperies, after the same manner, on *Glasses* of the Colour of the Object intended to be painted. For the Carnations, they chose *Glass* of a bright Red; upon which they design'd the principal Lineaments of the Face, *&c.* with Black.

At last, the Taste for this sort of Painting being considerably improv'd, and the Art being found applicable to the adorning of Churches, Basilicks, *&c.* they found means of incorporating the Colours with the *Glass* itself, by exposing them to a proper Degree of Fire, after the Colours had been laid on.

A *French* Painter of *Marseilles* is said to have given the first Notion hereof, upon going to *Rome*, under the Pontificate of *Julius* II. *Albert Durer*, and *Lucas* of *Leyden* were the first that carried it to any Height.

The Colours used in *painting on Glass*, are very different from those used either in painting in Oil, or Water. See Painting.

The *Black* is made of two Thirds of Flakes, or Scales of Iron, beaten up, and mix'd with another Third of Rocaille, or little Glass-beads.—*White*, with Sand, or little white Pebbles, calcined, pounded in a Mortar, and afterwards ground on a Marble; with one fourth Part of Salt-peter added thereto, and the Mixture calcined and pulveris'd over again: To which, when they are ready to use it, is added a little *Gypsum*, or Plaister of Paris well ground, *&c.*—For *Yellow*, they use Leaf-silver-ground, mix'd up in a Crucible with Sulphur, or Salt-peter; then, well beaten and ground on a Porphyry Stone; and, at length, ground over again with nine times as much red Oker.—*Red* is made of Litharge of Silver, and Scales of Iron, Gum Arabic, Harderia, Glass-beads, and Blood-stone, nearly in equal Quantities. This is one of the most difficult Colours; and the Preparation only to be learnt by Experience.—*Green*, is made of Æs Ustum, one Ounce; as much black Lead, and four Ounces of white Sand, incorporated by the Fire. After Calcination, they add a fourth Part of Salt-peter; after a second Calcination, a sixth Part more: After which they make a third Coction before it is used.—*Azure*, *Purple*, and *Violet*, are prepared like Green, only leaving out the Æs Ustum, and in lieu thereof using Sulphur, for Azure; Perigueux, for Purple; and both those Drugs for Violet.—*Carnations* are made of Ferretta and Rocaille: And lastly, Colours for the *Hair*, *Trunks of Trees*, &c. are made of Ferretta, Rocaille, *&c.*

This Account of the Colours we have from Mons. *Felibien*'s Excellent Work *des Principes d'Architecture*, &c. Tho' it must be own'd that all the Painters on *Glass* don't use them; there being few Artists of that kind but have invented their own particular ones, whereof they make great Secrets. But this is certain, that these above described are sufficient for the best Paintings of all sorts; provided a Person has but the Skill to manage them.

In the Windows of divers antient Churches, Chapels, Colleges, *&c.* we meet with the most beautiful, and vivid Colours imaginable; such as far exceed any used among us: Not that the Secret of making those Colours is lost; but that the Moderns won't go to the Expence of them; nor take all the necessary Pains; by reason this sort of Painting is not now so much esteem'd as formerly.

Those beautiful Works, which were made in the Glass-houses, were of two kinds: In some, the Colour was diffused thro' the whole Body of *Glass*; in others, which were the more common, the Colour was only on one Side, scarce penetrating within the Substance above one third of a Line; tho' more, or less, according to the Nature of the Colour; the Yellow being always found to enter the deepest.

These last, tho' not so strong and beautiful as the former, were of more Advantage to the Workmen; by reason, on the same *Glass*, tho' already colour'd, they could shew other kind of Colours, where there was occasion to embroider Draperies, enrich them with Foliages, or represent other Ornaments of Gold, Silver, *&c.*

In order to this they made use of Emery; grinding, or wearing down the Surface of the *Glass*, till such time as they were got thro' the Colour, to the clear *Glass*: This done, they applied the proper Colours on the other Side of the *Glass*.—By this means the new Colours were prevented from running, and mixing among the former, when the *Glasses* came to be exposed to the Fire, as will be hereafter shewn.

When the intended Ornaments were to appear white, or silver'd, they contented themselves to bare the *Glass* of its Colour with Emery, without applying any new Colour at all; and it was in this manner, that they wrought their Lights and Heightenings on all kinds of Colours.—

The first thing to be done, in order to *paint on Glass*; in the modern way, is to design, and even colour the whole Subject on Paper. Then they make choice of pieces of *Glass* proper to receive the several Parts; and proceed to divide, or distribute the Design itself, or the Paper it is drawn on, into Pieces suitable to those of *Glass*: Having always a view that the *Glasses* may join in the Contours of the Figures, and the Folds of the Draperies; that the Carnations, and other finer Parts may not be damaged by the Lead wherewith the Pieces are to be join'd together.

The Distribution made, they mark all the *Glasses*, as well as Papers, with Letters, or Numbers; that they may be known again.

This done, applying each Part of the Design on a *Glass* intended for it, they copy, or transfer the Design upon this *Glass*, with the black Colour, diluted in Gum-water; by tracing and following all the Lines, and Stroaks, as they appear thro' the *Glass*, with the Point of a Pencil.

When these first Stroaks are well dried, which happens in about two Days, the Work being only in black and white, they give it a slight Wash over, with Urine, Gum Arabic, and a little black; and this several times repeated, according as the Shades are desir'd to be heighten'd: With this Precaution, never to apply a new Wash, till the former is sufficiently dried. This done, the Lights, and Risings are given, by rubbing off the Colour in the respective Places, with a wooden Point, or the Handle of the Pencil.

As to the other Colours above mention'd, they are used with Gum-water, much as in Painting in Miniature; taking care to apply them lightly, for fear of effacing the Out-lines of the Design; or even for the greater Security, to apply them on the other Side, especially the yellow, which is very pernicious to the other Colours, by blending therewith.

And here, too, as in pieces of black and white, particular regard must be had, not to lay Colour on Colour, or Lay on Lay, till such time as the former are well dried. It may be added, that the Yellow is the only Colour that penetrates thro' the *Glass*, and incorporates therewith by the Fire: The rest, and particularly the Blue, which is very difficult to use, remaining on the Surface, or at least entring very little.

When the Painting of all the Pieces is finish'd, they are carried to the Furnace, to *anneal*, or bake the Colours.

The Furnace, here us'd, is small, built of Brick, from 18 to 30 Inches square: At six Inches from the Bottom is an Aperture, to put in the Fuel, and maintain the Fire. Over this Aperture is a Grate, made of three square Bars of Iron, which traverse the Furnace, and divide it into two Parts. Two Inches above this Partition, is another little Aperture, thro' which they take out Pieces, to examine how the Coction goes forwards.

On the Grate is plac'd a square earthen Pan, six or seven Inches deep; and five or six Inches less, each way, than the Perimeter of the Furnace. On one Side hereof is a little Aperture, thro' which to make the Trials, plac'd directly opposite to that of the Furnaces destined for the same end.

In this Pan are the Pieces of *Glass* to be placed, in the following manner: First, the Bottom of the Pan is cover'd with three Strata, or Layers of Plaister, or Lime, pulverized; those Strata being separated by two others, of old, broken *Glass*: The Design whereof is to secure the painted *Glass* from the too intense Heat of the Fire. This done, the

Glasses are laid horizontally on the last, or uppermost Layer of Plaister, or Lime.

This first Row of *Glass* they cover over with a Lay of the same Powder, an Inch deep; and over this lay another Range of *Glasses*: And thus alternately, till the Pan is quite full; taking care that the whole Heap always end with a Layer of Plaister.

The Pan thus prepared, they cover up the Furnace with Tiles, or a square Table of earthen Ware, closely luted all round; only having five little Apertures, one at each Corner, and another in the Middle, to serve as Chimnies.

Things thus disposed, there remains nothing but to give the Fire to the Work.—The Fire for the two first Hours, must be very moderate; and to be increas'd, in proportion as the Coction advances, for the space of ten, or twelve Hours; in which Time it is usually compleated. At last, the Fire, which at first was only of Charcoal, is of dry Wood: So that the Flame covers the whole Pan, and even issues out at the Chimnies.

During the last Hours, they make Essays from time to time; by taking out Pieces laid for the purpose, thro' the little Aperture of the Furnace, and Pan, to see whether the Yellow be perfect, and the other Colours in good Order. When the Annealing is thought sufficient, they proceed with great Haste to extinguish the Fire, which otherwise would soon burn the Colours, and break the *Glasses*.—

Glasses are distinguish'd with regard to their Form, Use, &c. into various Kinds; as,

Drinking Glasses, *Optic Glasses*, *Looking Glasses*, *Burning Glasses*, &c.

Drinking Glasses are simple Vessels, of common *Glass* or Crystal, usually in form of an inverted Cone.—

Each *Glass* consists of three Parts, *viz.* the Calix, or Bowl; the Bottom; and Foot; which are all wrought, or blown separately.

Nothing can be more dexterous, and expeditious than the manner wherein these Parts are all blown; two of them open'd, and all three join'd together. An Idea is only to be had thereof, by seeing them actually at work.

The *Glasses* chiefly used in *England*, are made of the Ashes of *Fern*; Crystal *Glasses*, being grown into Disesteem. The exceeding Brittleness of this Commodity, notwithstanding the easy Rate of each *Glass*, renders the Consumption hereof very considerable.

Optic Glasses, are those made of use to strengthen, improve, or preserve the Sight. See Optic *Glass*.

To this Class belong,

Convex Glasses	see	Convex.
Concave Glasses		Concave.
Lenticular Glasses		Lens.
Meniscus Glasses, &c.		Meniscus, &c.
Plain Glasses		Plain *Glass*.

To find the Foci of Optic Glasses, see Focus.

Telescope Glasses	see	Telescope.
Object Glass		Object *Glass*.
Eye Glass		Eye-*Glass*.
Magnifying Glass		Magnifying.
Multiplying Glass		Multiplying.
Perspective Glass		Perspective.
Looking Glass	see	Looking *Glass*; see also Mirror.
Burning Glass		Burning *Glass*; see also Mirror.
Weather Glass		Weather *Glass*.
Cupping Glass		Cupping *Glass*.
Glass *Window*	see	Window.
Glass *Drop*		Drop.
Glass *Body*		Body.

GLAUCOMA, in Medicine, a Disease of the Eye, wherein the crystalline Humour is turn'd of a greenish, or Azure Colour, and its Transparency thus diminish'd. See Eye, and Crystalline.

Those in whom this Disorder is forming, discover it hence that all Objects appear to them as thro' a Cloud or Mist: When entirely form'd, the visual Rays are all intercepted, and they see nothing at all.

It is reckon'd incurable, when inveterate, and in aged Persons: And even under other Circumstances, is very difficult of Cure; Externals proving of little Service.

The Internals best suited to it, are those used in the Gutta Serena. See Gutta *serena*.

Jul. Cæsar Claudinus, *Consul.* 74. gives a Remedy for the *Glaucoma*.

The Word comes from the *Greek* γλαυκὸς, *glaucus*, *cæsius*, sea-green.

The *Glaucoma* is usually distinguish'd from the Cataract or Suffusion, in this, that in the Cataract the Whiteness appears in the Pupil, very near the Cornea, but shews deeper in the *Glaucoma*.

Some late *French* Authors, however, maintain the Cataract and *Glaucoma* to be one and the same Disease.—According to them, the Cataract is not a Film, or Pellicle form'd before the Pupil, as had always been imagin'd; but an Alteration of the Humor itself, whereby its transparency is prevented; which brings the Cataract to the *Glaucoma*. See Cataract.

GLEAM, is popularly used for a Ray, or Beam of Light. See Ray.

Among Falconers, a Hawk is said to *gleam*, when she casts or throws up Filth from her Gorge.

GLEANING, or Glaning, the Act of gathering, or picking up the Ears of Corn, left behind after the Field has been reap'd, and the Crop carried home.

By the Customs of some Countries, particularly those of *Melun*, and *Essampes*, all Farmers, and others, are forbid either by themselves, or Servants to put any Cattle into the Fields, or prevent the *gleaning* in any manner whatever, for the space of 24 Hours, after the carrying off of the Corn; on Penalty of Confiscation, &c.

GLEBE, Gleba, in Natural History, Chymistry, &c. a Clod, or Piece of Earth, containing some Metal, or Mineral. See Ore; see also Marchasite, Metal, &c.

The *Glebes* are carried to the Forges to be wash'd, purify'd, melted, &c. See Gold, Silver, Iron, &c.

Glebe, or Gleab-*land*, is properly us'd for Church-land. *Dos vel Terra ad Ecclesiam pertinens.*— See Church.

Glebe-land is most commonly used for that Land belonging to the Parish Church, beside the Tithes; tho' in the more general, and extensive Use of the Word, *Glebe* is applicable to any Land, or Ground belonging to a Benefice, Fee, Manor, Inheritance, or the like.

Thus, *Lindwode*, Gleba *est terra in qua consistit dos Ecclesiæ; generaliter tamen sumitur pro solo, vel pro terra culta.*—

Thus, in the Civil Law, Slaves were said to be affected to the *Glebe*, *i. e.* went with it, were sold with it, &c. The Right of Patronage should be annex'd to a *Glebe*. See Patronage.

GLEET, in Medicine, a Flux of thin Humor from the Urethra. See Flux, Urethra, &c.

This, or a *Gonorrhæa Simplex*, often succeed the Cure of a *Gonorrhæa Virulenta*, and sometimes remain obstinate, even after the Use of a Salivation. See Gonorrhæa.

The *Gleet* may happen either from too great Relaxation of the Glands in the Urethra, or from a Corrosion or Exulceration of them. It appears most frequently after a Gonorrhæa has been of long standing, or ill managed in the Cure; as by the Use of acrid or corroding Injections, and the like.

The Glands may here also happen to be ulcerated by the Matter of the Running, which is often sharp enough for that purpose.

A *Gleet* is distinguish'd from a *Gonorrhæa simplex*, not only by the Colour, and Consistence of the Matter evacuated, but also by the manner wherein it comes away: The Matter of a *Gleet* comes away as well at one time as at another; but that of a *Gonorrhæa simplex* chiefly in Erections, and when the Patient goes to stool. The Matter of a *Gleet* is commonly brownish, but that of a *Gonorrhæa simplex* white. And the Continuance of a true *Gleet* is unattended with Weakness, or other ill Consequences, and dangerous Symptoms; nor does it unfit Men for Procreation, as *Gonorrhæa simplex* will.

An astringent Regimen is the most proper in both; Coffee and Claret are supposed proper Liquors in these Cases: So are those made acid with Juice of Lemmons, Vinegar, &c.

GLENE, Glena, Glenoides, in Anatomy, a Name given to those Cavities in Bones, which are of a middle kind, that is, neither of the deepest, nor shallowest, but in a mean between the two. See Bone.

Thus, the Cavity of the Omoplate, wherein the Humerus is received, is a *Glene*, or *Glenoides*. See Omoplate.

Glenoides, or Glene, according to *Blanchard*, &c. is peculiarly attributed to two Cavities in the lower Part of the first Vertebra of the Neck.

The Word is *Greek*, composed of γλήνη, Eyelid; and εἶδος, Form.

GLICYRRHIZZA, or Glycyrrhiza, call'd also *Radix dulcis*, *Liquiritia*, and *Liquorice*, a sweet-tasted Root, of considerable Use in Medicine, against Coughs, and other Disorders of the Breast and Lungs.

The Shrub which bears it, is cultivated in divers Parts of *England*, particularly about *Pontefract* in *Yorkshire*; in some Provinces of *France*, *Spain*, *Germany*, and *Muscovy*; and especially in *Persia*, where it thrives better than any where else; there being some on the Banks of the *Carasu*, *Kenki*, and *Kerni-arpa*, whose Roots are thicker than the Arm; and whose Juice, in respect of Strength, Virtue, &c. are preferable to others.

The Root of the *Liquorice* Plant runs, or spreads a great way in the Ground, and emerging into Air from Place to Place, produces so many new Stems, or Plants, few of which rise above five Foot high. Its Leaves are thick, green, shining, half-round, and glutinous: Its Flower red, like the Hyacinth; and its Seed contain'd in roundish Pods.

In

In the Culture, care must be taken to have a warm, light, rich Soil, or to amend it with Manure: They plant it in Trenches, three Spits deep, in *February* and *March*; usually in Rows, at a Foot distance from each other. The Parts chose for this purpose, are Sets from the Top of the Plant, or the very Top of the Root; or else the Runners that spread from the Master-root—In moist Weather, the Branches may also be slip'd and planted.

They are taken about *November*, or *December*, after they have stood three Summers in the Ground; for then the *Liquorice* weighs most, and will keep with least Loss: Not but that there is a continual Diminution in this respect from the first taking it.

New, green *Liquorice* should be chose smooth and even, about the Thickness of the middle Finger, ruddy without, yellowish within, easy to cut, and of an agreeable Smell.

This Root being boil'd a long time in Water, till the Fluid has got a deep, yellow Tincture; and the Water, at length evaporated over a moderate Fire; there remains a black, solid Sediment, which is what we call *Liquorice*, or *Liquorice Juice*, or sometimes *Spanish Juice*.

Chuse it black without side, and of a shining Black within, easy to break, and of an agreeable Taste. The whitish, and yellowish Liquorice Juices are good for nought; being usually no other than Compositions of Sugar, Starch, a little Gum Tragacanth, and *Liquorice* Powder.

The native *Liquorice* Juice is very sweet upon the Palate, even more than Sugar, or Honey; and is yet accounted a great Quencher of thirst; on which account *Galen* prescribes it in Dropsies. It is very balsamic, and detergent; insomuch that there is scarce any medicinal Composition for Diseases of the Breast, but it is an Ingredient in.—

GLOBE, in Geometry, a round or spherical Body; more usually called a *Sphere*. See SPHERE.—

The Earth, and Water, together, are supposed to form a *Globe*, hence call'd the *Terraqueous Globe*, See TERRAQUEOUS.

The Planets, both Primary, and Secundary, are supposed, as well as our Earth, to be solid *Globes*. See PLANET.

The Earth, is, in a peculiar Sense call'd the *Globe*, or *Globe of the Earth*. See EARTH.

GLOBE is particularly used for an artificial Sphere of Metal, Plaister, Paper, or other Matter; on whose convex Surface is drawn a Map, or Representation, either of the Earth, or Heavens, with the several Circles conceived thereon. See MAP.

In this Sense, *Globes* are of two kinds, *Terrestrial*, and *Celestial*; each of very considerable Use: The one, in Astronomy, and the other in Geography; to perform many of the Operations thereof, in an easy, sensible manner, so as to be conceived without any Knowlege of the mathematical Grounds of those Arts.

The fundamental Parts, common to both *Globes*, are an *Axis*, representing that of the World; and a spherical Shell, or Cover, which makes the Body of the *Globe*, on whose external Surface the Representation is made. See AXIS, POLE, &c.

Globes, we have observed, are made of divers Materials, *viz.* Silver, Brass, Paper, Plaister, &c. Those commonly used, are of Plaister, and Paper: The Construction whereof is as follows:

Construction of GLOBES.

A wooden Axis is provided, somewhat less than the intended Diameter of the *Globe*; and into the Extremes hereof two Iron Wires are driven, for Poles: This Axis is to be the Beam, or Basis of the whole Structure.

On the Axis are applied two spherical, or rather hemispherical Caps, form'd on a kind of wooden Mould, or Block.—These Caps consist of Pasteboard, or Paper, laid, one Lay after another, on the Mould, to the Thickness of a Crown-piece; after which, having stood to dry, and imbody; making an Incision along the Middle, the two Caps thus parted, are slip'd off the Mould.

They remain now to be applied on the Poles of the Axis, as before they were on those of the Mould: And to fix them in their new Place, the two Edges are sown together with Packthread, &c.

The Rudiments of the *Globe* thus laid, they proceed to strengthen, and make it smooth and regular—In order to this, the two Poles are hasp'd in a metalline Semicircle, of the Size intended; and a kind of Plaster, made of Whiting, Water, and Glue heated, melted, and incorporated together, is daub'd all over the Paper-Surface. In proportion as the Plaister is applied, the Ball is turn'd round in the Semicircle, the Edge whereof, pares off whatever is superfluous, and beyond the due Dimension; leaving the rest adhering in Places that are short of it.

After such Application of Plaister, the Ball stands to dry; which done, it is put again in the Semicircle, and fresh Matter applied: Thus they continue alternately to apply the Composition, and dry it, till such time as the Ball every where accurately touches the Semicircle; in which State it is perfectly smooth, regular, firm, &c.

The Ball thus finish'd, it remains to paste the Map, or Description thereon: In order to this, that Map is projected in several Gores, or Gussets; all which join accurately on the spherical Surface, and cover the whole Ball. To direct the Application of these Gores, Lines are drawn by a Semicircle on the Surface of the Ball, dividing it into a Number of equal Parts corresponding to those of the Gores, and subdividing those again answerably to the Lines and Divisions of the Gores.

The Papers thus pasted on, there remains nothing but to colour and illuminate the *Globe*; and to varnish it, the better to resist Dust, Moisture, &c.

The *Globe* itself, thus finish'd, they hang it in a Brass Meridian, with an Hour Circle, and Quadrant of Altitude; and thus fit it into a wooden Horizon.

Description of the GLOBES.

The Things common to both *Globes*, are either delineated on the Surface; or added as Appendages, without it.

Without the Surface, are 1° The two *Poles*, whereon the *Globe* is turn'd, representing those of the World.—See POLE. 2° The *Brazen Meridian*, which is divided into Degrees, and passes thro' the Poles. See MERIDIAN.—3° The *Wooden Horizon*, whose Upper-side represents the Horizon; and is divided into several Circles: The innermost whereof contains the twelve Signs of the Zodiac, subdivided into their Degrees; the next, the *Julian*; and the third, the *Gregorian* Calendars: Without-side of all these, are drawn the Points of the Winds. See COMPASS, and WIND.—4° A Brass *Quadrant of Altitude*, divided into 90 Degrees, to be fasten'd on the Meridian at the Distance of 90 Degrees from the Horizon, See QUADRANT *of Altitude*.—5° The *Hour Circle*, divided into twice twelve Hours, and fitted on the Meridian, round the Pole, which carries an Index pointing to the Hour—A Mariner's *Compass* is sometimes added on the Bottom of the Frame; and sometimes, a *Semicircle of Position*. See COMPASS, and POSITION.

On the Surface are delineated, 1° The *Equinoctial Line*, divided into 360 Degrees; commencing from the Vernal Intersection. See EQUINOCTIAL.—2° The *Ecliptic*, divided into 12 Signs, and these subdivided into Degrees. See ECLIPTIC.—3° The *Zodiac*. See ZODIAC.—4° The two *Tropics*. See TROPIC; and 5° The *Polar Circles*. See POLAR *Circle*.

What else belongs to *Globes*, either as to Construction, or Description, is different, as the *Globe* is either Celestial, or Terrestrial. See *Celestial*, and *Terrestrial* GLOBE.

Celestial GLOBE, is an artificial Sphere, on whose convex Surface the fix'd Stars are laid down, at proportionable Distances, together with the principal Circles of the Sphere. See STAR, CONSTELLATION, CIRCLE, &c.

The Use of these *Globes*, is to exhibit the Phænomena of the Motions of the Sun, and Stars, in an easy, and obvious manner; which, tho' somewhat unaccurate, is yet exact enough for the common Uses of Life, and may save the Trouble of Trigonometrical Calculation.—See ASTRONOMY.

To exhibit the Stars, Circles, &c. on the Surface of a given Sphere, or Ball, and fit it for the Uses of Astronomy.

1° Assume any two Points diametrically opposite to each other, as P, and Q: (*Tab. Astronomy, Fig.* 58.) And in these, fix up Axes, P A, and Q C, for the Ball to turn round on. The Points P and Q; or A and C, will exhibit the *Poles* of the World. 2° Divide a Brazen Circle A B C D into four Quadrants, A E, E C, C F, and F D; and subdivide each Quadrant into 90 Degrees, number'd from the Points E, and F towards the Poles A, and C. 3° Close the *Globe* in this Circle, as in a *Meridian*, at the Points A, and C, so as it may freely turn therein.

4° Apply a Style, or Pin to the Surface of the *Globe* in the first Degree of the Meridian, and turn the Ball round; by this means will a Circle be described on the Surface, representing the *Æquator*, to be divided into Degrees. 5° From the Pole of the World P, towards M; and from the other Pole C, towards N. Number $23\frac{1}{2}$ Degree; the Points M and N will be the *Poles of the Ecliptic*.

6° Apply a Style to the Meridian, in the Point M, and turn the *Globe* round; by this Rotation will the Arctic Polar Circle be described: And after the same manner is the Antarctic Polar to be described about the Point O.

7° Number $23\frac{1}{2}$ Deg. from the Æquator towards the Poles P, and Q; and note the Points H, and I. Then, applying a Style to the Meridian, as before, two Circles will be described parallel to the Equator; whereof that drawn thro' H, will be the Tropic of Cancer, and the other thro' I, the Tropic of Capricorn.

8° Hang

8° Hang the *Globe* within the Meridian, in the Poles of the Ecliptic, as before in the Poles of the World; and applying a Style to E, turn it round: By this means will the *Ecliptic* be delineated; which remains to be divided into 12 Signs; and each of these into 30 Degrees.

9° While the *Globe* remains thus suspended, bring the Degree of Longitude of any Star under the Meridian; and in the Meridian, number as many Degrees towards the Pole as is the Degree of Latitude of the Place: The Point of Intersection is the Place of that Star on the Surface of the *Globe*. After the like manner is the Place of the *Star* determined from the right Ascension and Declination given; the *Globe* being supposed suspended from the Poles of the World, or the Æquator.

10° All the Stars of a Constellation thus laid down; the Figure of the Constellation is to be design'd; after which it may either be colour'd, or engraven.

11° Place the *Globe* with the Meridian, in a wooden Frame or Horizon D B L, supported on four Feet; in such manner, as to be divided thereby into two Hemispheres; and that the Pole A may be rais'd or depress'd at pleasure.

12° On the Limb, or Edge of the Horizon describe a Circle, which divide into 360 Degrees, and insert the Calendars, and Winds.—

13° Lastly, to the Pole A, fit a Brazen Semicircle, divided into 24 horary Parts, and number'd twice twelve, so that the Lines or Divisions of XII, may be in the Plane of the Meridian, on either Side the Pole. And on the Pole itself apply an Index, to turn round with the *Globe*.—Thus is the *Globe* compleat.

It may be here observ'd, that as the Longitude of the Stars is continually growing, a *Globe* does not remain of perpetual Use: But the Increase in 72 Years only amounting to a Degree, it will make no considerable Error in an hundred Years; the Design of a *Globe* being only to represent things something near the Truth.

To make a Celestial Globe *the usual way.*

This Method is that the most frequently used; and we only premis'd the former as being the most easily conceived; and leading more naturally to this.—

1° From the given Diameter of the *Globe*, find a Right Line A B, *Fig.* 59. equal to the Circumference of a great Circle; and divide it into twelve equal Parts.

2° Thro' the several Points of Division, 1, 2, 3, 4, &c. with the Interval of 10 of them, describe Arches mutually, intersecting each other in D and E.—These Figures, or Pieces duly pasted or join'd together, will make the whole Surface of the *Globe*.

3° Divide each Part of the Right Line A B, into 30 equal Parts; so that the whole Line A B, representing the Periphery of the Equator, may be divided into 360 Degrees.

4° From the Poles D, and E, with the Interval of $23\frac{1}{2}$ Deg. describe Arches *a b*; these will be twelfth Parts of the Polar Circles.

5° After the like manner, from the same Poles D, and E, Fig. 59, 60. with the Interval of $66\frac{1}{2}$ Deg. reckon'd from the Æquator, describe Arches *c d*; these will be twelfth Parts of the Tropicks.

6° Thro' the Degree of the Æquator *e* corresponding to the right Ascension of any given Star, and the Poles D and E, draw an Arch of a Circle; and taking in the Compasses the Complement of the Declination from the Pole D, describe an Arch, intersecting it in *i*; this Point *i* will be the Place of the Star.

7° All the Stars of a Constellation thus laid down, the Figure of the Constellation is to be drawn according to *Bayer*, *Hevelius*, or *Flamsteed*.

8° Lastly, after the same manner, are the Declinations, and Right Ascensions of each Degree of the Ecliptic *d g* determined.

9° The Surface of the *Globe* thus projected on a Plane, is to be engraven on Copper, to save the Trouble of doing this over again for each *Globe*.

10° A Ball, in the mean time, is to be prepar'd of Paper, Plaster, &c. after the manner above directed, and of the intended Diameter of the *Globe*. On this, by means of a Semicircle, and Style, is the Æquator to be drawn; and thro' every 30th Degree, a Meridian. The Ball thus divided into twelve Parts, corresponding to the Segments before projected; they are to be cut out from the printed Paper, and pasted on the Ball.

11° Nothing now remains but to hang the *Globe* as before in a Brazen Meridian, and Wooden Horizon. To which may be added a Quadrant of Altitude H I, *Fig.* 61. made of Brass, and divided in the same manner, as the Ecliptic and Æquator,—

If the Declinations, and Right Ascensions of the Stars be not given; but their Longitudes, and Latitudes, in lieu thereof; the Surface of the *Globe* is to be projected after the same manner as before; except that in this case D, and E, *Fig.* 59. are the Poles of the Ecliptic, and *f h* the Ecliptic itself; and that the Polar Circles, and Tropicks, with the Equator *q d*, and the Parallels thereof, are to be determin'd from their Declinations.

The latest Catalogue of the Stars is that of Mr. *Flamsteed*, wherein the Right Ascensions and Declinations, as well as the Longitudes, Latitudes, &c. are every where express'd. See Catalogue.

Use of the Celestial Globe.

The Use of this Instrument is very extensive: Scarce any thing in the spherical Astronomy but may be exhibited thereby. See Astronomy.

The principal Points are contain'd in the following Problems, with their Solutions; which will let the Reader enough into the Nature and Reason of this noble Instrument to apply it, of his own Accord, in any other Cases.—

Problem I. *To find the Right Ascension, and Declination of a Star, represented on the Surface of the* Globe.

Bring the Star to the graduated Side of the Brazen Meridian: Then, the Number of Degrees intercepted between the Æquator, and the Point of the Meridian cut by the Star, gives its *Declination*; and the Degree of the Æquator, which comes under the Meridian together with the Star, is its *Right Ascension*. See Ascension, and Declination.

II. *To find the Longitude and Latitude of a Star.*

Apply the Centre of the Quadrant of Altitude over the Pole of the Ecliptic in the same Hemisphere with the Star; and bring its graduated Edge to the Star: The Degree on the Quadrant cut by the Star is its *Latitude*, reckon'd from the Ecliptic; and the Degree of the Ecliptic cut by the Quadrant, its *Longitude*. See Longitude, and Latitude.

III. *To find the Sun's Place in the Ecliptic.*

Seek the Day of the Month in the proper Calendar on the Horizon; and against the Day in the Circle of Signs is the Sign and Degree the Sun is in for that Day. This done, find the same Sign upon the Ecliptic, on the Surface of the *Globe*: This is the Sun's *Place* for that Day.—See Place.

IV. *To find the Declination of the Sun.*

The Sun's Place for the Day given being brought to the Meridian; the Degrees of the Meridian intercepted between the Equinoctial and that Place, is the Sun's *Declination* for that Day, at Noon.

V. *To find the Place of a Planet, with its Right Ascension and Declination; its Longitude, and Latitude, for the Time being given.*

Apply the Centre of the Quadrant of Altitudes on the Pole of the Ecliptic (the Pole, we mean, of the same Denomination with the Latitude); and bring it to the given Longitude, in the Ecliptic: This Point is the Planet's *Place*: And bringing it to the Meridian, its *Right Ascension*, and *Declination* will be found as already shewn of a Star.

VI. *To* rectify the Globe, *or adjust it to the Place*, &c. *so as it may represent the present State, or Situation of the Heavens.*

1° If the Place be in North Latitude, raise the North Pole above the Horizon, if in South, the South Pole; till the Arch intercepted between the Pole and Horizon be equal to the given Elevation of the Pole. 2° Fix the Quadrant of Altitude on the Zenith, *i. e.* on the Latitude of the Place. 3° By means of a Compass or Meridian Line, place the *Globe* in such manner as that the Brazen Meridian may be in the Plane of the Meridian. 4° Bring the Degree of the Ecliptic the Sun is in, to the Meridian, and set the horary Index to XII: Thus will the *Globe* exhibit the Face of the Heavens for the Noon of that Day. 5° Turn the *Globe* till the Index come to any other given Hour: Thus will the *Globe* shew the Face of the Heaven for that time. See Rectifying.

VII. *To know all the Stars and Planets by means of the* Globe.

1° Adjust the *Globe* to the State of the Heavens, for that Time. 2° Look on the *Globe* for some one Star, which you know; *e. gr.* the middlemost Star in the Tail of the Great Bear. 3° Observe the Positions of the other more conspicuous Stars in the same Constellation; and by transferring the Eye from the *Globe* to the Heavens, you will easily

easily note the same, there. 4° After the same manner may you proceed from this to the neighbouring Constellations; till you have learnt them all. See STAR.

If the Planets be represented on the *Globe*, after the manner above described, by comparing them with the neighbouring Stars, you will likewise know the *Planets*. See PLANET.

VIII. *To find the Sun's oblique Ascension, his Eastern Amplitude, and Azimuth, with the Time of Rising.*—

1° Rectify the *Globe* for the Hour of XII; and bring the Sun's Place to the Eastern Side of the Horizon: Then, the Number of Degrees intercepted between that Degree of the Æquator now come to the Horizon, and the Beginning of Aries, is the Sun's *Oblique Ascension*. 2° The Degrees on the Horizon intercepted between the East Point thereof, and the Point wherein the Sun is, is the *Ortive*, or *rising Amplitude*. 3° The Hour pointed to by the Index, is the Time of *the Sun's* Rising. 4° Turning the *Globe*, till the Index points to the present Hour; lay the Quadrant to the Sun's Place; the Degree cut by the Quadrant, in the Horizon, is the Sun's *Azimuth*. See AZIMUTH, OBLIQUE, &c.

IX. *To find the Sun's Oblique Descension, Western Amplitude, and Azimuth, with the Time of Setting.*

The Solution of this Problem is the same as that of the former; excepting that the Sun's Place must be here brought to the Western Side of the Horizon; as, in the former, it was to the Eastern. See DESCENSION.

X. *To find the Length of Day and Night.*

1° Find the Time of the Sun's rising; which being number'd from Midnight, the Double thereof gives the *Length of the Night*. 2° Substract the Length of the Night from the whole Day, or 24 Hours; the Remainder is the *Length of the Day*. See DAY, and NIGHT.

XI. *To find the Rising, Setting, and Culminating of a Star, its Continuance above the Horizon, for any Place and Day; together with its oblique Ascension, and Descension; and its Eastern and Western Amplitude and Azimuth.*

1° Adjust the *Globe* to the State of the Heavens, at 12 a-Clock, that Day. 2° Bring the Star to the Eastern Side of the Horizon: Thus will its *Eastern Amplitude*, and *Azimuth*, and the Time of *rising* be found; as already taught of the Sun. 3° Bring the same Star to the Western Side of the Horizon: Thus will the *Western Amplitude* and *Azimuth*, and the Time of *setting* be found. 4° The Time of Rising subtracted from that of Setting, leaves the *Continuance* of the Star above the Horizon.—5° This Continuance above the Horizon subtracted from 24 Hours, leaves the Time of its Continuance below the Horizon. 6° Lastly, the Hour to which the Index points, when the Star is brought to the Meridian; gives the Time of *Culmination*. See RISING, SETTING, CULMINATING, &c.

XII. *To find the Altitude of the Sun, or a Star, for any given Hour of the Day or Night.*

1° Adjust the *Globe* to the Position of the Heavens; and turn it till the Index point at the given Hour. 2° Fix on the Quadrant of Altitude, at 90 Degrees from the Horizon, and bring it to the Sun's or Star's Place. The Degrees of the Quadrant intercepted between the Horizon, and the Sun or Star is the *Altitude* required. See ALTITUDE.

XIII. *The Altitude of the Sun by Day, or of a Star by Night being given, to find the Time of that Day, or Night.*

1° Rectify the *Globe* as in the preceeding Problem. 2° Turn the *Globe*, and Quadrant till such Time as the Star, or Degree of the Ecliptic the Sun is in; cut the Quadrant in the given Degree of Altitude; then does the Index point at the Hour sought. See TIME, HOUR, &c.

XIV. *The Azimuth of the Sun, or a Star, given; to find the Time of Day, or Night.*

Rectify the *Globe*; and bring the Quadrant to the given Azimuth in the Horizon: Turn the *Globe*, till the Star come to the same: Then will the Index shew the Time.

XV. *To find the Interval of Time between the Risings of two Stars; or their Culminations.*

1° Raise the Pole of the *Globe* so many Degrees above the Horizon, as is the Elevation of the Pole of the Place. 2° Bring the first Star to the Horizon; and observe the Time the Index points to. 3° The same do by the other Star. Then subtracting the former Time from the latter; the Remainder is the Interval between the Risings.

After the like manner is the Interval between two Culminations found; by bringing both Stars to the Meridian.

XVI. *To find the Beginning and Ending of the Crepusculum, or Twi-light.*

1° Rectify the *Globe*; and set the Index to the XIIth Hour; the Sun's Place being in the Meridian. 2° Take the Sun's Place, and turn the *Globe* Westward, as also the Quadrant of Altitude, till the Point opposite to the Sun's Place cut the Quadrant of Altitude in the 18th Degree above the Horizon. The Index will shew the Time when the Twi-light commences in the Morning. 3° Taking the Point opposite to the Sun; bring it to the Eastern Hemisphere, and turn it, till it meet with the Quadrant of Altitude in the 18th Degree: Then will the Index shew the Time when Twi-light ends. See CREPUSCULUM.

Terrestrial GLOBE, is an artificial Sphere, on whose Surface are delineated the principal Places of the Earth, in their proper Situations, Distances, &c. together with the Circles imagin'd on the Surface of the terrestrial Sphere. See EARTH.

The Use of the *Terrestrial Globe*, is to exhibit the several Affections, and Phænomena of the different Places of the Earth, depending on Magnitude, &c. in an easy, obvious manner, without the Trouble of Trigonometrical Calculation. See GEOGRAPHY.

To construct a Terrestrial GLOBE.

The Construction of a Terrestrial *Globe*, whether of Metal, or Plaister, Paper, &c. is the same as that of a Celestial. The same *Circles* are delineated on both: And as for the *Places*, *viz.* Cities, Towns, &c. they are laid down from the Longitudes, and Latitudes given; as the Stars are from their right Ascensions and Declinations.

Hence, all Problems depending on the Circles, may be equally wrought on either *Globe*; as the Ascensions, Descensions, Amplitudes, Azimuths, Risings, Settings, Altitudes, &c. of the Sun; the Lengths of Day and Night; Hours of the Day and Night; Crepuscula, &c.

We shall here, therefore, only give what is peculiar to the Terrestrial *Globe*.

Use of the Terrestrial GLOBE.

Problem. I. *To find the Longitude and Latitude of any Place delineated on the* Globe.

Bring the Place to the graduated Side of the Brass Meridian: The Degree of the Meridian it cuts, is the *Latitude* required; and the Degree of the Æquator at the same time under the Meridian, is the *Longitude* required.

II. *The Longitude and Latitude given, to find the Place on the* GLOBE.

Seek, in the Æquator, the given Degree of Longitude, and bring it to the Meridian: Then count from the Æquator on the Meridian the Degree of Latitude given towards this or that Pole, as the Latitude is either North, or South. The Point under this is the *Place* requir'd.

III. *To find the Antoeci, Periœci, and Antipodes of any Place.*

1° The given Place being brought to the Meridian; count as many Degrees on the Meridian from the Æquator towards the other Pole. The Point thus arrived at, is the Place of the *Antoeci*. See ANTOECI. 2° Note the Degrees of the Meridian over the given Place and its *Antoeci*; and turn the *Globe* till the opposite Degree of the Equator, come under the Meridian; or, which amounts to the same, till the Index, which before stood at XII, come to the other XII: Then will the Place corresponding to the former Degree, be the *Periœci*; and the latter, that of *Antipodes*. See PERIŒCI, and ANTIPODES.

IV. *To find what Place of the Earth the Sun is Vertical to at any Time assigned.*

1° Bring the Sun's Place found in the Ecliptic to the Meridian; and the Index to the Hour of XII: Noting what Point of the Meridian corresponds thereto. 2° If the given Hour be before Noon; subtract it from twelve Hours; and turn the *Globe* towards the West, till the Index point at the Hours remaining. Thus will the Place requir'd be under the Point of the Meridian before noted. 2° If the Hour be Afternoon, turn the *Globe* in the same manner towards the

Weſt, till the Index point at the given Hour: Thus again will the Place requir'd be found under the Point of the Meridian before noted.—

If, at the ſame time, you note all the Places which are under the ſame Half of the Meridian with the Place found; you will have all the Places to which the Sun is then in the Meridian: And the oppoſite Half of the Meridian will ſhew all the Places, in which it is then Midnight.

V. *A Place being given in the torrid Zone, to find the two Days in the Year wherein the Sun is vertical to the ſame.*

1° Bring the given Place to the Meridian; and note the Degree of the Meridian correſponding thereto. 2° Turn the *Globe* about, and note the two Points of the Ecliptic paſſing thro' that Degree. 3° Find what Days the Sun is in thoſe Points of the Ecliptic: For on thoſe Days he is vertical to the given Place.

VI. *To find thoſe Places in the Torrid Zone to which the Sun is Vertical on a given Day.*—

Bring the Sun's Place in the Ecliptic to the Meridian: Then turning the *Globe* round, note all the Places which paſs thro' that Point of the Meridian. Thoſe are the Places required.

After the ſame manner are found what People are *Aſcii*, for any given Day. See Asc II.

VII. *A Place being given in the Frigid Zone, to find on what Days of the Year the Sun does not riſe; and on what Days he does not ſet to the ſame.*

1° Count as many Degrees in the Meridian from the Æquator towards the Pole, as is the Diſtance of the given Place from the Pole. 2° Turning the *Globe* round, note all the Points of the Ecliptic paſſing thro' each Point noted in the Ecliptic: By this means you will have the Arches which the Sun deſcribes while he neither riſes, nor ſets; and the Points themſelves give the Places of the Sun, when he neither riſes nor ſets, at the Beginning and Ending. 3° Find what Days of the Year the Sun is in thoſe Places: Theſe are the Anſwer to the Queſtion.

VIII. *To find the Latitude of the Places wherein any given Day is of any given Length.*

1° Bring the Sun's Place for the given Day to the Ecliptic, and ſet the Index to the Hour of twelve. 2° Turn the *Globe*, till the Index point at the Hour of riſing or ſetting. 4° Raiſe and depreſs the Pole till the Sun's Place appear in the Eaſtern or Weſtern Side of the Horizon. Then will the Pole be duly elevated, and conſequently the Latitude given.

IX. *To find the Latitude of thoſe Places in the Frigid Zone, where the Sun does not ſet for a given Number of Days.*

1° Count ſo many Degrees from the next Tropic, towards the Equinoctial Point, as there are Units in half the Number of the given Days; by reaſon, the Sun in his proper Motion, goes nearly a Degree every Day. 2° Bring the Point of the Ecliptic, thus found, to the Meridian: Its Diſtance from the Pole will be equal to the Elevation of the Pole, or Latitude of the Places requir'd.

X. *Any Hour of the Day, or Night being given, to ſhew all thoſe Places to which the Sun riſes, and ſets; where it is Noon, or Midnight; and where Day, or Night.*

1° Find what Place the Sun is at that time vertical to, as already taught. 2° Let this Place be brought to the Zenith of the wooden Horizon, *i. e.* elevate the Pole as the Latitude of that Place requires. Then, will the Places on the Eaſtern Side of the Horizon, be thoſe the Sun is ſetting to; and on the Weſtern Side, thoſe he riſes to: Thoſe under the upper Semicircle of the Meridian, have it Noon; and thoſe under the lower, Midnight. Laſtly, to thoſe in the upper Hemiſphere it is Day; and to thoſe in the lower, Night.—

Hence, as, in the Middle of an Eclipſe, the Moon is in the Degree of the Ecliptic oppoſite to the Sun's Place; by the preſent Problem it may be ſhewn what Places of the Earth then ſee the Middle of the Eclipſe; and what, the Beginning, or Ending.—

XI. *To find what Places of the Earth a Planet,* e. gr. *the Moon, is vertical to, any day of the Year.*

1° Mark the Planet's Place on the *Globe*, as above taught. 2° Bring this Place to the Meridian; and note the Degree over it. 3° Turn the *Globe* round; the Places which paſs under the Point, are thoſe required.—

XII. *The Declination of a Star, or any other Phænomenon given; to find what Parts of the Earth the ſame is vertical to.*

Count as many Degrees in the Meridian, from the Æquator towards one Pole, as are equal to the given Declination; *viz.* towards the North, if the Declination be Northward; and towards the South, if the Declination be South. Then, turning it round, the Places that paſs thro' the Extremity of this Arch in the Meridian, are the Places required.—

XIII. *To determine the Place of the Earth where any Star, or other Celeſtial Phænomenon will be Vertical at a given Hour.*

1° Elevate the Pole according to the Latitude of the Place, from whoſe Noon or Midnight the Hours are number'd. 2° Bring the Sun's Place for that Day to the Meridian, and ſet the Index to Twelve a-Clock. 3° Determine the Place of the Star on the Surface of the *Globe*, and bring it to the Meridian: The Index will ſhew the Difference of Time between the Appulſe of the Sun and Star to the Meridian of the Place: Note the Point of the Meridian over the Place of the Star. 4° Find in what Places of the Earth it is then Noon, and ſet the Index to Twelve a-Clock. 5° Turn the *Globe* towards the Weſt, till the Index have paſs'd over the Interval of Time between the Culmination of the Sun and Star. Then, under the Point of the Meridian before obſerved, will the Place required be found.

And hence may be found what Place a Star, or other Phænomenon riſes or ſets to at any given time.—

XIV. *To place the* Globe *in ſuch manner, under any given Latitude, as that the Sun ſhall illumine all thoſe Regions, which he actually illumines on Earth.*

1° Rectify the *Globe*, *i. e.* Elevate the Pole according to the Latitude of the Place: Bring the Place to the Meridian; and ſet the *Globe* North, and South by the Compaſs: Thus, the *Globe* having the ſame Situation to the Sun, as the Earth has; that Part thereof will be illumined, which is illumined on Earth.

Hence, the *Globe* being ſituate in the ſame manner, when the Moon ſhines, it will ſhew what Parts are then illumined by the Moon.

And, in the ſame manner, may we find where the Sun and Moon riſe and ſet at any given Time.

XV. *To find the Diſtance of two Places on the* Globe.

Take the given Places in the Compaſſes; and apply them to the Æquator. The Degrees they there ſubtend, being reduc'd into Miles, Leagues, or the like, give the Diſtances required. See Degree, Mile, *&c.*

The ſame may be done, and more commodiouſly, by laying the graduated Edge of the Quadrant of Altitude over the two Places; and noting the Degrees intercepted.—

GLOBULAR *Chart*, a Repreſentation of the Surface, or ſome Part of the Surface, of the Terraqueous Globe, upon a Plane; wherein the Parallels of Latitude are Circles nearly Concentric; the Meridian's, Curves bending towards the Poles; and the Rhumb-lines alſo Curves. See Chart, and Projection.

The Merits of this *Chart* conſiſt in this, that the Diſtances between Places upon the ſame Rhumb, are all meaſur'd by the ſame Scale of equal Parts, and the Diſtances of any two Places in the Arch of a great Circle, is nearly repreſented in this Chart by a Straight Line.—Hence, Land Maps made according to this Projection, would indiſputably have great Advantages above thoſe made any other way. See Map.

But for Sea Charts, and the Uſes of Navigation, 'tis yet controverted, whether the *Globular Chart* be preferable to *Mercator*'s, where the Meridians, Parallels, and particularly the Rhumb-lines, are all ſtraight Lines; inaſmuch as ſtraight Lines are found more eaſy to draw, and manage than Curves, eſpecially ſuch as the Rhumb-lines on the *Globular Chart* are. See Mercator, Rhume, &c.

This Projection is not new, tho' not much taken notice of till of late. It is mention'd by *Ptolomy*, in his *Geography*; as alſo by *Blundevil* in his *Exerciſes*.

Globular *Sailing*; ſee *Great Circle* Sailing.

GLOBULE, Globulus, a little Globe; call'd alſo a *Sphærule*. See Globe.

Thus the Cruor, or red Particles of the Blood are call'd *Globules* of the Blood, on account of their Redneſs, and Smalneſs. See Cruor.

The Microſcope diſcovers the Blood to conſiſt of red, *globular* Particles, ſwimming in a limpid, tranſparent Water, or

or Serum; and these, when at a due Distance, may be discern'd to attract each other, and unite into larger *Globules*, like the Spheres of Quicksilver. See Blood.

The *Cartesians* call the Particles broke off of the Matter of the first Element *Globules of the second Element*. See Element, Cartesians, &c.

GLOBULUS *Nasi*, is us'd for the lower cartilaginous moveable Part of the Nose. See Nose.

GLORIA *Patri*, in the Liturgy, a Formula, or Verse, repeated at the End of each Psalm, and on other Occasions, to give Glory to the Holy Trinity; call'd also *Doxology*. See Doxology.

It is thus called, because beginning in the *Latin* Office with these Words, *Gloria Patri*, q. d. *Glory be to the Father*, &c.

Pope *Damasus* is commonly held to have first order'd the Rehearsal, or rather the singing the *Gloria Patri* at the End of Psalms. *Baronius*, indeed, will have it to have been us'd in the times of the Apostles: But its use, then, he allows to have been more obscure; and that it did not become popular till after the Rise of *Arianism*, when it was made a kind of Symbol of Orthodoxy.

The fifth Canon of the Council of *Vaison*, held in 529, decrees, "That the Name of the Pope shall always be re-"hears'd in the Churches of *France*; and after the *Gloria* "*Patri*, shall be added *Sicut erat in Principio*, as is done "at *Rome*, in *Africa*, &c. On account of the Hereticks, "who say that the Son of God had his Beginning in time." *Fleury*.

Gloria *in Excelsis*, a kind of Hymn also rehearsed in the Divine Office; beginning with the Words *Gloria in Excelsis Deo, & in terra pax hominibus*, &c. Glory be to God on High, on Earth Peace, &c.

GLOSS, or Glossa, a Comment made on the Text of any Author, to explain his Sense more fully, and at large; whether in the same Language, or another.

Nic. de Lira has composed a *Gloss* of the Bible in six Volumes, Folio.—The *French* say proverbially of an ill Comment, that it is *Glose d'Orleans, plus obscure que le Texte*.

The Word *Gloss*, according to some, comes from the *Greek* γλῶσσα, Tongue; the Office of a *Gloss* being to explain the Text; as that of the Tongue is to discover the Mind.

Others derive it from the Latin *Glos*, a Sister-in-Law, which among the Lawyers sometimes stands for Sister; the *Gloss* being, as it were, Sister to the Text.—

Gloss is also used for a literal Translation; or an Interpretation of an Author in another Language, Word for Word. See Translation.

Young Scholars need an Interlineary *Gloss* for the understanding of *Juvenal*, *Horace*, *Salust*, &c.

Gloss is also us'd in Matters of Commerce, &c. for the Lustre of a Silk, Stuff, or the like. See Lustre.

GLOSSARY, a kind of Dictionary, for explaining the obscure, antient, and barbarous Words, and Phrases of an alter'd, corrupted, or refined Language. See Dictionary, &c.

Spelman's Glossary, intituled *Latino-Barbarum*, is an excellent Work; tho' that Author did not begin to study in this way till 50 Years of Age.

M. *du Canges* Latin *Glossary* in three Volumes, and his Greek *Glossary* in two Volumes Folio, are wonderful Performances, full of uncommon Erudition.

Lindenbrok has a *Glossary* on the Laws of *Charlemaign*, &c.

GLOSSOCOMON, a Chirurgeons Instrument, used in setting broken and dislocated Thighs and Legs; as also in extending those which remain too short after setting. See Dislocation, &c.

It consists of a hollow Trunk, wherein the Thigh, or Leg is laid: At the Bottom hereof is a kind of Wheel; and towards the Top are two Pullies, one on each Side. Several Thongs of Leather are tied both above and below the fractur'd Place. Those below, are fasten'd to the Axis of the Wheel, which they are near: Those above, go over the Pullies to come to the Axis, which they are likewise fasten'd to; so that the same Turning of the Wheel, both draws the Part of the Leg, or Thigh, which is above the Fracture, upwards; and that below, downwards.

The Word is form'd of the *Greek* γλῶσσα, Tongue, and κομεῖν, to have care; and was properly and primarily given by the Antients to a little Box, wherein they kept the Reeds of their Hautbois, &c.

Glossocomon, in Mechanicks, is a Name given by *Geron* to a Machine composed of divers dented Wheels, with Pinions; serving to raise huge Burthens.—

GLOSSOPETRA, or Glottopetra, in Natural History, a kind of Stone, in form of a Tongue; commonly found in the Island of *Malta*, and divers other Parts. See Stone.

Naturalists are divided as to the Nature, and Origin of these Stones.—*Steno, de Corpore solido intra solidum contento: Ol. Wormius, Dissert. de* Glossopetra; and *Reyschius de* Glossopetris *Luneburgensibus*, treat of them at large.

The vulgar Notion is that they are the Tongues of Serpents petrify'd; and hence their Name, which is a Compound of γλῶσσα, Tongue, and πέτρα, Stone—Hence also their traditionary Virtue in curing the Bites of Serpents.

The People relate, that since the Viper which bit St. *Paul* without doing him any Harm; all the Serpents of that Island have had the same Virtue; and that the *Glossopetræ* are the Tongues of those formerly dead—But this is palpable Fable, which the sole Figure of the *Glossopetræ* refutes; they having nothing of the Figure of a Serpent; beside that they are too big. See Petrifaction.

The common Opinion of Naturalists is that they are the Tongues of Fishes, left at Land by the Waters of the Deluge; and since petrify'd. See Deluge.

Some specify the very kind of Fish; and take it to be that which *Theophrastus*, and the *Greek* Writers call καρχαρίας, and the Moderns, the *Sea-dog*.

Camerarius cannot persuade himself that the *Glossopetræ* found in *England*, *Malta*, and a-round *Montpelier* were ever the Teeth of a Sea-dog, or any other Fish—The chief Difficulty, he suggests, is the small Quantity of volatile Salt and Oil they afford by Distillation. To which Dr. *Woodward* answers, in defence of the common System, that having laid so long burried under Ground, 'tis no wonder they should have lost the best Part of their volatile Principles.—'Tis certain that human Bones, and Skulls long interr'd don't afford near the Quantity of those Principles, as they would have done immediately after the Person's Death.

Another Scruple proposed by *Camerarius*, is, that the *Glossopetræ*, when exposed to the naked Fire, turn to a Coal, and not a Calx; contrary to what is asserted by *Fabius Columna*—Dr. *Woodward* answers, that 'tis likely enough the *Glossopetræ*, in burning, may assume the Form of Coal, before it arrive at that of a Calx.

GLOTTIS, in Anatomy, a Cleft, or Chink in the Larynx, serving for the Formation of the Voice. See Larynx.

The *Glottis* is in form of a little Tongue; whence its Name, from γλῶσσα, Tongue: For the same reason the *Latins* call it *Lingula*, *i. e.* little Tongue.

Thro' this Chink the Air descends, and ascends in respiring, speaking, singing, &c. It has an Apparatus of Muscles, whereby we contract and enlarge it; and hence all the Variety of Tones of the Voice. See Voice.

The *Glottis* is cover'd and defended with a thin, soft Cartilage call'd the *Epiglottis*. See Epiglottis.

GLOVE, Chirotheca, a Habit or covering for the Hand and Wrist; us'd both for Warmth, Decency, and to shelter from the Weather.

Gloves, are distinguish'd, with respect to Commerce, into Leathern *Gloves*, Silk *Gloves*, Thread *Gloves*, Cotton *Gloves*, worsted *Gloves*, &c.

There are also *Gloves* of Velvet, Satin, Taffaty, &c. Leather *Gloves* are made of Shammy, Kid, Lamb, Doe, Elk, Buff, &c. See Leather.

There are Perfumed *Gloves*; Wash'd, Glazed, Wax'd, White, Black, Snuff-colour, &c. Single, lin'd, top'd, lac'd, fring'd with Gold, Silver, Silk, Fur, &c.

'Tis a Proverb, that for a *Glove* to be good, and well made, three Kingdoms must contribute to it; *Spain*, to dress the Leather; *France*, to cut it; and *England*, to sew it: But, of late, the *French* seem to have appropriated the Functions of the other two; the *Gloves* of the *French* Manufacture having now the Advantage in point of dressing and sewing; as much as cutting.—

To *throw the Glove*, was a Practice, or Ceremony very usual among our Forefathers; being the Challenge, whereby another was defied to single Combat—It is still retain'd at the Coronation of our Kings; when the King's Champion casts his *Glove* in *Westminster-Hall*. See Champion.

Favyn supposes the Custom to have arose from the Eastern Nations, who in all their Sales, and Deliveries of Lands, Goods, &c. give the Purchaser their *Glove* by way of Livery, or Investiture. To this effect he quotes *Ruth* iv. 7. where the *Chaldee* Paraphrase calls *Glove*, what the common Version renders by *Shoe*. He adds, that the Rabbins interpret by *Glove*, that Passage in the CVIII^th Psalm, *In Idumæam extendam calceamentum meum*, Over *Edom* will I cast out my Shoe.—Accordingly, among us, he who took up the *Glove*, declared thereby his Acceptance of the Challenge; and as a Part of the Ceremony, continues *Favyn*, took the *Glove* off his own right Hand, and cast it upon the Ground, to be taken up by the Challenger. This had the Force of a mutual Engagement on each side, to meet at the Time and Place which should be appointed by the King, Parliament, or Judges.—See Gage, &c.

The same Author asserts, that the Custom which still obtains of *blessing Gloves* in the Coronation of the Kings of *France*, is a Remain of the Eastern Practice of giving Possession with the *Glove*. *L. XVI. p.* 1017. &c.

Antiently it was prohibited the Judges to wear *Gloves* on the Bench. And at present in the Equeries of most Princes, 'tis not safe going in without pulling off the *Gloves*.—

GLUE,

GLUE, Gluten, a viſcid, tenacious Matter ſerving as a Cement to bind, or connect divers Things together. See Cement.

There are divers Kinds of *Glues* made uſe of in the divers Arts; as the Common *Glue*; Glove *Glue*; Parchment *Glue*—But the two laſt are more properly call'd *Size*.

The *Common*, or *Strong* Glue is a Commodity uſed by numerous kinds of Artificers; as Joiners, Cabinet-makers, Caſe-makers, Hatters, Bookbinders, &c. And the Conſumption thereof is very conſiderable. The beſt is that made in *England*, in ſquare Pieces, of a ruddy, brown Colour. *Flanders Glue* is held the next after the *Engliſh*.

Glue is made of the Skins of all kinds of Beaſts, as Oxen, Cows, Calves, Sheep, &c. The older the Beaſt is, the better is the *Glue*, made of its Hide. Indeed, 'tis rare they uſe whole Skins for this purpoſe; thoſe being capable of being applied to better purpoſe: But they make uſe of the Shavings, Parings, or Scraps thereof: Sometimes they make it of the Feet, Sinews, Nerves, &c. of Beaſts.

That made of whole Skins, is the beſt; and that of Sinews, &c. the worſt: And hence chiefly ariſes the Difference of *Glues*; and the Advantages of the *Engliſh* and *Flemiſh Glues*: For, as our Tanners generally make the *Glue* themſelves; they are not ſparing of the Parings of the Skins, which they never ſell: Whereas, in *France*, &c. the *Glue-makers* being a peculiar kind of Manufacturers, and having no Parings, &c. but what they buy, make uſe chiefly of Sinews, Feet, &c.

Method of making Glue.

To make *Glue* of Parings; they firſt ſteep them two, or three Days in Water; then waſhing them well out, they boil them to the conſiſtence of a thick Gelly. This done, they paſs the Gelly, while yet hot, thro' Oſier Baſkets, to ſeparate from it any Impurities; and in order to purify it ſtill further, they let it reſt ſome time. When the Ordures, or foreign Matters are precipitated to the Bottom of the Veſſel; they melt and boil it a ſecond time.

This done, they pour it into flat Frames, or Moulds; whence it is taken out, when pretty hard and ſolid, and cut into ſquare Pieces, or Cakes. Nothing now remains, but to dry it in the Wind, on a ſort of coarſe Net, and afterwards to ſtring it, to finiſh the Drying.

The *Glue* made of Feet, Sinews, &c. is manag'd after the ſame manner; with this only Difference, that they bone, and ſcour the Feet, and don't lay them to ſteep.

The beſt *Glue* is that which is oldeſt: The ſureſt Teſt of Goodneſs is to lay a Piece to ſteep three, or four Days in Water; if it ſwell conſiderably without melting, and when taken out reſume its former Dryneſs, it is excellent.

Fiſh Glue, is a ſort of *Glue* made of the nervous and mucilaginous Parts of a large Fiſh, found chiefly in the *Ruſſian* Seas.

Theſe Parts being boil'd, bear a near Reſemblance to that viſcid Matter found on the Skins of Cod Fiſh. When boil'd to the Conſiſtence of a Gelly, they ſpread it on a Leaf of Paper, and form it into Cakes; in which State it is ſent to us.

Fiſh Glue is of conſiderable uſe in Medicine, and divers other Arts; where it is better known under the Names of *Iſing Glaſs* and *Ichthyocolla*. See Ising *Glaſs*, &c.

GLUTÆUS, in Anatomy, from γλουτὸς, *Nates*, a Buttock; a Name common to three Muſcles, whoſe Office is to extend the Thigh—The firſt

The *Glutæus Major*, or the *greater*, ariſes ſemicircularly from the Os Coccygis, the Spines of the Sacrum, the Spine of the Ilium, and a ſtrong Ligament which runs between the Sacrum, and Tubercle of the Iſchium; and deſcending, is inſerted into the Linea aſpera, four Fingers Breadth below the great Trochanter.

The *Glutæus Medius*, or the *middle* one, call'd alſo *minor*, or *leſs*, ariſes from the Spine of the Ilium under the former, and is inſerted into the ſuperior and external Part of the great Trochanter.

The *Glutæus minimus*, or *leaſt*, ariſes from the lower Part of the external Side of the Ilium, under the former, and is inſerted at the ſuperior Part of the great Trochanter.

GLUTINATIVE, Agglutinative, or Conglutinative, in Medicine, and Pharmacy. See Conglutinative.

GLYCONIAN, or Glyconic, in the *Greek* and *Latin* Poetry.—A *Glyconian Verſe* is that conſiſting of two Feet, and a Syllable. See Verse, and Foot.

This is *Scaliger's* Sentiment, who adds, that the *Glyconian* Verſe was alſo call'd *Euripidæan*.

Others hold that the *Glyconian* Verſe conſiſted of three Feet; a Spondee, and two Dactils; or rather, a Spondee, Choriambus, and a Pyrrhic; which Opinion is the moſt followed.

Sic te diva potens Cypri, is a *Glyconian Verſe*.

GLYCYRRHIZA, or Glicyrhiaza, in Medicine, *Liquorice*. See Glicyrrhiza.

GLYPHE, or Glyphis, in Architecture, a general Name for any Cavity, or Canal, whether round, or terminating in an Angle; us'd as an Ornament, in any Part.

The Word is *Greek*, γλυφὴ, which literally ſignifies *graving*.

Γλυφὶς is properly a Nitch, or Indenture made in *graving*; or, more properly, the Notch in the Head of an Arrow, over which the String goes. See Triglyph.

GLYSTER; ſee Clyster.

GNOME, a Name which the Cabaliſts give to certain inviſible People, whom they ſuppoſe to inhabit the Inner Parts of the Earth, and to fill it to the Centre.

They are repreſented as very ſmall of Stature, tractable, and friendly to Men; and are made the Guardians of Mines, Quarries, hidden Treaſures, &c.

Vigenere calls them *Gnomons*—The Females of this Species are call'd *Gnomides*.

Vigneuil de Marville in his *Melange d'Hiſtoire & de Literature*, *T. I. p.* 100. gives a Relation of a Conference with a Philoſopher of this Claſs, who held that an Infinity of Spirits inhabited each of the four Elements, Fire, Air, Water, and Earth, under the Denomination of *Salamanders*, *Sylphs*, *Oudins*, and *Gnomes*; that the *Gnomes* are employ'd in working, or actuating the Machines of Brutes upon the Earth.

He added that ſome Philoſophers of that Sect, held that theſe Spirits were of two Sexes, for the two Sexes of Beaſts, or moving Machines; that they were even more or leſs perfect as the Brutes were; and that there was an infinite Number of exceedingly ſmall ones, to actuate the infinite Number of Inſects, and Animalcula, both thoſe that are viſible, and thoſe which are too ſmall to come under our Senſes; that all theſe Spirits in general govern their reſpective Machines according to the Diſpoſition of the Parts, or Organs, the Humors, Temperaments, &c. that they do not lay hold of all Machines indifferently, but of theſe ſuited to their own Character, Element, &c. That a haughty one, for inſtance, ſeizes a *Spaniſh* Gennet; a cruel one, a Tyger, &c. See Silph, &c.

Gnome, or Chria, is alſo us'd for a ſhort, pithy, uſeful, and ſententious Obſervation, Reflexion, or the like; worthy to be treaſur'd up, and remembred. See Sentence, Apothegm, &c.

Such is that of *Juvenal*,

Orandum eſt ut ſit mens ſana in corpore ſano.

The Writers of Rhetoricks diſtinguiſh ſeveral kinds of *Gnomes*, according as they turn on Words, on Actions, or both; denominating them Verbal, Active, and Mix'd *Gnomes* or Chriæ.

Gnomon, in Geometry.—If a Parallelogram be divided into four leſſer ones, by two Lines interſecting each other; and one of theſe Parallelograms be retrench'd, or taken away; the other three will make a *Gnomon*, ordinarily call'd a *Square*. See Square.

Or, a *Gnomon* in a Parallelogram, may be ſaid to be a Figure form'd of the two Complements, together with either of the Parallelograms about the Diameter. Thus, in the Parallelogram A B *Tab. Geometry*, *Fig.* 5. the *Gnomon* is M + *x* + *z* + N; or M + N + *X* + *Z*.

Gnomon, in Aſtronomy, an Inſtrument, or Apparatus for meaſuring the Meridian Altitudes of the Sun, and Stars. See Meridian *Altitude*.

Thoſe converſant in Obſervations, prefer the *Gnomon* to the ſmaller Quadrants, both as more accurate, eaſier made, and more eaſily applied. See Quadrant, and Observation.

Accordingly, both Antients, and Moderns have made uſe of *Gnomons*, for the making of their more conſiderable Obſervations: *Ulugh Beigh*, King of *Parthia*, &c. uſed a *Gnomon*, in the Year 1437. which was 180 *Roman* Feet high: That erected by *Ignatius Dantes* in the Church of St. *Petronius* at *Boulogne*, in the Year 1576, was 67 Feet high; M. *Caſſini* erected another 20 Foot high, in the ſame Church, in the Year 1655. See Solstice.

To erect an Aſtronomical Gnomon, *and obſerve the Meridian Altitude of the Sun by the ſame.*

Erect a perpendicular Style, of a conſiderable Height, on the Meridian Line: Note the Point where the Shadow of the *Gnomon* terminates when projected along the Meridian Line: Meaſure the Diſtance of that Extreme from the *Gnomon*, *i.e.* the Length of the Shadow.—Thus, having the Height of the *Gnomon*, and the Length of the Shadow; the Meridian Altitude of the Sun is eaſily found.

Suppoſe, *e.gr.* T S (*Tab. Opticks*, *Fig.* 13.) the *Gnomon*, and T V the Length of the Shadow. Here, on the rect-angled Triangle S T V, having the two Sides T V and T S; the Angle V which is the Quantity of the Sun's Altitude, is found out by this Analogy: As the Length of the Shadow T V, is to the Altitude of the *Gnomon* T S; ſo is the whole

whole Sine : to the Tangent of the Sun's Altitude above the Horizon.

Or, more accurately, thus;

Make a Circular Perforation in a Brass Plate, to transmit enough of the Sun's Rays to exhibit his Image on the Floor: Fix it parallel to the Horizon in a high Place, proper for Observation: Let fall a Line, and Plummet, wherewith to measure the Height of the Perforation from the Floor. Take care the Floor be perfectly level, and exactly horizontal; and let it be whiten'd over, to exhibit the Sun more distinctly. Draw a Meridian Line thereon, passing thro' the Foot of the *Gnomon*, *i. e.* thro' the Point the Plummet points out: Note the extreme Points of the Sun's Diameter on the Meridian Line K and I, and from each subtract a Right Line equal to the Semi-diameter of the Aperture, *viz.* K H, *Tab. Astron. Fig.* 57. on one Side, and L I on the other.—Then will H L be the Image of the Sun's Diameter, which bissected in B, gives the Point on which the Rays fall from the Centre of the Sun.

Now, having given the Right Line A B, and the Altitude of the *Gnomon*, with the Angle A, which is Right; the Angle A B G, or the apparent Altitude of the Sun's Centre, is easily found: For, assuming one of the given Sides A B for Radius; A G will be the Tangent of the opposite Angle, B. Then say, As one Leg, A B, is to the other A G; So is the whole Sine, to the Tangent of the Angle B.

GNOMON, in Dialling, is the *Style*, Pin, or Cock of a Dial; the Shadow whereof pointeth out the Hours. See STYLE, and DIAL.

The *Gnomon* of every Dial is suppos'd to represent the Axis of the World; and therefore the two Ends or Extremities thereof must directly answer to the North, and South Poles. See MERIDIAN.

The Word is *Greek*, γνῶμον; which literally imports somewhat that *makes a thing known*; by reason the Style, or Pin makes the Hour, *&c.* known.

GNOMONICA, or GNOMONICE, GNOMONICKS, the Art of *Dialling*; or of drawing Sun and Moon Dials, *&c.* on any given Plane. See DIAL, and DIALLING.

'Tis thus call'd, as it shews how to find the Hour of the Day, *&c.* by the Shadow of a *Gnomon*, or Style.

GNOSIMACHI, an antient Sect in Religion, whose distinguishing Character was that they were profess'd Enemies of all studied Knowlege in Divinity.

Damascenus says that they were perfectly averse to all the *Gnosis* of Christianity, *i. e.* to all the Science, or Knowlege therein. They held it an useless Labour to seek for *Gnoses* in the Holy Scriptures; that God requires nothing of Men but good Works; that it were, therefore, much better to walk with more Simplicity, and not to be so sollicitous about the Dogmata of the Gnostic Life.

This *Gnosis* which they decried, is commonly understood of Science; and *Damascenus*'s Interpreters translate the Word so.

Some Authors take the Word *Gnosis* to have a further Meaning, and that in the first Ages of Christianity, it signified much the same with what we call *Spirituality*, and the *Gnostic Life*, Γνωσικὴ πραγμαλεία. In which Sense the *Gnosimachi* must have been such as were Enemies of the Spiritual Life; who contended for the doing of good Works in all Simplicity; and blamed such as aim'd to render them more perfect by Meditation, a deeper Knowlege and Insight into the Doctrines and Mysteries of Religion, and the sublimer, and more abstracted Exercises. See GNOSTIC.

The Word is *Greek*, γνωσιμάχος, *q. d.* an Enemy of Wisdom.—

GNOSTICKS, antient Hereticks, famous from the first Rise of Christianity; principally in the East. See HERETICKS.

The Name *Gnostic*, which properly signifies *learned*, was adopted by those of this Sect, as if they were the only Persons who had the true Knowlege of Christianity: Accordingly, they look'd on all the other Christians as simple, ignorant, and barbarous Persons, who explain'd, and interpreted the Sacred Writings in too low, and literal a Signification.

At first, they were no more than the Philosophers, and Wits of those Times, who form'd themselves a peculiar System of Theology, agreeable to the Philosophy of *Pythagoras*, and *Plato*; to which they accomodated all their Interpretations of Scripture.

But the Word *Gnostic* afterwards became a generical Name, comprehending divers particular Sects, and Parties of Hereticks, who rose in the first Centuries; and who, tho' they differ'd among themselves as to Circumstances, yet all agreed in some common Principles: Such were the *Valentinians*, *Simonians*, *Carpocratians*, *Nicolaitans*, &c. See VALENTINIANS, SIMONIANS, &c.

Sometimes, the Word *Gnostic* is us'd as a proper Name, and peculiarly attributed to the Successors of the first *Nicolaitans*, and *Carpocratians* in the second Century, upon their laying aside the Names of the first Authors. See CARPOCRATIANS, NICOLAITANS, &c.

Such as would be thoroughly acquainted with all their Doctrines, Reveries, and Visions, may consult St. *Irenæus*, *Tertullian*, *Clemens Alexandrinus*, *Origen*, and St. *Epiphanius*; particularly the first of these Writers, who relates their Sentiments at large, and confutes them at the same time: Indeed, he dwells more expresly on the *Valentinians*, than on any other Sort of *Gnosticks*; but he shews the General Principles whereon all their mistaken Opinions were founded, and the Method they followed in explaining Scripture.

He accuses them with introducing into Religion certain vain and ridiculous Genealogies, *i. e.* a kind of divine Processions, or Emanations; which had no other Foundation but in their own Imaginations. See EON, ABRA, CADABRA, &c.

In effect, the *Gnosticks* confess'd that these Emanations were no where expresly deliver'd in the sacred Writings; but insisted at the same time, that Jesus Christ had intimated them in Parables, to such as could understand him.

They built their Theology not only on the Gospels, and the Epistles of St. *Paul*; but also on the Law of *Moses*, and the Prophets. These last were peculiarly serviceable to them, on account of the Allegories, and Allusions they abound withal; which are capable of different Interpretations.

They set a great Value on the Beginning of the Gospel of St. *John*; where they fancied they saw a great deal of their Emanations, under the *Word*, the *Life*, the *Light*, &c.

They divided all Nature into three kinds of Beings; *viz.* *Hylic*, or Material; *Psychic*, or Animal; and *Pneumatic*, or Spiritual.

On the like Principle they also distinguish'd three Sorts of Men; *Material*, *Animal*, and *Spiritual*: The first, who were Material, and incapable of Knowlege, inevitably perish'd both Soul and Body: The third, such as the *Gnosticks* themselves pretended to be, were all certainly saved: The Psychic, or Animal, who were the middle between the other two, were capable either of being saved, or damn'd, according to their good, or evil Actions.

The Word *Gnostic* is form'd of the Latin *Gnosticus*, and that of the Greek γνωστικὸς, knowing, learned, witty, enlighten'd, spiritual; of γινώσκω, I know.

The Name *Gnostic* sometimes occurs in a good Sense, in the antient Ecclesiastical Writers, and particularly *Clemens Alexandrinus*, who, in the Person of his *Gnostic*, describes the Characters and Qualities of a perfect Christian. This Point he labours in the seventh Book of his *Stromata*, where he shews that none but the *Gnostic*, or learned Person has any true Religion. He affirms, that were it possible for the Knowlege of God to be separated from eternal Salvation; the *Gnostic* would make no Scruple to chuse the Knowlege: And that if God should promise him Impunity in doing of any thing he has once spoke against, or offer him Heaven on those Terms, he would never alter a Whit of his Measures. See GNOSIMACHI.

In this Sense that Father uses *Gnostic*, in opposition to the Hereticks of the same Name; affirming that the true *Gnostic* is grown old in the Study of the Holy Scripture; and that he preserves the Orthodox Doctrine of the Apostles, and the Church: Whereas the false *Gnostic* abandons all the Apostical Traditions, as imagining himself wiser than the Apostles.

At length the Name *Gnostic*, which originally was the most glorious, became infamous, by the idle Opinions, and dissolute Lives of the Persons who bore it; much, as in the present Age, has fared with the Names *Quietist*, *Pietist*, &c. See QUIETISM, &c.

GO, is sometimes used in Law, in a special Signification: Thus, to *go without Day*; and, to *go to God*, is as much as to be dismiss'd the Court; to be acquitted.

GOAD, STIMULUS, a Stick arm'd at one End with a pointed Iron, to prick, and urge on a Horse, Ox, or the like.

In speaking of Horses, we more commonly use the *French* Name *Valet*; reserving *Goad* for Oxen.—

GOAL, a Prison, or Place of legal Confinement. See PRISON.

The Word is form'd of the French *Geole*; and that of the Barbarous Latin *Geola*, *Gaola*, *Gayola*, a *Cage*: Whence the *Picards* still call a Bird-cage, *Gayolle*.

The Goaler, Geolier, was call'd *Gaularius*, and *Cajularius*. *Scaliger* derives the Word *Goaler* from *Janicularius*. Some *Latin* Authors call him *Commentariensis*, by reason he keeps a Register, or List of all those under his Custody.

GOBLET, or GOBELET, a kind of Drinking-cup, or Bowl, ordinarily of a round Figure, and without either Foot, or Handle.

Goblets, made of the Wood Tamarin, are rank'd among the Medicinal Drugs; in regard the Liquors infus'd a while therein, are supposed to acquire a Quality which renders them good in Diseases of the Spleen.

The Word is French, *Gobelet*; which *Salmasius*, and others derive from the Barbarous Latin, *Cupa*: *Budæus* derives it from the *Greek* κυπέλλον.—

GOBELINS, a celebrated Manufactory, establish'd at *Paris*, in the Fauxbourg St. *Marcel*, or St. *Marceau*; for the making of Tapistry, and other Furniture, for the use of the Crown. See TAPISTRY.

The House where this Manufacture is carried on, was built by two Brothers, *Giles*, and *John Gobelins*, both excellent Dyers, and the first who brought to *Paris* the Secret of dying that beautiful Scarlet Colour still known by their Name; as well as the little River *Bievre*, on whose Banks they fix'd their Dye-house; and which is now known by no other Name than that of the River of the *Gobelins*.

It was in the Year 1667, that this Place, till then call'd *Gobelin's Folly*, chang'd its Name into that of *Hotel Royal des Gobelins*, in consequence of an Edict of *Louis* XIV.

Mons. *Colbert*, having re-establish'd, and with new Magnificence enrich'd and compleated the King's Palaces, particularly the *Louvre*, and *Tuilleries*, began to think of making Furniture, suitable to the Grandeur of those Buildings: With this View he call'd together all the ablest Workmen in the divers Arts and Manufactures throughout the Kingdom; particularly Painters, Tapistry-makers, Sculptors, Goldsmiths, Ebenists, *&c.* and by splendid Offers, Pensions, Privileges, *&c.* call'd others from foreign Nations.

And to render the intended Establishment more firm and lasting, brought the King to purchase the *Gobelins*, for them to work in; and drew up a System of Laws, or Policy, in XVII Articles.

By these it is provided that the new Manufactory shall be under the Administration of the Superintendant of the King's Buildings, Arts, *&c.* That the ordinary Masters thereof shall take Cognizance of all Actions, or Processes brought against any of the Persons in the said Manufactory, their Servants, and Dependants: That no other Tapistry Work shall be imported from any other Country, *&c.*

The *Gobelins* has ever since remain'd the first Manufactury of this kind, in the World. The Quantity of the finest, and noblest Works, that have been produc'd by it; and the Number of the best Workmen bred up therein, are incredible. In effect, the present flourishing Condition of the Arts, and Manufactories of *France* is in a great measure owing thereto.

Tapistry Work, in particular, is their Glory. During the Superintendance of M. *Colbert*, and his Successor M. *de Louvois*, the making of Tapistry is said to have been practis'd to a Degree of Perfection, scarce inferior to what was antiently done by the *English*, and *Flemish*.

The Battles of *Alexander*; the Four Seasons; the Four Elements; the King's Palaces, and a Series of the principal Actions of the Life of *Louis* XIV. from the time of his Marriage to the first Conquest of *Franche Comte*, done from the Designs of M. *le Brun*, Director of the Manufactory of the *Gobelins*, are Master-pieces in their kind.

GOBONE, GOBONATED, in Heraldry, the same as *Compone*. See COMPONE.

GOD.—No just Definition can be given of the Thing signified by this Name, as being infinite, and incomprehensible. See DEFINITION.

In Scripture, he is defined by, I am that I am: Alpha and Omega; the Beginning and End of all Things.

Among Philosophers, he is defined a Being of infinite Perfection; or in whom there is no Defect of any thing which we conceive might raise, improve, or exalt his Nature. See PERFECTION.

Among Men, he is chiefly consider'd as the first Cause, the first Being, who has existed from the Beginning, has created the World, and who subsists necessarily, or of himself. See CAUSE, *&c.*

Sir *Isaac Newton* chuses to consider, and define *GOD* not as is usually done, from his Perfection, his Nature, Existence, or the like; but from his Dominion. 'The Word *God*,' according to him, 'is a relative Term, and has a Regard to Servants: 'Tis true, it denotes a Being eternal, infinite, and absolutely perfect; but a Being, however eternal, infinite, and absolutely perfect, without Dominion, would not be *God*.

'The Word *God* frequently signifies *Lord*; but every Lord is not *God*: The Dominion of a spiritual Being or Lord, constitutes *God*; true Dominion, true *God*; the supreme, the Supreme; feign'd, the feign'd.

'From such true Dominion it follows that the true *God* is living, intelligent, and powerful; and from his other Perfections, that he is supreme, or supremely perfect: He is eternal, and infinite, omnipotent, and omniscient; that is, he endures from Eternity to Eternity, and is present from Infinity, to Infinity.

'He governs all Things that exist, and knows all Things that are to be known: He is not Eternity, or Infinity, but eternal and infinite: He is not Duration, or Space, but he endures, and is present: He endures always, and is present every where; and by existing always and every where, constitutes the very Things Duration and Space, Eternity and Infinity. See ETERNITY, DURATION, SPACE, &c.

'Since every Particle of Space is always, and every indivisible Moment of Duration, every where, the Creator and Lord of all Things can never be *nunquam nusquam*. See UBIQUITY, &c.

'He is omnipresent, not only virtually, but also substantially; for Power without Substance cannot subsist. See POWER, &c.

'All Things are contain'd, and move in him; but without any mutual Passion: He suffers nothing from the Motions of Bodies; nor do they undergo any Resistance from his Omnipresence.

'It is confessed that *GOD* exists necessarily; and by the same Necessity he exists always, and every where. Hence also he must be perfectly similar; all Eye, all Ear, all Brain, all Arm, all the Power of perceiving, understanding and acting; but after a manner not at all corporeal, after a manner not like that of Men, after a manner wholly to us unknown. See ANTHROPOMORPHITE.

'He is destitute of all Body, and all bodily Shape; and therefore cannot be seen, heard, nor touched; nor ought to be worship'd under the Representation of any thing corporeal. See IMAGE, &c.

'We have Ideas of the Attributes of *God*, but do not know the Substance even of any Thing: We see only the Figures, and Colours of Bodies; hear only Sounds, touch only the outward Surfaces, smell only Odours, and taste Tasts; and do not, cannot, by any Sense, or any reflex Act know their inward Substances, and much less can we have any Notion of the Substance of *God*. See BODY, SUBSTANCE, &c.

'We know him by his Properties, and Attributes; by the most wise, and excellent Structure of Things, and by final Causes; but we adore, and worship him only on account of his Dominion: For *God*, setting aside Dominion, Providence, and final Causes, is nothing else but Fate, and Nature. *Philos. Nat. Princip. Math. in Calce.* See FATE, NATURE, &c.

A late ingenious Divine has wrought these Thoughts of that admirable Philosopher into Form, and ripen'd them into a more express System; in a Discourse upon this Occasion.

The great Principle or Proposition he lays down, is that '*God* is not rightly defined a Being absolutely perfect, but a spiritual Being endued with absolute Dominion—Not that he denies the self existent Being to be infinitely perfect; but only that it is his Dominion, not his Perfection, that is intended by the Word *God*.'

The self existent Being, he observes, may be consider'd either *absolutely*, or *relatively*: Absolutely, as he is in his own Nature, and as he is consider'd by the Metaphysician: Relatively, as he stands related to his Creatures, and as he is consider'd by the Religionist, his Worshipper. Now, in treating of the Definition of *God*, he intends a nominal, not a real Definition; not what the Nature of that self-existent Being is, which we call *God*; but what it is we mean by the Word *God*: Which, on this System, is that self existent Being, consider'd not absolutely, but relatively; not as he is abstractedly in his own Nature, but as he stands related to the Universe, whose Sovereign Lord he is. See UNIVERSE.

'Tis added, that the Names given him in most Languages, denote, not his abstract, metaphysical, and absolute Idea, but his religious, popular, and relative one.

Indeed, every Worshipper of *God* will allow that he worships that self-existent Being for no other Reason, but because he is *God*; that is, because he is *Lord* and Sovereign; for one would be under no Obligation to worship a Being, tho' absolutely perfect, that had no Dominion over him.—A perfect Being without Dominion, would be only an Object of Contemplation, and Admiration; not of Worship: For Worship is only a Payment of Homage, an Acknowledgment of Subjection; which, where there is no Dominion, cannot be due, and is therefore always due in proportion to the Degree of Dominion.

The Word *God* signifies *Lord*, and not a Being absolutely perfect: Thus when I say, my *God*, the *God* of the Universe, it seems plain, that the Notion of *God* is relative, not absolute, that is, includes Dominion, not absolute Perfection; and if I were to express the same in any other Words, could I do it otherwise than thus, My Lord, the Lord of the Universe; and not thus, my perfect Being, the perfect Being of the Universe?

Indeed, it seems impossible to prove the Existence of a *God*, in the Sense affix'd to that Name, *a priori*, or any otherwise than from his Dominion; that is by arguing from the Effect to the Cause. The following Propositions, 'tis true, are undeniably demonstrable *a priori*. 1° That there is a self-existent, *i. e.* necessarily existent Being; because the Uni-

Universe could not produce itself. 2° That a necessarily existent Being must be eternal, and omnipresent, that is coextended with infinite Duration, and infinite Space, because whatever exists by an absolute Necessity of Nature, has no Relation to Difference of Time, Place, &c. and consequently must exist always and every where. 3° This Being must be perfectly similar, simple, and uncompounded, without the least Variety, or Difference imaginable, or possible, because absolute Necessity is every where and always the same. From which Proposition it also follows, as a Corollary, that this Being is immutable.

It is apparent therefore, *a priori*, that there is a self-existent Being, which is not Matter; and that this Being is eternal, omnipresent, similar, and unchangeable, by necessary Connexion between self-Existence, and these Attributes: but it is impossible to shew any necessary Connexion between self-Existence and Understanding; and if so, it is impossible to prove that the self-existent Being is intelligent *a priori*, or any otherwise than by arguing from the Effect to the Cause; that is, from the Consideration of the Frame of the Universe, the Laws of Nature, and final Causes. *Maxwell's Disc. concern.* GOD.—

The *Hebrews* call the Name of *God* בוארבע אותיות, and the *Greeks*, after this Example, Τετραγράμματον; as consisting of four Letters, which it is observ'd to do in most Languages: Thus, in the Hebrew, *God* is called יהוה, *Jehovah*; in Greek, Θεὸς; in Latin, *Deus*; in Spanish, *Dios*; in Italian, *Idio*; in French, *Dieu*; in the antient Gaulish, *Diex*; in antient German, *Diet*; in the Sclavonic, *Buch*; in Arabic, *Alla*; in the Polish, *Bung*; in the Pannonian, *Istu*; in the Egyptian, *Tenu*; in the Persian, *Sire*; in the Language of the Magi, *Orsi*.—

The Rabbins, and Hebraists, particularly St. *Jerom*, and the Interpreters, reckon up ten different Names of *God* in Scripture; which are, אל, *El*, אלהים, *Elohim*, אלהי, *Elohe*, or in the Singular, אלה, *Eloah*, צבאות, *Tsebaoth*, עליון, *Elion*, אהיה, *Ehjeh*, ארוני, *Adonai*, יה, *Jah*, שדי, *Shaddai*, יהוה, *Jehovah*; but 'tis wrong to divide אלהי from צבאות; they should he but one Name אלהיצבאות, *Eliohe tsebaoth*, i. e. *God of Hosts*.—Of these Names there are three which express the Essence of *God*, and are proper Names, *viz.* אהיה, *Ehjeh*, יה, *Jah*, and יהוה, *Jehovah*: The others are only Names of Attributes. St. *Jerom* gives a particular Explanation of the ten Names, in his Epistle to *Marcella*: And *Buxtorf* the younger has an express Dissertation on the same; *Dissertatio de nominibus Dei*. The Jesuit *Souciet* has three several ones on the three Names *El*, *Shaddai*, and *Jehovah*, printed at *Paris* in 1715.

Cicero in his Treatise *de Nat. Deorum* puts this ridiculous Argument against the Existence of a *God* in the Mouth of *Cotta*: 'How shall we conceive any thing of a *God*, when we 'cannot possibly attribute any Virtue to him? Shall we say 'he has Prudence? No, for Prudence consisting in making a 'Choice between good and evil, what need has *God* of 'such Choice, when he is by his own Nature incapable of 'any evil? Shall we say he has Understanding and Rea'son? No, for Understanding and Reason only serve to 'discover Things unknown to us, by Things that are known; 'but there can be nothing unknown to *God*. Nor can we 'attribute Justice to *God*; that being a Thing which only 'relates to human Society: Nor Temperance; since he 'has no Pleasure to restrain: Nor Courage, in regard he is 'not susceptible of any Pain, Labour, or Fatigue; nor ex'posed to any Danger. How then can a Thing be *God*, 'which has neither Virtue, nor Understanding?' See ATTRIBUTE, DIVINITY, &c.

GOD is also used in speaking of the false Deities of the Heathens; many of which were only Creatures, to which divine Honours and Worship were paid. See IDOL.

The *Greeks* and *Latins*, it is observable, did not mean by the Name *God* an all-perfect Being, whereof Eternity, Infinity, Omnipresence, &c were essential Attributes: With them, the Word only implied an excellent and superior Nature; and accordingly they give the Appellation *Gods* to all Beings of a Rank, or Class higher and more perfect than Men.

Nay, Men themselves, according to their System, might become *Gods*, after Death; inasmuch as their Souls might attain to a Degree of Excellence superior to what they were capable of in Life. See DEIFICATION.

The first Divines, Father *Bossu* observes, were the Poets: The two Functions, tho' now separated, were originally combined, or rather one and the same Thing. See POETRY.

Now the great Variety of Attributes in *God*, that is the Number of Relations, Capacities, and Circumstances wherein they had occasion to consider him; put these Poets, &c, under a Necessity of making a Partition, and to separate the divine Attributes into several Persons; by reason the Weakness of the human Mind could not conceive so much Power and Action in the Simplicity of one single divine Nature.

Thus the Omnipotence of *God* came to be represented under the Person and Appellation of *Jupiter*; the Wisdom of *God*, under that of *Minerva*; the Justice of *God*, under that of *Juno*. See EPICE, FABLE, &c.

The first Idols, or false *Gods* that are said to have been adored, were the Stars, Sun, Moon, &c. in regard of the Light, Heat, and other Benefits we derive from them. See ASTRONOMY, STAR, SUN, &c.

Afterwards, the Earth came to be deified for furnishing Fruits necessary for the Subsistance of Men and Animals: Then Fire and Water became Objects of divine Worship, for their Usefulness to human Life. See FIRE, and WATER.

When Things were thus got in the Train, *Gods*, by degrees, became multiplied to Infinity; and scarce any thing but the Weakness, or Caprice of some Devotee or other, elevated into the Rank; Things useless, or even destructive not excepted.

To authorize their own Crimes, and justify their Vices and Debaucheries, they constituted criminal, vitious, and licentious *Gods*, unjust, rapacious, and tyrannical *Gods*, covetous and thievish *Gods*, Drunken *Gods*, impudent *Gods*, cruel and bloody *Gods*.—

The principal of the antient *Gods*, whom the *Romans* call'd *Dii majorum Gentium*, and which *Cicero* calls *Cælestial Gods*; *Varro*, *Select Gods*; *Ovid*, *Nobiles Deos*, others, *Consentes Deos*; were *Jupiter*, *Juno*, *Vesta*, *Minerva*, *Ceres*, *Diana*, *Venus*, *Mars*, *Mercury*, *Neptune*, *Vulcan*, *Apollo*.

Jupiter is consider'd as the *God* of Heaven; *Neptune* as *God* of the Sea; *Mars* as the *God* of War; *Apollo* of Eloquence, Poetry, and Physick; *Mercury* of Thieves; *Bacchus* of Wine; *Cupid* of Love, &c.

A second Sort of *Gods*, call'd *Demi Gods*, *Semi-Dii*, *Dii minorum Gentium*, *Indigites*, or *Gods* adopted, were Men canonized, and deified.—As the greater *Gods* had Possession of Heaven by their own Right, so these secondary Deities had it by Right of Donation; being translated into Heaven for that they liv'd as *Gods* upon Earth. See INDIGITES, HERO, and APOTHEOSIS.

The Heathen *Gods* may be all reduced to the following Classes. 1° Created Spirits, Angels, or Demons; whence good and evil *Gods*; *Genii*, *Lares*, *Lemures*, *Typhones*, Protecting *Gods*, Infernal *Gods*, &c. See DÆMON, GENIUS, LARES, &c.

2° Heavenly Bodies, as the *Sun*, *Moon*, and other *Planets*, fixed *Stars*, *Constellations*, &c. See SUN, MOON, STAR, CONSTELLATION, &c.

3° Elements, as *Air*, *Earth*, *Ocean*; *Ops*, *Vesta*; the *Rivers*, *Fountains*, &c. See NAIADS, FOUNTAINS, &c.

4° Meteors; thus the *Persians* adored the *Wind*: *Thunder*, and *Lightning*, were honour'd under the Name of *Geryon*. See THUNDERBOLT. And several Nations of *India* and *America* have made themselves *Gods* of the same. *Castor*, *Pollux*, *Helena*, and *Iris* have also been prefer'd from Meteors to be *Gods*; and the like has been practic'd in regard to *Comets*: Witness that which appear'd at the Murther of *Cæsar*. *Socrates* deified the *Clouds*, if we may give Credit to *Aristophanes*; and the primitive Christians, *Tertullian* assures us, were reproach'd with the same Thing.

5° They erected Minerals, or Fossils into Deities; such was *Bæylus*; the *Finlanders* ador'd *Stones*; the *Scythians Iron*; and many Nations *Silver*, and *Gold*.

6° Plants have been made *Gods*; thus *Leeks* and *Onions* were Deities in *Egypt*: The *Sclavi*, *Lithuanians*, *Celtæ*, *Vandals*, and *Peruvians* ador'd *Trees* and *Forests*: The antient *Gauls*, *Britons*, *Druids*, bore a particular Devotion to the Oak; and it was no other than Wheat, Corns, Seeds, &c. that the Antients adored under the Names of *Ceres* and *Proserpina*. See PANES, SYLVANS, DRUIDS, &c.

7° They took themselves *Gods* from among the *Waters*: The *Syrians*, and *Egytians* adored *Fishes*; the *Oxyrinchites*, *Latopolitani*, *Sientes*, and the Inhabitants of the *Eliphantide* had each a Fish for their *God*; and the *Tritons*, *Nereids*, *Syrens*, &c. what were they but Fishes? Several Nations have ador'd *Serpents*, particularly the *Egyptians*, *Prussians*, *Lithuanians*, *Samogitians*, &c. See TRITONS, NEREID, SYREN, &c.

8° Insects, as *Flies* and *Ants* have had their Sacrificers; these among the *Thessalians*, and those in *Acarnania*, where Bullocks were offer'd to them.

9° Among Birds, the *Stork*, *Crow*, *Sparrowhawk*, *Ibys*, *Eagle*, *Griffon*, and *Lapwing* have had Divine Honours; the last in *Mexico*, the Rest in *Egypt*, and at *Thebes*.

10° Four-footed Beasts have had their Altars, as the *Bull*, *Dog*, *Cat*, *Wolf*, *Baboon*, *Lion*, and *Crocodile* in *Egypt* and elsewhere; the *Hog* in the Island of *Creta*; *Rats* and *Mice* in the *Troas*, and at *Tenedos*; *Weasels* at *Thebes*, and the *Porcupin* throughout all *Zoroaster*'s School.

11° Nothing was more common than to place Men among the Number of Deities; and from *Belus*, or *Baal* to the *Roman* Emperors before *Constantine*; the Instances of this kind are innumerable. Frequently they did not wait so long

long as their Deaths for the Apotheosis. *Nebuchadnezzar* provided to have his Statue worship'd while living; and *Virgil* shews that *Augustus* had Altars, and Sacrifices offer'd to him, *Æclog.* 1. *v.* 6, 7. As we learn from other Hands, that he had Priests call'd *Augustales*; and *Temples*, at *Lyons*, *Narbona*, and several other Places; and he must be allowed the first of the *Romans*, in whose behalf Idolatry was carried to such a Pitch. The *Æthiopians* deem'd all their *Kings*, Gods: The *Velleda* of the *Germans*; the *Janus* of the *Hungarians*; and the *Thaut*, *Othin*, and *Assa* of the Northern Nations were also Men.

12° Not Men only, but every thing that relates to Man has also been deified; as *Labour*, *Rest*, *Sleep*, *Youth*, *Age*, *Death*, *Virtues*, *Vices*, *Occasion*, *Time*, *Place*, *Numbers* among the *Pythagorians*; the *Generative* Power, under the Name of *Priapus*: *Infancy* alone had a Cloud of Deities; as *Vagetanus*, *Levana*, *Rumina*, *Edusa*, *Potina*, *Cuba*, *Cumina*, *Carna*, *Offilago*, *Statulinus*, *Fabulinus*, &c.

They also ador'd the Gods *Health*, *Fever*, *Fear*, *Love*, *Pain*, *Indignation*, *Shame*, *Impudence*, *Opinion*, *Renown*, *Prudence*, *Science*, *Art*, *Fidelity*, *Felicity*, *Calumny*, *Liberty*, *Money*, *War*, *Peace*, *Victory*, *Triumph*, &c.

Lastly, *Nature*, or the *Universe*, was reputed a *God*. See NATURE, and UNIVERSE.

Hesiod has a Poem under the Title of Θεογονία, *i. e.* the Generation of the *Gods*; wherein he explains their Genealogy and Descent, sets forth who was the first, and principal of all the others; who first descended from him and what Issue each had; the whole making a sort of System of Heathen Theology. See THEOGONY.

Beside this popular Theology, each Philosopher had his separate System; as may be seen from the *Timeus* of *Plato*, and *Cicero De Natura Deorum*.

Justin Martyr, *Tertullian* in his *Apologeticks* and his Books *contra Gentes*; *Arnobius*, *Minucius Felix*, *Lactantius*, *Eusebius*, Prepar. & Demon. Evangel. St. *Augustin* De Civit. Dei, and *Theodoret* advers. Gentes, shew the Vanity of these *Gods*.

'Tis very difficult to discover the real Sentiments of the Heathens, with respect to their *Gods*: They are exceedingly intricate and confused, and even frequently contradictory. They admitted so many superior and inferior *Gods*, who shared the Empire, that all was full of *Gods*. *Varro* reckons up no less than thirty thousand ador'd within a small Extent of Ground, and yet their Number was every Day growing. The Way to Heaven was so easy for the Great Men of those Days, that *Juvenal* brings in *Atlas* complaining he was ready to sink under the Load of such a Number of new *Gods* as were daily placed in the Heavens: Yet Fa. *Mourges* seems to have proved, that all the Philosophers of Antiquity have acknowledg'd that there was but one *God*—*Plan Theol. des Sect. Scavant. de Grece.* See GODDESS.

GOD-*Bote*, in our antient *Saxon* Customs. *Mulcta ex delictis in Deum admissis obveniens.*—A Fine, or Amerciament for Crimes and Offences against *God*: An Ecclesiastical, or Church Fine.

GOD-*Fathers*, and GOD-*Mothers*, Persons who direct, and attend at the Baptism of Infants, or other Persons; and give the Name. See BAPTISM, and NAME.

The Number of *God-fathers*, and *God-mothers* is now reduc'd to three in the Church of *England*, and to two in that of *Rome*: Antiently, they had as many as they pleas'd.—

The *Romanists* have also *God-fathers*, and *God-mothers* at their *Confirmation*. See CONFIRMATION.

They also give *God-fathers*, &c. to Bells, at their Baptism. See BELL.

Among the Antients it was the Custom for Persons of Quality to have others of like Quality cut their Childrens Hair, the first time; by which they became reputed a sort of *God-fathers*. And the like was practis'd with regard to the Hair of the Beard. See ADOPTION, FATHER, HAIR, &c.

The Name *God-father* was also antiently given to a kind of Seconds, who attended and assisted the Knights in Tournaments, or single Combats.

The *God-fathers* of Duels were a kind of Advocates, chosen by the two Parties, to represent the Reasons of their Combat to the Judges. See COMBAT, DUEL, CHAMPION, &c.

Something of this kind is still retain'd at solemn Carrousals: There are two, or more in each Quadrile. See QUADRIL.

The Institution of *God-fathers* and *God-mothers*, *Patrini* and *Matrimi* is originally *Roman*: They were young People, who in the Games of the Circus had the Direction of the Chariots, Shews, and Images of the Gods. *Cicero* makes mention of them in his Oration *de Haruspicum responsis*.

Their Office was much like that of the Children in some Romish Ceremonies, who are dress'd in the Habit of Angels, to strew Flowers, bear Incense-Pots, Lights, &c. and accompany the Relicks, and Images of Saints.—

GODDESS, *Dea*, *Diva*, a Heathen Deity, of the female Sex. See GOD.

The Antients had almost as many *Goddesses*, as Gods: Such were *Juno*, the *Goddess* of Air; *Diana*, the *Goddess* of Woods, and Chastity; *Proserpina*, the *Goddess* of Hell; *Venus*, of Beauty; *Thetis*, of the Sea: Such also were *Victory*, *Fortune*, &c. See FORTUNE.

Nay, they were not contented to make Women Gods, and admit both Sexes into the Roll; but they had also Hermophrodite Gods: Thus *Minerva*, according to several of the Learned, was both Man and Woman, and worship'd both under the Appellation of *Lunus*, and *Luna*. *Mitra*, the *Persian* Deity, was both God and *Goddess*; and the Sexes of *Venus* and *Vulcan* are very dubious: Whence, in the Invocations of those Deities, they used this Formula, *Be thou God, or Goddess*; as we learn from *A. Gellius*.

It was a Privilege peculiar to *Goddesses*, that they might be represented on Medals, naked: The Imagination, it was supposed, must be aw'd, and kept from taking Liberties, by the Consideration of the Divine Character.

GOD-*Gild*, in our antient Customs, that which is offer'd to God. See GILD.

GOLD, AURUM, a yellow Metal; the heaviest, purest, most ductile, and shining, and on those accounts the most valuable, of all Metals. See METAL.

The Chymists call Gold *Sol*, the *Sun*, to denote its Preeminence over the other Metals, which are call'd by the Names of the Planets: Its Symbol, or Character is ☉, which in their Hieroglyphical way of writing, denotes Perfection, Simplicity, Solidity, &c.—See CHARACTER.

The Weight of *Gold* is to that of Silver as 19 to 10—A Cubic Inch of pure *Gold* weighs 12 Ounces, 2 Drachms, 52 Grains; and the Cubic Inch of Silver 6 Ounces, 5 Drachms, 28 Gr.—The Pound Weight, or twelve Ounces Troy of *Gold* is divided into 24 Carats. See CARACT, WEIGHT, and SPECIFIC *Gravity*.

The Value of *Gold* is to that of Silver as 14 to 1; antiently, it was only as 12 to 1. Indeed, this Proportion varies as *Gold* is more or less plentiful: For *Suetonius* relates, that *Cæsar* brought such a Quantity of *Gold* from *Italy*, that the Pound of *Gold* was only worth seven Pound and half of Silver. Standard *Gold* is worth 44 *lib.* 10 *s.* Sterling the Pound-weight: Standard Silver, is worth 3 *l.* the Pound; or 5 *s.* the Ounce. See STANDARD; see also SILVER, and MONEY.

The *first* Characteristic, or Property of *Gold* is that it is the heaviest of all Bodies—So that whoever would make *Gold*, must be able to add to the Weight of other Matters, and make them equiponderate with *Gold*.

In every Mass of Matter, therefore, heavier than Mercury, there must of necessity be a Share of *Gold*; there being no Body in Nature of intermediate Gravity; *i. e.* no Body whose Gravity is to that of *Gold*, more than as 14 to 19. See MERCURY.

Its *second* Character is, that of all known Bodies it is the most ductile, and malleable, and of all Bodies its Parts have the greatest Degree of Attraction, *i. e.* cohere with the greatest Force.—Our Gold-beaters, and Wier-drawers furnish us with Proof of this Property. They every Day reduce *Gold* into Leaves, or Lamellæ, unconceiveably thin; yet without leaving the least Aperture, or Chasm visible to the best Microscope, or even pervious to the Light. *See this Property consider'd more at large under the Article* DUCTILITY.

This Tenacity, or cohesive Force of *Gold* depends altogether on its being free from Sulphur: For mix but a single Grain of Sulphur with 1000 times the Weight of *Gold*, and the Mass ceases to be malleable. See SULPHUR.

The *third* Character of *Gold* is its Fixedness in the Fire; in which it exceeds all other Bodies.—This Property seems to result from the Homogenity, and Equality of its Parts, which equally aid, and support each other, and have equal Pores, or Interstices thro' which the fiery Corpuscles find an easy Passage.—The Prince of *Mirandola*, Mr. *Boyle*, and other Chymists furnish divers Experiments to illustrate this wonderful Fixity. After laying a Quantity of *Gold* two Months in the intensest Heat imaginable, it is taken out without any sensible Diminution of Weight. See FIXITY.

It must be added, however, that in the Foci of the large Burning Glasses of Mess. *Tschirnhausen*, and *Villette*, even *Gold* itself volatizes and evaporates. After this manner, we are told from the Royal Academy at *Paris*, a Quantity of pure *Gold* was vitrified; being first fused into a sort of Calx, which emitted Fumes, and lost of its Weight. But the same Calx fused again with a Quantity of Greese was restor'd into *Gold*. See VOLATILITY, VITRIFICATION, BURNING *Glass*, &c.

Its *fourth* Character is, not to be dissoluble by any Menstruum in Nature, except *Aqua Regia*, and Mercury. See MENSTRUUM.

The Basis of *Aqua Regia* is Sea Salt, which is the only Salt in Nature that has any Effect on *Gold*. But this Salt has its Effect in what Form or Manner soever applied, whether as a Fluid, or a Solid; in Substance, or in Spirit. See *Aqua* REGIA, and SALT.

Mr. *Boyle*

Mr. *Boyle* made a Menſtruum of Butter of Antimony, which diſſolved *Gold* with great Facility; and hence concluded that *Gold* might be diſſolv'd without Sea Salt: But by Miſtake, the effective Part even of this Menſtruum being ſtill Sea Salt, which is an Ingredient in Sublimate of Mercury wherewith Butter of Antimony is made. See SALT, SUBLIMATE, &c.

The ſeventh Character is that it readily and ſpontaneouſly, as by ſome Magnetic Virtue, attracts, and abſorbs Mercury; tho' what My Lord *Bacon* writes, *viz.* that *Gold*, in imbibing Mercury, increaſes in Weight, we doubt, is but ill warranted. For 'tis certain it muſt be increas'd in Bulk, more than in Weight, and conſequently muſt be ſpecifically lighter. See MERCURY.

It may be added, that as ſoon as the Mercury enters the *Gold*, the Metal becomes ſoft, like a Paſte. See AMALGAMATION.

The eighth Character is, that it withſtands the Violence both of Lead, and Antimony, *i. e.* being fuſed in the Coppel along with either of thoſe Matters, it does not diſſipate and fly off with them in Fume, but remains fix'd, and unchanged.

All other Metals, except *Gold*, and Silver melted with Lead, periſh with it, and evaporate by Fire; and in Antimony, all other Metals except *Gold*, and even Silver itſelf, undergo the ſame Fate.—Thus, if a Maſs conſiſting of *Gold*, Silver, Stones, Copper, *&c.* be fuſed together with Antimony, the ſeveral Matters become ſeparated, and all but the *Gold* riſes to the Surface in form of a Scoria, and is blown off with Bellows: But the *Gold* remains behind, much purified, as having loſt all its heterogeneous Parts along with the other Metals. And hence Antimony is uſed as the Teſt of *Gold*. See TEST, COPPEL, REFINING, &c.

The ninth Character is that of all Bodies it is the ſimpleſt (the primary Elements being here excepted).—By *ſimple* we here mean that whoſe minuteſt Part has all the Phyſical Properties of the whole Maſs. Thus, if a Grain of *Gold* be diſſolv'd in *Aqua Regia*; and a ſingle Drop of the Solution be taken, a Quantity of *Gold* may be ſeparated therefrom, which ſhall only be the Millionth Part of the Grain, and yet have all the Characters of *Gold*. Or, if you fuſe a Grain of *Gold* with a large Maſs of Silver, and mix the two together, ſo that the *Gold* becomes equally diffuſed thro' the whole Maſs; you will have in every Particle of the Maſs a Particle of perfect *Gold*. Accordingly, diſſolve any Part of the Mixture in *Aqua fortis*, and a Quantity of *Gold* will precipitate to the Bottom, bearing the ſame Proportion to the Grain that the Part diſſolved did to the whole Maſs. On which Principle depends the Art of Eſſaying. See ESSAYING.

All the known Parts of the Earth afford this precious Metal; tho' with a deal of Difference, in point of Purity, and Abundance: *Europe*, ſo fertile in other reſpects, comes ſhort of all the other Quarters, in *Gold*. *America* furniſhes the moſt; and particularly the Mines of *Peru*, and *Chilly*. That of *Aſia* is eſteem'd the fineſt, particularly that of *Menaricabo* in the *Eaſt Indies*: The *Spaniards* aſſure us that they get *Gold* out of ſome of their *Peruvian* Mines, 23 Carats fine before it be purified. Add, that the *Gold* of *Axima* on the Coaſt of *Africa* is found from 22 to 23 Carats.

Glauber, an eminent Chymiſt, holds that there is not any Sand, or Stone, but *Gold* may be procured from; Limeſtone only excepted: Only that the Expence of ſeparating it, much ſurmounts the Profits.

Gold is chiefly found in Mines: Tho' there is ſome alſo found in the Sand and Mud of Rivers, and Torrents; particularly in *Guinea*. This laſt is in form of a fine Powder, and call'd ἀμμοχρύσος, *Gold-duſt*. *Glauber* holds that there is a third ſort of *Gold*, ſcarce found any where but in the Drains of the Mountains of *Chilly*, which they ſeparate from the Earth by waſhing; whence the Places where it is found, or ſeparated, are call'd *Lavadero's*.

This Earth is uſually reddiſh, and very fine: At about ſix Foot deep it is mix'd with Grains of large Duſt; and from hence commences the Stratum, or Bed of *Gold*. Between are Banks of ſoft blueiſh Stone, mix'd with yellow Threads, which yet are not *Gold*, but only Pyrites, or Marcaſſites of *Gold*.

When they have diſcover'd any of this Earth, they endeavour to bring Rivulets to it (which in thoſe Mountains are very frequent) in order, by force thereof, to rear off the upper Earth, and lay the *Golden* Stratum bare. This they forward by digging with Spades, *&c.* As ſoon as the Golden Earth is uncover'd, they turn off the Water; and dig up the Soil by Force of Arm; and loading it on Mules, carry it to the *Lavedero's*, *i. e.* a ſort of Baſons of Water, where the Earth undergoing divers repeated Lotions, in different Waters, the earthy, and impure Part is all ſeparated and carried off by the Stream, and the *Gold* left at Bottom. See LAVATORY.

This Method of getting *Gold* is immenſely gainful; the Expences being but trifling, compared with thoſe accruing in the common way by Machines, Fire, and Quickſilver: The richeſt of theſe *Lavadero's* is that *de l'Eſtancia del Rey*, twelve Leagues from the *Conception*, a Port of the South Sea—*Thuringia*, and ſome other Places along the *Rhine*, are the only Places in *Europe*, where *Gold* is got in this manner.

The *Gold* of Mines is of two kinds; the one in ſmall Pieces, or Grains of various Forms, and Weights. Of this ſort, among the Specimens ſent by *Columbus* into *Spain*, to let them ſee the Richneſs of his Diſcovery, there were ſome of 18 Ounces Weight; and the Relations of thoſe Days aſſure us, that in 1502 there were others found of thirty two Pounds Weight.

The other kind of *Gold* is dug up in Stony Glebes, which is what they call the *Mineral*, or *Ore* of *Gold*: Theſe Glebes are of various Colours, and uſually 150 or 160 Fathom deep. Along with the *Gold* they uſually contain ſome other Mineral Matter, as Antimony, Vitriol, Sulphur, Copper, or Silver; particularly the laſt; without ſome Share of which it is ſcarce ever found.

Manner of ſeparating GOLD.

They firſt break the Metalline Stone with Iron Mallets, pretty ſmall; then carry it to the Mills, where it is ground into a very fine Powder; and laſtly paſs it thro' ſeveral Braſs Sieves one after another, the laſt as fine as any of our Silk Sieves.

The Powder thus prepar'd, is laid in wooden Troughs with a proper Quantity of Mercury and Water, and there left to knead and ſaturate in the Sun and Air for twice twenty four Hours. After this the Water, with the recrementitious Earth is drove out of the Tubs by means of other hot Waters, pour'd thereon. This done, there remains nothing but a Maſs of Mercury with all the *Gold* that was in the Ore. The Mercury they ſeparate from it by Diſtillation in large Alembicks. The *Gold*, in this State, is call'd *Virgin Gold*; as well as that found in the Sand of Rivers, or that in Grains in the Mines; in regard none of them have paſs'd the Fire. After this, they uſually fuſe them in Crucibles, and caſt them into Plates, or Ingots. See FUSION.

Manner of Refining GOLD.

There are three principal Manners of refining *Gold*; the firſt with Antimony; the ſecond with Sublimate; and the third with *Aqua fortis*. This laſt, which is call'd *Departing*, or Parting, is already deſcrib'd under the Article DEPART; and the two former under thoſe of *Refining*. See REFINING.

Beſide theſe three, there are other Methods of Refining *Gold*; particularly that call'd the *Coppel*, which is perform'd with Lead and Aſhes; and that call'd *Cementation*, by means of a Compoſition of Brick Duſt, common Salt, Sal Ammoniac, Sal Gemma, and Urine. See COPPEL, and CEMENTATION.

The Eſſaying of GOLD, is perform'd with the Touch-ſtone, but more ſecurely by Fire. See TOUCH-*Stone*, and ESSAYING.

For the Making of GOLD, ſee *Philoſopher* STONE, and TRANSMUTATION.

GOLD WIRE, is a Cylindrical Ingot of Silver, ſuperficially gilt, or cover'd with *Gold*, at the Fire; and afterwards drawn ſucceſſively thro' an infinite Number of little round Holes of a Wire-drawing Iron, each leſs than the other, till it be no bigger than a Hair of the Head. See WIRE.

It may be obſerv'd, that before the Wire be reduc'd to this exceſſive Fineneſs, it is drawn thro' above an hundred and forty different Holes; and that each time they draw it, it is rubb'd freſh over with new Wax, both to facilitate its Paſſage, and to prevent the Silver's appearing thro'.

It is amazing to what Degree of Fineneſs the *Gold* is here drawn; and yet it ſtill keeps firm together, and never ſhews the leaſt Signs of the Silver underneath it. The Reader may ſee a Computation hereof, as alſo a more particular Account of the manner of proceeding, under the Article DUCTILITY *of Gold*.

GOLD WIRE FLATTED, is the former Wire flatted between two Rollers of poliſh'd Steel, to fit it to be ſpun on Silk, or to be uſed flat as it is, without ſpinning, in certain Stuffs, Laces, Embroideries, *&c.*

GOLD THREAD, or *Spun* GOLD, is the flatted *Gold* wrapp'd, or laid over a Thread of Silk, by twiſting it with a Wheel, and Iron Bobins.

The Methods of managing and drawing *Gold* and Silver both real and ſeeming in all theſe Kinds, are very curious, and of great Uſe in Commerce.

Manner of forming GOLD WIRE, *and* GOLD THREAD *both round, and flat.*

Firſt, An Ingot of Silver of 24 Pound is forged into a Cylinder about an Inch in Diameter: Then 'tis drawn thro' eight or ten Holes of a large, coarſe Drawing Iron, both to finiſh the

Roundness, and to reduce it to about three Fourths of its former Diameter. This done, they file it very carefully all over, to take off any Filth remaining of the Forge: Then they cut it in the Middle, and thus make two equal Ingots thereof; each about 26 Inches long; which they draw thro' several new Holes to take off any Inequalities the File may have left, and to render it as smooth, and equable as possible.

The Ingot thus far prepar'd, they heat it in a Coal Fire: Then, taking some Gold Leaves, each of about four Inches square, and weighing 12 Grains; they join four, eight, twelve, or sixteen of these together, as the Wire is intended to be more, or less gilt; and when they are so join'd as only to form a single Leaf, they rub the Ingots, reeking hot, with a Burnisher.

These Leaves, thus prepar'd, they apply over the whole Surface of the Ingot to the Number of six, over each other; burnishing or rubbing them well down with the Blood-stone, to close, and smoothen them.

When gilt, the Ingots are laid a-new in a Coal Fire; and when rais'd to a certain Degree of Heat, they go over them a second time with the Blood-stone, both to solder the *Gold* more perfectly, and to finish the Polishing.—

The Gilding finish'd, it remains to draw the Ingot into Wire. In order to this, they pass it thro' twenty Holes of a moderate Drawing-iron, by which it is brought to the Thickness of the Tag of a Lace: From this time, the Ingot loses its Name, and commences *Gold Wire*. Twenty Holes more of a lesser Iron, leave it small enough for the least Iron; the finest Holes of which last, scarce exceeding a Hair of the Head, finish the Work.

To dispose the Wire to be spun on Silk, they pass it between two Rollers of a little Mill: These Rollers are of polish'd Steel, and about three Inches Diameter. They are set very close to each other, and turn'd by means of a Handle fasten'd to one of them, which gives Motion to the other. The *Gold* Wire in passing between the two, is render'd quite flat; but without losing any thing of its Gilding; and is render'd so exceedingly thin, and flexible, that it is easily spun on Silk Thread, by means of a Hand Wheel; and so wound on a Spool, or Bobin. See FLEXIBILITY.

GOLD LEAF, or *Beaten* GOLD, is *Gold* beaten with a Hammer, into exceedingly thin Leaves.

'Tis prodigious to consider the Fineness they will thus reduce a Body of *Gold* to: 'Tis computed, that an Ounce may be beaten into 1600 Leaves, each three Inches square; in which State, it takes up more 159092 times its former Space. See DUCTILITY.

This *Gold* they beat on a Block of Marble, commonly black Marble, about a Foot square, and usual rais'd three Foot high: They make use of three sorts of Hammers, form'd like Mallets, of polish'd Iron. The first, which weighs three, or four Pounds, serves to chase, or drive; the second, of eleven or twelve Pounds, to close; and the third, which weighs fourteen or fifteen Pounds, to stretch, and finish.

They also make use of four Moulds, of different Sizes; *viz.* two of Vellum, the smallest whereof consists of 40 or 50 Leaves, and the larger, of two hundred: The other two, consisting each of 500 Leaves, are made of Bullocks Gut, well scour'd and prepared. See MOULD.

The Method of preparing, and beating GOLD, is as follows.

They first melt a Quantity of pure *Gold*, and form it into an Ingot: This they reduce, by forging, into a Plate about the Thickness of a Sheet of Paper: Which done, they cut the Plate into little Pieces about an Inch square, and lay them in the first, or smallest Mould, to begin to stretch them. After they have been hammer'd here a while with the smallest Hammer, they cut each of them into four; and put them in the second Mould to be extended further.

Upon taking them hence, they cut them again into four, and put them into the third Mould; out of which they are taken, divided into four, as before, and laid in the last, or finishing Mould; where they are beaten to the Degree of Thinness required.—

The Leaves thus finish'd, they take them out of the Mould, and dispose them in little Paper Books prepar'd with red Bole, for the *Gold* to stick to: Each Book ordinarily contains 25 Gold Leaves.

There are two Sizes of these Books: Twenty five Leaves of the smallest only weigh five or six Grains; and the same Number of the largest nine, or ten Grains.

It must be observ'd that *Gold* is beaten more, or less, according to the Kind, or Quality of the Work it is intended for: That for the Gold-wire Drawers to gild their Ingots withal, is left much thicker, than that for gilding the Frames of Pictures, &c. withal.

SHELL GOLD is that us'd by the Illuminers; and wherewithall we write *Gold* Letters.—It is made of the Parings of Leaf Gold, and even of the Leaves themselves, reduc'd into an impalpable Powder, by grinding on a Marble, with Honey. After leaving it to infuse some time in *Aqua fortis*, they put it in Shells, where it sticks. To use it, they dilute it with Gum Water, or Soap Water.

Burnish'd GOLD, is that smoothen'd, or polish'd with a Steel Instrument, call'd the *Burnisher*, if it be wrought *Gold*, or Gilding on Metal; or with a Wolf's Tooth, if it be gilding in Water. See BURNISHER, and GILDING.

Million of GOLD, is a Phrase us'd to signify a Million of Crowns. See CROWNS.

Tun of GOLD, is a kind of Money of Account, us'd by the *Dutch*, and in some other Countries; containing a hundred thousand Florins. See FLORIN.

GOLD *Coin*, or *Species of* GOLD; see COIN.

A hundred Pounds of, or in, *Gold*, is found to weigh two Pound, ten Ounces: The same Sum in Silver, weighs 26 Pound, 4 Ounces. Twenty two Pence, in Copper Farthings and Half-pence, weigh one Pound Avoirdupoise.—

A Tun of *Gold* at 4 Pounds the Ounce amounts to 96000 *l.* A Tun of Silver at 5 *s.* 2 *d.* the Ounce, to 6200 *l.* A Pound Sterling *Gold*, to 48 *l.* An Ounce is worth 4 *l.* The Penny. weight, 4 *s.* One Grain, 2 *d.* A Pound of Sterling Silver amounts to 3 *l.* 2 *s.* An Ounce is worth 5 *s.* 2 *d.* The Penny-weight, 3 *d.* and something more; one Grain, a half-penny. A Pound of Silver Avoirdupoise comes to 3 *l.* 5 *s.* 3 *d.* half-penny.

Mosaic GOLD, is *Gold* applied in Panels on a proper Ground, distributed into Squares, Lozanges, and other Compartments, part whereof is shadow'd to raise, or heighten the rest. See MOSAIC.

Virgin GOLD, is *Gold*, just as it is taken out of the Mines before it have undergone any Action, or Preparation of Fire: Whence the *Greeks* call it ἄκατρον. Such is the ἀμμοχρυσος, or *Gold Dust*, and that got by Lotion in the Lavedero's in *Chilly*: 'Tis added, that there are Masses, or Lumps of pure *Gold* found in the Mines, particularly those of *Hungary*. Accordingly, in the Emperor's Collection are still preserved several Plates of *Gold*, said to have been thus found.

Virgin *Gold* is said to be very pale, and so soft that it may be moulded into any Figure, with the Hand: It even takes an Impression from a Seal, like the softest Wax. To harden it, as also to highten its Colour, they mix Emery with it.

Fine, or *Pure* GOLD, is that purged by Fire of all its Impurities, and all Alloy—The *Latins* call it *Aurum purum*, *Aurum primum*, *Aurum obrizum*, *Aurum coctum*.

The Moderns frequently call it *Gold of* 24 *Carats*; but, in Reality, there is no such thing as *Gold* so very pure; and there is always wanting at least a Quarter of a Carat. *Gold* of 22 Carats has one Part of Silver, and another of Copper: That of 23 Carats has half a Part, *i. e.* half a twenty-fourth of each. See CARAT, and ALLOY.

Bouterone maintains, that the *Electrum* of the Antients was *Gold* of 19 Carats; or four Parts *Gold*, and a fifth Silver—From an Ordonance of King *John* of *France*, it appears that the *Gold* then struck at *Paris* was of 19 Carats $\frac{1}{2}$; and yet 'tis added that it was the best and finest *Gold* then known on Earth.

In *England*, at this time, the Standard of Crown *Gold* is 22 Carats. See GUINEA.

Cloth of GOLD, } see { CLOTH *of* GOLD.
GOLD *Money*, } see { MONEY.

Potable GOLD, *Aurum potabile*, see POTABLE *Gold*.

Fulminating GOLD, *Aurum fulminans*, see FULMINATING.

GOLD, in Medicine, and Chymistry—The Chemists make several Preparations of *Gold* for Medicinal Uses; as Salts, Mercuries, and Tinctures of *Gold*; but 'tis a Point not yet well agreed on whether *Gold* have any real Property whereby it may be of Use of Medicine.—

The most antient Physicians are all silent on the Matter: The *Arabs* are the first who mention it in this Quality.—*Avicenna* attributes extraordinary Virtues to it; but he speaks on Conjecture more than Experiment. And yet it is pretty certain *Gold* must have an Effect: A Quantity of Gold Filings being taken by a Person in a Bolus, he was very well purg'd thereby: But this might well be owing to the great Weight of its Particles, which impinging violently against the Glands of the Intestines, promoted their Vibrations, and thus express'd the Humor secreted therein. *Boræus*, in a Letter to *Bartholin* relates, that having heated an Ingot of fine *Gold* several times red hot, and extinguish'd it as often in Water, he found the Weight of the Ingot considerably diminish'd; upon which, proceeding to evaporate the Water, he drew a little Quantity of *Gold* from it. Hence it appears, that the subtile Parts of the *Gold* pass into the Liquors it is extinguish'd in; and hence, 'tis argued, it may have considerable Effects.

Notwithstanding the small Number of Experiments whereon the Medicinal Efficacy of *Gold* is founded; the Alchymists will have it contain the Radical Balm of Life, for the retrieving of Health and Youth, and the Removal of all Diseases. *Gold*, according to them, contains a Sulphur friendly to Nature, like that of the Sun, which animates the whole Universe: And on this Principle they have form'd a thou-

a thousand airy Projects for an Universal Remedy. See Elixir.

In effect, 'tis probable the *Arabs* and Alchemists were only brought to attribute all these Virtues to *Gold*, from their perceiving certain Qualities therein, which they supposed it must communicate to other Bodies. Thus, *e. gr. Gold* being commonly said to be incapable of being destroyed; 'tis hence concluded to be proper to preserve animal Matters, and defend them from Putrifaction: Which is just as reasonable as some Physicians prescribing the Blood of an Asses Ear as an appeasing Remedy, by reason the Ass is a very peaceable Animal. See Potable *Gold*.

Gold, in Heraldry, is one of the Metals; more properly call'd by the *French* Name *Or*. See Metal, and Or.

GOLDEN, something that has a relation to Gold, or consists of Gold, is valuable like Gold, or the like. See Gold.

Golden Bull, *Bulla Aurea*, see explain'd under the Article Bull.

Golden *Fleece*, in the antient Mythology, was the Skin, or Fleece of the Ram, upon which *Phryxus* and *Hella* are suppos'd to have swam over the Sea to *Colchos*; and which being sacrific'd to *Jupiter*, was hung upon a Tree in the Grove of *Mars*, guarded by two Brazen-hoof'd Bulls, and a monstrous Dragon that never slept; but taken, and carried off by *Jason*, and the *Argonauts*. See Argonaut.

Many Authors have endeavour'd to shew that this Fable is an Allegorical Representation of some real History.

Order of the Golden Fleece, is a Military Order instituted by *Philip the Good*, Duke of *Burgundy*, in 1429. See Military *Order*.

It took its Denomination from a Representation of the *Golden* Fleece, bore by the Knights on their Collars, which consisted of Flints, and Steels. The King of *Spain* is now Grand Master of the Order, in Quality of Duke of *Burgundy*: The Number of Knights is fix'd to 31.

'Tis usually said to have been instituted on occasion of an immense Profit which that Prince made by Wool: Tho', others will have a Chymical Mystery couch'd under it, as under that famous one of the Antients, which the Adepti contend to be no other than the Secret of the Elixir, wrote on the Fleece of a Sheep.

Oliver de la Marche writes that he had suggested to *Philip* I. Archduke of *Austria*, that the Order was instituted by his Grand-father *Philip the Good*, Duke of *Burgundy*, with a View to that of *Jason*; and that *John Germain*, Bishop of *Chalons*, Chancellor of the Order, upon this occasion made him change his Opinion, and assur'd the young Prince that the Order had been instituted with a View to the Fleece of *Gideon*.

William Bishop of *Tournay*, Chancellor likewise of the Order, pretends that the Duke of *Burgundy* had in View the *Golden* Fleece of *Jason*, and *Jacob*'s Fleece, *i. e.* the speckled Sheep belonging to this Patriarch, according to the Agreement made with his Father-in Law *Laban*. Which Sentiment gave Birth to a great Work of this Prelate in two Parts: In the first, under the Symbol of the Fleece of *Jason* is represented the Virtue of Magnanimity, which a Knight ought to possess; and under the Symbol of the Fleece of *Jacob*, he represents the Virtue of Justice.

Paradin is of the same Mind, and tells us that the Duke design'd to insinuate that the fabulous Conquest which *Jason* is said to have made of the *Golden* Fleece in *Colchos*, was nothing else but the Conquest of Virtue, which requires a Victory over those horrible Monsters Vice, and our evil Inclinations.

Golden Number, in Chronology, a Number shewing what Year of the Moon's Cycle, any given Year is. See Cycle *of the Moon*.

To find the Golden Number *of any Year since Christ.*

Since the Lunar Cycle commences with the Year before our Saviour's Birth; to the given Year add 1: Then, dividing the Sum by 19; the Sum remaining after the Division, is the *Golden Number* required: If there be nothing remaining, the *Golden Number* is 19.

Suppose, *e. gr.* the *Golden Number* of the present Year 1725 were required: 1725 + 1 = 1726. And 1726 divided by 19, gives a Quotient 9, and leaves a Remainder of 16, the *Golden Number* of this Year.

The *Golden Number* is used in the *Julian* Calendar, to shew on what Days the New Moons fall. In Succession of Time, however, it must be observ'd, that the *Golden* Numbers, thro' the Defect of the Lunar Cycle, recede, and do no longer shew the true Time of New Moons, &c. See Calendar.

Hence, in the *Gregorian* Reformation of the Calendar the *Golden* Number is thrown out; and the Epact introduced in lieu thereof. See Epact.

Golden Rule, in Arithmetick, a Rule, or Praxis, of great Use, and Extent in the Art of Numbers; whereby we find a fourth Proportional to three Quantities given. See Proportion.

The *Golden Rule* is also call'd the *Rule of Three*, and *Rule of Proportion*. *See its Nature and Use under the Article* Rule *of Three*.

Golden Calf, was a Figure of a Calf, which the *Israelites* cast in that Metal, and set up in the Wilderness, to worship, during *Moses*'s Absence in the Mount; and which that Legislator, at his Return, burnt, ground to Powder, and mix'd with the Water the People were to drink of; as related *Exodus* xxxii.

The Commentators have been divided on this Article: The pulverizing of Gold, and rendring it potable, is an Operation in Chymistry, of the last Difficulty; and 'tis hard to conceive how it should be done at that Time, before Chymystry was ever heard of, and in a Wilderness too. Many therefore, suppose it done by a Miracle: And the rest, who allow of nothing supernatural in it, advance nothing but Conjectures, as to the Manner of the Process.

He could not have used simple Calcination, nor Amalgamation, nor Antimony, nor Calcination; nor is there one of those Operations, that quadrates with the Text.

M. *Sthall* has endeavour'd to remove this Difficulty. The Method *Moses* made Use of, in making his *Aurum potabile*, according to this Author, was the same with that which now obtains; only that instead of Tartar, he made use of the *Egyptian* Natron, which is common enough throughout the East. See Potable *Gold*.

GOLOPS, in Heraldry, are Roundles of a Purple Colour. See Roundle.

GOMPHOSIS, in Anatomy, a kind of Articulation of the Bones, wherein the one is chased, or fitted immoveably into the other, after the manner of a Peg, or Nail. See Articulation.

The Teeth are set in the Jaws by *Gomphosis*. See Teeth, and Maxillæ.

The Word is *Greek*, γόμφωσις, form'd of γομφὸς, *clavus*, a Nail.

GONAGRA, in Medicine, the Gout in the Knee. See Gout.

The Word is compos'd of γόνυ, Knee, and ἄγρα, *captura*, Seizing.

GONARCHA, a Term in the antient Dialling—Mr. *Perrault*, in his Notes on *Vitruvius*, *lib. IX. c. 9.* takes the *Gonarcha* to have been a Dial drawn on divers Surfaces, or Planes; some of which being Horizontal, others Vertical, others Oblique, &c. form'd divers Angles. Whence the Appellation; from γόνυ, Knee, or γωνία, Angle. See Dial.

GONDOLA, a little, flat Boat, very long, and narrow; chiefly used at *Venice*, to row on the Canals. See Boat.

The middle-sized *Gondola's* are upwards of 30 Foot long, and four broad: They always terminate, at each End, in a very sharp Point, which is rais'd perpendicularly the full Height of a Man.

The Word is Italian, *Gondola*. *Du Cange* derives it from the vulgar *Greek* γόμιτελας, a Bark, or little Ship. *Lancelot* deduces it from γόνδυ, a Term in *Athenæus* for a sort of Vase.

The Address of the *Venetian Gondoliers*, in passing their narrow Canals, is very remarkable: There are usually two to each *Gondola*; and they row by pushing before them. The Fore-man rests his Oar on the left Side of the *Gondola*: The Hind-man is placed on the Stern, that he may see the Head over the Tilt, or covering of the *Gondola*; and rests his Oar, which is very long, on the right side of the *Gondola*.

GONFALCON, or Gonfanon a Kind of round Tent, bore as a *Canopy*, at the Head of the Processions of the principal Churches at *Rome*, in Case of Rain; its Verge, or Banner serving for a Shelter, where there is not a great deal of Attendance.

GONORRHÆA, or rather Gonorrhea in Medicine, an involuntary Flux, or Dripping of Seed, or other Humor, by the Penis; without Erection, or Titillation. See Seed.

The Word is form'd of the *Greek* γόνος, *genitura*, Seed, and ῥέω, *fluo*, I flow.—

The *Gonorrhæa* is of two kinds: The one *Simple*, the other *Virulent*.

The *Simple Gonorrhæa*, or that without Virus, or Malignity, takes its rise from violent Exercises, and Strainings; the immoderate Use of hot Foods, and particularly, fermented Liquors, as Wine, Beer, Cyder, &c. It is cured by indulging Rest, nourishing Foods, Broths, &c.

This Species is again divided into two; the one *True*, *Gonorrhæa vera*, wherein the Humor discharged is real Seed: The other *Spurious*, *Gonorrhæa Notha*, wherein the dripping Humor is not Seed, but a Matter from the Glands about the Prostates. See Prostates.

This latter Kind bears some Resemblance to the *Fluor Albus*, or Whites in Women; and frequently remains a long time, without much Diminution of the Patient's Strength. Some call it a *Catarrhal Gonorrhæa*. Its Seat is in the Glands of the Prostates, which are either too much relax'd, or ulcerated.

The *Virulent* GONORRHÆA, *Gonorrhæa Virulenta*, arises from some impure Commerce, and is the first Stage of the Venereal Disease; being what we popularly call a *Clap*. See VENEREAL *Disease*, and CLAP.

The Parts here primarily affected are the *Prostates* in Men, and *Lacunæ* in Women, which being ulcerated by some contagious Matter received in Coition, emit, first, a whitish, watery Liquor, with an acute Pain: This afterwards grows yellowish, then sharper, and at length greenish, or blueish, and frequently fœtid.

It is attended with a Tension and Inflammation of the Yard, and an *Ardor Urinæ*, or Sharpness of Urine, which gives a painful Sensation in the Emission; the urinary Passage being torn and excoriated by the Acrimony of the Humor.

Hence arise Tumors of the Prepuce, and Glands, with Ulcers on the same; and sometimes Caruncles in the Urethra.

The Cause of the Virulent *Gonorrhæa*, according to M. *Littre*, is some acid Humor, heated, rarified, and rais'd at the time of Coition, from the internal Parts of the Pudendum of a Woman infected, and lodg'd in the Urethra of the Man. It has different Seats in the Body: Sometimes it only fixes on *Cowper's* mucous Glands; sometimes on the Prostates; and sometimes on the Vesiculæ Seminales: Sometimes it possesses two; and sometimes all three of the Places at once.

From this Diversity of Seat of the *Gonorrhæa Virulenta*, M. *Littre* makes two Sorts; *Simple*, which only affects one of the three Parts; and *Compound*, or Complicated, where several are affected.

That seated in the mucous Glands, he observes, may remain Simple, thro' the whole Course of the Disease, by reason the Mouths of those Glands open into the Urethra an Inch and half on this Side the Prostates, and also look down towards the Glans; so that their Liquor is easily discharged. The other two Sorts mutually produce each other; by reason the Ducts of the Vesiculæ Seminales terminate in the Urethra in the Middle of those of the Prostates: So that there is an easy Communication between them.

That seated in the mucous Glands, is much the rarest Case; and the easiest cured. The Cure is effected by emollient Cataplasms, and Fomentations upon the Part, and a Half-bath. *Mem. de Acad.* An. 1711.

For the other Species, more powerful Means are to be used.—The principal Remedies are *Mercurial Purges*, an *Emulsion of green Hempseed, Cuttle-fish-bone, Turpentine, Sacch. Saturni*, &c. We have likewise great Commendations of *Green Precipitate of Mercury*, and *Mercur. dulcis. Balsf. Saturni Terebinthinatum*, prepared with a gentle Fire of *Sacch. Saturni*, and *Oil of Turpentine*, is much applauded where the Heat is great about the Reins and Genitals; as also *Camphor*. An *Infusion of Cantharides* in Wine, is the *Nostrum* of a noted *Dutch* Physician. *Resin* of the Wood *Guaiacum* is also recommended; and *Balsom of Cupaiba* is held a sort of Specifick: To which must be added *Antimonium Diaphoreticum, Bezoardicum Minerale*, Water wherein Mercury has been boiled; *Injections of Lime-water, Mercurius dulcis, Saccharum Saturni*, &c.

Pitcairn's Method of curing the *Gonorrhæa Virulenta*, is as follows: In the Beginning of the Disease, he purges with a laxative Ptisan of Senna, Salt of Tartar, and Melilot Flowers; and gives the Patient Whey for his Drink. After three, or four Days spent in purging, if the Scalding of the Urine, and the Flux, be abated, and the Colour and Consistence of the Matter improved; he administers Bolus's of Turpentine, and Rhenm for six or seven Days; and if they keep the Body loose, so much the better. By all means, Astringents to be avoided; the *Gonorrhæa* being scarce ever known to degenerate into a Pox, unless too hastily stop'd. *Pitcairn in MS.*

Du Blegny directs the Cure of the *Gonorrhæa*, to begin with a gentle Cathartic of Cassia, Senna, Crystal Mineral, Tamarinds, Althæa, and Rhubarb, administer'd every other Day: Then, Diureticks, particularly those of Turpentine; and lastly, gentle Astringents; as Mineral Waters, *Crocus Martis astringens*, Tincture of Roses, Tincture of Coral in Cochineel.

A Ptyalism, or Salivation never cures a *Gonorrhæa*. See SALIVATION.

GOOD or GOODNESS, in the general, is whatever tends, or conduces to preserve, or improve Nature, or Society; in opposition to *Evil*, which tends to destroy or impair the same. See EVIL.

Hence *Good* is divided by the Philosophers into 1° *Bonum sui*, Private *Good*; which is that whereby a thing tends to preserve &c. it self; under which comes that popular Division of *Goods* of Body, Mind, and Fortune: And 2° *Bonum Communionis*, whatever promotes the Interest, and Welfare of Society; as all the Civil Offices &c.

GOOD, in Metaphysicks, or *Metaphysical* GOOD, call'd also *Absolute*, or *Real* GOOD, and GOOD *per se*, is the essential Perfection or Integrity of a thing, whereby it has every thing that belongs to its Nature. See PERFECTION.

In this Sense all things that are, are *Good*; in as much as they have the Perfections naturally belonging to things of their Kind. Thus, a thinking Substance is *good*, or perfect, as it has all the essential Attributes of Thought: So an extended Substance is *good*, as is possesses all the Parts necessary to constitute it such.

In effect, as it is absurd to imagine a Being without its Essence; so is it, to imagine a Being without the Requisites of its Essence: So that it appears an Error in some Philosophers who divide Beings into *Good*, or Perfect; and *Evil*, or Imperfect. See ESSENCE.

Others define Metaphysical, or Transcendental *Goodness*, by Congruency with the Divine Will; as making that the Measure of all real *Goodness*.

Physical, or *Natural* GOOD, is that whereby a thing possesses all things necessary to its *Bene esse*, *i. e.* to its well Well-being, or second Perfection; and to the Performance of its Functions, and Uses.

In this Sense Physical *Goodness* coincides with Physical Perfection. See PERFECTION.

To this are required the several Powers, and Faculties in their proper Degree; a due Situation, Figure, Proportion, &c. of Parts.

Note, beside absolute Physical *Goodness*, there may be a *Relative* one; as in Foods, which to one Man are Salutary, to another Poison, &c. To this Head also belong Things *Good pro tempore*, or according to Circumstances; as the Amputation of a mortified Limb, &c.

Moral, or *Ethical* GOOD, is the Agreement of a Thinking, reasonable Being, and of the Habits, Acts, and Inclinations thereof, with the Dictates of right Reason, and the Will of the Creator, as discover'd by natural Light.

In order to this, it is not enough that a thing done, said, thought, desir'd, be just, and *good*; but it must be done thought, &c. well, *i. e.* from good Principles, and to good Ends.

Others define *Moral Good* more largely. *Moral*, which they also call *Relative Good* according to them, is something that is good to another, or that tends someway to the Perfection thereof. In this Sense they divide it into three Kinds, *Honestum, Jucundum*, and *Utile*.

The first, *Bonum honestum*, is what agrees with right Reason; and is desirable for it self; as all things virtuous; as to love God, respect our Parents, &c. It is consider'd without any regard to Pleasure; not but that there is a sincere Pleasure annex'd to it. *Zeno*, and the *Stoicks* allow of no other *Goods*; the *Goods* of Body, &c. they call *Commoda*, Conveniences, not *Goods*. See STOICKS.

Bonum jucundum, is that which is good, as is tends to give us Pleasure, and is desired for that reason; but without any Repugnancy to Virtue, or right Reason: As Music, to the Ears; Painting, to the Eyes, &c.

Bonum utile, or *commodum*, is that which is good on account of something else for which it is desired; as Money, Riches, &c.

Chief, or *Supreme* GOOD, *Summum Bonum*; see SUMMUM *Bonum*.

The Philosophers are divided as to what the Chief *Good* of Man consists in; whether in the *Goods* of Fortune, of Body, or Mind. Some, hold Riches, and Honors, the Supreme *Good*; others, as *Aristippus*, and the *Cyrenaic* School, bodily Pleasures; and others, as *Zeno*, and the *Stoicks*, Virtue. See CYRENAIC, STOICKS, &c.

GOOD *Works* } see { MERIT, and SUPEREROGATION.
GOOD *Will* } { COMMON *Place*.

GOOD *Abearing*, *Bonus Gestus*, in a Law Sense, is particularly used for an exact Carriage, or Behaviour of a Subject towards the King, and his liege People; to which some Men, upon their Misbehaviour, are bound.

He that is bound to this, *Lambard* says, is more strictly bound than to the Peace; because whereas the Peace is not broken without an Affray, Battery, or such like, this Surety *De bono gestu* may be forfeited by the Number of a Man's Company, or by his, or their Weapons, or Arms. See PEACE.

GOOD-*Behaviour*; see GOOD *Abearing*.

GOODS, *Bona*, in Law, and particularly the Civil Law, include all kinds of Effects, Riches, Possessions.

There are two Kinds of *Goods*; *Moveable, res moventes, mobiles*; and *Immoveable, res non moventes*. See MOVEABLE, and IMMOVEABLE.

It is a Maxim in the Civil Jurisprudence, that he who confiscates the Body, confiscates the *Goods*; meaning that all the Effects of a Person condemned to a capital Punishment, or perpetual Banishment, are forfeited to the King. See CONFISCATION.

A Man is said to bind himself *Body and Goods*; meaning, that beside his *Goods* he obliges his Person, and submits to remain in Prison, provided he don't execute his Promise.

Goods, again, are divided into *Proper, Avita, Paterna, Hæreditaria: Acquired*, or *Acquests, Alio quam hæreditatis*

jure

jure acquisita: And *Conquests*; *Viro & Uxori stante societate* acquisita.

And again, into *real* and *personal Goods*; see REAL, and PERSONAL.

And lastly, into *Noble*, or *Free*; and *Servile*, or *Base*.

Goods belonging to the Domain of the Crown, *ad Fiscum spectantia*, cannot be alienated for ever; unless by way of Exchange: They may be sold under the Faculty of perpetual Redemption.— See REDEMPTION.

Dotal Goods, *Dotalia*, are those accruing from a Dowry, and which the Husband is not allowed to alienate. See DOWER.

Vacant Goods, *Vacantia*, are those abandoned, or left at large, either by reason the Heir renounces them, or that the Defunct has no Heir. See VACANT.

Paraphernal Goods, *Paraphernalia*, are those which the Wife gives her Husband to enjoy, on condition of withdrawing them when she pleases. See PARAPHERNALIA.

Adventitious Goods, *Adventitia*, are those which arise otherwise than by Succession from Father, or Mother; or from direct Ancestor to Descendant. See ADVENTITIOUS.

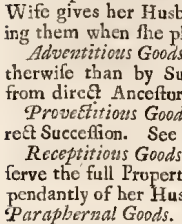
Provectitious Goods, *Provectitia*, are those arising by direct Succession. See PROVECTITIOUS.

Receptitious Goods were those which the Wife might reserve the full Property of to her self, and enjoy them independantly of her Husband; in distinction from *Dotal* and *Paraphernal Goods*.

GORDIAN, a Term in History.—The GORDIAN *Knot* was a Knot made in the Leathers, or Harness of the Chariot of *Gordius*, Father of *Midas*; so very intricate, that there was no seing where it began, or ended.

The Inhabitants had a Tradition, that the Oracle had declared that he should be Master of *Asia* who could untie this Knot. *Alexander* having undertaken it, and fearing that if he should not be able to effect it, it would be deem'd an ill Augury, and prove a Check in the way of his Conquests; cut it asunder with his Sword; and thus, says *Quintus Curtius*, either accomplish'd, or eluded the Oracle.

Some will have the Phrase derived from *Gordius*, King of *Phrygia*, who tied the fatal Knot; others, from *Gordium*, a City in *Phrygia*, where the Knot was made.—



GORE, in Heraldry, one of the regular Abatements, used, according to *Gwillim*, to denote a Coward. See ABATEMENT.

It consists of two Arches, or Curve Lines, drawn, one from the Sinister Chief, the other from the Sinister Base, and meeting in an acute Angle in the middle of the Fess-Point; as in the Figure adjoining.

GOREL, the Name, or Title given to the Prince of *Georgia*.—The *Gorel* is always a *Mahometan*: The *Sophi* of *Persia* obliges him to observe the Religion of the Alcoran, to preserve the Dignity of *Gorel* in his Family.

GORGE, a *French* Term, used for what in *English* we call the *Throat*, and the Latins *Fauces*. See THROAT.

GORGE, in Falconry, is the uppermost Bag, or Stomach of a Hawk, or Falcon; being that which receives the Food the first. See HAWK.

The *Gorge*, *Ingluvies*, is the same in Birds of Prey with what we call the *Crow*, or *Crop*.

When the Bird is fed, he is said to be *gorged*. See HAWKING.

GORGE, in Architecture, a sort of concave Moulding, wider, but not so deep as a Scotia; used chiefly in Frames, Chambranles, &c. See SCOTIA.

GORGE *of a Chimney*, is the Part between the Chambranle, and the Crowning of the Mantle.—Of this there are divers Forms, straight, perpendicular, in form of a Bell, &c.

GORGE is sometimes also used for a Moulding that is concave in the upper Part, and convex at Bottom; more properly called *Gula*, and *Cymatium*. See GULA, and CYMATIUM.

GORGE is also used for the Neck of a Column; more properly called *Collarino*, and *Gorgerin*. See GORGERIN, &c.

GORGE, in Fortification, the Entrance of a Bastion; or of a Ravelin, or other Out-work. See BASTION, RAVELIN, &c.

The *Gorge* is what remains of the Sides of the Polygon of a Place, after retrenching the Curtains: In which case it makes an Angle in the Centre of the Bastion—Such is A H D *Tab. Fortification, Fig.* I.

In flat Bastions, it is a Right Line on the Curtain by which we enter either the Bastion, or the Out-works. It is also the Aperture thro' which we enter, or the Interval between, the two Wings, or Flanks on the Side of the Ditch.

All the *Gorges* are to be destitute of Parapets; otherwise, the Besiegers having taken possession of a Work, might make use thereof to defend themselves from the Shot of the Place: So that they are only fortified with Palisado's, to prevent a Surprise.

Half the Gorge, *Demi* GORGE, or That Part of the Polygon between the Flank, and the Centre of the Bastion, as A H, is call'd the *Demi Gorge*. See DEMI *Gorge*.

GORGED, in Heraldry, is when a Crown, Coronet, or the like thing is bore about the Neck of a Lion, a Swan, &c. In that case they say, the Lion, or Cygnet is *gorged* with a Ducal Coronet, &c.

Gorged is also used when the Gorge, or Neck of a Peacock, Swan, or the like Bird is of a different Colour, or Metal from the rest.—

GORGED, among Farriers, &c. signifies as much as *swelled*.

In this Sense they say, the Legs of a Horse are *gorged*; the pastern Joint is *gorged*.

GORGERIN, a Part of the antient Armour; being that which cover'd the Throat, or Neck of a Person arm'd at all Points.—

GORGERIN, or GORGE, in Architecture, is the little Frieze in the Doric Capital, between the Astragal at the Top of the Shaft of the Column, and the Annulets. See *Doric* CAPITAL.

Some call it *Colarino*.—*Vitruvius* gives it the Name *Hypotrachelium*. See HYPOTRACHELIUM.

GOTHIC, or GOTHICK, something that has a relation to the *Goths*, an antient People, originally inhabiting that Part of *Sweden* call'd *Gothland*; whence they spread themselves over *Greece*, *Dalmatia*, *Bulgaria*, *Italy*, *Spain*, &c.

Thus we say, *Gothic* Manner, *Gothic* Ignorance: The Tyrant *Maximin* was of *Gothic* Race, &c.

GOTHIC *Character*, or *Gothic* Writing, is a Character, or manner of Writing, which, in the main, is the same with the *Roman*, only full of Angles, Turns, and Bendings; especially at the Beginning and Ending of each Letter. See CHARACTER, and LETTER.

The Manuscripts in *Gothic* Characters are not very antient.—*Ulpilas*, Bishop of the *Goths*, was the first Inventor of the *Gothic* Characters; and the first that translated the Bible into the *Gothic* Tongue.

The *Runic* Characters are also frequently called *Gothic* Characters: Fa. *Mabillon*, *De re Diplomat.* L. I. C. II. But they who take the *Gothic* Characters to be the same with the *Runic*, are mistaken; as is shewn by *Ol. Wormius*, *Junius* in his Preface to the Gospels wrote in *Gothic* Letters, and Dr. *Hicks* on the *Runic* Tongue. See RUNIC.

GOTHIC *Architecture*, is that which deviates from the Proportions, Characters, &c. of the Antique. See ARCHITECTURE.

The *Gothic* Architecture is frequently very solid, heavy, and massive; and sometimes, on the contrary, exceedingly light, delicate, and rich. The Abundance of little, whimsical, impertinent Ornaments, are its most usual Character.

Authors distinguish two Kinds of *Gothic Architecture*; the one antient, the other Modern.— The *Antient*, is that which the *Goths* brought with them from the North, in the Vth Century: The Edifices built in this manner, were exceeding massive, heavy, and coarse.

Those of the *Modern Gothic* run into the other Extreme, being light, delicate, and rich to a Fault: Witness *Westminster* Abby, the Cathedral of *Lichfield*, the Cross of *Coventry*, &c.

The last kind continued long in use, especially in *Italy*, *viz.* from the XIIIth Century, to the Restauration of the antique Building in the XVIth. All the antient Cathedrals are in this kind. See ARCHITECTURE.

The Inventors of the *Gothic* Architecture thought, no doubt, they had far surpass'd the *Greek* Architects: A *Greek* Building has not a single Ornament but what adds a Beauty to the Whole. The Parts necessary to sustain, or shelter it, as the Columns, Corniches, &c. derive all their Beauty from their Proportions: Every thing is simple, measur'd, and restrain'd to the Use it is intended for. No daring, out of the way Strokes; nothing quaint to impose on the Eye: The Proportions are so just, that nothing appears very grand of itself, tho' the whole be grand. On the contrary, in the *Gothic* Architecture, we see huge Vaults rais'd on slender Pillars, which one would expect every Minute to tumble down, tho' they will stand for many Ages. Every thing is crammed with Windows, Roses, Crosses, Figures, &c.

GOTHIC *Column*, is any round Pillar, in a *Gothic* Building, either too thick, or too small for its Height. See COLUMN.

There are some found even of 20 Diameters high; without either Diminution, or Swelling. See PILLAR, DIMINUTION, SWELLING, &c.

GOUD, or GAUD, or *Woad*, a Plant used by the Diers, to give a yellow Colour; and for this reason called in Latin, *Luteola*, of *luteus*, yellow. See YELLOW.

This Plant is sown in a light Ground, in the Months of *March*, or *September*; and is ripe in *June*, or *July*. In hot Countries it is frequently dry enough when gather'd; but in the colder, care must be taken to dry it. Great Circumspection to be used, that it be not gather'd before thorough ripe; as also to prevent its getting wet, when gather'd. See WOAD.

GOVERNMENT, or GOUVERNMENT, a Quality, or Office, which gives a Man Power, or Right, to command, or rule over a Place, a City, a Province, a Kingdom, or the like; either supremely, or by Deputation.

Government is either *General*, and Supreme, as that of a whole Kingdom, Empire, Soveraign State, *&c.* See KINGDOM, EMPIRE, STATE, *&c.* or *Particular*, and Subordinate; which again is subdivided into Civil, Military, or Ecclesiastical. See CIVIL, MILITARY, and ECCLESIASTICAL.

The *Government* of the King's Houshold belongs to the Lord *Steward*. See STEWARD, and HOUSHOLD.

Our Cities, Corporations, and Boroughs are usually *govern'd* by Mayors, with Aldermen, and Common Council-Men. See MAYOR, ALDERMAN, *&c.* See also CITY, &c.

The King was called to the *Government* of *England*, by the free Voices of the Parliament, and the People.—Such a Lord bought the *Government* of such a Province, Island, *&c.* The East India Company nominate to the *Government* of *Fort St. George*, &c.

GOVERNMENT is also used for the City, Country, or Place to which the Power of *governing* or commanding, is extended.

Sanson has given us Maps of *France*, divided into its *Governments*. There are 38 *Governments*, or Provinces in that Kingdom, independant of each other. Beside these, there is another Division into *Governments*, called *Grand Governments*, whereof there are twelve, *viz.* those of the Isle of *France*, *Burgundy*, *Normandy*, *Brittany*, *Picardy*, *Dauphiny*, &c. which are not proper Provinces, commanded each by its several Governor, but rather so many Classes of Governors, or *Governments*, contrived for the better, and easier regulating the Seats, *&c.* of so many Governors, Baillages, Prevotes, *&c.* as were obliged to assist at the holding of the General Estates.—

GOVERNMENT, again, is used for the manner, or Form of *governing*, *i. e.* for the Policy of a Country, State, *&c.* See LAW, and POLICY.

In this Sense, *Governments* are divided into *Monarchies*, *Aristocracies*, and *Democracies*. See MONARCHY, ARISTOCRACY, DEMOCRACY.

The *Government* of *France* is *Monarchic*; that of *Venice*, *Aristocratic*; and that of the United Provinces, *Democratic*: The *Government* of *England* is both *Monarchic*, *Aristocratic*, and *Democratic* all in one.

GOVERNMENT, in Grammar, is understood of that Construction of Nouns, and Verbs, wherein they require some Alteration to be made in others, join'd or constructed with them. See CONSTRUCTION, NOUN, and VERB.

Construction is divided into two Parts, that of *Concord*; and that of *Government*, call'd also *Regimen*. See CONCORD.

The Rules, or Measures of Government, *or Regimen, see under the Article* REGIMEN.

GOVERNOUR, or GOUVERNOUR, an Officer vested by a King or Soveraign Prince, with the Command and Administration of a Province, Place, *&c.* See GOVERNMENT.

Such a *Governour* being charg'd with Mal-administration, was recalled, and brought to his Trial.

A *Governour* represents the King; and not only commands the Garrison, Troops, *&c.* but the Citizens, *&c.* A *Governour* of a fortified Place was antiently required to hold out three Attacks, before he surrender'd.—

GOVERNOUR is also frequently used for a Superintendant. Thus we say, The *Governour* of the Bank; the *Governour* and Directors of the South Sea Company; the *Governour* of a Hospital, *&c.* See BANK, COMPANY, HOSPITAL, &c.

GOUGE, an Instrument used by divers Artificers; being a sort of round, hollow Chissel; serving to cut Holes, Channels, Grooves, *&c.* in Wood, Stone, *&c.* See CHISSEL.

GOUST, Goût, a *French* Term, for what the *Italians* call *Gusto*, and we, *Taste*. See TASTE.

GOUT, ARTHRITIS, in Medicine, a painful Disease, occasion'd by a Flux of sharp Humor, upon the Joints of the Body. See DISEASE.

Some Physicians define the *Gout*, an Inflammation, Swelling, and Painfulness of the Joints. Its prime Cause is usually attributed to Wine, Venery, Gluttony, and Idleness,

The *Gout* is supposed to arise from two Causes: A Redundancy of Humors, and a Weakness of the Joints. Its proper Seat is in the Limbs; not in the Trunk of the Body: In the latter Case it frequently proves mortal, not in the former.

Musgrave makes the Apoplexy a *Gout*, because arising from the Abundance of Pituita, or Phlegm. According as this redundant Pituita throws itself on the Lungs, the Liver, or any other Part, it makes, according to him, an *Apoplexy*, a *Gout of the Liver*, *of the Lung*, *of the Spleen*, &c.

The *Gout* is a Painful, Periodical, and Critical Paroxysm, tending to free the Body of an offensive, or corrosive Matter, by throwing it upon the Extremities; breathing it out insensibly; or comminuting it so as to render it harmless, or capable of circulating freely along with the Juices, till by collecting again, gradually increasing, or separating from the Blood, it causes another Paroxysm.

The *Gout* is either Regular, or Irregular.

Regular, when it appears to be seated in the Extremities of the Body, returns at stated Periods, and with a gradual Increase and Decline of the Symptoms: *Irregular*, when the Paroxysms are frequent, and uncertain; when the Symptoms vary, or happen promiscuously, and the Disease appears to be seated in the internal Parts of the Body; as the Stomach, Brain, *&c.* leaving the extreme Parts, as the Hands, Feet, *&c.* free from Pain.

According as different Parts are affected by this Distemper, it goes by different Names: When it seizes the Feet, it is called *Podagra*; when the Knees, *Gonagra*; when the Hands, *Chiragra*; and when the Hip Joint, *Sciatica*, *&c.* See PODAGRA, CHIRAGRA, SCIATICA, *&c.*

Sometimes it attacks the whole Body at the same time, and then it is called the *General*, or *Universal Gout*.

The *Gout* may be Hereditary, or Natural to the Constitution, proceeding from a too great Constriction of the Capillary Vessels, whence the *gouty* Humor is more easily lodged, or detained in them. It may also proceed from High-living, Crapula's, and eating such things as are hard of Digestion; a sedentary Life, drinking too freely of tartarous Wines; irregular living, Excess in Venery; an obstructed Perspiration, and a Suppression of the natural Evacuations.

The immediate Cause of the *Gout* appears to be an Alkaline, or acrimonious Matter in the Blood; which being separated from it at particular times, falls upon the Joints, but most frequently upon the Feet, and Hands; which, if it be repelled, or if the Blood be overcharged therewith, so that a Crisis cannot be procured in the Extremities (as generally happens in old Age) it falls upon the nobler Parts; and then produces the Irregular *Gout*.

The Regular, chiefly and immediately affects the Tendons, Nerves, Membranes, and Ligaments of the Body, about the Joints—Sometimes a cold shivering Fit precedes, and generally a Fever accompanies, its first Appearance, which soon goes off, and returns by Intervals. A slight Pain is felt in the Joints, where the Crisis is perform'd, which increases gradually; and in the Podagra generally fixes first on the great Toe, thence proceeding to the Tarsus and Metatarsus; sometimes, especially in old Age, it attacks the Knees and Hands; and wherever it is, by distending and irritating the Parts, causes a violent Pain, not unlike to that of a dislocated Bone. When the Pain is at its State, there appears an Inflammation, and a Swelling; both which increase as the Pain increases; and upon their Remission, the Paroxysm is ended: Tho' the Tenderness and Swelling in severe Fits, will sometimes remain a longer Time, and cause an Uneasiness upon Motion.

It it observed, that Women, Children, and young Men, are seldom troubled with the *Gout*, unless it be hereditary; that it rarely attacks, before the Patient is 35, or 40 Years old, and sometimes not till the Decline of Life; that the Corpulent are more subject to it, than those who are spare, and lean; that the Pain increases towards Night, and decreases towards the Morning; that the longer the Interval between the Paroxysms, the more severe they prove, and the longer they generally continue.

The Disease usually returns twice a Year, *viz.* in the Spring, and Autumn; and in the latter the Paroxysm is sometimes two, or three Months, before it comes to a Period; tho' its Duration is sometimes not above three, or four Weeks.

These are called *Cardinal Paroxysms*, to distinguish them from others of less Duration, which happen between the Spring and Autumn. The more high-colour'd the Urine, and the less Sediment it deposites; the further is the Disease from the State of *Concoction*, as 'tis termed. According to the Violence and Continuance of the Fever, the Paroxysm proves more or less severe.

In Constitutions much broke or shatter'd with the *Gout*, there are usually stony, or chalky Concretions form'd in the Joints of the Fingers, or Toes, and thence translated to the Viscera; which case is often attended with irregular, frequent, and short Paroxysms in the Extremities. In the Decline of Life, when the usual Fits do not happen; or if the *gouty* Matter be suddenly repelled from the Extremities by an improper Regimen, or Medicines; it usually seizes the internal Parts, and frequently the Stomach, Head, Intestines, *&c.* Causing Want of Appetite, Reaching to vomit, Indigestion, a Cachexia, the Jaundice, Asthma, Diarrhæa; and at last, so obstructs the fine capillary, nervous Tubes (especially those of the Stomach, and Brain) as possibly to hinder the Flux of the Animal Spirits: Upon which Death suddenly ensues.

Sydenham gives us an accurate History of a Fit of the *Gout* in the Feet: It begins towards the Close of *January*, or Beginning of *February*, without the least previous Notice; except, perhaps, a Crudity, or Apepsy for some Weeks beforehand; with a sort of windy Intumescence, and a Heavinesf of

of the Body, which continually increaſes, till at laſt, a Paroxyſm breaks out; being preceded, ſome Days, with a ſort of Torpor, and a ſenſible Deſcent of the Flatulences thro' the Fleſh of the Thighs, with ſome ſpaſmodic Symptoms. The Day before the Paroxyſm, his Appetite is very greedy; an Hour or two after Midnight, he is waked by a Pain, commonly in his great Toe, ſometimes in the Heel, Ankle, or the Calf of the Leg, not unlike the Pain felt upon a Diſlocation of the ſaid Bones; with a Senſe as if Water were ſprinkled on the Part affected. This is ſucceeded by a Chilliness, and ſome Approach to a Fever: The Pain in the mean time, which at firſt was more remiſs, gradually increaſes; in proportion to which the Chilliness abates. By Night, it is arrived at its Height, and ſettled about the Ligaments of the Bones of the Tarſus, and Metatarſus; where it ſometimes reſembles a violent Tenſion; and ſometimes a Laceration of theſe Ligaments; ſometimes the Biting, or Gnawing of a Dog; a Squeezing, or Coarctation. Thus far the Part affected has ſuch an exquiſite Senſe, that it cannot bear the Weight of the Linnen, nor even the Shaking of the Room occaſion'd by a Perſon's Stepping. Hence, a thouſand vain Endeavours to get Eaſe, by changing the Poſture of the Body, the Poſition of the Foot, &c. till about two or three a-Clock in the Morning (the Space of a Nychthemeron from its Acceſs), when a Remiſſion is firſt perceived; the morbid Matter being by this time tolerably digeſted, or even diſſipated. The Patient, hereupon, drops a-ſleep, and at his Waking finds his Pains much abated, but the Part newly ſwell'd. A few Days hence, the other Foot undergoes the ſame Fate: Sometimes, both are attack'd from the firſt. From the Time it has ſeiz'd on both Legs, the Symptoms become more irregular, and precarious, both as to the Time of Invaſion, and the Duration thereof. But this ſtill holds, that the Pain recruits in the Night, and remits again in the Morning. A Series of theſe little, alternate Acceſſes, &c. conſtitutes a *Fit*, or *Paroxyſm of the Gout*, which holds longer, or leſs, according to the Age, &c. of the Patient. In ſtrong People, and thoſe who have not had it often, fourteen Days is a moderate Paroxyſm: In old People, and thoſe long uſed to it, it will hold two Months.

For the firſt fourteen Days the Patient is uſually bound: A Loſs of Appetite, Chilliness towards Evening, and a Heaviness, and Uneaſiness even of the Parts not affected, attend the whole Paroxyſm. As it goes off, he is ſeiz'd with an intolerable Itching, eſpecially between the Fingers; the Furfur falls, and his Toes ſcale, as if he had drank Poiſon.

Such is the Courſe of a *Regular Gout*; but when thro' improper Treatment it is diſturbed, or prolonged, it ſeizes the Hands, Wriſts, Elbows, Knees, and other Parts: Sometimes diſtorting the Fingers, and taking away their Uſe; ſometimes generating tophaceous Concretions, or Knots about the Ligaments of the Joints, reſembling Chalk, or Crabs Eyes; ſometimes raiſing a whitiſh, inflamable Tumor, almoſt as big as an Egg, about the Elbows. &c.

It may be added, that where a Perſon has labour'd under the *Gout* for many Years; the Pain is ſenſibly leſſen'd each Paroxyſm, till at length it becomes rather an Uneaſiness than a Pain: Hence that Reflexion of the Great *Sydenham*, DOLOR IN HOC MORBO AMARISSIMUM EST NATURÆ PHARMACUM.

The *Gout* is rank'd among the Number of incurable Diſeaſes: In effect, we have no thoro', and aſſured Remedy yet diſcovered for it; theſe that now obtain are little more than Palliatives: They tend to aſſuage the Pain, to diminiſh it for a time; but not to extirpate it.

Bleeding, and Purging are found abſolutely prejudicial; and Diaphoreticks of no Service. Emeticks, according to *Pitcairn*, and *Etmuller*, may do good in the Beginning of the Diſeaſe. But, upon the whole, nothing, in *Sydendam*'s Opinion, proves of more Service than Digeſtives, or Medicines which ſtrengthen the Stomach, and promote Digeſtion: As, Angelica Root, *Enul. Campan.* The Theriac *Andromach.* the Jeſuit's Bark; and Antiſcorbuticks: Theſe chiefly to be adminiſter'd in the Intervals between the Paroxyſms. *Muſgrave*, however, recommends internally Repellents, and principally Cardiacks; externally, Emplaſters of *Gum. Caran.* or *Oxycroc*, or Cephalic, with *Burgundy* Pitch; or green Sea-cloth, commonly called *Hat-caſe*, &c. Yet *Dolæus* affirms, that Repellents do more harm than good; and gives us the following Recipe, as more than equal to all others.

℞ *Confect. hamech.* ℥j. *Pulv. Jalap.* ʒ ſs. *extract. Trifol. fibrin.* ʒij. *Litharg. aur.* ℥vj. *Sapæ Antimon.* ʒ ſs. *Sacchar. Canth.* ℥vj. *Ol. Olivar. q. s. Ceræ & Picis parum f. s. a.* An Emplaſter to be laid on the Joint affected, till the Pain, and the morbid Matter be driven away.—

GRABATARII, or GRABBATARII, in Church Antiquity, were ſuch Perſons as defer'd the receiving of Baptiſm, to the Hour of Death; or, who did not receive it till they were dangerouſly ill, and out of Hopes of Life: From an Opinion, that Baptiſm abſolutely waſh'd away all former Sins. See BAPTISM.

The Word is form'd of the Latin *Grabatum*, Bed; and that from the Greek γραβάτος, a Hanging-bed, of κρεμάν, to ſuſpend: Such was the Bed of Slaves, poor People, *Cynic* Philoſophers, &c. who were Enemies of Luxury and Eaſe.

GRACE, in Theology, any Gift which God makes to Man, of his own free Liberality, and without their having deſerv'd it at his Hands; whether ſuch Gift regard the preſent, or a future Life.—

Grace is uſually divided into *Natural*, and *Supernatural*. By *Natural Grace* is underſtood the Gift of Being, of Life, of ſuch and ſuch Faculties, of Preſervation, &c. St. *Jerom*, Epiſt. 139. allows it a *Grace* of God, that Man was created: *Gratia Dei eſt quod homo creatus eſt.* So, alſo, it is by the *Grace* of God, that Angels, and human Souls are immortal; that Man has free Will, &c.

Supernatural Grace, is a Gift from above conſer'd on intelligent Beings, in order to their Salvation.— 'Tis theſe, only, are called *Graces* in the Rigor of Theology; and 'tis for the Conveyance, Improvement, and Strengthening of theſe that the Sacraments are conſer'd, the Miniſtry of the Word inſtituted, &c. See SACRAMENT, &c.

The Divines diſtinguiſh this *Grace* into *Habitual*, and *Actual*; *Juſtifying*, and *Sanctifying*.—

Habitual GRACE, is that which reſides ſtatedly in us; is fix'd in the Soul, and remains till ſome grievous, wilful Sin expunge it.

This is alſo called *Juſtifying Grace*, as it makes us appear righteous and innocent before God: And *Sanctifying Grace*, as it makes us holy, and devoted to God. See JUSTIFICATION, and SANCTIFICATION.

Actual GRACE, is that which God gives us for the ſpecial Performance of ſome particular Good thing; as to convert us, enable us to reſiſt a Temptation, &c.—

This, the Divines ſubdivide into divers Kinds: *Preventing*, *Concomitant*, and *Subſequent Grace*.

It is an Article of Faith, 1° That Actual *Grace* is neceſſary for the beginning, carrying on, and finiſhing every good Work. 2° That the Will is able to reſiſt this *Grace*, and reject it. See WILL.

And hence this *Grace* becomes further divided into *Efficacious*, and *Sufficient*.—It is *Efficacious*, or *Efficient*, when it has the Effect; and *Sufficient*, when it has it not, tho' it might have had it. See EFFICACIOUS, and SUFFICIENT.

Some of the more rigid *Calviniſts*, &c. admit a *Neceſſitating Grace*. See CALVINIST, PREDESTINATION, REPROBATION, &c.

We alſo ſay, *the Law of Grace*; the *Covenant of Grace*, in oppoſition to the *Moſaic* Law, &c. See LAW; ſee alſo REVELATION, &c.

Days of GRACE, or *Favour*, are a certain Number of Days, allow'd for the Payment of a Bill of Exchange, after the ſame becomes due. See DAY *of Grace*.

The Days of *Grace* in *England* are 3; at *Rome* 5; at *Rotterdam*, 6; at *Paris*, 10; at *Hamburg*, 12; at *Antverp*, 14.

Act of GRACE, is an Act of Parliament for the Relief of inſolvent Debtors in the ſeveral Priſons; by clearing ſuch as are qualified, or come within the Terms of the ſame, from all their former Debts, &c.

GRACES, *Gratiæ*, in the Canon Law, are the ſame with what we otherwiſe call *Proviſions*, See PROVISION.

Expectative GRACES, *Gratiæ Expectativæ*, are a ſort of reverſionary Benefices, diſpoſed before the Time, or before they become vacant. See EXPECTATIVE.

GRACE is alſo a Term in the Formula of all Patents, &c. which begin, *George, by the* Grace *of God King of* Great Britain, &c.—The *Romiſh* Biſhops frequently begin their Mandates in the like manner. Such-a-one, by the *Grace* of God, and the Holy See, Biſhop of, &c.

The *Engliſh* Archbiſhops ſay, *By Divine Grace*, or *Divine Providence*. See ARCHBISHOP, &c.

All Soveraigns now uſe the Phraſe *Grace of God*; Emperors, Kings, Princes, &c. Antiently Dukes, Counts, and even Lords talk'd in the ſame Style: In the new Collection of Fa. *Martene* we meet with a mere Seigneur qualified *by the Grace of God, Seigneur de Comborn. Louis* XI. forbad the Duke of *Brittany* to entitle himſelf *by the Grace of God.*

GRACE is alſo a Title of Dignity, attributed to Princes of inferior Rank, and who are not qualified for that of *Highneſs*. See TITLE.

Till the Time of King *James* I. the Kings of *England* were addreſs'd to under the Title of *Grace*, as they now are under that of *Majeſty*. See MAJESTY, KING, &c.

Our *Engliſh* Dukes and Archbiſhops are addreſs'd to under the Title of *Grace*. But that Title is moſt frequent in Upper *Germany*, and particularly *Auſtria*; where it is bore by the Barons, as being inferior to that of Excellence. See QUALITY, EXCELLENCE, &c.

GRACES, *Gratiæ*, *Charites*, in the Heathen Theology, were a Set of fabulous Deities, three in Number, who attended on *Venus*. See GOD.

Their Names are, *Aglaia*, *Thalia*, and *Euphrosyne*; and they are supposed to be the Daughters of *Jupiter*. *Vossius de Idolol. L. XIII. c. XV.*

Some will have the *Graces* to have been four, and make them the same with the *Horæ*, Hours, or rather with the four Seasons of the Year. See HOURS, &c.

A Marble in the King of *Prussia's* Cabinet represents the three *Graces* in the usual manner, with a fourth, *seated*, and cover'd with a large Veil, with the Words underneath, AD SORORES IIII. Yet Mons. *Beger* will not allow the *Graces* to have been four: The Company there present, he understands to be the three *Graces*, and *Venus*, who was their Sister, as being Daughter of *Jupiter* and *Dione*.

They were always supposed to have hold of each other's Hands, and never parted. They were painted naked, to shew that the *Graces* borrow nothing from Art, and that they have no other Beauties but what are natural.

Yet, in the first Ages, they were not represented naked, as appears from *Pausanias L. VI.* and *L. IX.* who describes their Temple, and Statues. They were of Wood, all but their Head, Feet, and Hands, which were white Marble. Their Robe, or Gown was gilt: One of them held in her Hand a Rose, another a Dye, and the other a Sprig of Myrtle.

The Poets feign the *Graces* to have been very small of Stature; to intimate that the Things which charm, and delight us, are frequently little Matters; as, a Gesture, a Laugh, a careless Air, or the like.

GRACILIS, in Anatomy, a Muscle of the Leg, thus called from its slender Shape. See LEG.

It arises partly tendinous, and partly fleshy, from the Os Pubis internally, between the first and second Heads of the Triceps; and in its Descent in the Inside of the Thigh, grows narrow, and becomes tendinous a little below the Sartorius, and is thus inserted into the Tibia. It assisteth in bringing the Thigh and Leg inwards.

GRADATION, the Act of ascending, Step by Step, to any Pitch, or Eminence: From the Latin *Gradus*, Degree Step.— See DEGREE.

GRADATION, in Rhetoric, is when a Series of Proofs is brought, rising by degrees, and improving each on the other. See CLIMAX.

GRADATION, in Logic, is an Argumentation consisting of four, or more Propositions, so disposed, as that the Attribute of the first is the Subject of the second; and the Attribute of the second, the Subject of the third; and so on, till the last Attribute come to be predicated of the Subject of the first Proposition.

As, in *Porphyries* Tree: Man is an Animal; an Animal is a living Thing; a living Thing is a Body; a Body is a Substance: Therefore Man is a Substance.

An Argument of this kind is liable to a world of Fallacies; both from the Ambiguity of Words, and Things: *E. gr. Peter* is a Man; Man is an Animal; Animal is a Genus; Genus is an Universal; therefore *Peter* is an Universal.

GRADATION, in Chymistry, is a kind of Process belonging to Metals.—It consists in raising, or exalting them to a higher Degree of Purity, and Goodness, so as both to increase their Weight, Colour, Consistence, &c. See METAL, TRANSMUTATION, &c.

GRADATION, in Architecture, signifies an artful Disposition of several Parts, as it were, by Steps, or Degrees, after the manner of an Amphitheater; so that those placed before, do no Disservice, but rather Service to those behind.

The Painters also use the Word *Gradation* for an insensible Change of Colour, by the Diminution of the Teints, and Shades. See DEGRADATION.

GRADUAL, GRADUALE, was antiently a Church-book, containing divers Prayers, rehearsed, or sung after the Epistle.

In some of our antient Writers 'tis read *Graile*, *Graduale*, &c.

After reading the Epistle, the Chantor ascended the Ambo with his *Gradual*, and rehears'd the Prayers, &c. therein; being answer'd by the Choir: Whence the Name *Gradual*, on account of the Steps, or *Degrees* of the Ambo. See AMBO.

In the *Romish* Church, the Name *Gradual* is still retain'd to a Verse which they sing after the Epistle, and which antiently rehears'd on the Steps of the Altar: Tho' *Ugotio* gives another Account, and says it took its Denomination *Gradual*, because sung in a gradual Ascent from Note to Note. *Magri* speaks differently still, and will have it to have took this Name, because sung while the Deacon went up the *Steps* to the Pulpit, to sing the Gospel.

GRADUALS, GRADUALES, is also applied to the fifteen Psalms sung, among the *Hebrews*, on the fifteen Steps of the Temple.—Others are of Opinion they were thus denominated, because the Singers rais'd their Voice by degrees, from the first to the last.

Cardinal *Bona*, in his Treatise of Divine Psalmody, says, The fifteen gradual Psalms are intended to represent to the Mind, that we only arrive at the Perfection of Goodness or Holiness, by degrees: He goes on to lay down the fifteen Degrees of Virtue, corresponding to the 15 Psalms; five of them are for Beginners; five for Proficients; and the rest for the Perfect.

GRADUATE, a Person who has the Degrees in any Faculty. See DEGREE, &c.

A *Graduate* in Physic, in Divinity, &c. See FACULTY, DOCTOR, &c.

In *France*, one Third of the Benefices of the Kingdom are affected to *Graduates*, *viz.* all that become vacant in the Months of *January*, and *July*; *April*, and *October*.

This Privilege of *Graduates* is no older than the fifteenth Century: It being observ'd that Men of Learning were much neglected by the Collators, and Patrons of Churches, Complaint therefore was made to the Council of *Basil*, where this Decree was made; which was afterwards confirm'd by the *Pragmatic* Sanction, and again by the Concordat. See PRAGMATIC, &c.

GRADUATION, is used in Mathematicks, for the Act of *Graduating*, or dividing any thing into Degrees. See DEGREE.

Graduation of this Quadrant, Theodolite, or the like, is very just, and clean. See QUADRANT, THEODOLITE, &c.

GRAFT, in Agriculture and Gardening, a little Shoot, Cyon, Bud, or Eye of a Tree, inserted into another Tree, to make it yield Fruit of the same Nature, and Kind as those of the Tree whence the *Graft* is taken. See BUD, CYON, EYE, &c.

Or, *Graft*, is a little Portion of a Tree, inclosed in a Cleft, or Incision made in another, in order to correct, qualify, or improve the Taste of its Fruit; or even to make it bear a different Sort of Fruit. See ENGRAFTING; see also FRUIT, TREE, STOCK, &c.

The Word is form'd of the French *Greffe*, which signifies the same thing; and *Greffe*, in this Sense, is suppos'd to have been derived from the Resemblance the Shoot bore to the Point of a Penknife, which was antiently called *Greffe*. *Du Cange* goes further, and derives the antient *Greffe* from *Graphiolum*; *Menage*, from *Graphium*, a *Latin* Word, signifying a little Style, or Iron Bodkin, one End whereof was pointed, and served to write withal on Waxen Tablets; and the other flat, serving to efface, or rub out what was wrote.

GRAFTING, or GRAFFING, or INGRAFTING, in Agriculture, and Gardening. See ENGRAFTING.

GRAFTING *Wax*. See WAX, &c.

GRAIN, a minute Body, or Parcel of a Body pulveriz'd. In this Sense we say, a *Grain* of Sand; a *Grain* of Salt; a *Grain* of Gunpowder, &c. See PULVERIZATION, &c.

GRAIN is also used for the Fruits, or Seeds of divers Plants; as, a *Grain*, or Corn of Pepper, of Fileria, &c. See BERRY, SEED, KERNEL, &c.

The Kingdom of Heaven is compared to a *Grain* of Mustard Seed.

GRAIN is more generally used for any Fruit, or Seed growing in a Spica, or Ear. See SPICA.

In this Sense, *Grain* comprehends all sorts of *Corn*; as Wheat, Rye, Barley, Oats, &c. See CORN.

GRAIN is also a small Weight, us'd in estimating divers Substances. See WEIGHT.

The *Grain* is the smallest of all the Weights known in *England*.—It is taken from the Weight of a *Grain* of Wheat, gather'd out of the Middle of the Ear, and well dried. 24 *Grains* make a Penny-weight, and 20 Penny-weight an Ounce. See PENNY-*Weight*, and OUNCE.

The *Grain* is a Troy Weight, and used in the weighing of Gold, Silver, Jewels, Bread, and Liquors. See TROY *Weight*.

Among the Antients, the *Grain* was the fourth Part of the *Siliqua*, or twelfth of the *Obolus*, and the 72d of the *Drachma*. It comprehended a Lens and an half. See SILIQUA, OBOLUS, &c.

Fernelius L. IV. c. 6. Method. Medend. affirms it as a thing known and certain, that the *Grain* is of the same Weight, every where; but he is mistaken. Mr. *Greaves* in his Treatise of the *Roman Foot* has shewn, that 179 *Dutch Grains*, which *Snellius* had found to be the Weight of a *Philip* of Gold, only amount to 134½ *English Grains*. Add, that Mons. *Perrault* has computed the French *Grain* to be less than the *English*; and yet bigger than the *Dutch*: To the *English*, it is as 158 to 134½; and to that of *Holland*, as 158 to 179.

The *Grain* used by the Apothecaries, is the same with that of the Goldsmiths; tho' they make a Difference in the Weights rais'd therefrom. Thus, 20 *Grains*, with them, make a Scruple, ℈; 3 Scruples, a Drachm, ʒ; 8 Drachms, an Ounce, ℥, &c. See DRACHM, SCRUPLE, &c.

The Carat used in weighing Diamonds and precious Stones, is also divided into four *Grains*. See CARAT.

GRAIN is also used for the Figure, or Representation of *Grains* on Stones, Stuffs, Leathers, &c. Thus we say, Morocco has a bolder *Grain* than Shagreen. See MOROCCO, and SHAGREEN.

In some Marble, the *Grain* is very fine; in others coarser. See MARBLE, STONE, &c.

Steel

Steel is known by its *Grain*, which is much finer than that of Iron. See STEEL, and IRON.

GRAINING-BOARD, is a Board used by the Curriers, to give the Grain to their Leather. See CURRYING.

It is made with Teeth, or Nitches running quite a-cross; into which, the soft, moisten'd, suppled Leather being press'd, its Surface readily takes the Impression.—See LEATHER.

GRAMINEUS, GRAMINEA, in Antiquity, a Crown form'd of Grass, *Gramen*, bestow'd, by the *Romans*, on certain of their Generals, in consideration of their having saved, or rescued an Army. See CROWN.

The *Grassy* Crown was but rarely confer'd; and for some signal Exploit; when, thro' the Courage, or Dexterity of a General, an Army reduc'd to the last Extremities had been saved, or deliver'd, and the Enemy put to flight.

GRAMINEOUS *Herbs*, among Botanists, are such as have a long, narrow Leaf, and no Foot-stalk. See PLANT.

GRAMMAR, the Art of *speaking* rightly; that is, of expressing one's Thoughts, by Signs mutually agreed on for that purpose. See SPEARING.

The Signs, here found most convenient, are articulate Sounds; but, as these are transient, others have been invented more permanent, *viz. Grammata*, γράμματα, Letters, whence the Name *Grammar*. See VOICE, and LETTER.—

Grammar is more accurately defined, after Mr. *Johnson*, the Art of expressing the Relations of Things in Construction, with due Quantity in speaking, and Orthography in writing, according to the Custom of those whose Language we learn. See LANGUAGE.

Grammar is divided by some Authors, into four Parts, *Orthography*, *Prosody*, *Etymology*, and *Syntax*. See ORTHOGRAPHY, PROSODY, ETYMOLOGY, and SYNTAX.

Others chuse to divide it somewhat more obviously, into the Doctrine of *Letters*, or *Sounds*, which coincides with Orthography and Orthoepy; that of *Syllables*, their Accent, Time, &c. which falls in with Prosody; that of *Words*, their Kinds, Derivations, Changes, Analogy, &c. which amounts to Etymology; and that of *Sentences*, which considers the placing, or joining of Words together, called Syntax. See LETTER, WORD, SYLLABLE, and SENTENCE.—

The chief Business of *Grammar* is to decline, conjugate, construct, and spell Nouns, Verbs, and other Parts of Speech.

It teaches the Propriety, and natural Force of each Part of Discourse; and the Reason of all Expressions used therein. See DECLENSION, CONJUGATION, CONSTRUCTION, NOUN, VERB, SPEECH.

Some have called *Grammar* the Door, or Gate of the Arts and Sciences; by reason none of these are attainable, but by means hereof. *Grammar*, according to *Quintilian*, is that to Eloquence, which the Foundation is to the Building: They who despise it, as only dealing in low, trivial Things, are exceedingly mistaken: It has, really, more Solidity than Shew.

The Authors of the *Art of Thinking* consider *Grammar*, as not less necessary to try, and exercise the Abilities of the most Knowing, than to form the Minds of Beginners: The Advantages of *Grammar* are well set forth by *Perizonius*, in the Preface of his Edition of *Sanctius's Minerva*, *Amsterd.* 1714. See GRAMMARIAN.

Diogenes Laertius relates, after one *Hermippus*, that *Epicurus* was the first that gave the Rules of *Grammar* for the *Greek* Tongue; but that *Plato* was the first who had taken the thing into Consideration, and even made some Discoveries on that Subject.

At *Rome*, *Crates* of *Mallunthus* in *Mysia*, cotemporary with *Aristarchus*, gave the first Lectures thereon to the *Romans*, during the Time of his being Embassador for King *Attalus*, to the Commonwealth, between the second and third *Punic* Wars, soon after *Ennius's* Death. Before him, it was not known at *Rome* what *Grammar* meant. *Polydor Virgil De Invent. Rer. L. I. C.* 7.

Grammar is the same in all Languages, as to its general Principles, and Notions which it borrows from Philosophy to explain the Order and Manner wherein we express our Ideas by Words: But, as each Language has its particular Turns, its several Character, and Genius, different from the Genius and Character of other Languages: Hence arise as many *Grammars*, as Languages.—An Example will suffice to shew this: We say in English, *Draw a strait Line*, not, *a Line strait*: In *French*, they say, *tirer ligne droite*, a Line strait, not *droite ligne*, a strait Line: And in *Latin* there is a Liberty to say it either the one way, or the other, *rectam lineam*, or *lineam rectam*, *ducere*. And if there be a Language which in the Phrase above-mentioned follows the same Analogy, as the *English*; it differs from it on a hundred other Occasions.—

Hence Dr. *Wallis* justly finds Fault with our *English* Grammarians, where he says, that all of them forcing our *English* Tongue too much to the *Latin* Method, have deliver'd many useless Things concerning Cases, Genders, and Declensions of Nouns; Tenses, Moods, and Conjugations of Verbs; as also the Government of Nouns and Verbs, which our Language has nothing to do with. See ENGLISH, CASE, DECLENSION, GENDER, MOOD, &c.

GRAMMAR is also used for a Book containing the Rules of *Grammar* which obtain in any Language. See LANGUAGE.

The antient *Grammars*, are; for the *Hebrew*, that of Rabbi *Judas Chiug*, which is commonly held the first *Hebrew Grammar* that appear'd; tho' it is certain, Rabbi *Saadias Haggaon*, who lived before Rabbi *Juda*, compos'd two Works in the same kind, one, expressly of *Grammar*; and the other, of the Elegances of the *Hebrew* Tongue. See HEBREW, &c.

For the *Greek*, the oldest *Grammar* is that of *Gaza*: The *Latin* ones, are the Works of *Martianus Capella*, *Priscian*, and *Asconius Pædianus*. See GREEK, &c.

The best of the modern *Grammars*, are 1° For the *Hebrew*, that of *Pagninus*, the Edition of *Hen. Stevens*, or *le Preux* at *Geneva*, in 1592; that of *Petrus Martinius* at *Rochel* 1592; that of *Buxtorf*; that of *Ludovicus Deus*, in three Languages; that of *Sixtinus Amama*, which is a Collection from *Martinius* and *Buxtorf*; that of *Bellarmine*, with the Notes of *Muis*; that of Fa. *Sglanther* is useful for Beginners.

2° For the *Chaldee*, the best are those of *Martinius*, *Buxtorf*, and *Lud. Deus*, in three Languages. See CHALDEE.

3° For the *Syriac*, those of *Amira*, *Myricæus*, *Waserus*, and *Beveridge*; with the *Chaldee* and *Syriac* ones of *Buxtorf*, of *Lud. Deus* in three Languages, and that of *Lambden*.

4° For the *Coptic*, the *Prodromus Coptus*, and *Lingua Ægyptiaca Restituta* of *Kircher*. See COPTIC.

5° For the *Arabic*, that of *Erpenius*, and that of *Golius*, which is only *Erpenius's* a little augmented. See ARABIC.

6° For the *Ethiopic*, that of *J. Ludolphus*.

7° For the *Persian*, that of *Lud. Deus*.

8° For the *Armenian*, those of *Schroder*, and *Galanus*.

9° For the *Greek*, those of *Mart. Rulandus*, *Silburgius*, Fa. *Mocquet*, *Vossius*, *Busby*, and *Port Royal*.

10° For the *Latin*, those of *Despauter*, the *Minerva* of *Sanctius*, those of *Vossius*, and that of *Port Royal*, which is only a Collection from the rest.

11° For the *Italian*, those of *Berger*, *Lanfredini*, *Port Royal*, and *Veneroni*.

12° For the *Spanish*, those of *Salazar*, *Port Royal*, the Abbot *de Verac*, &c.

13° For the *Portuguese*, that of *Pereyra*.

14° For the *French*, those of the Abbe *Regnier*, and Fa. *Buffier*.

15° For the *High-Dutch*, those of *Heim*, *Glaius*, *Hertz*, *ber*, and *Leopold*. Lastly,

16° For the *English*, those of *Wallis*, *Brightlan*, and *Greenwood*.—

GRAMMARIAN, GRAMMATICUS, a Person well versed, in Grammar; or who teaches Grammar. See GRAMMAR.

The Denomination *Grammarian*, is, like that of *Critic*, now frequently used as a Term of Reproach; A mere *Grammarian*; A dry, plodding *Grammarian*, &c. The *Grammarian* is conceived as a Person wholly attentive to the *Minutiæ* of Language; industriously employ'd about Words, and Phrases; incapable of perceiving the Beauties, the Delicacy, Finesse, Extent, &c. of a Sentiment. See PEDANT.

Scaliger, however, consider'd *Grammarians* in another Light. *Utinam essem*, says he, *bonus* Grammaticus: *Sufficit enim ei, qui omnes Authores probe vult intelligere, esse* Grammaticum.—

The Title *Grammarian*, 'tis certain, was antiently a Title of Honour; being given not only to such as applied themselves to Grammar, or excell'd in Philology; but to all who were reputed Learned in any Art, or Faculty whatever, as is shewn by *Ger. Vossius*, in his Book of Grammar.

The Word was properly a Title of Literature and Erudition, and frequently given to Persons who excell'd in all, or many Arts, call'd also *Polyhistores*. See POLYHISTOR.

Thus, *Philoponus*, a famous Philosopher in *Justinian's* Time, remarkable for the Extent, and Variety of his Knowledge, was surnamed *Grammaticus*, as appears from *Photius's* Library: So *Saxo*, the *Danish* Historian, in the XIIIth Century, got the Apellation *Grammaticus*: And as late as the Year 1580 *Thomas d'Acursius*, a celebrated *Neopolitan* Lawyer, was surnamed the *Grammarian*.

The Title *Grammarian* was antiently bestow'd on those we now call Criticks, Men of Learning, Erudition, Letters, &c. and particularly such as wrote well, and politely in every kind. See CRITICISM.

'Tis in this Sense that *Suetonius* entitles his Book which he wrote on the best *Latin* Authors, *Of the Celebrated Grammarians*; and that *Cornelius Nepos* calls the Commentators on the Orators, and Poets, *Grammarians*; and lastly, 'tis in this Sense the Word is attributed by the Antients to *Apion*, *Philoponus*, and *Solinus*.

The most celebrated *Grammarians* of the II^d Century, were *Aper*, *Pollio*, *Eutychius*, *Proculus*, *Athenæus*, *Julius Pollux*, *Macrobius*, and *Aulus Gellius*: The Works of these last Authors, are an Assemblage of Abundance of very different Things, and Subjects, relating to the Criticism of the antient Writers, and the polite Literature.

If the Name have lost its antient Effect, 'tis thro' the Fault of those who have assumed it; by treating of Grammar in a low, Pedantic, Dogmatic manner; reducing it to Words and Syllables; and dwelling altogether on trifling, puerile Remarks, and Censures: Whereas its proper Office is to make an accurate, and thoro' Examen of an Author; to enter into all his Views, to point out the Beauties, and the Defects thereof; to distinguish the true Beauties from the false; and the genuine Productions of an Author, from the Suppositious: That is, a *Grammarian* was then, what we call a *Critic*, now.

Those who only taught to read, understand, and explain Authors, were called *Grammatists*, *Grammatistæ*; in Contradistinction from *Grammatici*: tho', in course of Time, the *Grammatistæ* have rose into the Place of *Grammatici*; who are prefer'd to that of *Critici*. See CRITICISM.

GRAMMATICAL, something relating to Grammar.—Thus we say, *Grammatical* Construction: *Grammatical* Signification, &c. Idioms, as Anglicisms, Latinisms, Grecisms, Gallicisms, &c. deviate from *Grammatical* Strictness. See ANGLICISM, GALLICISM, &c.

Such a Phrase is not *Grammatically* just; 'tis an Idiom. See IDIOM.

GRANADO, or GRANADA, or GRENADA, in the Military Art, a hollow Ball, or Shell, of Iron, Brass, or even Glass, or Potters Earth, filled with Gunpowder, and fitted with a Fuse to give it Fire.

Of these there are two kinds; the one *large*, the other *small*: The first to be thrown at the Enemy by a Mortar, properly call'd *Bombs*. See BOMB.

The latter to be cast with the Hand; and thence denominated *Hand Granado's*.

Casimir, indeed, makes another Distinction; where the Ball, or Shell is round, whatever the Size be, he calls it a *Granado*; and where, Oval, or Cylindrical, a *Bomb*: But Custom allows only the former Division.

The best way, *Casimir* observes, to secure a Man's self from the Effect of a *Granada*, is, to lie flat down on the Ground, before it burst.

Historians relate, that at the Siege of *Ostend* there were above fifty thousand *Granado's* thrown in one Month into the City; and that the Citizens threw above twenty thousand into the Works of the Besiegers.

The Common, or *Hand Granade* is a little, hollow Ball of Iron, Wood, Pastboard, &c. fill'd with strong Powder, lighted with a Fusee, and thus thrown with the Hand among the Enemy's Battallions, Trenches, Posts, &c.

Their Composition is the same with that of Bombs; which see.—For Size, they are usually about the Bigness of an Iron Bullet, and weigh about three Pounds: As to Dimensions, they are common in Thickness one eighth, one ninth, or one tenth of their Diameter; their Aperture, or Orifice about $\frac{2}{12}$ wide, as prescribed by *Casimir*.

Thuanus observes that the first time *Granado's* were used, was at the Siege of *Wachtendonck*, a Town near *Gueldres*; and that the Inventor was an Inhabitant of *Venlo*, who in making an Experiment of the Effect thereof, occasion'd two thirds of that City to be burnt; the Fire being kindled by the Fall of a *Granado*.

Bombs: were known long before the Invention of *Granado's*. See MORTAR.

The Antients had a sort of *Ollæ*, or Fire-pots, somewhat of the same Nature with our *Granado's*, but less perfect.

Casimir mentions a sort of Blind *Granado's*, without any Aperture, or Fusee, as not needing to be lighted; but being thrown with a Mortar, take Fire of themselves whenever they fall on any hard, solid Object.

The Name *Granada* takes its Rise hence, that they are fill'd with Grains of Powder, as a Pomgranate is with Kernels. See POMGRANATE.

GRANADIER, or GRENADIER, or GRANADEER, a Soldier who carries a Pouch full of Hand Granado's to be thrown among the Enemy. See GRANADO.

There are Companies of *Foot Granadiers*, and *Horse Granadiers*, or *Granadiers* of Horse, who march at the Head of the King's Guards.

To each Troop of Horse Guards there is added by Establishment a Troop of *Granadiers*, consisting of 64 Men, beside Officers commanded by the Captain of the Troop of Guards. See GUARDS.

One Division of *Granadiers* mounts with a Division of the Troop; go out on small Parties from the Guard; perform Centinels, Duty, &c.

The Pay of the private *Granadiers* is 2 *s.* 6 *d. per* Day.

GRANARY, A Place to lay, or store Corn in, particularly for keeping. See CORN.

Sir *Hen. Wotton* advises to make it look towards the North, as much as may be; because that Quarter is most cool and temperate.

Mr. *Worlidge* observes, that the best *Granaries* are built of Brick, with Quarters of Timber wrought in the Inside, whereto to nail the Boards, with which the Inside of the *Granary* must be lined so close to the Bricks, that there be no Room for Vermine to shelter themselves. There may be many Stories one above another, and let them be near the one to the other; for the shallower Corn lieth, the better, and it is the easier turned.

Some have had two *Granaries*, the one above the other, and filled the upper with Wheat, or other Corn: This upper one had a small Hole in the Floor, by which the Corn descended into the lower one, like the Sand in an Hour-Glass; and when it was all come down into the lower *Granary*, it was then carried up again into the upper one; and so it was kept continually in Motion: Which is a great Preservation to the Corn. See further in the Article CORN.

A large *Granary*, full of square wooden Pipes, may keep Corn from heating.

GRANATE, a Gem, or pretious Stone, of a high, red Colour; thus called from the Resemblance it bears to that of the Kernel of a Pomgranate. See PRECIOUS *Stone*.

Granates are either *Oriental*, or *Occidental*: The first are brought from divers Parts of the East Indies; the second from *Spain*, *Bohemia*, and *Silesia*.—

These, from the East, are distinguish'd by their Colour into three Kinds: The first, of a deep, brownish Red, like black clotted Blood; of which Kind there are some as big as an Hen's Egg: The second, are nearly of the Colour of a Hyacinth, with which it were easy to confound them, but for their superior Redness. The last, having a Mixture of Violet with their Red, are called by the Italians, *Rubini della Rocha*. See RUBY.

The Occidental *Granates* are of divers Reds, according to the Places they are found in. Those of *Spain*, imitate the Colour of the Kernel of a Pomgranate: Those of *Bohemia* have a golden Cast with their Red, glittering like a live Coal: Those of *Silesia* are the darkest of all, and seldom thoroughly transparent.

Of the *Occidental Granates*, those of *Bohemia* are the most valued: Some even give them the Preference over the Oriental Kind. They are found near *Prague*; not in any particular Mines, but are pick'd up by Peasants in the Fields, from among the Sands, and Pebbles.

The *Granate* is of some Use in Medicine: Its Powder is sometimes an Ingredient in the Cordial Electuaries. The Antients held it excellent against Heaviness and Melancholy.

GRAND, a Term rather *French*, than *English*, though used on many Occasions in our Language. It has the same Import with *Great*; being form'd of the Latin *Grandis*.—See GREAT.

In this Sense we say, The *Grand* Master of an Order; the *Grand* Master of *Malta*; of the Free Masons, &c. See MALTA, and MASON.

So also we say, the *Grand Visier*, the *Grand Signior*, &c. See VISIER, and SIGNIOR, &c.

Grand Father, *Grand* Mother, &c. See PARENTAGE, DESCENT, DEGREE, CONSANGUINITY, &c.

In the *French* Polity and Customs, are divers Officers thus denominated, which we frequently retain in *English*; as *Grand Almoner*, *Grand Ecuyer*, *Grand Chambellan*, *Grand Voyer*, &c.

We also say, the *Grand Gust*, *Grand Monde*, the *Grand Style*, &c. See SUBLIME, &c.

GRAND *Assize*; see ASSIZE, and MAGNA *Assisa*.

GRAND *Cape*; see CAPE, and ATTACHMENT.

GRAND *Distress*, *Districtio magna*, a Distress so called, not for the Quantity, for it is very short; but for the Quality, for the Extent is very great; for thereby the Sheriff is commanded, *Quod* distringat *tenentem, ita quod ipse nec aliquis per ipsum ad ea manum apponat, donec habuerit aliud præceptum; & quod de exitibus eorundem nobis respondeat, & quod habeat corpus ejus*, &c. See DISTRESS.

This Writ lies in two Cases: Either when the Tenant, or Defendant is attach'd, and so returned, and appears not, but makes Default; or where the Tenant, or Defendant hath once appear'd, and after makes Default. On such Occasions, this Writ lies by Common Law, in lieu of a *Petit Cape*.

GRAND *Gusto*, is a Term used by Painters, to express, that there is something in the Picture very great, and extraordinary, calculated to surprise, please, and instruct.

Where this is found, they say, The Painter was a Man of the *Grand Gusto*: And they use the Word *Sublime*, and *Marvellous*, when they speak of a Picture in much the same Sense.

GRAND *Sergeanty*; see CHIVALRY, and SERGEANTY.

GRANDEE, is understood of a Lord of the first Rank, or prime Quality.

In *Spain*, the Term *Grandees*, is spoken absolutely of the Prime Lords of the Court, to whom the King has once given Leave to be cover'd in his Presence: There are some *Grandees*

dees for life only; made by the King's saying, simply, *Be cover'd*. Others, are *Grandees* by Descent; made by the King's saying, *Be cover'd for thy self, and Heirs*. These last, are reputed far above the former. There are some have three, or four *Grandees*, or *Grandates* in their Family.

GRANGE, an antient Term for a *Barn*; or Place wherein to lay up and thrash Corn.

The Word is sometimes also used in a more extensive Sense, for the whole Farm; with all the Appendages of Stables for Horses, Stalls for Cattle, &c. See FARM.

It is form'd of the Latin *Grania*; or of *Granum*, Grain, Corn.—Hence also *Granger*, or *Grangier*, a Farmer.

GRANI, in our antient Writers, Mustachoes, or Whiskers of a Beard.—*Quia cum sint in fine rotundati* Granorum *formam efficiunt*.

It is given for a Reason why the Cup is refused to the Laity, *Quia barbati, & prolixos habent* Granos, *dum poculum inter epulas sumunt, prius liquore pilos inficiunt quam ori infundunt*.

GRANIT, GRANITES, a sort of Marble, extreamly hard, rough, and incapable of taking a thoro' Polish: Thus called, as being sprinkled over with a great Number little Stains, resembling Grains of Sand. See MARBLE.

There are three sorts of *Granit*; that of *Egypt*; that of *Italy*, and that of *Dauphiny*.

The first has brownish, or greenish Spots, on a dirty, white Ground. It is found in very large Pieces; and is that chiefly used by the *Egyptians*, in their Obelisks, and Pyramids on the Tombs of their great Men. There are Columns of this Stone above 40 Foot high.

The *Granit* of *Italy* is softer than that of *Egypt*; especially in the Quarry, where it cuts with much more Ease. There is also a sort of *Green Granit*, which is a Species of Serpentine, spotted with green, and white Spots.

The *Granit* of *Dauphiny*, a Quarry whereof has been found, is only a very hard sort of Flint.

GRANIVOROUS, an Epithet, or Denomination given to such Animals as feed upon Corn, or any other Grain or Seeds. See ANIMAL and SEED.

Granivorous Animals are chiefly of the Bird kind. See BIRD.

These have a peculiar Provision for the digesting of so dry and hard a Food. See DIGESTION, GIZZARD, &c.

GRANT, in Law, a Gift in Writing, of something which cannot aptly be passed, or convey'd by Word only; as Rents, Reversions, Services, Advowsons in Gross, Tithes, &c.

Or, it is a Gift made by such Persons as cannot give but by Deed; as the King and all Bodies Politick. See DONATION.

This Difference is often, in Speech, neglected; and the Word *Grant* taken generally for every Gift whatsoever, made of any thing, by any Person. In this Sense he that granteth is named *Grantor*, and he to whom it is made, the *Grantee*. —A Thing is said to *lie in Grant*, which cannot be assigned without Deed. See DEED.

GRANULATION, in Chymistry, an Operation perform'd on Metals, whereby they are reduc'd into small *Grains*, or Globules.

It is done by melting them; and when in Fusion, casting them into cold Water; in which they congeal into Granules, as required: And are hereby render'd more easy to be dissolved. See DISSOLUTION.

The best way is to pour the fluid Metal thro' a Culender, or a new Birchen Broom.—

We also say, the *Granulation* of Gun-powder. See GUN-*Powder*.

GRAPE, see VINE, RAISIN, and WINE.

GRAPPLE, in the Manage—A Horse is said to *grapple* with one, or both Legs, when he catches, or raises 'em more hastily, and higher than ordinarily, as if he were curvetting.

GRAPHOIDES, in Anatomy, an Appendage of the Bones of the Temples, long, small, sharp, and a little crooked, like a Cock's Spur. See *Os* TEMPORIS.

The same Name is sometimes also applied to the *Musculus Digastricus*. See DIGASTRICUS.

Likewise, to an Extension of the Brain, resembling a Writing-pen. See BRAIN.

GRAPHOMETER, a Name which some Authors, particularly the *French*, give to a Surveying Instrument, by us commonly called a *Semicircle*. See SEMICIRCLE.

GRASS-*Plots*, and *Walks*, make a considerable Article in Gardening, &c. See WALK, &c.

Grass, or *Green Plots* are had either by sowing of Hay-seed, or laying of Turf: For the first, which is the cheapest way, the Seed of the finest Upland Pastures is to be chose, well sifted and cleansed.

For the second, the Turf should be cut on a Down, or Green, or Common, or Sheep-walk, where the *Grass* is short and fine; if there be any Knobs, or Roughnesses, the Place must be cleansed and roll'd after a Shower, before it be cut up. The Turf is cut in Squares, mark'd out with Lines, rais'd with a Knife, and roll'd up; about three Inches thick.

The Quarters, or Verges are to be prepared with a fine Coat of poor Earth to lay the Turf on; and after laying, the Turf must be well water'd, rolled, &c.

Small Pieces of *Grass*-work, as Knots, Shell-work, and Volutes of Parterres, Cut-work, Verges about Basons, &c. must always be laid with Turf.—

To sow *Grass* for Plots, &c. the Ground must first be dug or broke with a Spade, then dress'd, laid even, raked fine, and cover'd an Inch thick with good Mould to facilitate the Growth of the Seed. Then the Seed to be sown pretty thick, that it may come up close and short; and lastly, to be raked up, and cover'd. The best Season is the latter End of *August*: When it is well come up, it must be mow'd, and this often repeated; since the oftener 'tis mow'd, the thicker and handsomer it grows. It must also be rolled from time to time.

GRATICULATION, a Term some Writers use for the dividing a Draught, or Design into Squares, in order to the reducing it thereby. See REDUCTION.

GRATIOLA, a Medicinal Plant, of considerable Virtues; tho' little known in the ordinary Practice; as being suppos'd dangerous of Application.

Its most noted Effects are to evacuate hydropic Waters, both upwards and downwards, taken either in Infusion, or Decoction; to cleanse Wounds, and to kill Worms.

Its Bark, taken in Powder, is said to be scarce inferior in Virtue to Ipecacuanha for Dysenteries.

It is of a very bitter Taste; whence, probably its vermifugous Power; and its Root astringent, whence its Use in the Dysentery.

M. *Boulduc* made an Extract of this Plant, which purged gently, and was very Diuretic: Another Extract made of the Fæces or Refuse, proved much more efficacious. *Hist. de l'Acad. An.* 1705.

GRAVE, in Music, is applied to a Sound, which is in a low, or deep Tune. See SOUND, and TUNE.

The thicker the Chord, or String, the more *grave* the Tone, or Note: And the smaller, the acuter. See CHORD.

Notes are supposed to be the more *grave*, in proportion as the Vibrations of a Chord, are less quick. See GRAVITY.

GRAVE, in Grammar, an Accent opposite to *Acute*. See ACCENT.

The *Grave* Accent is express'd thus: (`) and shews that the Voice is to be depress'd, and the Syllable over which it is placed, pronounced in a low, deep Tone.

GRAVE is also an Ingredient in the Composition of divers Terms in History, and Policy. Thus we say, *Landgrave*, *Burggrave*, *Markgrave*, *Palsgrave*, &c. See PALS-*Grave*, &c.

The Word, in this Sense, is form'd of the German *Graaf*, signifying *Comes*, Count; and in the Barbarous Latin *Gravio*, *Graphio*.— See COURT.

GRAVE is also used for a Tomb, wherein a Defunct is interr'd. See TOMB, and SEPULCHRE.

GRAVEDO, a Heaviness, or Listlessness, which accompanies a lessened Transpiration, or taking Cold as it is commonly called. Hence also, the Case being frequently accompanied with a Running of the Nose and Eyes.

The *Gravedo* and *Coryza* are sometimes used promiscuously. See CORYZA.

GRAVEL, in Natural History, coarse Sand, found at the Bottom, and the Sides of Rivers. See SAND.

Mons. *Perrault* lays down the Difference between *Sand*, and *Gravel*.—The first, according to him, is small, and consists of fine, even Grains: The latter is bigger, and consists of little Pebbles, mix'd with the finer Fragments of Stones.

Gravel is chiefly used in laying Yards, Courts, and Walks in Gardens,—

The Word is form'd of the French *Gravier*; which *du Cange* derives from the Barbarous Latin *Graveria*, signifying the same thing.—

GRAVEL, in Medicine, a Disease of the Bladder, and Kidneys, occasion'd by a sandy, or gritty Matter gather'd therein, which cohering into a stony Mass, prevents the due Secretion, and Excretion of the Urine. See URINE.

The *Gravel* is generally consider'd as the same Disease with the Calculus, or Stone. See STONE.

GRAVEL *Soil*, see SOIL.

GRAVEL *Walk*, in Gardening.—To lay, or form a Walk with *Gravel*, all the good Soil is to be pared away, below the Roots of any Grass, or Weeds; then the Place to be filled two or three Inches with coarse *Gravel* unsearced, laying it highest in the Middle: Then rolling it; a new Stratum of finer *Gravel* to be thrown on, two, or three Inches thick: And the Rolling to be repeated again and again.

Note, the Sides next the Beds should be laid a Foot and an half, or two Foot with Turf from whence the Heat of the Sun cannot be reflected as from *Gravel*, to the Prejudice of the neighbouring Flowers.

GRAVELLING, among Farriers, a Disorder incident to Travelling-horses, occasion'd by little Gravel-stones getting in between the Hoof and the Shoe, which settling to the Quick, frets, and festers the Part. 'Tis

'Tis cured by pulling off the Shoe, drawing the Place to the Quick, picking out all the Gravel, and ſtopping up the Foot with Horſe-greaſe, and Turpentine pour'd in hot.

GRAVER, a Steel Inſtrument, ſerving to engrave on Metals. See ENGRAVING.

The *Graver* conſiſts of four Sides, or Faces; and the Point uſually terminates in a Lozange. The other End is fitted into a Wooden Handle. See STEEL, TEMPER, &c.

Beſide Engravers, the Seal-cutters, Lockſmiths, Gunſmiths, Goldſmiths, Armourers, Spurmakers, *&c.* likewiſe make uſe of *Gravers.*—

GRAVING, the Act, or Art of cutting Lines, Figures, and other Deſigns on Metals; more properly called *Engraving.* See ENGRAVING.

GRAVITATION, the Exerciſe of *Gravity*, or the Preſſure a Body exerts on another Body underneath it by the Power of Gravity. See GRAVITY.

'Tis one of the Laws of Nature, diſcover'd by Sir *Iſaac Newton*, and now received by moſt Philoſophers, that every Particle of Matter in Nature *gravitates* towards every other Particle; which Law is the Hinge whereon the whole *Newtonian* Philoſophy turns. See NEWTONIAN *Philoſophy.*

What we call *Gravitation*, with reſpect to the *Gravitating* Body, is call'd *Attraction* with reſpect to the Body *gravitated* to. See ATTRACTION.

The Planets, both primary and ſecundary, as alſo the Comets, all *gravitate* toward the Sun, and toward each other; and the Sun toward them; and that in proportion to the Quantity of Matter in each. See PLANET, COMET, SUN, EARTH, MOON, &c.

The Peripateticks, *&c.* hold that Bodies only *gravitate* when out of their Natural Places; and that *Gravitation* ceaſes when they are reſtored to the ſame; the Intention of Nature being then fulfill'd. The final Cauſe of this Faculty, they hold, is only to bring Elementary Bodies to their proper Places where they may reſt. But the Moderns ſhew that Bodies exerciſe Gravity even when at reſt, and in their proper Places.

This is particularly ſhewn of Fluids; and it is one of the Laws of Hydroſtaticks, demonſtrated by Mr. *Boyle*, and others, that Fluids gravitate *in proprio loco*, the upper Parts preſſing on the lower, *&c.* See FLUID.

For the Laws of Gravitation *of Bodies in Fluids, ſpecifically lighter or heavier, than themſelves; ſee* SPECIFIC *Gravity.*

GRAVITY, in Phyſicks, the natural Tendency, or Inclination of Bodies towards a Centre. See CENTRE.

In this Senſe *Gravity* coincides with *Centripetal Force.* See CENTRIPETAL *Force.*

Gravity is defined by others, more generally, to be the Natural Tendency of one Body towards another; and by other more generally ſtill, the mutual Tendency of each Body, and each Particle of a Body towards all others: In which Senſe the Word coincides with what we more uſually call *Attraction.* See ATTRACTION.

The Terms *Gravity*, *Centripetal Force*, *Weight*, and *Attraction*, do, in effect, all denote the ſame thing; only in different Views, and Relations: Which different Relations, however, Authors are apt to confound; and accordingly, the four, are frequently uſed promiſcuouſly.

In Propriety, when we conſider a Body as tending towards the Earth, the Force wherewith it tends we call *Gravity*, Force of *Gravity*, or *Gravitating Force*: The ſame Force, when we conſider it as immediately tending to the Centre of the Earth, we call *Centripetal Force*: The ſame, when we conſider the Earth, or Body toward which it tends, we call *Attraction*, or *Attractive* Force; and when we conſider it, in reſpect of an Obſtacle, or a Body in the way of its Tendency, upon which it acts, we call it *Weight.* See WEIGHT, *&c.*

Philoſophers conceive very differently of *Gravity*: Its Nature, Uſe, Phænomena, Cauſe, Effects, and Extent have afforded various Speculations in all Ages.

Some conſider it as an active Property, or innate *Vis* in Bodies, whereby they endeavour to join their Centre. Others hold *Gravity* in this Senſe, to be an occult Quality, and as ſuch to be exploded out of all ſound Philoſophy. See OCCULT *Quality.*

Sir *Iſ. Newton*, tho' he frequently calls it a *Vis*, Power, or Property in Bodies; yet explains himſelf, that all he intends by the Word, is the Effect, or the Phænomenon. He does not conſider the Principle, the Cauſe whereby Bodies tend downwards, but the Tendency itſelf, which is no occult Quality, but a ſenſible Phænomenon, be its Cauſe what it will, whether a Property eſſential to Body, as ſome make it; or ſuperadded to it, as others; or even an Impulſe of ſome Body from without, as others. See NEWTONIAN *Philoſophy.*

'Tis a Law of Nature long obſerv'd, that *all Bodies near the Earth, have a* Gravity, *or Tendency towards the Centre of the Earth*; which Law, the Moderns, and particularly the immortal Sir *Iſ. Newton*, have found, from certain Obſervation, to be much more Extenſive; and to hold univerſally with reſpect to all the known Bodies in Nature. See NATURE.

'Tis now, therefore acknowledg'd a Principle or Law of Nature, that *all Bodies, and all the Particles of all Bodies* gravitate *towards each other, mutually*: From which ſingle Principle, Sir *Iſ. Newton* has happily deduc'd all the great Phænomena of Nature. See NEWTONIAN *Philoſophy.*

Hence *Gravity* may be diſtinguiſh'd into *Particular*, and *General.*

Particular Gravity is that whereby heavy Bodies deſcend towards the Earth. See EARTH.

Phænomena, or Properties of Particular GRAVITY.

1° All Circumterreſtrial Bodies do hereby tend towards a Point which is either accurately, or very nearly the Centre of Magnitude of the terraqueous Globe. See TERRAQUEOUS *Globe.*

2° This Point, or Centre is fix'd within the Earth; or at leaſt hath been ſo ever ſince we have had any authentick Hiſtory:

For a Conſequence of its ſhifting, tho' ever ſo little, would be the overflowing of the low Lands, on that Side of the Globe towards which it approached. Dr. *Halley* ſuggeſts, it would well account for the univerſal Deluge, to have the Centre of Gravitation removed for a Time towards the Middle of the then inhabited World: For the Change of Place but the 2000th Part of the Radius of our Earth would be ſufficient to lay the Tops of the higheſt Hills under Water. See DELUGE.

3° In all Places equi-diſtant from the Centre of the Earth, the Force of *Gravity* is nearly equal.

Indeed all Places of the Earth's Surface are not at equal Diſtances from the Centre; becauſe the Equatorial Parts are ſomething higher than the Polar Parts: The Difference between the Earth's Diameter and Axis being about 34 *Engliſh* Miles, which hath been proved by the Neceſſity of making the Pendulum ſhorter in thoſe Places, before it will ſwing Seconds. See PENDULUM.

4° *Gravity* equally affects all Bodies, without regard either to their Bulk, Figure, or Matter: So that abſtracting from the Reſiſtance of the Medium, the moſt compact and looſe, the greateſt and ſmalleſt Bodies would deſcend equal Spaces in equal Times; as appears from the quick Deſcent of very light Bodies in the exhauſted Receiver. See VACUUM.

Hence, a very great Difference may be obſerved betwixt *Gravity* and Magnetiſm; the latter affecting only Iron, and that towards its Poles; the former, all Bodies alike, in every Part. See MAGNETISM.

Hence, it follows that *Gravity*, in all Bodies, is proportionable to their Quantity of Matter; ſo that all Bodies conſiſt of Matters equally heavy. See BODY, MATTER, *&c.*

Hence alſo may be concluded that there is no ſuch thing as poſitive *Levity*, thoſe Things which appear light, being only comparatively ſo. See LEVITY.

If ſeveral things aſcend, and ſwim in Fluids, it is only becauſe they are not Bulk for Bulk, ſo heavy as thoſe Fluids; Nor is there any Reaſon, why Cork, for inſtance, ſhould be ſaid to be light, becauſe it ſwims on Water, any more than Iron, becauſe it will ſwim on Mercury. See SPECIFIC *Gravity*, &c.

5° This Power increaſes as we deſcend, and decreaſes as we aſcend from the Centre of the Earth, and that in the proportion of the Squares of the Diſtances therefrom reciprocally; ſo as, for inſtance, at a double Diſtance, to have but a Quarter of the Force, *&c.*

6° As all Bodies *gravitate* towards the Earth; ſo, does the Earth equally *gravitate* towards all Bodies, *i. e.* The Action of *Gravity* is mutual on each Side, and equal. See REACTION.

Hence alſo the attractive Powers of Bodies, at equal Diſtances from the Centre, are as the Quantities of Matter in the Bodies.

Hence alſo the attractive Force of the entire Bodies, conſiſts of the attractive Force of the Parts: For by the adding, or taking away any Part of the Matter of a Body, its *Gravity* is increas'd, or diminiſh'd in the Proportion of the Quantity of ſuch Particle to the entire Maſs.—

General, or Univerſal GRAVITY.

The Exiſtence of the ſame Principle of *Gravity* in the great Regions of the Heavens, as well as on Earth, is eaſily proved.

That all Motion is naturally rectilinear, is allow'd by all; thoſe Bodies, therefore, which move in Curves, muſt be retain'd therein by ſome Power continually acting on them. Hence, the Planets being found to revolve in curvilinear Orbits, we infer that there is ſome Power, by whoſe conſtant Influence, they are prevented from flying off in Tangents.

Again

Again, it is proved by Mathematicians, that all Bodies moving in any Curve Line described in a Plane, and which by Radii drawn to any certain Point, describe Areas about the Point proportionable to the Times; are impell'd, or acted on by some Power tending to that Point: Now it is shewn by the Astronomers that the Primary Planets, round the Sun; and the Secundary Planets, round the Primary ones, do describe Areas proportionable to the Times. Consequently, the Power whereby they are retain'd in their Orbits, is directed towards the Bodies placed in the Centres thereof.

Lastly, it is demonstrated, that if several Bodies revolve with an equable Motion in Concentrical Circles, and the Squares of their Periodical Times be as the Cubes of the Distances from the Common Centre; the Centripetal Forces of the revolving Bodies, will be reciprocally as the Squares of the Distances. Or, if Bodies revolve in Orbits approaching to Circles, and the Apsides of those Orbits be at rest; the Centripetal Forces of the revolving Bodies, will be reciprocally as the Squares of the Distances.

Now, the Astronomers all agree, that both these Cases obtain in all the Planets: Whence it follows, that the Centripetal Powers of all the Planets are reciprocally as the Squares of the Distances from the Centres of the Orbits.

Upon the whole, it appears, that the Planets are retain'd in their Orbits by some Power which is continually acting on them: That this Power is directed toward the Centre of their Orbits: That the Intension, or Efficacy of this Power increases upon an Approach toward the Centre, and diminishes at its Recess from the same; and that it increases in the same Proportion as the Distance diminishes; and diminishes in the same as the Distance increases—Now, by comparing this Centripetal Force of the Planets, with the Force of *Gravity* on Earth, they will be found perfectly alike.

This we shall illustrate in the Case of the Moon, the nearest to us of all the Planets—The Rectilinear Spaces describ'd in any given Time by a falling Body urged by any Powers, reckoning from the Beginning of its Descent, are proportionable to those Powers. Consequently, the Centripetal Force of the Moon revolving in its Orbit, will be to the Force of *Gravity* on the Surface of the Earth; as the Space which the Moon would describe in falling, any little Time, by her Centripetal Force towards the Earth, had she no circular Motion at all, to the Space, a Body near the Earth would describe in falling by its *Gravity* towards the same.

Now, by an actual Calculus of those two Spaces, it appears, that the first of them is to the second, *i. e.* the Centripetal Force of the Moon revolving in her Orbit, is to the Force of *Gravity* on the Surface of the Earth, as the Square of the Earth's Semidiameter, to the Square of the Semidiameter of her Orbit: Which is the same Ratio, as that of the Moon's Centripetal Force in her Orbit, to the same Force near the Surface of the Earth.

The Moon's Centripetal Force, therefore, is equal to the Force of *Gravity*. These Forces, consequently, are not different, but one and the same: For, were they different, Bodies acted on by the two Powers conjointly, would fall towards the Earth, with a Velocity double to that arising from the sole Power of *Gravity*.

It is evident, therefore, that the Moon's Centripetal Force, whereby she is retain'd in her Orbit, and prevented from running off in Tangents; is the very Power of *Gravity* of the Earth, extended thither.

The Moon, therefore, gravitates towards the Earth; and the Earth reciprocally towards the Moon: which is further confirm'd by the Phænomena of the Tides. See TIDES.

The like Reasoning might be applied to the other Planets—For, as the Revolutions of the Primary Planets round the Sun, and those of the Satellites of Jupiter and Saturn round their Primaries, are Phænomena of the same Kind as the Revolution of the Moon round the Earth; as the Centripetal Powers of the Primary are directed towards the Centre of the Sun; and those of the Satellites, towards the Centre of their Primaries; and lastly, as all these Powers are reciprocally as the Squares of the Distances from the Centres: it may safely be concluded that the Power and Cause is the same in all.

Therefore, as the Moon gravitates towards the Earth, and the Earth towards the Moon; so do all the Secundaries to their Primary ones; the Primary to their Secundary ones; so, also, the Primary ones to the Sun, and the Sun to the Primary ones. See PLANET, COMET, SYSTEM, &c.

Phænomena, or Properties of Universal GRAVITY.

1. *All the several Particles of all Bodies in Nature gravitate to all the Particles of all other Bodies.*

To what has been urged in Proof hereof, from the Analogy between the Motions of the several Bodies in our System; it may be added, that *Saturn* is actually observed by Astronomers to change its Course when nearest to *Jupiter*; and *Jupiter*, also, is found to disturb the Motion of the Satellites of *Saturn*. So that the Gravitation of those Bodies is Matter of actual Observation. See JUPITER, SATURN, and SATELLITES; see also DISTURBING *Force*.

2. *The Quantity of this* Gravity *at equal Distances, is always proportional to the Quantity of Matter in the gravitating Bodies.*

For, the Powers of *Gravity*, are as the Quantities of Motion they generate; which Quantities, in unequal Bodies, equally swift, are to each other as the Quantities of Matter. Consequently, since unequal Bodies, which are equally swift, are to each other as the Quantities of Matter; therefore, in regard unequal Bodies at the same Distance from the attracting Body are found to move equally swift, by *Gravity*: It is evident, the Forces of *Gravity* are proportionable to the Quantities of Matter.

3. *The Proportion of the Increase, or Decrease of* Gravity *in the Approach, or Removal of Bodies from each other, is this; that the Force is reciprocally in a Duplicate Ratio*; i. e. *As the Squares of the Distances.*

Thus, suppose a Body of an hundred Pounds, at the Distance of ten Diameters from the Earth; the same Body, if its Distance were but half so great, would have quadruple the Weight: If its Distance were but one third of the former, its Weight would be nine times as great, &c.

Hence, we gather the following Corollaries. 1° That at equal Distances from the Centre of Homogeneal Bodies, the *Gravity* is directly as the Quantity of Matter, and inversely as the Square of the Diameter. 2° That on the Surfaces of equal, spherical, and homogeneous Bodies, the *Gravities* are as the Densities. 3° That on the Surfaces of spherical, homogeneous, equally dense, but unequal Bodies, the *Gravities* are inversely as the Squares of the Diameters. 4° That if both the Densities and Diameters differ, the *Gravities* on the Surfaces will be in a Ratio compounded of the Densities, and the Diameters. Lastly, that a Body placed any where, within a hollow Sphere, which is homogeneous, and every where of the same Thickness, will have no *Gravity*, wheresoever it be placed; the opposite *Gravities* always precisely destroying each other.

For the Particular Laws of the Descent of Bodies, by the Force of Gravity, *see* DESCENT *of Bodies*; and CENTRIPETAL *Force*.

Cause of GRAVITY.

We have vatious Theories advanced by the Philosophers of various Ages to account for this Grand Principle of *Gravitation*. The antients, who were only acquainted with particular *Gravity*, or the Tendency of sublunar Bodies towards the Earth, aim'd no further than at a System which should answer the more obvious Phænomena of the same: But the Moderns, as their Principle is higher and more extensive, so should their Theory be.

Aristotle, and the Peripateticks, content themselves to refer Gravity or Weight to a native Inclination in heavy Bodies to be in their proper Place or Sphere, the Centre of the Earth. See SPHERE and ELEMENT.

Copernicus ascribes it to an innate Principle in all Parts of Matter, whereby when separated from their Wholes, they endeavour to return to them again, the nearest way.

But neither of these Systems assigns any Physical Cause of this great Effect: They only amount to this, that Bodies descend, because they descend.—

Gassendus, *Kepler*, *Gilbert*, and others ascribe *Gravity* to a certain Magnetic Attraction of the Earth.

These Authors conceive the Earth to be one great Magnet continually emitting Effluvia, which lay hold on all Bodies, and draw them toward the Earth.—But this, we have observ'd, is inconsistent with the Phænomena. See MAGNETISM.

Des Cartes, and his Followers, *Rohault*, &c. attribute *Gravity* to an external Impulse, or Trusion of some subtle Matter. See CARTESIANISM.

By the Rotation of the Earth, say they, all the Parts and Appendages thereof necessarily endeavour to recede from the Centre of Rotation: But they cannot, all, actually recede, as there is no Vacuum or Space to receive them.

If now, we suppose the Earth A B C D, *Tab. Mechanicks, Fig.* 8. and L a Terrestrial Body placed in the Pyramidal Space, A E B: It follows, that the Matter in this Pyramid, will have so much less Endeavour to recede from the Centre, as the Body L has a less Endeavour than the fluid Matter whose Place it possesses. Hence it will follow, that the Matter of the adjacent Pyramids receding with more Force; that in the Pyramid A E B, and particularly the Body L will be thereby driven toward the Centre; for the same Reasons, as Cork, tho' a heavy Body, ascends in Water.

This Hypothesis, tho' ingenious enough, yet, as it is founded on the Supposition of a Plenum, it is overthrown by what we shall prove of the Existence of a VACUUM.

Dr. *Hook* inclines to an Opinion much like that of *Des Cartes*: *Gravity*, he thinks, deducible from the Action of a most subtle Medium, which easily pervades, and penetrates the most solid Bodies; and which by some Motion it has, detrudes all earthly Bodies from it, toward the Centre of the Earth.

Vossius, and many others give partly into the *Cartesian* Notion, and suppose *Gravity* to arise from the Diurnal Rotation of the Earth round its Axis.

Dr. *Halley*, despairing of any satisfactory Theory, chuses to have immediate Recourse to the Agency of the Almighty.

So, Dr. *Clark*, from a View of several Properties of *Gravity*, concludes, that it is no adventitious Effect of any Motion, or subtle Matter, but an Original, and General Law impress'd by the Almighty on all Matter, and preserv'd therein by some efficient Power penetrating the very solid, and intimate Substance thereof; as being found always proportionable, not to the Surfaces of Bodies or Corpuscles, but to their solid Quantity and Contents.

It should, therefore, says he, be no more enquired, why Bodies gravitate, than how they came to be first put in Motion.—*Annot. in* Rohaulti *Phys.* P. *c.* 28.

Dr. *S. Gravesande*, in his *Introduct. ad Philosoph. Newton.* contends, that the Cause of Gravity is utterly unknown; and that we are to look on it no otherwise than as a Law of Nature, originally and immediately impressed by the Creator, without any Dependance on any second Law or Cause at all. Of this he thinks, the three following Considerations, sufficient Proof.

1st. That *Gravity* requires the Presence of the gravitating or attracting Body: So the Satellites of *Jupiter*, *e. gr.* gravitate towards *Jupiter* wherever he be.

2d. That the Distance being supposed the same, the Velocity wherewith Bodies are moved, by the Force of *Gravity*, depends on the Quantity of Matter in the attracting Body: And that the Velocity is not changed, let the Mass of the gravitating Body be what it will.

Lastly, That if *Gravity* do depend on any known Law of Motion, it must be some Impulse from an Extraneous Body; whence, as *Gravity* is continual, a continual Stroke wou'd be required.

Now, if there be any such Matter continually striking on Bodies, it must be fluid, and subtle enough to penetrate the Substance of all Bodies: But how shall a Body subtle enough to penetrate the Substance of the hardest Bodies, and so rare as not sensibly to hinder the Motion of Bodies, be able to impel vast Bodies towards each other with such Force? How does this Force increase in a Ratio of the Mass of the Body toward which the other Body is moved? whence is it that all Bodies, supposing the same Distance, and the same Body gravitated to, move with the same Velocity? Can a Fluid, which only acts on the Surface, either of the Bodies themselves, or of their internal Particles, communicate such a Quantity of Motion to Bodies, which in all Bodies shall exactly follow the proportion of the Quantity of Matter in them?

Mr. *Cotes*, goes yet further; giving a View of Sir *Is. Newton*'s Philosophy, he asserts that *Gravity* is to be rank'd among the primary Qualities of all Bodies; and deem'd as essential to Matter, as Extension, Mobility, or Impenetrability. *Præfat. ad Newton. Princip.*

But this Author seems to have overshot the Mark. His great Master, Sir *I. Newton* himself, disclaims the Notion; and to shew that he does not take *Gravity* to be essential to Bodies, gives us his Opinion about the Cause; chusing to propose it by way of Query, as not being yet sufficiently satisfied about it by Experiments.

This Query we shall subjoin at large—After having shewn that there is a Medium in Nature vastly more subtle than Air, by whose Vibrations Light communicates Heat to Bodies, and is itself put into alternate Fits of easy Reflexion and easy Transmission, and Sound propagated; and by the different Densities whereof the Refraction and Reflexion of Light is perform'd. See MEDIUM, HEAT, REFRACTION, &c. He proceeds to enquire,

'Is not this Medium much rarer within the dense Bodies 'of the Sun, Stars, Planets, and Comets, than in the empty 'celestial Spaces between them? And in passing from them 'to great Distances, doth it not grow denser and denser perpetually, and thereby cause the *Gravity* of those great Bodies towards one another, and of their Parts towards the 'Bodies; every Body endeavouring to go from the denser 'Parts of the Medium towards the rarer?

'For if this Medium be supposed rarer within the Sun's 'Body than at its Surface, and rarer there than at the hundreth Part of an Inch from its Body, and rarer there than at the fiftieth Part of an Inch from its Body, and rarer 'there than at the Orb of Saturn; I see no Reason why 'the Increase of Density should stop any where, and not 'rather be continued thro' all Distances from the Sun to Saturn, and beyond.

'And tho' this Increase of Density may at great Distances 'be exceeding slow, yet if the Elastic Force of this Medium be exceeding great, it may suffice to impel Bodies 'from the denser Parts of the Medium towards the rarer 'with all that Power which we call *Gravity*.

'And that the Elastick Force of this Medium is exceeding great, may be gather'd from the Swiftness of its Vibrations. Sounds move about 1140 *English* Feet in a second 'Minute of Time, and in seven or eight Minutes of Time 'they move about one hundred *English* Miles: Light 'moves from the Sun to us in about seven, or eight Minutes 'of Time, which Distance is about 70000000 *English* Miles, 'supposing the Horizontal Parallax of the Sun to be about 12; and the Vibrations or Pulses of this Medium, that they 'may cause the alternate Fits of easy Transmission, and easy 'Reflection, must be swifter than Light, and by consequence, 'above 700000 swifter than Sounds; and therefore the Elastick Force of this Medium, in Proportion to its Density, must 'be above 700000 × 700000 (that is above 490000000000) 'times greater than the Elastick Force of the Air, is in Proportion to its Density: For the Velocities of the Pulses of 'Elastick Mediums, are in a subduplicate Ratio of the Elasticities and the Rarities of the Mediums taken together.

'As Magnetism is stronger in small Loadstones than in 'great ones, in proportion to their Bulk; and Gravity is 'stronger in the Surface of small Planets, than in those of 'great ones, in proportion to their Bulk; and small Bodies 'are agitated much more by Electric Attraction, than great 'ones: So the Smallness of the Rays of Light, may contribute very much to the Power of the Agent by which they 'are refracted, And if any one should suppose that Æther (like our Air) may contain Particles which endeavour to 'recede from one another (for I do not know what this Æther 'is) and that its Particles are exceedingly smaller than those 'of Air, or even than those of Light; the exceeding Smallness of such Particles may contribute to the Greatness of 'the Force by which they recede from one another, 'and thereby make that Medium exceedingly more 'rare and elastick than Air, and of consequence exceedingly less able to resist the Motions of Projectiles, and exceedingly more able to press upon gross Bodies, by endeavouring to expend it self. *Opticks*, p. 325, *&c.* See LIGHT, ELASTICITY, *&c.*

GRAVITY in *Mechanicks*, is the Conatus, or Tendency of Bodies toward the Centre of the Earth. See CENTRE.

That part of Mechanicks which considers the Motion of Bodies arising from *Gravity*, is peculiarly called *Staticks*. See STATICKS.

GRAVITY is distinguish'd into *Absolute* and *Relative*.

Absolute GRAVITY, is that wherewith a Body descends freely thro' another resisting Medium. See RESISTANCE.

The Laws of Absolute GRAVITY, see under the Article DESCENT *of Bodies*.

Relative GRAVITY, is that wherewith a Body descends after having spent part of its Weight in overcoming some Resistance. See RESISTANCE.

Such is that wherewith a Body descends along an inclined Plane, where some part is employed in overcoming the Resistance, or Friction of the Plane. See FRICTION.

The Laws of Relative GRAVITY; see under the Article *Inclined* PLANE.

Centre of GRAVITY, *Diameter of* GRAVITY, *Plane of* GRAVITY, } See { CENTRE *of Gravity*, DIAMETER *of Gravity*, PLANE *of Gravity*.

GRAVITY in *Hydrostaticks*—the Laws of Bodies *gravitating* in Fluids, make the Business of Hydrostaticks. See HYDROSTATICKS.

GRAVITY is here divided into *Absolute* and *Specific*.

Absolute or *true* GRAVITY, is the whole Force wherewith the Body tends downward. See GRAVITATION.

Specific GRAVITY, call'd also *Relative*, *Comparative*, and *Apparent* GRAVITY, is the Excess of Gravity in any Body, above that of an equal Quantity or Bulk of another.

For the Laws of Specific GRAVITY: with the Methods of determining it both in Solids and Fluids. See SPECIFIC *Gravity*, and HYDROSTATICAL *Balance*.

GRAVITY *of the Air*. See WEIGHT *of the Air*. See also AIR and PRESSURE.

GRAVITY, in *Music*, an Affection of Sound, whereby it becomes denominated *grave*, *low*, or *flat*. See SOUND.

Gravity stands in Opposition to *Acuteness*, which is that Affection of Sound, whereby it is denominated *Acute*, Sharp, or high. See ACUTENESS.

The Relation of *Gravity*, and Acuteness, is the principal thing concerned in Music; the Distinctness, and Determinateness of which Relation, gives Sound the Denomination of *Harmonical*, or *Musical*. See MUSIC and HARMONY.

The

The Degrees of *Gravity*, &c. depend on the Nature of the Sonorous Body itself, and the particular Figure and Quantity thereof: Tho, in some Cases, they likewise depend on the Part of the Body where it is struck. Thus, *e. gr.* the Sounds of two Bells of different Metals, and the same Shape and Dimensions, being struck in the same Place, will differ as to Acuteness and *Gravity*; and two Bells of the same Metal will differ in Acuteness, if they differ in Shape or Magnitude, or be struck in different Parts. See Bell.

So in Chords, all other things being equal, if they differ either in Matter, or Dimensions, or Tension; they will also differ in *Gravity*. See Chord.

Thus again, the Sound of a Piece of Gold is much graver than that of a Piece of Silver of the same Shape and Dimensions; and in this Case, the Tones are, *cæteris paribus*, proportional to the Specific Gravities; so a solid Sphere of Brass, two Foot diameter, will sound graver than another of one Foot diameter; and here the Tones are proportional to the Quantities of Matter, or the Absolute Weights.

But it must be observed, that Acuteness and *Gravity*, as also Loudness and Lowness, are but relative Things. We commonly call a Sound *acute* and loud, in respect to another which is *grave*, or low with respect to the former: So that the same Sound may be both *grave* and acute, and also loud and low, in different Comparisons.

The Degrees of Acuteness, and *Gravity*, make the different *Tones*, or *Tunes* of a Voice, or Sound: So we say one Sound is in Tune with another, when they are in the same Degree of *Gravity*. See Tune.

The immediate Cause, or Means of this Diversity of Tone lies deep. The modern Musicians fix it on the different Velocity of the Vibrations of the Sonorous Body: In which Sense *Gravity* may be defined, a relative Property of Sound, which, with respect to some other, is the Effect of a lesser Number of Vibrations accomplish'd in the same Time, or of Vibrations of a longer Duration: In which Sense also, Acuteness is the Effect of a greater Number of Vibrations, or Vibrations of a shorter Duration.

If two, or more Sounds be compared in the Relation of *Gravity*, &c. they are either *Equal*, or *Unequal*, in the Degree of Tune.

Such as are equal, are call'd *Unisons*. See Unison.

The Unequal including, as it were, at a Distance between each other, constitute which we call an *Interval* in Music, which is properly the Difference in Point of *Gravity*, between the two Sounds. See Interval.

Upon this Unequality, or Difference, does the whole Effect depend; and in respect hereof, these Intervals are divided into *Concords* and *Discords*. See Concord and Discord. See also Scale.

GRAVY, in Cookery, &c. the Juice of Flesh or Fish, obtained therefrom by Coction, Elexation, Frixion, or the like. See Juice.

The procuring of *Gravies* is no inconsiderable part of Cookery, inasmuch as these are required to heighten the *Gusto*, and Relish of most Dishes. There are divers Processes of *Beef Gravy*; one of the shortest and simplest, is to cut a Pound or two of lean Beef-Stakes into Slices, beat 'em well, fry them till brown, and then add a Pint of strong Broth, and an Onion; letting the whole boil a little, and then straining it for Use.

To make *Mutton Gravy*, they roast a Shoulder of Mutton a little more than half, cut it with a Knife, squeeze out the *Gravy* with a Press; then moisten the Meat again with Broth, and press it a second time: Add a little Salt, and keep it for Use.

Veal Gravy is chiefly had by cutting Stakes off a Fielet, beating them, and stewing them with sliced Onions, Carrots, and Parsnips; and at last adding strong Broth, Parsley, &c. letting them stew afresh, and straining them for Use.

To make *Fish Gravy*, Carps and Tenches are slit lengthways, and stewed with Butter, Onions, Carrots, &c. till brown; then a little Flower put in, and stew'd till brown. Lastly, Some Fish-Broth is strained in thro' a Cloth, and the whole season'd with Salt, Lemon, Cloves, and savoury Herbs.

GRAY, a mix'd Colour, partaking of the two Extremes Black and White. See Black, White, &c.

In the Manage they make several Sorts of *Grays*, as the *Branded* or blacken'd *Gray*, which has Spots quite black, dispersed here and there. The *dappled Gray*, which has Spots of a darker Colour than the rest of the Body. The *light* or *silver Gray*, wherein there is but a small Mixture of black Hairs. The *sad* or *powder'd Gray*, which has but a small Mixture of white: And the *brownish* or *sandy-colour'd Gray*, where there are *bay-colour'd* Hairs mix'd with the Black. See Horse.

GREASE. See Fat.

Grease, among Farriers, &c. a Swelling and Gourdiness of the Legs of a Horse, generally happening after a Journey.

If the *Grease* be an Attendant of some other Disease, it will be in vain to attempt the Cure before the Disease be removed that is the original Cause of it: And therefore, if it be a Hectick, the Yellows, or the Farcin, &c. the Directions given for those Diseases are to be followed, and in the mean Time proper Applications to be used outwardly for the *Grease*.

If the *Grease* proceeds from common and ordinary Accidents, and the Horse has no other Distemper upon him; then, Applications that are peculiar to that Distemper are to be followed: If the Horse has been well fed and pampered, begin the Cure with Bleeding and Purging, so as to diminish the Redundance of the Humours; but these ought to be used with Moderation, and it may be better to effect it with spare Diet and daily Labour.

After moderate Evacuations, it may be proper to make a Rowel on the Inside of the Thigh, or on the Belly; and to keep it open for a Month, or longer, as there shall be occasion; and in the mean time to give the Horse the Cinnabar or Antimonial Balls. See Rowel.

GREAT, a Term of Comparison, denoting a thing to have more Extension than some other to which it is refer'd. See Comparison.

Thus we say a *great* Space: A *great* Distance: A *great* Figure, a *great* Body, &c. See Grand.

The Term is likewise used figuratively, and in Matters of Morality, &c. to signify Ample, Noble, Elevated, Extraordinary, Important, &c.

Thus we say, *Shakespear* was a *great* Genius: Queen *Elizabeth* had a *great* Soul: *Cromwell* was a Man of *great* Designs: *Da Vinci*, a *great* Painter: *Galileo* a *great* Philosopher: *Bossu* a *great* Critick, &c.

Great is also a Title or Quality affected to certain Princes, and other illustrious Personages. See Title and Quality.

Thus we say the *great* Turk: The *great* Mogul: The *great* Cham of *Tartary*: The *great* Duke of *Florence*, &c. See Mogul, Cham, &c.

Great is also a Surname bestowed on several Kings and Emperors. See Surname.

Thus we say *Alexander the Great*: *Cyrus* the *Great*: *Charles* the *Great*, or *Charlemaign*: *Henry* the *Great* of *France*, &c. So the *English* frequently say, *Edward* the *Great*, or the *Great Edward*; *William* the *Great*, meaning King *William* III. or the *Great William*. And the *French*, *Louis the Great*, *le Grand*, speaking of the late *Louis* XIV.

Gyles of *Paris*, says *Charlemaigne* first got the Surname *Great* from the Tallness and Eminence of his Stature. *Helgan* adds that *Hugue*, *Hugh* the *Great* of *France* was thus denominated on account of his great Piety, Goodness, &c.

Great is also applied to several Officers, who have Preeminence over others. See Grand.

Thus we say, the Lord *Great* Chamberlain: The *Great* Marshal of *Poland*, &c. See Chamberlain, &c.

Great *Circles* of the Sphere, are particularly such as divide the Sphere into two equal Parts or Hemispheres; or whose Planes pass thro' the Centre of the Sphere: in Contradistinction from the *lesser* Circles, which cut the Sphere into unequal Parts, &c. See Circle, Sphere, Circle, Lesser, &c.

The Equator, Meridian, Ecliptic, Vertical, &c. are *great* or *greater Circles* of the Sphere; and the Parallels, Tropicks, &c. lesser Circles. See Equator, Meridian, &c.

Great *Tithes*,	see	Tith,
Great *Gun*,		Canon,
Great *Letters*,		Capital,
Great *Bear*,		Ursa *major*.

GREE, in our Law-Books, from the *French Gre*; i. e. *Will*, *Allowance*, or *liking*; signifies Agreement, Contentment, or Good-liking.— Thus to make *Gree* to the Parties, is to satisfy them for an Offence done. 'Judge-'ment shall be put in Suspence, till the *Gree* be made to 'the King of his Debt, *Stat.* 25. *Edw.* 3. See Agreement.

GREEK, Grecian, something belonging to the People of *Greece*.

Greek, absolutely so called, or Greek *Language*, or *antient* Greek, is the Language spoke by the antient *Greeks*, and still preserv'd in the Works of their Authors, as *Plato*, *Aristotle*, *Isocrates*, *Demosthenes*, *Thucydides*, *Xenophon*, *Homer*, *Hesiod*, *Sophocles*, *Euripides*, &c. See Language.

The *Greek* has been preserved entire longer than any other Language known, maugre all the Revolutions that have happened in the Country where it was spoke. See English.

Yet, from the Time of the Removal of the Seat of Empire to *Constantinople*, in the 15th Century, it has been gradually altering: The Alterations at first did not affect the Analogy of the Tongue, the Construction, Inflexions, &c. There were only new Words, new Riches acquired, by taking in the Names of new Dignities and Offices, and the Terms of

Art it was before unacquainted with: But, at length, the Incursions of the Barbarians, and especially the Invasion of the *Turks*, wrought much more considerable Alterations. See *Modern* GREEK.

The *Greek* has a great Copia or Stock of Words: Its Inflexions are as remarkable for their Variety, as those of most of the other European Tongues, for their Simplicity. See INFLEXION.

It has three Numbers, Singular, Dual, and Plural. See NUMBERS; and abundance of Tenses in its Verbs, which makes a Variety in Discourse, prevents a certain Drineſs which always accompanies a too great Uniformity, and renders the Language peculiarly fit for all Kinds of Verse. See TENSE, &c.

The Use of the Participles of the Aoristus, and Preterit, together with the compound Words, wherein it abounds; give it a peculiar Force and Brevity, without taking any thing from its Perspicuity.

The proper Names, in the *Greek* Language, are significative, as in the Oriental, as well as in most of the modern Languages, where the Learned still find some, tho' remote, Character of their Origin. See NAME.

The *Greek* was the Language of a polite People, who had a Taste for Arts and Sciences, which they cultivated with Success. In the living Tongues, are still preserved a vast Number of *Greek* Terms of Arts: Some descended to us from the *Greeks*, and others form'd a-new. When a new Invention, Machine, Rite, Order, Instrument, &c. has been discovered, Recourse has commonly been had to the *Greek* for a Name; The Facility wherewith Words are there compounded, readily affording us Names expressive of the Use, Effect, &c. of such Instruments. Hence *Areometer*, *Thermometer*, *Barometer*, *Micrometer*, *Logarithm*, *Telescope*, *Microscope*, *Loxodromy*, &c.

Modern or *Vulgar* GREEK, is the Language now spoke in *Greece*.

There have been few Books writ in this Language, from the taking of *Constantinople* by the *Turks*; scarce any thing but some Catechisms, and the like Pieces, composed or translated into the Vulgar *Greek*, by the *Latin* Missionaries.

The native *Greeks* are contented to speak the Language without cultivating it. The Misery they are reduced to under the Dominion of the *Turks*, renders them ignorant, of necessity; the Turkish Politicks not allowing any of the Subjects of their Estates, to apply themselves to the Arts and Sciences.

Whether it be out of a Principle of Religion, or Politicks, or Barbarism, they have industriously destroy'd all the Monuments of antient *Rome*; despising the Study of a Language which might have render'd them polite, their Empire happy and flourishing, and have made the People forget their former Masters, and their antient Liberty.

In this, widely different from the *Romans*, those antient Conquerors of *Greece*, who after they had subdued the Country, applied themselves to learn the Language; in order to imbibe their Politeness, Delicacy, and Taste for Arts and Sciences.

'Tis not easy to assign the precise Difference between the vulgar, and the antient *Greek*: It consists in the Terminations of Nouns, Pronouns, Verbs, and other Parts of Speech, which make a Difference between those two Languages much like that observed between some of the Dialects of the *Italian* or *Spanish*: We instance in those Languages, as being the most known, but we ought to have said the same of the *Hebrew*, *Sclavonic*, &c. Dialects.

Beside, the modern *Greeks* have divers new Words not in the antient; particularly several Particles which appear as Expletives, and which were introduced to characterize certain Tenses of Verbs, and certain Dictions, which would have the same Meaning without such Particles, had Custom dispensed with them; Divers Names of Dignities and Offices, unknown to the antient *Greeks*; and abundance of Words borrowed from the vulgar Tongues of the neighbouring Nations.

Accordingly, one may distinguish three Ages of the *Greek* Tongue: The first ends at the Time when *Constantinople* became the Capital of the *Roman* Empire; Not but there were several Books, especially of the Fathers of the Church, wrote with great Purity after that Time; but, as Religion, Law, and Policy, both civil and military, began then to introduce new Words into the Language, it seems necessary to begin the second Age of the *Greek* Tongue from that Epocha; which lasted to the taking of *Constantinople* by the *Turks*, where the last Age commences.

GREEK *Wine*. See WINE.

GREEK *Orders* in Architecture, are the *Doric*, *Ionic*, and *Corinthian*; in Contra-distinction to the two Latin Orders, the *Tuscan* and *Composite*. See ORDER; see also DORIC, IONIC, and CORINTHIAN.

GREEK *Rite*, or RITUAL, is distinguished from the Latin. See RITE and RITUAL.

GREEK *Church*, is that part of the Christian Church which is established in *Greece*; extending likewise to some other Parts of *Turky*. See CHURCH.

It is thus called in *Europe*, *Asia*, and *Africa*, in Contradistinction from the *Latin*, or *Romish* Church; as also the *Eastern* Church, in Distinction from the *Western*. See LATIN.

The Romanists call the *Greek Church*, the *Greek Schism*, because the *Greeks* don't allow the Authority of the Pope, but depend wholly, as to Matters of Religion, on their own Patriarchs. They have treated them as Schismaticks, ever since the Revolt, as they call it, of the Patriarch *Photius*. See PATRIARCH.

The Learned are divided as to the peculiar Doctrines and Sentiments of the *Greek* Church. 'Tis certain many Errors are usually charged on them, which they are free of. The Point has been warmly contested between *Caucus* Archbishop of *Corfu*, and the Sieur *de Moni*, on the one Side; and *Lucas Holstius*, and *Leo Allatius*, a *Greek*, on the other; the two first accusing, the last excusing them. *Caucus*, &c. will have them agree with the Protestants, in rejecting abundance of the Rules and Observances establish'd in the *Romish* Church; while *Allatius*, &c. endeavours to find the same Observances among the *Greeks*, as among the *Latins*, only under other Forms, and with other Circumstances.

Of the Seven Latin Sacraments, says *Caucus*, the *Greeks* only admit five: Confirmation and Extreme Unction, they set aside. *Allatius*, on the contrary, insists, that they don't properly set them aside, but only differ as to the manner of administring them. Instead of confirming long after Baptism, they always join Baptism and Confirmation together: Beside that Confirmation, among them, is confer'd by the ordinary Priests. The like Error is charged on *Caucus*, with regard to Extreme Unction. See SACRAMENT and EXTREME UNCTION.

But it is to be here added, that from the Answer of *Jeremy*, Patriarch of *Constantinople*, to the Divines of *Wirtembergh*, it appears, that the *Greeks*, like the Reformed, do really own no more than two Sacraments instituted by Christ, *viz.* Baptism and the Eucharist. See EUCHARIST, &c.

The *Greeks*, says the same *Caucus*, offer no Worship to the Eucharist: *Allatius* replies, it is true, they don't adore it, as the Romanists do, immediately after the speaking those Words, *This is my Body*: Yet do they really adore it after the Words wherein Consecration consists, *viz.* after the Prayer call'd *The Invocation of the Holy Spirit*. See ADORATION.

As to Confession, *Caucus* is certainly in the right, that they don't hold it of divine Appointment, but only of positive, or ecclesiastical Right; which they likewise affirm of all the other Sacraments, except the two above-mentioned: yet have they the Use of Auricular Confession. See CONFESSION.

As to Marriage, *Caucus* is just to them, in saying, that they do not esteem it an indissoluble Band; they maintain with great Zeal, the Necessity and Validity of Divorce. See DIVORCE.

As to the Primacy of the Pope, *Caucus* does them Justice in saying they deny it. 'Tis certain the *Greeks*, *Melchites*, and other Orientals, do not allow the Primacy of the Pope over the other Patriarchs, in the Sense it is allowed of among the *Latins*. See POPE, PRIMACY, &c.

Nor do they allow of more than Seven General Councils. All those held by the *Latins* since *Photius*, they set aside. See COUNCIL.

GREEK *Grammar*, GREEK *Testament*, GREEK *Lexicon*, } see { GRAMMAR, BIBLE, LEXICON, &c.

GREEN, one of the original Colours of the Rays of Light. See COLOUR, RAY, and LIGHT.

If Urine, Citron-Juice, or Spirit of Vitriol, be cast on a *green* Ribbon, it becomes blew; by reason the yellow of the Greening-wide is thereby exhaled and consumed; so that nothing but blue remains behind. See BLUE, &c.

Grass and Herbs, and even all Vegetables in Places exposed to the open Air, are *Green*; and those in subterraneous Places, or Places inaccessible to the Air, White and Yellow. Thus when Wheat, or the like, germinates under Ground, 'tis White or Yellow; and what is in the open Air, *Green*: Tho' this too is Yellow before it be *Green*.

Artificial Greens are rarely simple Colours, but produced by the Mixture of Yellow and Blue. See BLUE and YELLOW.

Two Powders, the one Blue, and the other Yellow, well mixed, appear perfectly *Green*; tho' when viewed with a Microscope, we observe a Chequer of Blue and Yellow.

The Dyers make divers Shades, or Casts of *Green*, as *Light-Green*, *Yellow-Green*, *Grass-Green*, *Laurel-Green*, *Sea-Green*, *Dark-Green*, *Parrot-Green*, and *Celadon-Green*.

All the *Greens* are first dy'd in Blue, then taken down with Woad, Verdigreese, &c. and then *green'd* with the Weed, there

here being no one Ingredient that will give *Green* alone.

Mountain-*Green*, or *Hungary-Green*, is a sort of *greenish* Powder found in little Grains, like Sand, among the Mountains of *Kernausent* in *Hungary*, and those of *Moldavia*.

Tho' some hold that this Mountain-*Green* is factitious, and the same with what the Ancients called *Flos Æris*, prepared by casting Water, or rather Wine, on Copper red-hot from the Furnace, and catching the Fumes thereof on Copper-Plates laid over for the Purpose; or by dissolving Copper-Plates in Wine, much as in making Verdegrease. The Painters make use of this Colour for a *Grass-Green*. It is sometimes counterfeited, by grinding Verdegrease with Ceruse.

Earth GREEN. See VERDITER.

Calcined GREEN, and *Distilled* GREEN. See VERDEGREASE.

GREEN *Copperas*. See COPPERAS.

GREEN *Fish*. See FISH.

GREEN *Glass*. See GLASS.

GREEN *Cap*. See CAP.

GREEN *Hide*, is that not yet curried, but such as taken off from the Carcase. See HIDE, LEATHER, and CURRYING.

GREEN *Cloth*, a Board, or Court, of Justice, held in the Compting-House of the King's Houshold, for the taking Cognizance of all Matters of Government and Justice within the King's Court Royal; and for correcting all the Servants therein, that shall any way offend. See HOUSHOLD, and COMPTING-HOUSE.

To this Court also belongs the Authority of maintaining the Peace for twelve Miles round the King's Court, wherever it shall be, excepting at *London*. See PEACE and PAX.

The Judge of this Court, is the Lord Steward, assisted by the Treasurer, Comptroller, Cofferer, Clerks of the *Green-Cloth*, &c. See STEWARD; see also VERGE.

It takes its Name *Green-Cloth*, from a *Green-Cloth* spread over the Board where they sit, whereon are the Arms of the Compting-House.

Clerks of the GREEN-*Cloth*, are two Officers of the Board of *Green-Cloth*, who attend there, and have Business assign'd them by the Board. All Bills of Comptrolments relating to the Office, are sum'd up, and allowed by the Clerks Comptrollers, and audited by the Clerks of the *Green-Cloth*.

They also appoint the King's, Queen's, and Houshold's Diet, keep all Records, Leigers, and Papers relating thereto; make up Bills, Parcels, and Debentures for Salaries, &c. And Provisions and Necessaries for the Offices of the Pantry, Buttery, Cellar, &c.

GREEN-*House*, or *Conservatory*; a House, or Building, in a Garden; contrived for preserving of the more tender and curious Exotic Plants, which will not bear the Winter's Cold abroad in our Climate. See EXOTIC.

Green-Houses, as now built, serve not only as *Conservatories*, but likewise as Ornaments of Gardens; being usually large and beautiful Structures, in Form of Galleries, wherein the Plants are handsomely ranged in Cases for the purpose. See GARDEN.

The *Green-House*, Mr. *Mortimer* directs to be open to the South, or very little declining therefrom: The Heighth and Breadth to be about 12 Foot, and Length according to the Number of Plants intended to be kept therein. It should be situate on the driest Ground, and so contrived, as that nothing may obstruct the Sun's Rays in Winter. In the building it, Care must be taken, nor to plaister it on the Inside with Lime and Hair; Dampness being observed to continue longer on such Plaister, than on Bricks or Wainscote. To preserve it the more from Moisture and Colds, an artificial Heat is to be used: In order to this, some hang up Fires, and others place Pans of Coals in Holes in the Ground. The better way is, to have a Stove behind the *Green-House*, and to convey the Heat thereof thro' Trills made under the Floor for that Purpose. The best Method of all, according to *Bradley*, is the new Stove invented by M. *Gauger*, and published in *English* by Dr. *Desaguliers*. See FIRE.

Some have Sashes, Casements, and Doors of Glass; others prefer moveable Canvas Doors, to be taken off, and put on at pleasure.

The Pots and Cases are to be ranged in the *Green-House* so, as not to incommode one another, or hinder any from readily receiving both Sun, Air, &c. As to the Management of the Plants herein, *Mortimer* recommends the opening of the Mould about them, from time to time, and sprinkling a little fresh Mould in them, and a little warm Dung on that; as also to water them when the Leaves begin to wither and curl, and not oftner, which would make them fade and be sickly; and to take off such Leaves as wither and grow dry.

Bradley advises, that in the colder Parts of *England*, the Front of the *Green-House* be built in a Sweep, or Semicircle, to receive the Sun's Rays, one part or other of it, all Day: That all the Windows, &c. in the Front, have close, thick, wooden Shutters, to be shut every Night in Winter, for fear of Frosts, Nipping Winds, &c.—*Dutch* Tiles he thinks the best Lining for the Walls, as being dry, and reflecting a deal of Heat; and square Tiles for the Pavement, which readily imbibe the Wet, and never swear, as Marble and the harder Stones do.—The Plants in the *Green-House* are not to fill above a $\frac{1}{4}$ Part of the Space thereof; the rest being left vacant for the Air to circulate about the Plants. If the *House* be crowded with Plants, the Effluvia they are continually emitting by Perspiration, and the Vapours from the Mould, will condense the Air, and cause Dampness. The Plants to be disposed, as much as possible, about the middle Parts of the *Green-House*, where they will be safer from the Cold, which is usually greatest near the Glasses and Walls: The tenderest Plants to be disposed nearest to where the Hear comes in.

'Tis a general Rule among Gardeners, to set Exotic Plants into the *Green-House*, about the second Week in *September*, and to take them out again about the middle of *May*; tho' there should be some Distinction made herein; the tenderest Sorts from Places near the Line, as the Aloes, &c. being to be confined more to the *Green-House*, than Oranges, Myrtles, &c.

GREEN *Plots*, *Walks*, &c. See GRASS-*Plots*, &c.

GREENLAND *Fishery*. See *Whale* FISHERY.

GREENWICH *Hospital*. See HOSPITAL.

GREGORIAN *Calendar*, is that which shews the new and full Moon, with the Time of *Easter*, and the moveable Feasts depending thereon, by Means of Epacts disposed thro' the several Months of the *Gregorian* Year. See CALENDAR, EASTER, &c.

The *Gregorian Calendar*, therefore, differs from the *Julian*, both in the Form of the Year; and in that it uses Epacts, instead of Golden Numbers. See EPACT, and GOLDEN *Number*.

This Reformation of the Calendar, was made in 1582, by Order of Pope *Gregory* XIII. and with the Advice of *Aloysius Lilius*, and other Mathematicians: At the same Time, ten Days were cut off from that Year, and cast away, to bring the Equinoxes to their antient Seat, *viz.* the 21° of *March*. And to keep them constantly there, the same Pope introduced the *Gregorian* Year. See the Article following.

GREGORIAN *Year*, is the *Julian* Year corrected, or model'd, in such manner, as that the three secular Years, which in the *Julian* Account are Bissextile, are here common Years, and only every fourth secular Year, a Bissextile Year. See BISSEXTILE.

The *Gregorian* Year, tho' it comes nearer to Nature and Truth, than the *Julian*; is not strictly just: In 400 Years it gets 1 Hour 20'; and consequently in 7200, a whole Day. See YEAR.

The *Gregorian* Year, is that now used in most Countries of *Europe*; *England*, most of the *United Provinces*, *Sweden*, and *Denmark*, excepted; where the *Julian* Year still obtains. See JULIAN *Year*.

From this Difference, arises the Distinction of *Old* or *Julian*, and *New* or *Gregorian* Style. See STYLE.

The *Old Style* is now 11 Days behind the *New*: So that the same Day which in the *Gregorian* Account is the 11th Day of any Month, in the *Julian* is only the 1°.

GREGORIAN *Epocha*, is the Epocha, or Time whence the *Gregorian* Calendar, or Computation, took Place. See EPOCHA.

The present Year 1726, is the 144th Year of the *Gregorian* Epocha.

GRENADA, GRENATE, GRENADIER, } see { GRANADO, GRANATE, GRANADIER.

GRESHAM-*College*. See COLLEGE.

GREVE, among our antient Writers, is a Denomination of Power and Authority; signifying as much as a *Comes*, or *Vicecomes*: and hence our *Shyreeve*, *Portgreeve*, &c. See PORTGREEVE, &c.

According to *Hoveden*, *Greve dicitur*, *ideo quod jure debeat* Grith, *i. e. pacem ex illis facere*, *qui Patriæ inferunt væ*, *i. e. miseriam vel malum*.

Hence, but with less Power and Dignity, is derived the Word *Reve*, a Bailiff, or Under-Officer of the Lord of a Manor. See REVE.

GRIFFON, *Gryphus*, γρὺψ, in Natural History, a Bird of Prey, of the Eagle Kind. See EAGLE.

The Antients speak fabulously of the *Griffon*; they represent it with four Legs, Wings, and a Beak; the upper Part representing an Eagle, and the lower a Lion: They supposed it to watch over Gold Mines, hidden Treasures, &c. The Animal was consecrated to the Sun; and the antient Painters represented the Chariot of the Sun as drawn by *Griffons*. *M. Spanheim* observes the same of those of *Jupiter* and *Nemesis*.

We find mention of the *Griffon* in Holy Scripture; but are not to understand the Text of that chimerical Animal just described, which no Body ever saw but in Painting and Armories, notwithstanding what *Servius*, in his Comment on the 8th Eclogue of *Virgil* and *Isidore*, say of it.— The *Griffon* in Scripture, is that Species of Eagle, called in Latin *Ossifraga*, and in Hebrew פרס, *Peres*, of the Verb פרס, *Pares*, to break.

God prohibited the *Jews* to eat divers Kinds of Birds of Prey, as the Kite, Vulture, &c. And the divers Species of Eagles, which are distinguished in Latin by the Names of *Aquila*, *Gryps*, *Haliætus*.—*Pausanias*, *in Arcadicis*, says the *Griffon* has his Skin spotted like a Leopard.

The *Griffon*, we mean the fabulous one, is frequently seen on antient Medals; and is still bore in Coat-Armour.

Or, a *Griffon* Rampant, with Wings display'd, Sable, is born by the Family of *Morgan* in *Monmouthshire*, &c. *Guillam* blazons it *Rampant*; alledging that any very fierce Animal may be so blazoned, as well as a Lyon.

Sylvester, *Morgan*, and others, use the Term *Segreiant* instead of Rampant. See RAMPANT and SEGREIANT.

GRILLADE, in Cookery, a Dish of Meat broiled on the Grid-Iron; thus called from the *French Griller*, to broil.

The Word is also used for the browning of any Dish, by rubbing a hot Iron over it.

To *Grill Oysters*, is to put them into Scollop Shells, season them with Salt, Pepper, and Parsley shred, and pour their own Liquor to them; covering them with grated Bread; stewing them half an Hour on the Fire, and browning them with a red-hot Iron.

Shrimps are *grill'd* after the same Manner.

GRINDING, *Trituration*, the Act of breaking, or comminuting a solid Body, and reducing it into a Powder, Dust, Flower, Farina, or the like; particularly, by means of a Mill. See MILL.

Grinding is one of the Species of Dissolving. See DISSOLUTION.

The Painters Colours are ground on a Marble, or Porphyry, either with Oil or Gum Water; see PAINTING and COLOUR.

Some late Physicians have contended, that Digestion is perform'd by *grinding* the Food in the Stomach: Some even maintain that every Part in the Body, is a Vessel or Vessels; that all the Vessels have a Motion of Systole and Diastole; and that all the Operations of the Body consist in the Attrition or *grinding* of the Humours or Matters contained in such Vessels. See DIGESTION and TRITURATION.

GRINDING is also used for the rubbing or wearing off, the irregular or otherwise redundant Parts of the Surface of a Body, and of reducing it to the destined Figure, whether that be flat, concave, or the like. See FIGURE.

The *grinding of Glasses* is a considerable Art, and as such, necessarily requires to be here insisted on; especially that of Optic Glasses. See GLASS, OPTIC GLASS, &c.

Method of GRINDING *Optic Glasses.*

For Convex-Glasses, the first Step is to provide a Dish or Bason, within whose Cavity the Glass is to be form'd.

In order to this, they take a piece of Brass, Copper, Iron, or Wood, and form it into a Segment of a Circle, with the Radius of the Bason or Dish intended. This done, a Bason is made by a Smith, either of Iron or Copper; having its Cavity exactly fitting or corresponding to the Segment above mentioned: tho' sometimes they chuse to have the Bason cast; in which Case, the Rules above delivered for concave Mirrors, are to be here observed. See MIRROUR.

The Figure of the Bason thus roughly formed, is to be finished in the Pewterers Lathe; or on a Stone Mould A. *Tab. Miscellany*, Fig. 12. fixed to an Iron Axis, with a Pinion B C, moveable by a Wheel D E, and that by a Winch or Handle F. The Bason being ground on the Mould, till it exactly fit in all Parts; they take it off, and cementing it to a wooden Block (loaden, if need be, with Lead) strew it over with fine sifted Sand, and thus *grind* it over again on the Mould, till all the Furrows or Scratches be quite taken away.

Lastly, They *grind* large Pieces of Glass in a Bason, with fine Sand between; till such Time as its Surface being well smoothed, there is no longer any Opposition to the Motion.

Note, the Dish is known to be perfectly finished, when a Hair being stretched over it, its Shadow projected in the Cavity, particularly in a Camera obscura, does not appear distorted.

The Bason finish'd, proceed to chuse Glasses for the Purpose: In order to this, lay 'em on clean Paper, and observe what Colours are projected thereon; for the same are the Colours of the Glasses. Always set aside those of the darker Colours, and chuse the brighter: But as the whitest and brightest have usually Veins; and beside, in Tract of Time, by the Humidity of the Air, are apt to rust, and lose their Polish; for this Reason *Huygen* recommends those a little yellowish, reddish, or greenish; *Hevelius* the blueish. A Glass is found to be free from Bubbles, Sands, Veins, Knots, and Spires, by holding it to the Sun, and receiving the Rays through it on a white Paper; for the Flaws above-mentioned, will each project a Shadow thereon.

If instead of Lenticular, or at least Spherical Glasses, you make use of Plate Glass; it must be divided, and cut with a Diamond, into Squares; and if it be too thick to break otherwise, you may do it by laying it on a Table covered with a Cloth, in such manner, as that the Side or Part to be sever'd, hang over the Edge; for being struck with an Iron Instrument, in this Situation it easily breaks in the Direction of the Line drawn by the Diamond. Having thus got a square Piece, describe two concentric Circles thereon, with a Pair of Compasses, one of whose Legs carries a Diamond; the Diameter of the inner Circle, to be equal to the Breadth of the intended Lens, and that of the outer somewhat more; and break off the Corners, as above directed; and the lesser Inequalities take off on a Grind-Stone, or the like. Examine now whether the Piece of Glass be every where equally thick; if it be not, reduce it to such Equality by *grinding* it on an Iron Plate with Sand and Water. Lastly, glue or cement the Glass thus prepared to a wooden Handle N M O, *Fig.* 31. with a Cement made of Pitch, with a fourth part of Rosin; or one Part of Wax, and eleven of Colophony. Care to be taken that the Base, or bottom of the Handle N O, be equal to the Glass; and that the Centre of the Glass and Handle meet together. Smaller Lens's, as those used for Microscopes, are fix'd on with Sealing-Wax.

Now, to grind the Glass, and bring it to the Convexity required; smear over the Dish equally with fine sifted Sand moisten'd with Water: Then taking the Handle with the Glass thereon, work the Bason sometimes this way, and sometimes that, to prevent the Form of the Bason from being disturb'd; never leaning too hard thereon. When the Glass has got the Figure of the Bason, clean it well of all the Sand, and Filth adhering; and sprinkle the Bason over with Emery moisten'd in Water; *grinding* the Glass thereon, till all the Roughnesses and Inequalities are taken away. After this, the fine Sand used in Hour-Glasses may be of Service, applied and used as before; remembring to take out the Sand when too much worn, and substitute new in its stead. Some in lieu hereof, chuse several Sorts of Emery, each finer than other, or even the Powder of Flints calcined and pounded. Lastly, *grind* the same Glass in another Bason, or Dish which is a Segment of a lesser Sphere, making use of the like Sand as before; *till* it have got a pretty high Rim or Margin all around.

In regard the Pression is not here determined accurately enough upon the Middle of the Glass, by the mere Guidance of the Hand; some have chose to make Use of the following Machine, especially for *grinding* of Object-Glasses.

Fix the Dish H I, *Fig.* 14. on a horizontal Table: exactly over its Centre let the Aperture D be, through which pass an Iron Arm five or six Inches long, fasten'd to the Staff A B. Let the other Extreme of the Staff be fitted into a Hole cut in the Dish, and fasten'd therein. Now to *grind* the Glass, instead of the Dish, take hold of the said Staff, and work with Sand, &c. as before.

Huygens tells us, that he first used coarse Emery, then a finer Powder of the same, which would be 50 Seconds in sinking to the bottom of a Vessel of Water, putting in fresh every half or quarter of an Hour. Sometimes too, he used Emery of 50 Seconds, for ¾ of an Hour; then Emery of 400 Seconds, for ¾ of an Hour; and lastly, Emery of 45 Minutes for ¾ of an Hour. The same Effect is had from Powder of Flints, broke in an Iron Mortar, mix'd with Water, and stirred sometime with a wooden Spatula, taking the Powder as it precipitates in some certain Time to the bottom of the Vessel, by decanting the Water.

What remains is, to polish the Glass; *which see under the Article* POLISHING.

GRINDING is also used for a coarser, and less accurate Method of smoothing or polishing the Surface of a Body; particularly Glass for Looking-Glasses, &c. See LOOKING-GLASS, &c.

In the new Method of working large Plates of Glass for Looking Glasses, Coach-Glasses, &c. by moulding, and, as it were, casting them somewhat after the manner of Metals; described under the Article GLASS: The Surface being left uneven, it remains to be *ground* and polished.

In order to this, the Plate of Glass is laid horizontal, on a Stone in Manner of a Table; and to secure it the better, plaster'd down with Mortar, or Stuc, that the Effort of the Workman, or of the Machine used therein, may not shake or displace it. To sustain it, there is a strong wooden Frame that surrounds it an Inch or two higher than the Glass.

The Bottom or Base of the *grinding* Engine, is another rough Glass, about half the Dimensions of the former: On this

this is a wooden Plank, cemented thereto; and upon this are proper Weights applied to promote the Triture: The Plank or Table, being fasten'd to a Wheel, which gives it a Motion. —This Wheel, which is at least 5 or 6 Inches Diameter, is made of very hard but light Wood, and is wrought by two Workmen placed against each other, who push and pull it alternately; and sometimes, when the Work requires it, turn it round. By such means, a constant mutual Attrition is produced between the two Glasses, which is favour'd by Water and Sands of several Kinds bestowed between; Sand still finer and finer being applied, as the *grinding* is more advanced: At last Emery is used. We need not add, that as the upper or incumbent Glass polishes and grows smoother, it must be shifted from time to time, and others put in its Place.

It is to be noted, that only the largest Size Glasses are thus *ground* with a Mill; for the middling and smaller Sorts are wrought by the Hand, to which End there are four wooden Handles at the four Corners of the upper Stone, or Carriage, for the Workmen to take hold of, and give it Motion.

What remains to the Perfection of Glass, comes under the Denomination of Polishing. See POLISHING.

GRIP, or GRIPE, is a small Ditch cut a-cross a Meadow, or ploughed Land; in order to drain it: It also signifies an Handful; as, a *Gripe* of Corn.

GRIPE of a Ship, is the Compass or Sharpness of her Stem under Water; chiefly towards the bottom of her Stem. See SHIP.

The Design of sharping her so, is to make her *gripe* the more, or keep a good Wind; for which purpose sometimes a false Stem is put on upon the true one.

GRIPE is also a Sea-Phrase for a Ship's being apt to run her Head or Nose too much into the Wind: In such Case they say, she *gripes*; of which there are two Causes, either over-loading her a-head, the Weight of which presses her Head so down, that it is not apt to fall off from the Wind; or the staying or setting her Masts too much aft; which will always be a Fault in a small Ship that draws much Water, and will cause her to be continually running into the Wind.

In floaty-Ships, if the Masts be not stayed very far aft, they will never keep a good Wind.

GRIPES, *tormina Ventris*, in Medicine, a sort of Colick, or painful Disorder of the Lower Belly, occasioned by some sharp pungent Matters vellicating the Parts, or by Winds pent up in the Intestines. See COLICK.

The *Gripes* are a very common Symptom in young Children, and may be caused by the Aliment they use, which is considerably different from what they had been accustom'd to in the *Uterus*. See CHILDREN.

The Retention of a Part of the Meconium may also give occasion hereto, as being somewhat acrimonious. See MECONIUM.

This Disorder sometimes proves so violent, as to throw the Child into universal Convulsions, or to cause what is vulgarly called Convulsions of the Bowels.

GRIST is Corn ground, or fit for grinding. See FLOWER, MEAL.

GROANING, in Heraldry, a Term used for the Cry or Noise of a Buck. See HUNTING.

GROAT, an *English* Money of Account, equal to Four-Pence. See PENNY.

Other Nations, as the *Dutch*, *Polanders*, *Saxons*, *Bohemians*, *French*, &c. have likewise their *Groats*, *Groots*, *Groches*, *Gros*, &c. See MONEY and COIN.

We had no Silver Money in the *Saxon* Times bigger than a Penny; nor after the Conquest, till *Edward* III. who about the Year 1351, coin'd *Grosses*, i. e. *Groats*, or *great Pieces*, which went for 4 *d.* a-piece; and so the Matter stood till the Reign of *Henry* VII. who, in 1504, first coined Shillings. See SHILLING.

GROCERS, by the Stat. 37 *Edw.* II. cap. 5. were used for those who engrossed Merchandize. See ENGROSSING.

GROGRAM, in the Manufactories, a sort of Stuff, all Silk; being in Reality no more than a Taffety, coarser and thicker than ordinary. See TAFFETY.

GROOM, properly denotes a Servant appointed to attend on Horses; the Word being formed of the *German* Grom, Boy, Youth. See EQUERRY.

GROOM is also the Denomination of several Officers and Servants in the King's Houshold. See HOUSHOLD.

There are *Grooms* of the Almonry, *Grooms* in the Compting-House, *Grooms* of the Chamber, the Privy-Chamber, *Grooms* of the Robes, of the Wardrobe, &c. See ALMONRY, CHAMBER, WARDROBE, &c.

GROOM *of the Stole*. See STOLE.

GROOM-*Porter* is an Officer of the Houshold, whose Business is to see the King's Lodging furnished with Tables, Chairs, Stools, and Firing; to provide Cards, Dice, &c. and to decide Disputes arising at Cards, Dice, Bowling, &c.

GROS, a foreign Money, in divers Countries, answering to our *Groat*. See GROAT.

A *Pound* GROS, *Livre de Gros*. See POUND and LIVRE.

GROSS is the Quantity of twelve Dozen. See DOZEN.

GROSSA, a Groat—*Concessa est Regi una* Grossa *quæ continet quatuor denarios de quolibet viro & muliere.* Knighton. *Anno* 1378.

GROSSE-*Bois*, in our antient Law-Books, signifies such Wood as hath been, or is, either by the Common Law, or Custom of the Country, reputed Timber. See TIMBER.

GROSSUS, in our antient Writers, denotes a thing entire, and not depending on another.

Thus, *Villanus* in *Grosso*, was a Servant, who did not belong to the Land, but immediately to the Person of the Lord: So, an Advowson in *Grosso*, is a Right of Patronage not annexed to the Fee or Manor, but belonging to the Patron himself, distinct from the Manor. See ADVOWSON, VILLAIN, &c.

GROSS-*Weight* is the Weight of Merchandizes, and Goods with their Dust and Dross, as also of the Bag, Cask, Chest, &c. wherein they are contained; out of which *Gross*-Weight, Allowance is to be made for Tare and Tret. See TARE and TRET.

GROTESQUE, or GROTESK, or GROTTESQUE, a wild whimsical Figure of a Painter, or Engraver; having something ridiculous, extravagant, and even monstrous in it.

The Name arises hence, that Figures of this Kind were antiently much used to adorn the Grotto's wherein the Tombs of eminent Persons, or Families were inclosed. Such was that of *Ovid*, whose Grotto was discover'd near *Rome* about 50 Years ago. See GROTTO.

Calot a celebrated Engraver of *Lorrain*, had a wonderful Genius for designing *Grotesques*: the like said of *Leonardo da Vinci*.

We also extend the Word to any Thing whimsical, or wildly pleasant, in a Person's Dress, Discourse, &c.—Masquerade Habits are the more valued, the more *Grotesque* they are: Our Theatres present us with Entertainments in *Grotesque* Characters, *i. e.* Persons quaintly dress'd; as Harlequins, Scaramouches, &c.

Planudes has given us a very *Grotesk* Picture of *Æsop*: *Ariosto* and the *Italian* Poets are full of *Grotesque* Descriptions.

GROTESQUE-*Work*, GROTESK-*Work*, or *Grottesco*, is a Work or Composition in Painting, and Sculpture, in the *Grotesque* Manner or Taste; consisting either of Things which are merely imaginary, and have no Existence in Nature, or of Things turn'd and distorted out of the way of Nature, so as to raise Surprize and Ridicule.

Grotesque-Work is the same with what we sometimes call *Antique*. See ANTIQUE. See also MORESQUE.

GROTESQUES, or GROTESKS, are particularly used for little fanciful Ornaments, of Animals, compounded with Foliages, Fruit, &c.

Such are those painted by *Raphael* in the Apartments of the Vatican; and those carved by *Michael Angelo* in the Ceilings of the Portico of the Capitol.

Vitruvius calls Compartments of this kind *Harpagenituli*.

GROTTO, or GROTTA, in natural History, a large deep Cavern or Den in a Mountain or Rock. See STONE.

The antient *Anchorites* retired into Dens, and *Grotto's*, to apply themselves the more attentively to Meditation, &c. See ANCHORITE, HERMIT, &c.

In *Grottos* are frequently found Crystals of the Rock, Stalactites, and other natural Conglaciations; see CRYSTAL, STALACTITES, PETRIFACTION, &c.

The Word is *Italian*, *Grotta*, form'd according to Menage, &c. from the Latin *Crypta*. *Du Cange* observes, that *Grota* was used in the corrupt Latin.

M. *Homberg* conjectures, from several Circumstances, that the Marble Pillars in the *Grotto* of *Antiparos*, vegitate or grow.

That Author looks on this *Grotto* as a Garden, whereof the Pieces of Marble are the Plants; and endeavours to shew that they could only be produced by some vegetative Principles. *Memdel.* Acad. *Anno* 1702.

At *Foligno* in *Italy*, is another *Grotto*, consisting of Pillars and Orders of Architecture of Marble, with their Ornaments, &c. scarce inferior to those of Art; but they all grow downwards: So that if this too be a Garden, the Plants are turn'd upside down. *Memdel.* Acad. *Anno* 1711.

The *Zirchnitzer-Sea*, or Lake, in *Carniola*, famous for being full of Water, Fish, &c. the best part of the Year; and quite dry, and bearing Grass, Corn, &c. the rest; proceeds from some subterraneous *Grotto* or Lake; as is made highly probable by Mr. *Valvasor*; Philosoph. Transf. N° 191.

We have several *Grotto's* famous in Natural History; as,

GROTTA *del Cane*, a little Cavern near *Puzzuoli*, four Leagues from *Naples*, the Steams whereof are of a mephitical or noxious Quality; whence also it is called *Bocca Venenosa*, the *poisonous Mouth*. See MEPHITES.

Two Miles from *Naples*, says Dr. *Mead*, just by the *Lago d'Agnano* is a celebrated *Mofeta*, commonly called *La Grotta de*

de Cani, equally destructive to all within the Reach of its Vapours.

'Tis a small *Grotto* about 8 Foot high, 12 long, and 6 broad; from the Ground arises a thin, subtle, warm Fume, visible enough to a discerning Eye, which does not spring up in little Parcels here and there, but in one continued Stream, covering the whole Surface of the bottom of the Cave; having this remarkable Difference from common Vapours, that it does not, like Smoke, disperse it self into the Air, but quickly after its Rise, falls back again, and returns to the Earth; the Colour of the Sides of the *Grotto* being the Measure of its Ascent; for so far it is of a darkish green, but higher only common Earth. And as I my self found no Inconveniency by standing in it, so no Animal, if its Head be above this Mark, is the least injured. But when, as the manner is, a Dog, or any other Creature, is forcibly kept below it; or by reason of its Smallness, can't hold its Head above it; it presently, looses all Motion, falls down as dead, or in a Swoon, the Limbs convulsed and trembling, till at last no more Signs of Life appear, than a very weak and almost insensible beating of the Head and Arteries; which if the Animal be left a little longer, quickly ceases too, and then the Case is irrecoverable; but if snatched out, and laid in the open Air, soon comes to life again, and sooner if thrown into the adjacent Lake.

The Fumes of the *Grotto*, the same Author argues, are no real Poison, but act chiefly by their Gravity; else the Creatures could not recover so soon; or if they did, some Symptoms, as Faintness, &c. would be the Consequence of it. He adds, that in Creatures killed therewith, when dissected, no Marks of Infection appear; and that the Attack proceeds from a want of Air, by which the Circulation tends to an entire Stoppage, and this so much the more, as the Animal inspires a Fluid of a quite different Nature from the Air, and so no ways fit to supply its Place.

Taking the Animal out while alive, and throwing it into the neighbouring Lake, it recovers: This is owing to the Coldness of the Water, which promotes the Contraction of the Fibres, and so assists the retarded Circulation; the small Portion of the Air which remains in the Vesiculæ, after every Expiration, may be sufficient to drive out the noxious Fluid. After the same manner, cold Water acts in a *deliquium Animi*: The Lake of *Agnano* has no other Virtue in it more than others.

Grotta *delli Serpi*, is a subterraneous Cavern near the Village of *Sassa*, eight Miles from the City of *Braccano* in *Italy*; described by *Kircher* thus:

The *Grotta delli Serpi*, is big enough to hold two Persons; it is perforated with several fistular Apertures, somewhat in manner of a Sieve; out of which, at the beginning of the Spring Season, issues a numerous Brood of young Snakes of divers Colours, but all free of any particular poisonous Quality.

In this Cave they expose their Lepers, Paralyticks, Arthriticks, and Elephantiac Patients quite naked; where, the Warmth of the subterraneous Steams resolving them into Sweat, and the Serpents clinging variously all around, licking and sucking them, they become so thoroughly freed of all their vitious Humours, that upon repeating the Operation for some Time, they became perfectly restored.

This Cave *Kircher* visited himself, and found it warm, and every way agreeable to the Description given of it. He saw the Holes, and heard a murmuring, hissing Noise in them. Tho' he miss'd seeing the Serpents, it being not the Season of their creeping out; yet he saw a great Number of their Exuviæ, or Sloughs, and an Elm growing hard by laden with them.

The Discovery of this Cave, was by the Cure of a Leper going from *Rome* to some Baths near this Place; who, losing his way, and being benighted, happen'd upon this Cave, and finding it very warm, pulled off his Cloaths, and being weary and sleepy, had the good Fortune not to feel the Serpents about him till they had wrought his Cure. *Museum Wormian.*

We also read of the *Milky Grotto*, or *Crypta Lactea*, a Mile distant from the antient Village of *Bethlehem.*

It is said to be thus denominated, on occasion of the blessed Virgin, who let fall some Drops of Milk in giving Suck to the little Jesus in this *Grotto.* And hence it has been commonly supposed, that the Earth of this Cavern has the Virtue of restoring Milk to Women that are grown dry, and even of curing Fevers.

Accordingly, they are always a-digging in it, and the Earth is sold at a good Rate to such as have Faith enough to give Credit to the Fable—An Altar has been built on the Place, and a Church just by it.

Grotto is also used for a little artificial Edifice made in a Garden, in Imitation of a natural *Grotto.*

The Outsides of these *Grottos* are usually adorn'd with Rustic Architecture, and their Inside with Shell-work, furnish'd likewise with various Jet d'Eaus, or Fountains, &c. See Shell-Work, &c.

The *Grotto* at *Versailles*, is an excellent Piece of Building.—*Solomon de Caux* has an express Treatise of *Grottos* and Fountains.

GROVE, in Agriculture, &c. a little thick Wood. See Wood.

The antient *Romans* had a sort of *Groves* near several of their Temples, which were consecrated to some God, and called *Luci*, by *Antiphrasis*, *a non lucendo*, as being shady and dark. See Lucus.

In very large and magnificent Gardens, a *Grove* is usually a Plot of Trees, inclosed with Palissades, consisting of tall Trees, as Elms, Horse-Chesnuts, &c. the Tops whereof make a Tuft or Plume, and shade the Ground below.

At the Foot of the tall Trees, which generally run all along the Palissades at equal Distance, other lesser Trees are often planted, whose Tufts form a Resemblance of a sort of Copse within the former.

GROUND, in Agriculture, a Piece of Land, or Soil; or a Portion of Earth, whether fit or unfit to be tilled and cultivated. See Earth and Soil. See also Orchard, Garden, &c.

All Sorts of Land may be reduced to *boggy* or *marshy*, *chalky*, *gravelly*, and *stony*. See Bog, Marsh, Chalk, Sand, Gravel, &c.

Ground, in Painting, is the Surface, upon which the Figures, and other Objects, are raised or represented. See Painting.

The *Ground* is properly understood of such Parts of the Piece as have nothing painted on them, but retain the original Colour upon which the other Colours are applied to make the Representations. See Colourine.

A Drapery, Piece of Building, the like, are said to serve as a *Ground* to a Figure, when the Figure is painted on the Drapery or Building.

In the like Sense, we also say the *Ground* of a Piece of Tapistry, of an Embroidery, of a Medal, Coin, &c. See Tapistry, Embroidery, Brocade, Medal, Coin, &c.

The *Ground* of a Shield or Escutcheon in Heraldry, is properly called the *Field.* See Field.

Ground, in Etching, is a gummous Composition, smeared over the Surface of the Metal to be etch'd; to prevent the *Aqua Fortis* from eating, or having effect, except in Places where this *Ground* is cut thro', or pared off, with the Points of Needles. See Etching.

Ground-*Work*, in Building. See Foundation.

Ground-*Sell*, or Ground-*Plate*. See Sell.

Ground-*Tackle*, a Sea-Term denoting a Ship's Anchor, Cables, &c. with whatever is necessary to make her ride safe at Anchor in a proper *Ground.* See Tackle, Anchor, &c.

GROUNDING of a Ship, is the bringing her on *Ground*, to be trimmed, made clean, or to have some Leak stopped in her.

GROUPADES is corruptly used, in the Manage for *Croupades.* See Croupade.

GROUP, or Grouppe, in Painting and Sculpture, an Assemblage or Knot of two or more Figures of Men, Beasts, Fruits, or the like, which have some apparent relation to each other.

In a good Painting, it is necessary that all the Figures be divided into 2 or 3 *Groups*, or separate Collections—Such and such a Thing make a *Group* with such and such others of different Nature and Kind. The antique *Laomedon* is a fine *Group* of three beautiful Figures.

A *Group* has somewhat in it of the Nature of a Symphony or Concert of Voices: As, in the one the Voices must sustain each other, in order to fill the Ear with an agreeable Harmony from the whole; whence if any part were to cease, something would necessarily be miss'd: So, in the *Group*, if the Parts or Figures be not well balanced, something will be found disagreeable.

There are two Sorts of *Groups*, or two manners of considering *Groups*; with regard to the Design, and to the Clair obscure. The first is common both to Works of Painting, and those of Sculpture; the latter peculiar to Painting.

Groups, with regard to the Design, are Combinations of divers Figures, which have relation to each other, either on account of the Action, or of their Proximity, or of the Effect they have. These we conceive, in some measure, as representing so many different Subjects, or at least so many distinct Parts or Members of one greater Subject. See Design.

Groups, with regard to the Clair obscure, are Bodies of Figures wherein the Lights and Shadows are diffused in such manner that they strike the Eye together, and naturally lead it to consider them in one View. See Clair *obscure.*

The Word *Grouppe* is *French*, form'd of the *Italian Groppo*, a *Knot.*

In Architecture we say a *Group of Columns*, speaking of three or four Columns join'd together on the same Pedestal. See Column.

When there are but two together, we say a *couple*, not a *Group* of Columns. See Couple.

In Music, a *Group* is one of the Kinds of Diminutions of

of long Notes, which in the Working, forms a ſort of *Group*, Knot, Buſh, or the like.

The *Group* uſually conſiſts of four Crotchets, Quavers, or Semiquavers tied together, at the Diſcretion of the Compoſer.

GRABATARII, Grabbatarii, in Antiquity, were ſuch Perſons as deferr'd the receiving of Baptiſm to the Hour of Death; or, who did not receive it till they were dangerouſly ill, and out of Hopes of Life; from an Opinion, that Baptiſm abſolutely waſh'd away all antecedent Guilt. See Baptism.

The Word is form'd of the Latin *Grabatum*, Bed; and that from the Greek γραβατος, a Hanging-Bed, of κρεμάω, to ſuſpend; ſuch being the Bed of Slaves, poor People, Cynic Philoſophers, *&c.* who were Enemies of Luxury and Eaſe.

GRUBBING a Cock, a Term uſed by Cock-fighters, for the cutting off the Feathers under the Wings.—It is a thing not allowed by Cock pit Law, nor to cut off his Feathers in any handling Place. See Cock-pit *Law*.

GRUBBS, in Medicine, a white, unctuous kind of Pimples or little Tumers, ariſing upon the Face, chiefly the Alæ of the Noſe. See Tumor, *&c.*

They are uſually owing to hard Drinking, and an obſtructed Perſpiration; though natural in ſome Conſtitutions—They begin with a ſmall black Point, which gradually ſpreads; and ſometimes the Matter tends to Suppuration, upon which the Heads of the Eruptions grow white or yellow—They are uſually reputed ſalutary; whence to check their Growth ſuddenly, has proved of ill Conſequence. They are cured by Evacuation, and acrimonious Lotions.

GRUME, Grumus, in Medicine, *&c.* A Particle of Bleod, Milk, or other Fluid, which is coagulated, thicken'd, harden'd, or not ſufficiently thin, and diluted. See Blood, ſee alſo Coagulation, *&c.*

Phthiſical People frequently ſpit up *Grumes*, i. e. Clots of Bleed. See Phthisis.

Grumes of Milk, are what we popularly call *Curds*. See Milk, Cheese, *&c.*

GRUMOUS *Blood*, is that State or Conſiſtence of the Bleod, wherein it is toe viſcid, and thick, for a due brisk Circulatien: The Effects whereof are, that it ſtagnates in the Capillary Veſſels, and produces divers Diſeaſes. See Lentor; ſee alſo Disease, *&c.*

GRUS, in Antiquity, a Dance perform'd yearly by the young *Athenians*, around the Temple of *Apollo*, on the Day of the Delia. See Delia.

The Motions and Figures of this Dance were very intricate, and variouſly interwove, ſome of them being intended to expreſs the Windings of the Labyrinth, wherein the Minotaur was kill'd by *Theſeus*. See Labyrinth.

GRY, a Meaſure containing $\frac{1}{10}$ of a Line. See Line.

A Line is $\frac{1}{10}$ of a Digit; and a Digit $\frac{1}{10}$ of a Foot; and a Philoſophical Foot $\frac{1}{3}$ of a Pendulum, whoſe Diadromes, or Vibrations, in the Latitude of 45 Degrees, are each equal to one Second of Time, or $\frac{1}{60}$ of a Minute. See Inch, Foot, Pendulum, *&c.*

GRYPHUS, akind of Enigma; or an artful obſcure Deſcription of a Thing. See Ænigma.

GUADAGE, or Guidage, among our antient Writers, (*eſt quod datur alicui, ut tuto conducatur per terram alterius*;) that which is given for ſafe Conduct through unknewn Ways, or a ſtrange Territory.

GUADUM, Guead, in Natural Hiſtory, an Herb by the antient *Romans* called *Glaſtum* and *Vitrum*; by the *Greeks Iſatis*; by the *Britains Guadum*; and by us new, *Woad*.

The antient *Britains*, *Cæſar* informs us, painted their Faces with this Herb, to appear the more terrible to their Enemies. And *Pliny* relates, that the ſame was practiced by the Women in divers Sacrifices. See Glass.

GUANNAGIUM. See Wannage.

GUARANTEE, or Warrantee, a Term relative to *Warrant*, or *Warranter*; properly ſignifying him whom the Warranter undertakes to indemnify, or ſecure from Damage. See Warrantee.

Guarantee, or *Guaranty*, is more frequently uſed for a *Warranter*, or a Perſon who undertakes and obliges himſelf to ſee a ſecond Perſon perform, what he has ſtipulated to a third.

The *Guarantee of a Treaty*, is a Prince, or Power, pitched on by the treating Parties, to ſee, or engage that each Side ſhall perform the Articles. The *Guarantees* of the Treaty of *Oliva*, of *Weſtphalia*, &c. See Treaty.

The antient Lords were obliged to *Guaranty* the Lands of their Vaſſals, *i. e.* to defend them againſt their Enemies; otherwiſe they loſt their Fee, and their Vaſſals were no longer bound to do them Hemage and Service—Kings alone did net forfeit their Fiefs by not *Guarantying* them; and yet we read that *Borel*, Count of *Barcelona*, threaten'd the King of *France*, *Hugh Capet*, to ſwear Fealty to the *Sarazens*, in caſe he did net *guaranty* him; and under *Lewis* the Young, the Count of *Champagne* did Homage to the Emperer, on the like Account. See Fee.

To *Guaranty a Fee*, had likewiſe anether Meaning, being uſed to denote, that where a *Fee* was divided between the eldeſt Sen, and the younger, the eldeſt did Homage to the Lord both for himſelf and all the reſt; and by that Homage *guaranty'd* the whele.

GUARD, or Gard, in its general Senſe, implies Defence, Cuſtody, or Conſervation of any Thing; the Act of obſerving what paſſes, to prevent Surprize; or the Care and Precaution taken to hinder any Thing's being done contrary to the Intentien and Deſire of another.

The Word is beth uſed in a proper and a figurative Senſe; for the Act or Service of *Guarding*, and the Perſons appointed for that Purpoſe: Thus we ſay, to be upon *Guard*, to ſet the *Guard*, mount the *Guard*, &c. So alſo we ſay a ſtrong *Guard*, an Attempt on the *Guard*; 2000 Men are neceſſary for the *Guard* of the City, *&c.*—So, again, thoſe to whom the King commits the Safety of his Perſon, are called his *Guard*, *Life-Guard*, *Body-Guard*.

And ſo, theſe who have the Educatien and Guardianſhip of Infants, or Idiots, are called their *Guards*, or Wards. See Ward.

The ſame Term is alſo applied to a Writ relating to the Office of Ward, whereof there are three Kinds; one called *droit de Garde*; the ſecond *Ejectment de Garde*; the third *Raviſhment de Garde*. See Ward and Guardian.

The Word is form'd of the *French Garde*, and that of the corrupt *Latin Warda*; and that of the *German Wahren* to keep.

Guard, in the military Senſe, is properly the Duty or Service done by the Soldiers, to ſecure the Army or Place from the Surprizes and Efforts of an Enemy.—Of this there are divers Kinds, as

Main-Guard, is that from whence all the other *Guards* are detach'd. Thoſe who are to mount the *Guard*, meet at the reſpective Captain's Quarters, and from thence ge to the Parade; where, after the whole *Guard* is drawn up the ſmall *Guards* are detach'd for the Poſts and Magazines; and then the ſubaltern Officers thiew Lets for their *Guards*, and are commanded by the Captain of the *Main-Guard*.

Grand-Guard, conſiſts of three or four Squadrens of Horſe, commanded by a Field-Officer, and poſted before the Camp on the Right and Left Wing, tewards the Enemy; for the Security of the Camp.

In a Camp every Batallion puſts a ſmall *Guard*, commanded by a ſubaltern Officer, about 100 Yards before its Frent. This is called the *Quarter-Guard*. As

That ſmall *Guard* of Foet, which a Regiment of Horſe mounts in their Frent under a Corporal, is called the *Standard-Guard*.

Advance-Guard, is a Party of Horſe or Foot which marches before a Body to give Notice of approaching Danger. When an Army is upon the March, the Grand *Guards*, which ſhould ſerve that Day, are as *Advance-Guards* to the Army.—That ſmall Body alſe of 12 or 16 Horſe, which are poſted under a Cerporal, or Quarter-Maſter, before the Grand-*Guard* of a Camp, are called the *Advance-Guard*.

There is alſo the *Picquet-Guard*, which is a Number of Horſe and Foet, who keep themſelves always in a Readineſs in caſe of an Alarm; the Horſes are ſaddled, and the Riders booted all the while, and the Foot draw up at the Head of the Batallien at the beating of the Tattou, but afterwards return to their Tents, where they are in a Readineſs to march upon any ſudden Alarm.—This *Guard* is to make Reſiſtance in caſe of an Attack, till the Army can get ready.

Guard is particularly underſtood of a Soldier, as a Muſquecteer, Archer, or the like, detach'd from a Company or Corps, to protect, detain, or ſecure any Perſon, or ſurvey his Actions.

A *Guard* was ſet over each Party, to prevent the Duel's taking Place.

The Term is alſo uſed for the Treops or Companies kept up to guard the King: As in the following Articles—

Royal Guards, are Forces raiſed and maintained to *guard* his Majeſty's Perſon. See King.

There are alſo Bodies of *Guards* to wait on the Princes of the Bleed, in the ſame Capacity.

The *Guards* are diſtinguiſhed into *Horſe*, *Foot*, *Granadiers*, and *Yeomen*.

The *Horſe-Guards* are diſtinguiſh'd by Treops: Firſt, ſecond, third, and fourth Treop of *Horſe-Guards*. See Troop.

The *Foot-Guards* are diſtinguiſhed by Regiments: Firſt Regiment, Cold-Stream Regiment, Royal Regiment of *Foot-Guards*. See Regiment.

Guards, no doubt, are as antient as Monarchy. The remoteſt Antiquity affords Inſtances hereof; the Scripture mentions thoſe of *Saul* the firſt King of the People of God, 1 *King*. xix. 11. and thoſe of *Achis* King of the *Philiſtines*, 1 *King*. xxviii. The *Grecian* Kings bad alſo their Guards: *Juſtin* mentions theſe of *Piſiſtratus*, Tyrant of *Athens*, lib. 11. c. 8. theſe of the Tyrants of the ſame City, eſtabliſhed by *Lyſander*, lib. v. c. 8. thoſe of *Agis* King of *Sparta*, lib. xii. c. 1. thoſe of *Alexander*, lib. xii. c. 8. theſe of the *Ptolemys* Kings of *Ægypt*, lib. xvi. c. 2, *&c.* *Tarquin* the Proud, is

 ſaid

faid to have been the firft who took *Guards* at *Rome*. *Dionyf. Halicarnaffæus*, lib. iv. and yet we find that *Romulus* form'd himfelf a *Guard*, confifting at firft of 12 Lictors, and afterwards of 300 Soldiers, whom he called *Celeres*. See CELERES.

The *Roman* Emperors had, for their *Guard*, the *Pretorian* Cohorts, eftablifhed by *Augufius*, as *Dion* and *Suetonius* relate: Thofe of the Emperors of *Conftantinople*, were called *Buccellarii*. See BUCCELLARII; fee alfo DOMESTICI and PROTECTORES.

Captain of the *Guards*, Colonel of the *Guards*, Brigadier of the *Guards*, Exempt of the *Guards*, &c. See CAPTAIN, COLONEL, BRIGADIER, EXEMPT, *&c.*

Yeomen of the GUARDS. See YEOMEN *of the Guards*.

The *French Guards* are divided into thofe *within*, and thofe *without* the Palace: The firft confifts of the *Gardes du Corps*, q. d. Body-Guard; part whereof are *Gardes de la Manche*, q. d. of the Elbow: The hundred *Swiffes*; and the *Guards* of the Gate.

The *Guards without*, are *Gens d'Armes*, Light-Horfe, Mufqueteers, and two Regiments of *Guards*, the one of *French*, the other *Swifs*. See GENSD'ARMES.

The *Garde du Corps*, or *Life-Guard*, confifts of four Companies of Horfe: The firft was antiently *Scotch*, and ftill retains the Name; tho' it now confifts wholly of *French* Men. Not only the Name, but they alfo retain the antient Phrafe or Formula of anfwering when called upon, *I am here*. The *Scotch Guard* was firft eftablifhed in *France* by *Charles* VII. who chofe himfelf a *Guard* out of fuch *Scots* as were fent by the Earls of *Buccan*, *Douglas*, and other *Scotch* Lords, to drive out the *Englifh*.

Pretorian GUARDS, } fee { PRETORIAN,
White GUARDS, } { SCHOLARES.

GUARD, in Fencing, an Action or Pofture proper to defend or fcreen the Body from the Efforts, or Attacks of an Enemies Sword—See FENCING and DEFENCE.

There are four general *Guards* of the Sword; to conceive which, it will be neceffary to imagine a Circle drawn on an upright Wall, and divided into four Cardinal Points, *viz.* top, bottom, right, and left.

Now, when the Point of the Sword is directed to the bottom Point of the Circle, and confequently the Head of the Sword tilted up to the top Point, with the Body inclining forwards; this is called *Prime*, or the *firft Guard*—The *fecond Guard*, which fome improperly called the *third*, is when the Point of the Sword is directed to the right or fecond Point of the fame Circle, a Quadrant diftant from the *firft*; with the Fort of the Sword turn'd to the right, and the Body rais'd proportionably—*Tierce*, or the *third Guard*, is perform'd by directing the Sword's Point to the uppermoft Point of the fame Circle diametrically oppofite to that of *Prime*: In which Cafe the Body, Arm, and Sword, are in their natural Difpofition, being the Mean between the Extremes of their Motion—*Quart*, or the *fourth Guard*, is when the Point of the Sword is directed to the fourth Point of the Circle, defcending to the right as far as one fourth of *Tierce*, with the external Side of the Arm and the Flat of the Sword turn'd towards the Ground; and the Body out of the Line to the right, and the Fort of the Sword towards the Line to the left—There is alfo *Quint*, or a kind of *fifth Guard*, being the return of the Point of the Sword on the right, after traverfing the Circle, to the Point of the *Prime* whence it had departed; and yet with a different Difpofition of the Body, Arm, and Sword.

Thefe *Guards* are alfo called *Figures* and *Poftures*; and the common Centre of all their Motions is to be in the Shoulder.

In all thefe Kinds of *Guards*, there are high *advanced*, high *retired*, and high *intermediate Guards*, when difpofed before the upper part of the Body, either with the Arm quite extended, quite withdrawn, or in a mean State—*Mean advanced Guard*, or fimply *mean Guard*, is when the Sword is difpofed before the middle part of the Body—*Low advanced*, *retired*, or *intermediate Guards*, are thofe where the Arm and Sword are advanced, withdrawn, or, between the two Extremes, before the lower part of the Body.

Some will have *Prime* the principal *Guard*; others *Quint*; others, with better Reafon, *Tierce*, in regard it confifts of right Lines, which are more eafily defended than oblique ones, fuch as thofe of *Prime*, *Second*, *Quart*, and *Quint*. See SWORD.

GUARDS, in Aftronomy, is a Name fometimes applied to the two Stars neareft the Pole, being in the hind part of the Chariot, at the Tail of the little Bear. See CYNOSURE.

Their Longitude, Latitude, *&c.* fee among thofe of the other Stars in the Conftellation URSA *minor*.

One of them is the Pole Star. See POLE *Star*.

GUARDANT, or GARDANT, in Heraldry, a Term applied to a Lion or other Beaft when born in a Coat of Arms, full faced, or with his Face turned towards the Spectator, and thus appearing in a Pofture of Guard, and Defence.—The Heralds fay a Lion is never fo reprefented, but a Leopard always.

GUARDIAN, or GARDIAN, he to whom the Charge or Cuftody of any Perfon or Thing is committed. See WARD.

The Notion of *Guardian* Angels, is very antient in the Eaft. See DÆMON.

In the Convents of *Franciftans*, the Officer is called *Guardian* who in the reft is called *Superior*. See SUPERIOR.

In the Order of the Garter, the Officer who in other military Orders is called Grand-Mafter, is called the *Sovereign Guardian* of the Order. See GARTER.

GUARDIAN, in Law, is a Perfon intrufted with the Education, Tuition, *&c.* of fuch as are not of fufficient Difcretion to guide themfelves, and their own Affairs; as Children, and Ideots.

The Word *Guardian*, with us, includes the Offices both of the *Tutor* and *Curator* of the *Civilians*: The *Tutor*, for inftance, had the Government of a Youth, till he arrived at 14 Years of Age. See TUTOR. And the *Curator* had the Difpofition and ordering of his Effects thence forward, till 25 Years of Age; or the Charge of a Lunatick, during his Lunacy. See CURATOR; all which Purpofes, our *Guardian* alone anfwers.

We have three Kinds of *Guardians*: One appointed by the Father in his Will; another by the Judge afterwards; and a third caft upon a Minor by the Cuftom of the Land: But the antient Law relating to *Guardians*, is much alter'd by *Stat.* 12. *Car.* II. which ordains that, 'Where any Perfon 'has a Child under the Age of 21 Years, and unmarried at 'the Time of his Death, it fhall be lawful for the Father 'of the Child, whether born at the Time of his Deceafe, 'or yet in *ventre fa mere*, either by Deed or Will, to difpofe of the Cuftody and Tuition of fuch Child while under Age, or for any leffer Time, to any Perfon, Popifh 'Recufants excepted: Which Difpofition fhall be good a'gainft all Perfons claiming fuch Child as *Guardian in Socage*, or otherwife. And in Cafe the Father appoint no '*Guardian*, the Ordinary may appoint one to look to his 'Goods and Chattels till the Age of fourteen; at which 'Time the Child may chufe a *Guardian* himfelf. And 'for his Lands, the next of kin on that fide by which the 'Lands defcends, fhall not be *Guardian*, as heretofore in 'Cafe of a Tenure *in Socage*. See SOCAGE.

GUARDIAN *of the Spiritualities*, is he to whom the fpiritual Jurifdiction of a Diocefe is committed, during the Vacancy of the See. See VACANCY.

This *Guardian* may be either fuch *in Law*, i. e. *Jure Magiftratus*, as the Archbifhop is of any Diocefe within his Province; or by *Delegation*, as he whom the Archbifhop or Vicar-General, does for the Time depute. See VICAR, *&c.*

The *Dean* and *Chapter* of *Canterbury*, are *Guardians* both for the Diocefe, and the whole Province, during a Vacancy of the Archbifhop.

GUARDIAN, or *Warden*, of the *Cinque-Ports*, is an Officer who has the Jurifdiction of the Cinque-Ports, with all the Power that the Admiral of *England* has in other Places. See CINQUE-PORTS, and ADMIRAL.

Cambden relates, that the *Romans*, after they had fettled themfelves, and their Empire in our Ifland, appointed a Magiftrate or Governour over the Eaft Parts where the Cinque-Ports lie, with the Title of *Comes Littoris Saxonici per Britanniam*; having another that bore the like Title, on the oppofite Side of the Sea. Their Bufinefs was to ftrengthen the Sea Coaft with Munition againft the Outrages and Robberies of the Barbarians. And that Antiquary takes our Warden of the Cinque-Ports to have been erected in Imitation hereof. *Britannia*. p. 228.

GUARDIAN *of the Peace*. See CONSERVATOR *of the Peace*.

GUELPHS, or GUELFS, a celebrated Faction in *Italy*, Antagonifts of the *Gibellins*. See GIBELLIN.

The *Guelphs* and *Gibellins* fill'd *Italy* with Blood and Carnage for many Years. The *Guelphs* ftood for the Pope, againft the Emperor. Their Rife is referr'd by fome to be the Time of *Conrad* III. in the 12th Century; by others to that of *Frederic* I. and by others, to that of his Succeffor *Frederic* II. in the 13th Century.

The Name *Guelf* is commonly faid to have been form'd from that of *Welfe*, *Welfo*, on the following Occafion: The Emperor *Conrad* III. having taken the Dutchy of *Bavaria* from *Welfe* VI. Brother of *Henry* Duke of *Bavaria*, *Welfe*, affifted by the Forces of *Roger* King of *Sicily*, made War on *Conrad*, and thus gave Birth to the Faction of the *Guelfs*.

Others chufe rather to derive the Name *Welfe* from that of *Guelfon*. Others, again, derive the Name *Guelfs* from the *German Wolff*, on account of the grievous Evils committed by that cruel Faction. Laftly, others derive the Denomination from that of a *German* called *Guelfe*, who lived at *Pifloye*; adding, that his Brother, named *Gibel*, gave the Name to the *Gibellines*: Under which Head, the Reader will find a more ample Account of the Origin and Hiftory of thofe celebrated Factions.

GUERITE, in Fortification, a fmall Tower of Wood or Stone, placed ufually on the Point of a Baftion, or on the Angles of the Shoulder; to hold a Centinel, who is to take care of the Ditch, and watch out againft a Surprize—

GUEST-TAKERS, or GIST-TAKERS. See AGISTORS.

GUET,

GUET, a *French* Term of War, signifying *Watch*; particularly used for a Person posted as a *Spy* in any Place, to have an Eye thereto, and give Notice of what passes. See CENTINEL, SENTRY, &c.

GUET is also used for a *Corps de Garde* posted at any Passage; or Company of Guards who go on the Patrol. See WATCH.

Some Officers are exempted from *Guet* and Guard, *i. e.* Watch and Ward.

In the same Sense they say *Guet de Nuit*, Night Watch: *Mot de Guet*, Watch-Word: *Guet Royal*: *Guet Bourgeoise*, &c.

The *Chevalier de Guet*, is the Officer who commands the *Guet Royal*, or Royal Watch.

GUEULE, in Architecture. See GULA.

GUIDON, a sort of Flag, or Standard bore by the King's Life-Guard; being broad at one Extreme, and almost pointed at the other, and slit or divided into two. See FLAG, STANDARD, &c.

The *Guidon* is the Ensign or Flag of a Troop of Horse-Guards. See GUARD.

GUIDON is also the Officer who bears the *Guidon*.

The *Guidon* is that in the Horse-Guards, which the Ensign is in the Foot. See ENSIGN.

The *Guidon* of a Troop of Horse takes place next below the *Cornet*.

GUIDONS, GUIDONES, or *Schola Guidonum*, was a Company of Priests, established by *Charlemaign* at *Rome*, to conduct and guide Pilgrims to *Jerusalem*, to visit the holy Places; to assist them in case they fell sick, and to perform the last Offices to them in case they died.

GUIDRIGILD. See WEREGILD.

GUILD, GELD, or GILD. See GILD.

GUILD HALL, or GILD-HALL, the great Court of Judicature for the City of *London*. See HALL.

In it are kept the Mayor's Court, the Sheriffs Court, the Court of Hustings, Court of Conscience, Court of Common-Council, Chamberlain's Court, &c. See MAYOR'S-COURT, COMMON-COUNCIL, CHAMBERLAIN, &c.

Here also the Judges sit upon *Nisi prius*, &c.

GUINEA, a Gold Coin struck, and current in *England*. See COIN.

The Value or Rate of *Guineas* has varied: It was first struck on the Footing of 20 Shillings; by the Scarcity of Gold it has since advanced to 21 Shillings and 6 Pence; but is now sunk to 21 Shillings.

The Pound Weight Troy of Gold is cut into Forty-four Parts and an half; each Part makes a *Guinea*. See GOLD.

This Coin took its Denomination *Guinea*, by reason the Gold whereof the first were struck, was brought from that Part of *Africa* called *Guinea*; for which Reason it likewise bore the Impression of an Elephant.

GUINEA-*Pepper*. See PEPPER.

GULA, in Anatomy, the *Gullet*; or that Conduit by which Animals take down Food into the Stomach. See DEGLUTITION.

GULE, GUEULE, or GOLA, in Architecture, a wavy Member, whose Contour resembles the Letter S; called by the *Greeks Cymatium*, q. d. a little Wave, and by our Workmen an *Ogee*. See CYMATIUM and OGEE.

This Member is of two Kinds, *recta* and *inversa*:

The *first*, and principal, has its Cavity above, and Convexity below. This always makes the Top of the Corona of the Cornice, jetting over the Drip of the Cornice like a Wave ready to fall.

It is called *Gula recta*, and by the *French Doucine*. Sometimes it is absolutely called the *Entablature*, as being the first or uppermost Member thereof. See DOUCINE, CORONA, CORNICE, &c.

The *second* is just the reverse of the former, its Cavity being at the Bottom; so that it appears inverted, with regard to the former. This is used in the Architrave, and sometimes in the Cornice, along with the former, only separated by a Reglet.

Some derive the Word from the Resemblance these Members bear to the *Gula*, or Throat of a Man: Others from the Herald's Term *Gules*; as supposing the Moulding formed from the antient manner of wearing their Garments, which consisted of Slips or Swaths, alternately Fur and Stuff of various Colours; the Intervals between which, were called *Gules* or *Guales*.

GULES, in Heraldry, signifies the Colour *Red*. See COLOUR and RED.

The same Colour, in the Coats of Noblemen, is, by some, called *Ruby*; and in those of sovereign Princes *Mars*: but this is no standing Practice. See METAL, PRETIOUS STONE, &c.

In Engraving, *Gules* is express'd by perpendicular Strokes drawn from the Top of the Escucheon to the Bottom, with the Letter G.

This Colour is reputed a Symbol of Charity, Valour, Hardiness, Generosity; and represents Blood Colour, Cinnabar and true Scarlet. It is the first of all Colours used in Armory; and is of that account, that antiently it was prohibited any Person to wear *Gules* in his Coat Armour, unless he were a Prince, or had Permission from the Prince. *Spelman* in his *Aspilogia*, says this Colour was particularly honour'd by the *Romans*, as it had been before by the *Trojans*; and that they painted the Bodies of their Gods, and of their Generals that triumph'd, with Vermillion—Under the Consuls, the *Roman* Soldiers wore *Red*; whence they were denominated *Russati*. *John de Bado Aureo* adds, that the Red Garment, which the *Greeks* call *Phœnician*, and we Scarlet, was first used by the *Romans*, to prevent seeing of the Blood issue from Wounds in Fight.

In effect, *Gules* has always been esteem'd an Imperial Colour; the Emperors were cloathed, shod, and had their Appartments furnish'd with Red: Their Edicts, Dispatches, Signatures, and Seals, were of Red-Ink, and Red Wax; whence the Name *Rubricks*. See RUBRIC.

Fa. *Monet* derives the Word *Gules*, *Gueules*, from the Hebrew *Gulud*, and *Guludit*, a reddish Pellicle or Skin appearing on a Wound when it begins to heal: But F. *Menestrier* reproaches him, that there were no such Words in the *Hebrew* Tongue. This, however, is not true: All the Eastern Languages, the *Hebrew*, *Chaldee*, *Syriac*, and *Arabs*, say גלד, *Gheled*, for *Cutis*, *Pellis*; when the *Arabic Gulud*. And in the general, the Word *Gules* signifies Red among most of the oriental Nations: The *Arabs* and *Persians* give the Name to the Rose.

Others, with *Nicod*, derive the Name *Gules* from *Gula*, the Throats of Animals, being generally Red; whence the Latin *Cusculium*, of the Greek κόκκος, Scarlet Grain.

GULLET. See OESOPHAGUS.

GULPH, or GULF, in Geography, an Arm or Part of the Ocean running up within the Land.—Such is the *Gulph* of *Venice*, called also the *Adriatic Sea*; the *Gulph* of *Lyons*, the *Gulph* of *Mexico*, of *Florida*, &c. See OCEAN.

A *Gulph* is strictly distinguished from a *Sea*, in that that the latter is larger. See SEA. From a *Bay*, or Sinus, it is again distinguished by its being greater than the same. See BAY.

Some will have it essential to a *Gulph*, to run into the Land thro' a Streight or narrow Passage. See STREIGHT.

The Sea is always most dangerous near *Gulphs*, by reason of the Currents being penn'd up by the Shores. The Word is form'd of the *Greek* κόλπος; which *Guichart* again derives from the *Hebrew* עוב, *Gob*. *Du Cange* derives it from the barbarous Latin *Gulfum* or *Gulfus*, which signifies the same Thing.

GUM, GUMMI, a vegetable Juice exsuding thro' the Pores of certain Plants, and there hardening into a tenacious transparent Mass. See PLANT.

Gum is properly one of the Juices of the Bark: It is drawn thence by the Sun's Warmth, in Form of a glutinous Humour; and by the same Cause is afterwards inspissated, concocted, and render'd tenacious

The Character of *Gums*, whereby they are distinguished from Resins and other vegetable Juices, is, that they are dissoluble in Water, and at the same Time inflammable by Fire. See MENSTRUUM, WATER, and FIRE.

In the general they are more viscid, and less friable, and generally dissoluble in any aqueous Menstruum; whereas Resins are more sulphurous, and require a spirituous Dissolvent. *Boerhaave* considers a *Gum* as a sort of saponaceous Fat; which beside its oily Principle in common with a Resin, has some other Ingredient that renders it miscible with Water. See RESIN.

GUMS are different, according to the different Trees, Roots, &c. they ooze from: Some Authors distinguish them into *Aqueous*, and *Resinous Gums*: The first, those dissoluble in Water, Wine, and the like Fluids; The second, those only dissoluble in Oil.

To these two some add a third *anomalous* Kind, *viz.* those soluble with much Difficulty either in Water or Oil.

Among the Class of *Gums* are usually ranked, *Gum-Anima*, *Arabic*, *Gutta*, *Adraganth*, *Ammoniac*, *Assa Fœtida*, *Bdellium*, *Balm*, *Benjoin*, *Camphor*, *Copal*, *Elemy*, *Frankincense*, *Euphorbium*, *Galbanum*, *Lacca*, *Manna*, *Myrrh*, *Olibanum*, *Sagapenum*, *Sanguis Draconis*, *Sarcocolla*, *Stacte*, *Storax*, *Tacamahacha*, *Turpentine*. See each described under its proper Article.

Theophrastus speaks of a way of multiplying Plants, perform'd *per Lachrymas*, by means of the *Gum* or Resin; but *Agricola* takes this to be only practicable where there are Seeds in the *Gum*.

GUM-*Anima*, or *Animi*, is a resinous Juice oozing from a Tree by the *Portugueze* called *Courbari*, growing in divers Parts of *America*.

This *Gum* is very hard and transparent, of an agreeable Smell, not unlike Amber: It neither dissolves in Water nor Oil, and consequently is not properly accounted a *Gum*. In lieu of this, they frequently substitute *Copal*.

GUM-*Arabic*, call'd also *Thebaic*, *Sarracenaic*, *Babylonish*, and *Achantine*, from the Places or the Tree which produce it, is the Juice of a little Tree growing in *Egypt*, of the *Cassia* Kind, called in Latin *Acacia foliis Scorpioides Leguminosa*. 'Tis very transparent, glutinous upon the Tongue, almost insipid to the Taste, and twisted somewhat in form ner of a Worm.

It

It is esteem'd good to incrassate, to stop the Pores, blunt the Points of too pungent Medicines, and temper the Acrimony of the Trachea in Coughs, &c.

Gum-*Gutta*, or *Gutta-Gamba*, or *Gutta-Gemou*, or *Gamandra*, popularly *Gamboche*, is a resinous *Gum* brought from the Kingdom of *Siam*, &c. in large Pieces fashion not unlike Saucidges, hard, brittle, and very yellow.

It ouzes from Incisions made in a kind of prickly Shrub, which climbs up the neighbouring Trees. It purges violently both upwards and downwards; and is particularly used in Dropsies, the Itch, &c. but it is dangerous.

It serves also to make a yellow Colour, for painting in Miniature. See Miniature.

Gum-*Senegal*, is the *Gum* ordinarily sold by the Druggists for *Gum-Arabic*, which it resembles very nearly both as to Form and Virtue: It is either white bordering on the yellow, or of a deep Amber Colour, transparent, &c. It ouzes out of a prickly Shrub common enough in *Africa*. The *Gum* is brought us from *Senegal*, whence its Name.—

Gummo-*Resin*, or *Gum-Resin*, is a harden'd Juice of a middle Nature between a *Gum* and a *Resin*, being both dissoluble in aqueous Menstruums like a *Gum*; and in oleaginous ones like a *Resin*.

Such are Mastic, Camphor, Storax, &c.

Some Naturalists make a Class of *Irregular* Gummo *Resins*, being such as dissolve, tho' with Difficulty, and not perfectly, both in aqueous and oleaginous Liquors; as *Bdellium*, *Myrrh*, &c.

Gum, among Gardeners, is a Disease incident to Fruit Trees, of the Stone kind, as Peaches, Plumbs, Apricots, Cherries, &c. See Disease, &c.

The *Gum* is a kind of Gangrene, arising from a Corruption of the Sap, which extravalates and hardens. It usually begins on some naked or broken Part, and spreads it self to the rest. To avoid its spreading, *M. Quintinie* directs to cut off the morbid Branch two or three Inches below the Part affected.

This *Gum* is no more than a thick, distemper'd, viscid Juice, which not being able to make its way through the Fibres of the Body of the Tree, to feed and supply them, is obliged, by the Protrusion of other succeeding Juice, to burst its Vessels, which lie between the Wood and Bark, and to ouze out upon the Bark.

When the Distemper surrounds the Graft, it admits of no Remedy: When it is only on one Side of a Bough, the *Gum* must be taken off to the Quick of it; some Cow-dung clap'd on the Wound, and cover'd over with a linnen Cloth, and tied down.—

GUN, a Fire-Arm, or Weapon of Offence, which forcibly discharges a Ball, Shot, or other offensive Matter, thro' a Cylindrical Barrel, by means of Gun-powder. See Ball, Gun-powder, Arm, &c.

Gun is a general Name, under which are included divers, or even most Species of Fire-Arms: They may be divided into *great* and *small*.

Great-Guns, called by the general Name *Cannon*, make what we call *Ordnance*, or *Artillery*; under which come the several Sorts of *Cannon*, as Cannon-Royal, Demi-Cannon, &c. *Culverins*, *Demi-Culvers*, *Sakers*, *Minions*, *Falcons*, &c. See Ordnance; see also Cannon, Culverin, &c.

Small Arms include

Muskets, *Musketoons*, *Carabines*, *Blunderbusses*, *Fowling-Pieces*, &c. See Carabine, Musket, Fowling-Piece, &c.

Pistols and *Mortars* are almost the only Kinds of regular Weapons charged with Gun-powder, that are excepted from the Denomination of *Guns*. See Mortar and Pistol.

For the History and Invention of *Guns*, } see { Cannon and Gun-Powder.
For the Use and Application of *Guns*, } see { Gunnery.

GUNNERS, Officers of the Tower, and other Garrisons, whose Business is to manage and look after the Ordnance mounted on the Lines and Batteries, which are all fix'd and ready with Cartouches and Ball, for Service, on the shortest Warning.—One or more of them are on Duty Day and Night. See Ordnance and Tower.

Master-Gunner *of England*, is an Officer appointed to teach and instruct all such as desire to learn the Art of Gunnery, and to administer to every Scholar an Oath; which, beside the Duty of Allegiance, obliges him not to serve any foreign Prince or State without Leave; nor to teach the Art of Gunnery to any, but such as have taken the said Oath; and to certify to the Master of the Ordnance, the Sufficiency of any Person recommended to be one of his Majesty's *Gunners*.

The *Gunner*, Sir *J. Moor* observes, should know his Pieces, and their Names, which are taken from the Height of the Bore, the Names of the several Parts of a Piece of Ordnance, how to tertiate his Gun, and how to dispart it. See Ordnance, Tertiate, Dispart, &c.

GUNNERY, the Art of shooting with Guns and Mortars, *i. e.* of charging, directing, and exploding those Fire-Arms to the best Advantage. See Gun and Mortar.

Gunnery is sometimes considered as a part of the military Art, and sometimes of Pyrotechny. See War and Pyrotechny.

To the Art of *Gunnery* belongs the Knowledge of the Force, and Effect of Gun-powder, the Dimensions of Pieces, and the Proportions of Powder and Ball they carry; with the Methods of Managing, Charging, Pointing, Spunging, &c. See Gun-powder, Charge, Pointing, Spunge, &c.

Some Parts of *Gunnery* are brought under mathematical Consideration, which among Mathematicians are called absolutely by the Name *Gunnery*, *viz.* the Method of elevating or raising the Piece to any given Angle, and of computing its Range; or of raising and directing it so, as it may hit a Mark or Object proposed.

The Instruments chiefly used in this Part of *Gunnery*, are the Callipers or Gunners Compasses, Quadrant, and Level; the Methods of applying which see under the Articles Calliper, Level, and Quadrant.

The Line or Path in which the Bullet flies, whatever Direction or Elevation the Piece is in, is found to be the same with that of all other Projectiles, *viz.* a Parabola. See Parabola.

Hence, the particular Laws observed in the Motion or Flight of the Ball, its Velocity, Extent, &c. with the Rules for hitting Objects, are delivered under the Article Projectile.

Malthus, an *English* Engineer, is mentioned as the Person who first taught any regular Use of Mortars, in the Year 1634; but all his Knowledge was experimental and tentative; he knew nothing of the Curve the Shot describes in its Passage, nor of the Difference of Range at different Elevations. And most of the Gunners and Engineers employ'd about Batteries, &c. to this Day go by no better Rules: If the Range does not hit right, they raise or lower the Piece, till they bring it to a Truth: And yet there are certain Rules, founded on Geometry, for all these Things; most of which we owe to *Galileo* Engineer to the Grand Duke of *Tuscany*, and his Disciple *Torricellius*.

A Ball or Bomb going out of a Piece, we find, never proceeds in a streight Line towards the Place it is levelled at, but begins to rise from its Line of Direction the Moment it is out of the Mouth of the Piece.—This some account for thus: The Grains of Powder nighest the Breech, taking Fire first, press forward, by their precipitated Motion, not only the Ball, but likewise those Grains which follow the Ball along the Bottom of the Piece; where successively taking Fire, they strike, as it were, the Ball underneath, which because of a necessary Vent, has not the same Diameter, as the Diameter of the Bore; and so insensibly raise the Ball towards the upper Edge of the Mouth of the Piece, against which it so rubs in going out, that Pieces very much used, and whose Metal is soft, are observed to have a considerable Canal there, gradually dug by the Friction of Balls. Thus the Ball going from the Cannon, as from the Point of the Parabola E, Tab. *Fortification*, Fig. 13. raises it self, in its Progress, to the Vertex G; after which it descends by mix'd Motion.

Ranges made from the Elevation of 45 Deg. are the greatest; and those made from Elevations equally distant from 45 Deg. are equal; that is, a Piece of Cannon, or a Mortar, level'd to the 40th Deg. will throw a Ball, or Bomb, the same Distance, as when they are elevated to the 50th Deg. and as many at 30 as 60, and so of others.

It has been shewn, that to find the different Ranges of a Piece of Artillery in all Elevations, we must, 1*st*. Make a very exact Experiment by firing off a Piece of Cannon, or Mortar, at an Angle well known, and measuring the Range made, with all the Exactness possible; for by one Experiment well made, we may come at the Knowledge of all others, in the following Manner.

To find the Range of a Piece, at any other Elevation required, say, as the Sine of double the Angle under which the Experiment is made, is to the Sine of double the Angle of an Elevation proposed, so is the Range known by the Experiment, to the other required.

GUN-Powder, a Composition of Salt-Peter, Sulphur, and Charcoal, mixed together, and usually granulated; which easily takes Fire, and rarifies or expands with great Vehemence, by means of its Elastic Force. See Elasticity, Rarefaction, &c.

'Tis to this *Powder* we owe all the Action, and Effect of Guns, Ordnance, &c. so that the modern military Art, Fortification, &c. depend wholly thereon. See Gun, Ordnance, Fortification, &c.

The Invention of *Gun-powder* is ascribed, by *Polydore Virgil*, to a Chymist, who having accidentally put some of this Composition in a Mortar, and cover'd it with a Stone; it happen'd to take Fire, and blew up the Stone.

Thevet says, the Person here spoke of, was a Monk of *Frybourg*, named *Constantine Anelzen*: But *Belleforet* and other Authors, with more Probability, hold it to be *Bartholdus Schwartz*, or the Black: At least it is affirm'd, he

he first taught the Use of it to the *Venetians*, in the Year 1380, during the War with the *Genoese*; and that it was first imployed in a Place antiently called *Fossa Caudeana*, now *Chioggia*, against *Laurence de Medicis*; and that all *Italy* made Complaints against it, as a manifest Contravention of a fair Warfare.

But what contradicts this Account, and shews *Gun-powder* of an older Æra, is, that *Peter Messius*, in his various Readings, mentions, that the *Moors* being besieged in 1343, by *Alphonsus* XI. King of *Castile*, discharged a fort of Iron Mortars upon them, which made a Noise like Thunder: which is seconded by what *Don Pedro* Bishop of *Leon* relates in his Chronicle of King *Alphonsus* who reduced *Toledo*, *viz.* that in a Sea Combat between the King of *Tunis*, and the *Moorish* King of *Sevil*, above 400 Years ago, those of *Tunis* had certain Iron Tuns or Barrels, wherewith they threw Thunder-bolts of Fire.

Du Cange adds, that there is mention made of it in the Registers of the Chambers of Accounts in *France* as early as the Year 1338. See CANNON.

To say no more, it appears that our *Roger Bacon* knew of *Gun-powder* 150 Years before *Schwartz* was born: That excellent Friar mentions the Composition in express Terms, in his Treatise *de Nullitate Magiæ*, published at *Oxford* in 1216. 'You may raise Thunder and Lightning at pleasure, 'says he, by only taking Sulphur, Nitre, and Charcoal, 'which singly have no Effect, but mix'd together, and 'confined in a close Place, cause a Noise and Explosion 'greater than that of a Clap of Thunder.'

There are divers Compositions of *Gun-powder*, with respect to the Proportions of the three Ingredients; to be met with in Pyrotechnical Writers: But the Process is much the same in all.

The Sulphur and Salt-peter being purified, and reduced to Powder, are put, with the Charcoal-Dust, in a Mortar, moisten'd with Water or Spirits of Wine, or the like, and pounded 24 Hours together; taking Care to wet the Mass from time to time, to prevent its taking Fire: Lastly, squeezing it through a Sieve, it is formed into little Grains, or Globules; which being dried, the Powder is compleat; and the least Spark being struck thereon from a Steel and Flint, the whole will be immediately inflam'd, and burst out with extreme Violence.

The Effect is not hard to account for: The Charcoal part of the Grain whereon the Spark falls, catching Fire like Tinder, the Sulphur and Nitre are readily melted, and the former also breaks into Flame; and at the same time the contiguous Grains undergo the same Fate. Now 'tis known that Salt-peter, when ignited, rarifies to a prodigious Degree. See SALT-PETER, and RARIFICATION.

Sir *J. Newton* reasons thus on the Point: The Charcoal and Sulphur in *Gun-powder*, easily take fire, and kindle the Nitre; and the Spirit of the Nitre being thereby rarified into Vapour, rushes out with an Explosion much after the manner that the Vapour of Water rushes out of an Æolipile; the Sulphur also being volatile, is converted into Vapour, and augments the Explosion: Add that the acid Vapour of the Sulphur, namely, that which distils under a Bell into Oil of Sulphur, entring violently into the fix'd Body of the Nitre, lets loose the Spirit of the Nitre, and excites a greater Fermentation, whereby the Heat is farther augmented, and the fix'd Body of the Nitre is also rarified into Fume, and the Explosion thereby made more vehement and quick.

For if Salt of Tartar be mixed with *Gun-powder*, and that Mixture be warmed till it takes Fire, the Explosion will be more violent and quick than that of *Gun-powder* alone, which cannot proceed from any other Cause than the Action of the Vapour of the *Gun-powder* upon the Salt of Tartar, whereby that Salt is rarified. See PULVIS FULMINANS.

The Explosion of *Gun-powder* arises, therefore, from the violent Action whereby all the Mixture being quickly and vehemently heated, is rarified and converted into Fume and Vapour; which Vapour, by the Violence of that Action, becoming so hot as to shine, appears in the Form of Fume. See FIRE.

M. *de la Hire* ascribes all the Force and Effect of *Gun-powder*, to the Spring or Elasticity of the Air, Inclosed in the several Grains thereof, and in the Intervals or Spaces between the Grains: The Powder being kindled, sets the Springs of so many little Parcels of Air a-playing, and dilates them all at once; whence all the Effect; the *Powder* itself only serving to light a Fire which may put the Air in Action; after which the whole is done by the Air alone. See AIR.

GUN-POWDER is a Commodity of such Consequence, both in respect of Speculation, of War, and of Commerce; (the Consumption thereof being incredible,) that it will deserve a more particular Detail—To make *Gun-powder* duely, then, Regard is to be had, that the *Salt-Peter* be pure, and in fine large Crystals or Shootings: Otherwise, it is to be purified, by taking away its fix'd or common Salt, and earthy Parts, thus: Dissolve 10 Pounds of Nitre, in a sufficient Quantity of fair Water, settle, filtrate, and evaporate it in a glazed Vessel, to the Diminution of half, or till a Pellicle appear on it: The Vessel may then be taken off from the Fire, and set in a Cellar: In twenty-four Hours the Crystals will shoot, which separate from the Liquor; and after the like manner may the Liquor be crystallizd several Times, till all the Salt be drawn forth: This done, put it into a Kettle, and that on a Furnace with a moderate Fire, which gradually encrease till it begins to smoke, evaporate, loose its Humidity, and grow very white: It must be kept continually stirring with a Ladle, for fear it should return to its former Figure, whereby its Greasiness will be taken away; after that, so much Water is to be poured into the Kettle, as will cover the Nitre, and when 'tis dissolv'd and reduc'd to the Consistency of a thick Liquor, it must be stirred with a Ladle, without Intermission, till all the Moisture is again evaporated, and it be reduced to a dry and white Meal.

The like Regard is to be had to the Sulphur, chusing that which is in huge Lumps, clear and perfectly yellow, not very hard nor compact, but porous; nor yet too much shining; and if when set on the Fire, it freely burns away all, leaving little or no resident Matter, 'tis a sign of its Goodness; so likewise if it be pressed between two Iron Plates that are hot enough to make it run, and in the running appear yellow, and that which remains of a reddish Colour, it may be concluded to be fit for the purpose—But, in case the same be foul and impure, it may be prepared in this manner; Melt the Sulphur in a large Iron-Ladle or Pot over a very gentle Coal-fire well kindled, but not flaming; then scum off all that rises on the Top, and swims upon the Sulphur; take it presently after from the Fire, and strain it through a double Linnen-Cloth, letting it pass at leisure; so will it be pure, the gross filthy Matter remaining behind in the Cloth.

For the Charcoal, the third Ingredient, such should be chosen as is large, clear, free from Knots, well burnt, and cleaving.

There are three Kinds of *Powder*, viz. *Cannon-Powder*, *Musket-Powder*, and *Pistol-Powder*, of each of these again there are two Sorts, a *stronger* and a *weaker*; all which Differences arise only from the various Proportions.

The Proportions are thus: In the stronger *Cannon-Powder*, to every hundred Pounds of Salt-Peter, 25 Pounds of Sulphur are generally allowed, with the same Quantity of Charcoal; and in the weaker *Cannon-Powder*, to every hundred Pounds of Salt-Peter, 20 Pounds of Sulphur, and 24 of Charcoal. As for the stronger *Musket-Powder*, an hundred Pounds of Salt-Peter require 18 Pounds of Sulphur, and 20 of Charcoal; and in the weaker there go to an hundred Pounds of Salt-Peter, 15 of Sulphur, and 18 of Charcoal. In the stronger *Pistol-Powder*, an hundred Pounds of Salt-Peter require 12 of Sulphur, and 15 of Coal; whereas the weaker has an hundred Pounds of Salt-Peter, only 10 of Sulphur, and but 18 of Charcoal.

Other Authors prescribe other Proportions: *Semienowitz*, for Mortars, directs an hundred Pounds of Salt-Peter, 25 of Sulphur, and as many of Charcoal: For great Guns, an hundred Pounds of Salt-Peter, 15 of Sulphur, and 18 of Salt-Peter: For *Muskets* and *Pistols*, an hundred Pounds of Salt-Peter, 8 of Sulphur, and 10 of Charcoal.

Miethius extols the Proportion of one Pound of Salt-Peter to three Ounces of Charcoal; and two, or two and a quarter of Sulphur: than which, he affirms, no *Gun-powder* can possibly be stronger.

He adds, that the usual Practice of making the *Gun-powder* weaker for Mortars, than Guns, as in the Example above, is without any Foundation, and renders the Expence needlesly much greater: For, whereas to load a large Mortar, 24 Pounds of common Powder is required, and consequently to load it ten times 240 Pounds; he shews, by Calculation, that the same Effect would be had by 180 Pounds of the strong *Powder*.

As to the Process of making the Gun-powder: All the Ingredients are first to be finely powder'd, then moistened with fair Water, or Vinegar, or Spirit of Wine, or with Water and Spirit of Wine mixed together, or Urine, which is usual; afterwards all must be well beat for the Space of 24 Hours at least, and then granulated after the following manner: A Sieve is to be prepared with a Bottom of thick Parchment made full of round Holes, and the former beaten Mass moisten'd before-hand, with 20 Ounces of Spirit of Wine, 12 of Spirit of Wine-Vinegar, 13 of Spirit of Nitre, 2 of Spirit of Sal Armoniack, and 1 Ounce of Camphire dissolved in Spirit of Wine, and let all these be mingled together. Otherwise, take 40 Ounces of Brandy, and one of Camphire, and let them be mixt and dissolved for the said Purpose: When the whole Compound is made up into Balls as big as Eggs, put them into the Sieve, and with them a wooden Ball; which move up and down about the Sieve, so that it may break the Balls of Powder, and make it pass thro' the little Holes in Corns.

For greater Quantities, Mills are usually provided, by means of which, more Work may be perform'd in one Day, than a Man can do in an hundred. See MILL.

Gun-Powder may also be made of several Colours, but the Black is the most serviceable of any. To make *White-Powder*, proceed thus:

Take ten Pounds of Salt-Peter, one of Sulphur, and two of the Saw-dust of Elder or the like Wood powder'd fine; mix them together, and use the former Method—Or thus, with ten Pounds of Nitre, and a Pound and a half of Sulphur dried and finely powder'd, mix two Pounds of Saw-dust, &c. or instead of that, rotten Wood dried and powdered, with two Pounds and three Ounces of Salt of Tartar; whereof make *Powder* to be kept close from the Air.

'Tis also to be noted, that in making *Pistol-Powder*, if you would have it stronger, it should be stirred up several Times while in the Mortar, and moisten'd with Water distill'd from Orange or Lemmon-peels in an Alembick, and then beat for 24 Hours, as aforesaid.

Corn-Powder is of so much greater Force than when in Dust or Meal, that 'tis concluded, the larger Grains are stronger than the smaller; for which Reason *Cannon-Powder* is granulated larger than other Powders; and therefore *Powder* in loading should not be beat home into the Piece, so as to bruise the Grains.

There are three Ways to prove the Goodness of *Gunpowder*, 1. By Sight, for if it be too black, it is too moist, or has too much Charcoal in it; so also if rubbed upon white Paper, it blackens it more than good *Powder* does: but if it be a kind of Azure Colour, somewhat inclining to Red, 'tis a sign of good *Powder*. 2. By Touching, for if in crushing it with your Fingers-Ends, the Grains break easily and turn into Dust without feeling hard, it has too much Coal in it; or if in pressing under your Fingers upon a smooth hard Board, some Grains feel harder than the rest, or as it were dent your Fingers-Ends, the Sulphur is not well mixed with the Nitre, and the *Powder* is naught. 3. By Burning, wherein little Heaps of *Powder* are laid upon White Paper three Inches or more asunder, and one of them fired; which if it only fires all away, and that suddenly and almost imperceptibly, without firing the rest, and make a small thundering Noise, and a white Smoke rises in the Air almost like a Circle, the Powder is good; if it leaves black Marks, it has too much Coal, or is not well burnt: If it leaves a Greasiness, the Sulphur or Nitre are not well cleansed or ordered. Again, if two or three Corns be laid on Paper an Inch distant, and Fire be put to one of them, and they all fire at once, leaving no Sign behind, but a white smoaky Colour in the Place, and the Paper not touched; the *Powder* is good. So also if fired in a Man's Hand and it burns not: but if black Knots appear which burn downwards in the Place where Proof was made after firing, 'tis not strong enough, but was Nitre.

To recover damaged *Powder*, the Method of the *Powder*-Merchants is to put part of the *Powder* on a Sailcloth, to which they add an equal Weight of what is equally good; and with a Shovel mingle it well together, dry it in the Sun, and barrel it up, keeping it in a dry and proper Place.

Others again, if it be very bad, restore it by moist'ning it with Vinegar, Water, Urine, or Brandy; then they beat it fine, searce it, and to every Pound of *Powder*, add an Ounce, an Ounce and half, or two Ounces (according as 'tis decay'd) of melted Salt-Peter; afterwards these Ingredients are to be moisten'd and mixed well, so that nothing can be discern'd in the Composition; which may be known by cutting the Mass, and then they granulate as aforesaid.

In Case the *Powder* be in a manner quite spoiled, the only way is to extract the Salt-Peter with Water according to the usual manner, by boiling, filtrating, evaporating, and crystallizing; and then with fresh Sulphur and Charcoal, to make it up a-new again.

GUNTERS-LINE, call'd also *Line of Lines*, and *Line of Numbers*, is a graduated *Line* usually placed on Scales, Rules, Sectors, &c. See SCALE, RULE, &c.

This *Line* is only the Logarithms transfer'd upon a Ruler, from the Tables, so as to answer much the same Purposes instrumentally, as the Logarithms themselves do arithmetically.—What the Logarithms do by Addition and Substraction, is done in this *Line* by turning a Pair of Compasses this way and that. See LOGARITHM.

This *Line* has been contrived various Ways, for the Advantage of having it as long as possible—As, first, on the two-foot Ruler, contrived by *Edm. Gunter*, and called *Gunter's-Scale*; whence also the *Line* itself took its popular Denomination *Gunter's-Line*. See GUNTER'S-*Scale*.

After this, *Wingate* doubled the *Line*, or laid it together, so as one might either work right on, or a-cross. Then it was projected in a Circle, by *Oughtred*, and made to slide by the same Author: And lastly, projected in a kind of Spiral, by *Brown*.

The Method of using or applying it, is much the same in all; except that in *Gunter's* and *Wingate's* way; common Compasses are used: In *Oughtred's* and *Brown's*, flat Compasses, or an opening Index; and in the Sliding Rules no Compasses at all. See SLIDING-RULE.

Description of GUNTER'S-*Line, or the Line of Numbers.*

The *Lines* represented, is usually divided into an hundred Parts, whereof every Tenth is number'd, beginning with 1 and ending with 10: So that if the first great Division 1, signify one tenth of any whole Number or Integer, the next will signify 2, two tenths; 3, three tenths, &c. and the intermediate Divisions so many 100 Parts of the same Integer, or Tenths of one of the former Tenths. For Numbers greater than 10, the Sub-divisions must signify Integers, and the greater Divisions 10 Integers, so that the whole *Line* will express 100 Integers; and if you would have it still more, then the Sub-divisions to be each 10 Integers, and each great Division 100, so that the whole be 1000; and after the same Manner, may it be extended to 10000, by making each Sub-division 100.

A whole Number under four Figures being given, to find the Point on the Line of Numbers that represents the same.

Look for the first Figure of the Number among the large figured Divisions; this leads you to the first Figure of your Number. For the second, count so many Tenths from that Division forwards, as that second Figure amounts to. For the third Figure, count from the last Tenth so many Centesms as the third Figure contains: And so for the fourth Figure, count from the last Centesm so many Millions as the fourth Figure has Units, or is in Value; that will be the Point where the Number propounded is, on the *Line* of Numbers.

For an Example—To find the Point representing the Number 1728—for 1000 take the first grand Division marked 1 on the *Line*; then for 7 reckon seven Tenths forwards, this is 700; for 2, reckon two Centesms from the seventh Tenth; and for 8, estimate the following Centesm to be divided into 10 Parts, if it be not expressed, which in *Lines* of ordinary Length cannot be done; and 8 of that supposed 10 Parts, is the precise Point for 1728, the Number proposed to be found; and the like of any other Number.

To find a Fraction, consider that the *Line* properly only expresses decimal Fractions, as thus, $\frac{1}{10}$, or $\frac{1}{100}$, or $\frac{1}{1000}$, and nearer the Rule cannot well come than as one Inch, one Tenth, one Hundred, or one Thousand Part of an Inch: So that for other Fractions, as Quarters, Half-Quarters, &c. you must either estimate them as near as you can reasonably, or else reduce them into Decimals.

Use of Gunter's-Line, *or the Line of Numbers.*

1° *Two Numbers being given*, to find a third geometrically proportional to them; and to three a fourth Number, to four a fifth, &c.—Extend the Compasses on the *Line* from one Number to another; then that Extent applied upwards or downwards, as you would either increase or diminish the Number from either of the Numbers, the moveable Point will fall on the third proportional Number required. Again, the same Extent applied the same way from the third, will give a fourth; and from the fourth a fifth, &c.

For Example—Let the two Numbers 2 and 4 be proposed to find a third Proportional, &c. to them; extend the Compasses on the first Part of the *Line* of Numbers, from 2 to 4; which done, and the same Extent being applied upwards from 4, the moveable Point will fall on 8, the third Proportional required; and from 8 it will reach to 16, the fourth Proportional; and from 16 to 32 the fifth, &c. Contrariwise, if you would diminish, as from 4 to 2, the moveable Point will fall on 1, and from 1 to $\frac{5}{10}$ or .5; and from .5 to .25, &c.

But, generally, in this, and most other Works, make use of the small Divisions in the middle of the *Line*; that you may the better estimate the Fractions of the Numbers you make use of; for how much you miss in setting the Compasses to the first and second Term, so much the more you will err in the fourth; therefore the middle Part will be most useful. For Example; as 8 to 11, so is 12 to 16. .50, if you imagine one Integer to be divided but into 10 Parts, as they are on the *Line* on a two foot Rule.

2° *One Number being given to be multiplied by another, to find the Product*—Extend the Compasses from 1 to the Multiplicator; and the same Extent applied the same way from the Multiplicand, will make the moveable Point fall on the Product: Thus, if 6 be given to be multiplied by 5; extending the Compasses from 1 to 5, the same Extent will reach from 6 to 30, the Product sought.

3° *One*

3° *One Number being given to be divided by another, to find the Quotient*—Extend the Compasses from the Divisor *E. gr.* 25. to 1, and the same Extent will reach from the Dividend *E. gr.* 750, to the Quotient 30; or, extend the Compasses from the Divisor to the Dividend, the same Extent will reach the same way from 1 to the Quotient.

4° *Three Numbers being given, to find a fourth in direct Proportion*—Extend the Compasses from the first Number, suppose 7, to the second, *v. g.* 14: that done, the same Extent applied the same way from the third, 22, will reach to the fourth Proportional sought, *viz.* 44.

5° *Three Numbers being given, to find a fourth in Inverse Proportion*—Extend the Compasses from the first of the given Numbers, suppose 60, to the second of the same Denomination, *viz.* 30; if the Distance be applied from the third Number backwards, 5, it will reach to the fourth Number sought, 25.

6° *Three Numbers being given, to find a fourth in duplicate Proportion*—If the Denominations of the first and second Terms be Lines, extend the Compasses from the first Term to the second, of the same Denomination: This done, that Extent being applied twice the same way from the third Term, the moveable Point will fall on the fourth Term required. *E. gr.* the Area of a Circle, whose Diameter is 14, being 154, what will the Content of a Circle be, whose Diameter is 28; applying that Extent the same way from 154 twice, the moveable Point will fall on 616, the fourth Proportional or Area sought.

7° *To find a mean Proportional between two given Numbers*—Bissect the Distance between the given Numbers, the Point of Bisection will fall on the mean Proportional sought. Thus the Quotient of the two Extremes divided by one another. Extremes being 8 and 32, the middle Point between them will be found 16.

8° *To find two mean Proportionals between two given Lines*—Trissect the Space between the two given Extremes; the two Points of Trissection will give the two Means required—Thus if 8 and 27 be the two given Extremes, the two Means will be found 12 and 18.

9° *To find the Square Root of any Number under* 1000000—The Square Root of a Number is always a mean Proportional between 1, and the Number whose Root is required; yet with this general Caution, that if the Figures of the Number be even, that is, 2, 4, 6, 8, 10, *&c.* then you must look for the Unit at the beginning of the Line, and the Number in the second Part or Radius, and the Root in the first Part; or rather reckon 10 at the End to be Unity; and then both Root and Square will fall backwards towards the Middle in the second Length or Part of the Line—If they be odd, the Middle 1 will be most convenient to be counted Unity, and both Root and Square will be found from thence forwards towards 10—On this Principle the Square Root of 9 will be found to be 3; the Square Root of 64, to be 8, *&c.*

10° *To find the Cube Root of any Number under* 1000000000—The Cube Root is always the first of two mean Proportionals between 1 and the Number given, and therefore to be found by trissecting the Space between them. Thus the Cube Root of 1728 will be found 12; the Root of 17280, nearly 26; the Root of 172800 almost 56.

Though the Point on the Line representing all the square Numbers is in one Place, yet by altering the Unit, it produces various Points and Numbers for their respective Roots. —The Rule to find this, is to put Dots, or suppose them put over the first Figure to the Left-hand, the fourth Figure, the seventh, and the tenth: If then the last Dot on the Left-hand falls on the last Figure, as it does in 1728, the Unit must be placed at 1 in the Middle of the Line, and the Root, the Square, and the Cube, will all fall forwards toward the End of the Line.

If it fall on the last but 1, as in 17280, the Unit must be placed at 1 in the beginning of the Line, and the Cube in the second Length; or the Unit may be placed at 10 at the End of the Line; and then the Root, the Square, and Cube, will all fall backwards, and be found in the second Part, between the middle and the End of the Line. —Thus will the Cube Root of 8 be found 2; that of 27 3; that of 64, 4; that of 125, 5; that of 216, 6, *&c.*

For particular Uses of Gunter's-*Line in the Measuring of Timber, Gauging of Vessels*, &c. See Sliding-Rule.

For other Uses in Geometry, Trigonometry, *&c.* See Sector *and* Gunter's-Scale.

Gunter's-*Quadrant*, is a Quadrant made of Wood, Brass, or the like; being partly a Stereographic Projection on the Plane of the Equinoctial, the Eye supposed in one of the Poles: So that the Tropick, Ecliptick, and Horizon, are Arches of Circles, but the Hour-Circles all Curves, drawn by means of several Altitudes of the Sun for some particular Latitude every Day in the Year. See Stereographic and Projection.

The Use of this Instrument is to find the Hour of the Day, the Sun's Azimuths, *&c.* and other common Problems of the Globe; as also to take the Altitude of an Object in Degrees.

See its Description and Use more at large under the Article Gunter's-Quadrant.

Gunter's-*Scale*, called also by Navigators absolutely the *Gunter*, is a large Plain Scale, with divers Lines thereon; of great Use in working Questions in Navigation, *&c.* See Scale and Sailing.

On one Side the Scale represented Tab. *Trigonometry*, Fig. 35. are the Line of Numbers, marked Numbers; the Line of artificial Sines, marked Sines; the Line of artificial Tangents, marked Tangents; the Line of artificial versed Sines, marked V. S. the artificial Sines of the Rhumbs, marked S. R. the artificial Tangents of the Rhumbs, marked T. R. the Meridian Line in *Mercator's* Chart, mark'd Merid. and equal Parts marked E. P.—To which, on the shorter Scales, of a Foot long, are usually added Lines of Latitudes, Hours, and Inclinations of Meridians.

On the Backside of the Scale are the Lines usually found on a Plain Scale. See Plain-Scale.

The Lines of artificial Sines, Tangents, and Numbers are so fitted on this Scale, that by means of a Pair of Compasses, any Problem, whether in right-lined or spherical Trigonometry, may be solved very expeditiously, and with tolerable Exactness; whence the Instrument becomes extremely useful in all Parts of Mathematicks where Trigonometry is concerned; as Navigation, Dialling, Astronomy. See Trigonometry, *&c.*

The same Lines are also occasionally laid down on Rulers to slide by each other; hence called *Sliding-Gunters*; So as to be used without Compasses: but he that understands how to use them with, may, by what we have said of *Everard's* and *Coggeshall's Sliding-Rules*, use them without. See Sliding-*Rule*.

Use of Gunter's-*Scale*.

1° *The Base of a right-lined right-angled Triangle being given*, 30 *Miles, and the opposite Angle thereto* 26 *Degrees; to find the Length of the Hypothenuse.*

The trigonometrical Canon or Proportion is thus—As the Sine of the Angle, 26 Deg. is to the Base 30 Miles, so is Radius to the Length of the Hypothenuse—Set one Foot of the Compasses, therefore, on the 26th Deg. of the Line of Sines; and extend the other to 30 on the Line of Numbers, and the Compasses remaining thus opened, set one Foot on 90 Deg. on the End of the Line of Sines, and extend the other on the Line of Numbers: This will give 68 Miles and a half, for the Length of the Hypothenuse sought.

2° *The Base of a right-angled Triangle being given*, 25 *Miles, and the Perpendicular* 15; *to find the Angle opposite to the Perpendicular.*

As the Base 25 Miles is to the Perpendicular 15 Miles, so is Radius to the Tangent of the Angle sought.—Extend the Compasses, then, on the Line of Numbers, from 15 the Perpendicular given, to 25 the Base given; and the same Extent will reach the contrary way, on the Line of Tangents, from 45 Deg. to 31 Deg. the Angle sought.

3° *The Base of a right-angled Triangle being given, suppose* 20 *Miles, and the Angle opposite to the Perpendicular* 50 *Deg. to find the Perpendicular.*

As Radius is to the Tangent of the given Angle 50 Deg. so is the Base 20 Miles to the Perpendicular sought—Extend the Compasses then on the Line of Tangents, from the Tangent of 45 Deg. to the Tangent of 50 Deg. and the same Extent will reach on the Line of Numbers the contrary way, from the given Base 20 Miles, to the required Perpendicular 23 ¾ Miles.

Note, The Extent on the Line of Numbers is here taken from 20 to 23 ¾ forwards; that the Tangent of 50 Deg. may be as far beyond the Tangent of 45 Deg. as its Complement 40 Deg. wants of 45 Deg.

4° *The Base of a right-angled Triangle being given, suppose* 35 *Miles, and the Perpendicular* 48 *Miles; to find the Angle opposite to the Perpendicular.*

As the Base 35 Miles is to the Perpendicular 48 Miles, so is Radius to the Tangent of the Angle sought—Extend the Compasses from 35, on the Line of Numbers, to 48; the same Extent will reach the contrary way on the Line of Tangents, from the Tangent of 45 Deg. to the Tangent of 56 Deg. 5 Min. or 53 Deg. 55 Min.—To know which of those Angles the Angle sought is equal to, consider that the Perpendicular of the Triangle being greater than the Base, and both the Angles opposite to the Perpendicular, and the Base,

Base, making 90 Deg. the Angle opposite to the Perpendicular will be greater than the Angle opposite to the Base; and consequently the Angle 53 Deg. 55 Min. will be the Angle sought.

5° *The Hypothenuse of a right-angled Spherical Triangle being given, suppose 60 Degrees, and one of the Sides 20 Degrees, to find the Angle opposite to that Side.*

As the Sine of the Hypothenuse 60 Deg. is to Radius, so is the Sine of the given Side 20 Deg. to the Sine of the Angle sought—Extend the Compasses on the Line of Sines, from 60 Deg. to the Radius or 90 Deg. and the same Extent will reach on the Line of Sines the same Way, from 20 Deg. the given Side, to 23 Deg. 10 Min. the Quantity of the Angle sought.

6° *The Course and Distance of a Ship being given, to find the Difference of Latitude and Departure.*

Suppose a Ship sails from the Latitude of 50 Deg. 10 Min. North, S. S. W. 48. 5 Miles: As Radius is to the Distance sailed 48. 5 Miles, so is the Sine of the Course, which is two Points, or the second Rhumb, from the Meridian, to the Departure—Extend the Compasses from 8 on the artificial Sine Rhumb-Line, to 48.5 on the Line of Numbers; the same Extent will reach the same way from the second Rhumb, on the Line of artificial Sines of the Rhumbs, to the Departure Westing 18.6 Miles.

Again, As Radius is to the Distance sailed 48.5 Miles, so is the Cosine of the Course 67 Deg. 30 Min. to the Difference of Latitude—Extend your Compasses from the Radius, on the Line of Sines, to 48.5 Miles on the Line of Numbers; the same Extent will reach the same way, from 67 Deg. 30 Min. on the Line of Sines, to 44.8 on the Line of Numbers; which converted into Degrees, by allowing 60 Miles to a Degree, and substracted from the given North-Latitude 50 Deg. 10 Min. leaves the Remainder 49 Deg. 25 Min. the present Latitude.

7° *The Difference of Latitude and Departure from the Meridian being given; to find the Course and Distance.*

A Ship from the Latitude of 59 Deg. North, sails North-Eastward till she has altered her Latitude 1 Deg. 10 Min. or 70 Miles, and is departed from the Meridian 57.5 Miles, to find the Course and Distance—As the Difference of Latitude 70 Miles is to Radius, so is the Departure 57.5 Miles to the Tangent of the Course 39 Deg. 20 Min. or three Points and a half from the Meridian—Extend the Compasses from the fourth Rhumb, on the Line of artificial Tangents of the Rhumbs, to 70 Miles on the Line of Numbers, the same Extent will reach from 57.5 on the Line of Numbers to the third Rhumb and a half on the Line of artificial Tangents of the Rhumbs, to 70 Miles on the Line of Numbers.

Again; as the Sine of the Course 39 Deg. 20 Min. is to the Departure 57.5 Miles, so is the Radius to the Distance 90.6 Miles—Extend the Compasses from the third Rhumb and a half, on the artificial Sines of the Rhumbs, to 57.5 Miles on the Line of Numbers; that Extent will reach from the Sine of the eigth Rhumb, on the Sines of the Rhumbs, to 90.6 Miles on the Line of Numbers.

8° *Three Sides of an oblique Spherical Triangle being given, to find the Angle opposite to the greatest.*

Suppose the Side A B, *Fig.* 36. be 40 Deg. the Side B C 60 Deg. and the Side A C 96 Deg. to find the Angle ABC. Add the three Sides together, and from half the Sum substract the greater Side A C, and note the Remainder: Thus, *e. gr.* the Sum will be 196 Deg. half of which is 98 Deg. from which substracting 96 Deg. the Remainder is 2 Deg.

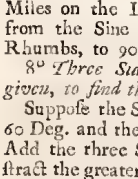
Then extend the Compasses from the Sine of 90 Deg. to that of the Side A B 40 Deg. and applying this Extent to the Sine of the other Side B C 60 Deg. you will find it reach to a fourth Sine 34 Deg.

Again; from this fourth Sine extend the Compasses to the Sine of half the Sum, *i. e.* the Sine of 72 Deg. the Complement of 98 Deg. to 180; this second Extent will reach from the Sine of the Difference 2 Deg. to the Sine of 3 Deg. 24 Min. against which, on the versed Sines, stands 151 Deg. 50 Min. the Quantity of the Angle sought.

GUN-SHOT *Wounds.* See Wound.

GUSSET, in Heraldry, one of the Abatements of Honour. See Abatement.

The *Gusset* is said to be appropriated to lascivious, effeminate, or wanton Persons. It is form'd of a Line drawn from the Dexter, or sinister Angle of the Chief, and descending diagonally to the chief Point; from whence another Line falls perpendicularly upon the Base: as in the Figure adjoining.



GUST, GUSTATION; } see { Taste and Goût, Tasting.

Gust-*Hospes*, is used by *Bracton* and other antient Writers, for a Stranger, or *Guest*, who lodges with a Person the second Night.

In the Laws of St. *Edward*, published by *Lambard*, it is written *Gest*. See Uncouth.

GUTTA, a Latin Term for what in *English* we call *Drop*. See Drop.

Guttæ *Anglicanæ*, the *English Drops*, or the *Volatile English Drops*, or *Goddard's Drops*, is a medicinal Liquor prepared from divers Ingredients; of sovereign Efficacy against Coagulations of the Blood, malignant Fevers, and particularly the Small-Pox, Obstructions, Epilepsies, drowsy Diseases, Vapours, &c.

The Inventor of these celebrated Drops, was Dr. *Goddard*, a Physician of *London*. The Secret of their Composition was purchased by King *Charles* II. at the Price of 6000 Pounds Sterling; whence the Denomination *Guttæ Anglicanæ*.

This costly Receipt, we shall here gratify the Reader withal, *a Meilleure Marche*: ' Take five Pounds of human ' *Cranium* of a Person hang'd, or dead of some violent ' Death, two Pounds of dried Vipers, two Pounds of Hart's- ' Horn, and two of Ivory; mince the whole small, put it in ' two or three Retorts, and distill it in a reverberatory Furnace, with the same Precautions as are ordinarily used in ' distilling Hart's-Horn and Vipers, to extract their volatile ' Salt. When the Vessels or Receivers are cold, unlute 'em, ' and shake them well, in order to loosen the volatile Salt ' from the Sides of the Vessels. Pour the whole into a large ' Glass Cucurbite, and filtrate it through a Brown-Paper, in ' order to separate the Oil, which is here useless: Put the ' filtrated Liquor in a Glass Retort, with a Sand Heat, and ' fit a Glass Retort thereto, as a Recipient: Take care all ' Things be well luted, and make a Cohobation of the said ' Matters at three Times. But, by the way, add all the ' Salt before separated from the Receivers; and after the ' said three Cohobations, unlute the Retorts, and pour the ' whole into a Matrass with a long Neck, to which fit a fu- ' table Capital, and a Receiver; lute all the Joinings on ' each Side with a wet Bladder, and set the Vessel in a Sand ' Heat: By this means, the volatile Salt will be sublimed, ' and stick to the Capital, and upper Part of the Matrass. ' Continue the Fire till Spirit enough have rose to fuse and ' dissolve the Salt which arose first: Then take all the Fire ' out of the Furnace, that the Distillation may proceed no ' further; which is a Circumstance of the last Importance; ' without which the Medicine would be weaken'd by too ' much Phlegm. *Biet*, in the *Mem. de Trev. An.* 1713.

As to the Dose of this Remedy, they begin with 7 or 8 Drops, increasing, by Degrees, to 40 or 50, on pressing Occasions, as in Apoplexies, Lethargies, Weaknesses, &c.

The real Composition of the *Guttæ*, however, is somewhat controverted. *M. Tournefort* assures us, that he had the Secret communicated to him by Dr. *Lister*; and that it is no other than the volatile Spirit of Raw-Silk rectified with Oil of Cinnamon, or other essential Oil. See Silk.

The same Author assures us, he had found by Experience that the *Guttæ Anglicanæ* were not in any respect preferable to the common volatile Spirits of Hart's-Horn and Sal. Ammoniac, except that the Smell is more supportable.—*Mem. de l'Acad. An.* 1700.

Guttæ, in Architecture, are Ornaments in form of little Cones, used in the Plasond of the Doric Cornice, or on the Architrave, underneath the Triglyphs; representing a sort of Drops, or Bells; usually six in Number. See Triglyph.

They are sometimes also called *Lachrymæ*, Tears; and *Campanæ* or *Campanulæ*, Bells. *Leon. Baptista Alberti* calls them *Nails*.

Gutta *Serena*, is a Disease of the Eyes, consisting in an entire Prevention of Sight, without any apparent Fault or Disorder of the Eyes, excepting that the Pupil looks somewhat larger and blacker than before. See Eyes, &c.

Its Cause is supposed to be a Compression or Obstruction of the Optic Nerves, which prevents the due Flux of the animal Spirits into the Retina. *Pitcairn* ascribes it to an Indisposition of the Retina, occasioned by the Vessels thereof being too much distended with Blood.

The *Gutta Serena* is one of the most dangerous and untractable of all the Diseases of the Eyes. The Cure, according to *Pitcairn*, must be attempted with Mercurials and even Salivation, and with Decoctions of Guiacum.

The *Muscæ Volitantes* are a pathogonomic Sign of a growing *Gutta Serena*. The *Greeks* call it *Amaurosis*. See Amaurosis.

GUTTERS, in Building, are a kind of Vallies in the Roofs of Buildings, serving to drain and receive the Rain-Waters. See Roof.

GUTTURAL *Letters*, are those pronounced, or form'd as in were in the Throat. See Letter.

Dr. *Wallis* distinguishes the Vowels in our Language into Labial, Palatine, and *Guttural*; according to the three several Degrees of opening of the Mouth to pronounce them, larger, middle, and less. On this Footing he makes three *Guttural* Vowels, and three Labial, and as many Palatines. See Vowel.

GUTTUS,

GUTTUS, a Latin Term used among Antiquaries, for a sort of Vase used in the *Roman* Sacrifices; to take the Wine and sprinkle it, *Guttatim*, Drop by Drop, upon the Victim. See SACRIFICE.

Vigenere on *T. Livy*, gives the Figure of the *Guttus*, as represented on divers Medals and other antient Monuments.

GUTTY, or GUTTE, in Heraldry, is when a thing is represented as charged or sprinkled with Drops.

In Blazon, the Colour of the Drops is to be named: Thus, *Gutty* of Sable, of Gules, &c.

Some Authors will have red Drops called, *Gutty de Sang*, or Drops of Blood; black ones, *Gutty de Poix*, of Pitch; white, *Gutty d'Eau*, of Water, &c.

GUZES, in Heraldry, Roundles of a sanguin or murry Colour. See ROUNDLE.

GWABR-MERCHED, a *British* Word, signifying a Payment or Fine made to the Lords of some Manors, upon the Marriage of their Tenants Daughters; as also upon their committing Incontinency. See MARCHET and LAIRWITE.

GYMNASIARCH, GYMNASIARCHA, in Antiquity, the Master, or chief of a *Gymnasium*. See GYMNASIUM.

The *Greeks* did not rank the *Gymnasiarcha* among the Number of Magistrates; tho' his Office was of great Consideration, as having the Care of all their Youth, who were trusted to him to be form'd to Exercises of the Body.

He had two Officers under him, to assist him in the Government of the *Gymnasium*: The first named *Xystarch*, and the second *Gynastes*. The former was Master of the *Athletæ*, and presided over the Wrestling. See XYSTARCH, ATHLETA, &c.

The latter had the Direction of all the other Exercises; taking Care they were performed in due Time and Manner; that they were not too severe; that the Youth attempted nothing beyond their Strength; and that nothing were done that might be injurious to their Health.

They had several subaltern Officers or Servants under them, for the Service and Instruction of the Youth committed to them.

The Word is compounded of γυμνάσιον, and ἀρχή, Government.

GYMNASIUM, a Place of Exercise; or a Place fitted for performing Exercises of the Body. See EXERCISE.

Among the Antients, the *Gymnasium* was a Place destined for this very Purpose, and where People were even taught and regularly disciplin'd therein. See XYSTUS.

If we may credit *Solon* in *Lucian*'s *Anachars*, and *Cicero de Orat.* lib 2. the *Greeks* were the first who had *Gymnasia*; and among the *Greeks*, the *Lacedæmonians*; after them, the *Athenians*.

Vitruvius describes the Structure and Form of the antient *Gymnasiums* at length, *lib.* 15. c. 11.—The Word is Greek, γυμνάσιον, form'd of γυμνός, Naked; by reason they put off their Clothes, to practice with the more Freedom.

GYMNASTICE, GYMNASTICA, the *Gymnastic Art*; or the Art of performing the Exercises of the Body. See EXERCISE.

The *Gymnastica* comprehended all the Exercises, as Wrestling; Running, both on Foot and on Horseback; Fencing; the Discus, or Quoits; the Use of the Launce, &c. *Hoffman* reckons no less than 55 *Gymnastic* Exercises. See WRESTLING, DISCUS, &c.

It appears that they did not perform their Exercises quite naked so early as the Time of *Homer*, but always in Drawers; which they did not lay aside before the 32d Olympiad. One *Orsippus* is said to have been the first that introduced the Practice; for having been worsted by means of his Drawers undoing, and entangling him; he threw them quite aside, and the rest afterwards came to imitate him.

GYMNIC, GYMNICUS, something belonging to the Exercises of the Body.

The *Gymnic* Games are those wherein the Body is exercised; such are Wrestling, Running, Dancing, the Use of the Launce, and Quoit-Playing. See GAME.

It was those made the chief Diversions of the *Olympic*, *Nemæan*, *Pythian*, and *Isthmæan* Solemnities; being called by the *Greeks* Πενταθλον, and the *Latins Quinquatrium*. See OLYMPIC, NEMÆAN, PYTHIAN, and ISTHMÆAN, &c.

GYMNOPÆDIA, a kind of Dance, in Use among the antient *Lacedæmonians*. It was performed during their Sacrifices, by young Persons who danced naked, singing at the same Time a Song in Honour of *Apollo*. See DANCE.

One *Terpander* is recorded as the Inventor of the *Gymnopædia*.

GYMNOPÆDICE, a kind of Dance, in Use among the Antients.

Athenæus describes it as a *Bacchic* Dance, perform'd by Youths strip'd quite naked, with certain interrupted, tho' agreeable Motions, and Gestures of the Body, the Arms and Legs being flourished and directed after a peculiar Manner, representing a sort of real Wrestling.

The Word is compounded of γυμνός, naked, and παῖς, Child.

GYMNOSOPHISTS, a Set of *Indian* Philosophers, famous in Antiquity; denominated from their going barefooted. See PHILOSOPHER.

The Word *Gymnosophist* is form'd of the Greek γυμνοσοφιστής; *q. d.* a Sophist, or Philosopher, who goes naked.

This Name was given to the *Indian* Philosophers, whom the excessive Heat of the Country obliged to go naked; as that of *Peripateticks* was given those who philosophiz'd Walking. See PERIPATETICKS, &c.

Laertius, *Vives*, &c. will not have *Gymnosophist* to be the Name of any particular Sect, but a common Name of all the Philosophers in the *Indies*: And hence divides them into *Brachmans* and *Germans*. See BRACHMANS.

Among the *Germans*, called also by *Clemens Alexand.* *Sarmanæ*, some were called *Hylobii*; by *Clemens Alexand.* *Allobii*, as inhabiting the Woods; which last seem to come nearest to the Notion of *Gymnosophists*. *Clemens* relates, that they neither inhabit Cities nor Towns, are cloathed mostly with the Leaves of Trees, eat Acorns and Berries, and drink Water out of their Hands, abstaining from all Marriage and Procreation.

Apuleius Florid. lib. 1. describes the *Gymnosophists* thus: 'They are all devoted to the Study of Wisdom, both the 'elder Masters, and the younger Pupils; and what to me 'appears the most amiable thing in their Character, is, 'that they have an Aversion to Idleness and Indolence: 'Accordingly, as soon as the Table is spread, ere a Bit of 'Victuals be brought, the Youth are all called together 'from their several Places and Offices, and the Masters 'examine them what good they have done since the Sun-'rise. Here one relates something he has discovered by 'Meditation; another has learn'd something by Demon-'stration: And as for those who have nothing to alledge 'why they should dine, they are turn'd out to Work fast-'ing.'

The great Leader of the *Gymnosophists*, according to *Jerom*, was one *Buddas*, call'd by *Clemens Butta*; who is rank'd by *Suidas* among the *Brachmans*. That last Author makes *Buddas* the Præceptor of *Manes* the *Persian*, the Founder of the *Gymnosophists*.

GYNÆCEUM, among the Antients, the Apartment of the Women; or a separate Place, where the Women kept themselves retired, and out of the Sight of the Men.

The Word is compounded of the Greek γυνή, a Woman, and οἶκος, an House.

Under the *Roman* Emperors there was a particular Establishment of *Gynæcea*; being a kind of Manufactories managed chiefly by Women, for the making of Clothes, Furniture, &c. for the Emperor's Houshold. Mention is made of these *Gynæcea* in the *Theodosian* Code, *Justinian*'s Code, and divers other Authors.

In Imitation hereof, divers of the modern Manufactories, particularly those of Silk, where a Number of Women and Maids, associated and form'd into a Body, are called *Gynæcea*.

GYNÆCIARIUS, a Workman employ'd in a *Gynæceum*.

In the antient *Gynæcea* there were Men to weave and shape; the rest, as Spinning, &c. being performed by Women.

Criminals were sometimes condemned to serve in the *Gynæcea*, much as now in the Gallies. Frequently, too, this was a kind of Service which Princes exacted of their Subjects, or Vassals, both Men and Women, whom they made to work for them in their *Gynæcea*.

GYNÆCOCRATUMENIANS, GYNÆCOCRATUMENI, an antient People of *Sarmatia Europæa*, inhabiting the Eastern Banks of the River *Tanais*, near its Opening into the *Palus Meotis*; thus called, as Authors relate, because they had no Women among them.

The Word is formed of γυνή, a Woman; and κρατούμενος, vanquish'd; of κρατέω, I overcome; *q. d.* overcome by a Woman.

Fa. *Hardouin*, in his Notes on *Pliny*, says they were thus called, by reason, after a Battle which they lost against the *Amazons* on the Banks of the *Thermodoon*, they were obliged to have a venereal Commerce with them, in order to get them Children: *Et quod Victricibus obsequantur ad procurandam eis Sobolem.*

Fa. *Hardoun* calls them the Husbands of the *Amazons*; *Amazonum Connubia*. For, as that Author observes, the Word *Unde* must be retrench'd from *Pliny*; having been foisted into the Text by People who were not Masters of the Author's Meaning, *Unde Amazonum Connubia*.

They who take the *Amazons* for a fabulous People, will imagine the same of the *Gynæcocratumenians*. See AMAZON.

GYNÆCONOMUS, the Name of a Magiſtrate of *Athens*, who had the Cenſure and Inſpection of the Women.

There were ten *Gynæconomi*: Their Buſineſs was to inform themſelves of the Lives and Manners of the Ladies of that City, and to puniſh ſuch as misbehaved themſelves, or tranſgreſſed the common Bounds of Modeſty and Decency.

They had a Liſt hanging out, of the Names of all thoſe whom they had cenſured, or condemned to any Mulct, Forfeiture, Penance, or other Penalty.

The Word is compounded of the Greek γυνὴ, γυνάικος, a Woman; and νόμος, Law.

GYNÆCOCRACY, Gynæcocratia, a State where Women have, or may have, the ſupreme Command.

In this Senſe, *England* and *Spain* are *Gynæcocracies*: The *French* value themſelves, and think they are greatly happy that their Monarchy is not *Gynæcocratic*. See Salic *Law*.

The Word is form'd of γυνὴ, γυναικὸς, a Woman, and κρατος, Authority, Power, Government.

GYNGLIMUS, in Anatomy, &c. See Ginglymus.

GYPSUM, in natural Hiſtory, a Stone found in Quarries, which being burnt, and diluted, or wrought up with Water, ſerves to make the fine Plaſter of *Paris*. See Plaster.

GYPSE, Gipse, or Gypsum, is alſo uſed for a coarſer ſort of Talk; or a ſhining tranſparent Stone chiefly found in the Quarries of *Montmartre* near *Paris*, among other Plaſter Stones.

Some confound this with the former, on account of the Conformity of its Name with the Latin *Gypſum*; but unhappily enough; as the *Gypſe* is not fit for the making of Plaſter.

This Stone being calcined in a Kiln, beaten in a Mortar, and ſifted, and mix'd up with Gum, or ſize Water and Colours, ſerves to counterfeit Marble, which it does to that Perfection, that both the Eye and Touch may be deceived. See Marble.

The Method of preparing it, will be ſhewn under the Article Mosaic Work.

GYROMANCY, or Gyromantia, a kind of Divination, performed by walking round, or in a Circle. See Divination.

The Word is compounded of the Greek γυῦς, a Circle, and μαντεία, Divination.

H.

H, Is the 8*th* Letter of the Alphabet, and the 6*th* Consonant. See LETTER and ALPHABET.

Varro, *de Re Rustica*, L. III. *C.* 1. calls the H *afflatus*. And *Martianus Capella* says it is pronounced by a gentle Contraction of the *Trachea*. — Hence it has been disputed, whether or no the *h* be a real Letter.

Some will only have it an Aspiration, or Spirit, in Regard its Sound is so weak. And accordingly the *Greeks*, now a-days at least, do not place it in the Line of the other Letters, but put it over the Head of the following Letter: Tho' it should seem they antiently wrote it in the same Line with the rest.

The *Latin* Grammarians, as they were religious Imitators of the *Greeks*, have on their Authority generally rejected the *h*; and the Moderns have herein followed the *Latins*.

But we have already shewn that the *h*, like all the other Aspirates, from the Time it is aspirated, and for this very Reason that it is aspirated, is not only a Letter, but a real Consonant; it being a Motion, or Effort, of the *Larynx*, to modify the Sound of the Vowel that follows; as is evident in the Words *Hallebard*, *Hero*, *Holland*, &c. where the Vowel *e*, is apparently differently modified from what it is in the Words *Endive*, *Eating*, *Elect*, &c. and such Modification is all that is essential to a Consonant. See CONSONANT.

Upon the whole, the *H* is either a Letter, or *S* and *Z* are none; those being no more than hissing Aspirations: And they who exclude the *h* from among the Letters, as conceiving it only a Mark of Aspiration, might as well exclude the Labial Consonants *b* and *p*, and say they are only Marks of certain Motions of the Lips, *&c.* See ASPIRATION.

The *H*, then, is a Letter and a Consonant, of the Guttural Kind, *i. e.* a Consonant, to the Pronunciation whereof, the Throat concurs in a particular Manner, more than any other of the Organs of Voice. See GUTTURAL.

'Tis true, in many Words beginning with *h*, the Aspiration is very weak, and almost insensible; the *h* in those Cases, not doing its Office: But it does not cease to be a Consonant on that Score, more than various other Consonants, which we write, but do not pronounce; as the *k* in Physick, *&c.* and several other Letters, particularly in the *Hebrew*, *French*, &c.

Nor does it cease to be a Consonant, because it does not hinder the Elision of the foregoing Vowel, when another Vowel follows in the subsequent Word; for then *m* would undergo the same Disqualification.

Mons. *Menage* distinguishes two Kinds of *h*; the one an Aspirate, which he allows a Consonant; the other a Mute, which he considers as a Vowel. — Now, 'tis certain, the aspirated *h* is a Consonant; but the Mute *h* is no Vowel, as having no peculiar or proper Sound distinct from that of the Vowel, or Diphthong, immediately following it. See VOWEL.

When the *h* is preceeded by a *c*, the two Letters together have the Sound of the *Hebrew* ש, with a Point over the right Horn; as in Charity, Chyle, *&c.*

In most Words derived from the *Greek*, and beginning in that Language with the Letter χ, the *ch* which begins them in *English*, has generally the Sound of a *k*, as in Echo, Chorus, *&c.* tho' it is sometimes soften'd a little, as in *Chersonesus*, &c.

After a *p*, the *h* is always pronounced together with the *p*, like an *f*; as in Phrases, *Philistins*, Phlegm, Phlebotomy, Philosophy, *Phocæans*, &c. — Most Words of this Class, are either proper Names, or Terms of Art, borrow'd from the *Greek*, or the *Oriental* Languages; and wrote in *Greek* with a φ, and with a פ in the others. — In antient Authors we frequently meet with *h* put instead of *f*; as *haba*, for *faba*; but this is principally observable in the *Spanish* Tongue, where, most of the Words borrow'd from the *Latin*, beginning with an *f*, take the *h* in lieu of it: As *hablar* for *fabulari*; *habo* for *favus*; *hado* for *fatum*.

The *Aspera*, or sharp Accent of the *Greeks*, which is the same with our *h*, is also frequently changed for an *s*; as, Ἅλς, *Sal*; ἕπτα, *Septem*; ἕξ, *Sex*; ἕρπω, *Serpo*; ἥμιον, *Semis*; ὗς, *Sus*, *&c.* — The *h* is also used for some other Letters enumerated at large by Passerat, *de Litterarum inter se cognatione & permutatione*.

Antiently, the *H* was put for *Ch*; thus, of *Chlodovæus* was form'd *Hludovicus*, as 'tis read in all the Coins of the IXth and Xth Centuries; and it was on this Account, that they wrote *Hludovicus* with an *H*. — In Course of Time, the Sound of the *h* being much weaken'd, or entirely suppress'd, the *H* was dropt, and the Word was wrote *Ludovicus*. In like Manner we read *Hlotaire*, *Hlouis*, &c.

Fa. Lobineau, will have this Difference to have arose from the Differences in the Pronunciation. — Such, says he, as could not pronounce the Guttural, wherewith those two Words begin, substituted a *c* for it; and they who pronounced it so, wrote it after the same Manner: But such as were accustom'd to pronounce it, wrote it likewise. — He might have added, that such as could not pronounce the Guttural, at length absolutely rejected it, and both wrote and spoke *Louis*, *Lothaire*, &c.

Some learned Men have conjectured that the *H* should have been detach'd from the Name; and that it signified Lord, from the Latin *Herus*, or the German *Herr*. Much as the D, which the *Spaniards* prefix to their proper Names, as *D. Phelipe* for *Don Philip*. — But as it is likewise found before the Names of several Cities, 'tis more probable the Letter was there used to denote the rough harsh Pronunciation of the antient *Franks*.

The *H* is sometimes also found prefix'd to the C; as *Hcarolus*, *Hcalendæ*, &c. for *Carolus*, *Calendæ*, &c.

Among the Antients, the *H* was also a Numeral Letter, signifying 200, according to the Verse.

H *quoque ducentos per se designat habendos.*

When a Dash was added a Top, H̄, it signified two hundred Thousand. — *See what has been observed on this Subject, under the Letter* E.

HABAKKUK, or HHABAKKUK, one of the twelve lesser Prophets whose Prophecies are taken into the Canon of the Old Testament. See PROPHET and PROPHECY.

The precise Time is not known when *Habakkuk* prophesied; but from his predicting the Ruin of the *Jews*, by the *Chaldæans*, it may be concluded he prophesied before *Zedekiah*, or about the Time of *Manasses*. — His Prophecy only consists of three Chapters.

The Name is wrote in the *Hebrew* with ח, *kheth*; and signifies a Wrestler, or *Grappler*. The *Greek* Translators call him *Ambakoum*.

HABDALA, or HABHDALAH, a *Jewish* Ceremony, practised among the People, every Sabbath-Day Evening.

Towards the Close of the Sabbath, when the Stars begin to appear, each Master of a Family lights a Torch, or Flambeau, or, at least, a Lamp with two Wicks. — A little Box of Spices is prepared, or a Glass of Wine taken; then singing, or rehearsing a Prayer, and blessing the Wine and the Spices, they all smell them, and after a few Ceremonies perform'd about the Torch, or Lamp, they cast a little of the consecrated Wine into the Flame; every Body tasts; and thus they break up, wishing each other not good Night, but good Week.

The Word is *Hebrew*, and literally signifies *Separation*: It is form'd of בדל, *badal*, to separate, divide; the Ceremony being look'd upon, as the Division or parting of the Sabbath from the rest of the Week. It was establish'd to prevent their being too hasty in ending the Sabbath.

HABEAS *Corpus*, in Law, a Writ, which a Man indicted for a Trespass before the Justices of Peace, or in a Court of Franchise, and imprisoned for it, may have out of the King's Bench, thereby to remove himself thither, at his own Costs, to answer the Cause at the Bar thereof.

The Order in this Case, is, first to procure a *Certiorari*, out of the Chancery, directed to the said Justices, for removing the Indictment into the King's Bench; and upon that to procure this Writ to the Sheriff, for causing his Body to be brought at a certain Day.

HABEAS *Corpora*, is also a Writ, that lays for bringing in a Jury, or so many of them, as refuse to come upon the *venire facias*, for the Trial of a Cause brought to Issue. See JURY, *&c.*

HABENDUM, a Word of Course in a Conveyance. — In every Conveyance are two principal Parts, the *Premisses*, and the *Habendum*: The Office of the first is to express the Name of the Grantor, the Grantee, and the Thing granted.

The *Habendum* is to limit the Estate, so that the general Implication, which, by Construction of Law, passeth in the Premisses, is by the *Habendum* controlled and qualified. — As in a Lease to two Persons; the *Habendum* to one for Life, alters the general Implication of the Jointenancy in Free-hold, which should pass by the Premisses, if the *Habendum* were not. See CONVEYANCE.

HABERE *facias Sesinam*, a Writ Judicial, which lies where a Man hath recovered Lands in the King's-Court; directed to the Sheriff, commanding him to give him the Seisin thereof. See SEISIN.

This Writ iſſues ſometimes out of the Records of a Fine executory, directed to the Sheriff of the County, where the Lands lye; commanding him to give to the Cognizee, or his Heirs, Seiſin of the Land, whereof the Fine is levied.

The Writ lieth within the Year after the Fine, or Judgment, upon the *Scire facias*; and may be made in divers Forms.

There is alſo a Writ called *Habere facias Seiſinam, ubi Rex habuit annum, diem & vaſtum*; which is for the Delivery of Lands to the Lord of the Fee, after the King had taken his Due of his Lands who was convict of Felony.

HABERE *facias Viſum*, is a Writ that lies in divers Caſes, as in Dower, Formedon, *&c.* where a View is to be taken of the Land, or Tenements, in Queſtion. See VIEW.

HABERGE, or HAUBERGE, or HAUBERE, or HAUBERT, in the antient Cuſtoms, the ſame with *Habergeon*, viz. a Coat of Mail. See HABERGEON.

HABERGEON, or HAUBERGEON, or HABERGETUM, a Coat of Mail; or an antient Piece of defenſive Armour, in Form of a Coat, deſcending from the Neck to the Middle; form'd of little Iron Rings, or Maſhes, link'd into each other. See MAIL.

Varro makes the *Gauls* the firſt Inventors of the *Habergeon*.

The Antiquaries and Criticks are divided as to the Etymology of the Word. — *Spelman* derives it from *hame*, *haim*, or *hamecon*, Hook; and *berg*. *Menage*, &c. derive from *al*, or *alba*, all; and *bergen*, to cover. — *Fauchet* derives it from *albus*, by Reaſon the Maſhes, or Links, were white, poliſh'd, and ſhining.

Some of our Writers, and particularly *Du Cange*, make the *Habergeon*, a Head-piece, or Helmet, covering the Head and Shoulders; and derive the Word from the German *Hals*, Neck, and *bergen*, to cover. He adds, that in the Age of corrupt *Latin*, they wrote it *Halsberga*, *Albergellum*, *Ausbergatum*, &c.

HABILLIMENTS *of War*, in our antient Statutes, ſignify Armour, Harneſs, Utenſils, or other Proviſions, for War; without which there is ſuppoſed no Ability to maintain War. 3*d* Part. *Inſtit.* fol. 97.

HABIT, or HABITUDE, in Philoſophy, an Aptitude, or Diſpoſition, either of the Mind, or Body, acquired by a frequent Repetition of the ſame Act. See HABITUDE.

Some of the Schoolmen call it *Qualitative Habit*, *Habitus Qualitativus*; and define it a Quality adventitious to a Thing, fitting and diſpoſing it either to act, or ſuffer: Others define it an Affection of Mind, or Body, perſiſting by long Uſe and Continuance.

Habits may be diſtinguiſhed into thoſe of the Mind, and of the Body. — Thus Virtue is call'd a *Habit* of the Mind: Strength a *Habit* of the Body.

All natural *Habits*, whether of Body or Mind, are no other than the Body and Mind themſelves, conſider'd as either acting or ſuffering; or they are Modes of the Body or Mind, wherein it perſeveres till effaced by ſome contrary Mode. See MODE.

Ariſtotle enumerates ſix *Habits* of the Mind, *viz.* Underſtanding, Knowledge, Wiſdom, Prudence and Art: Which Diviſion the later Writers ſet aſide, and only admit of three Intellectual *Habits*, viz. *Science*, *Prudence*, and *Art*; agreeable to the three Kinds of Objects, about which the Mind has occaſion to be facilitated; which are either *Theoretical*, *Practical*, or *Effective*. See ART, SCIENCE, *&c.*

HABIT, in Medicine, is what we otherwiſe call the *Temperament*, or *Conſtitution* of the Body, whether obtain'd by Birth, or Manner of Living. See TEMPERAMENT and CONSTITUTION.

An ill diſtemper'd *Habit*, without any particular apparent Diſeaſe, the Phyſicians uſually call a *Cachexia*, or *Cacochymia*. See CACHEXIA and CACOCHYMIA.

A Thing is ſaid to *enter the Habit*, when it becomes intimately diffuſed throughout the Body; and is convey'd to the remoteſt Stages of Circulation.

HABIT is alſo uſed for a *Dreſs*, or *Garb*; or the Aſſemblage, or Compoſition of Garments, wherewith a Perſon is cover'd. See GARMENT.

In this Senſe we ſay, the *Habit* of an Eccleſiaſtic; of a Religious, *&c.* The military *Habit*, &c.

The Eccleſiaſtical *Habit* only commenced about the Time of *Gregory the Great*, i. e. it only began at that Time to be diſtinguiſhed from the Lay *Habit*, viz. in the VIth Century. — The Eſtabliſhment of the barbarous Nations was the Occaſion thereof: For the Laymen took the *Habit* of the Nations they had ſubmitted to; but the Prieſts kept to the *Roman* Dreſs.

The Abbot *Boileau* has an expreſs Treatiſe on the *Eccleſiaſtical Habit*, wherein he maintains, contrary to the common Opinion and Cuſtom, that the Eccleſiaſtic *Habit* ſhould be a ſhort one, and that a ſhort *Habit* is more decent than a long one.

HABIT, is particularly uſed for the uniform Garments of Religious, conformable to the Order whereof they make Profeſſion. See RELIGIOUS and ORDER.

The *Habit* of St. *Benedict*, of St. *Auguſtine*, &c.

In this Senſe, we ſay abſolutely ſuch a Perſon has taken the *Habit*, meaning he has enter'd upon a Novitiate in a certain Order. — So he is ſaid to quit the *Habit*, when he renounces the Order. See NOVITIATE, Vows, *&c.*

The *Habits* of the ſeveral Religious, were not ſuppoſed to be calculated for Singularity or Novelty: The Founders of the Orders, who were at firſt chiefly Inhabitants of Deſarts and Solitudes, gave their Monks the *Habit* uſual among the Country People. Accordingly the Primitive *Habits* of S. *Anthony*, S. *Hilarion*, S. *Benedict*, &c. are deſcribed, by the antient Writers, as conſiſting chiefly of Sheep's Skins, the common Dreſs of the Peaſants, Shepherds, and Mountaineers of that Time: And the ſame they gave their Diſciples.

The Orders eſtabliſh'd in and about Cities, and inhabited Places, took the Habit wore by the Eccleſiaſticks at the Time of their Inſtitution. — Thus S. *Dominic* gave his Diſciples the *Habit* of regular Canons, which he himſelf had always bore to that Time. And the like may be ſaid of the *Jeſuites*, *Barnabites*, *Theatins*, *Oratorians*, &c. who took the common *Habit* of the Eccleſiaſticks at the Time of their Foundation. And what makes them differ ſo much from each other, as well as from the Eccleſiaſtical *Habit* of the preſent Times, is, that they have always kept invariably to the ſame Form; whereas the Eccleſiaſticks have been changing their Mode at every Turn.

HABITATION, a Dwelling-Place, or Houſe. See HOUSE, EDIFICE, BUILDING, *&c.*

HABITATION, is ſometimes alſo uſed for *Cohabitation*. See COHABITATION.

HABITUAL, ſomething that is become, or turn'd into a Habit, or Habitude. See HABITUDE, *&c.*

Thus, we ſay, a *Habitual*, or inveterate Diſeaſe: *Habitual* Sin, *&c.* An *Habitual* Diſpoſition is the ſame Thing with a Habitude itſelf.

Habitual Grace, is that convey'd to us by Baptiſm, and afterwards augmented and improved by the Euchariſt, and other appointed Means. See GRACE.

The *Romiſh* Divines hold *Habitual Grace* neceſſary in Order to be ſaved; and Actual Grace, to the doing any Thing meritorious.

HABITUDE, HABITUDO, in the Schools, ſignifies the Reſpect, or Relation, which one Thing bears to another. See RELATION.

In this Senſe, *Habitude* is one of *Ariſtotle*'s Categories. See CATEGORY.

Some of the more preciſe, and accurate Schoolmen, conſider *Habitude* as a Genus; and ſub-divide it into two Species. Where it is conſider'd as Quieſcent, they call it *Reſpect*; where, as moved, *Relation*: To which ſome add a third Species, conſider'd with Reſpect of Figure, which they call *Mode*.

HABITUDE, is alſo uſed in Philoſophy, for what we popularly call *Habit*, viz. a certain Diſpoſition, or Aptitude, for the performing, or ſuffering, of certain Things; contracted by reiterated Acts of the ſame Kind. See HABIT.

Habitudes are diſtinguiſh'd into thoſe of the *Body* and the *Mind*.

Among thoſe of the *Mind*, call'd alſo intellectual *Habitudes*, are frequently number'd Memory, Knowledge, Prudence and Art. But others deny there are any ſuch Thing as proper intellectual *Habits*; and fix them all in the Brain.

Bodily *Habitudes* are innumerable: To theſe we refer all our *Arts*. See ART.

Virtues, and Vices, are conſider'd by the Philoſophers under the Notion of good and bad *Habitudes*. See VIRTUE and VICE.

The Archbiſhop of *Cambray* defines *Habitudes*, in the general, to be certain Impreſſions left in the Mind; by Means whereof, we find a greater Eaſe, Readineſs, and Inclination to do any Thing formerly done, by having the Idea ready at hand to direct us how it was done before, — Thus, *E. gr.* we form a *Habitude* of Sobriety, by having always before us the Inconveniencies of Exceſs; the Reflections whereof, being often repeated, render the Exerciſe of that Virtue more and more eaſy.

Fa. *Mallebranch* gives a more artful, and mechanical Theory of the *Habitudes*. — His Principle is, that they conſiſt in a Facility, which the Spirits have acquired, of paſſing eaſily from one Part of the Body to another. He argues thus: If the Mind act on, and move the Body, 'tis, in all Probability, by Means of a ſtock of animal

animal Spirits, lodg'd in the Brain, ready to be ſent at the Motion of the Will, by means of the Nerves which open or terminate in the Brain, into the Muſcles of the Body. See BRAIN and NERVE.

Now, an Influx of Spirits into a Muſcle, occaſions a Swelling; and, of Conſequence, a ſhortening of the Muſcle; and conſequently a Motion of the Part that Muſcle is faſten'd to. See MUSCULAR *Motion*.

Further, the Spirits do not always find all the Roads open and free, which they are to paſs thro'; whence that Difficulty we perceive of moving the Fingers with that Quickneſs neceſſary to play on a Muſical Inſtrument; or of moving the Muſcles neceſſary to pronounce the Words of a foreign Language. But, by Degrees, the Spirits, by their continual Flux, ſmoothen the Ways; ſo that at length they meet with no Reſiſtance at all. Now, 'tis this Facility the Spirits find of paſſing, when directed into the Members of the Body, that *Habitudes* conſiſt. See SPIRIT.

On this Hypotheſis, 'tis eaſy accounting for an Infinity of Phænomena relating to the *Habitudes*. — Why, for Inſtance, Children acquire new Habits with more Eaſe than grown Perſons: Why, 'tis difficult getting rid of inveterate Habits: Whence that incredible Quickneſs in the Pronunciation of Words, even without thinking of them, as is particularly obſervable in thoſe long accuſtom'd to Formula's, *&c.*

On this footing, the Faculty of Memory appears to have very much the Nature of a *Habitude*; inſomuch that in one Senſe it may paſs for a *Habitude*. See MEMORY. See alſo PASSION, NATURAL *Inclination*, &c.

HACHES, and HACHING. See HATCHES and HATCHING.

HACKNEY. See HAQUENY.

HACKNEY *Coach*. See *Hackney* COACH.

HADRIANEA, or HADRIANALIA, in Antiquity, Games inſtituted in Honour of the Emperor *Hadrian*, or *Adrian*. See GAMES.

There were two Sorts of *Hadrianalia*, the one held every Year, and the other every five Years.

HÆMATITES, or HÆMATITES *Lapis*, in Natural Hiſtory, the *Blood-Stone*; a ruddy Mineral in Form of a Stone; thus call'd, either on Account of its reſembling dry, curdled Blood, or of the Faculty it has of ſtanching Blood; from the *Greek*, αἷμα, *Sanguis*, Blood.

Pliny reckons five Kinds, *viz.* the *Ethiopic*, the *Androdomas*, or black, the *Arabic*, the *Elalites*, or *Milites*, and the *Chiſtos*; beſide that commonly call'd the *Magnes Hæmatites*; from the Property it has of attracting Iron.

The five Sorts differ chiefly in point of Hardneſs: The beſt, according to *Dioſcorides*, is that which is friable, hard, black, and ſmooth, without either gritty Parts, or Veins.

That commonly us'd by the Painters is factitious; being made of *Armenian* Bole, and other Drugs.

The Native, or Foſſil Kind, comes from *Egypt*, *Bohemia*, &c. It has divers Uſes in Medicine; being held cooling and aſtringent, and in that Quality preſcribed in Hæmorrhages. — It is given, in Subſtance, in Form of a fine Powder.

The Gilders uſe it for Burniſhers, to poliſh their Gold withal. *Bauſchius* has an expreſs Treatiſe on this Stone. See GILDING.

HÆMATOSIS, in Medicine, the Action whereby the Chyle is converted into Blood; call'd alſo *Sanguification*. See SANGUIFICATION.

The Word is form'd of the *Greek*, αἷμα, *Sanguis*, Blood.

The chief of the vital Actions, are the *Chyloſis*, and *Hæmatoſis*. See CHYLOSIS, BLOOD, *&c.*

HÆMOPTYSIS, or HÆMOPTOE, in Medicine, a ſpitting of Blood; occaſion'd by the Rupture, or Eroſion of ſome Veſſel of the Lungs; and accompanied, uſually, with a Cough, and a Senſe of Preſſure on the Breaſt. See BLOOD.

The *Hæmoptyſis* differs from a Vomiting of Blood, in that in the *Hæmoptyſis*, the Blood comes from the Lungs, and for that Reaſon is florid and frothy; whereas in the Vomiting of Blood, it comes from the Stomach, and is blackiſh.

The *Hæmoptyſis* is occaſioned by violent Shouts, or Cries; by Strains, Falls, vehement Coughs; by the Suppreſſion of ſome ordinary Evacuation, or by the Abundance of ſome ſharp corroſive Humor.

The *Hæmoptyſis* is either accidental, or habitual — The latter is a Symptom of the *Phthiſis*. It is beſt cured, according to *Morton*, by the *Cortex*: It is ſtopp'd by Aſtringents, as *Armen. Bol. Sang. Dracon. Lapis Hæmat.* &c. See PHTHISIS.

The Word comes from αἷμα, *Blood*; and πτυειν, *to ſpit*.

HÆMORRHAGE, in Medicine, a Flux of Blood, at any Part of the Body; ariſing either from a Rupture of the Veſſels, as when they are too full, or too much preſs'd; or from an Eroſion of the ſame, as when the Blood is too ſharp and corroſive. See FLUX and BLOOD.

The *Hæmorrhage*, properly ſpeaking, as underſtood by the *Greeks*, was only a Flux of Blood at the Noſe; but the Moderns extend the Name to any Kind of Flux of Blood, whether by the Noſe, Mouth, Lungs, Stomach, Inteſtines, Fundament, Matrix, or the like.

Hypochondriac, Scorbutic, and Cachectic Perſons, are liable to various and immoderate *Hæmorrhages*. — The Cure of *Hæmorrhages* ariſing from a Plethora, is by Evacuants, and particularly Phlebotomy, to cauſe a Revulſion. — That from an increas'd Velocity of a thin acrimonious Blood, is to be attack'd with Coolers, and Agglutinants.

The principal ſimple Remedies in *Hæmorrhages*, are *Album Græcum*, Spirit or Oil of Vitriol, *Calcanthum* rubified, Colophony pulverized, Oil of Turpentine, Decoction of *Catechu*, *Cortex Peruv.* &c. See STYPTICS.

A Ligature on the Limb has frequently a good Effect: So *Elect. Boylean. Pulvis Galeni*; *Elect. Styptic. Tinctur. Roſar. Epithem. de Sacchar. Saturn.* &c.

An *Hæmorrhage* at the *Anus*, is more uſually call'd a *Dyſentery*. See DYSENTERY.

The Word is compounded of the *Greek*, αἷμα, *Sanguis*, Blood; and ῥήσσω, or ῥυσμαι, *frango*, *rumpo*, *erumpo*, I break, burſt forth, *&c.*

HÆMORRHOIDAL, an Epithet given to the Veins and Arteries of the *Inteſtinum Rectum*, and the Fundament; as being the Seat of the *Hæmorrhoids*. See HÆMORRHOIDS.

The *Hæmorrhoidal* Arteries are two; the one *internal*, the other *external*.

The internal is a Branch of the lower Meſenteric, which running along the *Rectum*, terminates at the Fundament; the external ſprings from the Hypogaſtric Artery.

The *Hæmorrhoidal* Veins are alſo internal and external.

The internal carries back the Blood of the *Rectum* and Fundament, which it embraces regularly; and is inſerted ſometimes into the ſplenic Branch of the *Porta*, and ſometimes into the Meſenteric: The external brings back the Blood from the muſculous Parts about the Fundament, and terminates in the Hypogaſtric Vein.

HÆMORRHOIDS, in Medicine, a Diſeaſe of the Fundament, popularly call'd the *Piles*.

The *Hæmorrhoids* are a painful, periodical Tumor, in the lower Part of the *Inteſtinum Rectum*; uſually appearing externally in the *Anus*. — They may be conſider'd as a Sort of varicous Tumors in the *Hæmorrhoidal* Veins; ariſing from the too great Abundance of morbid Blood therein. See HEMORRHOIDAL *Veſſels*.

The Diſeaſe is either *ſimple*, as when the Veins alone are tumified; or *compound*, as when the neighbouring Parts become infected, or an Excreſcence ariſes therefrom, as a *Ficus*, *Criſta Galli*, *Condyloma*, or the like.

Hæmorrhoids are either *open*, *fluentes*, that is, yield Blood; or *blind*, *cæcæ*, where the Parts are only tumid. — In the firſt, the Veſſels of the *Rectum* are open; in the latter, there is ſome Obſtruction, which occaſions them to ſwell.

The *Hæmorrhoids* ſometimes are internal, and cauſe great Pain in going to Stool; eſpecially if the *Fæces* be indurated: After which they often appear externally, and Blood is ſeen upon the Excrements.

Etmuller is careful in diſtinguiſhing the genuine, hæmorrhoidal Flux, from a bloody Diarrhœa, frequent in ſcorbutic Caſes. — The *Hæmorrhoids* are uſually open'd by the Attrition of the Excrements in a Stool, ſo that the Blood flows at the ſame Time with the Excrements; but if it flow promiſcuouſly before, as well as after the Excrements, and without Pain, 'tis a ſcorbutic Flux.

Where the Flux is exceſſive, Phlebotomy, and Cupping, are good, by way of Revulſion; and internally, Aſtringents and Opiates. — Upon a Suppreſſion of the uſual Flux, without removing the Cauſe, the open *Hæmorrhoids* degenerate into the blind: In which Caſe they muſt be open'd again with Aloeticks, *&c.* Tamarinds are held excellent to aſſwage the Flux. Chalybeats ſtrike at the Cauſe of the Evil. Scrophulary, Onion, and Leek, are much commended.

The Word is form'd of the *Greek*, αἱμόῤῥοια, *Sanguinis profluvium*, Flux of Blood; which is compounded of αἷμα, *Blood*, and ῥέω, *I flow*.

HÆREDE *abducto*, is a Writ that lay for the Lord, who, having by Right the Wardſhip of his Tenant under Age, could not come by his Body, as being conveyed away by another. See RAVISHMENT *de Gard.*

HÆREDE *deliberando alii qui habet cuſtodiam terræ*, a Writ directed to the Sheriff, willing him to command one that had the Body of him who was ward to another,

to deliver him to him, whose Ward he was on Account of his Land. See WARD and GUARDIAN.

HÆREDIPETA, in our ancient Law-Books, the next Heir. *Et nullus* Hæredipeta *suo propinquo vel extraneo periculosa sane custodia committatur.* Leg. H. *Cap.* 70.

HÆRESIARCH, *Hæresiarcha*, of the *Greek*, Αἱρεσιάρχης, an Arch-Heretick. See HERETIC.

HÆRESIS, *Heresy*, } See { HERESY.
HÆRETICUS, *Heretic*, } { HERETIC.

HÆRETICO *Comburendo*, is a Writ that lies against one who is an *Heretic*, viz. who having once been convicted of *Heresy* by his Bishop, and having abjured it, afterwards falling into it again, or some other, is thereupon committed to the secular Power. See HERETIC, *&c.*

Sir *Edward Coke* was of Opinion, that this Writ did not lye in his Time: But it is now formally taken away by Statute, *Car.* II.

HAGARD, in Falconry, a Hawk, or Falcon, not taken in the Nest; but after she had been inured to Liberty, and preying for her self. See FALCONRY.

Hagard Hawks, are hard to tame, and bring under Discipline. See HAWK and FALCON.

The Word is *French*, and signifies *fierce*; some derive it from the Latin *agreste*, wild: Others, from the German *hag*, Inclosure, fortified Place. — Whence, Mons. *Huet* observes, the Word *Hagard* is sometimes applied to a Man who becomes hardy and proud, in Confidence of the Strength of the Place he is in.

HAGIOGRAPHA, a Name given to Part of the Books of Scripture, call'd by the Jews *Chetuvim*. See SCRIPTURE, BIBLE, *&c.*

The *Jews* divide the Sacred Writings into three Classes: The *Law*, which comprehends the five Books of *Moses*: The *Prophets*, which they call *Neviim*; and the *Chetuvim*, q.d. *Writings*, call'd by the *Greeks*, &c. *Hagiographa*, comprehending the Book of *Psalms*, *Proverbs*, *Job*, *Daniel*, *Esdras*, *Chronicles*, *Canticles*, *Ruth*, the *Lamentations*, *Ecclesiastes* and *Esther*.

The *Jews* call these Books the *Writings*, by way of Eminence, as being wrote by immediate Inspiration of the Holy Spirit. — Thus say *Kimhhi*, in his Preface to the *Psalms*; *Maimonides*, in *More. Neb.* and *Elias Levita*, in his *Thisbi*, under the Word כתב.

They distinguish them, however, from the Prophets; in that their Authors did not receive the Matters contain'd in them, by the Way call'd Prophecy, which consists in Dreams, Visions, Whispers, Extasies, *&c.* but by mere simple Inspiration, and Direction of the Spirit. See INSPIRATION.

The Word is compounded of ἁγιος, *holy*; and γράφω, *I write*.

The Name is very antient: St. *Jerom* makes frequent Mention of it. — Before him, St. *Epiphanius* call'd these Books simply Γραφεῖα.

HAGIOSIDERE, or HAGIOSIDIRE. — The *Greeks*, who are under the Dominion of the *Turks*, being prohibited the Use of Bells, make use of an Iron to call People to Church, call'd *Hagiosidere*. See BELL.

Magius gives us the Description of a *Hagiosidere* he had seen. — 'Tis a Plate of Iron, about 3 Inches broad, and sixteen long, fasten'd by the middle to a Chain, or Cord, whereby it is suspended at the Church-Door. On this they strike with an Iron Hammer, with some Measure and Cadence, so as to make no disagreeable Noise.

They also carry a *Hagiosidere* before the Priest in a Procession of the Sacrament to any sick Person, beating on it from Time to Time, to advertise the People to adore it; much as in the *Romish* Church they do with a Bell.

The Word is compounded of ἁγιος, *holy*; and σίδηρος, *Iron*.

HAIL, *Grando*, in Physiology, an aqueous Concretion, in Form of white, or pellucid Spherules, descending out of the Atmosphere. See METEOR and ATMOSPHERE.

Hail, is conceiv'd to be form'd of Drops of Rain, frozen in their Passage thro' the middle Region. See RAIN and FREEZING.

Others, take it for the Fragments of a frozen Cloud, half melted, and thus precipitated and congeal'd again. See CLOUD and BAROMETER.

Accordingly, the *Cartesians* define *Hail* to be a Cloud, either wholly, or in Part liquified; which tending downward by its own Gravity, is, in its Passage, froze by the Impression of some very cold Wind; and thus precipitated, for the most Part, in round transparent Glebes. — They add, that if the Cloud have been totally liquified, the *Hail-stones* are pellucid; otherwise, only partly so. See SNOW.

Hail assumes various Figures, according to the Degrees of Heat or Cold of the Air, which the Parts of the liquified Clouds pass thro': Sometimes 'tis round, sometimes Angular, Triangular, Pyramidal, *&c.* sometimes thin and flat, star-like, with six equal Points, *&c.*

Hail is observed frequently to attend Thunder and Lightning; the Nitre that contributes to the one, having likewise a large Share in the Production of the other. See THUNDER, NITRE, *&c.*

Natural Histories furnish us with various Instances of extraordinary Showers of *Hail*. — In the *Philosoph. Transactions*, Dr. *Halley*, and others relate, that in *Cheshire*, *Lancashire*, &c. *April* 29. 1697, a thick, black Cloud, coming from *Carnarvonshire*, disposed the Vapours to congeal in such Manner, that for about the Breadth of two Miles, which was the Limit of the Cloud, in its Progress for the Space of 60 Miles, it did inconceivable Damage: Not only killing all Sorts of Fowls, and other small Animals, but splitting Trees, knocking down Horses and Men, and even ploughing up the Earth, so that the *Hail-stones* buried themselves under Ground, an Inch, or an Inch and a half deep. — The *Hail-stones*, many of which weighed five Ounces, and some half a Pound, and were five or six Inches about, were of various Figures, some round, others half round; some smooth, others emboss'd and crenilated: The Icy Substance of them was very transparent and hard; but there was a snowy Kernel in the middle of them.

In *Hertfordshire*, May 4. the same Year, after a severe Fit of Thunder and Lightning, a Shower of *Hail* succeeded, which far exceeded the former: Some Persons were kill'd by it, their Bodies beat all black and blue: Vast Oaks were split, and Fields of Rye cut down as with a Scythe. The Stones were measur'd from ten to thirteen or fourteen Inches about. Their Figures were various, some oval, others picked, some flat. *Philosoph. Transact.* N°. 229.

At *Liste* in *Flanders*, 1686, fell *Hail-stones* of a very large Size; some of which contained in the middle a dark brown Matter, which thrown on the Fire, gave a very great Report. *Phil. Transact.* N°. 203.

Mezeray, speaking of the War of *Louis* XII. in *Italy*, in the Year 1510, relates, that there was for some Time, a horrible Darkness, thicker than that of Night; after which the Clouds broke into Thunder and Lightning, and there fell a Shower of *Hail-stones*, or rather as he calls them Pebble-stones, which destroy'd all the Fish, Birds, and Beasts of the Country. — It was attended with a strong Smell of Sulphur; and the Stones were of a bluish Colour: Some of them weighing an hundred Pounds. *Hist. de France*, T. II. p. 339.

HAILE, a Sea Term, used either to call to a Ship to know from whence she comes, and whither she is bound; or else to salute her, and wish her well. — To *hale* a Ship, is also the same Thing as what we call pulling a-shore.

HAIR, little slender Threads, issuing out of the Pores of the Skins of Animals; and serving most of them as a Tegument, or Covering. See SKIN and PORE.

In Lieu of *Hair*, the Nakedness of some Animals is cover'd with Feathers, Wool, Skins, *&c.* See FEATHER, WOOL, *&c.*

The *Hair* is found on all Parts of the Body, except the Soles of the Feet, and the Palms of the Hands. — But it grows longest on the Head, Beard, in the Arm-Pits, and about the Privities. See PUBES, *&c.*

The Physicians distinguish it into Kinds, and give it divers Denominations; but this only in *Greek* and *Latin*. — The *Hair* of the Head they call *Capillus*: That of Women particularly, *Coma*, from κομᾶν, *to dress* and *adjust*; and that of Men *Cæsaries*, from *cædendo*, because often cut: That of the Back of the Head, *Juba* and *Crines*: That hanging behind the Ears, *Cincinni*; q. d. curled and buckled.

The Antients held the *Hair* a Sort of Excrement, fed only with excrementitious Matters, and no proper Part of a living Body. — They supposed them generated of the fuliginous Parts of the Blood, exhaled by the Heat of the Body to the Surface, and there condensed in passing thro' the Pores. — Their chief Reasons were, that the *Hair* being cut, will grow again apace, even in extreme old Age, and when Life is very low: That in Hectic, and Consumptive People, where the rest of the Body is continually emaciating and attenuating, the *Hair* shall thrive: Nay, and that it will grow again in dead Carcases. — They added, that *Hair* did not feed and grow like the other Parts, by Introsusception, *i. e.* by a Juice circulating within 'em; but, like the Nails, by Juxtaposition, each Part next the Root thrusting forward that immediately before it.

But the Moderns are all agreed that every *Hair* does properly and truly live, and receive Nutriment to fill and distend it like the other Parts; which they argue hence, that the Roots do not grow grey in aged Persons, sooner than the Extremities, but the whole changes Colour at once: And the like is observed in Boys, *&c.* which shews

ſhews that there is a direct Communication; and that all the Parts are affected alike. — To which it may be added, that there are Inſtances of Perſons, who by intenſe Grief, or Fear, have been known to grow grey in a Night's Time.

It may be obſerved, however, that, in Propriety, the Life and Growth of *Hairs*, is of a different Kind from that of the reſt of the Body; and is not immediately derived therefrom, or reciprocated therewith. — 'Tis rather of the Nature of Vegetation. They grow as Plants do out of the Earth; or as ſome Plants ſhoot from the Parts of others; from which tho' they draw their Nourriſhment, yet each has, as it were, its ſeveral Life, and a diſtinct Oeconomy. — They derive their Food from ſome Juices in the Body, but not from the nutritious Juices of the Body; whence they may live, tho' the Body be ſtarv'd. See VEGETATION, PLANT, &c.

The *Hairs*, examined by the Microſcope, appear to be fiſtulous Bodies like Horns. Their tubulous Structure is confirm'd from the Diſeaſe call'd *Plica Polonica*, wherein the Blood oozes out at their Extremities. See PLICA.

Each *Hair* is found to conſiſt of five or ſix other leſſer ones, all wrapp'd up in one common Tegument: They are knotted like ſome Sorts of Graſs, and ſend out Branches at the Joints. — They have each a round bulbous Root, which lies pretty deep in the Skin, being implanted in the pyramidal *Papillæ*; and by this they imbibe, or ſecrete, their proper Food from the adjacent Humors. Their Extremities ſplit or divide into two or three Branches, eſpecially when kept dry, and left to grow too long; ſo that what to the naked Eye appears only a ſingle *Hair*, to the Microſcope ſeems a Bruſh.

They turn grey on the fore-part of the Head, and particularly about the Temples, ſooner than behind; the back-part affording them the proper Juice longer than the reſt. See TEMPLES.

For the like Reaſon they fall ſooneſt on the Crown of the Head. See HEAD.

Their Size, or Thickneſs, depends on the Magnitude of the Pores they iſſue from: — If thoſe be ſmall, theſe are fine: If the Pores be ſtraight, the *Hairs* are ſtraight: If thoſe be oblique or ſinuous, the *Hair* is curl'd.

They ordinarily appear round, or cylindrical; but the Microſcope alſo diſcovers triangular, and ſquare ones; which Diverſity of Figures ariſes from that of the Pores; to which the *Hairs* always accommodate themſelves. Their Length depends on the Quantity of the proper Humor to feed them; and their Colour on the Quality of that Humor: Whence, at different Stages of Life the Colour uſually differs.

The *Hair* of a Mouſe, view'd by Mr. *Derham* with a Microſcope, ſeem'd to be one ſingle tranſparent Tube, with a Pith made up of fibrous Subſtance, running in dark Lines, in ſome Hairs tranſverſly, in others ſpirally. The darker medullary Parts, or Lines, he obſerves, were no other than ſmall Fibres convolved round, and lying cloſer together, than in the other Parts of the *Hair*. They run from the Bottom to the Top of the Hair; and, he imagines, may ſerve to make a gentle Evacuation of ſome Humor out of the Body. Hence, the *Hair* of hairy Animals, this Author ſuggeſts, may not only ſerve as a Fence againſt Cold, &c. but as an Organ of inſenſible Perſpiration.

It was eſteem'd a notable Honour among the ancient *Gauls*, to have long *Hair*; and hence came the Appellation *Gallia Comata*. For this Reaſon *Julius Cæſar*, upon ſubduing the *Gauls*, made them cut off their *Hair*, as a Token of Submiſſion. — It was with a View to this, that ſuch as afterwards quitted the World, to go and live in Cloiſters, procured their *Hair* to be ſhaven off; to ſhew that they bid Adieu to all earthly Ornaments, and made a Vow of perpetual Subjection to their Superiors. See TONSURE.

Greg. de Tours aſſures us, that in the Royal Family of *France*, it was a long Time the peculiar Mark and Privilege of the Kings and Princes of the Blood, to wear long *Hair*, artfully dreſs'd and curl'd: Every body elſe were obliged to be cut round, in Sign of Inferiority and Obedience. Some Writers aſſure us, that there were different Cuts for all the different Qualities and Conditions, from the Prince, who wore it at full Length; to the Slave, or Villain, who was quite cropt. *Hottoman* treats at large of this Privilege of the Kings of *France*. *Franco Gallia*, *C.* 11.

To cut off the *Hair* of a Son of *France*, under the firſt Race of Kings, was to declare him excluded from the Right of ſucceeding to the Crown, and reduced to the Condition of a Subject. Fa. *Daniel*, Hiſt. de *France*, T. 1.

In the 8*th* Century, it was the Cuſtom for People of Quality, to have their Childrens *Hair* cut the firſt Time, by Perſons they had a particular Honour and Eſteem for; who, in virtue of this Ceremony, were reputed a Sort of ſpiritual Parents, or God-fathers thereof. — Tho' this Practice appears to have been more ancient, inaſmuch as we read that *Conſtantine* ſent the Pope, the *Hair* of his Son *Heraclius*, as a Token that he deſired him to be his adoptive Father. See GODFATHER, ADOPTION, &c.

The Parade of long *Hair* became ſtill more and more obnoxious in the Progreſs of Chriſtianity; as ſomething utterly inconſiſtent with the Profeſſion of Perſons who bore the Croſs. Hence numerous Injunctions and Canons to the contrary. — Pope *Anicetas* is commonly ſuppoſed to have been the firſt who forbad the Clergy to wear long *Hair*; but the Prohibition is of an older Standing in the Churches of the *Eaſt*; and the Letter wherein that Decree is wrote, is of a much later Date than that Pope. — The Clerical Tonſure is related by *Iſidore Hiſpalenſis*, as of Apoſtolical Inſtitution. See CLERC.

Long *Hair* was anciently held ſo odious, that there is a Canon ſtill extant of the Year 1096, importing, that ſuch as wore long *Hair*, ſhould be excluded coming into Church while living; and not be pray'd for when dead.

We have a furious Declamation of *Luitprand* againſt the Emperor *Phocas*, for wearing long *Hair*, after the Manner of the other Emperors of the *Eaſt*; all except *Theophilus*, who being bald, enjoyn'd all his Subjects to ſhave their Heads.

The *French* Hiſtorians and Antiquaries, have been very exact in recording the Head of Hair of their ſeveral Kings. — *Charlemaign* wore it very ſhort, his Son ſhorter, *Charles the Bald* had none at all. Under *Hugh Capet*, it began to appear again: This the Eccleſiaſticks took in Dudgeon, and excommunicated all who let their *Hair* grow. *Peter Lombard* expoſtulated the Matter ſo warmly with *Charles the Young*, that he cut off his *Hair*; and his Succeſſors for ſome Generations wore it very ſhort.

A Profeſſor of *Utrecht*, in 1650, wrote expreſly on the Queſtion, whether it be lawful for Men to wear long *Hair*? and concluded for the Negative. — Another Divine, named *Reves*, who had wrote for the Affirmative, replied to him.

The *Greeks*, and after their Example, the *Romans*, wore falſe *Hair*. See PERRUKE.

Wulferus, in the Philoſophical Collections, gives an Account of a Woman buried at *Norimberg*, whoſe Grave being open'd 43 Years after her Death, there was *Hair* found iſſuing forth plentifully thro' the Clefts of the Coffin; inſomuch that there was Reaſon to imagine, the Coffin had ſome Time been cover'd all over with *Hair*. — The Cover being removed, the whole Corps appeared in its perfect Shape; but from the Crown of the Head to the Sole of the Foot, cover'd over with a thick ſet *Hair*, long and curl'd. — The Sexton going to handle the upper Part of the Head with his Fingers, the whole Structure fell at once; leaving nothing in his Hand but a Hand full of *Hair*: There was neither Skull, nor any other Bone left; yet the *Hair* was ſolid, and ſtrong enough.

Mr. *Arnold*, in the ſame Collection, gives a Relation of a Man hang'd for Theft, who in a little Time, while he yet hung upon the Gallows, had his Body ſtrangely cover'd over with *Hair*.

Dr. *Tyſon* adds, that tho' the outward Surface of the Body, be the uſual Place where the *Hair* grows; yet it has been ſometimes found on the Tongue, in the Heart, the Breaſts, Kidneys, &c. but that there is ſcarce any inward Part more ſubject to it, than the Ovary, or Teſticles of Females. *Phil. Collect.* N°. 2.

HAIR, makes a very conſiderable Article in Commerce; eſpecially ſince the Mode of Perrukes has obtain'd. See PERRUKE.

The *Hair* of the Growth of the *Northern* Countries, as *England*, &c. is valued much beyond that of the more Southern ones, as *Italy*, *Spain*, the South Parts of *France*, &c.

The Merits of a good *Hair* conſiſt in its being well fed, and neither too coarſe nor too ſlender; the Bigneſs rendering it leſs ſuſceptible of the artificial Curl, and diſpoſing it rather to frizzle; and the Smallneſs making its Curl of too ſhort Duration. — Its Length ſhould be about 25 Inches; the more it falls ſhort of this, the leſs Value it bears.

There is no certain Price for *Hair*, but it is ſold from Five Shillings to Five Pound an Ounce, according to its Quality. — The grey is the moſt coveted, then the white, &c.

The Scarceneſs of grey and white *Hair* has put the Dealers in that Commodity upon Methods of reducing other Colours thereto. — This is done by ſpreading the *Hair* to bleach on the Graſs, like Linnen; after firſt waſhing it out in a lixivious Water. See BLEACHING.

This Lye, with the Force of the Sun and Air, brings the *Hair* to so perfect a Whiteness, that the most experienced Person may be deceived therein; there being scarce any Way of detecting the Artifice but by boiling and drying it; which leaves the *Hair* of the Colour of a dead Walnut-Tree Leaf.

There is also a Method of dying *Hair* with Bismuth; which renders such white *Hair*, as borders too much upon the yellow, of a bright Silver Colour. — Boiling is the Proof of this too; the Bismuth not being able to stand it.

Hair which does not curl or buckle naturally, is brought to it by Art; by first boiling, and then baking it in the following Manner: — After having pick'd and sorted the *Hair*, and disposed it in Parcels, according to the Lengths; they roll them up, and tye them tight down, upon little cylindrical Instruments, either of Wood or Pottery, a Quarter of an Inch thick, and hollow'd a little in the middle; in which State they are put in a Pot over the Fire, there to boil for about two Hours. — When taken out they let them dry; and when dried, spread them on a Sheet of brown Paper, cover them with another, and thus send them to the Pastry Cook; who making a Crust or Coffin around them of common Past, sets them in the Oven, till the Crust is about three fourths baked.

The End by which a *Hair* grew to the Head, is called the *Head* of the *Hair*; and the other, with which they begin to give the Buckle, the *Point*. — Formerly the Perruke-Makers made no Difference between the two Ends, but curled and wove them by either indifferently; which made them unable to give a fine Buckle: *Hair* wove by the Point never taking the right Curl. — Foreigners own themselves obliged to the *English* for this Discovery; which was first carried abroad by a Perruke-Maker of our Country. *Dict. de Commerce.*

HAIR is also used in divers Arts and Manufactures.

The *Hair* of Beavers, Hares, Conies, *&c.* is the principal Matter whereof Hats are made. See HAT.

Spread on the Ground, and left to putrify on Corn Lands, *Hair*, as all other animal Substances, *viz.* Horns, Hoofs, Blood, Garbage, *&c.* proves a good Manure. See MANURE.

Hair also makes an Ingredient in the Composition of Plaister. See PLAISTER.

HAIR, in the Manage, and among Farriers, is popularly call'd the *Coat*, and makes a Point of principal Consideration in Respect of Horses, *&c.* See HORSE.

If the *Hair* of a Horse, especially about the Neck, and Parts uncover'd, be sleek, and smooth, and close; 'tis an Indication of his being in Health and good Case: If rough and staring, or any Way discolour'd, it denotes a Coldness, Poverty, or some inward Defect. — To make the *Hair* smooth, sleek, and soft, he must be kept warm, sweated often, and when sweated, the Coat well scraped and rubb'd down.

The *Hair* growing on the Fetlock, serves as a Defence to the prominent Part thereof, in travelling on stony Ways, or in frosty Weather.

If a Place be bare, or thin of *Hair*, or the *Hair* be too short; the ancient Farriers used to wash it with the Urine of a young Boy; and after that with a Lye of unslaked Lime, Ceruse, and Litharge. — The Moderns have various other Ways: Some wash the Parts with a Decoction of the Roots of *Althæa*; others with Goats Milk, wherein Agrimony has been pounded; others rub the Part with Nettle Seed, bruis'd with Honey Water, and Salt: Others anoint it with the Juice of an Onion, or Radish; others with a Mixture of Alum, Honey, Goats Dung, and Swines Blood: Others with the Root of the white Lilly, boil'd in Oil: Others with Tar, Oil of Olives, and Honey: And others, with green Walnut Shells powder'd, and mix'd with Honey, Oil, and Wine.

To take off *Hair* in any Part, they apply a Plaister, made of unslack'd Lime, boil'd in Water, with Orpiment added. See MARK, STAR, *&c.*

HAIRS-*Breadth*, is accounted the forty eighth Part of an Inch. See MEASURE, INCH, *&c.*

HALBARD, or HALBERD, an offensive Weapon, consisting of a long Shaft, five Foot long, with a Steel Head, somewhat in manner of a Crescent. See ARMS and ARMOUR.

The *Halbard* was anciently a common Weapon in the Army; where, there were Companies of *Halbardeers*: It is still retain'd by the Sergeants and Corporals on divers Occasions. — It was called the *Danish* Ax, because first bore by the *Danes*; and on the left Shoulder. From the *Danes* it was derived to the *Scots*; from the *Scots* to the *English-Saxons*; and from them to the *French*.

The Word is form'd of the German *Hal*, Hall, and *bard*, a Hatchet. *Vossius* derives it from the German *hellebaert*, of *hel*, clarus, splendens, and *baert*, bipennis. Others bring it from *ala*, by Reason the *Halbards* were ranged in the Wings of the Army, *quasi aliparatum*.

HALBERT, among Farriers, *&c.* is a Piece of Iron, an Inch broad, and three or four Inches long, solder'd to the Toe of a Horse's Shoe, that sets out before; to hinder a lame Horse from resting or treading upon his Toe.

Halbert Shoes do of Necessity constrain a lame Horse to tread or rest on his Heel, when he goes a moderate Pace; which lengthens and draws out the back Sinew, that was somewhat shrunk before.

HALCYON-*Days*, *Dies Alcyonis*, a Phrase, that frequently occurs among Writers, to denote a Time of Peace and Tranquillity.

The Diction takes its Rise from a Sea-Fowl, call'd among Naturalists *Halcyon*, or *Alcyon*, which builds its Nest about the Winter's Solstice, when the Weather is usually observ'd to be still and calm.

The antient Tradition was, that it built its Nest, and laid its Eggs in the Sea; chusing for that Purpose a Season when the Waves were quite still.

HALF-*Bloom*, a round Mass of Metal, which comes out of the Finery of an Iron-Work. See BLOOMERY and IRON-WORK.

HALF-*Mark*, *Dimdia Merkæ*, is a Noble. See NOBLE.

Fitz-herbert says, that in Case a Writ be brought, and the Seisin of the Demandant, or his Ancestor alledged; the Seisin is not traversable by the Defendant, but he may tender the *half Mark* for the Enquiry of this Seisin: Which is, in plainer Terms, that the Defendant shall not be admitted to deny, that the Possessor, or his Ancestors, was seised of the Land in Question, and to prove his Denial; but that he shall be admitted to render *half a Mark* in Money, to have an Enquiry made, whether the Demandant, *&c.* were seised or not?

HALF-*Moon*, *Demi Lune*, in Fortification, is an Outwork, that hath only two Faces, forming together a saliant Angle, which is flanked by some Part of the Place, and of the other Bastions. See *Out*-WORK, DEMI-*Lune*, &c.

These *Half-Moons* are sometimes raised before the Curtain, when the Ditch is a little wider than it ought to be; in which Sense it is much the same with a Ravelin, only that the Gorge of an *Half-Moon* is made bending in like a Bow, or a Crescent, and is most Times used to cover the Point of a Bastion; whereas Ravelins are placed before the Curtain. — But they are defective, as being ill flanked. See RAVELIN.

HALF-*Penny*, a Copper Coin, whose Value is express'd by its Name. See PENNY. See also OBOLUS.

HALF-*Seal*, is used in Chancery, for the Sealing of Commissions to Delegates appointed upon any Appeal in Ecclesiastical or Marine Causes. See DELEGATE.

HALF-*Tongue*, *Medietas Linguæ*, is a Jury impannell'd in a Cause, where a Stranger, or Foreigner, is a Party. See MEDIETAS *Linguæ*.

HALIEUTICKS, *Halieutica*, of the *Greek*, Ἁλιευτικά, Books treating of *Fishes*, or the Art of *Fishing*. See FISH and FISHING.

HALIGAMOT. See HALIMOTE.

HALL, was antiently used for a Mansion-House, or Habitation. See MANSION.

HALL, *Salle*, in Architecture, is a large Room, at the Entrance of a fine House, Palace, or the like. See PALACE, *&c.*

Vitruvius mentions three Sorts of *Halls*: The *Tetrastyle*, which has four Columns supporting the Plafond, or Ceiling: The *Corinthian*, which has Columns all around, let into the Wall, and is vaulted over: And the *Egyptian*, which had a Peristyle of insolated *Corinthian* Columns, bearing a second Order, with a Ceiling. These were call'd *Oeci*.

The *Hall* is properly the first, and finest Partition, or Member of an Apartment; and, in the Houses of Ministers of State, public Magistrates, *&c.* is that wherein they dispatch Business, and give Audience.

In very magnificent Buildings, where the *Hall* is larger and loftier than ordinary, and placed in the middle of the House, it is call'd a *Saloon*. See SALOON.

A Royal Apartment is said to consist of a *Hall*, or Chamber of Guards, *Aula Prætoriana*; an Anti-chamber, *Procamera*; a Chamber, *Camera*; a Cabinet, *Conclave*; and a Gallery, *Porticus*. See APARTMENT.

HALL is also a public Building, erected for the Administration of the Policy and Justice of a City, or Corporation. — In this Sense we say the *Town-Hall*, a *Company's Hall*, &c.

Guild-HALL, is a stately Building in the City of *London*, and the great Court of Judicature for that City. See COURT and GUILD-*Hall*.

Here

Here, Meetings of the Citizens are held, for the Election of Officers, solemn Entertainments, &c.

HALL, is also particularly used for a Court of Justice; or an Edifice wherein there is one or more Tribunals. See COURT, JUSTICE, and TRIBUNAL.

In *Westminster Hall* are held the great Courts of this Kingdom, *viz.* the King's-Bench, Chancery, Common-Pleas, and Exchequer. See *Kings*-BENCH, COMMON *Pleas*, and EXCHEQUER.

Above Stairs, is likewise held the High Court of Parliament. See PARLIAMENT.

Westminster-Hall was the Royal Palace, or Place of Residence of our antient Kings; who ordinarily held their Parliaments, and Courts of Judicature, in their Dwelling-Houses, (as is still done by the Kings of *Spain*) and frequently sat the said Courts of Judicature, as they still do in Parliament.

A great Part of this Palace was burnt under *Henry* VIII. what remains is still reserved for the said Judicatories. — The great *Hall*, wherein the Courts of *Kings-Bench*, &c. are kept, is said to have been built by *William Rufus*; others say by *Richard* I. or II. 'Tis reckon'd superior, in Point of Dimensions, to any *Hall* in *Europe*, being 300 Foot long, and 100 broad.

HALLAGE, a Fee due for Cloth brought for Sale to *Blackwell-Hall* in *London*.

The Word is also used for Toll paid to the Lord of a Fair, or Market, for Commodities sold in the common *Hall* of the Place.

HALLELUJAH, a Term of Rejoycing, sometimes sung or rehears'd, at the End of Verses on that Occasion.

St. *Jerom* first introduced the Word *Hallelujah* into the Church Service: For a considerable Time it was only used once a Year, in the *Latin* Church, *viz.* at *Easter*: But in the *Greek* Church it was much more frequent. St. *Jerom* mentions its being sung at the Interments of the Dead, which it still continues to be in that Church; also on some Occasions in *Lent*.

In the Time of *Gregory the Great*, it was appointed to be sung all the Year round in the *Latin* Church, which rais'd some Complaints against that Pope, as giving too much into the *Greek* Way, and introducing the Ceremonies of the Church of *Constantinople* into that of *Rome*. But he excused himself by alledging that this had been the antient Usage at *Rome*; and that it had been brought from *Constantinople* at the Time when the Word *Hallelujah* was first introduced under Pope *Damasus*.

The Word is *Hebrew*; or rather, it is two *Hebrew* Words joyn'd together; one of them הַלְלוּ, *hallelu*, and the other יָהּ, *ja*, an Abridgment of the Name of God, יְהוָה, *Jehova*. The first signifies *Laudate*, praise ye; and the other *Dominum*, the Lord.

HALLIARDS, or HALYARDS, in a Ship, are Ropes which serve for hoisting up all the Yards, except the Cross Jack, and the Sprit-sail Yards. See YARD.

HALMOTE, or HALIMOTE, from the *Saxon* heale, i. e. *Aula*, Hall, and gemot, *conventus*, Meeting; is the same with what we now call a *Court-Baron*; the Word implying a Meeting of the Tenants of the same Hall or Manor. See BARON.

Omnis causa terminetur, vel Hundredo, vel Comitatu, vel Halimote, *socam habentium vel dominorum curia.* L. L. *Hen.* I. Cap. 10.

The Name is still retained at *Luston*, and other Places in *Herefordshire*. See MOTE.

It is sometimes also taken for a Convention of Citizens in their public *Hall*; which was also call'd *Folkmot* and *Halmot*. See FOLKMOTE, HALL, &c.

This *Halmote* and *Halimote*, are often confounded with the *Folkmote*, though originally they were two distinct Courts. In Effect, the *Halimote* properly signifies the Lord's Court, or a Court Baron held in the Manor, in which Differences between the Tenants were determined. See MANOR, COURT, TENANT, LORD, &c.

HALO, in Physiology, a Meteor, in Form of a luminous Ring, or Circle, of various Colours, appearing round the Bodies of the Sun, Moon, and Stars. See METEOR.

That around the Moon is the most usual; and is also call'd *Corona*, Crown. See CORONA.

That about the Sun is peculiarly call'd *Parhelia*. See PARHELIA.

The Word is form'd of the *Greek*, ἅλως, or ἅλων, *Area*.

Naturalists conceive the *Halo* to arise from a Refraction of the Rays of Light in their passing thro' the fine, rare *Vesiculæ* of a thin *Nubecula*, or Vapour, toward the Top of our Atmosphere; which Account they confirm hence, that a Quantity of Water being thrown up against the Sun, as it breaks and disperses into Drops, it forms a Kind of *Halo*, or Iris, exhibiting the Colours of the Natural ones. See RAINBOW.

Mr. *Huygens* supposes *Halo's*, or Circles round the Sun, to be formed by small round Grains of a Kind of *Hail*, made up of two different Parts; one of which is opake, an inclosed in the other which is transparent: Which is the Structure really observed in Hail. See HAIL.

After the same Manner he accounts for the *Parhelia*; only that there he imagines the icy Grains of an oblong Figure, and rounding at the Ends; like Cylinders, with round Convex Tops. — Where some of these Cylinders are in an erect Position, the Circle they form will be white, by Reason of the Reflection of the Rays of the Sun on the Surface of these Cylinders.

He proceeds to account for the coloured *Halo's*, and *Parhelia*, from the same Hypothesis; and produces an Experiment of a glass Cylinder, a Foot long, having within it an opake Kernel, (which was a Cylinder of Wood) and the ambient Space filled with Water: This Cylinder being exposed to the Sun, and the Eye disposed in a proper Place; the several successive Reflections and Refractions necessary to produce such an Effect did plainly appear.

The Light which comes through Drops of Rain by two Refractions, without any Reflection, Sir *Is. Newton* observes, ought to appear strongest at the Distance of about 26 Degrees from the Sun, and to decay gradually both Ways, as the Distance from him increases and decreases: And the same is to be understood of Light, transmitted through spherical Hail-stones, — Add, that if the Hail be a little flatted, as is often the Case, the Light transmitted may grow so strong at a little less Distance than that of 26 Degrees, as to form a *Halo* about the Sun or Moon; which *Halo*, as often as the Hail-stones are duly figured, may be coloured; and then it must be red within by the least refrangible Rays, and blue without by the most refrangible ones; especially if the Hail-stones have opake Globules of Snow in their Centre, to intercept the Light within the *Halo*, as *Huygens* has observed, and make the inside thereof more distinctly defined than it would otherwise be.

Such Hail-stones, though spherical, by terminating the Light by the Snow, may make a *Halo* red within, and colourless without, and darker in the red than without, as *Halo's* use to be: For of those Rays which pass close by the Snow, the Rubriform will be least refracted, and so come to the Eye in the directest Lines. *Optice*.

HALSFANG. See HEALFANG and PILLORY.

HALT, in War, a Pause, or Stop, in the March of a military Body. See PAUSE.

In Places full of Defiles, frequent *Halts* must be made. The Army made a *Halt* to rest themselves.

Some derive the Word from the Latin *Halitus*, Breath; it being a frequent Occasion of *halting*, to take Breath. Others from *alto*, by Reason in *Halts* they raise their Pikes, &c. an End.

HALTERISTÆ, HALTERISTS, in Antiquity, a Sort of Players at *Discus*; denominated from a peculiar Kind of *Discus*, by the *Greeks* call'd ἁλτὴς, and by the Latins *Halter*. See DISCUS.

Budeus, and others, take the *Halter* to have been a leaden Weight, or Club, which the Vaulters bore in their Hands, to secure and keep themselves the more steady in their Leaping. — Nor will these Authors allow of any Sort of *Halter* besides this Weight; nor other *Halteristæ* but these Vaulters. — But *Cornarius*, in his Comments on *Galen*, refutes the Opinion.

Others, as *Cornarius*, *Constantine*, and *Portus*, will have the *Halter* to be a Lump, or Massive of Lead, or Stone, with a Hold, or Handle, fix'd to it, by which it might be carried; and that the *Halteristæ* were those who exercised themselves in removing these Massives from Place to Place. — These Authors add, that the Weight, or Ball mention'd by *Budæus*, was not call'd ἁλτὴς, *Halter*, but ἄλτης, *Alter*, which signifies *Assistance*, *Help*.

Hier. Mercurialis, in his Treatise *de Arte Gymnastica*; L. II. C. 12. distinguishes two Kinds of *Halteristæ*; for tho' there was but one *Halter*, there were two Ways of applying it. — The one was to throw or pitch it in a certain Manner, or only to hold it out at Arm's End; and in this Posture to give themselves divers Motions, swinging the Hands backwards and forwards, &c. according to the engraven Figures thereof given us by *Mercurialis*.

The *Halter* was of a cylindrical Figure, less in the middle, where it was held, by one Diameter, than at the two Ends. It was above a Foot long; and there was one for each Hand: It was either of Iron, Stone, or Lead.

Galen, *De tuend. Valetud.* Lib. I. Lib. V. and Lib. VI. speaks of this Exercise, and shews of what Use it is in purging the Body of peccant Humors; making it equivalent both to Purgation and Phlebotomy. See EXERCISE and GYMNASTIC.

HALTING, among Farriers, &c. an Irregulatity in the Motion of a Horse, arising from a Lameness, or other Injury in the Shoulder, Leg, or Foot; which leads him to spare the Part, or use it too timorously.

An Acquaintance with this Disorder, in its several Circumstances, is a Thing of great Extent in the Affairs of the Manage; for which Reason we shall add the principal Points relating thereto. — If a Horse *halts*, 'tis either *before*; in which Case his Grief lies either in the Shoulder, the Legs, or Feet: Or *behind*, where it must lye in the Hip, Ham, or the like.

1°. The Signs which indicate it in the *Shoulder*, are his not lifting up his Leg, but trailing it on the Ground; or his casting out one Leg more than the other, and with his Knee, in a Manner, unbent. — Add that in turning short he will visibly favour the Leg on the lame Side. Again, if the Ailment be found in the Shoulder, it must either be in the Top of the Shoulder Blade, call'd the *Withers*, which is known by his *Halting* most when a Person is on his Back, his shrinking much, and offering to bite when griped, and handled about the Top of the Shoulder Blade: Or in the Bottom of the Shoulder Blade, joyning to the Marrow Bone, which is the fore Pitch of the Breast; which is known by his treading his Steps thick, and shrinking, ready to fall down, when press'd in that Part: Or in the Elbow, which joyns the Marrow Bone to the Leg; which is known by wincing, and taking up his Foot when pinch'd there.

2°. If the Grievance be in the *Legs*, it either lies in the Knee, or Pastern Joint, which he discovers by refusing to bow the one or the other, and going stiffly on it: Or in the *Shank*, which is discovered by some Splint, Screw, Wind-gall, or other visible Malady thereon.

3°. If it be in the *Foot*; it is either in the Coronet, and owing to some Strain, to be distinguish'd by some Tumor, or breaking thereon, or its appearing hot and burning to the Touch: Or in the *Heel*, owing to an Over-reach or the like, and visible to the Eye, as also by his treading altogether on his Toe: Or in the *Quarters*, between the middle of the Hoof and the Heel, which is known by his *Halting* more when on the Edge of a Bank than when on plain Ground. — This is sometimes occasion'd by being pricked with a Nail in the Shoeing; and the faulty Nail is distinguished by pinching the Head of each Nail, and the Hoof together with a Pair of Pinchers.

If a Horse halt *behind*, from a Disorder in the Hip, or Huckle Bone, he will go sidelong, and not follow so well with that Leg as the others; nor will he turn on that Side without favouring the Leg; add, that he shows it still most, in walking on the Side of a Bank with the worst Leg highest.

If a Horse has any hidden Infirmity, that will bring him to *halt* when he comes to Travel, it may be discover'd by running him in the Hand on smooth Way, at the Length of the Halter; and observing how he sets down his Legs: If he favour none of them, he is to be further proved, by riding him roundly till well heated; then letting him stand still an Hour, and after that running him in the Hand at Halters length as before.

HALYMOTE, properly signifies an Holy, or Ecclesiastical Court. See HALMOTE.

There is a Court held in *London* by this Name, before the Lord Mayor and Sheriffs, for regulating the Bakers. — It was antiently held on *Sunday* next before St. *Thomas*'s Day, and for this Reason called the *Halymote*, or Holy-Court. — The Title thereof runs thus: *Cura sancti-motus tenta in* Guilhalda *Civitatis* London. *Coram Majors & Vicecom.* &c.

HALYWERCFOLK, antiently signified such Persons of the Province of *Durham*, as held Lands, on Condition of defending the Corps of St. *Cuthbert*; and who hereupon claimed the Privilege not to be forced to go out of the Bishoprick either by King or Bishop. *Hist. Dunelm.*

Hence *Durham* in our Year Books is called *Franchise de Werk*. Selden.

HAM, a *Saxon* Word, properly signifying a House, or Dwelling-Place. — Sometimes it also signifies a Street, or Village.

Hence it is that the Name of many of our Towns end with it; as Notting*ham*, Bucking*ham*, Walsing*ham*, &c.

HAM, is also a Part of the Leg of an Animal; being the inner, or hind Part of the Knee; or the Ply, or Angle, in which the Leg and Thigh, when bent, incline to each other. See LEG, THIGH and KNEE.

HAM, in Commerce, &c. is used for a Thigh or Shoulder of Pork, dried, season'd, and prepar'd to make it keep, and give it a brisk agreeable Flavour. See GAMMON.

Westphalia-Hams, so much in Vogue, are prepared by Salting them with Salt-Petre, pressing them in a Press eight or ten Days, steeping them in *Juniper* Water, and drying them by the Smoak of *Juniper* Woods.

HAMADRYADES, in Antiquity, fabulous Deities, revered among the ancient Heathens, and believ'd to preside over Woods and Forests, and to be inclosed under the Bark of Oaks. See GOD.

The Word is compounded of ἅμα, *simul*, together; and δρυας, *Dryad*, of δρυς, *Oak*. See DRYADES.

The *Hamadryades*, αμαδρύαδες, were supposed to live and dye with the Trees they were attach'd to; as is observed by *Servius* on *Virgil*, *Eccl.* X. v. 62. after *Menesimachus*, the Scholiast of *Apollonius*, &c. who mention other Traditions relating thereto.

The Poets, however, frequently confound the *Hamadryades*, with the *Naiads* and *Napææ*; witness *Catullus Carm.* LXIII. *v.* 23. *Ovid. Fast.* IV. 229. *Propert. Eleg.* XX. 32. See NAIADS.

Festus calls them *Querquetulanæ*, as being issued, or sprung from Oaks. An ancient Poet, one *Pherenicus*, in *Athenæus*, L. III. calls the Vine, Fig-Tree, and other Fruit Trees, *Hamadryades*, from their Mother's Name.

HAMAXOBII, HAMAXOBIANS, in the ancient Geography, a Nation of People who lived wholly in Chariots; whence their Appellation, from αμαξα, *a Car*, or *Chariot*, and βιος, *Life*.

The *Hamaxobii*, or *Hamaxobitæ*, were an ancient People of *Sarmatia Europæa*, inhabiting the Southern Part of *Muscovy*. — They had no Houses, but Tents made of Leather, and fix'd on Chariots, to be ready for shifting and Travel.

HAMBOROUGH *Company*. See COMPANY.

HAMMELING, or HAM-*stringing*, the Act of cutting off the *Ham*.

Hameling, or *Hambling* of Dogs, is the same with Expeditating, or Lawing. See EXPEDITATING.

HAMLET, HAMEL, or HAMPSEL, from the Saxon, *Ham*, House, and the German, *Let*, Member; are Diminutives of *Ham*; and signifie a little Village; or rather, a Part of a Village. See VILLAGE.

The learned *Spelman* upon these Words, shewing the Difference between *Villa integra*, *Villa dimidia*, & Hamleta, says, Hamleta *vero, quæ medietatem friborgi non obtinuit, hoc est ubi quinque capitales plegii non deprehensi sint.* — The Statute of *Exon*, 14 *Edw.* I. mentions this Word thus, *Les noismes de toutes les Villes* & Hamlets *que sont en son Wapentake*. In an ancient MS. it is expounded *the Seat of a Free-holder*.

HAMMER, an Instrument of Iron, with a Handle of Wood; used in most mechanic Arts, to beat, stretch, drive, &c. See BEATING, &c.

Bodies capable of being stretch'd, or extended, under the *Hammer*, are said to be *malleable*. See MALLEABILITY.

The *Latins* call it *Mallens*, of *Martellus*, by which Name *Pliny* calls it, when he says, that *Cynira*, Daughter of *Agriope*, invented the *Hammer* and Pinchers. *Menage* derives the *Latin* Name *a Marte*, & *Martus*.

The *Hammers* of Forges, are moved or worked by a Water-Mill. See FORGE.

HAMMER *Hardening*. See HARDENING.

HAMMER *of a Clock*. See CLOCK and CLOCK-WORK.

HAMMER, in Anatomy. See MALLEUS.

HAMMERING, the Act of beating, or extending, and fashioning a Body under the *Hammer*. See HAMMER.

When it is perform'd on Iron heated for the Purpose, the Smiths usually call it *Forging*. See FORGING.

HAMMERING, in Coining. — A Piece of Money, or a Medal, is said to be *Hammer'd*, when struck, and the Impression given, with a *Hammer*, and not with a Mill. See COIN and MEDAL.

For the Method of Coining with the Hammer, See COINING.

HAMMOCK, or HAMAC, a Kind of hanging-Bed; suspended between two Trees, Posts, Hooks, or the like; much used throughout the *West Indies*, as also on Board of Ships.

The *Indians* hang their *Hamacs* to Trees, and thus secure themselves from wild Beasts and Insects, which render lying on the Ground dangerous.

The People of the *Caribbee* Islands are wonderfully superstitious in the Point of their *Hamacs*; and do not make them without a deal of Ceremonies. — At each End of the Room, they put Bags of Ashes, without which, it is the Opinion, that the *Hammock* won't last. If they were to eat Figs on a *Hammock*, they believe it would rot: Nor dare they eat any Fish that has good Teeth, as believing that would make their *Hammock* soon wear thro'.

According

According to Fa. *Plumier*, who has often made use of the *Hamac* in the *Indies*, it consists of a large, strong Coverlet, or Sheet of coarse Cotton, about six Foot Square: On two opposite Sides, are Loups of the same Stuff, thro' which a String is run, and thereof other Loops are form'd, all which are tied together with a Cord; and thus is the whole fasten'd to two neighbouring Trees, in the Field; or two Hooks, in Houses.

This Kind of Bed serves, at the same Time, for Bed, Quilts, Sheets, Pillow, *&c.*

HAMUS, or HAMULUS, is an Hook. See HOOK.

Surgeons also make Use of an Instrument thus called, to extract the Child in difficult Labours.

HANAPER, or HAMPER, an Office in Chancery. See CHANCERY.

The *Clerk of the Hanaper*, sometimes styled *Warden of the Hanaper*, receives all Money due to the King for Seals of Charters, Patents, Commissions, and Writs; and attends the Keeper of the Seal daily in Term-Time, and all Times of Sealing; and takes into his Custody all sealed Charters, Patents, and the like, which he receives into Bags; but anciently, it is supposed, into *Hampers*, which gave Denomination to the Office.

There is also an Officer, who is Comptroller of the *Hamper*. See COMPTROLLER.

HANCES, in a Ship, are Falls, or Descents of the Fife-Rails, which are placed as Banisters in the Poop, *&c.* and down to the Gang-way.

HANCES, or HANSES, in Architecture, are the Ends of Elliptical Arches; which are Arcs of smaller Circles than the Scheme, or middle Part of the Arch. See ARCH.

HAND, *Manus*, a Part, or Member of the Body of Man; making the Extremity of the Arm. See ARM.

The Mechanism of the *Hand* is very curious; excellently contrived to fit it for the various Uses and Occasions we have for it, and the great Number of Arts and Manufactures it is to be imploy'd in. It consists of a Compages of Nerves, and little Bones, joynted into each other, which give it a great Degree of Strength, and at the same Time an unusual Flexibility, to enable it to handle adjacent Bodies, lay hold of them, and grasp them, in order either to draw them towards us, or thrust them off.

Anaxagoras is represented by ancient Authors, as maintaining, that Man owes all his Wisdom, Knowledge, and Superiority over other Animals, to the Use of his *Hand*. — *Galen* puts the Thing another Way: Man, according to him, is not the wisest Creature, because he has *Hands*; but he had *Hands* given him because he was the wisest Creature. For it was not our *Hands* that taught us Arts, but Reason. The *Hands* are the Organs of Reason, *&c. De usu part.* Lib. I. C. 3.

HAND, in Medicine: — The *Hand*, among Anatomists, extends from the Shoulder to the Fingers Ends; call'd also the *greater Hand*.

It is divided into three Parts: — The first reaching from the Shoulder to the Elbow; properly call'd the *Arm*, *Brachium*. See ARM.

The second reaches from the Elbow to the Wrist. — The third, the *Hand*, *Manus*, properly so call'd; call'd also the *lesser Hand*, or *extrema Manus*. — This is subdivided into three other Parts; the *Carpus*, which is the Wrist: — The *Metacarpus*, which is the Body of the *Hand*, including the *Dorsum* and *Vola*: — And the Fingers, *Digiti*. See each described under its proper Article, CARPUS, METACARPUS, and FINGERS.

The Muscles whereby the *Hand* is moved and directed, are the *Palmares*; the *Flexor* and *Extensor*, *Carpi Ulnaris*, and *Radialis*; *Perforatus*; *Perforans*; *Lumbricales*; *Interossei*; *Extensors*, *Abductors*, and *Flexors* of the Fingers. See each in its Place, PALMARIS, FLEXOR, EXTENSOR, *&c.*

The *Hand* makes the Subject-Matter of the Art of Palmistry, which is employ'd in considering the several Lines and Eminencies of the Palm of the *Hand*, their Significations, *&c.* See PALMISTRY.

Among the *Egyptians*, the *Hand* was used as a Symbol of Strength: — Among the *Romans*, it was held a Symbol of Fidelity; and accordingly was consecrated to that Goddess, by *Numa*, with great Solemnity.

In Chirurgery, they use an *Iron Hand*, which is a Kind of Artificial, or Subsidiary *Hand*, to be applied, and fitted on the Stump of an Arm, after the *Hand* has been cut off.

It has most of the Motions of the natural *Hand*; which are effected by Means of Springs, Pullies, Pinions, Buttons, *&c.* *Amb. Pare* gives us its Structure at large.

HAND, in Falconry, is used for the Foot of the Hawk: — To have a clean, strong, slender, glutinous *Hand*, well clawed, are some of the good Qualities of a Hawk or Falcon. See HAWK and FALCON.

HAND, in the Manage, is a Term variously used. — Sometimes it stands for the Fore-feet of a Horse.

Hand is also used, for a Division of the Horse into two Parts, with Respect to the Rider's *Hand*. — The *Forehand* includes the Head, Neck, and fore-Quarters. — The *Hind-hand* is all the rest of the Horse.

Spear-HAND, or *Sword-Hand*, is used for a Horseman's Right-*Hand*.

Bridle-Hand, is his Left-*Hand*. — Your regular Cavalier holds his Bridle-*Hand* 2 or 3 Inches above the Pommel of the Saddle.

A Horseman is said to have *no Hand*, when he only makes Use of the Bridle unseasonably; not knowing how to give the Aids or Helps of the *Hand* with Discretion.

To keep a Horse *upon the Hand*, signifies to feel him in the Stay upon the *Hand*, and to be always prepared to avoid any Surprize from him. — When the Horse obeys and answers the Effects of the *Hand*, he is said to *rest well upon the Hand*.

A Horse-man ought to have a *light Hand*, i. e. he ought only to feel the Horse upon his *Hand*, so as to resist him whenever he attempts to slip from it; and assoon as he has made his Resistance, ought to lower the Bridle, instead of cleaving to it.

If a Horse, by a too great Eagerness to go forward, *presses* too much *upon the Hand*; it ought to be slacken'd at certain Times, and at other Times to be kept hard, in order to disappoint him from continually pressing upon the Bit. This Facility, or Liberty of the Horseman, of slackening or stiffening the *Hand*, makes what they call a *good Hand*.

A Horse is said to *force the Hand*, when he does not fear the Bridle, but runs away in Spire of the Rider.

To *work a Horse upon the Hand*, is to manage him by the Effects of the Bridle, without any other Helps, except the Calves of the Legs.

To be *heavy upon the Hand*, is understood of a Horse, which by Reason of the Softness of his Neck, the Weakness of his Back, the Largeness of his Head, and the Weight of his Fore-quarters; or his Weariness; throws himself upon the Bridle, without making any Resistance, or Effort, to force the Horseman's *Hand*.

Harmonical HAND, in Music, is used by some Writers for the ancient Diagramma, or Scale of Music, upon which they learn'd to sing. See GAMMUT, SCALE, DIAGRAM, *&c.*

The Reason of the Appellation was, that *Guido Aretin*, upon inventing the Notes, *ut*, *re*, *mi*, *fa*, *sol*, *la*, disposed them on the Fingers of the Figure of a *Hand* stretch'd out. See NOTE.

He changed the Letters of the Alphabet, used till that Time to express the Notes, for these six Syllables, which he took out of the first Strophe of the Hymn of St. *John Baptist*, composed by *Paulus Diaconus*.

Ut *queant Laxis* re-*sonare fibris*
Mi-*ra Gestorum* fa-*muli tuorum*
Sol-*ve polluti* la-*bii reatum*.
Sancte Joannes.

Imposition of HANDS, or *Laying on of Hands*, signifies the conferring of Holy Orders; a Ceremony wherein the *Hands* are laid on the Head of another, as a Sign of a Mission, or of a Power given him to exercise the Functions of the Ministry belonging to the Order. See ORDINATION, *&c.*

The Apostles began to appoint Missionaries by the Imposition of *Hands*. See IMPOSITION.

Washing one's HANDS of a Thing, signifies the witnessing that a Person has no Part or Concern in an Affair; and that he will not be answerable for it: As *Pilate* did in Respect of our Saviour's Death. — In this Sense a Man is said to have *clean Hands*; and particularly a Judge, to denote that he has not been corrupted by Bribes or Presents.

Left-HAND, — To marry with the *Left Hand*, is to Espouse a Woman of inferior Degree, whose Children, in virtue of such Marriage, are not to succeed to the Father, nor share with the other Children; but be contented with what Fortune the Husband shall appoint them the next Day after Marriage.

This Method of taking *Left-handed Wives* obtains in *Germany*. See MARRIAGE.

HAND, is also used for the Index of a Clock, Watch, or the like, serving to point the Hour, *&c.* See INDEX.

HAND *of Justice*, is a Scepter, or Batoon, a Cubit long, having an Ivory Hand at the Extremity thereof; used as an Attribute of Kings, wherewith they are painted in their Royal Robes; as on the Coronation Day.

Authors usually call it *Virga*. — *Louis* X. of *France*, first took the *Hand* of Justice for his Devise.

Long-HAND, *Longimanus*. — A Kind of Title, or Surname, assumed by certain Princes. *Artaxerxes*, the Son of *Xerxes*, and his Successor in the *Persian* Empire, were thus denominated; as having one *Hand* longer than the other.

Short HAND. See TACHEOGRAPHY.

Bloody HAND. See BLOODY-*Hand*.

HAND is also figuratively used in Painting, Sculpture, &c. for the Manner or Style of this or that Master. See MANNER, STYLE, &c.

HANDS, are born in Coat Armour, *dexter* and *sinister*; that is, right and left; expanded or open, and after other Manners.

Azure, a *dexter* Hand couped at the Wrist, and extended in pale Argent; is born by the Name of *Brome*. — Argent, three *sinister* Hands, couped at the Wrist, Gules, by the Name of *Maynard*.

The Knights Baronets, are to bear in a Canton, or in an Escutcheon, which they please, the Arms of *Ulster*, viz. In a Field Argent, a *sinister* Hand couped at the Wrist, Gules. See BARONET.

HAND-*Borow*, from the *Saxon*, Bopg-hand, a *Surety*; *est quasi vas, aut fidei jussor manuensis, hoc est, minor, seu inferior; nam Head-borow, vas est Capitalis, vel superior*. Spelman. See HEAD BOROUGH.

HAND-*Breadth*, is sometimes used for a Measure of three Inches. See INCH and MEASURE.

HAND, or HANDFUL, is also a Measure of four Inches, by the Standard; according to the Stat. 33 *H.* 8. *Cap.* 5. See MEASURE.

The *Hand*, among Jockeys, is four Fingers Breadth, and is the Measure of a Fist clench'd; by which the Height of Horses is measured.

A Horse for War should be 16 or 18 *Hands* high.

HAND-HABEND, in our ancient Customs, denotes a Thief taken in the very Fact. See HOND-HABEND.

Si quis hominem liberum latrocinium, seu rem furatam secum deferentem (quem hæbbendne handa vocant) comprehenderit, &c. Concil. Berghamsted, *Anno* 697.

HANDLING, a Term used in Respect of fighting Cocks; signifying the measuring the Girth of them, by griping one's Hands and Fingers about the Cock's Body.

HANGINGS, Linings for Rooms, made of Arras, Tapestry, &c. See TAPESTRY.

HANGS-*Over*, in Building. See BATTER.

HANSE, or ANSE, an ancient Name, for a Society or Company of Merchants; particularly those of certain Cities in *Germany*, &c. hence call'd *Hanse Towns*. See COMPANY and HANSE *Town*.

HANSE *Towns*, certain Free Towns of *Germany*, and the *North*, united in strict League, under Laws and Magistrates of their own appointing, for the better carrying on of Commerce, and their mutual Safety and Assistance. See COMPANY.

This celebrated Association, which makes so great a Figure in the History of Commerce, is commonly supposed to have commenced at *Bremen* on the *Weser*, in the Year 1164; others say in 1260, immediately after the Incursions and Pyracies of the *Danes*, *Normans*, &c. others in 1206; and others in 920: But be its Origin when it will, it was confirm'd and re-establish'd in 1270. See COMMERCE.

At first it only consisted of Towns situate on the Coasts of the *Baltic* Sea, or not far from it. — But its Strength and Reputation increasing, scarce any Trading City in *Europe* but desired to be admitted into it.

Under our King *Henry* III. the *Hanse* consisted of no less than 62 Cities; to which were afterwards added 4 more.

France furnished to the Confederacy, *Rouen*, St. *Malo*, *Bourdeaux*, *Bayonne*, and *Marseilles*: Spain, *Barcelona*, *Sevil*, and *Cadix*: England, *London*: Portugal, *Lisbon*: — The Low-Countries, *Antwerp*, *Dort*, *Amsterdam*, *Bruges*, *Rotterdam*, *Ostend*, and *Dunkirk*: And Italy and Sicily, *Messina*, *Leghorn*, and *Naples*.

The *Hanse* was divided into 4 Classes, or Members, which were those of *Lubec*, *Cologn*, *Brunswick*, and *Prussia*, or *Dantzic*. — Those four Cities were the Heads of the four Members; and *Lubec* that of the whole *Hanse*.

Beside this, the *Hanse* had four principal Factories, or Staples, at *London*, *Bruges*, *Novogrod*, and *Berg*; that of *Bruges* was afterwards removed to *Antwerp*. But the first and principal was that of *Lubec*, which still remains the Head of the Association. That of *London* was call'd *Guildhalla Teutonicorum*, or the *Stillyard*. See STILLYARD.

The Government of the *Hanse* was at first Aristocratical: Then it came under the sole Direction of the Grand Master of the *Teutonic* Order; and, at length, divers Princes and Lords made Interest for it.

The End of the XIV*th* Century, and the Beginning of the XV*th*, were the most flourishing Times of this Alliance. — They were then in a Condition to proclaim War against Kings: History is not silent, as to that they waged against *Waldemar* King of *Denmark*, about the Year 1348; and against *Eric*, in 1428; particularly this last, where the *Hanseatic* Fleet consisted of Forty Ships, containing above 12,000 Regular Troops, beside the Seamen.

But the several Princes, whose principal Cities were enter'd into the Association, began to think it Policy to put some Bounds to a Power, which, in Time, might have proved formidable to themselves. — The Means were easy, and short: Each withdrew the Merchants of his Country from the Association; which, in a little Time, from the great Number of Cities it had comprehended, found it self sunk to those few which had begun the Confederacy; which henceforth was call'd the *Teutonic Hanse*. Tho' these are still so considerable in Point of Commerce, that they are admitted to make Treaties with the greatest Kings.

The Divisions that were got among them, contributed greatly to their Fall: Nor must it be forgot, that the Establishment of the Republic and Commerce of *Holland* had its Share therein.

The four first Cities which form'd the League, were *Lubec*, *Cologn*, *Brunswick*, and *Dantzick*, which were call'd *Mother-Towns*; as those afterwards added thereto, were call'd *Daughters* thereof.

A great Number of Towns in *Germany*, still retain the Title of *Hanse Towns*; but this is rather an empty Title which they affect, than any Argument of their continuing to trade under the Laws and Protection of the ancient Alliance; there being scarce any but *Lubec*, *Hamburgh*, *Bremen*, *Rostock*, *Brunswick*, and *Cologn*, that are truly *Hanseatic*, and that have Deputies at the Assemblies held on the common Occasions thereof.

The great Trade the *Dutch* maintain with the *Hanse Towns*, contributes not a little towards maintaining some Part of them in their ancient Reputation; and 'tis principally to their Alliance with that flourishing Republic, that they owe the Preservation of their Liberties: The Succours some of them have received from the *Dutch*, having sav'd them more than once from the Enterprizes of the Neighbouring Princes. See COMMERCE.

The Word *Hanse*, is obsolete *High-Dutch*, or *Teutonic*, and signifies Alliance, Confederacy, Association, &c.

Others derive it from the two *German* Words, *Am-see*, that is, on the Sea; by Reason the first *Hanse Towns* were all situate on the Sea-Coast: Whence, the Society is said to have been first call'd, *aen zee steden*, that is, Cities on the Sea; and afterwards, by Abbreviation, *Hansee*, and *Hanse*.

HANSEATIC, something belonging to the Alliance, or Company of the *Hanse*.

Thus we say, The *Hanseatic* Body: The *Hanseatic* Towns, &c. See HANSE.

HANSGRAVE, the Title of an Officer in *Germany*. — The *Hansgrave* is the chief of a Company, or Society.

The Word is a Compound of the German, *Hanse*, and *Graf*, Count. See GRAVE.

HAP, in Law, from the French, *Happer*, to catch, or snatch; signifies the same with us: — Thus we say, to *Hap* the Possession of a deed Poll, *Littleton*, Fol. 8. to *Hap* the Rent.

If Partition be made between two Partners, and more Land be allowed the one than the other; and she that hath most of the Land, charges her Land to the other, and *happeth* the Rent; she shall maintain Assize without Speciality. *Term. ley.*

HAQUENY, *Hackney*, an old *French* Word for an ambling Horse. See AMBLING.

HAQUEBUT, a Kind of Gun, or Caliver, otherwise call'd an *Harquebuss*, or *Arquebusse*. See HARQUEBUSS.

It is also call'd a *Hagbut*. — The *Haquebut* is a bigger Sort of Hand-Gun; thus call'd from the *Teutonic*, *Haeck Buyse*.

HARANGUE, a Modern *French* Name for a *Speech*, or *Oration*; i. e. a Discourse made by an Orator in public. See ORATION.

Menage derives the Word from the German *huborung*, or the *English* hearing. Others derive it from the Latin, *Ara*, Altar, by Reason the first *Harangues* were made before Altars: Whence the Verse of *Juvenal*,

Aut Lugdunensem Rhetor dicturus ad Aram.

The Word is also frequently used in an ill Sense, *viz.* For a too pompous, prolix, or unseasonable Speech, or Declamation. — In *Homer*, the Poets generally *Harangue* ere

ere they come to fight; as in *England*, Criminals *Harangue* on the Scaffold before they die. St. *Evrem.*

HARBINGER, an Officer of the King's Houſhold, having four Yeomen under him, who ride a Day's Journey before the Court when they travel, to provide Lodgings, &c.

HARBOUR, a *Sea-Port*; or a Station where Ships may ride ſafe at Anchor. See PORT.

The Word is chiefly applied to thoſe cloſed, or ſecured with a Bomb, or Chain; and that are furniſhed with a Mole, &c. See MOLE, &c.

To *Harbour*, is to lodge, receive, or entertain; to find a retiring Place. — Among Hunters, an Hart is ſaid to *Harbour* when he goes to Reſt; whence to *unharbour* a Deer, is to diſlodge him. See HUNTING.

HARDENING, the Act of communicating a greater Degree of *Hardneſs* to a Body, than it already has. See HARDNESS.

The *Hardening* and Tempering of Iron and Steel, makes a conſiderable Article in the mechanical Arts. See IRON, STEEL, TEMPERING, &c.

There are divers Ways of effecting it; as by the Hammer; quenching it, when hot, in cold Water; Caſe hardening, &c.

To *harden* and temper *Engliſh*, *Flemiſh*, and *Swediſh* Steel, they give it a pretty high Heat, then ſuddenly quench it in Water, to make it very hard: *Spaniſh* and *Venice* Steel only need a blood red Heat, and then quench'd. See HEAT.

The Workmen ſometimes grind Indigo, and Sallad Oyl together, and rub the Mixture upon it with a Woollen Rag while it is heating, and let it cool of it ſelf.

If the Steel be too *hard* or brittle for an Edge, ſpring, or pointed Inſtrument, it may be let down, or made ſofter, thus: Take a Piece of Grind-ſtone, or Whet-ſtone, and rub hard on the Work, to take the black Scurf off it, and brighten it; then let it heat in the Fire, and, as it grows hotter, the Colour will change by degrees, coming firſt to a light Goldiſh Colour, then to a darker Goldiſh Colour, and at laſt to a blue Colour: Chuſe which of theſe Colours the Work requires, and quench it ſuddenly in the Water.

Hammer HARDENING, is moſtly uſed on Iron and Steel Plates, for Saws, Springs, Rules, &c. See SPRING, &c.

Caſe HARDENING is thus perform'd: — Take Cow-horn, or hoof, dry it well in an Oven, and beat it to Powder; put as much Bay-Salt as Powder into ſtale Urine; or White-wine Vinegar, and mix them well together, cover the Iron, or Steel, all over with this Mixture, and wrap it up in Loam, or Plate Iron, ſo as the Mixture touch every Part of the Work; then put it in the Fire, and blow the Coals to it, till the whole Lump have a blood-red Heat, but no higher; laſtly, take it out and quench it.

HARDNESS, *Durities*, in Philoſophy, that Quality in Bodies, whereby their Parts cohere firmly together, ſo as to reſiſt the Touch. See COHESION.

In this Senſe *Hardneſs* coincides with what on other Occaſions we call *Firmneſs*, and ſometimes *Solidity*, in Oppoſition to Fluidity. See FIRMNESS, SOLIDITY, and FLUIDITY.

More ſtrictly ſpeaking, a Body is ſaid to be *hard*, when its Parts mutually cohere, ſo as not to yield inwards, or give Way to an external Impulſe; and therefore not ſubject to any Motion in Reſpect of each other, without breaking the Body. — In which Senſe, *Hardneſs* ſtands oppoſed to *Softneſs*, where the Parts do readily give Way.

The Peripateticks make *Hardneſs* a ſecondary Quality; as ſuppoſing it to ariſe from *Dryneſs*, which is a primary one, and to be in Proportion thereto. See QUALITY.

Its remote Cauſes, according to them, are either Heat or Cold, according to the Diverſity of the Subject: Heat producing Dryneſs, and by that Means *Hardneſs* in Clay; and Cold, doing the like in Wax.

The *Epicurean* and Corpuſcular Philoſophers, account for *Hardneſs*, from the Figure of the component Parts, and their Union together. — Accordingly, ſome aſcribe it to the Atoms, or Particles of the Body, being hooked, and thus mutually catching and hanging upon one another: But this is directly bringing that for an Anſwer, which was the Queſtion. For how do thoſe hooked Parts hang on? See PARTICLE.

Again: The *Carteſians* will have the Coheſion of hard Bodies, effected by Reſt; that is, by nothing at all. See REST.

Sir *Iſ. Newton* ſhews, that the primary Particles of all Bodies, whether ſolid or fluid, are *hard*, perfectly *hard*; and not capable of being broke or divided by any Power in Nature. — See MATTER, BODY, ELEMENT, &c.

Theſe Particles he maintains to be connected together by an attractive Power; and according to the Circumſtances of this Attraction, is the Body either *hard*, or ſoft, or even fluid. See ATTRACTION.

If the Particles be ſo diſpoſed or fitted for each other, as to touch in large Surfaces, ſuch Body will be *hard*; and the more ſo, as thoſe Surfaces are the larger. If, on the contrary, they only touch in ſmall Surfaces, the Body, by the Weakneſs of the Attraction, will remain ſoft. See PARTICLE.

HARDS, or HURDS, of Flax, or Hemp, are the coateſt Parts, ſeparated in the dreſſing of it, from the Tear, or fine Stuff. See HEMP.

HARE-*Hunting*. See *Hare*-HUNTING.

HARIOT, or HERIOT, a Due, or Service, belonging to the Lord at the Death of his Tenant; conſiſting of the beſt Beaſt the Tenant had at the Time of his Death. See SERVICE.

Coke on *Littleton* obſerves, that *Heriot* in *Saxon* is called heregat, *q. d.* the *Lord's Beaſt*: here, ſignifying *Lord*, and geat, *Beaſt*; from which others diſſent, urging that here, in *Saxon*, ſignifies an *Army*, and geoc, *fuſus*: And that the *Saxon* heregat, whence we derive our *Hariot*, ſignified *Proviſion* for War, or a Tribute, or Relief, given to the Lord of a Mannor, for his better Preparation towards War. — *Erat enim* Heriotum *militaris ſupellectilis præſtatio, quam obeunte vaſſallo, Dominus reportavit in ſui ipſius munitionem*, ſays *Spelman*.

By the Laws of *Canutus*, Tit. de *Heriotis*, it appears, that at the Death of the great Men of this Nation, ſo many Horſes and Arms were to be paid, as they were in their reſpective Life obliged to keep for the King's Service. See RELIEF.

But *Heriot* is now wholly taken for a Beaſt, which the Lord by Cuſtom, chuſes out of all the Store of his deceaſed Tenant, be it Horſe, Ox, &c. and in ſome Mannors, the beſt Piece of Plate, Jewel, or the beſt Moveable.

Heriot is of two Sorts: 1°. *Heriot Cuſtom*, where *Heriots* have been paid Time out of Mind by Cuſtom, after the Death of a Tenant for Life. 2°. *Heriot Service*, when a Tenant holds by ſuch Service to pay *Heriot* at the Time of his Death; which Service is expreſſed in the Deed of Feoffment. See SERVICE.

For this the Lord ſhall diſtrain; and for the other he ſhall ſeize and not diſtrain. — If the Lord purchaſe Part of the Tenancy, *Heriot Service* is extinguiſhed; but not ſo of *Heriot Cuſtom*. See FARLEY and SOLE *Tenant*.

HARLEQUIN, a *Buffoon*. — In the *Italian* Comedy, the *Harlequin* is the ſame with a Merry Andrew, or Jack Pudding in our Drolls, on Mountebanks Stages, &c. — We have alſo introduced the *Harlequin* upon our Theatres; and this is one of the ſtanding Characters in our Groteſque Entertainments.

The Term took its Riſe from a famous *Italian* Comedian, or rather Buffoon, who came to *Paris* under *Henry* III. and who frequenting the Houſe of M. *de Harlay*; his Companions uſed to call him *Harlequino*, q. d. *little Harlay*, a Name which has deſcended to all thoſe of the ſame Rank, and Profeſſion.

HARLOT, a Woman given to Incontinency; or that makes a *Habit* or a Trade of proſtituting her Body.

The Word is ſuppoſed to be uſed for *Whorelet*, or a little Whore. — Others derive it from *Arletta*, Miſs to *Robert* Duke of *Normandy*, and Mother to *William the Conquerour*: *Cambden* derives it from one *Arlotha*, Concubine to *William the Conquerour*. — Others from the Italian *Arlotta*, a proud Whore.

HARMONIA, in Muſic, &c. See HARMONY.

HARMONIA, in Anatomy, a Sort of Jointure, or Articulation of the Bones. See ARTICULATION.

Harmonia is a Species of the *Symphyſis*, or Juncture, intended for abſolute Reſt. See SYMPHYSIS.

Two Bones are ſaid to be joyn'd *per Harmoniam*, by *Harmonia*, when the Jointure is in one uniform, right, or circular Line; or when the Bones meet with even Margins: In Contradiſtinction from *Sutura*, where they are indented. See SUTURA.

The Bones of the upper Jaw are joyn'd *per Harmoniam*. See MAXILLA *Superior*.

HARMONICA, HARMONICKS, a Branch, or Diviſion of the antient Muſic. See MUSIC.

The *Harmonica* is that Part which conſiders the Differences, and Proportion of Sounds, with Reſpect to acute and grave: In Contradiſtinction from *Rythmica* and *Metrica*. See RYTHMICA and METRICA.

The only Part of their Muſic the Antients have left us any tolerable Account of, is the *Harmonica*; which it ſelf is but very general and theoretical.

Mr.

Mr. *Malcolm* has made a very induſtrious, and learned Inquiry into the *Harmonica*, or Harmonic Principles of the Antients. — They reduced their Doctrines into ſeven Parts, *viz.* of *Sounds*; of *Intervals*; of *Syſtems*; of the *Genera*; of the *Tones*, or *Modes*; of *Mutations*; and of the *Melopœia*. See each conſider'd under its proper Article SOUND, INTERVAL, SYSTEM, GENERA, MODE, MUTATION and MELOPOEIA.

HARMONICAL *Arithmetic*, is ſo much of the Theory and Doctrine of Numbers, as relates to making the Compariſons, Reductions, *&c.* of Muſical Intervals, which are expreſſed by Numbers, in order to our finding their mutual Relations, Compoſitions and Reſolutions. See INTERVAL, *&c.*

HARMONICAL *Compoſition*, in its general Senſe, includes the Compoſition both of *Harmony* and *Melody*, i. e. of Muſic, or Songs, both in a ſingle Part, and in ſeveral Parts. See COMPOSITION.

In its more proper and limited Senſe, *Harmonical Compoſition* is reſtrain'd to that of Harmony. In which Senſe it may be defined the Art of diſpoſing and concerting ſeveral ſingle Parts together, in ſuch Manner, as to make one agreeable whole. See SONG, *&c.*

The Art of Harmony has been long known under the Name of *Counterpoint*. See COUNTERPOINT.

At the Time when Parts were firſt introduced, Muſic being then very ſimple, there were no different Notes of Time; and the Parts were in every Note made Concord.

This they afterwards call'd *ſimple*, or *plain Counterpoint*, to diſtinguiſh it from another Kind, then introduced, wherein Notes of different Value were introduced, and Diſcords brought in between the Parts. See DISCORD.

This they call'd *Figurative Counterpoint*. See FIGURATIVE *Counterpoint*.

HARMONICAL *Interval*, is an Interval, or Difference of two Sounds which are agreeable to the Ear, whether in Conſonance or Succeſſion. See INTERVAL.

Harmonical Intervals, therefore, are the ſame with *Concords*. See CONCORD.

They are thus call'd, as being the only eſſential Ingredients of Harmony. See HARMONY.

HARMONICAL *Proportion*, is a Sort of Proportion between three Quantities, wherein the Difference of the firſt and ſecond, is to the Difference of the ſecond and third; as the firſt is to the third.

Thus, 2 : 3 : 6 are *Harmonical*, becauſe 2 : 6 : : 1 : 3 are Geometrical.

So four Numbers are *Harmonical*, when the firſt is to the fourth, as the Difference of the firſt and ſecond, to the Difference of the third and fourth.

Thus, 24 : 16 : 12 : 9 are *Harmonical*; becauſe 24 : 2 : : 8 : 3 are Geometrical.

For the Laws and Rules of HARMONICAL *Proportion*. See *Harmonical* PROPORTION.

HARMONICAL *Series*, is a Series of many Numbers in continual *Harmonical* Proportion. See SERIES.

If there be four or more Numbers, whereof, every three immediate Terms are *Harmonical*; the whole makes an *Harmonical Series*, of continual *Harmonical* Proportionals: As 30 : 20 : 15 : 12 : 10.

Or if every 4 immediately next each other are *Harmonical*, 'tis alſo a continual *Harmonical Series*, but of another Species; as 3, 4, 6, 9, 18, 36, *&c.*

HARMONICAL *Sounds*, is an Appellation given by M. *Sauveur* to ſuch Sounds as always make a certain determinate Number of Vibrations in the Time that ſome other fundamental Sound, to which they are referr'd, makes one Vibration. See SOUND and VIBRATION.

Harmonical Sounds, are produced by the Parts of Chords, *&c.* which vibrate a certain Number of Times while the whole Chord vibrates once. See CHORD.

By this they are diſtinguiſhed from the third, fifth, *&c.* where the Relations of the Vibrations is 4 to 5, or 5 to 6, or 2 to 3. See THIRD, *&c.*

The Relations of Sounds, had only been conſider'd in the Series of Numbers 1 : 2, 2 : 3, 3 : 4, 4 : 5, *&c.* which produced the Intervals call'd *Octave*, *Fifth*, *Fourth*, *Third*, &c. Mr. *Sauveur* firſt conſider'd them in the natural Series, 1, 2, 3, 4, &c. and examined the Relations of the Sounds ariſing therefrom. — The Reſult is, that the firſt Interval 1 : 2, is an Octave; the ſecond 1 : 3, a twelfth; the third 1 : 4, a fifteenth, or double Octave; the fourth 1 : 5, a ſeventeenth; the fifth 1 : 6, a nineteenth, *&c.*

This new Conſideration of the Relations of *Sounds*, is more natural than the old one; and does expreſs and repreſent the whole of Muſic, and is in Effect all the Muſic that Nature gives without the Aſſiſtance of Art. — The String of a Harpſichord, or a Bell, beſide their general Sound, which is proportionate to their Length, Tenſion, *&c.* do alſo at the ſame Time yield other ſubordinate and acuter Sounds, which a nice Ear, with a good Attention, clearly diſtinguiſhes.

Theſe ſubordinate *Sounds* ariſe from the particular Vibrations of ſome of the Parts of the String, or Bell, which are, as it were, detach'd from the reſt, and make ſeparate Vibrations: In Effect, every half, every third, every fourth, *&c.* of the Chord performs its Vibrations apart, while a general Vibration is made of the whole Chord. — Now all theſe ſubordinate Sounds are *Harmonical* with Regard to the whole Sound: The leaſt acute, which we hear, is Octave with the whole Sound; the leaſt acute that follows, makes a twelfth with the whole Sound; the next a ſeventeeth, *&c.* till they grow too acute for the Ear to perceive them. Now throughout the whole, we hear no ſuch Thing as a Sound that makes a fifth, or a third, *&c.* with the whole Sound; none in ſhort, but what are comprized in the Series of *Harmonical* Sounds.

Add, that if the Breath, or Bellows that blow a Wind Inſtrument, be play'd ſtronger and ſtronger, the Tone will be continually rais'd, but this only in the *Ratio* of the *Harmonical Sounds*. — So that it appears that Nature, when ſhe makes as it were a Syſtem of Muſic her ſelf, uſes no other but this Kind of Sounds; and yet they had hitherto remained unknown to the Muſicians: Not but that they frequently fell into 'em, but it was inadvertently, and without knowing what they did. — M. *Sauveur* ſhews that the Structure of the Organ depends entirely on this unknown Principle. See ORGAN.

HARMONY, in Muſic, the agreeable Reſult of an Union of ſeveral Muſical Sounds, heard at one and the ſame Time; or, the Mixture of divers Sounds, which together have an Effect agreeable to the Ear. See SOUND.

As a continued Succeſſion of Muſical Sounds produces *Melody*; ſo does a continued Combination of thoſe produce *Harmony*. See MELODY.

Among the Antients, however, as ſometimes alſo among the Moderns, *Harmony* is uſed in the ſtrict Senſe of *Conſonance*; and ſo is equivalent to the *Symphony*. See CONSONANCE and SYMPHONY.

The Words *Concord*, and *Harmony*, do really ſignify the ſame Thing; tho' Cuſtom has made a little Difference between them. Concord is the agreeable Effect of two Sounds in Conſonance: And *Harmony*, the Effect of any greater Number of agreeable Sounds in Conſonance. See CONCORD.

Again, *Harmony* always implies *Conſonance*: But *Concord* is alſo applied to Sounds in *Succeſſion*; tho' never but where the Terms can ſtand agreeably in Conſonance: The Effect of an agreeable Succeſſion of ſeveral Sounds, is call'd *Melody*; as that of an agreeable Conſonance, *Harmony*.

The Antients ſeem to have been entirely unacquainted with *Harmony*; the Soul of the modern Muſic. — In all their Explications of the *Melopœia*, they ſay not one Word of the Concert, or *Harmony* of Parts. We have Inſtances, indeed, of their joyning ſeveral Voices, or Inſtruments, in Conſonance: But then thoſe Voices, *&c.* were not ſo joyn'd, as that each had a diſtinct and proper Melody, ſo making a Succeſſion of various Concords; but were either Uniſons, or Octaves, in every Note; and ſo all perform'd the ſame individual Melody, and conſtituted one Song. See SONG, SYNAULIA, *&c.*

When the Parts differ, not in the Tenſion of the whole, but in the different Relations of the ſucceſſive Notes; 'tis thus that conſtitutes the modern Art of *Harmony*. See MUSIC and MELOPOEIA.

Harmony is well defined the Sum of Concords, ariſing from the Combination of two or more Concords, *i. e.* of three or more ſimple Sounds, ſtriking the Ear all together: And different Compoſitions of Concords make different *Harmony*.

To underſtand the Nature, and determine the Number, and Preference of *Harmonies*; it is to be conſider'd, that in every compound Sound, where there are no more than three ſimple ones, there are three Kinds of Relations, *viz.* the primary Relation of every ſimple Sound to the fundamental, or graveſt, whereby they make different Degrees of Concord with it: The mutual Relations of the Acute ſounds each with other, whereby they mix either Concord or Diſcord into the Compound: And the ſecondary Relation of the whole, whereby all the Terms unite their Vibrations, or coincide more or leſs frequently.

Suppoſe, *e. gr.* four Sounds, A, B, C and D, whereof A is the graveſt; B next; then C; and D the acuteſt. — Here, A is the fundamental; and the Relations of B, C, and D, to A are primary Relations: So, if B be a 3d *g* above A, that primary Relation is 4 to 5; and if C be 5th to A, that primary Relation is 2 to 3; and if D be

8ve

8ve to A, that is 1 to 2. For the mutual Relations of the acute Terms, B, C, D, they are had by taking their primary Relations to the fundamental, and subſtracting each leſſer from each greater: Thus, B to C is 5 to 6, a 3d *l*; B to D is 5 to 8, a 6th *l*, &c. — Laſtly, to find the ſecondary Relation of the whole, ſeek the leaſt common Dividend to all the leſſer Terms or Numbers of the primary Relations, *i. e.* the leaſt Number that will be divided by each of them exactly: This is the Thing ſought; and ſhews that all the ſimple Sounds coincide after ſo many Vibrations of the Fundamental as the Number expreſſes.

So in the preceding Example, the leſſer Terms of the three primary Relations are 4, 2, 1, whoſe leaſt common Dividend is 4. Conſequently, at every 4th Vibration of the fundamental, the whole will coincide.

Now *Harmony*, we have obſerved, is a compound Sound, conſiſting of three, or more, ſimple Sounds. — Its proper Ingredients are Concords; and all Diſcords, at leaſt in the primary and mutual Relations, are abſolutely forbidden. 'Tis true Diſcords are uſed in Muſic; but not for themſelves ſimply, but to ſet off the Concords by their Contraſt and Oppoſition. See DISCORD.

Hence, any Number of Concords being propoſed to ſtand in primary Relation with a common Fundamental; we diſcover whether or no they conſtitute a perfect *Harmony* by finding their mutual Relations. — Thus, ſuppoſe the following Concords, or primary Relations, *viz.* the greater 3d, 5th, and Octave given; their mutual Relations are all Concord, and therefore may ſtand in *Harmony*. For the greater 3d and 5th are to one another, as 5 : 6, a leſſer third. The greater 3d and Octave, are as 5 : 8 a leſſer 6th. And the 5th and Octave are as 3 : 4 a leſſer fourth. But if 4th, 5th, and 8ve, be propoſed, 'tis evident they cannot ſtand in *Harmony*; by Reaſon betwixt the 4th and 5th there is a Diſcord, *viz.* the Ratio 8 : 9. Again, ſuppoſing any Number of Sounds which are Concord, each to the next, from the loweſt to the higheſt; to know if they can ſtand in *Harmony*, we muſt find the primary, and all the mutual Relations, which muſt be all Concord. So let any Number of Sounds be as 4 : 5 : 6 : 8, they may ſtand in *Harmony* by Reaſon each to each is Concord: But the following ones cannot, *viz.* 4, 6, 9, becauſe 4 : 9 is Diſcord.

The neceſſary Conditions of all *Harmony*, then, are Concords in the primary and mutual Relations; on which Footing, a Table is eaſily form'd of all the poſſible Varieties: But to determine the Preference of *Harmonies*, the ſecondary Relations are likewiſe to be conſider'd. — The Perfection of *Harmonies* depends on all the three Relations: It is not the beſt primary Relations that make beſt *Harmony*: For then a 4th and 5th muſt be better than a 4th and 6th. Whereas the firſt two cannot ſtand together, becauſe of the Diſcord in the mutual Relation: Nor does the beſt ſecondary Relation carry it; for then would a 4th and 5th, whoſe ſecondary Relation with a common Fundamental is 6, be better than a leſſer 3d and 5th, whoſe ſecondary Relation is 10: But here alſo the Preference is due to the better mutual Relation. — Indeed, the mutual Relations depend on the primary; tho' not ſo, as that the beſt primary ſhall always produce the beſt mutual Relation: However, the primary Relations are of the moſt Importance; and together with the ſecondary, afford us the following Rule for determining the Preference of *Harmonies*.

Viz. Comparing two *Harmonies*, which have an equal Number of Terms, that which has the beſt primary and ſecondary Relations, is moſt perfect. — But in Caſes, where the Advantage is in the primary Relation of the one, and the ſecondary of the other, we have no certain Rule: The primary are certainly the moſt conſiderable; but how the Advantage in theſe ought to be proportion'd to the Diſadvantage in the other, or *vice verſa*, we know not. So that a well turned Ear muſt be the laſt Reſort in theſe Caſes.

Harmony is divided into Simple and Compound.

Simple HARMONY, is that where there is no Concord to the fundamental above an Octave.

The Ingredients of ſimple *Harmony*, are the ſeven ſimple original Concords, of which there can be but 18 different Combinations, that are *Harmony*; which we give in the following Table from Mr. *Malcolm*.

Table of ſimple HARMONIES.

		2dary Rel.			2dary Rel.		
5th	8ve	2	3d *g*	5th	4	3d *g*, 5th 8ve
4th	8ve	3	3d *l*	5th	10	3d *l*, 5th 8ve
6th *g*	8ve	3	4th, 6th, *g*		3	4th, 6th, *g* 8ve
3d *g*	8ve	4	3d *g*, 6th *g*		12	3d *g*, 6th *g* 8ve
3d *l*	8ve	5	3d *l*, 6th *l*		5	3d *l*, 6th *l*, 8ve
6th *l*	8ve	5	4th, 6th *l*		15	4th, 6th *l*, 8ve

Theſe are all the poſſible Combinations of the Concords that make *Harmony*: For the 8ve is compounded of a 5th and 4th, or a 6th and 3d; which have a Variety of greater and leſſer; out of theſe are the firſt ſix *Harmonies* compoſed: Then, the 5th being compoſed of the greater 3d, and leſſer 3d, and the 6th of 4th and 3d; from theſe proceed the next ſix of the Table: Then an 8ve joyn'd to each of theſe 6, make the laſt ſix.

The Perfection of the firſt twelve is according to the Order of the Table: Of the firſt ſix each has an Octave, and their Preference is according to the Perfection of the other leſſer Concord joyn'd to the Octave. — For the next ſix, the Preference is given to the two Combinations with the 5th, whereof that which has the 3d *g* is beſt; then to theſe two Combinations with the 6th *g*, of which that which has the 4th is beſt. — For the laſt ſix, they are not placed laſt, as being the leaſt perfect, but becauſe they are the moſt complex, and are the Mixtures of the other 12 with each other. In Point of Perfection they are plainly preferable to the preceding ſix, as having the very ſame Ingredients, and an Octave more.

Compound HARMONY, is that which to the ſimple *Harmony* of one Octave, adds that of another Octave.

For the Compound *Harmonies*, their Variety is eaſily found out of the Combinations of the ſimple *Harmonies* of ſeveral Octaves.

Harmony, again, may be divided into that *of Concords*, and that *of Diſcords*.

The *firſt* is that we have hitherto conſider'd, and wherein nothing but Concords are admitted.

The *ſecond* is that wherein Diſcords are uſed, intermix'd with the Concords. See HARMONICAL *Compoſition*.

Compoſition of HARMONY. See HARMONIC *Compoſition*.

HARMONY, is ſometimes alſo uſed in a laxer Senſe, to denote an Agreement, Suitableneſs, Union, Conformity, &c.

The Word is form'd of the *Greek* ἁρμονία, of the Verb ἁρμόζειν, *convenire*, *congruere*, to agree, match, &c.

In Muſic, we ſometimes apply it to a ſingle Voice, when ſonorous, clear, and ſoft; or to a ſingle Inſtrument, when it yields a very agreeable Sound. — Thus, we ſay, the *Harmony* of her Voice: of his Lute, &c.

In Matters of Learning, we uſe *Harmony* for a certain Agreement between the ſeveral Parts of a Diſcourſe, which renders the reading thereof agreeable. — In this Senſe we ſay *Harmonious* Periods, &c. See PERIOD, NUMBERS, &c.

In Architecture, *Harmony* denotes an agreeable Relation between the Parts of a Building. See SYMMETRY.

In Painting, they ſpeak of a *Harmony*, both in the Ordonnance and Compoſition, and in the Colours of a Picture. — In the Ordonnance, it ſignifies the Union, or Connection between the Figures, with Reſpect to the Subject of the Piece. See ORDONNANCE.

In the Colouring it denotes the Union, or agreeable Mixture of different Colours. See COLOURING.

M. *de la Chambre* derives the *Harmony* of Colours from the ſame Proportions, as the *Harmony* of Sounds. — This he inſiſts on at large, in his Treatiſe of the Colours *of the Iris*. On this Principle, he lays down green, as the moſt agreeable of Colours, correſponding to the Octave in Muſic; red, to a fifth; yellow, to a fourth, &c.

The Name *Harmony*, or *Evangelical Harmony*, is uſed as the Title of divers Books, compoſed to ſhew the Uniformity and Agreement of the four Evangeliſts. See EVANGELIST.

The firſt Attempt of this Kind is attributed to *Tatian*, or *Theophilus* of *Antioch*, in the IId Century. — After his Example, divers other *Harmonies* have been compoſed, by *Ammonius* of *Alexandria*, *Euſebius* of *Cæſarea*, *Janſenius* Biſhop of *Gant*, Monſ. *Toinard*, Mr. *Whiſton*, &c.

HARMONY *of the Spheres*, or *Celeſtial* HARMONY, is a Sort of Muſic, much ſpoke of by many of the Philoſophers and Fathers; ſuppoſed to be produced by the regular, ſweetly tuned Motions of the Stars and Planets. See SYSTEM.

Plato, *Philo Judæus*, St. *Auguſtine*, St. *Ambroſe*, St. *Iſidore*, *Boetius*, and many others, are ſtrongly poſſeſs'd with the Opinion of this *Harmony*, which they attribute to the various and proportionate Impreſſions of the heavenly Globes upon one another; which acting under proper Intervals, form a *Harmony*.

It is impoſſible, according to them, that ſuch ſpacious Bodies, moving with ſo much Rapidity, ſhould be ſilent; on the contrary, the Atmoſphere, continually impell'd by them, muſt yield a Set of Sounds, proportionate to the Impulſions it receives: Conſequently, as they do not all run the ſame Circuit, nor with one and the ſame Velocity, the different Tones ariſing from the Diverſity of Motions, directed by the Hand of the Almighty, form an admirable Symphony, or Concert. See MUSIC.

St. *Irenæus*, St. *Basil*, and St. *Epiphanius*, have appeared against the Notion.

Pre-establish'd Harmony, a celebrated System of M. *Leibnitz*, by Means whereof he accounts for the Union or Communication between the Soul and Body. See Soul, &c.

The Philosophers had universally held that the Soul and Body act really and physically on each other. — *Des Cartes* first appear'd, and shew'd that the Heterogeneity of their Nature did not allow of such real Union; and that they could only have an apparent one, whereof God is the Mediator. See Cause.

Mr. *Leibnitz*, unsatisfied with either of these Hypotheses, establishes a third. — A Soul, or Spirit, he observes, is to have a certain Series of Thoughts, desires and wills: A Body, which is only a Machine, is to have a certain Series of Motions, to be determined by the Combination of its mechanical Disposition, with the Impressions of external Objects.

If, now, there be found a Soul and a Body so framed, that the whole Series of Wills of the Soul, and the whole Series of Motions of the Body, exactly correspond; and that at the same Time, for Instance, when the Soul desires to go to any Place, the two Feet move mechanically that Way: This Soul and Body will have a Relation to one another, not by any actual Union between them, but by the constant and perpetual Correspondence of the several Actions of both. — Now, God puts together this Soul and Body, which had such a Correspondence antecedent to their Union; such a *pre-establish'd Harmony*. — And the same is to be understood of all the other Souls and Bodies, that have been or ever will be joyn'd.

In Effect, the Laws of Motion in the Body, succeeding in the Order of Efficient Causes, do also agree and correspond with the Ideas of the Soul; so that the Body is determined to act at the Time when the Soul wills.

The same Principle he extends further, and makes a *pre-establish'd Harmony* between the Kingdoms of Nature and Grace; to account for the apparent Communication between them, and make physical and moral Evil correspond. See Grace, Evil, &c.

Such is the System of pre-establish'd Harmony, *Harmonie pre-etabile*. — The Author's Way of stating and inforcing it, may be seen in his *Essais de Theodicee*.

Harmony, in Anatomy. See Harmonia.

HARMOSTES, in Antiquity, a Sort of Magistrate among the *Spartans*; whereof there were several in Number. — Their Business was to look to the Building of Citadels, and repairing the Forts, and Fortifications of the Cities.

The Word is *Greek*, Ἁρμόστης, form'd of ἁρμόω, *apto, concinno*.

HARNESS, a compleat Armour; or, the whole Equipage and Accoutrements of a Cavalier, heavily arm'd; as Casq, Cuirass, &c. See Armour. See also Cask, Cuirass, &c.

The Word is form'd of the *French*, *Harnois*; which some derive from the *Greek*, αρνακὶς, a Lamb's Skin; by Reason they anciently cover'd themselves herewith. — *Du Cange* observes, that the Word *Harnesium* is used in the corrupt *Latin*, in the same Sense; and that it comes from the *High-Dutch*, *Harnas*, or *Harnisch*. Others derive it from the *Italian*, *arnese*. Others from the *Celtic*, *Harnes*, a Cuirass.

Harness, is also used for the Furniture put on a Horse, to draw in a Coach, Waggon, or other Carriage; as Collars, Leathers, Traces, &c.

HARO, in the Customs of *Normandy*, a Cry whereby to invoke the Help and Assistance of the Officers of Justice, &c. See Cry.

When any Person finds his Man, and would carry him before the Judge: Upon hearing the *Haro*, he is obliged to follow the Person who has cried it on him; and both of them either remain in Prison, or put in Bail.

The Letters of the *French* Chancery have usually this Clause, *Non obstant Clameur de Haro*, &c.

The *Haro* had anciently such vast Power, that a poor Man of the City of *Caen*, named *Asselin*, in virtue hereof, arrested the Corps of *William the Conqueror*, in the middle of the Funeral Procession, till such Time as his Son *Henry* had paid the Value of the Land in Question; which was that whereon the Chapel was built, where he was interr'd.

The Word is commonly derived of *Ha* and *Roul*, as being supposed an Invocation of the Soveraign Power, to assist the Weak against the Strong, on Occasion of *Raoul* first Duke of *Normandy*, about the Year 912; who render'd himself venerable to his Subjects, by the Severity of his Justice: So that they call'd on him even after his Death, when they suffer'd any Oppression.

Guill. Guiart speaks of the *ha Rous*, (i. e. *ha Roul*) as a Military Cry brought into *Neustria* by the *Normans*, under the Conduct of *Raoul*. Others say, that during his Life-time, they used to cry *a Raoul*, I cite you to appear before *Raoul*, by Reason he administer'd Justice to his Subjects in Person. But others, as M. *Caseneuve*, take all these Etymologies to be false; and suppose the Word *Haro*, to have been a Cry long before Duke *Raoul*. Some derive it from *Harola* King of *Denmark*, who in the Year 826, was made Grand Conservator of Justice at *Mentz*. Others, lastly, derive it from the *Danish aa rau*, signifying *help me*; a Cry rais'd by the *Normans*, in flying from a King of *Denmark*, named *Roux*, who made himself Duke of *Normandy*.

HARP, a Musical Instrument, of the String Kind; being of a triangular Figure, and placed an End between the Legs to be play'd on. See Instrument.

There is some Diversity in the Structure of *Harps*. — That call'd the *Triple Harp*, has 78 Strings, or Chords, in three Rows, 49 in each, which make four Octaves: The first Row is for the Semitones; and the third is in Unison with the first. There are two Rows of Pins, or Screws, on the right Side, serving to keep the Strings tight in their Holes, which are fasten'd at the other End to three Rows of Pins on the upper Side.

This Instrument is struck with the Finger and Thumb of both Hands. Its Music is much like that of the Spinett; all its Strings going from Semitone to Semitone: Whence some call it an *inverted Spinett*. See Spinett.

It is capable of a much greater Degree of Perfection than the Lute. See Lute.

King *David* is usually painted with a *Harp* in his Hands; but we have no Testimony in all Antiquity, that the *Hebrew Harp*, which they call *Chinnor*, was any Thing like ours. — On a *Hebrew* Medal of *Simon Machabæus* we see two Sorts of Musical Instruments; but they are both of them very different from our *Harp*, and only consist of three or four Strings.

Papias, and *du Cange* after him, will have the *Harp* to have took its Name from the *Arpi*, a People of *Italy*, who were the first that invented it; and from whom it was borrowed by other Nations.

All Authors agree, that it is very different from the *Lyra*, *Cythara*, or *Barbiton*, used among the *Romans*. See Lyra.

Fortunatus, *L.* VII. *Carm.* 8. witnesses, that it was an Instrument of the *Barbarians*.

Romanusq; Lyra, plaudet tibi Barbarus Harpâ
Græcus Achilliaca, Crotta Britannia canat.

Menage, &c. derive the Word from the *Latin*, *Harpa*; and that from the *German*, *herp*, or *harpff*. Others bring it from the *Latin Carpo*, because touch'd, or thrum'd with the Fingers. Dr. *Hicks* derives it from *Harpa*, or *Hearpa*, which signify the same Thing; the first in the Language of the *Cimbri*, the second in that of the *Anglo Saxons*.

The *English* Priest who wrote the Life of St. *Dunstan*, and who lived with him in the *Xth* Century, says, C. 2. N. 12. *Sumpsit secum ex More Citharam suam, quam paterni lingua* Hearpam *vocamus*; which intimates the Word to be *Anglo-Saxon*.

HARPIES, Harpyæ, in Antiquity, a Sort of fabulous Monsters, of the Bird-Kind, mention'd among the Poets.

They are represented with Wings, Ears like Bears, Bodies like Vultures, Faces like Women, and Feet and Hands hooked like the Talons of Birds of Prey. See *Virgil. Æneid. L.* III. who gives a Description of them.

The Ancients looked on the *Harpies*, as a Sort of *Genii*, or Dæmons. — Some make them the Daughters of *Tellus* and *Oceanus*, the Earth and Ocean; whence, says *Servius*, it is, that they inhabit an Island, half on Land, and half in Water. *Valerius Flaccus* makes them the Daughters of *Typhon*.

There were three *Harpies*, *Aello*, *Ocypete*, and *Celæno*, which last *Homer* calls *Podarge*. — *Hesiod*, in his Theogony, *v.* 267. only reckons two, *Aello* and *Ocypete*; and makes them the Daughters of *Thaumas* and *Electra*; affirming, that they had Wings, and went with the Rapidity of the Wind. *Zephirus* begat of them *Balius* and *Xanthus*, *Achilles's* Horses. *Pherecydes* relates, that the *Boreades* expell'd them from the *Ægean* and *Sicilian* Seas, and pursued them as far as the Islands, which he calls *Plotæ*; and *Homer*, *Calynæ*; and which have since been call'd *Strophades*.

Vossius, *de Idolol.* L. III. C. 99. *p.* 63. thinks, that what the Ancients have related of the *Harpies*, agrees to no other Birds so well as the *Bats*, found in the Territories of *Darien* in *South America*. — These Animals kill not only Birds, but Dogs and Cats; and prove very troublesome

ſome to Men by their Peckings. But the Ancients, as the ſame *Voſſius* obſerves, knew nothing of theſe Birds. By the *Harpies*, therefore, he thinks, they could mean nothing elſe but the Winds; and that it was on this Account they were made Daughters of *Electra*, the Daughter of *Oceanus*. Such is the Sentiment of the Scholiaſts of *Apollonius*, *Heſiod*, and *Euſtathius*. — Their Names *Aelle*, *Ocypate*, and *Cæleno*, are ſuppoſed to be a further Argument.

HARPINEER, the Engineer, or Fiſherman, who manages, and throws the *Harping Iron*. See HARPING *Iron*.

The *Harpineers*, are the moſt robuſt and dexterous Perſons in the Crew of Ships ſent on Whale Fiſhing. — Their Place is at the End of the Pinnace, and they direct the Pilot as well as the Rowers. When they come within Reach of the Whale, they dart their Iron with great Vehemence into his Head, ſo as to penetrate the Skin and Fat, and enter deep into the Fleſh. Immediately upon this, the Whale dives to the Bottom, and when he returns to the Air again to fetch Breath, the *Harpineer* takes Occaſion to ſtrike him afreſh; tho' he would have died of the former Wound; it being a Circumſtance well aſſured, that Blood never ſtanches, nor Wounds ever heal in the Water.

This done, the other Fiſhers approach a Side of him, and run a long Spear ſho'd with Iron, under the Fins, thro' the Inteſtines, into his Breaſt. The Blood now ſpouts out, and the Carcaſe welters in its own Fat. It remains to tow him to Shore, there to cut off the Blubber, *&c.* See *Whale* FISHERY.

— Aſſoon as the *Harpineer* perceives the Sturgeon's Belly, which is frequently turning, now on this Side, and then on that, he darts his Iron into the ſame, as being deſtitute of Scales. *Denis Hiſt. de l'Amerique.* See *Sturgeon* FISHERY.

HARPING-*Iron*, *Harpago*, a Sort of Dart, or Spear, faſten'd to a Line, wherewith they catch Whales, and other large Fiſh, as Sturgeons, *&c.* See HARPINEER.

This *Harping-Iron* is a large Javelin of forged Iron, five or ſix Foot long, with a ſharp, cutting, triangular Point, barbed like that of an Arrow. At the upper End is engraven the *Harpineer*'s Name, near a Ring, to which the Line is faſten'd, which they let down, aſſoon as the Beaſt is ſtruck, to give him Room to dive, *&c.* See *Whale* FISHERY.

HARPINGS, in a Ship, is properly her Breadth at the Bow; tho' ſome call the Ends of the Bends, which are faſten'd into the Stem, by the ſame Name.

HARPOCRATIANS, a Sect of Hereticks, mention'd by *Celſus*; the ſame with *Carpocratians*. See CARPOCRATIANS.

HARPSICHORD, or HARPSICHOL, a Muſical Inſtrument of the Wind-Kind; play'd after the Manner of an Organ. See ORGAN.

The *Italians* call it *Clave Cimbala*, and the *French Clavecin*. In *Latin* it is uſually call'd *Grave Cymbalum*, q. d. a large or deep Cymbal. See CYMBAL.

The *Harpſichord* is furniſh'd with a Set of Keys; ſometimes two Sets: — The touching, or ſtriking of theſe Keys, moves a Kind of little Jacks, which move a double Row of Chords, or Strings of Braſs and Iron, ſtretch'd on the Table of the Inſtrument over four Bridges. See MUSIC.

HARQUEBUS, or HARQUEBUSS, in our ancient Statutes, call'd alſo ARQUEBUSE, HAQUEBUT, or HAGBUT; is a *Hand-Gun*; or a Fire-Arm of a proper Length, *&c.* to be bore in the Arm. See GUN.

The *Harquebus* is properly a Fire-Arm, of the ordinary Length of a Muſquet, or Fowling-Piece; cock'd, uſually, with a Wheel. — *Hanzelet* preſcribes its Legitimate Length to be 40 Calibers; and the Weight of its Ball one Ounce, ſeven eights; its Charge of Powder as much.

There is alſo a larger Kind, call'd *Harquebuſs a Croc*, much of the Nature of our Blunderbuſſes, uſed in War, for the Defence of Places; being uſually reſted on ſomething when diſcharged.

The firſt Time theſe Inſtruments were ſeen, was in the *Imperial* Army of *Bourbon*, who drove *Bonnivet* out of the State of *Milan*. — They were ſo big and heavy, that there were two Men to carry them.

The Word *Harquebus*, is form'd of the *French*, *Arquebuſe*; and that from the *Italian*, *Arcobuſio*, or *Arco Abuſo*, of *Arco*, a Bow, and *Buſio*, a Hole; on Account of the Touch-Hole, at which the Powder is put to prime it; and that it ſucceeded to the Bows of the Ancients.

HARRIER, a Kind of Hound, call'd in *Latin*, *Sagax*, from his tracing, or chaſing by Foot. — Being endow'd with an admirable Gift of Smelling, and alſo very bold in the Purſuit of his Game. See HOUND.

There are ſeveral Kinds; all differing in their Services; ſome are for the Hare, Fox, Wolf, Hart, Buck, Badger, Otter, Pole-Cat, Weaſel, Coney, and ſome for one Game, ſome for another, *&c.* See HUNTING.

HARROW, in Husbandry, a Drag made in a Square Form, to break the Clods of Earth after Ploughing. See PLOUGHING, TILLING, SOWING, *&c.*

It conſiſts of three Parts; 1°. The *Harrow*-Bulls, which are the Holes where the Nails go in; 2°. The Slots, which are the Croſs-Pins; 3°. The *Harrow* Tines, Pins, or Tuſhes, which are Iron Nails; 4°. The Hook, being that which faſtens the Horſe to them; 5°. The Couples, when two *Harrows* are tied together.

HART, in the Foreſt Law, a Stag of five Years old compleat. See GAME.

If the King or Queen hunt him, and he eſcape, he is called an *Hart Royal*. See HUNTING.

And if by ſuch Hunting he be chaſed out of the Foreſt, Proclamation is commonly made in the Places adjacent, that in Regard of the Paſtime the Beaſt has afforded the King or Queen, none ſhall hurt, or hinder him from returning to the Foreſt; upon which he is call'd an *Hart Royal proclaim'd*. See PURLIEU, *&c.*

HARTS-*Horn*, *Cornu Cervi*. See *Harts*-HORN.

HART-*Hunting*. See *Hart*-HUNTING.

HARTH-*Peny*, and *Harth-Silver*, (*Sax.* heoppening) See CHIMNEY-*Money*, and PETER-*Pence*.

HARUSPEX, or ARUSPEX, in Antiquity, a Sort of Prieſt, or Diviner, who inſpects and conſiders the Entrails of Beaſts, particularly thoſe of Victims; to find Signs, or Indications of ſomething he wants to know. See DIVINATION.

Cicero de Divinat. L. II. explains the Difference between *Auſpex* and *Haruſpex*. See AUSPICES.

The Word is *Latin*, form'd of *Hara*, an Augur's Bird; or *Haruga*, *Viſcera*, Entrails; and *inſpicio*, I look into.

In *Feſtus* we meet with *Harviga*, or *Haruiga*, which he defines to be a Victim, whoſe *Viſcera* are conſider'd while yet remaining together. Upon which M. *Dacier* obſerves, that *Harviga* is form'd from ἀριξ, *Aries*, by inſerting the *Eolic Digamma*, before the ι, thus, ἀϝριξ. It was properly, therefore, a Ram they ſacrificed; but afterwards the Name became common to all Victims. See VICTIM.

HASSOCK, or HASECK, probably of the *Teutonic Haſe*, Hare, and *Socks*, becauſe Hare-Skins are ſometimes worn inſtead thereof to keep the Feet warm in the Winter; denotes a Baſs, or Cuſhion made of Ruſhes, to kneel upon in Churches.

HASTA, among Antiquaries and Medalliſts, ſignifies a Kind of Javelin, not ſho'd or headed with Iron; or rather, an ancient Scepter, ſomewhat longer than ordinary, occaſionally given to all the Gods. See SCEPTER.

The *Haſta* is ſuppoſed a Symbol of the Goodneſs of the Gods, and of the Conduct of Providence, which is equally mild and forcible.

The *Haſta pura* on Medals, is that unadorn'd with any Ferrils, *&c.*

In ſome Countries, *Haſta* is a Meaſure, or Quantity of Ground, amounting to 30 Paces; thus call'd, according to M. *du Cange*, from the *Haſta*, Pole, or Rod, wherewith it was meaſured.

HASTIVE, or HASTING, a *French* Term ſometimes uſed in *Engliſh*, for *haſty*, *forward*, or ſomething that comes before the ordinary Time or Seaſon.

The HASTIVE Fruits are Straw-berries and Cherries. — We have alſo *Haſtive* Peas, *&c.*

HAT, a Covering for the Head, wore by the Men throughout the Weſtern Part of *Europe*. See HEAD.

Hats are chiefly made of Hair, Wool, *&c.* work'd, full'd, and faſhion'd to the Figure of the Head. See HAIR and WOOL.

Hats are ſaid to have been firſt ſeen about the Year 1400; at which Time they became of Uſe for Country Wear, Riding, *&c.* — Father *Daniel* relates, that when *Charles* II. made his Publick Entry into *Rouen* in 1449, he had on a *Hat*, lined with red Velvet, and ſurmounted with a Plume, or Tuft of Feathers. — He adds, that it is from this Entry, at leaſt under this Reign, that the Uſe of *Hats* and Caps is to be dated, which henceforward began to take Place of the Chaperoons and Hoods, that had been wore before.

In Progreſs of Time, from the Laity, the Clergy likewiſe took the Habit; but it was look'd on as a crying Abuſe, and ſeveral Regulations were publiſh'd, forbidding any Prieſt, or Religious, to appear Abroad in a *Hat* without Cornets; and enjoyning them to keep to the Uſe of Chaperoons, made of black Cloth, with decent Cornets: If they were Poor, they were at leaſt to have Cornets faſten'd to their *Hats*, and this upon Penalty of Suſpenſion and Excommunication. — Indeed, the Uſe of *Hats* is ſaid to have been of a longer Standing among the Eccleſiaſtics of *Brittany*, by two hundred Years; and principally among the

the Canons: But these were no other than a Kind of Caps; and 'twas from hence arose the square Caps wore in Colleges, &c. See CAP.

Lobineau observes, that a Bishop of *Dol*, in the XII*th* Century, zealous for good Order, allow'd the Canons alone to wear such *Hats*; enjoyning, that if any other Person should come with them to Church, Divine Service should immediately stand still. *T. I. p.* 845.

Hats make a very considerable Article in Commerce. — The finest, and those most valued, are made of the pure Hair of an amphibious Animal, call'd *Castor*, or *Beaver*, frequent in *Canada*, and other Provinces of *North America*. See CASTOR.

Method of making HATS.

Hats, we have observed, are made either of Wool, or of Hair of divers Animals, particularly the Castor, Hare, Coney, Camel, &c. The Process is much the same in all; for which Reason we shall content our selves to instance in that of Castors.

The Skin of this Animal is set with two Kinds of Hair; the one long, stiff, glossy, and pretty scarce; this being what renders the Skin, or Fur, of so much Value. See FUR. The other short, thick, and soft; which alone is used in *Hats*.

To tear off one of these Kinds of Hair, and cut the other, the *Hatters*, or rather the Women imploy'd for that Purpose, make Use of two Knives, a large one like a Shoemaker's Knife, for the long Hair; and a smaller, not unlike a Vine-Knife, wherewith they shave, or scrape off the shorter Hair.

When the Hair is off, they mix the Stuff; to one third of dry Castor, putting two thirds of Old Coat; *i. e.* Hair which has been wore some Time by the Savages; and card the whole with Cards, like those used in the Woollen Manufactory, only finer. This done, they weigh it, and take more or less, according to the Size or Thickness of the *Hat* intended. — The Stuff is now laid on the *Hurdle*, which is a Square Table, parallel to the Horizon, having longitudinal Chinks cut thro' it. On this Hurdle, with an Instrument call'd a *Bow*, much resembling that of a Violin, but larger; whose String is work'd with a little Bow-stick, and thus made to play on the Furs; they *fly* and mix them together, the Dust and Filth at the same Time passing thro' the Chinks. This they reckon one of the most difficult Operations in the whole; by Reason of the Justness required in the Hand to make the Stuff fall precisely together, and that it may be every where of the same Thickness. — In Lieu of a Bow, some *Hatters* make use of a Sieve, or Searce of Hair, thro' which they pass the Stuff.

After this Manner they form Gores or two Capades, of an Oval Form, ending in an acute Angle a-top. — And with what Stuff remains, they supply and strengthen them in Places where they happen to be slenderer than ordinary. — Tho' it is to be remember'd, that they designedly make them thicker in the Brim, near the Crown, than towards the Circumference, or in the Crown it self.

The Capades thus finish'd, they go on to harden them into closer, more consistent Flakes, by pressing down a *hardening Skin*, or Leather thereon. — This done, they are carried to the *Bason*, which is a Sort of Bench with an Iron Plate fitted therein, and a little Fire underneath it; upon which laying one of the harden'd Capades, sprinkled over with Water; and a Sort of Mould applied therenn; the Heat of the Fire, with the Water and pressing, imbody the Stuff into a slight hairy Sort of Stuff, or Felt: After which, turning up the Edges all around over the Mould, they lay it by; and thus proceed to the other. — This finish'd, the two are next join'd together, so as to meet in an Angle a-top, and only form one Conical Cap, after the Manner of a *Manica Hippocrates*.

The *Hat* thus bason'd, they remove it to a large Kind of Receiver, or Trough, resembling a Mill-hopper, going sloping, or narrowing down from the Edge, or Rim, to the Bottom, which is a Copper Kettle, fill'd with Water and Grounds, kept hot for the Purpose. — On the Descent, or sloping Side, call'd the *Plank*, the Bason'd *Hat*, being first dipt in the Kettle, is laid. — And here they proceed to work it, by rolling and unrolling it again and again, one Part after another, first with the Hand, and then with a little wooden Roller; taking Care to dip it from Time to Time: till at length by thus fulling and thickening it, four or five Hours, it is reduced to the Extent, or Dimensions of the *Hat* intended. — To secure the Hands from being injured by this frequent Rolling, &c. they usually guard them with a Sort of thick Gloves.

The *Hat* thus wrought, they proceed to give it the proper Form; which is done by laying the conical Cap on a Wooden *Block*, of the intended Size of the Crown of the *Hat*; and thus tying it round with a Pack-Thread, call'd a *Commander*: After which, with a Piece of Iron, or Copper, bent for the Purpose, and call'd a *Stamper*, they gradually beat or drive down the Commander all around, till it has reach'd the Bottom of the Block; and thus is the Crown form'd; what remains at Bottom below the String, being the Brim.

The *Hat* being now set to dry; they proceed to *singe* it, by holding it over a Flair of Straw, or the like; then it is *pounced* or rubbed with Pumice, to take off the coarser Nap; then rubbed over afresh with Seal-Skin, to lay the Nap still finer; and lastly, carded with a fine Card, to raise the fine Cotton, with which the *Hat* is afterwards to appear.

Things thus far advanced, the *Hat* is sent, upon its Block, and tyed about with Pack-Thread as before, to be dyed. — The Dyer's Copper is usually very large, holding 10 or 12 Dozen *Hats*. The Dye, or Tincture, is made of *Logwood*, *Verdegrease*, *Copperas*, and *Alder Bark*; to which some add *Galls* and *Sumac*. See DYING.

Here the *Hat* is kept boiling for about three Quarters of an Hour; then taken out and set to cool, and then return'd to the Dye; and this for 10 or 12 Times successively.

The Dye being compleat, the *Hat* is return'd to the *Hatter*, who proceeds to dry it, by hanging it in the Top, or Roof, of a Stove or Oven; at the Bottom of which is a Charcoal Fire. — When dry, it is to be stiffned, which is done with melted glue, or *Gum Senek*, applied thereon by first smearing it, and beating it over with a Brush, and then rubbing it with the Hand. — The next Thing is to *steam* it, on the *Steaming Bason*, which is a little Hearth, or Fire Place, rais'd three Foot high, with an Iron Plate laid over it, exactly covering the Hearth. On this Plate they first spread Cloths, which being sprinkled over with Water to secure the *Hat* from Burning, the *Hat* is placed, Brim downwards, thereon. When moderately hot, the Workman strikes gently on the Brim, with the Flat of his Hand, to make the Jointings incorporate and bind, so as not to appear; turning it from Time to Time, this Way and that Way, and at last overturning and setting it on the Crown.

When steam'd sufficiently, and dried, they put it again on the Block, brush and *iron* it on a Table, or Bench for the Purpose, call'd the *Stall-Board*. This they perform with a Sort of Irons like those commonly used in Ironing Linnen, and heated like them; which being rubb'd over and over each Part of the *Hat*, with the Assistance of the Brush, smoothens and gives it a Gloss, which is the last Operation; nothing now remaining but to clip the Edges even with Scissars, and sew a Lining into the Crown.

HAT, is also figuratively used for the Dignity of a Cardinal, or a Promotion to the Dignity. See CARDINAL.

In this Sense they say, To expect the *Hat*; claim, or have Pretensions to the *Hat*, &c.

Pope *Innocent* IV. first made the *Hat* the Symbol, or Cognizance of the Cardinals; injoyning them to wear a *Red Hat*, at all Ceremonies and Processions, as a Token of their being ready to spill their Blood for Jesus Christ.

HAT, in Heraldry. See CHAPEAU.

HATCHES, in a Ship, are Doors in the Mid-ship, or between the Main-mast, or Fore-mast; by which any Goods of Bulk are let down into the Hold.

Hence, the *Hatch-Way* is that Place directly over the *Hatches*; so that to lay a Thing into the *Hatch-Way*, is to put it so that the *Hatches* cannot be come at, or opened.

HATCHES, are also Flood-Gates, set in a River, &c. to stop the Current of the Water.

The Word is particularly used for certain Dams, or Mounds, made of Rubbish, Clay, or Earth, to prevent the Water that issues from the Stream-Works, and Tin-Washers in *Cornwal*, from running into the fresh Rivers. See TIN.

The Tenants of *Bulystoke*, and other Mannors, are bound to do certain Days Works to the *Hatches*.

HATCHING, the Act whereby fœcundated Eggs, after seasonable Incubation, exclude their young. See EGG and INCUBATION.

Hatching, with Respect to the Oviparous Tribe, amounts to the same as Parturition, or Delivery, in the Viviparous. See DELIVERY, &c.

The Ostrich is said to lay her Eggs in the Sand; and that the Heat of the Sun does the Office of a parent Animal, and *hatches* them.

In *Egypt*, they *hatch* their Chickens by the Heat of an Oven: The Method whereof is given us by Mr. *Greaves*, in the *Philosophical Transactions*, N°. 117.

They have Houses, it seems, built for the Purpose; having a long Entrance, on each Side whereof are 12 or 14 Ovens, whose Bottoms and Sides are form'd of Sun dried

dried Bricks, lined with Mats, for the Eggs to lye on; and the Tops cover'd with Sticks, except two Spaces, which are Brick, and serve as Hearths to build the Fires on wherewith the Eggs are to be heated. — Over these, is another Story of Ovens; having Holes, which are either stop'd with Tow or left open at Pleasure, to govern the Heat of the Ovens below.

They begin to heat the Ovens in the middle of *January*; spending every Morning about an hundred Pound Weight of Camel's or Buffalo's Dung, and the like Quantity at Night; till the middle of *February*; by which Time the Ovens are too hot for the Hand to be held upon the Walls. — After this they put in the Eggs to *hatch*; which they continue successively till the End of *May*.

The Eggs are first put upon Matts in the lower Ovens, upon the Ground, 7 or 8000 Eggs in Number, and laid only double, one upon another; in the Ovens over these, the Fire is made in the little Channels, from whence the Heat is conveyed into the lower: The Eggs directly under these Hearths lie threefold.

At Night, when they new-make their Fires in the Hearths, they remove the Eggs that were directly undermost, lying three one upon another, in the Place of those which lay on the Sides only double; and these being now removed, they lie treble under the Hearth, because the Heat is greater there, than on the Sides.

These Eggs continue in the lower Ovens fourteen Days and Nights; after which they remove them into the upper. And in these, there being now no more Fire used, they turn the Eggs four Times every twenty four Hours.

The 21*st*, or 22*d* Day, the Chickens are *hatched*; which, the first Day eat not: The second, they are fetched away by Women who give them Corn, *&c.* The Master of the Ovens hath a third Part of the Eggs for his Cost and Pains; out of which he is to make good to the Owners, who have two thirds in Chicken for their Eggs, if any happen to be spoil'd, or miscarry.

The Fire in the upper Ovens, when the Eggs are placed in the lower, is thus proportioned. — The first Day the greatest Fire, the second less than the first; the fourth more than the third, the fifth less, the sixth more than the fifth, the seventh less, the eighth more, the ninth without Fire, the tenth a little Fire in the Morning, the eleventh they shut all the Holes with Flax, *&c.* making no more Fire; for if they should, the Eggs would break. They take Care that the Eggs be no hotter than the Eye of a Man, when they are all laid upon it can well endure. When the Chickens are *hatch'd*, they put them into the lower Ovens, *&c.*

HATCHING, or HACHING, in Designing, Engraving, *&c.* signifies the making of Lines with a Pen, Pencil, Graver, or the like; and the intersecting, or going a-cross those Lines, with others drawn over them another Way. See ENGRAVING, DESIGN, *&c.*

The Depths and Shadows of Draughts are usually form'd by *Hatching*, or *Hatch-Work*.

What is surprizing in the Gravings of *Mellan* and *Sadelers*, is, that they express the Shadows exceeding well, without any *Hatches*, or *Hatchings*. See SHADOW.

These *Hatchings* are of great Use in Heraldry, to distinguish the several Colours of an Escutcheon, without its being illumined. See COLOUR.

The first Kind of *Hatching* in Pale, or from Top to Bottom, signifies *Gules*, or *Red*. — The second in Fess, a-cross the Coat, *Azure* or *Blue*.

Hatching in Pale, counter-*hatch'd* in Fess, signifies *Sable*, or Black. — *Hatching* in Bend, proceeding from right to left, signifies *Green*: And that in Bars, from left to right, *Purple*.

When the Coat is only dotted, it is supposed to be *Or*. And when quite bare, or void, *Argent*, or *White*. See ARGENT, *&c.*

The Invention is, commonly, ascribed to Fa. *Pietra Sancta*. —Tho' the Sieur *de la Colombiere*, has disputed his Title to it.

HATCHMENT, in Heraldry, the Marshalling of several Coats of Arms in an Escutcheon. See MARSHALLING.

HATCHMENT, is also a popular Name for an *Atchievement*. See ATCHIEVEMENT.

HATTOCK, a Shock of Corn, containing twelve Sheaves. — Others make it only three Sheaves laid together.

HAVEN, a *Sea-Port*, or Harbour for Ships. See PORT and HARBOUR.

The Word is derived from the Saxon *Hafene*; or the German *hafen*, or the French *havre*, which all signifie the same Thing.

HAUNCH, or HANCH, the *Hip*; or that Part of the Body between the last Ribs, and the Thigh.

The *Haunches* consist of three Bones, joyn'd together by Cartilages; which, in Course of Time, grow dry, hard, and bony; so that in Adults, the three only seem to constitute one continued Bone. See SACRAM.

The *Haunches*, or *Hips*, of a Horse, are those Parts of the hind Quarters, which extend from the Reins or Back, to the Hoof or Ham; See HORSE.

One of the most necessary Lessons in managing the great Horse, is that of *putting him upon his Haunches*; which in other Terms is called to *couple* him well, or to put him well together or compact.

A Horse that does not *bend*, or *lower his Haunches*, throws himself too much upon his Shoulders, and is heavy upon the Bridle. — To *drag the Haunches*, is to change the leading Foot in Galloping.

HAUNT, among Hunters, the Walk of a Deer, or the Place of his ordinary Passage. See HUNTING.

HAVRE, in Geography, *&c.* a *French* Term; signifying the same with *Haven*, or *Harbour*. See HARBOUR.

HAUTBOY, or HOBOY, a Sort of Musical Instrument, of the Wind-kind, with a Reed to blow or play it withal. See INSTRUMENT.

The *Hautboy* is shaped much like the Flute, only that it spreads, or widens, more toward the Bottom. The Treble is two Foot long: The Tenor goes a fifth lower, when blown, or sounded open. It has only seven Holes: The Bass is five Foot long, and has eleven Holes.

The Word is *French*, *Haut-bois*, q. d. *High-wood*; and is given to this Instrument, by Reason its Tone is higher than that of the Violin.

HAW, among Farriers, *&c.* a Gristle growing between the nether Eye-lid and the Eye of a Horse, and which will put it quite out, if not timely taken away.

It comes by gross, tough, and flegmatic Humours, falling from the Head, and knitting together, which in the end grow to this Infirmity, the Signs whereof are the watering of the Eye, and the involuntary opening of the nether Side.

Every Smith can cut it out: The affected Beast is to be held fast by the Head, and with a strong double Thread, a Needle to be put in the midst of the upper Eye-lid, and tied to his Horn: Then taking the Needle again, with a long Thread, and putting it through the Gristle of the Haw; with a sharp Knife cut the Skin finely round, and so pluck out the *Haw*. — That done, lay about his Eye, take out the Blood, wash it with Beer, or Ale, and cast in a good deal of Salt; wash it again afterwards, stroaking it down with your Hands, and so let him go. — To cure a Sheep of this Malady, drop into the Eye the Juice of Cammomile, or Crows-foot.

HAWK, *Accipiter*, a Bird of Prey, of a bold and generous Nature; whereof there are several Species. See BIRD.

The *Hawk* makes the Subject of a particular Art, call'd *Hawking*, or Falconry. See HAWKING and FALCONRY.

Naturalists disagree about the Number and Division of the *Hawk-kind*.—The most commodious Distribution is into *Long-winged* and *Short-winged Hawks*.

To the *Long-winged*, which may be also call'd the *Falcon*-Tribe, belong the Falcon, Haggard Falcon, Gerfalcon, Lanner, Hobby, Saker, Merlin and Bawler; all which are reclaim'd, mann'd, fed and mued, much after the same Manner. — Of the *short-winged* Species, or *Hawks* properly so call'd, are the *Gos-Hawk*, and *Sparrow-Hawk*.

The former are generally brought to the Lure; and seize their Prey with the Foot; breaking the Neck Bone with their Beak, ere they proceed to plume or tire it: The latter are brought to the Fist; and kill their Game by Strength, and force of Wing, at Random; and proceed immediately to plume them. See LURE, PLUME, *&c.*

It is to be noted, that the Female of all Birds of Prey is much larger, stronger, and more couragious than the Male; which is distinguished therefrom by some diminutive Name. — Those of the *Falcon* and *Gos-Hawk*, are call'd *Tiercels*, or *Tiercelets*; that of the Gerfalcon, *Jerkin*; that of the Merlin, *Jack*; that of the Hobby, *Robbin*; that of the Sparrow-Hawk, *Musket*; and that of the Lanner, *Lanneret*.

Hawks also have different Names, according to their different Ages. — The first Year she is call'd a *Soarage*. — The second an *Enterview*. — The third a *white Hawk*. — The fourth a *Hawk of the first Coat*.

Add, that they have different Denominations according to the different Seasons when they are taken. — Those taken in the Eyrie, are call'd *Eyesses*, or *Nyesses*. — Those which had forsaken it, and were fed in some Place, not far off, by the old ones, *Branchers*. — Those which had begun to prey for themselves, *Soar-Hawks*. — Those which have chang'd their Feathers once or more, *Mew'd Hawks*. — And those which lived at large, and prey'd for themselves about the Woods, *Hagards*.

We shall here, according to our Method in other Things, give the Reader what relates to the several Species of *Hawks*; referring for what is common to 'em all, to the Article HAWKING.

1°. Of the *Falcon*, or *Falcon Gentle*, her Nature and Qualities; with the Manner of luring and reclaiming, and bringing her up to the Sport, we have elsewhere spoke under the Article FALCON.

2°. The *Hagard Falcon*, call'd also *Peregrine Falcon*, *Passenger*, and *Traveller*, because no Native of our Island; or rather, by Reason of its Roving, and Wandring more than any other Sort; is not inferior to the best of the Tribe, for Strength, Courage, Hardiness, and Perseverance. She is distinguished from the Common Falcon, as being larger, longer arm'd, with a longer Beak and Talons, a higher Neck, &c. She will lie longer on the Wing; and is more deliberate and advised in her stooping, &c.

The *Hagard Falcon*, when wild and unreclaim'd, takes the greatest Liberty of all Birds; living either by Land or Sea: And is of such absolute Power, that wherever she comes, all flying Fowl stoop under her Subjection: Even the Tiercelet, tho' her natural Companion, dares not sit by her, or approach her Residence, except in Cawking Time; when, for Procreation Sake, she admits him in a submissive Manner to come near and woo her.

When very young, she is apt to attack Birds too strong for her; which she persists in, till a sound Beating have brought her to a better Understanding. — She is an incessant Pains Taker; no Weather discouraging her from her Game. — When unreclaim'd, she has seiz'd her Prey, and broke the Ink or Neck, she falls on the Crop, and feeds first on what is contain'd there; then on the other Parts. When she has fill'd her Gorge, she flies to some solitary Place, near the Water, where she sits all Day, and at Night takes Wing to some convenient Place, where she had before purpos'd, to pearch till Morning.

For the Method of Reclaiming, Manning, Entering, &c. a Hagard Falcon, *or other Sort of* Hawk, *with the Terms of Art used in Respect thereof.* See the Article HAWKING.

3°. The *Gerfalcon*, or *Gyrfalcon*, is the largest Bird of the *Falcon* Kind; coming next to the Size of a Vulture; and of the greatest Strength next an Eagle: She is stoutly armed; and in all Respects a lovely Bird to the Eye.

Her Head and Eyes are like the Hagard; her Back great and bending, her Nares large: — Her Sails long and sharp pointed, and her Train and Mail much like the Lanners, having a large Marble seared Foot; and plumed black, brown, and russet. — She may also be called a *Passenger*, her Eyrie being in *Prussia*, *Muscovy*, and the Mountains of *Norway*.

The *Gerfalcon* is of a fierce and fiery Nature, very hardly managed and reclaimed; but being once overcome, proves an excellent *Hawk*, scarce refusing to strike at any Thing. She does not naturally fly the River; but always pursues the Herons, Shovelers, &c. In going up to their Gate, they do not hold the Course, or Way, which others use to do; but climb up upon the Train, when they find any Fowl, and assoon as they have reach'd her, pluck her down, if not at the first, yet at the second or third Encounter.

4°. The *Saker*, or *Sacre*, is the third in Esteem, next the Falcon, and Gerfalcon, but difficult to be managed, being a *Passenger*, or *Peregrine Hawk*, whose Eyrie has not yet been discovered, but chiefly found in the Islands of the *Levant*.

She is somewhat longer than the *Hagard Falcon*; her Plume rusty and ragged; the Sear of her Foot and Beak like the Lanner; her Pounces short, and her Train the longest of all Birds of Prey.

She is very strong and hardy to all Kind of Fowl, being more disposed to the Field a great deal than the Brook, and delighting to prey on great Fowl, as the Heron, Goose, &c. but for the Crane she is not so free as the Hagard Falcon. — She also excels for the lesser Fowl, as Pheasants, Partridges, &c. and is much less dainty in her Diet, as long-winged *Hawks* usually are.

The *Saker* makes excellent Sport with a Kite; who, as soon as he sees cast off, immediately betakes her self to, and trusts in the Goodness of her Wings, and gets to her Pitch, as high as possibly she can, by making many Towers and Wrenches in the Air; which together with the Variety of Contests and Bickerings between them, affords a curious Spectacle.

5°. The *Lanner*, or *Lanar*, is a *Hawk* common in most Countries, especially *France*; making her Eyrie on lofty Trees in Forests, or on high Clifts near the Sea-side.

She is less than the Falcon Gentle, fair plumed, and of shorter Talons than any other Falcon. — Such as have the largest and best season'd Heads, are esteemed the best.

Mewed *Lanners* are not easily known from Gos-Hawks, or Sakers; the chief Marks and Characteristicks are, That they are blacker, have less Beaks, and are less armed and pounced than any other *Hawks*.

Of the whole *Hawk* Tribe, there is none so fit for a young Falconer as this, because she is not inclined to Surfeits, and seldom melts Grease by being overflown.

There is another Sort of *Lanners*, whose Eyrie is in the *Alps*, having their Heads white, and flat aloft, large and black Eyes, slender Nares, short and thick Beaks; being less than the Hagard, and Falcon Gentle, tho' there are different Sizes of them; their Tail Marble, or Russet: Breast Feathers white and full of Russet Spots, and the Points and Extremities of their Feathers full of white Drops; their Sails and Trains long; short legged, with a Foot less than that of a Falcon, marble-feered.

This *Hawk* never lies upon the Wing, after she has flown to a Mark; but after once stooping, makes a Point; and like the *Gos-Hawk*, waits the Fowl. — She is more valued abroad than in *England*; we looking on her as slothful, and hard mettled. The Truth is, a very strict Hand must be kept over her; as being of an ungrateful Disposition. — She is flown at Field, or Brook, and will maintain long Flights; by which Means much Fowl is killed. To fly them, they must be kept very sharp; and because they keep their Castings long, they must have hard Castings made of Tow, and Knots of Hemp.

6°. The *Merlin* is the smallest of all Birds of Prey; and bears a Resemblance to a Hagard Falcon in Plume, as also in the Seare of the Foot, Beak, and Tallons, and not unlike her in Conditions.

When well manned, lured, and carefully looked after, she proves an excellent *Hawk*; especially at Partridge, Thrush, and Lark. — But she is very busie, and unruly, and special Care must be had lest she unnaturally eat off her own Feet and Talons, as she has often been known to do.

She is wonderously venturesome; and will fly at Birds bigger than her self, with such Eagerness, as to pursue them even into a Town or Village.

Tho' the *Merlin* be accounted an *Hawk* of the Fist, she may be brought to take delight in the Lure; when you have made her come to the Lure, so as she will patiently endure the Hood, you should make her a Train with a Partridge; if she foot and kill it, reward her well: Then fly her at the wild Partridge, and if she take or make it at first or second Flight, being retrieved by the Spaniels, feed her upon it with a reasonable Gorge; chearing her in such Manner with the Voice, that she may know it another Time: If she do not prove hardy at the first or second Time, she will be good for nothing.

7°. The *Hobby*, is a Sort of *Hawk* that naturally preys on Doves, Larks, and other small Game.

She has a blue Beak, but the Sear thereof and Legs are yellow; the Crinels, or little Feathers under the Eye, very black, the Top of the Head between black and yellow.

She has also two white Seams on her Neck: The Plumes under the Gorge, and about the Brows, are reddish, without Spot or Drop; the Breast Feathers for the most Part brown, yet interspersed with white Spots; her Back, Train and Wings, are black aloft, having no great Scales upon the Legs, unless a few behind; the three Stretchers and Pounces are very large, with Respect to her short Legs; her brail Feathers are tinctured between red and black; the pendant ones, or those behind the Thigh, of a rusty, smoaky Hue.

She is a *Hawk* of the Lure, and not of the Fist; and is an higher Flyer, being in every Respect like the Saker, but she is of a much less Size; for she is not only nimble and light of Wings, but dares encounter Kites, Buzzards, or Crows, and will give Souse for Souse, Blow for Blow, till sometimes they siege and come tumbling down to the Ground both together. — But she is chiefly for the Lark, which poor little Creature does so dread the Sight of her, soaring in the Air over her, that she will rather choose to commit her self to the Mercy of Men or Dogs, or to be trampled on by Horses, than venture into the Element, when she sees her mortal Enemy soaring there.

The *Hobby* also makes excellent Sport with Nets and Spaniels; for when the Dogs range the Field, to spring the Fowl, and the *Hobby* soars aloft over them, the silly Birds, apprehensive of a Conspiracy among the *Hawks* and Dogs to their utter Ruin, dare not commit themselves to their Wings, but think it safer to lie close on the Ground, and so are taken in the Nets. — This Sport is call'd *Daring*.

8°. The *Gosbawk*, or *Gos-Hawk*, q. d. *Gros Hawk*, is a large, short-winged *Hawk*, of which there are several Sorts, differing in Goodness, Force, and Hardiness, according to the Diversity of their Choice in Cawking; at which Time the several Sorts of Birds of Prey assemble themselves with the *Gosbawk*, and gallant it together.

There are *Gos-Hawks* from most Countries, but none better than those bred in the North of *Ireland*. — She ought to have a small Head, a long and straight Face, a large Throat, great Eyes, deep set; the Apple of the Eye black; Nares, Ears, Back and Feet large and black; a black

black long Beak, long Neck, big Breast, hard Flesh, long fleshy Thighs, the Bone of the Leg and Knee short, long large Pounces and Talons; and to grow round from the Stern, or Train, to the Breast forward. — The Feathers of the Thighs, towards the Train, should be large, and the Train Feathers short and soft, somewhat tending to an Iron Mail. The Baril Feathers ought to be like those of the Breast; and the Covert Feathers of the Train, spotted and full of black Rundles, but the Extremity of every Train Feather black streaked.

To distinguish the Strength of the Bird, tie divers of them in several Places of one Chamber, or Mew; and that *Hawk* that slices and mutes highest and farthest off, may be concluded to be strongest.

The *Gos-Hawk* flies at the Pheasant, Mallard, wild Goose, Hare, and Coney; nay she will venture to seize a Kid, or Goat. — She is to be kept with Care, as being very choice and dainty in Eating, *&c.*

9°. *Sparrow-Hawk*, is also a Kind of short-winged *Hawk*; whereof there are several Sorts, different in Plumes: Some small plumed and black; others of a larger Feather; some plumed like the Quail; some brown or Canvas-Mail, *&c.*

The *Sparrow-Hawk*, so far as her Strength will give her Leave, is a good *Hawk*; and he that knows how to man, reclaim, and fly with a *Sparrow-Hawk*, may easily attain to the keeping and managing of all others. — In this Respect she really excels, that she serves both for Winter and Summer, with great Pleasure, and will fly at all Kind of Game, more than the Falcon.

HAWKERS, antiently, were fraudulent Persons; who went from Place to Place, buying and selling Brass, Pewter, and other Merchandize, which ought to be uttered in open Market.

In this Sense, the Word is mention'd, *Anno* 25 *Hen.* VIII. *Cap.* 6. and 33 *ejusdem*, *Cap.* 4.

We now call those *Hawkers*, who go up and down *London* Streets, crying News Books, and selling them by Retail. — The Women who furnish the *Hawkers*, i. e. sell the Papers by Wholesale from the Press, are call'd *Mercuries*.

The Appellation of *Hawkers* seems to grow from their uncertain Wandring, like those who, with *Hawks*, seek their Game where they can find it.

HAWKING, the Art, or Exercise of Chasing and taking Wild-Fowl, by Means of *Hawks*, or Birds of Prey. See HAWK.

Hawking is the same Thing with what we otherwise call *Falconry*. See FALCONRY.

The Word *Hawking*, in its Latitude, does also include the taming and disciplining of *Hawks*, and fitting them for the Sport.

Hawking, tho' an Exercise now much disused among us, in Comparison of what it antiently was, does yet furnish a great Variety of significant Terms, which still obtain in our Language.

Thus, the Parts of a *Hawk* have their proper Names. — The Legs, from the Thigh to the Foot, are call'd the *Arms*: The Toes, the *Petty-singles*: The Claws, the *Pounces*. — The Wings are call'd the *Sails*; the long Feathers thereof the *Beams*; the two longest, the *principal Feathers*; those next thereto, the *Flags*. — The Tail the *Train*. — The Breast Feathers, the *Mailes*: — Those behind the Thigh, the *Pendant Feathers*: When the Feathers are not yet full grown, she is said to be *unsumm'd*; when they are compleat, she is *summ'd*: — The Craw, or Crop, is call'd the *Gorge*: — The Pipe next the Fundament, where the Fœces are drawn down, is call'd the *Pannel*: — The slimy Substance, lying in the Pannel, is call'd the *Glut*: — The upper and crooked Part of the Bill, is call'd the *Beak*; the nether Part the *Clap*: The yellow Part between the Beak and the Eyes, the *Sear* or *Sere*; the two small Holes therein, the *Nares*.

As to her Furniture: — The Leathers, with Bells button'd on her Legs, are call'd *Bowits*. — The Leathern Thong, whereby the Falconer holds the *Hawk*, is call'd the *Lease*, or *Leash*; the little Straps, by which the Lease is fasten'd to the Legs, *Jesses*; and a Line or Pack-thread fasten'd to the Lease, in disciplining her, a *Creance*. — A Cover for her Head, to keep her in the Dark, is call'd a *Hood*; a large wide Hood, open behind, to be wore at first, is call'd a *rufter Hood*: To draw the Strings, that the Hood may be in Readiness to be pull'd off, is call'd *unstriking the Hood*. — The blinding a Hawk just taken, by running a Thread thro' her Eye-lids, and thus drawing them over the Eyes, to prepare her for being hudded, is call'd *Seeling*. — A Figure, or Resemblance of a Fowl, made of Leather and Feathers, is call'd a *Lure*. — Her resting Place, when off the Falconer's Fist, is call'd the *Pearch*. — The Place where her Meat is laid, is call'd the *Hack*. — And that wherein she is set, while her Feathers fall and come again, the *Mew*.

Something given a Hawk, to cleanse and purge her Gorge, is call'd *Casting*: — Small Feathers given to make her Cast, are call'd *Plumage*: — Gravel given her to help bring down her Stomach, is call'd *Rangle*: — Her throwing up Filth from the Gorge after Casting, is call'd *Gleaming*. — The Purging of her Grease, *&c.* *Enseaming*. — A being stuffed is call'd *Gurgiting*. — The inserting a Feather in her Wing, in lieu of a broken one, is call'd *Imping*. — The giving her a Leg, Wing, or Pinion of a Fowl to pull at, is call'd *Tiring*: — The Neck of a Bird the *Hawk* preys on, is call'd the *Lake*: — What the *Hawk* leaves of her Prey, is call'd the *Pill*, or *Pelf*.

There are also proper Terms for her several Actions: — When she flutters with her Wings, as if striving to get away, either from Perch or Fist, she is said to *Bate*. — When standing too near, they fight with each other, it is call'd *Crabbing*: — When the young ones quiver, and shake their Wings in Obedience to the elder, it is call'd *Cowring*: — When she wipes her Beak after feeding, she is said to *Feak*: — When she sleeps, she is said to *Jouk*: — From the Time of exchanging her Coat, till she turn white again, is call'd her *Intermewing*: — Treading is call'd *Cawking*. — When she stretches one of her Wings after her Legs, and then the other, it is call'd *Mantling*: — Her Dung is call'd *Muting*; when she mutes a good Way from her, she is said to *slice*; when she does it directly down, instead of yerking backwards, she is said to *slime*; and if it be in Drops, it is call'd *Dropping*. — When she as it were sneezes, it is call'd *Snitting*. — When she raises and shakes her self, she is said to *Rouze*; when after Mantling, she crosses her Wings together over her Back, she is said to *Warble*.

When a *Hawk* seizes, she is said to *Bind*. — When after seizing she pulls off the Feathers, she is said to *Plume*. — When she raises a Fowl aloft, and at length descends with it to the Ground, it is call'd *Trussing*. — When being aloft, she descends to strike her Prey, it is call'd *Stooping*. — When she flies out too far from the Game, she is said to *Rake*. — When forsaking her proper Game, she flies at Pyes, Crows, *&c.* that chance to cross her, it is call'd *Check*. — When missing the Fowl, she betakes her self to the next Check, she is said to *fly on Head*. — The Fowl or Game she flies at is call'd the *Quarry*. — The dead Body of a Fowl, kill'd by the *Hawk*, is call'd a *Pelt*. — When she flies away with the Quarry, she is said to *carry*. — When in stooping, she turns two or three Times on the Wing, to recover her self ere she seizes, it is call'd *Cancelleering*. — When she hits the Prey, yet does not truss it, it is call'd *Ruff*.

The making a *Hawk* tame and gentle, is call'd *Reclaiming*. — The bringing her to endure Company, *Manning her*. — An old staunch *Hawk* used to fly and set Example to a young one, is call'd a *Make-Hawk*.

The Reclaiming, Manning, and bringing up a *Hawk* to the Sport, is not easy to be brought to any precise Set of Rules. — It consists in a Number of little Practices, and Observances, calculated to familiarize the Falconer to his Bird, to procure the Love thereof, *&c.* — The principal Hold and Foundation which the Falconer has to work upon, is the Bird's Stomach. — The great Principle of Appetite he is to make use of an hundred Ways, to lead the Bird obliquely to what he would have from him: All he can do is, to divert Nature, and make her subservient to his Purposes, to make it the Interest of the Bird, either real or apparent, to do what the Falconer requires of her.

The Course, 'tis evident, will be different, according to the State and Condition of the Bird to be managed. — An *Eyess*, e. gr. needs no reclaiming; she is to be carefully nursed, and brought up in their natural Tameness.

A *Brancher*, *Soar-Hawk*, or *Ramage-Hawk*, needs no Nursing; she is to be brought down from her Wildness, and habituated to another Course of Life; and in Pursuance of her own Views, and Interests, to be made subject to those of her Master.

To *Reclaim*, e. gr. a *Hagard* Falcon; they begin with shutting her up from the Light, by pulling a Hood over her Eyes; and fixing her by a *Creance*, which makes her more accessible. — The next Thing is to handle her frequently, taking her up, often stroaking her, setting her on the Hand, and carrying her about; unhudding, and presently hudding her again; and this for eight or nine Days, without ever suffering her to sleep. — All the while she is to be kept sharp set, but to be frequently fed, with a little at a Time; unhudding her for the Purpose, and when unhudded, the Voice to be continually used to her, that she may learn it; and that the hearing of the Voice may naturally put her in Hopes of being fed. — This done she is to be invited to come from the Pearch to the Fist, by unstriking her Hood, shewing her some Meat, using the Voice, and calling her till she come to it, and feed thereon. — If she still refuse, keep her sharp set

 till

till she do. — Proceed then to bring her to the Lure, by giving her to some Person to hold, and calling her with a Lure, well garnished with Meat on both Sides, and give her a Bit: Use her to this for six or seven Days; after which tempt her to come gradually further and further off, to the Lure, waving it and casting it round your Head, &c. and if she come to it roundly, reward her. In three or four Days more call her to your Lure, well garnished as above, as far as 'tis possible for her to see or hear you; and set her loose from all her Furniture.

The *Hawk* thus mann'd, reclaim'd and lured, you may go with her into the Fields; and whistle her off your Fist, to see whether she will rake out or no. If she mount and fly round you in Circles, as a good *Hawk* ought to do; after two or three Turns call to her with your Voice, and fling out the Lure about your Head, and upon her stooping, or coming to it, give her a Chicken, or Pidgeon, and let her kill and feed thereon. — Being thus far initiated, give her first Stones, every Evening, to prepare her Body for Castings; and then Castings to cleanse and scour her Body, and make her eager. — This Course continue till she have have endewed and mewted enough to enter upon Business.

If the *Hawk* be intended for some particular Sort of Game, let her Lure be a Resemblance of that Sort of Game; and make a Practice of frequently feeding and rewarding her thereon; or on a Train of the same Kind; calling her when feeding, as if she were call'd to the Lure. Add, that it may be proper to feed her in such like Places as those her Game is chiefly to be found in.

To *enter a Hawk*, it may be convenient to take a well quarried *Hawk*, and let her stoop a Fowl, on Brook or Plash; this done, reward, hood and set her; and taking the young *Hawk*, go half a Bow-shot up the Wind, loose her Hood, and softly whistle her off the Fist, till she have rouzed or mewted; then let her fly with her Head into the Wind; and when she is at a proper Height, let go a Fowl for her to stoop and truss. *See further under the Article* FALCON.

HANKWIT, or HANGWITE, from the *Saxon* hangan, i. e. *suspendere*, to hang, and wite, *Mulcta*, Punishment, is a Liberty granted to a Man, whereby he is quit of a Felon, or Thief, hanged without a Judgment, or escaped out of Custody. — We also read it interpreted to be *Quit de laron pendu sans Serjeants le Roy*, i. e. without a legal Trial. — And elsewhere, *Mulcta pro latrone præter juris exigentiam suspenso vel elapso.*

Some suspect that the Word may also signifie a Liberty, whereby a Lord challengeth the Forfeiture due for him who hangs himself within the Lord's Fee. See BLOODWIT.

It seems to be so *in Consuetud. ex Domesday*, by Dr. *Gale*, viz. *Hangewithum faciens in Civitate* 10 *S. dabit.*

HAWSER, or HALSER, belonging to a Ship, is a Rope consisting of three Strands; being a Kind of little Cable, serving for many Uses on Board, as to fasten the Main and Fore-shrouds, to warp a Ship over a Bar, &c. See ROPE, CABLE.

HAWSES, in a Ship, are two round Holes under her Head, through which the Cables pass, when she is at Anchor. See CABLE and ANCHOR.

A *Bold Hawse*, is when the Hole is high above the Water.

A *Fresh Hawse*, when there is Reason to suspect the Cable may be fretted in those Holes.

Burning in the Hawse, is when the Cable endures an extraordinary Stress.

Clearing the Hawse, is the untwisting of two Cables, which being let out at different *Hawses*, are twisted about one another.

Freshing the Hawse, is when new Pieces are laid upon the Cable in the *Hawse*.

Riding upon the Hawse, is when any weighty Substance lies across, or falls directly before the *Hawse*.

HAY, HAYA, or HAYE, a Fence or Inclosure, form'd of Rails; wherewith some Forests, Parks, &c. were antiently surrounded.

Sometimes the Word is used for the Park it self: And sometimes for an Hedge, or hedged Ground. — *Universis. Capitulum B. Petri Ebor. concessisse ad firmam totam* Hayam *nostram de Langerath, cum solo ejusdem* Hayæ, *Bruera, Marisco, & omnibus aliis pertin. Reddendo inde annuatim nobis tempore pinguedinis unum damum, & fermisonæ tempore unam damam*, &c.

HAYBOOT, in our antient Customs, from the *Saxon* Hæg, *Hedge*, and Bote; a Mulct or Recompence for a Hedge-breaking; or rather, a Right to take Wood necessary for making Hedges, either by Tenant for Life, or for Years, though not expressed in the Grant or Lease. — 'Tis mention'd in the *Mon.* 2 *Tom.* pag. 134, & *concedo ei ut de bosco meo Heybot*, &c. — In the same Place, *Husbote* signifies a right to take Timber to repair the House.

HAYS, a particular Kind of Nets for the taking of Rabbets, Hares, &c.

HAYWARD, or HAWARD, a Keeper of the common Herd of Cattle of a Town; who is to look that they neither break nor crop the Hedges of inclosed Grounds; and is sworn in the Lord's Court, for the due Performance of his Office. See HAY.

HAZARD. See CHANCE and GAMING.

HEAD, *Caput*, the uppermost, or foremost Part of the Body of an Animal. See BODY and ANIMAL.

Pliny, and other of the antient Naturalists, speak of a Nation of People without *Heads*, call'd *Blemmyes*. See BLEMMYES.

We have Accounts in modern Geographers and Travellers, of People whose *Heads* are as flat as the Hand; it being the Custom among them to flatten their Children's *Heads*, when new Born, by passing them thro' a Press, or laying them between two Planks with a considerable Weight thereon. — They are said to be the Inhabitants of the Province *Cosaquas*, on the great River of the *Amazons*, in South *America*.

Anatomists account the *Head* of Man, the first or uppermost Venter; being that which comes last in Order of Dissection, by Reason its Contents are not so subject to Corruption. See VENTER.

The *Head* is divided into two Parts: The 1*st*, the *Calvaria*, or Scalp, being that Part cover'd with Hair. See HAIR.

The 2*d*, smooth, or without Hair, call'd the *Face*, or Visage; by the Latins *Vultus*, and by the Greeks *Prosopon*, q. d. *looking forward*. See FACE.

The former is subdivided into four; *viz.* the *Front*, or Forehead, which is reputed the most humid, call'd by Physicians the *Sinciput*, q. d. *summum Caput*. See FRONT and SINCIPUT.

The hind, or Back Part, call'd *Occiput*; by the Greeks *Inion*, by Reason all the Nerves, which among them are call'd *Ines*, arise herefrom. See OCCIPUT and NERVE.

The middle, or Top-part, call'd the *Crown* of the *Head*, and by Anatomists *Vertex*, *a Vertendo*, by reason the Hair turns round there. See VERTEX.

Lastly, the Sides are call'd the *Temples*, *Tempora*, as being the Places where the Hair first begins to turn grey, and discover the Age. See TEMPLE.

The Bone, or Basis of the *Head*, is call'd by one general Name *Skull*, or *Cranium*; consisting of several Parts, or lesser Bones. See CRANIUM.

The Bone of the Fore-head, is call'd *Os frontis*, or *Puppis*, or *Coronale*, or *Verecundum*, whence impudent Persons are said to be *frontless*. See *Os* FRONTIS, &c.

The Bone of the Scalp is call'd *Os sincipitis*, or *Bregma*. See BREGMA, &c.

The Bone of the Back of the *Head Os Occipitis*, or *Proræ*. See *Os* OCCIPITIS, &c.

And those of the Temples, *Temporalia*, or *Ossa Temporis*. See *Os* TEMPORIS.

These Bones are connected or joyn'd together by Sutures. See SUTURE.

In the *Head* are seated the principal Organs of Sense; *viz.* the *Eye*, *Ear*, &c. And in it is likewise the *Brain*, invested with its Meninges; the supposed Seat of the Soul. See SENSE, BRAIN, &c.

The *Head* is moved by ten Pair of Muscles, *viz.* the *Par Splenium*, *Complexum*, *Rectum majus externum*, *Rectum minus externum*, *Obliquum Superius*, *Obliquum Inferius*, *Mastoideum*, *Rectum internum majus*, *Rectum internum minus*, and *Rectum Laterale*. See each described under its respective Article.

The Orientals cover the *Head* with a *Turban*, or a *Cap*. — The Occidentals with a *Hat*, &c. See TURBAN, HAT and CAP.

Kings, on solemn Occasions, wear the Crown on the *Head*; Bishops the Mitre, &c. See CROWN, MITRE, &c.

The antient Cavaliers wore *Helmets*. — The Soldiers, *Casks*. See HELMET and CASK.

HEAD, is also used for the Top of a Tree, or other Plant. See TREE and PRUNING.

HEAD, is also applied to the Extremity of a Bone. See BONE.

When a Bone has a round Tip, or End, which advances, or projects forward, whether in the Way of an Apophysis or Epiphysis; it is call'd the *Head* of the Bone. See APOPHYSIS, &c.

If its Rise, or Origin, be slender, and it enlarge by Degrees, it is call'd the *Neck*. See NECK.

If it terminate in a Point, it is call'd *Corone*, *Corvus*, or *Coracoides*, as resembling a Crow's Bill. See CORONE, CORACOIDES, &c.

When the *Head* is flat, they call it *Condylus*, or *double Head*; as in the Extremities of the Bones of the Fingers. See CONDYLUS.

HEAD, is also used for the Extreme of a Muscle, which is fasten'd or inserted into the Stable-Bone, or the

the Part not intended for Motion. See MUSCLE, &c. The *Head* of a Muscle is a Tendon. See TENDON and TAIL.

HEAD, again, is applied in the Mechanic Arts, to the Parts of Inanimate and Artificial Bodies. See CAPITAL.

In this Sense we say, that some Nails have *Heads*; others *Hooks*; others, as Brads, neither. See NAIL.

So also we say the *Head* of a Pin, &c. See PIN.

HEAD, is also used in Painting, Sculpture, &c. for a Picture, or Representation of that Part of the human Body; whether in Colours, Draught, Relievo, or Creux. See SCULPTURE, BUSTO, &c.

Those in Painting, taken from the Life, or supposed to bear a just Resemblance to the Person; are more properly call'd *Portraits*. See PORTRAIT.

HEAD, in Architecture, &c. an Ornament of Sculpture, or carved Work, frequently serving as the Key of an Arch, Plat-band, and on other Occasions. See KEY and ARCH.

These Sort of *Heads* usually represent some of the Heathen Divinities, Virtues, Seasons, Ages, &c. with their Attributes. — As a Trident for *Neptune*, a Helmet for *Mars*, a Crown of Ears of Corn for *Ceres*, a Caduceus for *Mercury*, a Diadem for *Juno*. See ATTRIBUTE, &c.

The *Heads* of Beasts are also used in Places suitable thereto: As a Bullock's, or Sheep's *Head*, for a Shambles, or Market-house; a Dog's, for a Kennel; a Deer's, or Boar's, for a Park or Forest; a Horse's, for an Equery, &c.

In the Metopes of the Freezes, and other Parts of certain *Antique*, *Doric* Temples, we meet with Representations of Bullocks, or Rams *Heads* flea'd; as a Symbol of the Sacrifices offer'd there.

In Heraldry, the *Heads* of Men, Beasts, Birds, &c. are bore in Armoury, either full-faced and in *front*, or side-faced and in *profile*; which must be distinguish'd in Blazoning. — *Vert a Chevron Gules, between three Turks Heads, Couped, Side-faced, proper:* By the Name of *Smith*.

Among Medallists, the different *Heads* on antient Coins, are distinguish'd by the different Dresses thereof. See MEDAL.

In the *Imperial* Medals, where the *Head* is quite bare, 'tis usually a Sign the Person was not an Emperor, but one of the Children thereof, or the presumptive Heir of the Empire. Tho' we have Instances of those who were only *Cæsars*, and never reign'd, being crown'd with Lawrel, or adorn'd with a Diadem: As, on the contrary, we have Emperors *Heads* entirely bare.

The *Heads* which are cover'd, are either cover'd with a Diadem, or a Crown, or a simple Cask, or a Veil, or some other foreign Covering; whereof the Diadem is the most antient. — The Senate first granted it to *Julius Cæsar*, to wear the Lawrel Crown, which his Successors took after him. See CROWN, DIADEM, &c.

The *Heads* of Deities are frequently distinguish'd by some special Symbol thereof.

HEAD, is also applied to Monsters; supposed most of them fabulously to have many *Heads*. See MONSTER, &c.

The Serpent *Amphisbæna*, or *Cæcilia*, is said by Naturalists to have two *Heads*. — The Poets attribute three *Heads* to *Hecate*, *Geryon*, and *Cerberus*: *Typhon* and *Hydra* are said to have an hundred *Heads*.

The *Head* of the Gorgon *Medusa*, is said to have struck People dead with the very Sight. — It has been since translated into Heaven, and made a Constellation; where it still shines as a Part or Appendage of the Constellation *Perseus*; continuing still to dispense its malific Influences, as the Astrologers suppose, upon our Earth. See CONSTELLATION.

The Stars, &c. in *Medusa's Head*, which is also call'd from the Arabs, *Ras Algol*; See among the rest of PERSEUS.

HEAD, is also used for the Horns of a Deer; as a Hart, Buck, &c. See HORN.

Hart's *mew*, or cast their *Heads* every Year; and get new ones. See MOULTING.

The old Hart, or Buck, casts his Head sooner than the young; and the Time is about the Months of *February* and *March*. — Having cast their *Heads*, they instantly withdraw into the Thickets; hiding themselves in convenient Places near good Water, &c. far from the Annoyance of Flies.

After they have mewed, they begin to *button* again in *March*, or *April*, i. e. to shoot out new Horns; which at first appear like little Bunches.

Note. If a Hart be gelt before he have a *Head*, he will never bear any; and if he be gelt when he has a *Head*, he will never after mew or cast it. — If only one of his Testicles be taken out, he will want the Horn of that Side: If one of the Testicles be only tyed up, he will want the Horn of the opposite Side. See CASTRATION and GELDING.

The Age of a Hart, or Deer, is usually reckon'd by the Number of *Heads*. — A Deer of the first *Head*, the second *Head*, &c.

At one Year they have nothing but Bunches, call'd *Significators* of Horns to come. The 2d Year they appear more perfectly, but strait and simple: This makes the first *Head*, properly call'd *Broches*, and in a Fallow-Deer, *Pricks*. The 3d Year they grow into two *Speers*, or four, six, or eight small Branches. At the 4th, they bear eight or ten: At the 5th, ten or twelve: At the 6th, fourteen or sixteen: At the 7th Year they bear their *Heads* beamed, branched and summed as much as they will bear; never multiplying further, but only growing in Magnitude.

The Names and Diversities of Heads *in the hunting Language*, are as follow:

The Thing that beareth the Antlers, Royals, and Tops, is call'd the *Beam*; and the little Streaks therein are *Glitters*. — That which is about the Crust of the Beam, is termed *Pearls*; and that which is about the Bur it self, formed like little Pearls, is called *Pearls bigger than the rest*. — The Bur is next the *Head*, and that which is about the Bur, is called *Pearls*. — The first is called *Antler*, the second *Sur-antler*; all the rest which grow afterwards, till you come to the Crown, Palm, or Croche, are call'd *Royals* and *Sur-royals*; the little Buds or Broches about the Tops, are called *Croches*.

Their *Heads* go by several Names: The first *Head* is called a *Crown-top*, because the Croches are ranged in Form of a Crown. — The second is called a *Palmed-top*, because the Croches are formed like a Man's Hand. — All *Heads* which bear not above three or four, the Croches being placed aloft, all of one Height, in Form of a Cluster of Nuts, are called *Heads of so many Croches*: All *Heads* which bear two on the Top, or having their Croches doubling, are called *Forked-Heads*. — All *Heads* which have double Burs, or the Antlers, Royals, and Croches turned downwards, contrary to other *Heads*, are called simple *Heads*. See HUNTING.

HEAD, is sometimes also used for the whole Man.

In this Sense we say, to offer a Reward for a Man's *Head*. — In Proscriptions a Price is set on a Man's *Head*, See PROSCRIPTION.

Capitation is a Tax laid upon each *Head*; call'd also *Poll* and *Head-money*. See CAPITATION and POLL.

HEAD, again, is used figuratively in speaking of Communities and Bodies politic, for the principal or leading Member thereof. See PRINCIPAL.

Thus, we say, a President, or Master, is at the *Head* of his Company. — A Dean is the *Head* of his Chapter: — The Ministers are at the *Head* of Affairs. See PRESIDENT, DEAN, MINISTER, &c.

The King of *Great Britain* is at the *Head* of the *Protestant* World, &c.

HEAD, is also used to denote the Relation of Priority; or that which comes first in any Thing. See PRIORITY.

In this Sense, we say, the Names of Authors should always appear at the *Head* of their Books. — Prefaces, and Epistle Dedicatory, come at the *Head*. — The Governour marches out at the *Head* of the Garrison.

HEAD, in the military Art. — The *Head of the Camp*, is the Front, or fore-most Part of the Ground, an Army is incamped on; or that which advances most towards the Campaign, Field, or the Enemy. — The *Head* of the Camp is always to be the best fortified. See CAMP, &c.

In the like Sense we say, the *Head of the Trenches*. — The *Head of the Sap*: — *Of the Works*, &c. meaning those Parts advanced the furthest towards the Enemy, See WORKS, SAP, &c.

Such a Night the *Head* of the Trenches was carried further by an hundred Paces. — There are two *Heads* of a Trench; that is, two Attacks, See TRENCH and ATTACK.

The *Head of a Horn-Work*, is that Part contain'd between two Demi-Bastions. See HORN-*Work*.

HEAD *of a Ship*, or other Vessel, is the *Prow*, or Part that goes foremost. See PROW. See also SHIP.

HEAD, in the Manage. The Perfections required to the *Head of Horse*, are that it be small, narrow, lean and dry. — Horses with a big gross *Head*, are apt, by their Weight, to rest and loll upon the Bridle; and so incommode the Rider's Hand. — A Horse with a large *Head* can never look stately, unless he have a long and very well turned Neck, and place his *Head* well. — Horses with gross fat *Heads*, much charged with Flesh, are subject to Infirmities of the Eyes.

But the chief Thing in a Horse's *Head* is a good *Onset*, so as he may be able to bring his *Head* into his natural Situation; which is, that all the fore Part, from the Brow to the Nose, be perpendicular to the Ground; so that if a Plummet were applied thereto, it wou'd but just raze or shave it. See HORSE.

The *Head* of a Horse is also used to import the Action of his Neck, and the Effect of the Bridle and Wrist.

Moors HEAD, is underſtood of a Horſe with a black *Head* and Feet; the Body being uſually of a Roan Colour. See HORSE.

Moors Head, is alſo uſed by Engineers, for a Kind of Bomb or Granado, ſhot out of a Cannon. See BOMB and GRANADO.

Moors Head, is alſo uſed in Heraldry, for a Repreſentation, uſually in Profile, of a *Black-moors Head*, ſwath'd or roll'd about with a Bandage; frequenly bore as a Creſt. See CREST.

Moors Head, in Chymiſtry, is a Cover, or Capital, of an Alembic, having a long Neck, to convey the Vapours rais'd by the Fire, into a Veſſel, which ſerves as a Refrigeratory. See ALEMBIC.

In Muſic, the HEAD of a Lute, Theorbo, or the like, is the Place where the Pins or Pegs are ſcrew'd, to ſtretch or ſlacken the Strings. See LUTE, *&c.*

The *Dragons Head*, in Aſtronomy, *&c.* is the aſcending Node of the Moon, or other Planet. See NODE, DRAGON, *&c.*

HEAD-*Ach*, a painful Senſation in the Muſcles, Membranes, Nerves, or other Parts of the *Head*. See CEPHALALGIA.

It is ſuppoſed to ariſe from an extraordinary Diſtention of thoſe Parts, either by the Fluids therein being rarified, or their Quantity and Motion increas'd.

When attended with a Vomiting, Deafneſs, and Watching, it portends Madneſs; with a Noiſe in the Ear, Dulneſs of Feeling in the Hands, *&c.* an Apoplexy or Epilepſy. See MADNESS, APOPLEXY, *&c.*

The Cure is by Bleeding in the Jugular; Cupping, or applying Leeches to the Temples, and behind the Ears and Neck. — Iſſues, Emeticks, and Diaphoreticks are alſo occaſionally uſed; with Anti-epilepticks and Apoplecticks. — A Veſicatory applied to the whole Scalp, is the laſt Remedy.

M. *Homberg* gives us an extraordinary Inſtance of the Cure of a moſt vehement and inveterate *Head-Ach*, by an accidental Burn of the *Head*. See BURN.

HEAD-*Borow*, ſignifies the Perſon who is chief of the Frank-Pledge; and had antiently the principal Direction of thoſe within his own Pledge. See FRANK-*Pledge*.

He was alſo called *Burrow-Head*, *Burſholder*, now *Boſholder*, *Third-Borow*, *Tything-Man*, Chief-Pledge, and *Borow-Elder*, according to the Diverſity of Speech in divers Places. See TYTHING-*Man*, *&c.*

This Officer is now uſually call'd a *High-Conſtable*. See CONSTABLE.

The *Head-Borow* was the chief of ten Pledges; the other nine were call'd *Hand-Borows*, or *Plegii Manuales*. See FRIBOURG.

HEAD *Farcin*. See FARCIN.

HEAD-*Land*, in Husbandry, is that Part which is ploughed acroſs, at the Ends of other Lands.

HEAD *Mould-Shot*, a Diſeaſe in Children, wherein the Sutures of the Skull, generally the Coronal, *ride*; that is, have their Edges ſhot over one another; and ſo cloſe lock'd together, *e. gr.* as to compreſs the internal Parts, the Meninges, or even the Brain it ſelf. See SUTURE.

The Diſeaſe uſually occaſions Convulſions; and is ſuppoſed to admit of no Cure from Medicines; unleſs Room cou'd be given, by manual Operation, or a Diviſion of the Sutures.

The *Head Mould-Shot*, is the Diſorder oppoſite to the Horſe-Shoe Head. See HORSE-*Shoe Head*.

HEAD-*Pence*, and HEAD-*Silver*. See COMMON *Fine*.

HEAD-*Sea*, is when a great Wave, or Billow of the *Sea*, comes right a-head of the Ship, as ſhe is in her Courſe.

HEAD-*Stall*, in the Manage. See CAVESON.

HEALFANG, or HALSFANG, in our antient Cuſtoms, *Colliſtrigium*, or the Puniſhment of the Pillory. See PILLORY.

The Word is compounded of two *Saxon* Words, Halſ, i. e. *Collum*, and fang, *Captura*; *pœna ſcilicit qua alicui Collum ſtringatur*. See COLLISTRIGIUM.

Healfang, however, cannot ſignifie a Pillory in the Charter of *Canutus de Foreſtis*, Cap. 14. *Et pro culpa ſolvat Regi duos ſolidos quos Dani vocant* Halſehang.

Sometimes it is taken for a pecuniary Puniſhment, or Mulct, to commute for ſtanding in the Pillory; and is to be paid either to the King, or to their chief Lord. — *Qui falſum Teſtimonium dedit, reddat Regi vel Terræ Domino* Halſeng. *Leg. H.* 1.

HEALING, in its general Senſe, includes the whole Proceſs of curing or removing a Diſorder, and reſtoring Health. See CURE and DISEASE.

In this Senſe, Medicine is defined the Art of *Healing*. See MEDICINE, *&c.*

In its more reſtrained Senſe, as uſed in Chirurgery, *&c.* *Healing* denotes the uniting or conſolidating the Lips of a Wound or Ulcer. See WOUND and ULCER.

The Medicines, proper for this Intenſion, are call'd Incarnatives, Agglutinatives, Vulneraries, *&c.* See INCARNATIVE, AGGLUTINANT, VULNERARY, *&c.*

Dr. *Beale* has a Diſcourſe of *Healing Springs* and *Waters* in the *Philoſoph. Tranſact.* N°. —. See WATER and SPRING.

HEALING, in Architecture, denotes the Covering the Roof of a Building. See ROOF and COVERING.

The *Healing* is various; as of *Lead*, *Tyles*, *Slate*, *Horſham Stone*, *Shingles*, *Reed* and *Straw*. See LEAD, TYLES, STONES, SHINGLES, *&c.*

HEALTH, *Valetudo*, *Sanitas*, a due Temperament, or Conſtitution, of the ſeveral Parts whereof an Animal is compoſed, both in Reſpect of Quantity and Quality. — Or it is that State of the Body, wherein it is fitted to diſcharge the natural Functions perfectly, eaſily, and durably. See BODY, LIFE, FUNCTION, *&c.*

Health, is the State or Condition, oppoſite to *Diſeaſe*. See DISEASE.

The Preſervation, and Reſtoration of *Health*, makes the Object of the Art of Medicine. See MEDICINE.

The Condition, or Continuance of *Health*, depends principally on the ſix Non-Naturals, viz. *Air*, *Food*, *Exerciſe*, the *Paſſions*, *Evacuation* and *Retention*, and *Sleep* and *Waking*. See each in its Place, FOOD, EXERCISE, PASSION, *&c.*

The Antients perſonified and even deified *Health*; or rather, erected a Goddeſs to whom they ſuppoſed the Care of *Health* to belong. — The *Greeks* worſhipp'd her under the Name *Hygeia*, and the *Latins* under that of *Sanitas*. — The Place of her Worſhip at *Rome* was on the *Mons Quirinalis*, where ſhe had a Temple; and a Statue crown'd with Medicinal Herbs.

We frequently find the Goddeſs *Health* on the Reverſe of Medals. — She is repreſented with a Serpent ſtretch'd on her left Arm, and holding a Patera to it with the left. Sometimes ſhe has an Altar before her, with a Serpent twiſted round the ſame, and raiſing its Head to take ſomething out of the ſame. The Inſcription is SAL. AUG.

Houſe of HEALTH, a Kind of Hoſpital, or public Building, for the Reception and Entertainment of Perſons infected with the Plague, or coming from Places infected therewith. See PEST-*Houſe*, QUARANTINE, *&c.*

In the like Senſe we ſay, Officers of *Health*, Certificate of *Health*, &c.

HEAM, among Farriers, the ſame with the After-birth in Women. See SECUNDINE.

Thyme, Penny-Royal, Winter Succory, or common Horehound, boil'd in white Wine, and given a Mare, are eſteem'd hood to expel the *Heam*. — Dittany given in a Peſſary, expels the *Heam*, as well as the dead Fole: So do Fennel, Hops, Savin, Angelica, *&c.*

HEARING, *Auditus*, the Act, or Faculty of perceiving Sounds. See SOUND and PERCEPTION.

Hearing is reckon'd among our external Senſes. — Its Organ is the *Ear*, and particularly the auditory Nerve diffuſed thro' the ſame: And its Object certain Motions, or Vibrations of the Air. See SENSE, EAR, and AIR.

Hence, *Hearing* may be more ſcientifically defined a Senſation, whereby from a due Motion impreſs'd on the Fibrillæ of the auditory Nerve, and communicated thence to the Senſory; the Mind perceives, or gets the Idea of Sounds. See SENSATION.

Philoſophers have differ'd as to the immediate Organ of *Hearing*. — *Ariſtotle* will have it the *Cochlea* and *Tympanum*, and takes the Senſe of *Hearing* to be ſeated therein. *Hiſt. Animal*, Cap. 10. in which he is followed by *Galen*, Lib. 8. *de uſu par.* See TYMPANUM, *&c.*

The Moderns ſpeak of the Point on much better Ground. — The Ear, and the ſeveral Parts thereof, Membranes, Canals, Labyrinths, Nerves, *&c.* are only Means, Vehicles, for the Reception, Modification, and Tranſmiſſion of the ſonorous Matter to the Brain; which is the Seat of the Senſe. See BRAIN and SENSORY.

A Sound, in Effect, is nothing but a certain Refraction, or Modulation of the external Air, which being gathered by the external Ear, paſſes through the *Meatus Auditorius*, and beats upon the *Membrana Tympani*, which moves the four little Bones in the *Tympanum*. See AURICLE and TYMPANUM.

In like Manner, as it is beat by the external Air, theſe little Bones move the internal Air, which is in the *Tympanum* and *Veſtibulum*; which internal Air makes an Impreſſion upon the auditory Nerve in the Labyrinth, and *Cochlea*, according as it is moved by the little Bones in the *Tympanum*; ſo that according to the various Refractions of the external Air, the internal Air makes various Impreſſions upon the auditory Nerve, the immediate Organ of *Hearing*; which different Impreſſions repreſent different Sounds.

Sir

Sir *Isaac Newton* carries the Thing somewhat farther, and supposes *Hearing*, like Seeing, to be perform'd, not immediately by the Vibrations of the Air, but by those of some other more subtle Medium, excited in the auditory Nerves by the Tremors of the Air, and propagated thro' the solid Capillaments of the Nerve to the Place of Sensation. See MEDIUM, VISION, &c.

The curious Structure of the Labyrinth, and Cochlea, tend to make the weakest Sounds audible; for the whole Organ of *Hearing* being included in a small Space, had the auditory Nerve run in a strait Line, the Impression would only have been made on a very small Part of it; and the Strength of the Impression being, *Cæteris paribus*, always as the Number of Parts upon which the Impression is made, Sounds which are now low, could not have been heard at all. — If the auditory Nerve had, like the *Retina*, been expanded into a large Web, which had covered or lined some wide Cavity, the Impression of Sounds even in this Case had been much weaker, than they are now: For this large Cavity had given Room for the Sounds to dilate; and all Sounds grow weaker, as they dilate.

Both of these Inconveniencies are prevented by the present Structure of the Labyrinth and Cochlea, whose Canals, by their winding, contain large Portions of the auditory Nerve, upon every Point of which the smallest Sound being at once impressed becomes audible; and by their Narrowness, the Sounds are hindred from dilating: And the Impressions made upon the Nerves by the first Dilatations are always the strongest.

The Strength of the Impression in narrow Canals, is likewise increased on Account of the Elasticity of the Sides of the bony Canal; which receiving the first and strongest Impulses of the Air, do reverberate them more strongly upon the auditory Nerve.

It may be observed, that tho' Air be the usual Matter of Sounds; so that a Bell rung in *Vacuo* is not heard at all: Yet will most other Bodies, properly disposed, do the like Office; only some more faintly than others. See MEDIUM.

Thus may a Sound be heard thro' Water, or even thro' Earth; of which we have various Instances. See SOUND.

Add, that tho' the Ear be the ordinary Organ of *Hearing*; yet *Hagerup*, a *Danish* Physician, maintains, that one may hear with the Teeth. — Thus, if one End of a Knife, or the like, be applied on a Harpsichol, and the other held between the Teeth; the Music thereof will be plainly heard, tho' the Ears be ever so closely stopp'd. — But this, perhaps, may as well be referr'd to the Sense of Feeling. See FEELING.

Such as Want the Sense of *Hearing* are said to be *Mute* or *Deaf*. See DEAFNESS.

'The Sense of *Hearing*, says *Cicero*, is always open; 'for this we have Need of even when asleep. The 'Passage to it is full of Turns, and Meanders; that 'nothing hurtful may enter or find its Way in. If any 'little Vermine does endeavour to pass; it must stick and 'be bemired in the *Cerumen*, or Ear-Wax, laid for that 'Purpose near the Entrance.' *De Nat. Deor. L.* 2 Cap. 57.

HEARING, is particularly used in Civil and Judicial Concerns, for a Cause, being brought before the Judge and Jury, and the Parties being heard as to the Merits thereof. See CAUSE, JUDGE, &c.

Such a Cause was kept off eight Months, e're it was brought to a *Hearing*. — We are to have our *Hearing* the last Day of the Term. See ISSUE.

The *Hearing* of Embassadors at the Courts of Princes is usually call'd *Audience*. See AUDIENCE and EMBASSADOR.

HEARSE, among Hunters, an Hind in the second Year of her Age. See HUNTING.

HEART, *Cor*, in Anatomy, a musculous Part, in the animal Body, situate in the *Thorax*; wherein the Veins all terminate, and from which all the Arteries arise; and which, by its alternate Contraction and Dilatation, is the chief Instrument of the Circulation of the Blood, and the Principle of vital Action. See ARTERY, VEIN, BLOOD, LIFE, &c.

This noble Part is included in a Capsula, or Pouch, call'd the *Pericardium*; whose Structure and Office will be explain'd under the Article PERICARDIUM.

The Figure of the *Heart* is a Cone, or Pyramid reversed; the upper, and broader Part whereof, is called the *Basis*; and the lower, the *Cone*, *Apex*, or *Point*; which is turn'd a little towards the left Side.

Its Magnitude is indeterminate, and different in several Subjects, according to their respective Dimensions. — Its ordinary Length is about six Inches, its Breadth at the Basis four or five; and the whole Circumference fourteen. Its Place is in the middle of the *Thorax*, between the two Lobes of the Lungs; and it is fasten'd to the *Mediastinum* and *Pericardium*, and supported by the great Blood-Vessels, to which alone it is immediately connected; being, for the Conveniency of its Motion, disengaged from any other Impediments. — It is cover'd with a thin Membrane, which, about the Basis, is guarded with fat; and which is no other than the common Membrane of the Muscles. See MEMBRANE.

It has two great Cavities, call'd *Ventricles*, somewhat unequal; the right being larger, capable of containing between two and three Ounces of Blood. — They are divided by a fleshy Partition, consisting of the same muscular Fibres with the *Parietes* themselves, and called the *Septum*; the Figure whereof is Concave towards the left Ventricle, and Convex towards the right. — There is no immediate Communication between the Ventricles; but for the Blood to pass out of one into the other, it must fetch a round thro' the Lungs. See SEPTUM, &c.

The *Parietes*, or Sides of these Ventricles, are of a Thickness and Strength very unequal; the left much exceeding the right, because of its Office, which is to force the Blood thro' all the Parts of the Body; whereas the right drives it through the Lungs only, and is therein greatly assisted by other Parts. — The right Ventricle, in Effect, seems only intended with a View to the Lungs; whence, in such Animals as have no Lungs, we only find one Ventricle, which is the left. See LUNGS.

In the Ventricles are little Muscles, called *Columnæ Carneæ*, or *Lacertuli*, derived from the *Parieties*, and connected, by tendinous Extremities, to the *Valves* of the *Heart* hereafter mention'd. See COLUMNÆ.

The Ventricles are capped each with an *Auricle*, or little Muscle, consisting, like the Ventricles themselves, of a double Order of fleshy Fibres. See AURICLE.

The Vessels, either arising from, or terminating in the *Heart*, and its Auricles are two *Arteries*, viz. the *Aorta*, and the *Pulmonary* Artery, which have their Origin from the two Ventricles, *viz.* the *Aorta* from the left, and the *Pulmonary* from the right: And two *Veins*, which terminate in the Auricles, *viz.* the *Cava* Vein in the right, and *Pulmonary* Vein in the right. See AORTA, CAVA, PULMONARY, &c.

At the respective Orifices of these Vessels are placed *Valves*. See VALVE.

Particularly, at the Orifice of the Arteries, within each of them, are three semi-lunar Valves, or Membranes, of a semi-lunar Figure, which close the Orifice of the Artery, and hinder the Relapse of the Blood into the *Heart* at the Time of its Dilatation. — At the Mouth of the right Ventricle, just at its Juncture with the Auricle, are three others call'd *Tricuspides*, from their three Points being fasten'd by tendinous Fibres to the *Columnæ Carneæ*; so that upon the Contraction, or Systole of the *Heart*, they close the Orifice, and hinder the Blood from recurring into the great Vein. — The same Office do the two Mitral Valves, at the Exit of the left Ventricle, stopping the Return of the Blood into the Pulmonary Vein. See SEMI-*Lunar*, TRICUSPID, and MITRAL.

The Substance of the *Heart* is entirely fleshy, or musculous. — The Antients, indeed, generally took it for a *Parenchyma*; but *Hippocrates* had a juster Sentiment; and after him *Steno* and the Moderns, have evidently found it to consist of a continued Series of proper musculous Fibres, variously contorted, or wound up, and ending at the Orifices of the respective Ventricles, where they form their Tendons.

In dissecting the *Heart*, after taking off the proper Membrane, there appear, on the outer Surface of the right Ventricles, some slender strait Fibres tending to and ending in the Basis. — Immediately under these is a double Order of spiral Fibres, the exterior whereof ascend obliquely from the Septum to the Basis, and form a Sort of *Helix*, or *Cochlea*: The interior take a contrary Course; winding obliquely from the right Side towards the left, so as to encompass both Ventricles, and ending in the Basis on the left Side, form likewise an *Helix* of an inverse Order. — Under these appear the Fibres of the left Ventricle; and first, a spiral Series running to the left; under which, as in the other Ventricle, lie another Order running the contrary Way, which not only extend to the outward Paries, but encompassing the whole Ventricle, make the Septum more immediately appertain to, and be a Part of, the left Ventricle. Some of them, instead of terminating, as the rest do, in the Tendons of the *Heart*, run inwards, and form the *Columnæ Carneæ*; while others, reaching down to the Cone, are wound about it, and form the Circle called the *Centre* of the *Heart*. See CENTRE.

The Fibres of the *Heart* appear to be the same with those of the other Muscles; whence the Part now generally passes for a real Muscle; tho' some think the Inference not over just, inasmuch as the *Aorta* has the same Claim to be reputed a Muscle. See MUSCLE and AORTA.

Some

Some late Authors, upon considering the Structure and Disposition of the spiral Fibres, chuse rather to make the *Heart* a double Muscle, or two Muscles tyed together. — In Effect, the two Ventricles, with their respective Auricles, are found two distinct Bodies, two Vessels, or Cavities, which may be separated, and yet still remain Vessels; the Septum, which was supposed to belong only to the left, being now found to consist of Fibres derived from them both. — To say no more, the two Ventricles, according to M. *Winslow*, are two several Muscles united together, not only by the Septum, but by several Plans of Fibres arising from the exterior Base of the *Heart*, and meeting at the *Apex*, which entering the left Ventricle, lines the Parietes, *&c.*

The *Heart* has also its proper Blood Vessels, *viz.* two Arteries springing from the Entrance of the *Aorta*; and one larger Vein, with one or two lesser; all which, from their encompassing the *Heart*, are called *Coronariæ*. See Coronary.

The Nerves of the *Heart* and its Auricles, come from a Plexus of the *Par Vagum*, called by *Willis*, *Plexus Cardiacus*. See Nerve and Plexus.

It has also *Lymphæducts*, which carry the *Lymph* from the *Heart* to the *Thoracic* Duct. See Lymphæduct.

The Use of the *Heart*, and its appendant Auricles, is to circulate the Blood through the whole Body: In Order to which, they have an alternate Motion of Contraction and Dilatation. — By the Dilatation, call'd the *Diastole*, their Cavity is open'd, and their internal Dimensions enlarged to receive the refluent Blood from the Veins; and by their Contraction, call'd the *Systole*, their Cavity is shrunk, and their Dimensions lessen'd, to expel the Blood again into the Arteries. See Systole and Diastole.

It must be added, that these alternate Motions of the *Heart* and Auricles, are opposite in Time to each other; the Auricles being dilated whilst the *Heart* is contracted again; and contracted whilst it is dilated, to drive the Blood into it. See Auricle.

By Means of the right Ventricle, the Blood is driven through the Pulmonary Vein, from which being received into the Pulmonary Artery, it is returned to the left Ventricle; from which by the *Aorta*, it is distributed all over the rest of the Body, and thence returned to the right Ventricle by the *Vena Cava*; so making an entire Circulation through the whole Body. See Circulation.

Scheuchius speaks of a Man who had no *Heart*; but *Molinetti* denies it: As also that there ever were two *Hearts* found in any Man, tho' the Case be common in divers Insects, which have naturally several *Hearts*; witness Silk-Worms, which have a Chain of *Hearts* running the whole length of their Bodies. But we have incontestable Instances of two *Hearts*, even in the same Man. — There have been *Hearts* found all gnawed and devoured with Worms: *Muretus* open'd the *Hearts* of some *Banditti*, which were all Hairy, or at least invested with a *Tomentum*, or Down. — And what is still more extraordinary, we have Accounts of Persons in whom the *Heart* has been found inverted, or turned upside down; particularly in a Woman hang'd some Time ago in *Saxony*, and a Man hang'd at *Paris*. *Journ. des Scav.*

Timorous Animals have always larger *Hearts* than courageous ones; as we see in Deer, Hares, Asses, *&c.* — There is a Bone found in the Basis of the *Hearts* of certain Animals, particularly Deer; which seems to be no other than the Tendons of the Fibres of the *Heart* indurated and ossified.

Historians relate, that Pope *Urban* VIII. being open'd after his Death, was found to have such a Bone in his *Heart*. The Case is very usual in the Trunk of the *Aorta*, which springs from the *Heart*. See Aorta.

Many amphibious Creatures, as the Frogs, *&c.* have but one Ventricle in the *Heart*. — The Tortoise is said by the *French* Academists to have three Ventricles: M. *Bussiere* charges this on them as a Mistake; and maintains it has but one. The Point is scarce yet ascertain'd. *Mem. de l'Acad. An.* and *Philosoph. Transact.* N°. 328.

Theory of the Motion of the Heart.

The Principle of Motion in the *Heart*, or the Power from which its alternate Contraction and Dilatation arises, has been greatly controverted among the late Physicians and Anatomists.

The Expulsion of the Blood out of the Ventricles, argues a very considerable Motion in the Part. — The motive Power, 'tis certain, must surmount the Resistance made to it; and according to *Borelli*'s Computation, the Resistance made to the Motion of the Blood thro' the Arteries, is equal to 180000 Pounds, which therefore are to be removed by the *Heart*; or else the Circulation must cease. Now, whence comes the Machine of the *Heart* to have such a Power? And after the Expulsion, what other Power is it that surmounts the former, and restores the Part to its State of Dilatation, to produce a reciprocal *Æstus*?

The whole Affair remain'd in the utmost Darkness and Uncertainty, till Dr. *Lower*'s excellent Treatise *De Corde*, where the Mechanism, whereby the Contraction, or Systole, is effected, was admirably explain'd. — The Cause of the Dilatation, or Diastole, which Dr. *Lower* had in great Measure over-look'd, has since been happily supplied by Dr. *Drake*.

That the *Heart* is a Muscle, furnished and instructed for Motion like other Muscles, is abundantly demonstrated by Dr. *Lower* and others; and as it is a solitary Muscle, without any proper Antagonist, and not directly under the Power of the Will, nor exercising voluntary Motion, it approaches nearest to the sphincter Kind, which has these Conditions in common with it. See Sphincter.

But in constant, and regular Alternations of Contraction and Dilatation, the *Heart* differs exceedingly from all the other Muscles of the Body. See Muscle.

This Alternation has given the Learned Abundance of Trouble, who finding nothing peculiar in the Structure, which should necessarily occasion it; nor any Antagonist, whose Re-action should produce it; have been extremely perplexed to find out the Cause.

That, Contraction is the proper Action and State of all Muscles, is evident both from Reason and Experience. For if any Muscle be freed from the Power of its Antagonist, it immediately contracts, and is not by any Action of the Will or Spirits, to be reduced to a State of Dilatation. — Thus, if the Flexors of any Joint be divided; the Extensors of that Joint being by that Means freed from the contrary Action of their Antagonists, the Joint is immediately extended, without any Consent of the Will, and in that State remains; and so *vice versa*, if the Extensors be divided.

Hence it appears, that the ordinary Muscles have no restitutive Motion, but what they derive from the Action of their Antagonists, by which they are ballanced. — Thus the Sphincters of the *Anus*, *Vesica*, &c. having no proper Antagonists, are always in a State of Contraction, and suffer nothing to pass them, but what is forced through them by the contrary Action of some stronger Muscles, which, tho' not properly called Antagonists, yet on all necessary Occasions, perform the Office of such. See Anus, Vesica, *&c.*

We have here, then, an adequate Cause of the Contraction of the *Heart*, viz. the natural *Vis Motrix* of musculous Fibres, whose proper *Nisus*, or Tendency, is to contract themselves. See Muscular and Fibre.

It may be added, however, that tho' the muscular Fibres of the *Heart*, acted by the Nerves, be the immediate Instrument of its Constriction, or Systole, as is shewn by Dr. *Lower*, yet is there another Cause which contributes not a little thereto, and which Dr. *Lower* over-look'd, *viz.* the intercostal Muscles and Diaphragm, which aid and facilitate this Contraction, by opening a Passage for the Blood through the Lungs, which denied, would be an invincible Obstacle. — Add, that the pulmonary Artery and Vein, spreading themselves throughout all the Divisions and Sub-divisions of the *Bronchia* of the Lungs, and being as it were co-extended therewith, must suffer the like Alteration of superficial Dimensions, as the *Bronchia* do in the Elevation and Depression of the *Costæ*. So that while the Ribs are in a State of Depression, whether before Commerce with the external Air, or after, the annular Cartilages of the *Bronchia* shrink one into another, and by that Means their Dimensions are exceedingly contracted: In Conformity to which Condition of the *Bronchia*, the pulmonary Artery and Vein must likewise, either by Means of their muscular Coats, contract themselves to the same Dimensions, or lie in Folds or Corrugations; which is less probable. — On the other Hand, when the Ribs are elevated, and the Diaphragm bears downwards, the Air rushing into the Lungs, shoots out the cartilaginous Rings, and divaricates the Branches of the *Trachea*, and by them extends the several Divisions of the pulmonary Artery and Vein, and thereby lengthens and enlarges their Cavities: And this their alternate Action, will be continued, and imparted to the *Heart*; from which they arise.

Thus is a Passage open'd to the Blood from the light Ventricle of the *Heart*, to the left, through the Lungs, to which it could not otherwise pass; and the Opposition which the Blood, contained in that Ventricle, must otherwise necessarily have made to its Constriction, is taken off; and the Systole thereby facilitated. See Systole.

For the Diastole, or Dilatation of the *Heart*, Dr. *Lower* contents himself to ascribe it to a Motion or Restitution of the over-strained Fibres. — His Words are, 'Since all 'its Motion consists in its Contraction; and the Fibres 'of the *Heart* are made for Constriction only; 'tis evi-'dent, all the Motion of the *Heart* is in its Systole: But, 'as

'as the Fibres are ſtretch'd beyond their Tone in every 'Conſtriction; for this Reaſon, after that *Niſus* is over, 'the *Heart* relaxes again by a natural Motion of Reſtitu- 'tion, and is diſtended by the Influx of new Blood from 'the Veins. The Diaſtole, then, is not effected by any 'further Action of the *Heart* beſide a Remiſſion of its 'former Tenſion, and the Influx of the Blood.'

Now, if Contraction be the ſole Action of thoſe Fibres, as it certainly is, and as the Author here confeſſes; how can their Diſtention, vulgarly tho' improperly, call'd their Relaxation, be a Motion of Reſtitution? For, from the Nature of thoſe Fibres, and their Diſpoſition; the Structure of the *Heart* manifeſtly appears tonical, and its Dilatation a State of Violence. So that the Conſtriction is the true Motion of Reſtitution, and the only State to which it will ſpontaneouſly return when the Force is taken off; and thus we are left ſtill to ſeek for the true Cauſe of the Diaſtole, which appears the moſt difficult Phænomenon relating to the *Heart*.

Mr. *Cowper*, in his Introduction to his *Anatomy*, improves on the Share Dr. *Lower* hints the Blood to have in that Action, and makes it the main Inſtrument of the Dilatation of the *Heart*; in which he is followed by Dr. *Drake*; who, however, differs from him as to the Manner, and Reaſons of its being ſo.

'The *Heart* of an Animal,' ſays Mr. *Cowper*, 'bears a great 'Analogy to the Pendulums of thoſe artificial *Automata*, 'Clocks and Watches, while its Motion is performed like that 'of other Muſcles; the Blood doing the Office of a *Pondus*.' — If he means that the Blood, in its Reflux, by gravitating on the Auricles and Ventricles, dilates and expands them; acting therein as a Counterpoize to its Contraction as a Muſcle; 'tis pity he had not given an Explication at large of ſo abſtruſe and important a Phænomenon: The ſpecific Gravity of the Blood, not ſeeming a Cauſe adequate to the Effect it is here ſuppoſed to produce. — For if the Blood act only as a Weight, by meer Gravitation; ſo much of it only as deſcends from above the *Heart*, can be employed in that Action; which, at the largeſt Computation, does not amount to above five Pound Weight, and muſt be able, according to the Computation of *Borellus*, to overcome a Reſiſtance of 135,000 Pound.

Whatever, therefore, the Force that dilates the *Heart* and is the Cauſe of the Diaſtole, be, it muſt be equal to that of the *Heart*, the intercoſtal Muſcles and Diaphragm; to all which it acts as an Antagoniſt.

Such a Power is hard, perhaps impoſſible, to be found in the Machine of an animal Body; and yet without ſome ſuch Antagoniſt, it is as impoſſible the Circulation of the Blood ſhould be maintained. — All the Engines yet diſcovered within the Body, conſpire towards the Conſtriction of the *Heart*, which is the State of Quieſcence, to which it naturally tends; yet we find it alternately in a State of Violence, or Dilatation: And on this Alternation does all animal Life depend.

Some external Cauſe, therefore, muſt be found to produce this Phænomenon; which Cauſe muſt be either in ſome Quality of the Air, or the Preſſure of the Atmoſphere, becauſe we have no conſtant and immediate Commerce, with any other *Media*.

Some Phyſicians obſerving this, and that deprived by whatſoever Means of Communication with the external Air, we became inſtantly extinct; have imagined, that in the Act of Inſpiration, certain purer Parts of the Air were mixed with the Blood in the Lungs, and conveyed along with it to the *Heart*, where they nouriſhed a Sort of vital Flame, which was the Cauſe of this reciprocal *Æſtus* of the *Heart*. See FLAME.

Others, rejecting an actual Flame, have fancied that theſe fine Parts of Air, mixing with the Blood in the Ventricles of the *Heart*, produced an Effervecence which dilated it. See EFFERVESCENCE.

But theſe Notions have been long exploded, upon ample Conviction; and 'tis a Point yet undetermined, whether any Air does mix with the Blood at all in the Lungs or not. See LUNGS, *&c.*

But, ſuppoſing ſome Air do inſinuate it ſelf into the pulmonary Vein, it can no other Way dilate the *Heart*, than by an Effervecence in the left Ventricle, which would not dilate the right. — But even this Opinion is contradicted by Autopſy, and abundantly confuted by divers Authors. See RESPIRATION.

Upon the whole, the groſs Body of the Atmoſphere appears to be the true Antagoniſt to all the Muſcles ſerving for ordinary Inſpiration, and the Conſtriction of the *Heart*; which is confirmed not only from its ſufficient Power, but the Neceſſity of its Action upon animal Bodies. See ATMOSPHERE.

The *Heart*, we have obſerv'd, is a ſolitary Muſcle, of very great Strength; and the intercoſtal Muſcles and Diaphragm, which likewiſe have no Antagoniſts, are a vaſt additional Force, which muſt be ballanced by the contrary Action of ſome equivalent Power, or other. For tho' the Action of the intercoſtal Muſcles be voluntary, it does not exempt them from the Condition of all other Muſcles ſerving for voluntary Motion, which would be in a State of perpetual Contraction, notwithſtanding any Influence of the Will, were it not for the Libration of antagoniſt Muſcles. This Libration, between other Muſcles, is anſwered by the Weight of the incumbent Atmoſphere, which preſſes upon the *Thorax*, and other Parts of the Body. And as in all other voluntary Motions, the Influence of the Will only gives a Prevalence to one, of two Powers before equilibrated; ſo here it ſerves to enable thoſe Muſcles to lift a Weight too ponderous for their Strength not ſo aſſiſted: So that as ſoon as that Aſſiſtance is withdrawn, the Ribs are again depreſſed by the mere Gravitation of the Atmoſphere, which would otherwiſe remain elevated thro' the natural Tendency of thoſe Muſcles to Contraction.

This is evidently proved from the *Toricellian* Experiment, and thoſe made upon Animals in *Vacuo*; where, aſſoon as the Air is withdrawn, and the Preſſure thereby taken off, the intercoſtal Muſcles and Diaphragm are contracted, and the Ribs elevated in an Inſtant, and cannot by any Power of the Will be made to ſubſide, till the Air is again let in to bear them forcibly down. See VACUUM.

As in the Elevation of the Ribs, the Blood, by the Paſſage open'd for it, is in a Manner ſollicited into the Lungs; ſo in their Depreſſion, by the Subſidence of the Lungs, and Contraction of the Blood Veſſels conſequent thereof, the Blood is forcibly driven thro' the pulmonary Vein into the left Ventricle of the *Heart*. And this, together with the general Compreſſion of the Body by the Weight of the Atmoſphere which ſurrounds and preſſes on its whole Surface, is that Power which cauſes the Blood to mount in the Veins, after the Force impreſs'd upon it by the *Heart* is broken and ſpent, and which ſuffices to force the *Heart* from its natural State to Dilatation.

Upon computing the Weight of a Column of Air equal to the Surface of the Body, it appears a Power ſufficient for the Effects here aſcribed to it: And conſidering that the Bodies of Animals are compreſſible Machines, it appears that it muſt of Neceſſity affect them in the Manner here laid down. — And yet, tho' our Bodies be entirely compoſed of *Tubuli*, or Veſſels filled with Fluids, this Preſſure, how great ſoever, being equal every Way, could not affect them, were it not that the ſuperficial Dimenſions are eaſily variable; becauſe, being compreſs'd on all Parts with the ſame Degree of Force, the contained Fluids could not any where begin to recede, and make Way for the reſt to follow, but would remain as fix'd and immoveable, as if they were actually ſolid. See FLUID. — But, by the Dilatation of the *Thorax*, Room is made for the Fluids to move; and by the Coarctation of it, freſh Motion is impreſt; which is the great Spring whereby the Circulation is ſet and kept going.

This reciprocal Dilatation and Contraction of the ſuperficial Dimenſions of the Body, ſeems ſo neceſſary to animal Life, that there is not any Animal ſo imperfect as to want it, at leaſt none to which our anatomical Enquiries have yet reach'd. — For tho' moſt Kinds of Fiſh, and Inſects, want both moveable Ribs and Lungs, and conſequently have no dilatable *Thorax*; yet that Defect is ſupplied by an analogous Mechaniſm, anſwering ſufficiently the Neceſſities of their Life. — Thus, Fiſhes, which have no Lungs, have Gills to do the Office of Lungs, receiving and expelling alternately the Water, whereby the Blood-Veſſels ſuffer the ſame Alteration of Dimenſions, as in the Lungs of more perfect Animals. See GILLS.

Add, that the Lungs, or Air-Veſſels of Inſects, are much more different from thoſe of perfect Animals, than thoſe of Fiſhes are; and yet in their Action and Uſe, agree perfectly with both; that is, removing and expelling the Air, and varying the Dimenſions and Capacities of the Blood Veſſels. Having no *Thorax*, or ſeparate Cavity for the *Heart* and Air-Veſſels, the latter are diſtributed thro' the whole Trunk; by which they communicate with the external Air through ſeveral Spiracles or vent Holes, to which are fitted ſo many little *Tracheæ* or Wind-Pipes, which thence ſend their Branches to all the Muſcles and *Viſcera*, and ſeem to accompany the Blood-Veſſels all over the Body, as they do in the Lungs of perfect Animals. By this Diſpoſition, in every Inſpiration, the whole Body is inflated, and in every Expiration compreſſed; and conſequently the Blood-Veſſels muſt ſuffer a Viciſſitude of Extention and Contraction, and a greater Motion be thereby impreſſed on the contained Fluids, than the *Heart*, which in theſe Creatures does not appear to be muſcular, would be capable of giving. — The only Animal, exempted from this neceſſary Condition of receiving and expelling alternately ſome Fluid in and out of the Body, is a Fœtus:

 But

But this, while included in the Womb, ſeems to have little more than a vegetative Life; and ought ſcarce to be reckon'd among the Number of Animals: And were it not for that ſmall Share of muſcular Motion which it exerciſes in the Womb, it might, without Abſurdity, be accounted a Graft upon, or Branch of the Mother. See FOETUS, EMBRYO, &c.

One Difficulty we muſt not here conceal, which will lie againſt the whole Doctrine, *viz.* That the *Hearts* of ſeveral Animals have been found to beat regularly and ſtrongly, even in *Vacuo*; not leſs ſo than in the Air. Witneſs the *Hearts* of Frogs, tried by Mr. *Boyle*. *Philoſoph. Tranſact.* N°. 62.

Eſtimate of the Force of the HEART.

The Quantity of the Force of the *Heart* has been variouſly eſtimated, and on various Principles; by various Authors, particularly *Borelli*, *Morland*, *Keill*, *Jurin*, &c.

The Force of the *Heart* may be defined by the Motion wherewith the *Heart* contracts; or by the Motion of a Weight which being oppoſed to the Blood at its Exit out of the *Heart*, will juſt balance and ſtop the ſame. — This we have no Way of coming at *a priori*; the internal Structure of the Part, and the Nature and Power of the contracting Cauſe being but imperfectly known: So that the only Means remaining, is to eſtimate it by the Effects.

All the Action of the *Heart* conſiſts in the Contraction of its Ventricles: The Ventricles contracting, ſtrike or preſs upon the Blood, and communicating Part of their Motion thereto, drive it out with Vehemence where the Paſſage is open. — The Blood thus protruded into the *Aorta*, and pulmonary Artery, preſſes every Way; partly againſt the Coats of the Arteries, which by the laſt Diaſtole had been left in a collapſed, flaccid State; and partly againſt the anterior Blood moving on too ſlowly before it. By ſuch Means the Coats of the Arteries are gradually diſtended, and the antecedent Blood has its Motion accelerated. — By the Way it may be obſerved, that the more flaccid the Arteries are, the leſs Reſiſtance will they make to a Dilatation; and the more they are dilated, the more ſtrongly will they reſiſt a further Diſtraction; ſo that the Force of the Blood, at its Egreſs out of the *Heart*, is at firſt ſpent in diſtending the Arteries, more than protruding the antecedent Blood; but afterwards more in protruding the Blood, than in diſtending the Arteries.

Borelli, we have already obſerved, in his *Oecon. Animal.* makes the Obſtacles to the Motion of the Blood thro' the Arteries, equivalent to 180,000 Pounds; and the Force of the *Heart* it ſelf, only equal to 3,000 Pound, which is only $\frac{1}{60}$ of the Oppoſition it has to overcome. Then, deducting 45,000 Pound for the adventitious Help of the muſcular Elaſtic Coat of the Arteries; he leaves the *Heart* with a Force of 3,000 Pound, to overcome a Reſiſtance of 135,000 Pound; that is, with 1 to remove 45; which he ſuppoſes it enabled to do by Virtue of Percuſſion.

But had he proceeded in his Calculation to the Veins, which he allows to contain Quadruple the Quantity of Blood as the Arteries do, and to which this Energy of Percuſſion either does not reach at all, or very languidly; he would readily have ſeen the Syſtem of Percuſſion to be inſufficient.

But his Calculus it ſelf is alſo found to be faulty; the Force aſcribed by him to the *Heart* being immenſely too great. — Dr. *Jurin* ſhews, that had he not made a Miſtake in the Computation, the Reſiſtance which the *Heart* has to overcome, muſt have come out, on his own Principles, much greater; and inſtead of 135,000 Pound, would have been 1,076,000 Pound, which tranſcends all Probability.

The great Faults in his Solution conſiſt, according to Dr. *Jurin*, in his eſtimating the motive Force of the *Heart* by a Pondus at reſt; in ſuppoſing the whole Weight ſuſtain'd by a Muſcle, in one of his Experiments, to be ſuſtain'd wholly by the contracting Force thereof; in aſſuming Muſcles, equally heavy, to be of equal Force: In ſuppoſing the utmoſt Force of the *Heart* exerted at every Syſtole, &c.

Dr. *Keill*, in his Eſſays of the *Anim. Oecon.* firſt ventured to ſet aſide *Borelli*'s Calculus; and ſubſtituted another, almoſt infinitely ſmaller, in its Stead. His Method of eſtimating the Force of the *Heart* is as follows: — Having the Velocity wherewith a Fluid flows out at an Orifice, without meeting any Reſiſtance from an anterior Fluid; the Force which produces that Motion is thus determined. Let the Line A B be the heighth from which a falling Body will acquire a Velocity equal to that wherewith the Fluid flows out at the Orifice; then is the Force which produces the Motion of this Fluid, equal to the Weight of a Cylinder of the ſame Fluid, whoſe Baſe is equal to the Orifice, and Weight equal to 2 A B: *Coroll.* 2. *Prop.* 36. *Lib.* II. Newton *Princip.*

A
B

Now, the Blood flowing out of the *Heart*, is reſiſted in its Motion by the anterior Blood in the Arteries and Veins, and therefore cannot flow with all the Velocity the Force of the *Heart* will give it; part of that Force being ſpent in overcoming the Reſiſtance of the Maſs of Blood. If therefore we knew how much the Velocity of the Blood is diminiſhed by this Reſiſtance, or what Proportion the Velocity of the Blood reſiſted, has to the Blood driven out, and not reſiſted; having already determined the Velocity of the Blood as it is reſiſted, we might eaſily recollect the Velocity, by which the Blood would flow were it not reſiſted; and from thence, the abſolute Force of the *Heart*.

To find this, the Author made the following Experiment. — Having uncover'd the *Iliack* Artery and Vein in the Thigh of a Dog, near his Body; and paſſed convenient Ligatures under them; he open'd the whole Diameter of the Veſſels, and received the Blood which run from it in the Space of ten Seconds: The ſame was afterwards done by the Artery, for the ſame Space of Time; and both the Quantities of the Blood were exactly weighed. The Experiment was repeated for the greater Security: Till, the Quantity of Blood from the Artery, was found at a Medium, to that from the Vein in the ſame Space of Time, nearly as $7\frac{1}{2}$ to 3.

Now, the Velocity of the Blood in the *Iliack* Artery, ſo near the *Aorta*, muſt be nearly the ſame with that in the *Aorta* it ſelf; and conſequently the Velocity with which it flows out of the *Iliack* Artery cut aſunder, is the ſame with which it would flow out of the *Heart* unreſiſted: Or, the Blood runs thro' a Wound in the *Iliack* Artery, with all the Velocity it received from the *Heart*. Now all the Blood which runs along the *Iliack* Artery, returns again by the *Iliack* Vein; and conſequently, the Quantities of Blood which paſs thro' both in the ſame Space of Time, are equal. The Quantity of Blood, therefore, which runs out of the *Iliack* Vein cut aſunder, is the ſame which ran thro' the *Iliack* Artery, before it was cut, in that Space of Time. Having, therefore, the Quantity which runs thro' the *Iliack* Artery when it is cut, and when it is not cut, we have their Velocities; for the Velocity of a Fluid, running thro' the ſame Canal, in equal Spaces of Time, is directly as their Quantities: But the Velocity of the Blood, when the Artery is cut, is equal to that it receives by the full Force of the *Heart*; and the Velocity when it is not cut, is that Velocity with which the Blood moves thro' the *Aorta*, reſiſted by the anterior Blood: And therefore theſe two Velocities are to one another as $7\frac{1}{2}$ to 3.

If now the *Heart* throws out two Ounces of Blood every Syſtole, which is a probable Aſſumption, then the Blood moves thro' the *Aorta* at the Rate of 156 Feet in a Minute; and therefore the abſolute Velocity, wherewith the Blood would be forced into the *Aorta*, did it find no Reſiſtance, is ſuch as would make it move 390 Feet in a Minute, or $6\frac{1}{2}$ Feet in a Second.

We now proceed to enquire, what is the Height from which a falling Body will acquire this given Velocity; for this Height doubled, gives the Length of the Cylinder whoſe Baſe is equal to the Orifice of the *Aorta*, and Weight equal to the abſolute Force of the *Heart*.

It is known by Experiment, that the Force of Gravity will make a Body move 30 Feet in a Second, which is the Velocity it acquires in falling thro' 15 Feet; and therefore this Velocity is to the Velocity of the Blood flowing without Reſiſtance into the *Aorta*, as 30 to 6.5: But becauſe the Heights from which Bodies acquire given Velocities, are as the Squares of the Velocities, that is, as 900 to 42.25; therefore, as 900 to 42.25, ſo is 15 to 0.74. — This Height doubled, gives 1.48, or in Inches 17.76, which is the Height of a Cylinder of Blood, whoſe Baſe is equal to the *Aorta*, which we have ſuppoſed to be equal to 0.4187; and therefore the ſolid Content is 7.436112, the Weight of which is equal to the abſolute Force of the *Heart*.

This Weight is five Ounces, whence the *Force of the* Heart *is found equal to the Weight of five Ounces.*

The ſame Author, by another Method of Calculating, from the Laws of Projectiles, finds the Force of the *Heart* almoſt equal to 8 Ounces, which tho' ſomewhat more than was before determined, yet the Difference is of no ſmall Moment in Reſpect of *Borelli*'s Account; the great Failing in whoſe Calculation Dr. *Keill* takes to ariſe from his not diſtinguiſhing between the Blood at reſt, and already in Motion. — The Force of the *Heart*, 'tis certain, is not employ'd in giving Motion to any Quantity of Blood at reſt, but only to continue it in Motion; how that Motion firſt aroſe, ſeems out of human Capacity to determine. 'Tis demonſtrable, that if the Reſiſtance of the Blood always bore the ſame Proportion to the Force of the *Heart* it

it does now, the Blood never could at first be put in Motion by the *Heart*. If the Blood constantly moved forwards, with the Motion first communicated to it; and did the Coats of the Vessels make no Resistance; the posterior Blood would not be retarded by the anterior, and the Force of the Blood would equal the intire Force of the Mover. But because of the Resistance made by the Coats of the Blood-Vessels, and the Force which is spent in distending them, the Blood is continually retarded in its Motion as it circulates, and would in a short Time stop, were not the Motion lost made up again by a fresh Impulse from the *Heart*; and therefore the Force of the *Heart* must be equal to the Resistances the Blood meets with in its Motion: If it were more, the Velocity of the Blood would be continually increasing; if less, it would continually decrease; and at last stop: And hence it is evident, that if the Circulation of the Blood was once stopped, all the Force of the *Heart* could never set it moving again.

Thus much for Dr. *Keill*'s System: — Dr. *Jurin* charges even this with its Defects; and particularly in that it supposes the Weight, whereby the Motion of Water running out at a Vessel may be generated, to be what generates that Motion: Which, this last Author takes for a Misapprehension of Sir *Isaac Newton*'s Corollary; urging, that the Water falling by the Power of Gravity, acquires its Motion of it self; and that the Weight falling the same Time, only receives a Motion equal to that of the Water out of the Vessel. — There are some other Points which he objects against; and of which the learned Author, has an express Vindication in the *Philosoph. Transactions*; to which his Antagonist has since reply'd: But the Author dying in the mean Time prevented any Rejoynder.

Dr. *Jurin*, however, proceeds to give another Computation, on more unexceptionable Principles; tho' his Adversary has found occasion therein for Recrimination.

He considers one of the Ventricles of the *Heart* impelling the Blood, as a given Body impelling another at Rest, with a given Velocity; and after communicating Part of its Motion thereto, proceeding with the same common Velocity. On which Principle the Force of the *Heart* will either be equal to the Factum of the Weight of the Ventricle, and its initial Velocity ere it impels the Blood; or to the Sum of the Motions of the Ventricle and the Blood flowing out of the same, and the Motion communicated to the Coats of the Arteries and the antecedent Blood.

Now, it is demonstrable: 1°. That the Motion whereby a hollow Machine, unequally contractile, does act in Contraction, is equal to the Sum of the Factums of the several Particles of the Machine multiplied into their respective Velocities. Whence it follows, that the Motion of the Machine is equal to the Factum of its Weight into some mean Velocity between the Particles moved swiftest, and those moved slowest. — 2°. That if the Water be express'd out of the Orifice of such a Machine, the Motion of the Water, bursting out of the same, will be equal to the Sum of the Facta of any transverse Sections of all the Threads of Water, severally multiplied into their respective Lengths and Velocities: Whence it follows, that the Motion of the Water is equal to the Factum of the Water issuing out at the Orifice into some mean Length between that of the longest Thread and the shortest. Hence, also, if there be several such Machines full of Water, and contracted alike, whether equally or unequally, the Motion of the Water, bursting out at the Orifice of one of them, will be in a Ratio compounded of the Quadruple Ratio of any homologous Diameter of the Machine, and the reciprocal Ratio of the Time wherein the Contraction is effected.

From these Data is drawn a Solution of the Problem, *To find the Force of the Heart*? — For, calling the Weight of the left Ventricle, or the Quantity of Blood equal to the same, p; the inner Surface of the Ventricle, S; the mean length of the Filaments, or Threads of Blood expell'd from the same, l; a Section of the *Aorta*, s; the Quantity of Blood, contain'd in the left Ventricle, q; the Time wherein the Blood would be thrown out of the *Heart*, were the Resistance of the Arteries and antecedent Blood removed, t; the variable Velocity, wherewith the Blood would flow thro' the *Aorta*, if the Resistance were taken away, v; the variable Length of the *Aorta*, pass'd over by the Blood, x; and the Time wherein the length x is run, z. — The mean variable Velocity of the Blood contiguous to the Ventricle, or the mean Velocity of the Ventricle it self will be $= \frac{sv}{S}$; the Motion of the Ventricle, $= p \times \frac{sv}{S}$; the Motion of the Blood issuing out, $= sv \times \overline{l + x}$; and their Sum, or the Force of the Ventricle, $= sv \times \frac{p}{S} + l + x$. But, $v = \frac{x}{z}$; whence, by the inverse Method of Fluxions, the Force of the Ventricle is found $= \frac{sx}{z} \times \frac{p}{S} + \frac{x}{2} + l$. But since $z = t$; $sx = q$. And hence, the Force of the Ventricle $= \frac{q}{t} \times \overline{\frac{p}{S} + \frac{q}{2s}} + l$. After the like Manner the Force of the right Ventricle, (noting the same Things by *Greek* Letters, which in the left are denoted by *Italic* ones) is found $= \frac{q}{t} + \overline{\frac{\pi}{\Sigma} + \frac{q}{2\sigma}} + \lambda$. So that the whole Force of the *Heart* is $= \frac{q}{t} \times \frac{p}{S} + \frac{\pi}{\Sigma} + \frac{q}{2S} + \frac{q}{2\sigma} + l + \lambda$. *Q. E. F.*

If now we suppose $p = 8$ Ounces, and π to 4 Ounces, avoird; $S = 10$ Square Inches, and $\Sigma =$ to as much; $l = 2$, and $\lambda = 1\frac{1}{2}$ Inches; $q = 2$ Ounces, avoird; $s = 0{,}4185$ Square Inches, $\sigma = 0{,}583$; and $t = 0\ 1''$: The Forces of the Ventricles will be equal to the Weights underwritten, *viz.*

	Lib.	*Oz.*
Of the left Ventricle, — — — —	9	1
Of the right Ventricle, — — — —	6	3
Force of the whole Heart, — — —	15	4

Which Weights have a Velocity, wherewith they wou'd move an Inch each Second of a Minute.

Cor. Hence it is infer'd, that when the Pulse is quicker than ordinary, either the Resistance is less than ordinary, or the Force of the *Heart* is increas'd, or a less Quantity of Blood than usual is expell'd at each Contraction of the *Heart*; and *vice versa*. — As also, that if the Resistance be either increas'd or diminish'd; either the Pulse, or the Quantity of Blood expell'd at each Contraction, will be either increas'd or diminish'd respectively. — And that if the Force of the *Heart* be increas'd or diminish'd, either the Pulse must be accelerated, or the Resistance diminish'd. See PULSE.

On these Principles, Dr. *Jurin* proceeds to demonstrate the three following Theorems.

1°. That the whole Motion of Resistance made to the Blood, issuing out of the *Heart* in the Systole, or the whole Motion communicated to the antecedent Blood and the Coats of the Arteries, is equal to the whole Force of the *Heart*, *quam proxime*.

2°. That the Motion communicated to the antecedent Blood in a Systole, is to the Motion communicated to the Coats of the Arteries, as the Time of the Systole is to the Time of Diastole. Whence if, with Dr. *Keill*, we suppose the Systole perform'd in one third of the Interval between two Pulses, the Motion communicated to the antecedent Blood will be $\frac{1}{3}$ of the whole Motion of the *Heart*; and that communicated to the Arteries $\frac{2}{3}$.

3°. In different Animals, the Force of the *Heart* is in a Ratio compounded of the Quadruple Ratio of the Diameter of any homologous Vessel, and the inverse Ratio of the Time wherein the *Heart* is contracted; or a Ratio compounded of the Ratio of the Weight either of the *Heart*, or the whole Animal; the subtriplicate Ratio of the same Weight, and the reciprocal Ratio of the Time.

HEART-*Burn*, a Disease, among Physicians usually call'd *Cardialgia*. See CARDIALGIA.

The Testaceous Powders, as Oyster-Shells, Crabs-Eyes, &c. are the usual Remedies. See TESTACEOUS.

HEART *of a Tree*, the middle Part thereof, taken longitudinally, is called so. See TREE and TIMBER.

HEART, in the Manage. — A Horse that works in the Manage, with Constraint and Irresolution, and can't be brought to consent to it, is said to be a Horse of *two Hearts*.

HEARTH, *Focus*. See FIRE, CHIMNEY, &c.

HEARTH-*Money*. See CHIMNEY-*Money*.

HEARTH-*Stones*. See FIRE-*Stone*.

HEAT, *Calor*, one of the primary Qualities of Bodies; opposed to *Cold*. See QUALITY and COLD.

Or, *Heat* may be defined a Physical Being, whose Presence is known, and its Degree measured, by the Expansion of the Air, or Spirit, in the Thermometer. See THERMOMETER.

Heat is properly a Sensation, excited in us by the Action of Fire: Or it is the Effect of Fire on our Organ of Feeling. See SENSATION and FIRE.

Hence it follows, that what we call *Heat*, is a particular Idea, or Modification of our own Mind; and not any Thing existing in that Form in the Body that occasions it. — *Heat* is no more in the Fire that burns the Finger, than Pain in the Needle that pricks it. — In Effect, *Heat*, in the Body that gives it, is only Motion; in the Mind, only a particular Idea, or Disposition of the Soul. See IDEA.

Heat,

Heat, with Respect to our Sensation, or the Effect produced on us by a *hot* Body, is estimated by its Relation to the Organ of Feeling; no Object appearing to be *hot*, unless its *Heat* exceed that of our Body: Whence, the same Thing to different Persons, or at different Times to the same Person, shall appear both *Hot* and *Cold*.

Heat, as it exists in the hot Body; or that which constitutes and denominates a Body *hot*, and enables it to produce such Effects on our Organ; is variously consider'd by the Philosophers. — Some will have it a Quality, others a Substance, and others only a Mechanical Affection, *viz.* Motion.

Aristotle, and the *Peripateticks*, define *Heat* a Quality, or Accident, whereby homogeneous Things, *i. e.* Things of the same Nature and Kind, are collected or gather'd together; and heterogeneous ones, or Things of different Nature, sever'd or dis-united. — Thus, says he, the same *Heat* which associates and brings into a Mass several Particles of Gold before separate, separates the Particles of two Metals before mix'd together.

But, not only the Doctrine, but the very Instance he produces, is faulty: For *Heat*, tho' continued to Eternity, will never separate a Mass, *e. gr.* of Gold, Silver, and Copper: And, on the contrary, if several Quantities of Gold, Silver, and Copper, be put separately in a Vessel over a Fire; notwithstanding all their Heterogeneity, they will be mix'd and congregated into a Mass thereby.

In Effect, *Heat* cannot be said to do either this Thing or that universally; but all its Effects depend on the Circumstances of Application. — Thus, to do the same Thing in different Bodies, different Degrees of *Heat* are required; as, to mix Gold and Silver, the *Heat* must be in a moderate Degree, but to mix Mercury and Sulphur in the highest. See Gold, Silver, &c.

Add, that the same Degree of *Heat* shall have opposite Effects: — Thus a vehement Fire shall render Water, Oils, Salts, &c. volatile; and yet the same imbody Sand and a fix'd alcaline Salt, into Glass. See Glass.

The *Epicureans*, and other *Corpuscularians*, define *Heat* not as an Accident of Fire, but as an essential Power or Property thereof, the same, in Reality, with it, and only distinguish'd therefrom in the Manner of our Conception.

Heat, then, on their Principles, is no other than the volatile Substance of Fire it self, reduced into Atoms, and emitted in a continual Stream from ignited Bodies; so as not only to *warm* the Object within its reach, but also, if they be inflammable, to *kindle* them, turn them into *Fire*, and conspire with them to make *Flame*.

In Effect, these Corpuscles, say they, flying off from the ignited Body, while yet contain'd within the Sphere of its Flame, by their Motion constitute Fire; but when fled, or got beyond the same, and dispersed every Way, so as to escape the Apprehension of the Eye, and only to be perceivable by the feeling, they take the Denomination of *Heat*; inasmuch as they still excite in us that Sensation.

The *Cartesians*, improving on this Doctrine, assert *Heat* to consist in a certain Motion of the insensible Particles of a Body, resembling the Motion whereby the several Parts of our Body are agitated by the Motion of the Heart and Blood. See Heart and Blood.

Our latest, and best Writers of Mechanical, Experimental, and Chymical Philosophy, differ very considerably about *Heat*. — The fundamental Difference is, whether it be a peculiar Property of one certain immutable Body call'd *Fire*: Or whether it may be produced mechanically in other Bodies, by inducing an Alteration in the Particles thereof.

The former, which is as antient as *Democritus*, and the System of Atoms; had given Way to that of the *Cartesians* and other Mechanists; but is now with great Address retriev'd and improved on by some of the latest Writers, particularly *Homberg*, the younger *Lemery*, *Gravesande*, and above all, the learned and industrious *Boerhaave*, in a Course of Lectures expressly on *Fire*; the Result whereof we have already laid down under the Article Fire.

The Thing we call *Fire*, according to this Author, is a Body, *Sui generis*, created such *ab Origine*, unalterable in its Nature and Properties, and not either producible *de Novo*, from any other Body, nor capable of being reduced into any other Body, or of ceasing to be Fire.

This Fire, he contends, is diffused equably every where, and exists alike, or in equal Quantity, in all the Parts of Space, whether void, or possess'd by Bodies; but that naturally, and in it self, is perfectly latent and imperceptible; and is only discover'd by certain *Effects* which it produces, and which are cognizable by our Senses.

These Effects are *Heat*, Light, Colour, Rarefaction and Burning; which are all Indications of Fire, as being none of them producible by any other Cause: So that wherever we observe any of these, we may safely infer the Action and Presence of Fire.

But, tho' the Effect cannot be without the Cause, yet the Fire may remain without any of these Effects; any, we mean, gross enough to affect our Senses, or become Objects thereof: And this, he adds, is the ordinary Case; there being a Concurrence of other Circumstances, which are often wanting, necessary to the Production of such sensible Effects.

Hence, particularly, it is, that we sometimes find several, and sometimes all of these Effects of Fire together, and sometimes one unaccompanied with any others; according as the Circumstances favour or dispose for the same. — Thus we find Light without *Heat*; as in rotten Wood, putrid Fishes, or the mercurial Phosphorus: Nay, and one of them may be in the highest Degree, and the other not sensible; as in the Focus of a large burning Glass exposed to the Moon, where, tho' the Light, as Dr. *Hook* found, was sufficient to have instantly blinded the best Eye, yet no *Heat* was perceivable, nor was there the least Rarefaction occasion'd in an exquisite Thermometer. See Light.

On the other Hand, there may be *Heat* without Light, as we find in solid Phosphorus; in Fluids, which emit no Light, even when they boil, and not only *heat* and rarify, but also burn or consume the Parts; and in Metals, Stones, &c. which conceive a vehement *Heat* ere they shine, or become ignited. — Nay, and there may be the most intense *Heat* in Nature without any Light: Thus in the Focus of a large burning concave, where Metals melt, and the hardest Gems vitrify, the Eye perceives no Light; so that should the Hand happen to be put there, it would be instantly turn'd into a Coal, or even a Calx.

So also Rarefractions are frequently observed by the Thermometer, in the Night Time, without either *Heat* or Light, &c.

Thus it appears, that the Effects of Fire have a Dependance on other concurring Circumstances; some more, and others less. — One Thing seems to be required in common to them all, *viz.* that the Fire be *collected* or brought into less Compass: Without this, as Fire is every where equably diffused, it could have no more Effect in one Place than another, but must either be disposed to warm, burn, and shine every where, or no where. Indeed such every where does amount to no where; for to have the same *Heat*, &c. in every Place, would be to have no *Heat*: 'Tis only the Changes that we perceive; those alone make the Mind distinguish in its State, and become conscious of the Things that diversify it. So our Bodies being equally press'd on all Sides by the ambient Air, we feel no Pressure at all; but if the Pressure be only taken off in any one Part, as by laying the Hand over an exhausted Receiver, we soon grow sensible of the Load.

This Collection is perform'd two Ways: The first, by *directing* and *determining* the fluctuating Corpuscles of Fire into Lines, or Trains, call'd *Rays*; and thus driving infinite Successions of the fiery Atoms, upon the same Place or Body, each to produce its several Effort, and second that of the preceding ones, till by a Series of Augmentations, the Effect is sensible. — This is the Office of those Bodies which we call *Luminaries*; such as the Sun, and other heavenly Bodies; and Culinary Fires, Lamps, &c. on Earth, which do not emit the Fire from their own Substance, as is commonly conceiv'd, but only by their rotatory Motation direct the undetermined Corpuscles into parallel Rays. And the Effect may be still further intended by a second Collection of these parallel, into converging Rays, by Means of a Concave Speculum, or a Convex Glass, which at length bring them all into a Point; whence those astonishing Effects of our large burning Glasses, &c. See Ray, Parallel, Convex, Burning *Glass*, &c.

The second Way wherein the Collection is made, is not by determining the vague Fire, or giving it any new Direction; but merely by assembling it; which is done by the *Attrition*, or rubbing of two Bodies swiftly against each other; so swiftly, in Effect, as that nothing in the Air, except the floating Fire, has Activity enough to move an equal Pace, or succeed fast enough into the Places continually relinquish'd by it: By which Means Fire, the most agile Body in Nature, slipping in, becomes collected in the Path of the moving Body; so that the moveable has, as it were, a fiery Atmosphere around it. — Thus it is the Axes of Chariot Wheels, Mill-stones, the Ropes of Ships, Cannon-Balls, &c. conceive *Heat*, and frequently kindle into Flame.

Thus much for the Circumstance in *Heat*, common to all the Effects of Fire, *viz.* Collection. — The particular Circumstances are various: Thus, for it to warm, or to *heat*, i. e. give the Sensation of it, 'tis necessary that there be more Fire in the *hot* Body, or Thing, than in the Organ whereby it is to be felt; otherwise the Mind will not be put into any new State upon its Approach, nor have any new Idea. — Whence, also, if the contrary to this obtains, *v. gr.* if there be less Fire in the external Object

Object than in the Organ, it will raise an Idea of Cold, or Chillinesſ.

Thus it is that a Man coming out of a hot Bath, into a moderately warm Air, seems as if he were got into an excessively cold Place; and another entering a Room scarcely warm, in a very pinching Day, will at first fancy himself in a Stove. — Whence it appears, that the Sense of *Heat* does by no Means determine the Degree of Fire; the *Heat* being only the Ratio, or Difference, between the internal and external Fire.

As to the Circumstances necessary to the Fires producing Light, Burning, Rarefaction, *&c.* See LIGHT, BURNING, *&c.*

The mechanical Philosophers, particularly my Lord *Bacon*, Mr. *Boyle*, and Sir *Isaac Newton*, look on *Heat* in another Light. — They do not conceive it as an original inherent Property of any particular Sort of Body; but mechanically producible in any Body.

My Lord *Bacon*, in an express Treatise *de Forma Calidi*, deduces, from a particular Enumeration of the several Phænomena and Effects of *Heat*:

1°. That *Heat* is Motion: Not, that Motion generates *Heat*, or *Heat* Motion; tho' in many Cases, this be true: But, that the very Thing *Heat* is very Motion, and nothing else. — But this Motion, he shews, has several peculiar Circumstances which constitute it *Heat*.

As, 2°. That it is an expansive Motion, whereby a Body endeavours to dilate or stretch into a larger Dimension than it had before.

3°. That this expansive Motion is directed towards the Circumference, and at the same Time upwards; which appears hence, that an Iron Rod being erected in the Fire, will burn the Hand that holds it, much sooner than if put in laterally.

4°. That this expansive Motion is not equable, and of the whole, but only of the smaller Particles of the Body; as appears from the alternate Trepidation of the Particles of hot Liquors, ignited Iron, *&c.* — Lastly, that this Motion is very rapid.

Hence, he defines *Heat* an expansive, undulatory Motion, in the minute Particles of the Body; whereby they tend, with some Rapidity, towards the Circumference, and at the same Time incline a little upwards.

Hence, again, he adds, that if in any natural Body, you can excite a Motion whereby it shall expand or dilate it self; and can so repress and direct this Motion upon it self, as that the Dilatation shall not proceed uniformly, but obtain in some Parts, and be check'd in others, you will generate *Heat*.

This Doctrine, *Des Cartes* and his Sect adhere to with some little Variation. — According to them, *Heat* consists in a certain Motion, or Agitation of the Parts of a Body, like to that wherewith the several Parts of our Body are agitated by the Motion of the Heart and Blood. See CALIDUM.

Mr. *Boyle*, in a Treatise of the *Mechanical Origin of Heat and Cold*, strenuously supports the Doctrine of the Producibility of *Heat*, with new Observations and Experiments: As a Specimen, we shall here give one or two.

In the Production, says he, of *Heat*, there appears nothing, on the Part either of the Agent or Patient, but Motion and its natural Effects. — When a Smith briskly hammers a small Piece of Iron, the Metal thereby becomes exceedingly hot; yet there is nothing to make it so, except the forcible Motion of the Hammer, impressing a vehement and variously determined Agitation on the small Parts of the Iron, which being a cold Body before, grows, by that super-induced Commotion of its small Parts, hot: First, in a more loose Acceptation of the Word, with Regard to some other Bodies, compared with which it was Cold before: And then sensibly *Hot*, because this Agitation surpasses that of the Parts of our Fingers; and in this Instance, oftentimes, the Hammer and the Anvil continue cold, after the Operations; which shews that the *Heat*, acquir'd by the Iron, was not communicated by either of those Implements as *Heat*, but produced in it by Motion great enough strongly to agitate the Parts of so small a Body as the Piece of Iron, without being able to have the like Effect upon so much greater Masses of Metal, as the Hammer and the Anvil. Tho', if the Percussions were often, and briskly renew'd, and the Hammer were small; this also might be *heated*. — Whence it is not necessary that a Body it self should be hot to give *Heat*.

If a large Nail be driven by a Hammer into a Plank of Wood, it will receive several Strokes on its Head, ere it grow hot; but when it is once driven to the Head, a few Strokes suffice to give it a considerable *Heat*: For while, at every Blow of the Hammer, the Nail enters farther into the Wood, the Motion produced is chiefly progressive, and is of the whole Nail tending one Way; but when the Motion ceases, the Impulse given by the Stroke, being unable to drive the Nail further on, or break it, must be spent in making a various, vehement, and intestine Commotion of the Parts among themselves, wherein the Nature of *Heat* consists. *Mech. Product. of Heat and Cold.*

That *Heat*, says the same Author, is mechanically producible, appears probable from a Consideration of its Nature, which seems principally to consist in that mechanical Property of Matter called Motion; but which is here subject to three Conditions or Modifications.

First, the Agitation of the Parts of the Body must be vehement. — For this distinguishes the Bodies said to be *hot*, from those which are barely fluid. — Thus, the Particles of Water, in its natural State, move so calmly, that we do not feel it at all warm, tho' it could not be a Liquor, unless they were in a restless Motion; but when Water becomes actually *hot*, the Motion manifestly and proportionably appears vehement, since it does not only strike our Organs of Feeling briskly, but ordinarily produce numerous very small Bubbles, melts coagulated Oil cast upon it, and affords Vapours, which by their Agitation ascend into the Air. — And if the Degree of *Heat* be such as to make the Water boil, the Agitation becomes more manifest by the confused Motions, Waves, Noise, Bubbles, and other obvious Effects, excited therein. Thus, in a heated Iron, the vehement Agitation of its Parts may be easily inferred from the Motion, and the hissing Noise it makes with the Drops of Water that fall upon it. — But tho' the Agitation be various, as well as vehement, yet there is a third Condition required to make a Body *hot*; which is, that the agitated Particles, or at least the greatest Number of them, be so minute, as to be singly insensible. — Were an Heap of Sand to be vehemently agitated by a Whirl-wind, the Bulk of the Corpuscles would keep their Agitation from being properly *Heat*, tho' by their numerous Strokes upon a Man's Face, and the brisk Commotion of the Spirits, which may thence ensue, they may perhaps produce that Quality.

The second Condition is, that the Determination be very various, and tend all manner of Ways. — This Variety of Determinations appears to be in *hot* Bodies, both by some of the Instances already mentioned, and especially that of Flame, which is a Body; by the Dilatations of Metals when melted; and by the Operations of *Heat*, exercised by *hot* Bodies upon others, in what Posture or Situation soever the Body to be *heated* thereby, be applied to them: Thus a Coal, throughly kindled, will appear on all Sides red, and melt Wax, and kindle Brimstone, whether the Body be applied to the upper, the lower, or any other Part of it. — Hence, if we duly attend to this Notion of the Nature of *Heat*, 'tis easy to discern how it may be mechanically produced several Ways; for, except in some few anomalous Cases, by whatever Means the insensible Parts of a Body can be put into a very confused and vehement Agitation, *Heat* will be introduced into that Body: And as there are several Agents and Operations, by which the *heating* Motion may be excited; so there must be several mechanical Ways of producing *Heat*: Various Experiments may be reduced to almost each of these Heads; Chance it self having, in the Laboratories of Chymists, afforded several Phænomena referable thereto. Boyle, *Ubi supra.*

This System is further supported by Sir *Isaac Newton*, who does not conceive *Fire*, as any particular Species of Body, originally endued with such and such Properties. — *Fire*, according to him, is only a Body much ignited, *i. e.* heated hot so as to emit Light copiously; what else, says he, is red hot Iron than Fire? and what else is a burning Coal than red hot Wood? or Flame it self than red hot Smoak? 'Tis certain, that Flame is only the volatile Part of the Fuel *heated* red hot, *i. e.* so hot as to shine; and hence only such Bodies as are volatile, *i. e.* such as emit a copious Fume will flame; nor will they flame longer than they have Fume to burn. — In distilling hot Spirits, if the Head of the Still be taken off, the ascending Vapours will catch Fire from a Candle, and turn into Flame. So several Bodies, much heated by Motion, Attrition, Fermentation, or the like, will emit lucid Fumes; which, if they be copious enough, and the *Heat* sufficiently great, will be Flame; and the Reason why fused Metals do not flame, is the Smallness of their Fume; for, that Spelter, which fumes more copiously, does likewise flame. — Add, that all flaming Bodies, as Oil, Tallow, Wax, Wood, Pitch, Sulphur, *&c.* by flaming waste, and vanish into burning Smoak. *Opticks.*

And do not all fixed Bodies, when *heated* beyond a certain Degree, emit Light and shine? And is not this Emission perform'd by the vibrating Motion of their Parts? And do not all Bodies, which abound with terrestrial and sulphureous Parts, emit Light as often as those Parts are sufficiently agitated; whether that Agitation be made by external Fire, or by Friction, or Percussion, or Putrefaction,

or any other Cause? — Thus, Sea-Water, in a Storm; Quickfilver agitated in *Vacuo*; the Back of a Cat, or the Neck of a Horse, obliquely rubb'd in a dark Place, Wood, Flesh and Fish, while they putrifie, Vapours from putrifying Waters, usually call'd *Ignes fatui*; Stacks of moist Hay or Corn, Glow-Worms, Amber and Diamonds, by rubbing; Scrapings of Steel, struck off with a Flint, &c. emit Light. *Id. Ibid.*

Are not gross Bodies and Light convertible into one another? And may not Bodies receive much of their Activity from the Particles of Light, which enter their Composition? I know no Body less apt to shine than Water; and yet Water, by frequent Distillations, changes into fix'd Earth; which, by a sufficient *Heat*, may be brought to shine like other Bodies. *Id. Ibid.*

Add, that the Sun and Stars, according to Sir *Isaac Newton*'s Conjecture, are no other than great Earths vehemently heated: For large Bodies, he observes, preserve their *Heat* the longest, their Parts *heating* one another; and why may not great, dense, and fixed Bodies, when *heated* beyond a certain Degree, emit Light so copiously, as by the Emission and Re-action thereof, and the Reflections and Refractions of the Rays within the Pores, grow still hotter, till they arrive at such a Period of *Heat* as is that of the Sun? Their Parts may be further preserved from fuming away, not only by their Fixity, but by the vast Weight and Density of their Atmospheres incumbent on them, and strongly compressing them, and condensing the Vapours and Exhalations arising from them. Thus, we see, warm Water, in an exhausted Receiver, shall boil as vehemently as the hottest Water open to the Air; the Weight of the incumbent Atmosphere, in this latter Case, keeping down the Vapours, and hindering the Ebullition, till it has conceiv'd its utmost Degree of *Heat*. So, also, a Mixture of Tin and Lead, put on a red-hot Iron in *Vacuo*, emits a Fume and Flame: But the same Mixture, in the open Air, by Reason of the incumbent Atmosphere, does not emit the least sensible Flame. — Thus much for the *System of the Producibility of Heat*.

On the other Hand, M. *Homberg*, in his *Essai du Souffre Principe*, holds, that the Chymical Principle, or Element, Sulphur, which is supposed one of the simple, primary, pre-existent Ingredients of all natural Bodies, is real Fire; and consequently that Fire is co-eval with Body. *Mem. de l'Acad.* An. 1705. See SULPHUR.

Dr. *S' Gravesande* goes on much the same Principle: Fire, according to him, enters the Composition of all Bodies, is contained in all Bodies, and may be separated or procured from all Bodies, by rubbing them against each other, and thus putting their Fire in Motion. But Fire, he adds, is by no Means generated by such Motion. *Elem. Phys.* T. II. *C.* I.

A Body is only sensibly *hot*, when the Degree of its *Heat* exceeds that of our Organs of Sense; so that there may be a lucid Body, without any sensible *Heat*; and consequently, as *Heat* is only a sensible Quantity, without any *Heat* at all.

Heat, in the hot Body, says the same Author, is an Agitation of the Parts of the Body, made by Means of the Fire contained in it; by such Agitation a Motion is produced in our Bodies, which excites the Idea of *Heat* in our Minds: So that *Heat*, in Respect of us, is nothing but that Idea, and in the hot Body nothing but Motion. — If such Motion expel the Fire, in right Lines, it may give us the Idea of Light; if in a various and irregular Motion, only *Heat*.

M. *Lemery* the younger, agrees with these two Authors in asserting this absolute, and ingenerable Nature of Fire; but he extends it further. — Not contented to confine it as an Element to Bodies, he endeavours to shew that it is equably diffused thro' all Space, is present in all Places, in the void Spaces between Bodies, as well as in the insensible Interstices between their Parts. *Mem. de l'Acad.* An. 1713. See ÆTHER.

This last Sentiment falls in with that of *Boerhaave* above deliver'd: — It seems extravagant to talk of *heating* Cold Liquors with Ice; yet Mr. *Boyle* assures us, he has easily done it, by taking out of a Bason of cold Water, wherein several Fragments of Ice were swimming, one Piece or two which he perceived very well drenched with the Liquor, and suddenly immersing them into a wide mouthed Glass, of strong Oil of Vitriol: For the Menstruum presently mixing with the Water, which adhered to the Ice, produced in it a brisk *Heat*, sometimes with a manifest Smoke, and that suddenly dissolving the contiguous Parts of the Ice, and those the next, the whole Ice was soon reduced to Water; and the corrosive Menstruum being, by two or three Shakes, well dispersed thro' it, the whole Mixture would immediately grow so hot, that sometimes the containing Vial could not be endured in ones Hand. Boyle, *Ubi supra.*

There is a great Variety in the *Heat* of different Places, and Seasons. — Naturalists commonly lay it down, that the nearer the Centre of the *Earth*, the hotter it is found; but this does not hold strictly true. — In digging Mines, Wells, &c. they find that at a little Depth below the Surface, it feels cool; a little lower, and it is yet colder, as being now beyond any Reach, or Influence, of the Sun's Rays, insomuch that Water will freeze almost instantaneously; and hence the Use of Ice-Houses, &c. but when a little lower, *viz.* about 40 or 50 Foot deep, it begins to grow warmer, so that no Ice can bear it; and then the deeper they go, still the greater the *Heat*: Till, at length, Respiration grows difficult, and the Candles go out.

Hence, some have Recourse to the Notion of a Fund of Fire lodg'd in the Centre of the Earth; which they consider as a central Sun, and the great Principle of the Generation, Vegetation, Nutrition, &c. of fossil and vegetable Bodies. See *Central* FIRE. See also EARTH, EARTHQUAKE, &c.

But Mr. *Boyle*, who had been at the Bottom of some Mines himself, suspects that this Degree of *Heat*, at least in some of them, may arise from the peculiar Nature of the Minerals generated therein. To confirm this, he instances in a Kind of Mineral, of a Vitriolic Kind, dug up in large Quantities, in several Parts of *England*, which by the bare Effusion of common Water will grow so hot, as almost to take Fire.

On the other Hand, as you ascend high Mountains, the Air grows more and more piercing and Cold: Thus the Tops of the *Pico de Theide* in *Bohemia*, the Pike of *Tenariff*, and several others, even in the most sultry Countries, are found eternally invested with Snow and Ice; the *Heat* never being sufficient to thaw the same.

In some of the Mountains of *Peru* there is no such Thing as running Water, but all Ice: Plants make a Shift to grow about the Feet of the Mountains, but near the Top no Vegetable can live, not for Want of Food, but thro' the Intensenes of the Cold. — This Effect is attributed to the Thinness of the Air, and the little Surface of Earth there is to reflect the Rays. The Rays are here only determined into a Parallellism; but the Effect of direct parallel Rays is found, by Computation, to be very inconsiderable; this Effect being really greater in Winter than Summer.

HEAT, in Geography. — The Diversity of the *Heat* of Climes and Seasons, arises from the different Angles, under which the Sun's Rays strike upon the Earth's Surface. See CLIMATE, ANGLE, &c.

It is shewn in Mechanicks, that a moving Body, striking perpendicularly on another, acts on it with all its Force; and that a Body striking obliquely, acts with the less Force, the more it deviates from the perpendicular. — Now, Fire, moving in right Lines, must observe the same Mechanical Law as other Bodies; and consequently its Action must be measured by the Sine of the Angle of Incidence: And hence Fire, striking on any Obstacle in a Direction parallel thereto, has no sensible Effect, by Reason the Ratio is almost infinite, *i. e.* nothing. Accordingly, the Sun, radiating on the Earth in the Morning, scarce produces any warmth at all. See PERCUSSION and COMPOUND *Motion*.

Hence, Dr. *Halley* gives a mathematical Computation of the Effect of the Sun, under different Seasons and Climates; going on this Principle, that the simple Action of the Sun, as all other Impulses or Strokes, is more or less forcible, according to the Sines of the Angles of Incidence, or to the perpendicular let fall on the Plane: Whence, the vertical Ray (which is of the greatest *Heat*) being put for Radius, the Force of the Sun on the Horizontal Surface of the Earth will be to that, as the Sine of the Sun's Altitude at any other Time.

Hence it follows, that the Time of the Continuance of the Sun's shining, being taken for a Basis, and the Sines of the Sun's Altitudes erected thereon as Perpendiculars; and a Curve drawn through the Extremities of those Perpendiculars: The Area comprehended will be proportionate to the Collection of the *Heat* of all the Sun Beams in that Space of Time.

Hence it will follow likewise, that under the Pole the Collection of all the *Heat* of a tropical Day is proportionate to a Rectangle of the Sine of 23 Degrees and an half, into 24 Hours; or the Circumference of a Circle; that is, the Sine of 23 Degrees and an half, being nearly $\frac{4}{10}$ of Radius, as $\frac{4}{10}$ into 12 Hours; or, the Polar *Heat* is equal to that of the Sun continuing 12 Hours above the Horizon at 53 Degrees height; than which the Sun is not 5 Hours more elevated under the Equinoctial.

But whereas the Nature of *Heat* is to remain in the Subject, after the Luminary that occasion'd its being *heated* is removed, and particularly in the Air; under the Equinoctial the 12 Hours Absence of the Sun does but little dimi-

diminish the Motion impress'd by the past Action of his Rays wherein *Heat* consists, before he rises again; but under the Pole, the long Absence of the Sun for six Months, wherein the Extremity of Cold does obtain, hath so chill'd the Air, that it is, as it were, frozen, and cannot, before the Sun has got far towards it, be any Ways sensible of his Presence, his Beams being obstructed by thick Clouds, and perpetual Fogs and Mists.

Add, that the differing Degrees of *Heat* and Cold in different Places, depend, in great Measure, upon the Accidents of Situation, with Regard to Mountains or Valleys, and the Soil. — The first greatly help to chill the Air by the Winds, which come over them, and which blow in Eddies through the Levels beyond. See WIND.

Mountains, sometimes, turning a Concave Side towards the Sun, have the Effect of a burning Mirror on the Subject plain; and the like Effect is sometimes had from the Concave or Convex Parts of Clouds, either by Refraction or Reflection. And some even take these to be sufficient to kindle the Exhalations lodg'd in the Air, and produce Thunder, Lightning, &c. See MOUNTAIN, MIRROR, &c.

As to Soils: A stony, sandy, or chalky Earth, 'tis known, reflects most of the Rays into the Air again, and retains but few; by which Means a considerable Accession of *Heat* is derived to the Air; as, on the contrary, black ones absorb most of the Rays, and return few into the Air, so that the Ground is so much the hotter. See BLACKNESS, WHITENESS, &c.

This the Peasants, who inhabit the Morass *de Veenen*, where Turf is dug, are very sensible of; walking there but a little while, the Feet grow extremely hot, but the Face not at all: On the contrary, in a sandy Place, the Feet are scarce warm when the Face is scorch'd by the great Reflection.

The following Table gives every tenth Degree of Latitude to the Equinoctial and Tropical Sun, by which an estimate may be made of the intermediate Degrees.

Lat.	Sun in ♈. ♎.	Sun in ♋	Sun in ♑
0	20000	18341	18341
11	19696	20290	15834
20	18797	21737	13166
30	17321	22651	10124
40	15321	23048	6944
50	12855	22991	3798
60	10000	22773	1075
70	6840	23543	000
80	3473	24673	000
90	0000	25055	000

Whence are deducible the following Corollaries:

1°. That the Equinoctial *Heat*, when the Sun becomes vertical, is as twice the Square of the Radius: Which may be proposed as a Standard to be compared with, in all other Cases.

2°. That under the Equinoctial, the *Heat* is as the Sine of the Sun's Declination.

3°. That in the frigid Zones, when the Sun sets not, the *Heat* is as the Circumference of a Circle into the Sine of the Altitude at 6. And, consequently, that in the same Latitude, these Aggregates of Warmth, are as the Sines of the Sun's Declination; and at the same Declination of the Sun, they are as the Sines of the Latitudes into the Sines of the Declination.

4°. That the Equinoctial Days *Heat*, is every where as the Cosine of the Latitude.

5°. In all Places where the Sun sets, the Difference between the Summer and Winter *Heats*, when the Declinations are contrary, is equal to a Circle into the Sine of the Altitude at 6, in the Summer parallel; and consequently those Differences are as the Sines of Latitude into, or multiplied by, the Sines of Declination.

6°. From the foregoing Table it appears, that the Tropical Sun, under the Equinoctial, has of all others the least Force: Under the Pole it is greater than any other Days *Heat* whatever, being to that of the Equinoctial as 5 to 4.

From the Table, and these Corollaries, a general Idea may be conceived of the Sum of all the Actions of the Sun in the whole Year, and thus that Part of *Heat*, which arisetb simply from the Presence of the Sun, may be brought to a Geometrical Certainty. — The *Heat* of the Sun, for any small Portion of Time, is always as a Rectangle, contain'd under the Sine of the Angle of Incidence of the Ray, producing *Heat* at that Time.

HEAT, is usually divided, by the School Philosophers, into *Actual* and *Potential*.

Actual HEAT, is that which we have been hitherto speaking of, and which is an Effect of real, elementary Fire.

Potential HEAT, is that which we find in Pepper, Wine, and certain chymical Preparations, as Oil of Turpentine, Brandy, Quick-lime, &c. See POTENTIAL.

The *Peripateticks* account for the *Heat* of Quick-lime from an ANTIPERISTASIS. See ANTIPERISTASIS.

The *Epicureans*, and other *Corpuscularians*, attribute even *potential Heat*, to Atoms or Particles of Fire detain'd and lock'd up in the Bores of those Bodies, and remaining at rest therein; which being excited to Action again by the *Heat* and Moisture of the Mouth, or by the Effusion of cold Water, or the like Cause, break their Inclosures, and discover what they are.

This Doctrine is well illustrated by M. *Lemery* the younger, in the Instances of Quick-lime, Regulus of Antimony, Tin, &c. in the Calcination whereof he observes, 1°, That the Fire, which they imbibe in the Operation, makes a sensible Addition to the Weight of the Body, amounting sometimes to one tenth of the whole; and, that during this Imprisonment, it still retains all the particular Properties or Characters of Fire; as appears hence, that when once set at Liberty again, it has all the Effects of other Fire.

Thus, a stony, or saline Body being calcined, and Water poured thereon, that Fluid is found sufficient, by its external Impression, to break up the Cells, and let the Fire out; and upon this the Water is rendred more or less warm, according to the Fire lodged therein. — Hence, also, it is, that some of these Bodies visibly contain a deal of actual Fire; and the slightest Occasion is capable of disengaging it: Upon applying them to the Skin, they burn and raise an Eschar, not unlike the Top of a live Coal.

To this it is objected, that the Particles of Fire are only such in Virtue of the rapid Motion, wherewith they are agitated; so that to suppose them fixed in the Pores of a Body, is to divest them at once of that, which constituted them Fire; and, consequently, to disqualify them for producing the Effects ascribed to them. — To which M. *Lemery* answers, that tho' the rapid Motion of Fire do contribute very greatly to its Effects, yet the particular Figure of its Particles is to be consider'd withal. And tho' Fire should be detained, and fixed in the Substance of Bodies, yet why should it fare worse than other Fluids in the same Circumstances? Water, for Instance, is a Fluid, whose Fluidity depends, as already observed, on Fire, and consequently is less fluid than Fire; and yet every Day, Water inclosed in Bodies of all Sorts, without losing its Fluidity, or any of the Properties that characterize it.

Add, that when Water is froze, the Motion of its Parts is, doubtless, discontinued; and yet the Figure of the Particles remaining the same, it is ready to commence a Fluid, as before, upon the least warmth. See WATER.

Lastly, tho' Salt be allowed to be the Matter of Tastes, and that it has certain Properties, arising chiefly from the Figure of its Parts; yet it only acts when dissolved; or, which amounts to the same, when it swims in a Fluid proper to keep its Parts in Motion: Yet it is not less Salt, or less the Matter of Taste, when not in a State of Dissolution: To dispoil it of that Quality, the Figure of its Parts must be alter'd. See SALT.

As to what may be further objected of the Impossibility of fixing so fine, subtle, penetrative, and active a Matter as Fire, within the spongeous Substance of a gross, porous Body; it will be of no great Weight, unless it can be proved, that the Pores of the Cells are bigger than the same. — If it be insisted, again, that a Body which could find its Way into a solid Body, might get out again the same Way; and that as it only penetrated the Body, by Reason its own Corpuscles were smaller than the Pores, the same Consideration must let it out again: It is answer'd, that the Pores are not now in the same Condition as before; the Fire, in calcining, open'd and dilated the Pores; which, upon the Fire's ceasing, must close and contract again. *Mem. de l'Acad.* An. 1713.

Mr. *Boyle* endeavours to set aside this Account, and substitute a mechanical Property, *viz.* a peculiar Texture of Parts, in lieu of Fire. — Tho' a great Likeness might be expected between the Particles of Fire adhering to the Quick-lime, and those of highly rectified Spirit of Wine; yet he has not found that the Effusion of the Spirit upon Quick-lime, produced any sensible *Heat*, or visible Dissolution of the Lime, tho' it seem'd to be greedily suck'd in, as common Water would have been. And, further, he found, that if cold Water were poured on the same Lime so drenched, there would ensue no manifest *Heat*; nor did the Lump appear swelled or broken, till some Hours after; which seems to argue, that the Texture of the Lime admitted some Particles of the Spirit of Wine into some of its Pores, which were either larger, or more fit, without admitting it into the

most numerous, wherein to the Liquor must be received, to be able suddenly to dissipate the Corpuscles of Lime into their minuter Particles.

These Phenomena, according to Mr. *Boyle*, seem to shew, that the Disposition which Lime has to grow hot with Water, greatly depends on some peculiar Texture; since the aqueous Parts, which one would think capable of quenching most of the fiery Atoms, supposed to adhere to Quick-lime, did not near so much weaken the Disposition of it to *Heat*, as that Access of the spirituous Corpuscles, and their Contexture with those of the Lime increas'd it.

Yet, in other Places, he appears rather to give into the Corpuscular Scheme: Urging, that if instead of cold Water, you quench the Lime with hot Water, the Ebullition will be, oftentimes, far greater than if the Liquor were cold; which indeed might well be expected, hot Water being much fitter than cold, suddenly to pervade the Body of the Lime, and hastily dissolve, and set at Liberty, the fiery and saline Parts, wherewith it abounds. And what a greater Interest Salts may have in producing such *Heats* than cold Water, he has also tried, by pouring acid Spirits, and particularly Spirit of Salt, upon good Quick-lime: For by this Means there would be a far greater Degree of *Heat* excited, than if he had used common Water; and this, whether he employed the Spirit cold or hot.

It is not easy, says the same Author, to apprehend how such light and minute Bodies, should be so long detained, as must by this Hypothesis be allowed, in Quick-lime especially; since no great *Heat* ensues the pouring of Water upon *Minium*, or *Crocus Martis per se*, tho' they have been calcined by a violent Fire, the Effluvia whereof seem to adhere to them, by the Increase of the Weight the Lead and Iron manifestly receive from the Operation of it. *Mech. Orig. of Heat.*

HEAT, in the Animal Oeconomy, *Natural* HEAT, *Vital* HEAT. See CALIDUM *Innatum*. See also HEART and BLOOD.

HEAT, in Chymistry. See FIRE and BATH.

HEAT, in Smithery, *&c.* See IRON.

HEAT, is also used in Respect of Race-Horses, for the Exercises to be given them by Way of Preparation, *&c.* See HORSE.

Two *Heats* in a Week are reckon'd a just Measure for any Horse of what State or Constitution whatever. — The Jockies lay it down as a Rule, that one of the *Heats* be given on the same Day of the Week, whereon the Horse is to run his Match; and this to be the sharpest *Heat*.

HEATHEN, See PAGAN.

HEAVE, at Sea, signifies to throw away, or fling any Thing over-board. — When a Ship, being at Anchor, rises and falls by the Force of the Waves, she is also said to *Heave and set*.

To HEAVE *at the Capstain*, signifies to turn it about. See CAPSTAIN.

To HEAVE *a Flag aboard*, is to hang it out. See FLAG, SIGNAL.

To HEAVE *out the Top-sails*, is to put them abroad. See TOP-SAIL.

HEAVE-*Offerings*, under the *Jewish*-Law, were the first Fruits given to the Priest. See FIRST-*Fruit*.

HEAVEN, *Cœlum*, an Azure, transparent Orb, investing our Earth; wherein the Celestial Bodies perform their Motions. See EARTH, *&c.*

This is the popular Notion of *Heaven*; for the Word, it must be observed, has various other Ideas, in the Language of Philosophers, Divines and Astronomers: Agreeably to which, we may lay down divers *Heavens*, as the *Highest*, or *Empyrean Heaven*; the *Ethereal*, or *Starry*, *Heaven*; the *Planetary Heaven*, &c.

HEAVEN, among Divines, call'd also the *Empyrean* HEAVEN, is the Abode of God, and blessed Spirits; as Angels, and the Souls of the righteous deceas'd. See GOD, ANGEL, *&c.*

This is also frequently call'd in Scripture the *Kingdom of Heaven*; the *Heaven of Heavens*; and by St. *Paul*, the *third Heaven*; sometimes *Paradise*; the *New Jerusalem*, &c. See EMPYREAN, *&c.*

This *Heaven* is conceiv'd as a Place in some remote Part of infinite Space, wherein the Deity is pleas'd to afford a nearer, and more immediate View of himself; a more sensible Manifestation of his Glory; a more adequate Perception of his Attributes, than in the other Parts of the Universe, where he is likewise present. See UNIVERSE, OMNIPRESENCE, *&c.*

This makes what the Divines also call the *Beatifick Vision*. See VISION.

Authors are much divided as to the Reality of such *Local Heaven*. — In this Sense of the Word, *Heaven* stands opposed to *Hell*. See HELL.

The inspired Writers give us very magnificent Descriptions of *Heaven*, the Structure, Apparatus, and Attendance thereof; particularly *Isaiah*, and St. *John* the Divine. — The Philosopher *Plato*, in his *Dial. de Anim.* speaks of *Heaven* in Terms that bear so near a Resemblance to those of Scripture; that *Eusebius* charges him with borrowing his Account thence. *De Præpar. Evangel. L.* XI. C. 37.

The antient *Romans* had a Kind of *Heaven* in their System of Theology, call'd *Elysium*, or the *Elysian Fields*. See ELYSIAN *Fields*.

The *Mahometan Heaven*, or *Paradise*, is very gross, agreeably to the Genius of their Religion. See MAHOMETANISM, ALCORAN, *&c.*

HEAVEN, among Astronomers, call'd also the *Etherial* and *Starry* HEAVEN, is that immense Region wherein the Stars, Planets and Comets are disposed. See STAR, PLANET, *&c.*

This is what *Moses* calls the *Firmament*, speaking of it as the Work of the second Days Creation; at least 'tis thus the Word רקיע is usually render'd by his Interpreters; tho' this somewhat abusively, to countenance their own Notion of the *Heavens* being Solid. — The Word, 'tis certain, properly signifies no more than *Expanse*, or *Extension*; a Term very well adapted by the Prophet to the Impression which the *Heavens* make on our Senses: Whence, in other Parts of Scripture, the *Heaven* is compared to a *Curtain*, or a *Tent* stretch'd out to dwell in. — The LXX. first added to this Idea of Expansion, that of *Firm* or *Solid*; rendering it by στερεωμα, according to the Philosophy of those Times; in which they have been follow'd by the Modern Translators.

The later Philosophers, as *Cartes*, *Kircher*, &c. have easily demonstrated this *Heaven* not to be *Solid*, but *Fluid*; but they still suppose it full, or perfectly dense, without any Vacuity, and canton'd out into so many Vortices. See ÆTHER, CARTESIANISM, *&c.*

But others carry the Thing much further, and overturn not only the Solidity, but the supposed Plenitude of the *Heavens*. — Sir *Isaac Newton* has abundantly shewn the *Heavens* void of almost all Resistance, and consequently of almost all Matter; from the Phænomena of the Celestial Bodies; from the Planets persisting in their Motions without any sensible Diminutions of their Velocity; and the Comets freely passing in all Directions towards all Parts of the *Heavens*. See RESISTANCE, PLANET, COMET, VORTEX, *&c.*

Heaven, taken in this general Sense, for the whole Expanse between our Earth and the remotest Regions of the fix'd Stars, may be divided into two very unequal Parts, according to the Matter found therein, *viz.* the Atmosphere, or *Aerial Heaven*, possess'd by Air; and the *Ætherial Heaven*, possess'd by a thin, unresisting Medium, call'd *Æther*. See ATMOSPHERE, AIR, ÆTHER and MEDIUM.

HEAVEN, is more particularly used in Astronomy, for an Orb, or Circular Region of the Ætherial *Heaven*. See ORB.

The antient Astronomers assumed as many different *Heavens*, as they observed different Motions therein. — These they supposed all to be *Solid*, as thinking they could not otherwise sustain the Bodies fix'd in them; and *Spherical*, as being the most proper Form for Motion.

Thus they had seven *Heavens* for the seven Planets, *viz.* — The *Heavens* of the *Moon*, of *Mercury*, *Venus*, the *Sun*, *Mars*, *Jupiter* and *Saturn*. See PLANET, *&c.*

The eighth was for the fix'd Stars, which they particularly call'd the *Firmament*. See FIRMAMENT.

Ptolomy added a ninth *Heaven*, which he call'd the *Primum Mobile*. See MOBILE.

After him two *Crystalline Heavens* were added, by King *Alphonsus*, &c. to account for some Irregularities in the Motions of the other *Heavens*: And, lastly, an *Empyrean Heaven* was drawn over the whole, for the Residence of the Deity; which made the Number twelve. See EMPYREAN, *&c.*

The *Crystalline Heavens*, were not supposed to have any Stars fixed in them: They incompass'd the inferior, Starry and Planetary *Heavens*; and communicated their Motion to them. — The first served to account for that slow Motion of the fix'd Stars, whereby they advance a Degree Eastward in 70 Years; whence the Precession of the Equinox. The second was to solve the Motions of Libration, or Trepidation. See PRÆCESSION, LIBRATION, TREPIDATION, *&c.*

But others admitted many more *Heavens*, according as their different Views, and Hypotheses required. — *Eudoxus* supposed 23, *Calippus* 30, *Regiomontanus* 33, *Aristotle* 47, and *Fracastor* 70.

We may add, that the Astronomers did not much concern themselves whether the *Heavens*, they thus allow'd of, were

were real or not, provided they ſerved a Purpoſe in accounting for any of the Celeſtial Motions, and agreed with Phænomena. See HYPOTHESIS, SYSTEM, PHÆNOMENA, &c.

Among the other Reveries of the Rabbins, contained in the *Talmud*, we find it aſſerted, that there is a Place where the *Heavens* and Earth joyn together; that *Rabbi Barchana* going thither, laid his Hat on the Window of *Heaven*; and that going to take it again immediately after, it was gone, the *Heavens* having carried it off; ſo that he muſt wait for a Revolution of the Orbs to bring it to its Place again.

HEAVINESS, See WEIGHT, GRAVITY, &c.

For the Laws of the Deſcent of Heavy *Bodies*. See DESCENT, &c.

In Strictneſs, *Heavy* Bodies do not tend preciſely to the very Centre of the Earth, except at the Poles and the Equator; by Reaſon of the ſpheroidal Figure of the Earth. — Their Direction is every where perpendicular to the Surface of the Spheroid. See EARTH and SPHEROID.

HEAULME, or HEAUME, in Heraldry, an *Helmet*, or Head-piece. See HELMET.

HEWING *of Timber*. See TIMBER.

HEBBERMAN, in our antient Law-Books, a Fiſherman below *London-Bridge*; thus call'd, becauſe he commonly fiſhes at Ebb Water. See EBB.

HEBBERTHEF, in our antient Cuſtoms, a Privilege of having the Goods of a Thief, and the Trial of him, within a particular Diſtrict.

HEBDOMADIUS, antiently denoted a Canon, or Prebendary, in a Cathedral Church, who had the peculiar Care of the Choir, and the Inſpection of Officers of it for his Week. See CANON, CATHEDRAL, and CHOIR.

HEBDOMADEER, HEBDOMADARY, HEBDOMADARIUS, a Member of a Chapter, or Convent, whoſe Week it is to perform the Office, rehearſe the Anthems and Prayers, preſide and perform the uſual Functions which Superiors perform at ſolemn Feaſts, and on other extraordinary Occaſions.

The *Hebdomadeer* generally collates to the Benefices which become vacant during his Week: Tho' this is uſually look'd on as an Abuſe.

The Word is form'd of the *Greek*, ἑβδομας, which ſignifies the Number ſeven, of ἑπτα, *Seven*. See WEEK.

In Monaſteries, the *Hebdomadary* is he who waits at Table for a Week, or other ſtated Period; directs and aſſiſts the Cook, &c.

In Church Antiquity, we meet with nine different Sorts of *Hebdomadeers*, viz. — The *Hebdomadarius Cantor*, or *Hebdomadary Chantor*; *Hebdomadarius Chori*, *Hebdomadary* of the Choir; which two were really the ſame, *viz.* he who preſided at the public Service: *Hebdomadary* of the Kitchin, *Hebdomadarius Coquinæ*: *Hebdomadary* of the Defunct or the Dead, *Hebdomadarius Defunctorum*, he who took Care of the Office and Service of the Dead: *Hebdomadarius Invitatorii*, he who ſang the Invitatory: *Hebdomadarius Lector ad Menſam*, he who read at Meal Time: *Hebdomadarius majoris Miſſæ*, he who read Maſs: *Hebdomadarius Pſalterii*, which probably was the ſame with the *Hebdomadarius Chori*: And *Hebdomadarius ſacri Altaris*, which might be the ſame with *Hebdomadeer* of the high Maſs.

HEBRAISM, an Idiotiſm or Manner of Speaking peculiar to the *Hebrew* Tongue. See IDIOTISM.

There is no Underſtanding, even the Verſions of the Old Teſtament, without ſome Acquaintance with the *Hebrew*; they are ſo full of *Hebraiſms*.

We have Abundance of *Hebraiſms* borrow'd from Scripture, and naturalized in our own Language; as, *Son of Perdition*: *To ſleep in the Lord*, &c. See HEBREW.

HEBREW, ſomething relating to the People of the *Jews*, i. e. to the twelve Tribes, deſcended from the twelve Patriarchs, the Sons of *Jacob*. See JEWS. Thus we ſay,

HEBREW *Bible*. See BIBLE.

HEBREW *Character*. See CHARACTER.

There are two Kinds of *Hebrew* Characters; the *Antient*, call'd alſo the *Square*; and the *Modern*, or *Rabbinical* Characters.

The *Square Hebrew*, takes its Denomination from the Figure of its Characters, which ſtand more *Square*, and have their Angles more exact and preciſe than the other.

This Character is uſed in the Text of Holy Scripture, and their other principal and moſt important Writings. — When both this, and the *Rabbinical Character*, are uſed in the ſame Work; the former is for the Text, or the fundamental Part; and the latter, for the acceſſory Part, as the Gloſs, Notes, Commentaries, &c.

The beſt and beautifulleſt Characters of this Kind, are thoſe imitated from the Characters in the *Spaniſh* Manuſcripts; next, thoſe from the *Italian* Manuſcripts; then, thoſe from the *French*; and laſtly, thoſe of the *Germans*, whoſe Characters are much the ſame, with Reſpect to the other genuine *Square Hebrew* Characters, that the *Gothic* or *Dutch* Characters are with Reſpect to the *Roman*.

Several Authors contend, that the *Square* Character is not the real, antient *Hebrew* Character, wrote from the Beginning of the Language to the Time of the *Babyloniſh* Captivity; but that it is the *Aſſyrian*, or *Chaldee* Character, which the *Jews* aſſumed, and accuſtom'd themſelves to, during the Captivity, and retain'd afterwards. — Theſe Authors add, that what we call the *Samaritan* Character, is the antient *Hebrew*.

The learned Jeſuits *Souciet* maintains, with great Addreſs, that the antient *Hebrew* Character, is that found on the Medals of *Simon*, and others, commonly call'd *Samaritan Medals*; but which, he aſſerts, were really *Hebrew* Medals, ſtruck by the *Jews*, and not by the *Samaritans*. See SAMARITAN.

The *Modern*, or *Rabbinical Hebrew* Character, is a good neat Character, form'd of the *Square Hebrew* by rounding it, and retrenching moſt of the Angles, or Corners of the Letters, to make it the more eaſy and flowing. — Thoſe uſed by the *Germans*, are very different from the *Rabbinical* Character uſed every where elſe, tho' all form'd alike from the *Square* Character, but the *German* more ſlovenly than the reſt.

The *Rabbins* frequently make uſe either of their own, or the *Square Hebrew* Character, to write the modern Languages in. — There are even Books in the vulgar Tongues, printed in the *Hebrew* Characters: Inſtances whereof are ſeen in the *French* King's Library.

HEBREW *Language*, call'd abſolutely HEBREW, is the Language ſpoke by the *Hebrews*, and wherein moſt of the Books of the Old Teſtament are wrote; whence it is alſo call'd the *Holy*, or *Sacred Language*. See LANGUAGE.

There is no Piece, in all Antiquity, wrote in pure *Hebrew*, beſide the Books of the Old Teſtament; and even ſome Parts of thoſe are in *Chaldee*. See CHALDEE.

The *Hebrew*, then, appears to be the moſt antient of all the Languages in the World; at leaſt, 'tis ſo with Regard to us, who know of no older. Some learned Men will have it the Language ſpoke by *Adam* in Paradice; and that the Saints will ſpeak it in Heaven.

Alberti, in his *Hebrew Dictionary*, endeavours to find in each Word, in its Root, in its Letters, and the Manner of pronouncing them, ſome natural Reaſon of the Signification of that Word. But he has carried Matters too far; and it has been ſhewn, in the Memoirs *de Trevoux*, that on his Principles, Words which really ſignify quite different Things, ſhould ſignify the ſame.

Neuman, and *Loeſcher*, have proſecuted *Alberti*'s Scheme further, and with more Addreſs than he has done: The firſt, in his *Geneſis Linguæ Sanctæ*, and *Exodus Linguæ Sanctæ*; and the latter, in his Treatiſe *de Cauſis Linguæ Hebreæ*.

Be this as it will, the *Hebrew*, ſuch as we have it in the Holy Scripture, is a very regular, analogical Language, and particularly ſo in its Conjugations. Properly ſpeaking, there is but one, ſimple Conjugation; but this is varied in each Verb ſeven or eight Ways, which has the Effect of ſo many different Conjugations, and affords a great Number of Expreſſions, whereby to repreſent, under one ſingle Word, all the different Modifications of a Verb; and ſeveral Ideas at once, which in the modern, and moſt of the antient and learned Languages, are expreſſible only by Phraſes.

The Original, or Primitive Words in this Language, which they call *Radices*, Roots, rarely conſiſt of more than three Letters, or two Syllables, which are expreſs'd by two Sounds, or by the ſame Sound redoubled, which is indicated by a Point. See ROOT, RADICAL, &c.

There are twenty two Letters in the *Hebrew* Language, which Grammarians divide into *Guttural*, *Palatal*, *Dental*, *Labial*, and *Lingual*. — This Diviſion is taken from the ſeveral Organs of Speech; ſome whereof contribute more than others to the Pronunciation of certain Letters. See VOICE. See alſo GUTTURAL, PALATAL, &c.

Uſually, they only reckon five Vowels in the *Hebrew*, which are the ſame with ours, *viz.* a, e, i, o, u; but then each Vowel is divided into two, a long, and a *breve*, or ſhort: The Sound of the former is ſomewhat graver, and longer; and that of the latter ſhorter, and more acute. — It muſt be added, that the two laſt Vowels have quite different Sounds, different, we mean, in other Reſpects beſide Quantity and Degree of Elevation.

To theſe ten or twelve Vowels muſt be added ſome others call'd *Semi-Vowels*, which are only ſlight Motions ſerving to connect the Conſonants, and make the eaſier Tranſitions from one to another. See VOWEL.

The Number of Accents is prodigious in the *Hebrew*. — There are near forty different ones; and of these, there are several, whose Use is not well ascertain'd, notwithstanding all the Enquiries of the Learned into that Matter.

In the general, we know these three Things: 1°. That they serve to distinguish the Sentences, and the Members thereof, like the Points and Comma's, &c. in *English*. 2°. To determine the Quantity of the Syllables: And 3°. To mark the Tone wherewith they are to be spoke or sung. See ACCENT.

'Tis no Wonder, then, there should be more Accents in the *Hebrew* than in other Languages; as they do the Office of three different Things, which in other Languages are called by different Names. See PUNCTUATION, QUANTITY, &c.

As we have no *Hebrew*, but what is contain'd in the Scriptures; that Language wants a World of Words; not only by Reason, in those primitive Times, the Languages were not so copious as at present, but also on this Account that the inspired Writers had occasion to mention many of the Terms that might be in the Language.

The *Chaldee*, *Syriac*, *Ethiopic*, *Arabic*, &c. Languages, are all only Dialects of the *Hebrew*; as the *French*, *Italian*, *Spanish*, &c. are Dialects of the *Latin*. See CHALDEE, SYRIAC, ARABIC, &c.

Rabbinical HEBREW, or HEBREW *of the Rabbins*, or *modern* HEBREW, is the Language used by the Rabbins, in the Writings they have composed. See RABBIN.

The Basis, or Body hereof, is the *Hebrew* and *Chaldee*, with divers Alterations in the Words of those two Languages, the Meanings whereof they have considerably enlarged and extended. Abundance of Things they have borrowed from the *Arabic*. — The rest is chiefly composed of Words, and Expressions, chiefly from the *Greek*; some from the *Latin*; and others, from the other modern Tongues; particularly that spoken in the Place where each Rabbin lived or wrote.

The *Rabbinical Hebrew*, must be allowed a very copious Language: — M. *Simon*, in his *Crit. de l'Ancien Testam.* L. III. *C.* 27. observes, that there is scarce any Art, or Science, but the Rabbins have treated thereof in it. They have translated most of the antient Philosophers, Mathematicians, Astronomers, and Physicians; and have wrote themselves on most Subjects: They do not want even Orators and Poets. Add, that this Language, notwithstanding 'tis so crowded with foreign Words, has its Beauties visible enough in the Works of those who have wrote well.

M. *Simon* says, 'tis impossible to reduce it into an Art, or System of Rules; tho' several learned Men are of another Sentiment; and it not only appears possible, but has actually been perform'd. *Genebrard* first attempted it in his *Isagoge Rabbinica*, which yet goes no further than to the learning to read it. *Buxtorf* seconded him, at the End of his *Hebrew Grammar*; where we have an additional Piece, under the Title *Lectionis Hebræo-Germanicæ usus & Exercitatio*. Others have gone yet further: *Majus* has lately given us a Rabbinical Grammar, at *Giessen*, under the Title of *Johannis Maii Grammatica Rabbinica*: And before him *Sennert* had done the same; *Rabbinismus*, h. e. *Præcepta Targumico-Talmudico Rabbinica*. Wirtemb. *An.* 1666.

HECATOMB, HECATOMBES, in Antiquity, a Sacrifice of an hundred Beasts of the same Kind, at an hundred Altars, and by an hundred Priests, or Sacrificers. See SACRIFICE.

Pythagoras is said to have sacrificed a *Hecatomb* to the Muses, of an hundred Oxen, in Joy and Gratitude, for his discovering the Demonstration of the 47th Proposition of the First Book of *Euclid*, viz. that in a rectangled Triangle, the Square of the Hypothenuse is equal to the Squares of the two other Sides. See HYPOTHENUSE.

The Word is form'd of the *Greek*, ἑκατόμβη, which properly signifies a sumptuous, or magnificent Sacrifice. — Others derive it from the *Greek* ἑκατὸν, *Centum*, a Hundred, and βοῦς, *Bos*, Bullock, &c. On which Footing, the *Hecatomb* should be a Sacrifice of an hundred Bullocks.

For the Origin of *Hecatombs*. — *Strabo* relates, that there were an hundred Cities in *Laconia*; and that each City used to sacrifice a Bullock every Year, for the common Safety of the Country; whence the Institution of the celebrated Sacrifice of an hundred Victims, call'd *Hecatombs*. Others refer the Origin of *Hecatombs* to a Plague; wherewith the hundred Cities of *Peloponesus* were afflicted; for the Removal whereof, they jointly contributed to so splendid a Sacrifice.

Some derive the Word from ἑκατὸν, and ποῦς, *Pes*, Foot; and on that Principle hold, that the *Hecatomb* might consist of only twenty five four footed Beasts. They add, that it did not matter what Kind of Beasts were chose for Victims, provided the Quota of Feet were but had.

Yet *Julius Capitolinus* relates, that for a *Hecatomb* they erected an hundred Altars of Turf, and on these sacrificed a hundred Sheep, and an hundred Hogs. He adds, that when the Emperors offered Sacrifices of this Kind, they sacrificed a hundred Lyons, a hundred Eagles, and a hundred other Beasts of the like Kind.

The Month wherein the annual, or ordinary *Hecatomb* was sacrificed, was hence called the *Hecatombeon*. See MONTH.

The *Athenians* had a Sacrifice of the same Kind, offered yearly to *Mars*, called *Hecatomphoneuma*, of ἑκατὸν, *Centum*, and φονευμα, of φονεύω, *occido*, I kill; and that of φονθ, *Cædes*.

HECATOMPHONIA, was an antient Sacrifice among the *Messenians*; offer'd by such as had slain an hundred Enemies in Battel. See SACRIFICE.

Pausanias makes mention of one *Aristomenes* of *Corinth*, who offered no less than three *Hecatomphonia*.

The Word comes from ἑκατὸν and φονεύω, *I kill*.

HECK, among Husbandmen, a *Rack*; at which Horses are fed with Hay.

It is also an Engine, wherewithal to take Fish in the River *Owse*. — A *Salmon-Heck*, is a Grate for the catching of that Sort of Fish. See *Salmon* FISHING.

Hence, also, the Word *Heckagium*, or *Heceagium*, which occurs in antient Records, for a Rent paid the Lord for the Liberty to use such Engines.

HECKLING of *Hemp*, See HEMP.

HECTIC, or HECTIC *Fever*, in Medicine, a Sort of slow habitual Fever, gradually preying on and consuming the Moisture of the Body, and ending in a *Tabes*, or Consumption. See FEVER.

The *Hectic* is also an Attendant of a Consumption; and is reputed one of the Diagnostic Signs thereof. See CONSUMPTION and PHTHISIS.

The Word is *Greek*, ἑκτικὸς, form'd of ἕξις, *Habitus*; a Quality hard to separate from its Subject.

The *Hectic*, Dr. *Quincy* observes, is the Reverse of those Fevers which arise from a *Plethora*, or too great a Fulness from Obstruction. This being attended with too lax a State of the excretory Passages, and particularly those of the Skin, whereby so much runs off, as leaves not Resistance enough in the contractile Vessels to keep them sufficiently distended, so that they vibrate oftener, agitate the Fluids more, and keep them thin and hot.

The Remedy consists in giving a firmer Tone to the Solids, and laying more Load upon the Fluids, and thus bringing them to a better Consistence; which is effected by Means of Balsamicks, Agglutinants, and Foods of the best Nourishment. — All Evacuation herein is bad.

A Milk Diet, is much recommended in *Hecticks*, and particularly Asses-Milk, as being the least viscid and heavy. Dr. *Baynard* proposes Butter-Milk as a Succedaneum to Asses-Milk. According to him, it answers most of the Indications in this Case, as it cools, moistens, nourishes, &c. He adds, that he has known many Persons cured of obstinate *Hecticks*, by a continued Use thereof. See ANTIHECTICKS.

HEDAGIUM, antiently signified a Toll, or Custom, paid at the Hyth, or Wharf, &c. for landing Merchandize, Goods, &c. See WHARF, HYTH, &c.

From such Toll, or customary Duty, Exemptions were sometimes granted by the Sovereign to particular Persons, and Societies.

The Word is form'd from *Heda*, a Hyth, Port or Wharf.

HEDGE, in Agriculture, &c. a Fence, inclosing a Field, Garden, or the like; made of Branches of Trees interwoven. See FENCE.

The Word is form'd of the German *hag*, or *haag*, or the Anglo-Saxon *hegge*, or *hoeg*; which signify simply Inclosure, Circumference.

Quick-set Hedge, is that made of quick, or live Trees, which have taken Root; in Contradistinction to that made of Faggots, Hurdles, or dry Boughs, &c.

To plant a *Quick-Hedge* of Thorn, or the like, Mr. *Mortimer* directs, that the Sets be about as big as the Thumb, and cut within four or five Inches off the Ground: That if the *Hedge* have a Ditch, it be three Foot wide a-top, and one at Bottom, and two deep: That if the *Hedge* be without a Bank, or Ditch, the Sets be in two Rows, almost perpendicular, and at a Foot Distance: That the Turf be laid with the Grass Side downwards: That at every 30 Foot Distance, a young Oak, Elm, Crab, or the like be placed: That Stakes be driven into the loose Earth, at about two Foot and a half Distance, so low as to reach the firm Ground.

When

When the *Hedge* is eight or nine Years growth, it may be *splash'd* or laid down; by giving the Shoots, or Branches, a Cut with a Knife, or Bill, half thro'; and then weaving it about the Stakes, and trimming off the small superfluous Branches.

Instead of Building a Garden Wall facing the North East, Mr. *Lawrence* advises, that to save Charge, *&c.* a Crab-Tree *Hedge* of three Rows be planted; which will be a good Mound, and quickly grow up to be a better Fence than a Wall against the West and South-West Winds, which make the greatest Destruction in a Garden, and which blow two Parts in three of the whole Year: Beside the Stock of Fruit such a *Hedge*, grafted with Red streak, or Gennet Moyl, will yield.

Espalier HEDGES. See ESPALIER.

Transplanting of HEDGE-*Rows*. See TRASPLANTING.

HEEL, in Anatomy, the hind Part of the Foot. See FOOT.

In Winter, the *Heels* are liable to Kind of Chilblains, call'd *Kibes*, which tend to Mortification. See CHILBLAIN.

The *Bone of the Heel* is called *Calcaneum*. See CALCANEUM.

HEEL *of a Horse*. See HORSE.

The *Heel* should be high and large; and one Side not rise higher on the Pastern than the other. — The Distempers incident to this Part, are scabbed *Heels* and Scratches. See SCRATCHES.

The *Heel* is properly the hind Part of the Foot; and has two Sides, where the Quarters terminate; or, it is the lower hinder Part of the Foot, comprehended between the Quarters, and opposite to the Toe. — Some narrow *heel'd* Horses have high *Heels*, but so weak and tender, that by pressing the two Sides of the *Heel* one against another, they will sensibly yield. See HOOF.

To *open the Heels*, is to pare the Foot, and cut the *Heel* low, almost close to the Frush; taking it down within a Finger's Breadth of the Coronet, or Top of the Hoof, so as to separate the Quarters, and by that Means weaken and take away the Substance of the Foot, and make it close, and become narrow at the *Heels*.

The *Heel of the Horseman*, being the Part which is armed with a Spur; the Word is used for the Spur it self: As, this Horse understands the *Heels* well. See AID and CORRECTION.

To *ride a Horse from one Heel to another*, is to make him go Side-ways, sometimes to one *Heel*, and sometimes to another.

HEEL, in the Sea-Language. — If a Ship lye on one Side, whether a-ground or a-float, they say she *heels* offward, or to the Shore, a-star-board, or a-port.

HEEL *of a Mast*, is that Part of the Foot thereof, which is pared away slanting, that the Mast may be stay'd afterward on. See MAST.

HEELER, or *Bloody-Heel Cock*, is a fighting Cock which strikes or wounds much with his Spurs: — Cock-Masters know such a Cock, even while a Chicken, by the striking of his two Heels together in his going.

HEGIRA, in Chronology, a celebrated Epocha, used by the *Arabs* and *Mahometans*, for the Computation of Time. See EPOCHA.

The Word *Hegira*, in its original *Arabic*, signifies *Flight*; the Event which gave Occasion to this Epocha, being *Mahomet*'s Flight from *Mecca*. — The Magistrates of that City fearing his Impostures might raise a Sedition, resolved to expel him: This, accordingly, they effected in the Year of our Lord 622, on the Evening of the 15th or 16th of *July*.

To render this Epocha more creditable, the *Mahometans* affect to use the Word *Hegira* in a peculiar Sense, for an Act of Religion, whereby a Man forsakes his Country, and gives Way to the Violence of Persecutors and Enemies of the Faith: They add, that the *Coraichites* being then the strongest Party in the City, obliged their Prophet to fly, as not being able to endure his abolishing of Idolatry.

This Flight was not the first; but it was the most famous. It happen'd on the 14th Year from his assuming the Character of Prophet and Apostle, and promulgating his new Religion. See MAHOMETANISM.

The *Orientals* do not agree with us, as to the Time of the *Hegira*. Among the *Mahometans*, *Amassi* fixes it to the Year of Christ 630; and from the Death of *Moses* 2347: And *Ben Cassem*, to the Year of the World 5800, according to the *Greek* Computation. Among the Christians, *Said Ebn Batrik* refers the *Hegira* to the Year of Christ 614, and of the Creation 6114.

Khondemir relates, that it was *Omar*, the second Caliph, that first establish'd the *Hegira* as an Epocha, and appointed the Years to be numbered from it: At the Time he made this Decree, there were already seven Years elapsed. This Establishment was made in Imitation of the Christians; who, in those Times, reckon'd their Years from the Persecution of *Diocleſian*. See DIOCLESIAN *Æra*.

But there is another *Hegira*, and the earlier too, tho' of less Eminence: — *Mahomet*, in the 14th Year of his Mission, was obliged to relinquish *Medina*: The *Caraschaites* had all along opposed him very vigorously, as an Innovator, and Disturber of the public Peace. Many of his Disciples, not enduring to be reputed Followers of an Impostor, desired Leave of him to abandon the City, for Fear of being obliged to renounce their Religion. This Retreat makes the first *Hegira*.

These two *Hegira's*, the *Mahometans* in their Language call *Hegiratan*.

The Word is *Arabic*, form'd of הגרה, *hagirah*, Flight; of הגר, to fly, quit ones Country, Family, Friends, *&c.*

The Years of the *Hegira* consist only of 354 Days. To reduce these Years to the *Julian* Calendar, *i. e.* to find what *Julian* Year a given Year of the *Hegira* answers to; reduce the Year of the *Hegira* given, into Days, by multiplying by 354; divide the Product by 365, and from the Quotient substract the Intercalations, *i. e.* as many Days as there are four Years in the Quotient; and, lastly, to the Remainder add 622. See YEAR.

HEIGHT, the third Dimension of a Body, consider'd with Regard to its Elevation above the Ground. See DIMENSION and ELEVATION.

Altimetria teaches how to find, or measure all *Height*, both accessible and inaccessible. See ALTIMETRIA.

The Instruments chiefly used to measure *Heights*, are the *Quadrant*, and the Geometrical *Quadrat*. See QUADRANT and QUADRAT. See also SHADOW and MIRROR.

To measure the *Height* of Mountains, and particularly those of the Moon. See BAROMETER, MOON, *&c.*

HEIGHT, is sometimes also used for *Depth*. See DEPTH.

The Design of Levelling, is to find the different *Heights*, or Depths, of Places. See LEVELLING.

HEIGHT, in Astronomy, *&c.* is more properly call'd *Altitude*. See ALTITUDE.

The *Height*, or Altitude, of the Sun, *&c.* is an Arch of the Meridian, comprehended between the Sun, *&c.* and the Horizon. See SUN, *&c.*

To find the Meridian *Heights* of the Sun, Stars, *&c.* See MERIDIAN *Altitude*.

The *Height* of a Star, is either true or apparent. — The apparent *Height* is its Distance from the rational Horizon; or, rather, it is the *Height* of a Star such as it appears: The true *Height* is, what remains after the Refraction has been substracted. See REFRACTION.

M. *Parent* suggests a new Method of taking *Heights* at Sea, by a common Watch. — 'Tis obvious, that in an oblique Sphere, the Difference between the rising and setting of two Stars, on the same Meridian, is greater, as they are further distant from one another. See RIGHT *Ascension*.

Now, the Astronomical Tables furnishing us with Tables of the right Ascensions and Declinations of all the fix'd Stars; 'tis easy, after observing the Difference of Time between the rising of two Stars, to distinguish that Part of the Difference which accrues from their different Position, from that which arises from the Obliquity of the Sphere. — But such Difference is the precise *Height* of the Pole of the Place of Observation. See POLE.

Indeed, the Ship not being immoveable, but changing Place between the two Observations; seems to lay the Method under some Difficulty; to which M. *Parent* answers, that a small Alteration either of the Ship's Longitude or Latitude, will make no sensible Error; and that if she have gone a large Distance between the two Observations, 'tis easy reckoning how much it is, and allowing for it. See SAILING, *&c.*

HEIGHT, in Geography, Navigation, *&c.* is properly call'd *Elevation*. See ELEVATION.

The *Height*, or Elevation of the Pole, is an Arch of the Meridian intercepted between the Horizon and the Pole. See POLE.

The *Height* of the Pole is always equal to the Latitude of the Place. See LATITUDE.

HEIGHT, in the Manage, *&c.* the Stature of a Horse, *&c.* See STATURE and HORSE.

It is a reputed Imperfection in a Horse, when set too *high* on his Legs, *i. e.* when the Legs are too long in Proportion to the Body.

Some Jockeys have determined a Measure for them thus: — Take a String, and measure from the Horse's Withers to his Elbow, and what Length that is, the same should he have betwixt the Elbow and the lower Part of the Heels. — Some measure their Colts after this Manner at a Year old; being of Opinion that the Legs of a Colt at this Age, are as long as they ever will be.

The Duke of *Newcastle*, and Sir *W. Hope*, allow this to hold generally, but not universally.

HEIGHTS,

Heights, in the military Art, are the Eminences round a fortified Place, whereon the Armies usually post themselves. — The Enemy had seiz'd all the *Heights*: Appear'd on the *Heights*, &c.

HEIR, *Hæres*, in the Civil Law, he who succeeds to the whole Estate and Effects of another, whether by Right of Blood, or of Testament. See Succession.

The Institution of an *Heir*, is a Circumstance necessary to the Validity of a Testament. See Testament.

There are two principal Kinds of *Heirs*, *Apparent* and *Presumptive*.

An *Heir Apparent*, is he on whom the Succession is so settled, that he cannot be set aside, without altering the Laws of Succession.

Heir Presumptive, See Presumptive *Heir*.

The Word is form'd of the Latin *Hæres*, of the Verb *hærere*, to stick, remain fast, be near, follow immediately, *&c.*

Heir, in Common Law, is he who succeeds, by Right of Blood, to any Man's Lands, or Tenements in Fee.

For, nothing passes in Common Law, *Jure hæreditatis*, by Right of Inheritance, but *Fee*. See Fee.

By Common Law, therefore, a Man cannot be *Heir* to Goods or Chattels; for *Hæres dicitur ab hæreditate*: 'Tis the Inheritance denominates the *Heir*. See Inheritance.

Every *Heir*, having Lands by Descent, is bound by the Acts of his Ancestors, if he be named; it being a Maxim, that *qui sentit Commodum sentire debet & Onus*.

Moveables, or Chattels immoveable, are given by Testament, to whom the Testator thinketh fit; otherwise they lye at the Disposition of the Ordinary, to be distributed as he in Conscience likes best.

Last Heir, See Last *Heir*.

Heir *Loom*, in our Law-Books, signify such Houshold Furniture, as is not inventoried after the Owner's Decease; but necessarily comes to the *Heir* along with the House. See Heir.

Heir Loom comprehends divers Implements; as Tables, Presses, Cup-boards, Bed-steads, Furnaces, Wainscot, and such like, which, in some Countries, have belonged to a House for certain Descents, and are never inventoried after the Decease of the Owner as Chattels are, but accrue by Custom, not by common Law, to the *Heir*, with the House it self.

Consuetudo Hundredi de Stretford, *in Com.* Oxon. *est quod hæredes tenementorum infra Hundredum predict. existen. post mortem Antecessorum suorum habebunt*, &c. *Principalium, Anglice an* Heir-Loome, *viz. De quodam genere Catallorum, utensilium*, &c. *Optimum plaustrum, optimam Carucam, optimum Ciphum*, &c. Coke on Littleton.

HELCESAITES, or Elcesaites, a Sect of antient Hereticks, in the IId Century; denominated from their Leader *Elxai*, or *Helxeus*.

The *Helcesaites* condemn'd Virginity, and held it a Duty of Religion to marry: They taught that Jesus Christ was a mere Creature, who appear'd at the Beginning of the World in the Figure of *Adam*, and afterwards under that of *Jesus Christ*. That the Holy Spirit, which they supposed of the Female Sex, was the Sister of Jesus, *&c.* They establish'd seven Witnesses of an Oath, *viz.* Salt, Water, Earth, Bread, Heaven, Air and the Wind.

HELEPOLIS, in Antiquity, a military Machine, for the battering down the Walls of a Place besieged.

The *Helepolis*, as described by *Diod. Siculus*, &c. appears to have been no more than the *Aries*, or battering Ram, with a Roof, or Covering over it, to prevent its being set on Fire, as also to screen the Men who work'd it. See Aries.

Some will have it a Combination of two or three battering Rams, moving on large strong Wheels, roofed over, and cover'd with raw or wet Skins. It had several Iron Points, or Heads, wherewith the Execution was done; form'd much like the Thunderbolts which Painters represent. Within, was a great Number of Soldiers, who drove it with Force of Arm and by Means of Ropes, violently against the Wall where the Breach was intended.

Others, will have *Helepolis* a generical Name, comprehending all the Machines used by the Antients in the besieging of Towns; as, among us, the Name *Artillery* includes all the Sorts of Fire Arms. — But this Opinion is chiefly founded on the Origin of the Name, and does by no Means suit with those minute Descriptions given of the *Helepolis* in the antient Writers.

The Word is *Greek*, ἑλέπολις, compounded of the Words ἑλεῖν, *to take*, and πόλις, *City*.

The Invention of the *Helepolis*, and divers other military Machines, is ascribed to *Demetrius*, which, with the great Number of Cities he took thereby, gave him the Denomination of *Poliorcetes*, or City Taker.

HELIACA, in Antiquity, Sacrifices, and other Solemnities, perform'd in Honour of the *Sun*; whom the *Greeks* call *Helios*, ἥλιος. See Sun, Circus, *&c.*

HELIACAL, in Astronomy. — The Heliacal *Rising* of a Star, Planet, *&c.* is its issuing, or emerging out of the Rays and Lustre of the Sun, wherein it was before hid; whether this be owing to the Recess of the Sun from the Star, or of the Star from the Sun. See Rising.

Heliacal *Setting*, is its entering or immerging into the Sun's Rays, and so becoming inconspicuous by the superior Light of that Luminary. See Setting.

Or, a Star *rises Heliacally*, when after it has been in Conjunction with the Sun, and on that Account invisible, it gets at such a Distance from him, as to be seen in the Morning before the Sun's Rising. — The same is said to *set Heliacally*, when it approaches so near the Sun, as to be hid therein. So that, in Strictness, the *Heliacal* Rising and Setting, are only an Apparition and Occultation. See Occultation, *&c.*

The *Heliacal* Rising of the Moon, happens when she arrives at the Distance of 17 Degrees from the Sun; for the other Planets, 20 Degrees Distance is required: And for the Stars more or less, as they are greater or smaller. See Moon, Planet and Star.

To find the Heliacal *Rising and Setting by the Globe*. See Globe.

The Antients computed that a Star, between the Tropicks, would be forty Days ere it got clear of the Sun's Rays, and become conspicuous again. *Hesiod* first made this Computation; and the rest follow'd him. The Period comes very near to the Computation of the Moderns: For the Sun advancing nearly a Degree every Day, it will be 20 Days approaching thereto, from the *Heliacal* Setting of the Star; and 30 Days more withdrawing, till the *Heliacal* Rising.

The Word is derived from the *Greek*, ἥλιος, *Sol*, Sun.

HELIASTES, in Antiquity, Officers, or Magistrates of *Athens*, constituting a Court of 500 Persons, or Judges, who took Cognizance of Civil Matters.

The Court of *Heliastes* was one of the six Civil Jurisdictions of *Athens*; and that to which Matters of the greatest Moment were usually brought: So that it was held the most considerable of all the Civil Tribunals. The Delinquencies of the military Men were also brought before the *Heliastes*.

Ulpian gives us two Etymologies of the Word: Some, says he, derive it from ἥλιος, *Helios*, Sun; and hold it thus call'd by Reason they sat in the open Air, in Sight of the Sun. *Ulpian* himself chuses rather to derive *Heliastes* from Ἡλιαία, *Heliæa*, the Place where this Court, or Council was held; and that from ἁλίζω, *I assemble*, of ἅλις, *satis*, enough.

HELICE, in Astronomy, the same with *Ursa*. See Ursa.

HELICOID *Parabola*, or the *Parabolic Spiral*, a Curve arising upon a Supposition of the Axis of the common *Apollonian Parabola's*, being bent round into the Periphery of a Circle. See Parabola.

The *Helicoid Parabola*, then, is a Line passing thro' the Extremities of the Ordinate, which now converge towards the Centre of the said Circle.

Suppose, *e.gr.* the Axis of the common *Parabola* to be bent into the Periphery of the Circle B D M, *Tab. Conicks Fig.* 11; then, the Curve B F G N A, which passes thro' the Extremities of the Ordinates C F, and D G, which converge towards the Centre of the Circle A; constitutes what we call the *Helicoid*, or *Spiral Parabola*.

If the Arch B C, as an Abscisse, be called x, and the Part C F of the Radius, as an Ordinate to it, be call'd y; the Nature of this Curve will be express'd by the Equation $lx = yy$. See Curve and Equation.

HELIOCENTRIC, in Astronomy, is applied to Things which would appear so to the Eye, were it placed in the Centre of the Sun. See Sun.

The Word is compounded of ἥλιος, *Sun*, and κεντρον, *Centrum*.

Heliocentric *Latitude* of a Planet, is the Inclination of the Line drawn between the Centre of the Sun and the Centre of a Planet, to the Plane of the Ecliptic. See Latitude.

The *Heliocentric Latitude* of a Planet is thus determined. — If the Circle K L M, *Tab. Astronom. Fig.* 62. represent the Orbit of the Earth round the Sun, and the inner one A N B n be placed so, as to be inclined to the Plane of the other (for which Reason it appears in the Form of an Ellipsis) when the Planet is in N or n, (which Points are called its Nodes) it will appear in the Ecliptic, and so have no Latitude; if it move to P, then, being seen by the Sun, it will appear to decline from the Ecliptic, or to have Latitude; and the Inclination of the Line R P, to the Plane of the Ecliptic, is called the *Planet's Heliocentric Latitude*, and the Measure of it is the Angle P R q, supposing the Line P q, to be perpendicular to the Plane of the Ecliptic.

This *Heliocentric Latitude* will be continually increasing, till it come to the Point A, which they call the Limit, or utmost Extent of it; and then it will decrease again, till

till it come to nothing in N; after which it will increase again till it come to B; and lastly, be decreasing again, till the Planet come to be in n, &c.

Heliocentric *Place* of a Planet, is the Place wherein the Planet would appear to be, if viewed from the Centre of the Sun: Or the Point of the Ecliptic, wherein a Planet view'd from the Sun, would appear to be. See Place.

The *Heliocentric Place*, therefore, coincides with the Longitude of a Planet view'd from the Sun. See Longitude and Planet.

HELIOCOMETES, a Phænomenon sometimes observ'd at the setting of the Sun.

It was denominated *Heliocometes*, q. d. *Comet of the Sun*, by *Sturmius*, and *Pylen* who had seen it, in Regard it seems to make a Comet of the Sun, being a large Tail, or Column of Light fix'd, or hung to that Luminary, and dragging after it at his Setting, much in the Manner of the Tail of a Comet. See Comet.

In that observed by M. *Pylen* at *Grypswald*, March 15. 1702, at Five of the Clock in the Afternoon, the End which touched the Sun was only half the Sun's Diameter broad; but the other End, opposite to the Sun, much broader. Its Length was above ten Diameters of the Sun; and it moved in the same Track as the Sun. Its Colour was yellow next the Sun, and darker further off. It was only seen painted on the thinner, higher Clouds: A little Telescope easily discover'd that there was nothing of it on the thicker, and lower Clouds; tho' the naked Eye could not discover so much. It lasted, in its full Vigour, the Space of an Hour, and then gradually diminish'd.

HELIOSCOPE, in Opticks, a Sort of Telescope, peculiarly fitted for viewing and observing the Sun, without doing Prejudice to the Eye. See Telescope.

Helioscopes are necessary in viewing the Phænomena of the Sun; as his Spots, Eclipses, &c. See Sun, Spot, Eclipse, &c.

There are various Apparatus's of this Kind. —

As coloured Glasses are found to diminish the Force of the Sun's Rays; to make a *Helioscope*, 'tis enough that both the Object Glass, and the Eye Glass of the Telescope, be of colour'd Glass; the first, *e. gr.* of Red, and the latter Green.

But, as there is a Necessity for the Glasses to be very transparent, and equally colour'd; which rarely happens: *Hevelius* chuses rather to use two plain coloured Glasses, with a Piece of Paper between, either tied, or cemented together, and applied before the Eye Glass.

Dr. *Hook*, in an express Treatise on *Helioscopes*, recommends four reflecting Glasses placed in the Tube; by these, he observes, the Force of the Rays will be so weaken'd, as only to strike the Eye with a *256th* Part of their Force: And this *Helioscope* he prefers to all others.

M. *Huygen*'s Method is much easier: — He only blackens the inside of the Eye Glass of the Telescope, by holding it over the Flame, or Smoak of a Lamp or Candle. Or, which is yet more commodious, blackens a Piece of plain Glass, and holds it between the Eye and the Object Glass: Or, which is best of all, claps the smoak'd Glass to another, with a Rim of thick Paper between, to keep the black from rubbing off, and fits the two into a Cell, or Frame, to be applied between the Eye and the Eye Glass.

The Word is compounded of ἥλιος, and σκέπτομαι, *video, specto*, I see, view, consider.

HELIOTROPE, Heliotropium, in Natural History, a Plant popularly call'd the *Sun-flower*; as also *Tournsol*, or *Turnsol*. See Tournsol.

The Word is compounded of the *Greek*, ἥλιος, *Sun*, and τρέπω, *verto*, I turn.

Heliotrope, is also a pretious Stone, of a green Colour, streak'd with red Veins. See Pretious *Stone*.

Pliny says 'tis thus call'd, by Reason when cast into a Vessel of Water, the Sun's Rays falling thereon, seem to be of a Blood Colour; and that when out of the Water, it bears some Resemblance of the Figure of the Sun; and is proper to observe Eclipses of the Sun withal, as a *Helioscope*.

The *Heliotrope* is also call'd *Oriental Jasper*, on Account of its ruddy Spots. See Jasper.

It is found in the *East Indies*; as also in *Ethiopia*, *Germany*, *Bohemia*, &c. Some have ascribed to it the Faculty of rendering People invisible, like *Gyges*'s Ring.

HELISPHERICAL *Line*, in Navigation, denotes the *Rhumb Line*. See Rhumb *Line*.

It is thus call'd, because, on the Globe, it winds round the Pole Helically, *i. e.* spirally, and still comes nearer and nearer to it.

HELIX, in Geometry, a *Spiral Line*. See Spiral.

In Architecture, some Authors make a Difference between the *Helix* and *Spiral*.

A Stair-Case, according to *Daviler*, is in a *Helix*, or is *Heliacal*, when the Stairs, or Steps, wind round a Cylindrical Newel; whereas the Spiral winds round a Cone, and is continually approaching nearer and nearer its Axis. See Stair-*Case*.

The Word is *Greek*, ἕλιξ, and literally signifies a *Wreath*, or *Winding*, of ἑλίσσω, *involvo*, I environ.

Helix, in Anatomy, is the whole Circuit or Extent of the Auricle, outwards: In Opposition to which the inner Protuberance answering thereto is call'd *Anthelix*. See Auricle and Ear.

Helix, is also used in Architecture, for the *Caulicoles*, or little Volutes, under the Flower of the *Corinthian* Capital; call'd also *Urillæ*. See Caulicoles and Urillæ.

HELL, *Tartarus*, *Infernus*, a Place of Punishment, wherein the Wicked are to receive the Reward of their Deeds, after this Life. — In this Sense, the Word *Hell* stands opposed to *Heaven*. See Heaven.

Among the Antients, *Hell* was call'd Ταρταρος, Ταρταρα, *Tartarus*, *Tartara*; Ἅιδης, *Hades*, *Infernus*, *Inferna*, *Inferi*, &c. — The *Jews*, wanting a proper Name for it, call'd it *Gehenna*, or *Gehinnon*, from a Valley near *Jerusalem*, wherein was a Tophet, or Place, where a Fire was perpetually kept. See Gehenna.

Divines reduce the Torments of *Hell* to two Kinds; *Pœna Damni*, the Loss and Privation of the Beatific Vision; and *Pœna Sensus*, the Horrors of Darkness, with the continual Pains of Fire inextinguishable.

Most Nations and Religions have their *Hell*. — The *Hell* of the Poets is terrible enough: Witness the Punishment of *Tityus*, *Promotheus*, the *Danaids*, *Lapithæ*, *Phlegyas*, &c. described by *Ovid* in his *Metamorphosis*. *Virgil*, after a Survey of *Hell*, Æneid. *Lib.* VI. declares, that had he a hundred Mouths and Tongues, they would not suffice to recount all the Plagues of the tortured. — The New Testament represents *Hell* as *a Lake of Fire and Brimstone*; *a Worm which dies not*, &c. *Rev.* XX. 10, 14, &c. *Mark* IX. 43, &c. *Luke* XVI. 23, &c. — The *Caffres* are said to admit 13 *Hells*, and 27 Paradises, where every Person finds a Place of Recompence suited to the Degree of Good or Evil he has done.

There are two principal Points of Controversy among Writers touching *Hell*: The *1st*, Whether there really be any *Local Hell*, any proper and specific Place of Torment and Fire: The *2d*, Whether the Torments of *Hell* are to be Eternal.

I. The Locality of *Hell*, and the Reality of the Fire thereof, has been controverted from the Time of *Origen*. — That Father, in his Treatise περὶ ἀρχῶν, interpreting the Scripture Account metaphorically; makes *Hell* to consist not in external Punishments, but in the Conscience of Sinners, the Sense of their Guilt, and the Remembrance of their past Pleasures. — St. *Augustine* mentions several of the same Opinion in his Time; and *Calvin*, and many of his Followers, have embraced it in ours.

The Retainers to the contrary Opinion, much the greatest Part of Mankind, are divided as to the Situation, and other Circumstances of this horrible Scene. — The *Greeks* after *Homer*, *Hesiod*, &c. conceiv'd *Hell*, Τοπον τινα ὑπο την γην μεγαν, &c. a large and dark Place under the Earth: Lucian, *de Luctu*, and *Eustath.* in *Homer*.

Some of the *Romans* lodg'd it in subterranean Regions, directly under the Lake *Avernus*, in *Campania*; which they were led to from the Consideration of the poisonous Vapours emitted by that Lake. See Avernus. — Thro' a dark Cave, near this Lake, *Virgil* makes *Æneas* descend to *Hell*. See Elysium.

Others placed *Hell* under *Tenarus*, a Promontary of *Laconia*, as being a dark frightful Place, beset with thick Woods, out of which there was no finding a Passage. This Way, *Ovid* says, *Orpheus* descended to *Hell*. — Others fancied the River, or Fountain of *Styx* in *Arcadia*, the Spring-head of *Hell*, by Reason the Waters thereof were deadly.

But these are all to be consider'd as only Fables of Poets; who, according to the Genius of their Art, allegorising and personifying every Thing, from the certain Death met withal in these Places, took Occasion to represent them as so many Gates, or entering Places, into the other World. See Fable, Personifying, &c.

The Primitive Christians, conceiving the Earth a large extended Plane, and the Heavens an Arch drawn over the same; took *Hell* to be a Place in the Earth, the furthest Distant from the Heavens; so that their *Hell* was our Antipodes. See Antipodes.

Tertullian, *De Anima*, represents the Christians of his Time, as believing *Hell* to be an Abyss in the Centre of the Earth; which Opinion was chiefly founded on the Belief of Christ's Descent into *Hades*, Hell, *Matt.* XII. 40. See the following Article Hell.

The learned Mr. *Whiston* has lately advanced a New Opinion. — According to him, the Comets are to be conceiv'd as so many *Hells*, appointed, in the Course of their Trajectories, or Orbits, alternately to carry the Damned into the Confines of the Sun, there to be scorch'd by his Flames; and then return 'em to starve in the cold, dreary, dark Regions, beyond the Orb of *Saturn*. See COMET.

The Reverend and Orthodox Mr. *T. Swinden*, in an express Inquiry into the *Nature and Place of Hell*, not contented with any of the Places hitherto assign'd; contends for a new one. — According to him, the Sun it self is the *Local Hell*. See SUN.

This does not seem to be his own Discovery: — 'Tis probable he was led into the Opinion by that Passage in *Rev.* XVI. 8, 9. — Tho' it must be added, that *Pythagoras* seems to have had the like View, in that he places *Hell* in the Sphere of Fire; and that Sphere, in the middle of the Universe. — Add, that *Aristotle* mentions some of the *Italic*, or *Pythagoric* Schools, who placed the Sphere of Fire in the Sun, and even called it *Jupiter*'s Prison. *De Cœlo*, L. II. See PYTHAGORIAN.

To make Way for his own System, Mr. *Swinden* undertakes to remove *Hell* out of the Centre of the Earth, from these two Considerations: — 1°. That a Fund of Fuel or Sulphur, sufficient to maintain so furious and constant a Fire, cannot be there supposed: And 2°. That it must want the nitrous Particles in the Air, to sustain and keep it alive. — And how, says he, can such Fire be Eternal, when by Degrees the whole Substance of the Earth must be consumed thereby?

It must not be forgot, however, that *Tertullian* had long ago obviated the former of these Difficulties, by making a Difference between *Arcanus*, and *Publicus Ignis*, secret and open Fire: The Nature of the first, according to him, is such, as that it not only consumes, but repairs what it preys upon. — The latter Difficulty is solved by St. *Augustine*, who alledges, that God supplies the Central Fire with Air, by a Miracle.

Mr. *Swinden*, however, proceeds to shew, that the Central Parts of the Earth are possess'd by Water, rather than Fire; which he confirms from what *Moses* says of *Water under the Earth*, Exod. XX. from *Psalms* XXIV. 2. and *Job* XXXI. 8. — As a further Proof, he alledges that there would want Room, in the Centre of the Earth, for such an infinite Host of Inhabitants, as the fallen Angels, and wicked Men.

Drexelius, we know, has fix'd the Dimensions of *Hell* to a *German* Cubic Mile, and the Number of the Damned to an hundred Thousand Millions: *De Damnator Carcer. & Rogo.* But Mr. *Swinden* thinks he needed not have been so sparing in his Number, for that there might be found an hundred Times as many; and that they must necessarily be unsufferably crowded in any Space we could allow 'em in our Earth. — 'Tis impossible, he concludes, to stow such a Multitude of Spirits in such a scanty Apartment, without a Penetration of Dimensions, which, he doubts, is not good Philosophy, even in Respect of Spirits: If it be, he adds, 'he does not see why God should prepare, *i. e.* 'make, a Prison for 'em, when they might have been all 'crowded together into a Baker's Oven.' *p.* 206.

His Arguments for the Sun's being the *Local Hell*, are,

1°. Its Capacity: — No Body will deny the Sun spacious enough to receive all the damned conveniently; so that there will be no Want of Room. Nor will Fire be wanting, if we admit of Mr. *Swinden*'s Argument against *Aristotle*, whereby he demonstrates that the Sun is hot, *p.* 208, and *seq.* — The Good Man is 'fill'd with Amazement to think what *Pyrenean* Mountains of Sulphur, 'how many *Atlantic* Oceans of scalding Bitumen, must 'go to maintain such mighty Flames as those of the 'Sun: Our *Ætna* and *Vesuvius* are mere Glow-Worms,' *p.* 137.

2°. Its Distance and Opposition to the *Empyreum*, which has usually been look'd upon as the Local *Heaven*; such Opposition is perfectly answerable to that Opposition in the Nature and Office of a Place of Angels and Devils, of Elect and Reprobate, of Glory and Horror; of Hallelujahs and Cursings: And the Distance quadrates well with *Dives* seeing *Abraham afar off*, &c. *the great Gulf between them*; which this Author takes to be the Solar Vortex.

3°. That the *Empyreum* is the highest, and the Sun the lowest Place of the Creation; considering it as the Centre of our System: And that the Sun was the first Part of the visible World created; which agrees with the Notion of its being primarily intended or prepared to receive the Angels; whose Fall he supposes to have immediately preceded the Creation.

4°. The early, and almost universal Idolatry paid the Sun; which suits well with the great Subtlety of that Spirit to entice Mankind to worship his Throne.

II. As to the Eternity of *Hell Torments*, we have *Origen*, again, at the Head of those who deny it; it being the Doctrine of that Writer, that not only Men, but Devils themselves, after a suitable Course of Punishment, answerable to their respective Crimes, shall be pardoned and restored to Heaven. Aug. *de Civit. Dei*, L. XXI. *C.* 17. — The chief Principle *Origen* went upon was this, that all Punishments are emendatory; applied only as painful Medicines, for the Recovery of the Patient's Health. Other Objections insisted on by modern Authors, are the Disproportion between temporary Crimes, and eternal Punishments, *&c.*

The Scripture Phrases for Eternity, as is observed by Archbishop *Tillotson*, do not always import an infinite Duration: Thus, in the Old Testament, *For Ever*, often signifies only a long Time; particularly till the End of the *Jewish* Dispensation: Thus in the Epist. of *Jude*, V. 7. the Cities of *Sodom* and *Gomorrah* are said to be set forth for an Example, suffering the Vengeance of *Eternal Fire*; that is, of a Fire that was not extinguished till those Cities were utterly consumed. — So one Generation is said to come, *&c.* but the Earth endureth *for Ever*.

In Effect, M. *le Clerc* notes, that there is no *Hebrew* Word which properly expresses Eternity: עולם *Holam*, only imports a Time whose Beginning or End is not known; and is accordingly used in a more or less extensive Sense, according to the Thing treated of.

Thus, when God says, concerning the *Jewish* Laws, that they must be observed לעולם *leholam*, for ever; we are to understand as long a Space as he should think fit; or a Space whose End was unknown to the *Jews* before the coming of the Messiah. — All general Laws, and such as do not regard particular Occasions, are made *for ever*, whether it be expressed in those Laws or not; which yet is not to be understood in such a Manner, as if the Sovereign Power could no Way change them.

Archbishop *Tillotson*, however, argues very strenuously, that where *Hell Torments* are spoke of, the Words are to be understood in the strict Sense of infinite Duration; and what he esteems a peremptory Decision of the Point is, that the Duration of the Punishment of the Wicked, is in the very same Sentence expressed by the very same Word which is used for the Duration of the Happiness of the righteous, which all agree to be Eternal. 'These,' speaking of the Wicked, 'shall go away, εἰς κόλασιν αἰώνιον, into eternal Punishments, but the Righteous, εἰς ζωὴν αἰώνιον, into Life eternal.

The same great Author attempts to reconcile this Eternity with the Divine Justice, which had not been satisfactorily done before. — Some had urged that all Sin is infinite, in Respect of the Object it is committed against, *viz.* God, and therefore deserves infinite Punishment: But, that Crimes should be heightned by the Quality of the Object, to such Degree, is absurd; since the Evil and Demerit of all Sin must then be equal, inasmuch as none can be more than infinite; and consequently there can be no Foundation for Degrees of Punishment in the next Life. Add, that for the same Reason as the least Sin against God is infinite, in Respect of its Object; the least Punishment inflicted by God may be said to be infinite, because of its Author; and thus all Punishments from, as well as Sins against, God, would be equal.

Others have urged, that if the Wicked were to live for ever, they would sin for ever: But this, says the Author, is mere Presumption. Who can say, that if a Man lived ever so long, he would never repent? Besides, the Justice of God only punishes Sins Men have committed, not those they might possibly have done.

Others therefore urge, that God gives Men the Choice of everlasting Happiness and Misery; and that the Reward promised to Obedience, is equal to the Punishment threaten'd to Disobedience. — To which it is answer'd, that tho' it be not contrary to Justice to exceed in Rewards, that being Matter of mere Favour; it may be so to exceed in Punishments.

It may be added, that Man in this Case has nothing to complain of, since he has only his Election. — But tho' this may suffice to silence the Sinner, and make him acknowledge his Destruction to be of himself, yet does not satisfie the Objection from the Disproportion between the Crime and the Punishment. — All the Considerations, therefore, hitherto alledg'd, proving ineffectual; our great Author is left to solve the Difficulty himself.

In Order to this, he observes that the Measure of Penalties, with Respect to Crimes, is not only, not always taken from the Quality and Degree of the Offence; much less from the Duration and Continuance of it; but from the Reasons of Government, which require such Penalties

as

as may secure the Observation of the Law, and deter Men from the Breach of it. — Among Men it is not reckon'd Injustice to punish Murther and many other Crimes which perhaps are committed in a Moment, with perpetual Loss of Estate, or Liberty, or Life. So that the Objection of temporary Crimes being punished with such long Sufferings, is of no Force.

In Effect, what Proportion Crimes and Penalties are to bear to each other, is not so properly a Consideration of Justice, as of Wisdom and Prudence in the Law-giver, who may enforce his Laws with what Penalties he pleases, without any Impeachment of his Justice, which is out of the Question.

The primary End of all Threatning is not Punishment, but the Prevention of it: God does not threaten that Men may sin and be punished; but that they may not sin, and so escape: And therefore the higher the Threatning runs, the more Goodness there is in it.

After all, it is to be consider'd, says the good Archbishop, that he who threatens, has still the Power of Execution in his own Hands. — There is this Difference between Promises and Threatnings; that he who promises, passes over a Right to another, and thereby stands obliged to him in Justice, and Faithfulness to make good his Word; but it is otherwise in Threatnings; he that threatens, keeps the right of punishing still with him, and is not obliged to execute what he threatened, any further than the Reasons and Ends of Government require. — Thus, God absolutely threaten'd the Destruction of *Nineveh*; and his peevish Prophet understood the Threatning to be absolute, and was angry for being employ'd in a Message that was not made good: But God understood his own Right, and did what he pleased, notwithstanding the Threatning he denounced, and notwithstanding *Jonah* was so touched in Point of Honour, that he had rather have perished, than *Nineveh* should have escaped.

Hell, *Hades*, is sometimes also used, in the Scripture-Style, for Death, or Burial; by Reason the *Hebrew* and *Greek* Names, signifie sometimes the Place of the damn'd, and sometimes simply the Grave. See Tomb, Sepulchre, &c.

Divines are divided about the Sense of that Article in the Apostle's Creed, where our Saviour is said to have been crucified, dead and buried, and that he descended into *Hell*, ἅδης. — Some understand this Descent into *Hell* as no other than a Descent into the Tomb, or Sepulchre; which others object against, in that his Burial is expressly mention'd before; and maintain, that our Saviour's Soul actually descended into the subterraneous, or Local *Hell*; where he triumph'd over the Devils, &c.

The *Romanists* add, that he there comforted the Souls in Purgatory; and brought away the Spirits of the Patriarchs, and other just Persons, departed till that Time, carrying them with them into Paradice. See Purgatory, Patriarch, &c.

In the *Romish* Church, that Part of *Hell*, wherein those were retained who died in the Mercy and Favour of God before our Saviour's Suffering, is call'd *Limbus*. See Limbus.

HELLEBORE, Helleborus, Helleborum, Ellebore, a medicinal Plant, reputed, among the Antients, a specific for the Cure of Folly, Melancholy, and Madness.

There are two Sorts of *Hellebore*, the Black and White.

The *Black Hellebore*, *Helleborus Niger*, call'd also *Melampodium*, has a dark-coloured Root, furnished with Abundance of little Fibres; its Stem green, its Leaves dented, and its Flower of a Carnation Hue, not unlike the Rose.

The *White Hellebore*, *Helleborus Albus*, call'd also *Veratrum*, to distinguish it from the former, has a whitish Root, beset with Fibres of the same Colour, shooting out at a Sort of Bulb, not unlike the Head of an Onion. Its Leaves are broad; at first green, afterwards of a yellowish red. From the middle of the Leaves rises a Stem, two or three Foot high, which separates about the middle into Branches, each whereof bears a considerable Number of little Flowers like Stars, disposed in Manner of a *Spica*, or Ear.

'Tis only the Roots are used, in each Kind; which are to be chosen large and fair, furnish'd with big Filaments: Those of the White, tan coloured without, and white within; and those of the Black, blackish without, and brownish within; dry, clean, and of a sharp disagreeable Tast.

The Antients, as already observed, had a great Opinion of their Efficacy in Diseases of the Mind; whence various Phrases and Forms of speaking among Writers: As *Caput Helleboro Dignum*. — He needs a double Dose of *Hellebore*. — The Island of *Anticyra*, situate against Mount *Oeta*, was famous for the Growth and Use of this Plant, it being here in its greatest Perfection, and used with the best Effect. — Whence the Proverb, *Naviget Anticyras*, send him a Voyage to *Anticyra*.

They act as Purgatives, but so very violently, both upwards and downwards, as frequently to cause Convulsions; whence the Use of them internally is now out of Doors, unless joyn'd with other Purgatives, and even Alterants to correct them; but are still retain'd with Success, for the Farcy in Horses, and the Scab in Sheep.

The chief Use wherein the present Practice acknowledges white *Hellebore*, is in Form of a sternutatory Powder, to clear and open the Head. See Sternutatory.

The black *Hellebore* used among us, Dr. *Quincy* suggests to be much inferior in Virtue to that of the Antients; for that it will not operate much by Stool, but is only a powerful Alterative, getting far into the Habit, and so promoting Sweat. See Purgative.

He adds, that he has known it do Wonders in the Gout and Rheumatism, and that it rarely fails in Obstructions of the Menses.

HELLENISM, a Sort of *Grecism*; or a Phrase accommodated to the Genius and Construction of the *Greek* Tongue. See Greek.

The Word *Hellenism*, is distinguish'd from a *Grecism*, in that the former is not applied to Authors who have wrote in *Greek*: Their Language, it is evident, should be a continual *Hellenism*: But it is applied to Authors, who writing in some other Language, use Turns and Expressions peculiar to the *Greek*.

There are Abundance of *Hellenisms* in the Vulgate Version of the Scriptures. See Vulgate.

HELLENISTIC, or Hellenistic *Language*, that used among the *Hellenists*. See Hellenists.

The Criticks are divided as to this Language. — Several of them, and among the rest *Drusius* and *Scaliger*, take it to be the Language used among the *Grecian Jews*, They add, that 'tis in this Language the *Greek* Translation of the Seventy was wrote; and even the Books of the New Testament composed. — M. *Simon* calls it the *Language of the Synagogue*.

It must not be imagined, that this was any peculiar Language distinct from all others; or even any peculiar Dialect of the *Greek*: 'Twas thus denominated, to shew that it was *Greek*, mix'd with *Hebraicisms*, and *Syriacisms*.

Salmasius has opposed the common Opinion of the Learned touching the *Hellenistic* Language; and has wrote two Volumes on the Subject. But his Disputation turns chiefly on Words.

HELLENISTS, Hellenistæ, a Term occurring in the *Greek* Text of the New Testament, and which in the *English* Version is render'd *Grecians*.

The Criticks are divided as to the Signification of the Word. — *Oecumenius* in his *Scholia* on *Acts* VI. 1. observes, that it is not to be understood as signifying those of the Religion of the *Greeks*, but those who spoke *Greek*, τὰς ἑλληνιστὶ φθεγγομένους. The Authors of the Vulgate Version, indeed, render it, like ours, *Græci*; but the Messieurs *du Port Royal*, more accurately, *Juifs Grecs*, Greek or Grecian Jews; it being the *Jews* who spoke *Greek* that are here spoke of, and who are hereby distinguished from the *Jews* call'd *Hebrews*; that is, who spoke the *Hebrew* Tongue of that Time. See Hebrew.

The *Hellenists*, or *Grecian Jews*, were those who lived in *Egypt*, and other Parts, where the *Greek* Tongue prevail'd. 'Tis to them we owe the *Greek* Version of the Old Testament, commonly call'd the *Septuagint*, or Seventy. See Septuagint.

Salmasius, and *Vossius*, are of a different Sentiment with Regard to the *Hellenists*. The latter will only have them to be those who followed the *Greek* Party. *Scaliger* is represented in the *Scaligerana*, as asserting the *Hellenists* to be the *Jews* who lived in *Greece*, and who read the *Greek* Bible in their Synagogue.

HELM, in Navigation, a Horizontal Piece of Timber, serving to move another fitted into it at right Angles, call'd the *Rudder*. See Rudder.

The *Helm*, or *Tiller of a Ship*, is a Beam, or Piece of Timber, fasten'd into the Rudder, and so coming forward into the Steerage; where he that stands at *Helm* steers the Ship. See Steerage, Sailing, &c.

To *A Lee the Helm*, signifies to put the *Helm* to the Lee-Side of the Ship. — To *Bear up the Helm*, is to let the Ship go before the Wind. — To *Port the Helm*, is to put the *Helm* over to the right Side of the Ship. — To *Right the Helm*, or *Helm the Midship*, is to keep it even with the Middle of the Ship. — To *Starboard the Helm*, is to put it to the right Side of the Ship.

Helm, in Chymistry, is the Head of a Still or Alembic; thus call'd, because in Figure it something resembles a *Helm*, or Helmet. See Alembic.

Hence, to bring a Thing *over the Helm*, is the same as to force it by Fire up to the Top of the Vessel, that it

it may diſtil down into the Receiver by the Beak of the Head. See DISILLATION.

And when they ſay, ſuch a Thing cannot be brought over the *Helm*, they mean, that it is of too fixed a Nature to be raiſed into Vapour, by the Force of Fire. See FIXITY and VOLATILITY.

HELMET, or HELM, an antient Armour of Defence, wore by the Cavaliers, both in War, and in Tournaments, as a Cover and Defence of the Head; and ſtill uſed by Way of Creſt or Ornament, over the Shield or Coat of Arms. See CREST.

The *Helmet* is known by divers other Names, as the *Cask*, *Head-piece*, *Steel-Cap*, &c. See CASK.

The *Helmet* cover'd the Head and Face, only leaving an Aperture about the Eyes, ſecured by Bars, which ſerved as a Viſor.

The *Helmet* is bore in Armoury as a Mark of Nobility; and by the different Circumſtances of the bearing of the *Helmet*, are the different Degrees of Nobility indicated. In *France*, whence all our *Heraldry* originally came, the following Rules obtain.

A Perſon newly ennobled, or made a Gentleman, bears over his Eſcutcheon a *Helmet* of bright Iron or Steel; in Profile, or ſtanding ſideways; the Vizor quite cloſe.

A Gentleman of three Deſcents bears it a little open, but ſtill in Profile, ſhewing three Bars of the Vizor.

Antient Knights, &c. have it in Profile, but ſhewing five Bars; the Edges of Silver.

A Baron's *Helmet* is of Silver, the Edges gold; with ſeven Bars, neither quite in Profile, nor yet in Front; with a Coronet over it adorned with Pearls. See BARON.

Viſcounts and Earls formerly bore a Silver *Helmet*, with gold Edges; its Poſition like the former: But now they bear it quite fronting, with a Coronet over it. See VISCOUNT and EARL.

Marquiſſes bear a Silver *Helmet*, damaſk'd, fronting; with eleven Bars, and their Coronet. See MARQUIS, &c.

Dukes and Princes have their *Helmet*, damaſk'd, fronting, the Vizor almoſt open, and without Bars; with their Coronets over them. See DUKE, &c.

Laſtly, the *Helmets* of Kings and Princes, are all of Gold, damaſk'd, full fronting, and the Vizor quite open, and without Bars. See KING, &c.

The *Helmets* of Baſtards are to be turn'd to the left, to denote their Baſtardy. See BASTARD.

Among the *Engliſh Heralds*, theſe Laws are of late ſomewhat varied. — *Leigh* will have the *Helmet* in Profile, and cloſe, to belong to Knights: But all other Authors give it to Eſquires and Gentlemen.

To a Knight they aſſign the *Helmet* ſtanding right forward, and the Bearer a little open. See KNIGHT.

The *Helmet* in Profile, or poſited ſide-ways, and open, with Bars, belongs to a Nobleman under the Condiron of a Duke.

The *Helmet* right forward, and open, with many Bars, is aſſigned to Dukes, Princes, and Kings.

Thoſe turned ſidewiſe, are ſuppoſed to be giving Ear to the Commands of Superiors; and thoſe right forwards to be giving Orders with abſolute Authority.

Commonly there is but one *Helmet* in a Shield; but, ſometimes, two or three; if there be two, they muſt be placed facing each other: If three, the two Extremes muſt be looking towards that in the middle.

HELMONTIAN *Laudanum*. See LAUDANUM.

HELPS, in the Manage. — To teach a Horſe his Leſſons, there are ſeven *Helps*, or Aids, to be known. — Theſe are the *Voice*, *Rod*, *Bit*, or *Snaffle*; the *Calves* of the Legs, the *Stirrups*, the *Spur*, and the *Ground*. See AID.

The *Helps* are occaſionally turn'd into *Corrections*. See CORRECTION.

HELVETIC, ſomething that has a Relation to the *Switzers*, or *Swiſs* Cantons, who were antiently called *Helvetii*.

The *Helvetic* Body is the Republic of *Switzerland*, conſiſting of thirteen Cantons, which make ſo many particular Common-wealths. See CANTON.

By the Laws, and Cuſtoms of the *Helvetic* Body, all Differences between the ſeveral States, and Republicks are to be decided within themſelves, without the Intervention of any foreign Power.

HELVIDIANS, a Sect of antient Hereticks, denominated from their Leader *Helvidius*.

Their diſtinguiſhing Principle was, that *Mary* the Mother of *Jeſus* was not a Virgin; but had other Children by *Joſeph*.

HEMEROBAPTISTS, a Sect among the antient *Jews*, thus call'd from their waſhing and bathing every Day, in all Seaſons. See BAPTISM.

Epiphanius, who mentions this as the fourth Hereſy among the *Jews*, obſerves, that in other Points they had much the ſame Opinions as the *Scribes* and *Phariſees*; only they denied the Reſurrection of the Dead, in common with the *Sadducees*, and retain'd a few other Impieties of theſe laſt.

D' Herbelot ſpeaks of them as a Sect ſtill ſubſiſting: — The Diſciples of St. *John Baptiſt*, ſays he, who in the firſt Ages of the Church were called *Hemerobaptiſtes*, have conſtituted a Sect, or rather a Religion a-part, under the Name of *Mendai Iahia*. Theſe People, whom our Travellers call Chriſtians of St. *John Baptiſt*, by Reaſon their Baptiſm is very different from ours, have been confounded with *Sabæans*, from whom, however, they are very different. See SABÆANS.

HEMERODROMI, among the Antients, were Centinels, or Guards, appointed for the Security and Preſervation of Cities, and other Places. See GUARD.

They went out of the City every Morning, aſſoon as the Gates were open'd, and kept all Day patrolling round the Place, ſometimes making Excurſions further into the Country, to ſee that there were no Enemies laying in wait to ſurpriſe them.

The Word is *Greek*, ἡμερόδρομος, compounded of ἡμερα, *Day*, and δρομος, *Courſe*, *running about*, &c.

HEMERODROMI, were alſo a Sort of *Couriers* among the Antients, who only travell'd one Day, and then deliver'd their Packets or Diſpatches, to a freſh Man, who run his Day; and ſo on, to the End of the Journey. See COURIER.

The *Greeks* had of theſe Sort of Couriers, which they learnt from the *Perſians*, the Inventors thereof, as appears from *Herodotus*. — *Auguſtus* had the ſame: At leaſt, he eſtabliſhed Couriers, who, if they did not relieve each other from Day to Day, yet did it from Space to Space, and that Space was not great.

HEMI, a Word uſed in the Compoſition of divers Terms. — It ſignifies the ſame with *Semi*, or *Demi*, viz. half; being an Abbreviature of ἡμισυς, *hemiſys*, which ſignifies the ſame. See SEMI and DEMI.

The *Greeks* retrench'd the laſt Syllable of the Word ἡμισυς, in the Compoſition of Words; and after their Example we have done ſo too, in moſt of the Compound Words borrowed from them.

HEMICRANIA, in Medicine, a Species of *Cephalalgia*, or *Head-Ach*; wherein one Hemiſphere, or half of the Head is affected. See CEPHALALGIA and HEAD-*Ach*.

HEMICYCLE, HEMICYCLIUM, is a *Semicircle*. See SEMICIRCLE.

HEMICYCLE, is particularly applied in Architecture, to Vaults in the Cradle-Form; and Arches and Frames, or Sweeps of Vaults, conſtituting a perfect Semi-circle. See VAULT.

To conſtruct an Arch of hewn Stone, they divide the *Hemicycle* into ſo many Vouſſoirs; taking Care to make them an uneven Number, that there be no Joynt in the middle, where the Key-Stone ſhould he. See KEY.

The *Hemicyclium* was alſo a Part of the *Orcheſtra* in the antient Theatre. — *Scaliger*, however, obſerves, it was no ſtanding Part of the *Orcheſtra*; being only uſed in Dramatic Pieces, where ſome Perſon was ſuppoſed to be arrived from Sea, as in *Plautus*'s Rudens.

The Antient's had alſo a Sort of Sun-Dial, call'd *Hemicyclium*. — It was a concave Semicircle, the upper End or Cuſp whereof look'd to the North.

There was a Style, or Gnomon, iſſuing from the middle of the *Hemicycle*, whereof that Point correſponding to the Centre of the *Hemicycle*, repreſented the Centre of the Earth: And its Shadow projected on the Concavity of the *Hemicycle* which repreſented the Space between one Tropic and another, the Sun's Declination, the Day of the Month, Hour of the Day, &c.

The Word is compounded of ἡμισυς, *dimidius*, and κυκλος, *Circle*.

HEMINA, a Veſſel uſed as a Meaſure among the antient *Romans*. See MEASURE.

The *Hemina* contain'd eight Ounces of Liquor; and was the 12th Part of the *Congius*. See CONGIUS.

The Word is form'd of the *Greek*, ἡμι, *half*. Several Authors have wrote expreſs Treatiſes on the *Roman Hemina*; particularly Mr. *Arnaud* and *Pelletier*.

St. *Benedict* preſcribes the *Hemina*, as the Portion or Quantity of Wine to be allowed the Religious of his Order at each Meal. Fa. *Mabillon*, who has wrote on the Subject, ſhews that this *Hemina* is a Meaſure peculiar to the *Benedictines*, as well as the Pound of Bread allowed the ſame Religious, which only conſiſted of fifteen Ounces. Fa. *Lancelot* has a Diſſertation to prove that the *Hemina* of Wine, preſcribed by St. *Benedict*, only amounts to a *Demi Septier* of *Paris* Meaſure: Others make it two *Septiers*; and others three.

HEMIOLUS,

HEMIOLUS, an antient Mathematical Term, occurring chiefly in Musical Writers. — It signifies the Ratio of two Things, whereof the one contains the other once and an half; as 3 : 2, or 15 : 10. See RATIO.

Macrobius, on the *Somnium Scipionis*, L. II. *C.* 1. observes, that the Concord, call'd in the antient Music *Diapente*, and in the Modern a *Fifth*, arises from this Proportion. See FIFTH.

The Word is compounded of ἥμι, *half*, and ὅλος, *whole*.

HEMIOPE, or HEMIOPUS, a Musical Instrument in Use among the Antients. See MUSIC.

The *Hemiopus* was a Flute with only three small Holes. See FLUTE.

The Word is compounded of ἥμι, and ὀπὴ, *Hole*.

HEMIPLEGIA, or HEMIPLEXIA, in Medicine, a Palsy of one whole Side of the Body. See PALSY and PARALYSIS.

The Word is compounded of ἥμι, *half*, and πλήσσω, *I strike*, or *seize*.

HEMISPHERE, HEMISPHERIUM, in Geometry, is one half of a Globe, or Sphere, when divided into two by a Plane passing thro' its Centre. See SPHERE.

If the Diameter of a Sphere be equal to the Distance of the two Eyes; and a right Line drawn from the Centre of the Sphere to the middle of that Distance, be perpendicular to the Line which joyns the Eyes: The Eyes making a Rotation on the Axis, or middle Point between them, will see the whole *Hemisphere*. — If the Distance of the Eyes be either greater or lesser than the Diameter of the Sphere; in making such Rotation they will view respectively more or less than a *Hemisphere*. See VISION.

The Writers in Opticks demonstrate, that a Glass *Hemisphere* unites parallel Rays at the Distance of a Diameter, and one third of a Diameter from the Pole of the Glass. See LENS, PARALLEL, &c.

The Centre of Gravity of a *Hemisphere* is five Eights of the Radius, distant from the Vertex. See CENTRE.

HEMISPHERE, in Astronomy, is particularly used for one half of the Mundane Sphere. See WORLD, ASTRONOMY, &c.

The Equator divides the Sphere into two equal Parts, call'd the *Northern* and *Southern Hemispheres*. See EQUATOR.

The *Northern Hemisphere*, is that half in whose Vertex is the North Pole. — Such is that represented by D P A, (*Tab. Astronomy Fig.* 52.) terminated by the Equator D A, and having the Pole P in its Zenith. See POLE and NORTH.

The *Southern Hemisphere*, is that other half D Q A, terminated by the Equator D A; and having the South Pole Q in its Zenith. See SOUTH.

The Horizon also divides the Sphere into two *Hemispheres*, *upper* and *lower*. See HORIZON.

The *Upper Hemisphere* is that half of the Mundane Sphere H Z R, terminated by the Horizon H R, and having the Zenith Z in its Vertex. See ZENITH.

The *Lower Hemisphere*, is that other half H N R, terminated by the Horizon H R, and having the Nadir N in its Vertex. See NADIR.

HEMISPHERE, is also used for a Map, or Projection, of half the terrestrial Globe, or half the Celestial Sphere, on a Plane. See MAP and PROJECTION.

Hemispheres, are frequently called *Planispheres*. See PLANISPHERE.

The Word is compounded of ἥμι, *half*, and σφαῖρα, *Sphere*, or *Globe*.

HEMISPHEROIDAL, in Geometry, something that approaches the Figure of a Hemisphere, but is not justly so. The Cacao opens when yellow and ripe, into two large *Hemispheroids*, three Foot in Diameter. *Freezier*.

HEMISTICH, in Poetry, half a Verse. See VERSE.

'Tis disputed, whether or no the *Hemistichs*, left in the *Æneid*, were left with Design; or whether they are owing to the Work's being unfinish'd.

In *English*, &c. the Common and *Alexandrine* Verses, require a Rest at the End of each *Hemistich*: Common Verses at the End of four Syllables; and *Alexandrine* at the End of six. See VERSE, PAUSE, REST, ALEXANDRINE, &c.

Leonine Verses rhime both at the End and at the *Hemistich*. See LEONINE, RHYME.

The Word is compounded of ἥμι, *half*, and στίχος, *Verse*.

HEMITONE, in the antient Music, was, what we now call an half Note or Tone. See NOTE and TONE.

HEMITRITÆUS, in Medicine, an irregular, intermitting Fever, which returns twice every Day; by which it is distinguish'd from the *Quotidian*, which only returns once in the Day. See FEVER.

The Word is compounded of ἥμι, *half*, and τρίτος, *third*.

HEMLOCK, *Cicuta*, a Narcotic Plant; of some Use in Physic, in that Intention. See NARCOTIC.

There is a Plaster denominated from it in the College Dispensatory; consisting of the Juice of the Plant boiled up with Gums, &c.

The Common *Hemlock* is a Poison; tho' not of the violent Sort. — We have Instances of considerable Quantities being taken without the least Disorder. *Philosoph. Transact.* N°. 231. See POISON.

The *Cicuta* so much celebrated among the Antients, was the Juice of a Species of this Plant, call'd *Oenanthe Aquatica*. See CICUTA.

HEMP, a Plant of great Use in the Arts and Manufactories; furnishing Thread, Cloth, Cordage, &c. See THREAD, &c.

Hemp, by Naturalists call'd *Cannabis*, bears a near Analogy to Flax, *Linum*; both in respect of Form, Culture and Use. See FLAX.

The Plant is annual; that is, must be sown a-fresh every Year. — It rises quick, into a tall, slender Sort of Shrub, whose Stem however is hollow, and big enough to be charr'd, and thus used in the Composition of Gun-Powder. — Its Leaves arise by fives or sixes from the same Pedicle, and are a little jagged; yielding a strong Smell, which affects the Head. — Its Flowers grow grape-wise, opposite to each other, in Manner of a St. *Andrew*'s Cross; each consisting of five yellowish Stamina, incompass'd with a like Number of Petala, purple without, and white within. — Its Fruit, or Seed, is small and round, fill'd with a white solid Pulp; and grows on the Top of the Stem; having its Pedicles distinct from those of the Flowers. — Lastly, its Bark is a Tissue of Fibres, joyn'd together by a soft Matter, which easily rots it.

Hemp is of two Kinds; Male, popularly call'd *Karl*; and Female, or *Fimble*. — 'Tis the Male alone that produces Seed, to perpetuate the Kind: From the Seed of the Male arises both Male and Female.

It does not appear, that the Antients were acquainted with the Use of *Hemp*, in respect of the Thread it affords. *Pliny*, who speaks of the Plant in his *Natural History*, L. XX. *C.* 23. says not a Word of it; contenting himself with extolling the Virtues of its Stem, Leaves and Root. In Effect, what some Writers of the *Roman* Antiquities remark, *viz.* that the *Hemp*, necessary for the Use of War, was all stored up in two Cities of the *Western* Empire, *viz.* at *Ravenna* and *Vienna*, under the Direction of two Procurators, call'd *Procuratores Linificii*; must be understood of Flax.

The Seed is said to have the Faculty of abating Venereal Desires; and its Decoction in Milk, is recommended against the Jaundice, &c. — The Leaves are held good against Burns, and the Juice thereof against Deafness. — The Powder, or Flower, mix'd with any ordinary Liquor, is said to turn those who drink thereof, stupid.

The Culture and Management of *Hemp*, makes a considerable Article in Agriculture; there being divers Operations required therein, as *Pulling*, *Watering*, *Beating*, *Swingling*, &c.

The Plant is sown in *May*, in a warm, sandy, rich Soil; and is it self sufficient to destroy Weeds on any Ground. — About *Lammas* they begin to gather it; the Light or Female being first ripe. The Marks of its Maturity, are its Leaves turning yellow, and the Stalks white.

The Way of gathering, is to *pull* it up by the Roots; after which they bind it up in Handfuls or Bundles: The Male they let stand eight or ten Days in the Air, that the Seed may dry and ripen; after which they cut off the Heads, and beat or thrash them to get out the Seed. — They also beat the Female, to get out a thick fetid Sort of Dust, contain'd therein.

This done, they proceed to *water* or *rate* it, by laying it five or six Days in a Pool, or other stagnant Water, to rot the Bark. A Stream, or running Water, would do the Business much better, but that it infects the Water, and gives it a Quality very pernicious to the Health; for which Reason it is forbid to rate it in Waters used for domestic Purposes

When rotted, and taken out again, they *dry* it; then *Brake* or beat out the dry Bun, or Hex, which is the woody Part of the Stem, from the Rind or Bark which covers it, by crushing it in a tooth'd or nick'd Instrument call'd a *Brake*, beginning with the Root End.

When the Bun is sufficiently broke, and hangs by small Shivers, they *swingle* or beat them out with a Piece of Wood, edged for the Purpose. — Note, the *Karl Hemp* they sometimes break with the Fingers, and strip off the Rind, without the Help of the *Brake*, or *Swingle*.

The next Thing is to *beat* the *Hemp*; which is done either on a Block, or in a Trough, with an Hammer, or with Beetles; till it feel sufficiently soft and pliable. — It remains now to be *heckled*, or passed thro' divers Tonth-Instruments, not unlike the Wool-dressers Combs, of different Fineness: This, separating the shorter Tow from it, the rest is fit to be spun, wove, &c. for Thread,

Cloth, Cordage, or the like. See SPINNING, CORDAGE, &c.

HENDECAGON, in Geometry, a Figure which has eleven Sides, and as many Angles. See FIGURE and POLYGON.

In Fortification, it is taken for a Place defended by eleven Bastions. See BASTION.

The Word is *Greek*, ἑνδεκάγωνον, compounded of ἕνδεκα, *eleven*, and γωνία, *Angle*.

HENDECASYLLABUS, in the *Greek* and *Latin* Poetry, a Verse of eleven Syllables. See VERSE.

Sapphic, and *Phaleuc* Verses, are *Hendecasyllables*, or *Hendecasyllabic*, E. gr.

Sap. *Jam satis terris nivis atque diræ*, &c.
Phal. *Passer mortuus est meæ Puellæ*, &c.

The Word is *Greek*, compounded of ἕνδεκα, *Eleven*, and συλλαμβάνω, whence the Word Syllable is borrow'd.

HENOTICUM, in Church History, a famous Edict of the Emperor *Zeno*, in the Vth Century, intended to reconcile, and reunite the *Eutychians* with the Catholicks. See EUTACHIAN.

It was procured of the Emperor, by Means of *Acacius* Patriarch of *Constantinople*, with the Assistance of the Friends of *Peter Mogus*.

The Sting of this Edict lies here, that it does not admit the Council of *Chalcedon*, like the other three, but rather seems to charge it with Errors. — It is in Form of a Letter, address'd by *Zeno* to the Bishops, Priests, Monks, and People of *Egypt* and *Lybia*. It was opposed by the Catholicks, and condemn'd in Form by Pope *Felix* III.

The Word is *Greek*, ἑνωτικόν, q. d. *unitive*, *reconciliative*; of ἑνόω, *I unite*.

HEPAR, in Anatomy, the *Liver*. See LIVER.

HEPAR *Uterinum*, the same with *Placenta*. See PLACENTA.

HEPATIC, in Medicine and Anatomy, something that relates to the *Liver*; which the *Greeks* call ἧπαρ, *Hepar*. See LIVER.

HEPATIC *Flux*. See FLUXUS *Hepaticus*.

HEPATIC *Vein*, is that otherwise call'd *Basilica*. See BASILICA.

HEPATIC *Duct*, is a Vessel more usually call'd *Porus Bilarius*. See PORUS *Bilarius*.

HEPATI-*Cystic Ducts*. See CYST-*Hepatic Duct*.

HEPATIC *Aloes*, is that otherwise call'd *Aloes Succotrina*. See ALOES.

HEPATIC *Plexus*, See PLEXUS *Hepaticus*.

HEPATITES, *Liver Stone*, in Natural History, a Sort of Stone, thus denominated from its Liver-Colour. See STONE.

HEPATITIS, in Medicine, an Inflammation of the *Liver*, with an Abscess or Imposthume thereof. See INFLAMMATION and LIVER.

The *Hepatitis* bears a near Resemblance to the *Pleurisy*; only that its Symptoms are less intense. See PLEURISY.

It usually either kills the Patient, or discusses, or suppurates gradually, or degenerates into a Schirrus.

HEPATOSCOPIA, the Art of divining, or discovering future, or hidden Things, by inspecting the Entrails of Beasts. See DIVINATION.

The Word is compounded of the *Greek* ἧπαρ, the Genitive of ἧπαρ, *Liver*, and σκοπέω, *I consider*; the Liver being a Part principally regarded.

The *Romans* call'd it *Extispicina*. See EXTISPEX.

HEPTACHORD, in the antient Poetry. — *Heptachord Verses*, were those sung or play'd on seven Chords; that is, in seven different Notes, or Tones; and probably on an Instrument with seven Strings.

The Word is compounded of ἑπτά, *septem*, and χορδή, *Chord*, *String*.

HEPTAGON, in Geometry, a Figure consisting of seven Sides and seven Angles. See FIGURE.

If the Sides be all equal, it is call'd a *Regular Heptagon*. See REGULAR.

In Fortification, a Place strengthen'd with seven Bastions for its Defence, is call'd a *Heptagon*. See BASTION.

The Word is compounded of ἑπτά, *septem*, seven, and γωνία, *Angle*.

HEPTAGONAL *Numbers*, are a Sort of Polygonal Numbers; wherein the Difference of the Terms of the corresponding arithmetical Progression is five. See POLYGONAL *Number*.

One Property, among others, of these Numbers, is, that if they be multiplied by 40, and 9 added to the Product; the Sum is a square Number. See NUMBER.

HEPTAMERIS, EPTAMERIS, literally signifies a seventh Part; being form'd of the *Greek*, ἑπτά, *seven*, and μέρος, *Part* or *Portion*.

The Word is used by M. *Sauveur*, in his Principles of *Acousticks*, for the seventh Part of a *Meris*; and in his *System*, for the 43d Part of the Octave. See OCTAVE.

HEPTAMERON, a Term literally implying *seven Days*; being compounded of ἑπτά, *seven*, and ἡμέρα, *Day*.

It is chiefly used as a Title of certain Books, containing the Transactions of seven Days.

The *Heptameron* of *Margaret de Valois*, Sister to *Francis* I. of *France*, and Queen of *Navarre*, is a very ingenious Piece, in the Manner of *Boccace's Decameron*.

HEPTARCHY, a Government composed of seven Persons: Or a Country govern'd by seven Persons; or divided into seven Kingdoms. See GOVERNMENT.

The *Saxon Heptarchy*, included all the *Southern* Part of *England*, which was canton'd out into seven petty Kingdoms. It subsisted from the Year 428, to the Year 825, when King *Egbert* re-united them into one; and made the *Heptarchy* into a Monarchy. See MONARCHY.

The Word is compounded of the *Greek*, ἑπτά, *seven*, and ἀρχή, *Imperium*, Command, Rule.

HEPTATEUCH, in Matters of Literature, a Volume consisting of seven Books: Or a Work in seven Books.

The Term is chiefly applied to the first seven Books of the Old Testament, viz. *Genesis*, *Exodus*, *Leviticus*, *Numbers*, *Deuteronomy*, *Joshua*, and *Judges*; that is, the five Books of *Moses* called the *Pentateuch*; and the two following ones, which are usually joyn'd therewith. See PENTATEUCH.

The Word is composed of ἑπτά, *seven*, and πυχόμαι, *I do*, *I work*; whence πυχός, *a Work*, *Book*, and ἑπτάπυχος, *Heptateuch*, a Work of seven Parts; or seven different Works joyn'd in one Volume.

HEPHTHEMIMERES, in the *Greek* and *Latin* Poetry, a Sort of Verse consisting of three Feet, and a Syllable; that is, of seven half Feet. See VERSE, FOOT, &c.

Such are most of the Verses in *Anacreon*.

Θέλω | λέγειν | Ατεε | δας,
Θέλω | οὐδὲ κ'ὀν | μαν ἀ | δεῖν, &c.

And that of *Aristophanes* in his *Plutus*:

Ἔ πεσε μητεὶ χοῖρε.

They are also call'd *Trimetri Catalectici*.

HEPHTHEMIMERES, or HEPHTHEMIMERIDE, is also a *Cæsura*, after the third Foot, that is, in the seventh half Foot. See CÆSURA.

'Tis a Rule, that this Syllable, tho' it be short in itself, must be made long, on Account of the *Cæsura*, or to make it an *Hephthemimeres*: As in that Verse of *Virgil*.

Et furiis agitatus Amor, & conscia Virtus.

It may be added, that the *Cæsura* is not to be on the fifth Foot, as it is in the Verse which Dr. *Harris* gives us for an Example,

Ille latus niveum molli fultus Hyacintho.

This is not a *Hepthemimeres Cæsura*, but a *Hennea-mimeres*, i. e. of nine half Feet.

The Word is *Greek*, Ἑφθημιμερής, composed of Ἑπτά, *seven*, ἡμισυς, *half*, and μέρος, *Parts*.

HERACLEONITES, antient Hereticks, of the Party of the *Gnosticks*; thus called from their Leader, *Heracleon*. See GNOSTICKS.

S. *Epiphanius*, Hær. 36. is very ample on this Heresy. He represents *Heracleon* as one who had reform'd the Theology of the *Gnosticks* in many Points; tho', at Bottom, he had retain'd the principal Articles thereof. He refined on the ordinary Interpretations of Abundance of Texts of Scripture; and even alter'd the Words of some to make them consist with his own Notions.

For Example, he maintain'd, that by those Words of St. John, *all Things were made by him*, is not to be understood the Universe, and all that is good therein: The Universe, which he calls *Æon*, was not made by the Word, but was made before him. And to support this Construction, he added to those Words of St. John, *without him nothing was made*, those other Words *of Things in the World*.

He distinguished two Kinds of Worlds; the one Divine, the other Corruptible; and restrained the Word πάντα, *all Things*, to this last. He held that the Word did not create the World immediately, and of himself, but only gave Occasion to the *Demiurgos* to do it.

The *Heracleonites*, after the Example of their Master, annull'd all the antient Prophecies; holding, that St. *John* was really the Voice that proclaimed and pointed out the Messiah, but that the Prophecies were only empty Sounds, and signified nothing. — They held themselves superior in Point of Knowledge to the Apostles; and on that footing dared to advance the most extravagant Paradoxes, on Pretence of explain-

explaining Scripture in a ſublime, elevated Manner. They were ſo fond of theſe Myſtic Interpretations, that *Origen*, tho' a Stickler that Way himſelf, was obliged to reproach *Heracleon* with his abuſing Scripture by that Means. See PROPHECY, ALLEGORY, &c.

HERACLIDES, in Antiquity, the Deſcendants of *Hercules*; whom the *Greeks* called Ἡρακλῆς, *Heracles*.

The *Heraclides* were expell'd from *Peloponneſus*, by *Euriſtheus* King of *Mycenæ*, after the Death of *Hercules*.

The Return of the *Heraclides* into *Peloponneſus*, is a celebrated Epocha in the antient Chronology; tho' the Time when it happen'd is differently aſſign'd, by reaſon Authors miſtake the divers Attempts which they made to return, for the Return it ſelf. The firſt Attempt was 20 Years before the taking of *Troy*: The ſecond, was 100 Years later, or 80 Years after the taking of *Troy*. This laſt is ſuppoſed to have ſucceeded; at leaſt, according to *Petavius*, who mentions only theſe two. *Rat. Temp.* P. I. *L.* I. C. 12. and *Doctr. Temp.* L. IX. and *C.* 30.

Scaliger diſtinguiſhes three Attempts; and fixes the firſt, 50 Years later than *Petavius*, viz. 30 Years after the taking of *Troy*. He ſays nothing of the ſecond, which was unfortunate like the firſt; but places the third in the ſame Year with *Petavius*. — This Return occaſion'd a World of Changes and Revolutions in the Affairs of *Greece*; ſcarce a State, or People, but were turn'd upſide down thereby. See EPOCHA.

The Return of the *Heraclides* is the Epocha of the Beginning of profane Hiſtory: All the Time that preceded it, is reputed fabulous. Accordingly, *Ephorus*, *Cumanus*, *Calliſthenes*, and *Theopompus*, only begin their Hiſtories from hence. See HISTORICAL.

HERALD, an Officer of Arms, antiently in great Repute, and poſſeſs'd of ſeveral conſiderable Functions, Rights and Privileges. See ARMS and ARMOURY.

Their principal Employment was to compoſe, or make out Coats of Arms, Genealogies, and Titles of Nobility. They were the Superintendants of military Exploits, and the Conſervators of the Honours of War. They had a Right to take away the Arms of ſuch as for Cowardice, Treaſon, &c. deſerv'd to be degraded. They had a Commiſſion to examine, and correct the Vices and Diſorders of the Nobles, and to exclude them from Juſts, Tournaments, &c. To them belong'd the correcting of all Uſurpations, and Abuſes relating to Crowns, Coronets, Caſks, Creſts, Supporters, &c. They took Cognizance of all Differences among the Nobles, with Reſpect to their Bearings, the Antiquity of their Families, Precedencies, &c. They went into the Countries to ſearch into the Grounds and Pretenſions of Nobility; and had a Right to open all Libraries, and to command all the antient Charters and Inſtruments in the Archives to be ſhown them. They had Admiſſion into all foreign Courts; where they were commiſſion'd to proclaim War, and Peace; and their Perſons were held ſacred as thoſe of Embaſſadors.

To them it belong'd to make Publication of Juſts and Tournaments; to call the People to them; to ſignify the Cartels; to mark the Ground, Liſt, or Place of Duel; to ſee fair play obſerv'd; and to divide the Sun between the two Parties. In the Army, they advertiſed the Cavaliers, and Captains, of the Day of Battle, and aſſiſted therein, before the Standard, retiring, after the firſt Onſet, to ſome Place of Eminence, there to obſerve who behaved beſt, and to give a faithful Report thereof to the King. They number'd the Dead, reliev'd the Enſigns, redemanded Priſoners, ſummon'd Places to ſurrender, and in Capitulations walk'd before the Governour of the Place, to ſecure and warrant his Perſon. They were the principal Arbitrators of the Diſtribution of the Spoils of the vanquiſh'd, and of military Rewards. They publiſh'd Victories; and gave Notifications thereof to foreign Courts. They convened the Eſtates of the Kingdom, aſſiſted at Royal Marriages, and frequently made the firſt Demand; officiated at ſolemn Feaſts, &c.

The Origin of *Heralds* is very antient. — *Stentor* is repreſented by *Homer* as *Herald* of the *Greeks*, who had a Voice louder than fifty Men together. The *Greeks* call'd them κήρυκες, and εἰρηνοφύλακες; and the *Romans*, *Feciales*. See FECIALES.

The *Romans* had a College of *Heralds*, appointed to decide whether a War were juſt or unjuſt; and to prevent its coming to open Hoſtilities, till all Means had been attempted for deciding the Difference in a pacific Way. See COLLEGE.

Heralds, or *Heralds at Arms*, have formerly been denominated *Dukes at Arms*, becauſe properly belonging to Dukes; as Kings at Arms, to Kings. See KING *at Arms*.

In *England*, we have ſix *Heralds*, viz. 1°. *Richmond*, 2°. *Lancaſter*, 3°. *Cheſter*, 4°. *Windſor*, 5°. *Somerſet*, 6°. *York*. Their Office is to wait at Court, to attend public Solemnities, proclaim War and Peace; look to the Regulation of the Bearings of Arms, ſearch Pedigrees, &c.

They were formerly created and chriſten'd by the King, who ſlowly pouring a gold Cup of Wine on their Head, gave them their *Herald's* Name: Now 'tis done by the Earl Marſhal. — They could not arrive at the Dignity of *Herald*, without having been ſeven Years Pourſuivant: Nor could they quit the Function of *Herald*, but to be made King at Arms. See POURSUIVANT, &c.

The modern *Heralds*, i. e. thoſe we properly call *Heralds*, have loſt a good deal of the Diſtinction and Offices of the antient ones. What relates to the making out Arms, the rectifying of Abuſes therein, &c. is chiefly committed to the *Kings at Arms*.

And in the Army, Drums and Trumpets have ſucceeded to the Function of *Heralds*; being ſent by the Generals on the ſame Errands; and on that Account enjoying the ſame Rights and Privileges. Their Perſons are under the Protection of the Law of Nations, when they bear the Marks of their Office publickly, *i. e.* the Trumpeter his Trumpet, and the Drummer his Drum; in the ſame Manner as the *Herald* his Coat.

The ſix *Heralds*, with the three Kings at Arms, and the four Pourſivants, are a *College*, or Corporation; erected into ſuch by Charter of *Richard* III. who granted them divers Privileges, as to be free from Subſidies, Tolls, and all troubleſome Offices. See COLLEGE *of Arms*.

Clarencieux, and Norroy King at Arms, are alſo call'd *Provincial Heralds*. See CLARENCIEUX, &c.

The Word *Herald*, according to *du Cange*, comes from the two *German* Words, *Here*, Army; and *helt*, or *held*, Servant; becauſe chiefly ſerving in the Army: Others, will have the two Words ſignify *Champion of the Army*, in Alluſion to their Office of denouncing War, proclaiming Peace, &c. — *Du Cange* adds, that they were call'd *Clarigarii* as well as *Heralds*.

Borel derives the Word from the Latin *Herus*, Maſter; *q. d.* one coming from his Maſter. Others from *Herhaut*, q. d. High-lord; others from *Herold*, which is the ſame with *Dominus Veteranus*: And others, laſtly, from *heerhoud*, q. d. faithful to his Lord, or the Army.

HERALDRY, the Art of Armoury, and Blazoning; or the Knowledge of what relates to the Bearing of Arms, and the Laws and Regulation thereof. See ARMS, ARMOURY, BLAZON, &c.

Heraldry likewiſe comprehends what relates to the Marſhalling of ſolemn Cavalcades, Proceſſions, and other Ceremonies at Coronations, Inſtallments, Creations of Peers, Funerals, Nuptials, &c. See HERALD.

HERB, a Name common to all Plants whoſe Stalks, or Stems, die away every Year, after their Seed is become ripe. See PLANT.

There are ſome *Herbs* whoſe Root periſhes with the Stem: And others, where the Root ſurvives the Stem by ſeveral Years. See ROOT and STEM.

Of the former, thoſe which come to Maturity the firſt Year, and after they have caſt their Seed, die away; are call'd *Annuals*: Such are *Wheat*, *Rye*, &c. See ANNUALS.

Thoſe which only bear Flowers and Fruit the ſecond Year, or even the third Year, and then periſh; are called *Biſannuals*: Such are the Garden *Angelica*, and ſome others.

Herbs whoſe Root does not periſh after they have ſhed their Seed, are call'd *Perennials*; ſuch are *Mint*, *Fennel*, &c. See PERENNIAL.

Of theſe, ſome keep their Leaves all the Year round, and are call'd *Ever-greens*; as the *Aſarabaca*, *yellow Violet*, &c. See EVER-GREEN.

The reſt loſe their Leaves, and continue bare, part of the Year; as *Fern*, *Colts-foot*, &c.

Herbs are alſo diſtinguiſhed into *Kitchin*, or *Sallet-Herbs*, and *Medicinal Herbs*.

Sallet-HERBS, *Pot*-HERBS, } See { SALLET. POT-*Herb*.

The Word *Herb* is form'd of the Latin *Herba*; which ſome derive from *Arvum*, Field: Others derive it from the *Greek*, φέρβειν, *paſcere*, to feed; of φέρβη, *Pabulum*. Of the Greek *Ferbe*, the *Latins* form'd *Ferba*; and of *Ferba*, Herba, after the Manner of the *Spaniards*, who always change the *f* at the Beginning of a Word into *h*. See F and H.

HERBAGE, a collective Name, comprehending all Kinds of *Herbs*. See HERB.

The antient Hermits liv'd altogether of *Herbage*. See HERMIT.

What makes the principal Difference in the Goodneſs of Butters and Cheeſes, is the Difference of *Herbage*. See BUTTER, &c.

HERBAGE, in Law, ſignifies the Paſture, or Fruits of the Earth, provided by Nature for the Bite or Mouth of Cattle. See PASTURE, &c.

The

The Word is alſo uſed for a Liberty, that a Man hath to feed his Cattle in another Man's Ground; as, in the Foreſt. — *Occurrit frequens* (ſays *Spelman*) *pro jure depaſcendi alienum ſolum, ut in foreſtis.*

HERBAL, a Book which treats of Plants; or deſcribes the Figure, Genus, Species, Properties, Virtues, *&c.* of *Herbs*, Trees, Seeds, *&c.* See PLANT.

Such are *Gerard's Herbal*, *Parkinſon's Herbal*, &c.

HERBAL, is alſo uſed for a Set or Collection of Specimens of the ſeveral Kinds of Plants, dried and preſerved in the Leaves of a Book.

In the *Philoſophical Tranſactions*, we have a Method deſcribed for preſerving Specimens for ſuch an *Herbal.* — The Flowers, Leaves, *&c.* gather'd perfectly ripe, and in their true Colours, are to be ſpread on brown Paper, with the Parts all diſplay'd as diſtinctly as may be. If the Stem, or the Body of the Flower, *&c.* be thick, one half to be pared away to make it lye flat. Over them is to be ſpread another brown Paper; and the whole to be put between two Iron Plates, ſcrew'd tight together, and thus baked in an Oven for two Hours. When taken out, waſh them over with a Mixture of Brandy and *Aqua fortis*, and lay them on freſh Paper to dry. Laſtly, lick over the Backſides with a Bruſh dipped in a Diſſolution of *Gum Dragon*, to make them ſtick; and lay them in the Paper Book, where they will lye faſt, and always look freſh.

HERBALIST, or HERBORIST, a Perſon knowing in Plants; the ſame with *Botaniſt.* See BOTANIST.

HERBE, in the Academies, a Reward, or ſome good Stuff given to a Horſe that has work'd well in the Manage. See HORSE, *&c.*

HERBENGER, or HARBINGER, an Officer of the King's Court, who allots the Noblemen, and thoſe of the Houſhold their Lodging. See HARBINGER.

HERCULES, in Aſtronomy, one of the Conſtellations of the Northern Hemiſphere. See CONSTELLATION.

The Stars in the Conſtellation *Hercules*, in *Ptolomy's* Catalogue are 29: In *Tycho's* 28: In the *Britannic* Catalogue 95. The Longitudes, Latitudes, Magnitudes, *&c.* whereof are as follow.

Stars in the Conſtellation HERCULES. ἐν ΓΟΝΑΣΙΝ.

Names and Situations of the Stars.	Sign.	Longit. ° ′ ″	Latitude. North. ° ′ ″	Magnit.
In the Extrem. of the Preced. Foot.	♑	28 07 58	57 06 09	5
Another follow. this & contiguous.	♏	28 20 48	57 14 25	5 4
		0 41 32	57 13 30	6
In the Preced. Thigh.		3 49 02	60 15 56	4
5		3 53 59	61 05 43	5 6
		4 41 24	60 38 53	6
That Preced. the Ulna.		19 08 16	37 35 34	5
		23 20 09	25 15 42	5 6
		23 07 21	30 14 32	6
North. in the Calf of the Preced. Leg.		3 58 25	64 20 11	4
10				
In the Preced. Ulna. according to Bayer, in the Hand.)		21 18 33	37 14 20	4
Another contiguous to this to the South.)		21 28 09	37 26 10	6
		22 24 34	37 03 43	6
In the Preced. South. Calf of Leg.		20 23 23	43 43 48	5
15		7 20 50	63 50 09	4
North. of the Preced. in the Club.		24 50 05	32 11 07	6 5
Another contiguous to this.		25 08 01	32 10 39	6
		23 01 35	30 22 43	5 6
In the Preced. Arm.		24 51 32	40 02 12	3
In the Club, the middle of Preced.		28 27 13	28 10 49	6
20				
Againſt the Preced. Knee.		9 56 46	65 51 29	4
		19 37 11	54 15 48	5
		19 43 17	54 10 22	5
		20 30 51	52 53 41	6
North. of the Subſeq. in the Club.		27 12 27	35 13 14	4 5
25				
(Arm-pit.		18 52 35	57 53 20	5
In the Preced. Shoulder near the		26 45 10	42 44 55	3
South. of the Preced. in the Club.	♐	1 03 32	27 09 23	6
Middle of the Subſeq. in the Club.	♏	29 53 38	33 02 45	5
South in the Middle of the Preced.		17 06 16	62 19 46	5
Thigh.) 30				
		24 53 26	51 41 38	6
(Thigh.	♐	11 13 55	69 00 00	6
North. in the middle of the Preced.	♏	1 55 58	28 53 42	6
Preced. in the Extrem. of the Club.	♐	18 51 39	63 11 37	4
35		3 30 30	26 12 09	6
		2 04 16	34 16 30	6
	♏	28 46 42	48 35 14	5
In the Preced. Side.		27 08 51	53 07 14	3 4
		14 58 13	69 33 21	5
South. of the Subſeq. in the Club.	♐	4 12 55	30 41 30	5 6
40				
(againſt the Buttocks.		2 46 35	37 45 47	6
In the Top of the Preced. Thigh	♏	24 22 07	60 19 48	3
Middle in Extrem. of the Club.	♐	5 18 31	27 27 57	5
		4 25 27	33 17 27	6
Subſeq. in the Extrem. of the Club.		5 42 37	29 32 02	5 6
45				
	♐	4 29 34	35 27 56	6
		0 24 26	51 54 01	6 5
		4 52 18	37 14 19	6
		0 55 30	51 48 33	5
That between the Shoulders.		2 44 56	46 47 08	5
50				
		22 17 39	67 25 36	5 6
In the Neck.		1 08 07	53 45 58	5
		5 15 10	40 46 55	4 5
		4 26 56	47 41 07	6
		7 46 52	37 32 06	6
55				
That in the following Side.		3 57 40	53 17 15	3
More South in the follow. Buttock.		3 37 33	55 56 10	6
Preced. in the Crown of the Head.		9 14 39	35 26 42	5 6
In the Riſe of the following Thigh.		4 27 05	57 54 38	6
		8 18 04	47 12 48	6
60				
In the Head.		11 49 24	37 18 54	3
In the following Shoulder.		10 24 02	47 44 13	3 4
Subſeq. in the Crown of the Head.		13 24 13	33 55 38	5 6
Foremoſt of three in the Thigh.		7 41 13	59 35 33	3 4
Foremoſt of two in the Belly.		9 33 15	55 59 17	5
65				
Middle on the following Thigh.		8 33 10	60 08 25	5
That following the hind Shoulder.		12 25 07	47 31 53	5
Subſeq. and South. againſt the Belly.		10 53 28	55 32 12	6
		6 13 52	69 02 52	6
Laſt of three in the Thigh.		10 59 00	60 10 03	4
70				
In the hind Arm.		15 32 52	49 20 18	5
Preced. of three in the hind Foot.		8 16 30	71 14 16	6
Middle in the following Foot.		13 13 40	71 48 31	5
In the following Tibia.		15 32 10	69 18 24	4
That in the following Arm.		20 55 31	51 12 41	3 4
75				
Laſt of three in the Foot.		20 23 36	71 49 49	6
In the Calf of the following Leg.		22 43 20	63 28 19	6
In the following Knee. (Arm.		24 05 50	60 43 57	3
Mid. in the Carpus of the follow.		24 49 26	52 44 27	3 4
Preced. and South. in the Branch.		25 42 00	40 19 26	5
80				
North. in the Carpus.		25 05 57	53 40 34	4
Preced. of two middle ones in the Branch.)		26 07 34	45 04 57	4 5
		26 23 48	44 19 16	6
		27 37 30	45 42 06	6
Preced. of two over the Carpus.		28 14 26	54 01 44	6
85				
Inform. under Subſeq. in the Carpus.		28 21 20	49 33 56	6
Subſeq. and South. of 3 in the Carpus.		28 20 10	52 13 26	4 5
		28 29 58	43 30 48	6
Laſt of the mid. ones in the Branch.		28 29 54	44 17 09	4 5
Laſt over the Carpus.		0 05 11	54 50 30	6
90				
That in the hind Hand.		2 21 15	45 19 56	6 7
Small one over it.		3 08 56	52 13 13	5 6
Subſeq. in the Branch.		3 13 35	53 12 30	6 7
Inform. behind the Branch, over the		3 25 30	45 06 58	4
95 (Eagles Tail.		13 46 35	45 17 05	5

HERCULEUS *Morbus*, in Medicine, the Epilepſy; thus call'd, from the Terror of its Attacks, and the Difficulty of Cure. See EPILEPSY.

HERD, among Hunters, a Company, or Aſſemblage, of black or fallow Beaſts; in Contradiſtinction to *Flock.* See FLOCK.

A *Herd* of Deer from ſuch a Foreſt. — The Deer begin to *herd* in the Month of *December*. See GAME, HUNTING, *&c.*

In the Hunting Language, there are various Terms uſed for Companies of the divers Kinds of Game. — We ſay a *Herd* of Harts or Bucks; a *Bevy* of Roes; a *Rout* of Wolves; a *Richeſs* of Martens, *&c.* See HUNTING.

The Word is form'd of the antient Gauliſh *Hordage*, ſignifying the ſame Thing.

HERDEWICH, HERDEWIC, HERDEWYCH, in our antient Law-Books, a Grange, or Place for Cattle and Husbandry. See GRANGE.

Et unam Herdewycham *apud Hethcotum in Peco*, &c. Mon. Angl.

HEREBOTE, the King's Edict antiently iſſued to command his Subjects into the Field.

The Word is form'd of the Saxon *Here*, Exercitus, *Army*; and *Bode*, a *Meſſenger.*

HEREDITAMENTS, in Law, are ſuch Things immoveable, as a Man may have to himſelf and his Heirs, by Way of Inheritance; or which, not being otherwiſe bequeathed, do naturally, and of Courſe, deſcend to him, and

explaining Scripture in a ſublime, elevated Manner. They were ſo fond of theſe Myſtic Interpretations, that *Origen*, tho' a Stickler that Way himſelf, was obliged to reproach *Heracleon* with his abuſing Scripture by that Means. See PROPHECY, ALLEGORY, &c.

HERACLIDES, in Antiquity, the Deſcendants of *Hercules*; whom the *Greeks* called Ἡρακλῆς, *Heracles*.

The *Heraclides* were expell'd from *Peloponneſus*, by *Euriſtheus* King of *Mycenæ*, after the Death of *Hercules*.

The Return of the *Heraclides* into *Peloponneſus*, is a celebrated Epocha in the antient Chronology; tho' the Time when it happen'd is differently aſſign'd, by reaſon Authors miſtake the divers Attempts which they made to return, for the Return it ſelf. The firſt Attempt was 20 Years before the taking of *Troy*: The ſecond, was 100 Years later, or 80 Years after the taking of *Troy*. This laſt is ſuppoſed to have ſucceeded; at leaſt, according to *Petavius*, who mentions only theſe two. *Rat. Temp.* P. I. *L.* I. C. 12. and *Doctr. Temp.* L. IX. and *C.* 30.

Scaliger diſtinguiſhes three Attempts; and fixes the firſt, 50 Years later than *Petavius*, viz. 30 Years after the taking of *Troy*. He ſays nothing of the ſecond, which was unfortunate like the firſt; but places the third in the ſame Year with *Petavius*. — This Return occaſion'd a World of Changes and Revolutions in the Affairs of *Greece*; ſcarce a State, or People, but were turn'd upſide down thereby. See EPOCHA.

The Return of the *Heraclides* is the Epocha of the Beginning of profane Hiſtory: All the Time that preceded it, is reputed fabulous. Accordingly, *Ephorus*, *Cumanus*, *Calliſthenes*, and *Theopompus*, only begin their Hiſtories from hence. See HISTORICAL.

HERALD, an Officer of Arms, antiently in great Repute, and poſſeſs'd of ſeveral conſiderable Functions, Rights and Privileges. See ARMS and ARMOURY.

Their principal Employment was to compoſe, or make out Coats of Arms, Genealogies, and Titles of Nobility. They were the Superintendants of military Exploits, and the Conſervators of the Honours of War. They had a Right to take away the Arms of ſuch as for Cowardice, Treaſon, &c. deſerv'd to be degraded. They had a Commiſſion to examine, and correct the Vices and Diſorders of the Nobles, and to exclude them from Juſts, Tournaments, &c. To them belong'd the correcting of all Uſurpations, and Abuſes relating to Crowns, Coronets, Caſks, Creſts, Supporters, &c. They took Cognizance of all Differences among the Nobles, with Reſpect to their Bearings, the Antiquity of their Families, Precedencies, &c. They went into the Countries to ſearch into the Grounds and Pretenſions of Nobility; and had a Right to open all Libraries, and to command all the antient Charters and Inſtruments in the Archives to be ſhown them. They had Admiſſion into all foreign Courts; where they were commiſſion'd to proclaim War, and Peace; and their Perſons were held ſacred as thoſe of Embaſſadors.

To them it belong'd to make Publication of Juſts and Tournaments; to call the People to them; to ſignify the Cartels; to mark the Ground, Liſt, or Place of Duel; to ſee fair play obſerv'd; and to divide the Sun between the two Parties. In the Army, they advertiſed the Cavaliers, and Captains, of the Day of Battle, and aſſiſted therein, before the Standard, retiring, after the firſt Onſet, to ſome Place of Eminence, there to obſerve who behaved beſt, and to give a faithful Report thereof to the King. They number'd the Dead, reliev'd the Enſigns, redemanded Priſoners, ſummon'd Places to ſurrender, and in Capitulations walk'd before the Governour of the Place, to ſecure and warrant his Perſon. They were the principal Arbitrators of the Diſtribution of the Spoils of the vanquiſh'd, and of military Rewards. They publiſh'd Victories; and gave Notifications thereof to foreign Courts. They convened the Eſtates of the Kingdom, aſſiſted at Royal Marriages, and frequently made the firſt Demand; officiated at ſolemn Feaſts, &c.

The Origin of *Heralds* is very antient. — *Stentor* is repreſented by *Homer* as *Herald* of the *Greeks*, who had a Voice louder than fifty Men together. The *Greeks* call'd them κήρυκες, and ἱερηνοφύλακες; and the *Romans*, *Feciales*. See FECIALES.

The *Romans* had a College of *Heralds*, appointed to decide whether a War were juſt or unjuſt; and to prevent its coming to open Hoſtilities, till all Means had been attempted for deciding the Difference in a pacific Way. See COLLEGE.

Heralds, or *Heralds at Arms*, have formerly been denominated *Dukes at Arms*, becauſe properly belonging to Dukes; as Kings at Arms, to Kings. See KING *at Arms*.

In *England*, we have ſix *Heralds*, viz. 1°. *Richmond*, 2°. *Lancaſter*, 3°. *Cheſter*, 4°. *Windſor*, 5°. *Somerſet*, 6°. *York*. Their Office is to wait at Court, to attend public Solemnities, proclaim War and Peace; look to the Regulation of the Bearings of Arms, ſearch Pedigrees, &c.

They were formerly created and chriſten'd by the King, who ſlowly pouring a gold Cup of Wine on their Head, gave them their *Herald's* Name: Now 'tis done by the Earl Marſhal. — They could not arrive at the Dignity of *Herald*, without having been ſeven Years Pourſuivant: Nor could they quit the Function of *Herald*, but to be made King at Arms. See POURSUIVANT, &c.

The modern *Heralds*, i. e. thoſe we properly call *Heralds*, have loſt a good deal of the Diſtinction and Offices of the antient ones. What relates to the making out Arms, the rectifying of Abuſes therein, &c. is chiefly committed to the *Kings at Arms*.

And in the Army, Drums and Trumpets have ſucceeded to the Function of *Heralds*; being ſent by the Generals on the ſame Errands; and on that Account enjoying the ſame Rights and Privileges. Their Perſons are under the Protection of the Law of Nations, when they bear the Marks of their Office publickly, *i. e.* the Trumpeter his Trumpet, and the Drummer his Drum; in the ſame Manner as the *Herald* his Coat.

The ſix *Heralds*, with the three Kings at Arms, and the four Pourſivants, are a *College*, or Corporation; erected into ſuch by Charter of *Richard* III. who granted them divers Privileges, as to be free from Subſidies, Tolls, and all troubleſome Offices. See COLLEGE *of Arms*.

Clarencieux, and Norroy King at Arms, are alſo call'd *Provincial Heralds*. See CLARENCIEUX, &c.

The Word *Herald*, according to *du Cange*, comes from the two *German* Words, *Here*, Army; and *helt*, or *held*, Servant; becauſe chiefly ſerving in the Army: Others, will have the two Words ſignify *Champion of the Army*, in Alluſion to their Office of denouncing War, proclaiming Peace, &c. — *Du Cange* adds, that they were call'd *Clarigarii* as well as *Heralds*.

Borel derives the Word from the Latin *Herus*, Maſter; *q. d.* one coming from his Maſter. Others from *Herhaut*, q. d. High-lord; others from *Herold*, which is the ſame with *Dominus Veteranus*: And others, laſtly, from *heerhoud*, q. d. faithful to his Lord, or the Army.

HERALDRY, the Art of Armoury, and Blazoning; or the Knowledge of what relates to the Bearing of Arms, and the Laws and Regulation thereof. See ARMS, ARMOURY, BLAZON, &c.

Heraldry likewiſe comprehends what relates to the Marſhalling of ſolemn Cavalcades, Proceſſions, and other Ceremonies at Coronations, Inſtallments, Creations of Peers, Funerals, Nuptials, &c. See HERALD.

HERB, a Name common to all Plants whoſe Stalks, or Stems, die away every Year, after their Seed is become ripe. See PLANT.

There are ſome *Herbs* whoſe Root periſhes with the Stem: And others, where the Root ſurvives the Stem by ſeveral Years. See ROOT and STEM.

Of the former, thoſe which come to Maturity the firſt Year, and after they have caſt their Seed, die away; are call'd *Annuals*: Such are *Wheat*, *Rye*, &c. See ANNUALS.

Thoſe which only bear Flowers and Fruit the ſecond Year, or even the third Year, and then periſh; are called *Biſannuals*: Such are the Garden *Angelica*, and ſome others.

Herbs whoſe Root does not periſh after they have ſhed their Seed, are call'd *Perennials*; ſuch are *Mint*, *Fennel*, &c. See PERENNIAL.

Of theſe, ſome keep their Leaves all the Year round, and are call'd *Ever-greens*; as the *Aſarabaca*, *yellow Violet*, &c. See EVER-GREEN.

The reſt loſe their Leaves, and continue bare, part of the Year; as *Fern*, *Colts-foot*, &c.

Herbs are alſo diſtinguiſhed into *Kitchin*, or *Sallet-Herbs*, and *Medicinal Herbs*.

Sallet-HERBS, *Pot*-HERBS, } See { SALLET. POT-*Herb*.

The Word *Herb* is form'd of the Latin *Herba*; which ſome derive from *Arvum*, Field: Others derive it from the *Greek*, φέρβειν, *paſcere*, to feed; of φέρβη, *Pabulum*. Of the Greek *Ferbe*, the *Latins* form'd *Ferba*; and of *Ferba*, Herba, after the Manner of the *Spaniards*, who always change the *f* at the Beginning of a Word into *h*. See F and H.

HERBAGE, a collective Name, comprehending all Kinds of *Herbs*. See HERB.

The antient Hermits liv'd altogether of *Herbage*. See HERMIT.

What makes the principal Difference in the Goodneſs of Butters and Cheeſes, is the Difference of *Herbage*. See BUTTER, &c.

HERBAGE, in Law, ſignifies the Paſture, or Fruits of the Earth, provided by Nature for the Bite or Mouth of Cattle. See PASTURE, &c.

The

At *Athens*, and *Rome*, they look'd on *Hermaphrodites* as ominous Monsters, and precipitated them into the Sea; as we are inform'd by *Alexander ab Alexandro*.

S. de Rennefort relates, that at *Surat* there are Abundance of *Hermaphrodites*; who, with Women's Cloaths, wear Men's Turbans, to distinguish them, and let all the World know they have two Sexes.

In 1376, *Albert*, Bishop of *Bremen*, and Brother of the Duke of *Brunswic*, was accused by *John de Tzestezulete*, or *Cestervel*, Dean of his Chapter, with being an *Hermaphrodite*; but he cleared himself.

J. Frederic Mayer, a *Lutheran* Divine, has an express Dissertation, to prove that an *Hermaphrodite* cannot be a Priest: It was printed at *Gryphswald* in 1705. And *Willenberg*, another *Lutheran* of *Dantzick*, has wrote to prove them excluded from all Civil Employments, like Women.

The Word is form'd of the *Greek*, ἑρμαφρόδιτος, a Compound of ἑρμῆς, *Mercury*, and ἀφροδίτη, *Venus*, q. d. a Mixture of *Mercury* and *Venus*, i. e. of *Male* and *Female*.

For, it is to be observed, *Hermaphroditus* was originally a proper Name; applied, by the Heathen Mythologists; to a fabulous Deity, whom some represent as a Son of *Hermes*, Mercury, and *Aphrodites*, Venus; and who being desperately in Love with the Nymph *Salmacida*, obtain'd of the Gods to have his Body and hers united into one. Others say, that the God *Hermaphroditus* was conceiv'd as a Composition of *Mercury* and *Venus*, to exhibit the Union between Eloquence, or rather Commerce, whereof *Mercury* was God; with Pleasure, whereof *Venus* was the proper Deity. Lastly, others think this Junction intended to shew that *Venus*, Pleasure, was of both Sexes: As, in Effect, the Poet *Calvus* calls *Venus* a God.

Pollentemque Deum Venerem.

As also *Virgil*, Æneid. *Lib.* II.

Discedo ac ducente Deo flammam inter & hostes
Expedior ———

Hesychius observes M. *Spon*, calls Venus *Aphroditos*; and *Theophrastus* affirms, that *Aphroditos*, or *Venus*, is *Hermaphroditus*; and that in the Island of *Cyprus* she has a Statue, which represents her with a Beard like a Man.

Hermaphrodite, is also applied, metaphorically, to divers other Things beside Men.

The latest Botanists and Florists, make a Division of Plants, which they call *Hermaphrodites*; as having both the Male and Female Parts of Generation, *viz.* the Stamina and Pistil in the same Flower. See Plant, Flower, Generation, Pistil, *&c.*

Divers of the Insect and Reptile Kind, are also *Hermaphrodites*; particularly Worms, Snails, *&c.* See Insect, *&c.*

In the Memoirs of the *French* Academy, we have an Account of a very extraordinary Kind of *Hermaphrodites*, which not only have both Sexes, but do the Office of both at the same Time. — Such are Earth-Worms, the round tail'd Worms found in the Intestines of Men and Horses; Land-Snails, and those of fresh Waters; and all the Sorts of Leaches. And as all these are Reptiles, and without Bones, M. *Poupart* concludes it probable, that all other Insects which have those two Characters, are also *Hermaphrodites*.

The Method of Coupling, practised in this Class of *Hermaphrodites*, may be illustrated in the Instance of Earth-Worms. These little Serpents creep, two by two, into Holes proper to receive them; where they dispose their Bodies in such Manner, as that the Head of the one is turn'd to the Tail of the other. Being thus stretch'd out length-wise, a little conical Button, or *Papilla*, is thrust forth by each, and received into an Aperture of the other.

These Animals, being Male at one End of the Body, and Female at the other; and the Body flexible withal; M. *Homberg* does not think it impossible but that an Earth-Worm may couple with it self; and be both the Father and Mother of its young.

HERMATHENA, in Antiquity, a Figure representing *Mercury* and *Minerva* both in one.

M. *Spon* gives divers Figures of *Hermathenæ*, in his *Recb. Cur. de l'Antiquite*, p. 98. They are a Sort of Statues rais'd on square Pedestals, after the Manner of *Hermes*; only that the Attributes of *Minerva* are added thereto. See Hermes.

The Word is a Compound of *Hermes*, Mercury; and *Athena*, a *Greek* Name of *Minerva*.

HERMERACLES, in Antiquity, a Figure compounded of *Mercury* and *Hercules*.

M. *Spon* gives us a Type of an *Hermeracles*, *Rech. Cur. de l'Antiq.* p. 96. *fig.* xiii. The Name *Hermeracles*, he observes, was given to a Divinity, represented after the Manner of *Hermes*, with the additional Attributes of *Hercules*, viz. a Lion's Skin and a Club. — This he ascribes to the Custom among the *Greeks*, of placing the Statues of *Mercury* and *Hercules* in the Academy, and *Gymnasiums*, as both the one and the other presided over the Exercises of the Youth.

HERMES, among Antiquaries, a Sort of Figure or Statue, of the God *Mercury*; usually made of Marble, tho' sometimes of Brass, without Arms or Legs; and planted by the *Greeks* and *Romans* in their Cross-ways.

Servius gives us the Origin hereof, in his Comment on the VIIIth Book of the *Æneid*. Some Shepherds, says he, having one Day caught *Mercury*, call'd by the Greeks *Hermes*, asleep, on a Mountain; they cut off his Hands; from which he, as well as the Mountain where the Action was done, became denominated *Cyllenius*, from κύλλος, *maim'd*: And thence, adds *Servius*, it is, that certain Statues without Arms are denominated *Hermes*'s, *Hermetes*.

But this Etymology of the Epithet *Cyllenius*, contradicts most of the other antient Authors, who derive it hence, that *Mercury* was born at *Cyllenus*, a City of *Arcadia*, or even on the Mountain *Cyllenus* it self, which had been thus call'd before him.

Suidas gives a Moral Explication of this Custom of making the Statues of *Mercury* without Arms. The *Hermetes*, says he, were Statues of Stone placed at the Vestibules, or Porches of the Doors, and Temples at *Athens*; For this Reason, that as *Mercury* was held the God of Speech and of Truth, square and cubical Statues were peculiarly proper; having this in common with Truth, that on what Side soever they are view'd, they always appear the same.

It must be observed, that *Athens* abounded more than any other Place in *Hermes*'s: There were Abundance of very signal ones in divers Parts of the City; and they were one of the principal Ornaments of the Place. They were also placed in the high Roads and Cross-ways, by Reason *Mercury*, who was the Courier of the Gods, presided over the High-ways: Whence his Surname of *Trivius*, from *Trivium*, and that of *Viacus*, from *Via*.

From *Suidas*'s Account above cited, it appears, that the Terms, *Termini*, used among us in the Doors, Balconies, *&c.* of our Buildings; take their Origin from these *Athenian Hermes*'s; and that it were more proper to call them *Hermetes* than *Termini*; for that tho' the Roman *Termini* were square Stones, whereon a Head was frequently placed, yet they were rather used as Land-Marks, and mere-Stones, than as Ornaments of Building. See Termini.

HERMETIC, or Hermetical *Art*, a Name given to Chymistry, on a Supposition that *Hermes Trismegistus* was the Inventor thereof, or excell'd therein. See Chymistry.

We know but little of this *Hermes*, only that he was an antient King of *Egypt*, 1000 Years prior to *Æsculapius*. *Zozimus Panopolitanus* mentions him as having wrote of *Natural Things*; and there are several Pieces still extant under his Name, but all suppositious. See Volume.

Hermetical *Philosophy*, is that which undertakes to solve and explain all the Phænomena of Nature, from the three Chymical Principles, Salt, Sulphur, and Mercury. See Philosophy. See also Principle, *&c.*

A considerable Augmentation was made to the antient *Hermetical Philosophy* by the modern Doctrine of Alcali and Acid. See Alcali and Acid.

Hermetical *Physic*, or *Medicine*, is that System, or Hypothesis, in the Art of Healing, which explains the Causes of Diseases, and the Operations of Medicines on the Principles of the *Hermetical Philosophy*; and particularly on the System of Alcali and Acid. See Medicine and Chymistry.

Hermetical *Seal*, a Manner of stopping or closing Glass Vessels, for Chymical Operations, so very accurately, that nothing can exhale, or escape; not even the most subtile Spirits.

It is perform'd by heating the Neck of the Matrass, or other Vessel, in the Flame of a Lamp, till it be ready to melt; and then with a Pair of Pinchers twisting it close together. — This they call putting on *Hermes's Seal*.

Tho', there are other Ways of *sealing* Vessels *Hermetically*, viz. by stopping them with a Plug, or Stopple of Glass, well luted into the Neck of the Vessel. — Or, by turning another *Ovum Philosophicum* upon that wherein the Matter is contain'd.

HERMHARPOCRATES, in Antiquity, a Deity, or Figure of a Deity, composed of *Mercury*, and *Harpocrates*, the God of Silence.

M. *Spon*,

M. *Spon* gives us an *Hermharpocrates*, in his *Rech. Cur. de l'Antiquite*, p. 98. *fig.* xv. having Wings on his Feet, like *Mercury*; and laying his Finger on his Mouth, like *Harpocrates*. 'Tis probable they might mean by this Combination, that Silence is sometimes Eloquent.

HERMIANS, Hermiani, or Hermiotitæ, a Sect of Hereticks, in the IId Century; thus called from their Leader *Hermias*.

One of their distinguishing Tenets was, that God is Corporeal. They are also call'd *Seleucians*. See Seleucians.

HERMIT, or Eremit, Eremita, a devout Person, retir'd into a Solitude, to be more at Leisure for Contemplation, and to disencumber himself of the Affairs of the World. See Anchoret.

The Word is form'd of the *Greek*, ἔρημος, *Eremus*, Wilderness; and, according to the Etymology, should rather be wrote *Eremit*, the Spirit being soft.

A *Hermit* is not reputed a Religious, unless he have made the Vows. See Monk, Vow, *&c.*

Paul, sirnamed the *Hermit*, *Paulus Eremitanus*, is usually reckon'd the first *Hermit*; tho' St. *Jerom*, at the Beginning of the Life of that Saint, says, it is not known who was the first. — Some go back to St. *John* the *Baptist*, and others to *Elias*.

Others make St. *Anthony* the Founder of the *Hermetical* Life: But others take him to have only rekindled and heighten'd the Fervour thereof; and hold, that the Disciples of that Saint own'd S. *Paul* of *Thebes* for the first that practised it. — The Persecutions of *Decius* and *Valerian* are supposed to have been the Occasion.

Several of the antient *Hermits*, as S. *Anthony*, &c. tho' they lived in Desarts; had yet Numbers of Religious accompanying them. See Solitary.

There are also divers Orders and Congregations of Religious, distinguished by the Title of *Hermits*; as, *Hermits* of St. *Augustin*, of St. *John Baptist*, of St. *Jerom*, of St. *Paul*, &c.

Hermits *of St. Augustin*, is a religious Order, more frequently call'd *Augustins*, or *Austin* Friars. See Augustin.

It is commonly pretended to have been instituted by that Father; but without much Ground. This is pretty certain, he laid the Foundations of a Monastic Order about the Year 388, and retired to his Father's Estate near *Tagasta*, to lead a religious Life, with some Companions: But it does not at all appear, that this Order has subsisted ever since; nor that the *Hermits* of St. *Augustin* are descended without Interruption from them.

This Order, in Reality, only commenced under Pope *Alexander* IV, in the middle of the XIIIth Century; and was form'd gradually by the Union of divers Congregations, which had no Rule, or at least had not that of St. *Augustin*. — These Congregations were those of *John Bonites*, the most antient of all; that of the *Hermits* of *Tuscany*; that of the *Sacheld*; those of *Vallersuta*; of St. *Blaise*; of St. *Benedict de Monte Fabulo*; of the *Tower of Palmes*; of *Sancta Maria de Marcetta*; of St. *James de Molinio*, and *de Loupsavo* near *Lucca*.

This Coalition was not made by *Innocent* IV. as most Historians of the Order contend: All that Pontiff did, was to unite some *Hermits* in *Tuscany*, to whom he gave the Rule of St. *Augustin*: But these were a distinct Body from those just mention'd. — It was *Alexander* IV. that made the grand Union; as appears from his Bull, published in the *Mare magnum* of the *Augustins*.

That Pontiff undertook this Union from the first Year of his Pontificate, *viz.* the Year 1254. It was the Year 1256, ere the Superiors of all the Congregations could be got together. In the general Chapter the Union was effected: *Lanfranc Septala*, a *Milaneze*, was chosen General; and the Order divided into four Provinces, *viz.* those of *France*, *Germany*, *Spain* and *Italy*.

Since that, other Orders have been united to the *Hermits* of St. *Augustin*; as, the poor Catholicks, *&c.* and the Order now consists of 42 Provinces.

After so many Unions, the Order began to divide again into separate Congregations, according to the Relaxations, and Reformations that afterwards got footing. — Such, are the *Barefooted Hermits* of St. *Augustin*; the Congregation of *Centorbi*, or the *Sicilian Reform*; the Congregation of the *Colorites* in *Calabria*, &c.

There are also several Congregations of Nuns, under the Appellation of *Hermits of St. Augustin*.

As also a third Order of *Hermits of St. Augustin*. See Third *Order*.

Hermits *of Brittini*, was a Congregation form'd under Pope *Gregory* IX. who gave them the Rule of St. *Augustin*.

Their first *Hermitage*, or Abode, was in a solitary Place, call'd *Brittini*, in the Marquisate of *Ancona*; whence their Name. — They led a very austere Life; never eat any Meat, and fasted much.

Hermits *of Camalduli*. See Camalduli.

Hermits *of St. John Baptist*, was a religious Order in *Navarre*; whose principal Convent, or *Hermitage*, was seven Leagues from *Pampelona*.

Till the Time of *Gregory* XIII, they lived under the Obedience of the Bishop of that City; but the Pope confirm'd them a Religious Order, approved their Constitutions, and admitted 'em to make the Vows. — Their Way of Living was exceeding austere: They went bare-footed, wore no Linnen, lay on Boards, with a large Stone for a Pillow, and bore a large wooden Cross on their Breasts.

Their House was a Kind of *Laura*, rather than a Convent; canton'd out into Cells, in which they lived solitary, in the middle of a Wood. See Laura.

Hermits *of St. Jerom*. See Jeronimites.

Hermits *of St. Paul the first Hermit*, is an Order form'd in the XIIIth Century, by the Union of two Bodies of *Hermits* in *Hungary*; viz. those of St. *James de Patach*, and those of *Pisilia* near *Zante*.

Upon their being incorporated, they chose St. *Paul* the first *Hermit*, for the common Patron, and Protector of their Order; and assumed his Name. — They multiplied very considerably in *Hungary*, *Germany*, *Poland*, and other Provinces; and came to have seventy Monasteries in *Hungary* alone: But the Revolutions and Wars in that Kingdom reduced them again.

HERMITAGE, properly signifies a Convent of *Hermits*. See Hermit and Convent.

The Name was also popularly attributed to any Religious Cell, built and endowed in a private and reclose Place; and thus annexed to some large Abbey, of which the superior was call'd *Hermita*. See Solitary, Recluse, *&c.*

HERMITAN, in Physiology, a dry North, and North Easterly Wind, or Breeze, usually blowing on the Coasts of *Guinea* in *Africa*. See Wind and Breeze.

The *Hermitan* sometimes also blows from other Points.

HERMODACTYL, in Medicine, a Drug used as a gentle Purgative, *&c.* See Purgative.

Naturalists are not agreed as to the Origin of this Drug. — Some will have it the Root, and others the Fruit of a Plant. To reconcile them, one might probably allow two Kind of *Hermodactyls*; the one a Root, the other a Fruit.

The Fruit is about the Size of a little Chestnut, in Figure resembling a Heart; ruddy without, very white within; of a light fungous Substance; without Fibres; easily broke, and reducible into a Powder like Flower, of a sweetish Taste, but somewhat viscid. It is brought to us dried from *Egypt* and *Syria*.

Authors differ as to the Plant which bears it. In the common Opinion it passes for a Sort of *Colchicum*: Others take it for a tuberous *Iris*.

Hermodactyls are chiefly used to purge pituitous Humours of the Brain and Joynts. — They are so efficacious in scowering the mucilaginous Glands, and preserving them from the Lodgments of gritty Matters, which occasion the Gout and arthritic Complaint; that they are denominated, by some Writers, *Anima Articulorum*. — They also promote Sweat.

HERMOGENIANS, a Sect of antient Hereticks, denominated from their Leader *Hermogenes*; who lived towards the Close of the IId Century. See Heresy.

Hermogenes establish'd *Matter* as his first Principle; and made *Idea* the Mother of all the Elements. See Idea, *&c.*

The *Hermogenians* were divided into several Branches, under their respective Chieftains, viz. *Hermians*, *Seleucians*, *Materiarii*, &c. See Hermians, Seleucians, *&c.*

The *Manichees* sprung from the *Hermogenians*. See Manichees.

HERNIA, in Medicine, *&c.* a Descent of the Intestines, or *Omentum*, out of their natural Place; or, rather, the Tumour form'd by that Descent; popularly called a *Rupture*. See Descent and Rupture.

When the *Peritonæum* happens to be broken, or extraordinarily dilated; the *Viscera*, and particularly the Caul and small Guts, are apt to fall out of their Place, and to form these Sorts of Tumours called *Hernia's*.

They happen most usually in the *Inguen*, or Groin; the Scrotum, and Navel: Tho, sometimes, in other Places; as above or below the Navel; in the Side, far above the *Inguen*, in the upper Part of the Thigh, near the Spine, *&c.*

Hernia's are occasion'd by Blows, violent Concussions, over-stretching in Vomiting, hard Labour, or Wind; from which last Cause it is, that they are so frequent in Children, and so easily help'd by timely Cure: In Adults they are generally incurable. From *Hernia's* frequently arise the

the Iliac Passion, and sometimes Inflammations, and even Gangrenes of the Intestines.

Hernia's are variously denominated, both according to the Parts displaced, and to those whereon they fall.

A Descent of the Intestines into the Scrotum, which is the most usual Kind of Rupture, is call'd *Enterocele*. See ENTEROCELE.

If, instead of the Intestines, the *Omentum* be fallen; it is called *Epiplocele*. See EPIPLOCELE.

A Descent of both, is called *Entero-Epiplocele*. See ENTERO-EPIPLOCELE.

If the Intestines fall on the Navel, it is call'd *Omphalocele*. See OMPHALOCELE.

If they fall thro' the Perforation of the *Obliquus Descendens* into the Groin; it is called *Bubonocele*, or *Inguinalis*. See BUBONOCELE.

There are also a spurious Sort of *Hernia's*, or Tumours of the Testes, &c. occasion'd, not by the Descent of any of the solid Parts, but by a Coagmentation of some of the Fluids.

When the Testicles are swell'd, and distended with a watery Humour, it is called a *Hydrocele*, or *Hernia Aquosa*. See HYDROCELE.

When with Wind, *Pneumatocele*, or *Hernia Ventosa*. See PNEUMATOCELE.

When the Tumour is owing to a Mole, or Excrescence of Flesh, it is call'd *Sarcocele*, or *Hernia Carnosa*. See SARCOCELE.

When to a Dilatation of the Vessels, in Manner of a Varix, *Circocele*, or *Hernia Varicosa*. See VARIX, &c.

A Kind of prominent Tumour in the Throat, is frequently call'd *Bronchocele*, or *Hernia Gutturalis*. See BRONCHOCELE.

Some late Authors also speak of *Hernia's*, or Descents of the Bladder into the Scrotum; but these are rare. — M. *Mery* concludes, that they never arise from mere Accident; but when they do happen, it must be the Effect of an original ill Conformation. — His Reason is, that the Bladder of Urine is too big to pass thro' the *Annuli* or Rings, which the Intestines pass thro'; beside that it is fasten'd too strongly on all Sides to admit of a Descent.

M. *Petit*, however, is of a different Sentiment; and maintains that *Hernias* of the Bladder may be produced after the ordinary Manner of others. See the *Memoires de l'Acad.* An. 1717.

The Word is Latin, *Hernia*, and originally signifies the same with *Tumor Scroti*; call'd also *Ramex*.

Priscian observes, that the antient *Marsi* gave the Appellation *Herna* to Rocks: Whence, some will have *Hernia's* thus called *propter duritiem*, on Account of their Hardness. — *Scaliger* chuses rather to derive the Word from the *Greek*, ἕρνος, *Ramus*, Branch.

HERO, in the antient Theology and Mythology, was a great and illustrious Person, of mortal Nature; tho', by the Populace, supposed to partake of Immortality; and, after his Death, placed by them in the Number of the Gods. See GOD.

Hero's were, properly, Persons partly of divine, and partly of human Extraction; being begot between a Deity and a Mortal: As *Achilles*, who was the Son of the Goddess *Thetis*, by *Peleus*; or *Hercules*, who was the Son of *Jupiter* and *Alcmena*.

A *Hero*, then, coincides with what we otherwise call a *Demi-God*: Accordingly, *Lucian* defines a *Hero* to be a Medium between God and Man; or, rather, a Composition of both. See DEMI-*God*.

The Word is form'd of the Latin *Heros*, and that of the *Greek*, ἥρως, *Semi-deus*, Demi-god.

St. Augustin, *de Civit. Dei*, Lib. X. observes, that it is highly probable, some one of *Juno*'s Sons was originally called by this Name; that Goddess being called in *Greek* ἥρα: Or, it may be, that great Men have been distinguished by this Appellation, in Allusion to the Opinion of the Antients, that virtuous Persons, after their Deaths, inhabited the wide Expanse of Air, which is *Juno*'s Province.

Isidore inclines to think, that *Hero's* were thus call'd, *quasi aeroes, aerei*, Persons of superior Merit, and worthy of Heaven. — *Plato* derives the Word from the *Greek*, ἔρως, *Amor*, as intimating the *Hero's* to have arisen from the Copulation of a God with a mortal Woman; or of a Goddess with a Man. — Others derive the Name from the *Greek*, ἴρειν, *dicere*, to speak; the *Heroes* being Persons who by their Eloquence led the People at their Pleasure: Others, lastly, derive the Word from the *Greek*, ἤρα, *Terra*, Earth; the *Heroes*, on their Principle, being the *Dii Terrestres*, or Gods of the Earth.

HERO, is also used, in a more extensive Sense, for a great, illustrious, and extraordinary Personage; particularly, in respect of Valour, Courage, Intrepidity, and other military Virtues.

Fa. *Bouhours* makes this Distinction between a *Great* Man and a *Hero*, that the latter is more daring, fiery, and enterprizing; and the former, more prudent, thoughtful, and reserved: — In this Sense we properly say, *Alexander* was a *Hero*, *Julius Cæsar* a great Man.

HERO *of a Poem*, or *Romance*, is the principal Personage, or he who has the Top-Part therein. See POEM, ROMANCE, &c.

The *Hero* of the Iliad is *Achilles*; of the Odyssee, *Ulysses*; of the Æneid, *Æneas*; of *Tasso*'s Jerusalem, *Godfrey* of *Bulloign*; of *Milton*'s Paradice Lost, *Adam*; tho' Mr. *Dryden* will have the *Devil* to be *Milton's Hero*; in Regard he gets the better of *Adam*, and drives him out of Paradice.

The Character of *Achilles*, is the inexorable Wrath of a haughty, valiant, unjust, revengeful Prince: That of *Ulysses*, is the wise and prudent Dissimulation of a courageous King, whose Constancy nothing could shake: That of *Æneas*, is Piety, Gentleness, Good-Nature, and Humanity; sustain'd, like the others, with an invincible Courage. See CHARACTER.

Many of the Criticks find Fault with the *Hero* of the *Æneid*. — He is too sensible and delicate; and wants of the Fire, Firmness, and uncontrollable Spirit, remarkable in the *Hero* of the *Iliad*. — Piety, Tenderness, and Submission to the Gods, are the Virtues of the middle Class of Mankind: They do not strike and command enough for a *Hero*, who is to be the Instrument of such notable Exploits. — *St. Evremond* looks on *Æneas* as fitter to have been the Founder of a Religious Order, than of an Empire.

Fa. *Bossu* defends *Virgil's Hero*, or at least *Virgil*, with admirable Address. — *Æneas's* Character, he observes, was not to be form'd on the Model, either of *Achilles*, or *Ulysses*; nor to be of the same Kind with them; as the Fable, the Design of the *Æneid*, was very different from those of the *Iliad* and *Odyssee*. See FABLE, ACTION, &c.

What *Virgil* had in View, was to make the *Romans* receive a new Kind of Government; and a new Master: This Master, then, must have all the Qualities requisite for the Founder of a State, and all the Virtues which make a Prince beloved. — The Violence of *Achilles* was of Consequence precluded; so was the Dissimulation of *Ulysses*; that being a Quality which renders a Man suspected, not beloved.

Virgil was restrained in his Choice; his *Hero* was to be of the Genius of *Augustus*: The Poet was in the Condition of a Painter, who is obliged to accommodate a Piece of History to the Model of a Face that is given him. — The Characters of *Homer's* two *Heroes*, as being directly opposite to his Design, he has thrown upon *Turnus* and *Mezentius*, who are the Counterparts to his *Hero*.

'Tis disputed among the Criticks, whether it be necessarily required, that the *Hero* of an Epic Poem be a good and virtuous Man? — Fa. *Bossu* maintains the Negative: Between a *Hero* in Morality, and a *Hero* in Poetry, the same Distinction is to be made as between Moral, and Poetical Goodness: — Hence, as the Manners of *Achilles*, and *Mezentius*, are poetically as Good as those of *Ulysses* and *Æneas*; so those two cruel and unjust Men, are as regular poetical *Heroes*, as these two just, wise, and good Men. See MANNERS.

Aristotle, indeed, represents the *Heroic* Virtue, as a Virtue more than human; and, of Consequence, *Heroes*, as divine Persons, whom the Excellency of their Nature raises above our Class: But this, he says in his Books of Morality; in his Poeticks he speaks another Language. — The prime Person of a Poem, whom we call the *Hero*, he observes, must neither be good nor bad, but between both: He must not either be superior to the Generality of Mankind by his Virtue and Justice; nor inferior to them by his Crimes and Wickedness. The Moral, and Epic *Heroes*, therefore, even on *Aristotle*'s Principles, have nothing in common with each other: The one must be rais'd above Mankind; and the other must not be on a Level with the most perfect of Men.

In Effect, both reason, the Nature of the Poem which is to be a Fable, the Practice of *Homer*, and the Rules of *Aristotle* and *Horace* agree, that so far is it from being necessary that the *Hero* of an *Epopea* be a perfect, faultless Man; that it is not necessary he be an honest Man: And that 'tis no Ways irregular to make him as perfidious as *Ixion*; as unnatural as *Medea*; or as brutal as *Achilles*. See MANNERS.

'Tis another Subject of Controversy among the Criticks, whether the Catastrophe, or Conclusion of the Action, is necessarily to leave the *Hero* happy, and at Ease; or whether it be allowable to leave him unhappy?

The general Practice of the *Heroic* Poets stands for the Affirmative: We have scarce one Example of a *Hero* who is overcome, and remains unhappy: Excepting *Adam* in *Milton*.

In

In Tragedy, the Case is different: Unhappy Catastrophes, according to *Aristotle*, are preferable to happy ones; and were always much better received among the Antients. Indeed, one Reason may be, that in the popular States of *Greece*, Monarchs being odious, nothing pleas'd them better than to see the Misfortunes of Kings: And even among us, where that Consideration does not hold, yet the unhappy Conclusion has its Advantage. — The Tragic Scene is the Throne of the Passions; and Terror and Pity are there to rule in a peculiar Manner: Now those Passions arise the most naturally from unhappy Events; and the Audience, quitting the Theatre, full of the Misfortunes wherewith it was closed, preserve their Concern much longer, and feel more forcible Effects from it, than if their Tears had been wiped away, and their Sighs smother'd in the Satisfaction of a more happy *Peripetia*. See TRAGEDY, CATASTROPHE, and PERIPETIA.

But these Reasons have no Place in the Epopea; which is not intended so much to purge the Passions, as to remove ill Habitudes. — But 'tis true withal, that the Epopea does not exclude all unhappy Conclusions: The Nature of Epic Fable, is such as admits equally of good and bad Persons for the prime Parts; the unhappy Adventure of a Lamb unjustly devour'd by a Wolf, is a Subject every Way as instructive, and as regular, as the Generosity of a Lyon, who lets himself be disarmed of his Rage by the Innocence of the same Lamb.

'Tis true, if the Poet proposed his *Hero* as a Pattern of Perfection for Imitation, the Misfortunes falling on him would suit very ill with the Design: But this was doubtless the farthest Thing in the Intentions of the great Masters of the Epopea above-mentioned. — The only Reason, perhaps, that can be given for the uniform Practice of the Poets in this Respect, is, than an Epic Poem, containing an Action of much more Extent than that of a Tragic Poem, the Reader would not be so well satisfied, if, after so many Labours and Difficulties as the *Hero* is brought to struggle withal, he should not, at last, be brought off; but perish miserably. There is something, no doubt, great and good in the *Hero*, which, in the Course of the Poem, makes us concern'd for him; so, that after so long an Acquaintance, we cannot leave him miserable, without some Anxiety; which it is not the Business of the Poet to raise. See EPIC *Poem*.

HEROIC, something belonging to a *Hero*, or *Heroine*. See HERO.

Thus we say, *Heroic* Actions, *Heroic* Virtue, *Heroic* Style, *Heroic* Verse, *Heroic* Poet, *Heroic* Age, &c.

HEROIC *Poem*, is that which undertakes to describe some extraordinary Action, or Enterprize. See POEM.

Homer, *Virgil*, *Statius*, *Lucan*, *Tasso*, and *Milton*, have composed *Heroic Poems*. See ILIAD, ÆNEID, &c.

In this Sense, *Heroic Poem* coincides with an *Epic Poem*. See EPIC.

HEROIC *Poetry*. See EPIC *Poetry*.

HEROIC *Age*, is that Age or Period of the World, wherein the *Heroes*, or those called by the Poets the *Children of the Gods*, are supposed to have lived.

The *Heroic Age* coincides with the fabulous Age. See FABULOUS.

HEROIC *Verse*, is that wherein *Heroic* Poems are usually composed; or that proper for such Poems. See VERSE.

In the *Greek* and *Latin*, Hexameter Verses are peculiarly denominated *Heroic Verses*, as being alone used by *Homer*, *Virgil*, &c. See HEXAMETER.

Alexandrian Verses of twelve Syllables, were formerly call'd *Heroic Verses*, as being supposed the only Verse proper for *Heroic* Poetry; but the later Writers use Verses of ten Syllables. See ALEXANDRIAN.

HEROINE, a Woman that has the Qualities and Virtues of a *Hero*; or that has done some Heroic Action. See HERO.

HERODIANS, a Sect among the *Jews*, at the Time of *Jesus Christ*; mention'd by St. *Matthew* XXII. 16. and St. *Mark* III. 6.

The Criticks, and Commentators on the New Testament, are very much divided with regard to the *Herodians*. — St. *Jerom*, in his Dialogue against the *Luciferians*, takes the Name to have been given to such as own'd *Herod* for the Messiah: And *Tertullian* and St. *Epiphanius* are of the same Sentiment. — But the same *Jerom*, in his Comment on St. *Matthew*, treats the same Opinion as ridiculous; and maintains, that the *Pharisees* gave this Appellation, by Way of Derision, to *Herod*'s Soldiers, who paid Tribute to the *Romans*: Agreeably to which, the *Syriac* Interpreters render the Word by the *Domesticks of Herod*, i. e. his Courtiers.

M. *Simon*, in his Notes on the 22d Chapter of *Matthew*, advances a more probable Opinion. — The Name *Herodian*, he imagines, to have been given to such as adhered to *Herod*'s Party and Interest, and were for preserving the Government in his Family; about which there were great Divisions among the *Jews*.

Fa. *Hardouin*, will have the *Herodians* and *Sadducees* to have been the same Thing. See SADDUCEES.

HERPES, in Medicine, a cutaneous Heat or Inflammation, occasioning a Roughness of the Skin, by Means of a Number of little Pustules spreading this Way and that.

The Word is form'd of the *Greek*, ἕρπω, *paulatim gradior*, *repo*, by Reason the Eruptions creep from Place to Place.

There are divers Kinds of this Disease:

The *simple* HERPES, is a single Pustule or two, rising chiefly on the Face, of a whitish or yellowish Colour, pointed, and with an inflamed Base. — These dry away of their own Accord, upon letting out the little Drop of Pus contain'd in them.

The second Species of *Herpes*, is what we otherwise call *Serpigo*; and in *English*, a *Tetter*, or *Ring-worm*. See SERPIGO and TETTER.

Milliary HERPES, is an Assemblage of innumerable little Pustules, under the Cuticle, of the Size of Millet Seeds: Popularly call'd the *Shingles*. See SHINGLES.

The *Herpes Milliaris*, according to *Wiseman*, approaches very nearly to the Nature of the *Psora*; and therefore to be cured with Mercurial Catharticks, &c. See PSORA.

HERPES *Exedens*, is of a more corrosive Kind; the Pustules are ruddy, and attended with an itching; and ulcerate the Parts they rise on.

HERRING, See FISH and FISHERY.

Herrings are sometimes prescribed in Medicine, by Way of Cataplasms, to the Feet, in Fevers; as being supposed to draw the febrile Matter downwards. Tho', 'tis more probable, this Effect should be owing to the Salt used in the Pickle.

Pickled HERRING, *Red* HERRING, } See { *Herring* FISHERY.

HERRING *Buss*, a Vessel proper for the *Herring* Fishery. See FISHERY.

HERRING *Cob*, is a young *Herring*. See *Herring* FISHING.

HERRING *Fishery*, See *Herring* FISHERY.

There are divers Names given to *Herrings*, according to the different Manners wherein they are ordered, as,

1°. *Sea-Sticks*, being such as are catched all the Fishing Season, and are but once packed. — A Barrel of these holds six or eight Hundred; eight Barrels to the Tun, by Law: An Hundred of *Herrings* is to be a Hundred and twenty; a Last ten Thousand; and they commonly reckon fourteen Barrels to the Last. See LAST, &c.

There are others reckon'd on Shore, called *repacked Herrings*: Seventeen Barrel of *Sea-Sticks* make from twelve to fourteen of repacked ones.

The Manner of Repacking, is to take the *Herrings*, wash them out in their own Pickle, and lay them orderly in a fresh Barrel. These have no Salt put to them, but are close packed, and headed up by a sworn Cooper, with Pickle, when the Barrel is half full; the Pickle is Brine, so strong as that the *Herring* will swim in it.

2°. *Summers*, are such as the *Dutch* Chafers, or Divers, catch from *June* to the 15*th* of *July*. — These are sold away in *Sea-Sticks*, to be spent presently, in Regard of their Fatness; for that they will not endure Repacking: They go one with another, full and shotten; but the repacked *Herrings* are sorted, the full *Herrings* by themselves.

3°. The *shotten* and *sick Herrings* by themselves; the Barrel whereof is to be mark'd distinctly.

4°. *Crux Herrings*, which are such as are caught after the 14*th* of *September*. — These are cured with Salt upon Salt, and are carefully sorted out, all full *Herrings*, and used in the Repacking.

5°. *Corred Herrings*, serve to make *Red Herrings*, being such as are taken in the *Yarmouth* Seas, from the End of *August* to the middle of *October*, provided they can be carried ashore within a Week, more or less, after their taking. — These are never gipped, but rowed in Salt, for the better preserving of them, till they can be brought on Shore; and such as are kept to make *Red Herrings*, are washed in great Vats in fresh Water before they are hanged up in the *Herring-Hangs*, or *Red Herring* Houses.

As for the *Manner of salting Herrings*. — The Nets being haled on board, the Fishes are taken out, and put into the War-backs, which stand on one Side of the Vessels: — When all the Nets are thus unloaded, one fills the Gippers Basket. — The Gippers cut their Throats, take out the Guts, and fling out the full *Herrings* into one Basket, and the shotten into another: — One Man takes the full Basket when they are gipt, and carries them to the Rower-back, wherein there is Salt. — One Boy rows and stirs them about in the Salt; another

them thus rowed, and carries them in Baſkets to the Packers. — Four Men pack the *Herrings* into one Barrel, and lay them, one by one, ſtraight and even; and another Man, when the Barrel is full, takes it from the Packer. — It is let ſtand a Day or more open to ſettle, that the Salt may melt and diſſolve to Pickle; after which they are fill'd up, and the Barrel headed. — The Pickle to be ſtrong enough to ſuſtain a *Herring*; otherwiſe the Fiſh decay in it.

HERRING *Silver*, was Money formerly paid in lieu of a certain Quantity of *Herrings*, for a Religious Houſe.

HERSE, in Fortification, a Lattice, or Portcullice, in Form of an *Harrow*; beſet with Iron Spikes.

It is uſually hung by a Cord faſten'd to a Moulinet; to be cut, in Caſe of Surprize, or when the firſt Gate is broken with a Petard; that the *Herſe* may fall, and ſtop up the Paſſage of the Gate, or other Entrance of a Fortreſs.

Theſe *Herſes* are alſo often laid in the Roads, to incommode the March as well of the Hurſe, as the Infantry.

The *Herſe* is otherwiſe call'd a *Sarraſin*, or *Cataract*; and when it conſiſts of ſtrait Stakes, without any Croſs-pieces, it is call'd *Orgues*. See ORGUES, *&c.*

The Word *Herſe* is *French*, and literally ſignifies *Harrow*; being form'd of the Latin *Herpix*, or *Hirpex*; which denote the ſame Thing.

HERSILLON, or HERISSON, in the military Art, a Name given to a Sort of Planks, or Beams, ten or twelve Foot long, whoſe two Sides are drove full of Spikes, or Nails, to incommode the March of the Infantry, or Cavalry. See HERISSON.

HESPER, HESPERUS, in Aſtronomy, a Star call'd alſo *Veſper*, *Phoſphor*, *Phoſphorus*, *Lucifer*, and the *Morning Star*. See PHOSPHORUS, VESPER, *&c.*

The Word is form'd of the *Greek*, ἕσπερος, and ſuppoſed to have been originally the proper Name of a Man, Brother of *Atlas*, and Father of the *Heſperides*. See HESPERIDES.

Diodorus, L. III. relates, that *Heſperus* having aſcended to the Top of Mount *Atlas*, the better to obſerve and contemplate the Stars, never return'd more; and that hence he was fabled to have been changed into a Star.

HESPERIDES, in the antient Mythology, were the Daughters of *Heſper*, or *Heſperus* a Brother of *Atlas*.

The *Heſperides* were three in Number, *Ægle*, *Arethuſa*, and *Heſperarethuſa* — *Heſiod*, in his *Theogony*, makes them the Daughters of *Nox*, Night; and ſeats them in the ſame Place with the *Gorgones*, viz. at the Extremities of the Weſt, near Mount *Atlas*: 'Tis on that Account he makes them the Daughters of *Night*, by reaſon the Sun ſets there.

The *Heſperides* are repreſented by the Antients, as having the keeping of certain golden Apples, on t'other ſide the Ocean. The Poets give them a Dragon to watch the Garden where the Fruit grows: This Dragon *Hercules* ſlew, and carried off the Apples.

Pliny and *Solinus* will have the Dragon to be nn other than an Arm of the Sea, wherewith the Garden was incompaſs'd; and which defended the Entrance thereof. And *Varro* ſuppoſes that the Golden Apples were nothing but Sheep. Others, with more Probability, ſay they were Oranges.

The *Garden of the Heſperides*, *Heſperii Horti*, or *Horti Heſperidum*, are placed by ſome Authors at *Larache*, a City of *Fez*; by others, at *Berniche*, a City of *Barca*, which tallies better with the Fable. Others, take the Province of *Suſa* in *Morocco*, for the Iſland wherein the Garden was ſeated. Laſtly, *Rudbecks* places theſe fortunate Iſlands, and the Garden of *Heſperides*, in *Sweden*. See FORTUNATE.

HESYCHASTES, a Perſon who keeps himſelf vacant and at Leiſure, to attend the better, and with the leſs Interruption, to the Contemplation of divine Things.

The Name was chiefly uſed by the Antients for ſuch among the Monks as did not employ themſelves in any Labour of the Hands, but renounced all bodily Action, to reſign themſelves wholly to Prayer and Meditation.

The Word is *Greek*, form'd of ἡσυχάζω, *quieſco*, *quieti indulgeo*, a Derivative of ἥσυχος, *quietus*, quiet. *Heſychaſtes* in *Greek*, anſwers to the literal Senſe of *Quietiſt* in *Engliſh*.

HETERIARCH, HETERIARCHA, in Antiquity, an Officer in the *Greek* Empire; whereof there were two Species: The one call'd ſimply *Heteriarcha*; and the other, *great Hetriarcha*, who had the Direction of the former.

Their principal Function was to command the Troops of the Allies; beſides which, they had ſome other Duties in the Emperor's Court, deſcribed by *Codin*, *de Officiis*, C. 5. *n.* 30, 31, 32, 37.

The Word is form'd of the *Greek*, ἑταῖρος, *Socius*, Companion, Ally, and ἀρχὴ, *Imperium*, Command.

HETEROCLITE, HETEROCLITON, in Grammar, an irregular, or anomalous Word, which either in Declenſion, Conjugation, or Regimen, deviates from the ordinary Rules of Grammar. See ANOMALOUS, IRREGULAR, *&c.*

The Word is peculiarly affected to Nouns, which vary, or are irregular, in Point of Declenſion; having fewer Caſes, Numbers, *&c.* than ordinary; or are of one Declenſion in one Number, and another in another. See NOUN, DECLENSION, *&c.*

We have varying *Heteroclites*, defective, and redundant *Heteroclites*, &c.

Under the Claſs of *Heteroclites*, come *Aptotes*, *Diptotes*, *Monaptotes*, *Triptotes*, *Tetraptotes*, *Pentaptotes*, &c. See APTOTE, DIPTOTE, *&c.*

The Word is *Greek*, ἑτερόκλιτος, form'd of ἕτερος, *alter*, another, different, and κλίνω, *I decline*.

HETERODOX, in Polemical Theology, ſomething that is contrary to the Faith or Doctrine eſtabliſh'd in the true Church.

Thus, we ſay, a *Heterodox* Opinion, a *Heterodox* Divine, *&c.*

The Word ſtands in Oppoſition to *Orthodox*. See ORTHODOX.

It is form'd of the *Greek*, ἑτερόδοξος, a Compound of ἕτερος, *alter*, and δόξα, *Opinion*.

HETERODROMUS *Vectis*, in Mechanicks, a Lever wherein the Fulcrum, or Point of Suſpenſion, is between the Weight and the Power. See LEVER.

This is what we otherwiſe call a *Lever of the firſt Kind*. — Such is that repreſented *Tab. Mechanicks*, *Fig.* 1.

If either the Weight be in the middle between the Power and the Fulcrum; or the Power between the Weight and the Fulcrum, the Lever is denominated *Homodromus*. — Such are thoſe repreſented *Fig.* 2 and 3.

HETEROGENEITY, in Phyſicks, the Quality, or Diſpoſition, which denominates a Thing *Heterogeneous*.

The Word is alſo uſed for the *Heterogeneous* Parts themſelves. — In this Senſe, the *Heterogeneities* of a Body are the ſame Thing with the *Impurities* thereof.

Heterogeneity, is a Term of a very lax Signification, and brought by the Chymiſts to ſerve almoſt for any Thing they do not underſtand; ſo that all Diſagreement, or Inaptitude to Mixture between any Bodies, is imputed to the *Heterogeneity* of their Parts.

But, ſo far as the Term may be made uſe of, to convey any diſtinct Signification, it muſt be by conſidering natural Bodies under different Sortments, according as they are diverſified by Figure, Bulk, Motion, and their more ſenſible Properties: So that thoſe of different Sortments are *Heterogeneous* to one another, and the Parts of the ſame Sortment, homogeneous. See HOMOGENEOUS.

Thus the Diviſion Chymiſtry makes of Bodies into Oils, Salts, Spirits, *&c.* may be reckoned, with Reſpect to one another, *Heterogeneous*; tho' the Parts of each Diviſion are among themſelves Homogeneous.

In Effect, they are two Terms, which ſerve frequently for a Refuge to Ignorance; otherwiſe the common Terms of *like* and *unlike* might ſerve every whit as well. *Quincy*.

HETEROGENEOUS, or HETEROGENEAL, literally imports ſomething of a different Nature, or that conſiſts of Parts of different Kinds: In Oppoſition to *Homogeneous*. See HOMOGENEOUS.

Thus, we ſay, Milk is a *Heterogeneous* Body; compoſed of Butter, Cheeſe, and Whey. See MILK.

The Refining of a Metal, is the purging it of all its *Heterogeneous* Parts. See REFINING.

The Word is *Greek*, form'd of ἕτερος, *alter*, different, and γένος, *Genus*, Kind; *q. d.* compoſed of different Kinds of Parts.

HETEROGENEOUS, is particularly applied in Mechanicks, to thoſe Bodies whoſe Denſity is unequal in different Parts of their Bulk. See DENSITY.

Or, *Heterogeneous* Bodies are ſuch, whoſe Gravities are not proportionable to their Bulks. See GRAVITY.

Bodies equally denſe, or ſolid in every Part, or whoſe Gravity is proportionable to their Bulk, are ſaid to be Homogeneous. See BODY, *&c.*

HETEROGENEOUS *Light*, is that which conſiſts of Parts or Rays of different Refrangibility, Reflexibility, and Colour. See LIGHT, RAY, REFRANGIBILITY, *&c.*

HETEROGENEOUS *Nouns*, in Grammar, are ſuch as have one Gender in the Singular Number, and another in the Plural. See GENDER, *&c.*

HETEROGENEOUS *Numbers*, are thoſe referr'd to different Units, or Integers. See NUMBER.

HETEROGENEOUS *Quantities*, are thoſe which are of ſuch different Kind and Conſideration, as that one of them taken

taken any Number of Times, never equals or exceeds the other. See QUANTITY.

HETEROGENEOUS *Surds*, are such as have different radical Signs, as, $\sqrt{^2}\,a\,a$, and $\sqrt{^3} : b\,b : \sqrt{^5}\,9$, and $\sqrt{^7}\,19$.

How to reduce *Heterogeneous Surds* to Homogeneous ones; see under the Article SURDS.

HETERORHYTHMUS, a Term used by some fanciful Writers, for a Course of Life unsuitable to the Age of those who live it.

The same is also applied to Pulses, when they beat variously or irregularly in Diseases. See PULSE.

The Word is compounded of the *Greek*, ἕτερος, and ῥυθμὸς. See RHYME.

HETEROSCII, in Geography, a Term vulgarly applied to those Inhabitants of the Earth, whose Shadow, at Noon-tide is always projected the same Way. See SHADOW.

In this Sense, the Inhabitants of the temperate Zones are denominated *Heteroscii*. See ZONE.

HETEROSCII, however, in Strictness, and according to the Origin and Reason of the Word, is a Term of Relation; and denotes those Inhabitants, which, during the whole Year, have their Noon-tide Shadows projected different Ways from each other.

Thus, we who inhabit the Northern temperate Zone, are *Heteroscii* with Regard to those who inhabit the Southern temperate Zone: And those are *Heteroscii* with Respect to us.

From this Definition it follows, that only the Inhabitants of the two temperate Zones are *Heteroscii*; nor is the Word ordinarily applied to any other. Tho', in Reality, there is always one Part of the torrid Zone, whose Inhabitants are *Heteroscii* with Regard to those of the rest, and with Regard to those of one of the temperate Zones, except at the Time of the Solstices. And even at that Time all of the torrid Zone are *Heteroscii* with Regard to those of one of the temperate Zones.

But as this is variable, and the People of the torrid Zone have their Shadow now on this, and then on that Side; the Custom is to call them *Amphiscii*, and not *Heteroscii*. See AMPHISCII.

The Word is *Greek*, form'd of ἕτερος, *other*, *different*; and σκία, *Shadow*.

HETEROUSII, HETEROUSIANS, a Sect, or Branch of *Arians*; the Followers of *Aetius*, and from him also denominated *Aetians*. See AETIANS.

They were called *Heterousiani*, by Reason they held, not that the Son of God was of a Substance like, similar to that of the Father; which was the Doctrine of another Branch of *Arians*, thence called *Homoousians*, *Homoousii*: But that he was of another Substance different from that of the Father. See ARIAN and HOMOOUSIAN.

The Word is *Greek*, composed of ἕτερος, *alter*, and οὐσία, *Substance*.

HEXACHORD, in the antient Music, a Concord commonly called by the Moderns, a *Sixth*. See CONCORD and SIXTH.

The *Hexachord* is two-fold, *Greater* and *Lesser*. — The *Greater Hexachord*, is composed of two greater Tones, two lesser Tones, and one greater Semitone; which make five Intervals. The *Lesser Hexachord* consists only of two greater Tones, one lesser Tone, and two greater Semitones. See TONE.

The Proportion of the former, in Numbers, is as 3 to 5; and that of the other, as 5 to 8.

The Word is *Greek*, compounded of ἕξ, *Sex*, Six; and χορδὴ, *Corda*, Chord, or String.

HEXAEDRON, or HEXAHEDRON, in Geometry, one of the five regular Bodies, popularly call'd a *Cube*. See CUBE and REGULAR *Body*.

The Square of the Side of a *Hexaedron*, is in a subtriple Ratio to the Square of the Diameter of the circumscribed Sphere. — Hence, the Side of the *Hexaedron* is to the Side of the Sphere it is inscribed in, as 1 to the $\sqrt{3}$; and consequently incommensurable thereto.

The Word is *Greek*, form'd of ἕξ, *Sex*, Six; and ἕδρα, *Sedes*, Seat.

HEXAGON, in Geometry, a Figure of six Sides, and as many Angles. See FIGURE and POLYGON.

If these Sides and Angles be equal, it is called a *Regular Hexagon*. See REGULAR.

The Side of a *Hexagon* is demonstrated to be equal to the Radius of a Circle circumscribed about the same. See CIRCLE and RADIUS.

Hence, a regular *Hexagon* is inscribed in a Circle, by setting the Radius off six Times upon the Periphery. See INSCRIBED.

To describe a *Hexagon* on a given Line A B, (*Tab. Geometry*, *Fig.* 84.) draw an Equilateral Triangle A C B; the Vertex C will be the Centre of a Circle, which will circumscribe the *Hexagon* required. See CIRCUMSCRIBING.

In Fortification, a *Hexagon* is a Fortress with six Bastions. See BASTION.

The Word is *Greek*, form'd of ἕξ, *Sex*, Six, and γωνία, *Angulus*, Angle.

HEXAMERON, a Name given to divers Writings both of antient and modern Authors, containing Commentaries, or Discourses, on the first Chapter of *Genesis*; wherein is delivered the History of the Creation, or the first six Days of the World.

St. *Basil*, St. *Ambrose*, &c. have wrote *Hexamerons*.

The Word is *Greek*, ἑξάμερον, composed of ἕξ, *Sex*, Six, and ἡμέρα, which in the *Doric* Dialect is wrote αἁμέρα, *Day*.

HEXAMETER, in the antient Poetry, a Verse used by *Greek* and *Latin* Writers, consisting of six Feet. See FOOT and VERSE.

The first four Feet of a *Hexameter*, may be indifferently either *Dactyls* or Spondees; but the last Foot, in Strictness, is always to be a Spondee; and the last but one a Dactyl. Such is that of *Homer*,

Ἐις οἶωνὸς μ ἄριστος, ἄμυνεσθαι περὶ πάτρης.

And that of *Virgil*,

Discite Justitiam moniti & non temnere Divos.

Hexameter Verses are divided into *Heroic*; which are to be grave and majestical, suitable to the Dignity of Heroic Poetry: And *Satyrical*, which may be more loose and negligent, as those of *Horace*. See HEROIC, &c.

Epic Poems, as the Iliad, Odyssee, Æneid, &c. consist of *Hexameter* Verses alone: Elegies and Epistles ordinarily consist alternately of *Hexameters* and Pentameters. See PENTAMETER.

Some of the *French* and *English* Poets have attempted to compose in *Hexameter* Verses, but without Success. *Jodelle* made the first Essay in 1553, with a Distich in Praise of *Olivier de Magny*, which *Pasquier* represents as a Master-piece. 'Tis this,

Phœbus, Amour, Cypris, veut Sauver, nourrir & orner
Ton Vers, & ton Chef, d'Umbre, de Flamme, de Fleurs.

But this Kind of Poetry pleases no Body. The Modern Languages are not at all fit for a Kind of Verse whose Cadence depends altogether on long and short Syllables. See QUANTITY, VERSE, &c.

The Word is *Greek*, composed of ἕξ, *Six*, and μέτρον, *Mensura*, Measure, Foot.

HEXAMILION, EXAMILLION, in Antiquity, a celebrated Wall built by the Emperor *Emanuel*, over the Isthmus of *Corinth*.

It took its Name from ἕξ, *Six*, and μίλιον, which in the vulgar *Greek* signifies a Mile; as being six Miles long.

The Design of the *Hexamilion*, was to defend *Peloponnesus* from the Incursions of the *Barbarians*. — *Amurath* II. having rais'd the Siege of *Constantinople*, in the Year 1424; demolish'd the *Hexamilion*, tho' he had before concluded a Peace with the *Greek* Emperor.

The *Venetians* rebuilt it in the Year 1463, by thirty Thousand Workmen, employ'd for fifteen Days, and cover'd by an Army commanded by *Bartholdo d'Este*, General of the Land Forces, and *Louis Loredano*, General of the Sea.

The Infidels made several Attempts upon it, but were repulsed, and obliged to retire from the Neighbourhood thereof. But *Bartholdo* being kill'd at the Siege of *Corinth*, which was attempted soon after; *Bertino Calcinato*, who took on him the Command of the Army, abandon'd, upon the Approach of the Beglerbeg, both the Siege and the Defence of the Wall, which had cost them so dear: Upon which it was finally demolish'd.

HEXAPLA, or EXAPLA, in Church History, a Bible disposed in six Columns, containing the Text, and divers Versions thereof; compiled and published by *Origen*. See BIBLE.

Eusebius, *Hist. Eccl.* L. VI. *C.* 16. relates that *Origen*, after his Return from *Rome* under *Caracalla*, applied himself to learn *Hebrew*; and began to collect the several Versions that had been made of the sacred Writings, and of these to compose his *Tetrapla* and *Hexapla*: Others, however, will not allow him to have begun till the Time of *Alexander*, after he had retired into *Palestine*, about the Year 231.

To conceive what this *Hexapla* was, it must be observ'd, that beside the Translation of the sacred Writings, call'd the *Septuagint*, made under *Ptolomy Philadelphus*, above 270 Years before Christ; the Scripture had been since translated into *Greek* by other Interpreters. The first of those Versions, (or, reckoning the *Septuagint*, the second) was that of *Aquila*, about the Year of Christ 140: The third was that of *Symmachus*, published, as is commonly supposed,

ſuppoſed, under *Marcus Aurelius*: The fourth was that of *Theodoſian*, under *Commodus*: The fifth was found at *Jericho*, in the Reign of *Caracalla*, about the Year 217: And the ſixth was diſcover'd at *Nicopolis*, about the Year 228. Laſtly, *Origen* himſelf recover'd Part of a ſeventh, containing only the *Pſalms*. See VERSION.

Now *Origen*, who had held frequent Diſputations with the *Jews* in *Egypt* and *Paleſtine*, obſerving that they always objected againſt thoſe Paſſages of Scripture quoted againſt them; and appeal'd to the *Hebrew* Text; the better to vindicate thoſe Paſſages, and confound the *Jews*, by ſhewing that the Seventy had given the Senſe of the *Hebrew*; or rather to ſhew, by a Number of different Verſions, what the real Senſe of the *Hebrew* was: undertook to reduce all theſe ſeveral Verſions into a Body, along with the *Hebrew* Text; ſo as they might be eaſily confronted, and afford a mutual Light to each other.

In Order to this, he made Choice of eight Columns: In the firſt he gave the *Hebrew* Text in *Hebrew* Characters: In the ſecond, the ſame Text in *Greek* Characters. The reſt were filled with the ſeveral Verſions abovementioned; all the Columns anſwering Verſe for Verſe, and Phraſe for Phraſe. In the *Pſalms* there was a ninth Column for the ſeventh Verſion.

This Work *Origen* call'd Ἑξαπλα, *Hexapla*, q. d. *Sextuple*, or a Work of ſix Columns; as only regarding the firſt ſix *Greek* Verſions.

Indeed, S. *Epiphanius*, taking in likewiſe the two Columns of the Text, calls the Work *Octapla*, as conſiſting of eight Columns. See OCTAPLA.

This celebrated Work periſh'd long ago: Tho' ſeveral of the antient Writers have preſerved us Pieces thereof; particularly S. *Chryſoſtom* on the *Pſalms*, *Philopomes* in his *Hexameron*, &c. — Some modern Writers have endeavoured to collect Fragments of the *Hexapla*, particularly *Druſius*, and Fa. *Montfaucon*.

HEXASTYLE, HEXASTYLOS, in the antient Architecture, a Building with ſix Columns in Front. See COLUMN.

The Temple of Honour and Virtue at *Rome*, built by *Mutius*, was a *Hexaſtyle*. See TEMPLE.

The Word is compoſed of ἕξ, *Six*, and ϛύλος, *Column*.

HEYRS, in Husbandry, are young timber Trees, uſually left for Standards in felling of Woods or Copſes. See TIMBER, FELLING, STANDARD, &c.

HIATUS, a *Latin* Term, properly ſignifying the Aperture of the Mouth; from the Verb *hiare*, to gape.

It is variouſly uſed in Works of Literature, &c. to denote a *Chaſm*, or *Gap*. Particularly in Verſes, where there is a claſhing of Vowels, by ſome Words ending with a Vowel, and the following one beginning with another. — Tho' oft the Ear the open Vowels tire.

This claſhing of Vowels, ſo diſagreeable to the Ear, is called a *Hiatus* in Proſe as well as Verſe. — The *Romans* were ſo very careful to avoid it, that they always ſuppreſs'd the preceding Vowel even in Proſe; as is obſerved by *Cicero* in his *Orator*.

The Word *Hiatus* is alſo uſed for a Defect in a Manuſcript Copy; where ſomething is loſt, or effaced, by the Injuries of Time, or otherwiſe.

In a theatrical Piece, there is ſaid to be a *Hiatus*, when a Scene is not well connected to the next, but leaves the Action interrupted. See SCENE.

In Matters of Genealogy, *Hiatus* is an Interruption in a Line or Series of Deſcendants. — Thoſe Proofs of eight Hundred Years are impoſſible, by Reaſon of the frequent *Hiatus's* occaſion'd by Civil Wars, *Gothic* Inundations, &c.

HICKUP, HICCOUGH, or HICRET, *Singultus*, in Medicine, a ſudden irregular Inſpiration; wherein the Stomach, and the Parts contain'd in the lower Venter, are driven from below, upwards.

The *Hickup* is not a Diſorder of the Stomach, as is uſually imagined, but a convulſive Motion of the *Diaphragma*; whereby that Muſcle retiring impetuouſly downwards, impels the Parts beneath it.

It is occaſion'd by ſharp Humours; a too great Plenitude of the Stomach; a Bit of any Thing ſtopp'd at its upper Orifice; or, in the general, by any Thing capable of irritating the Nerves of the *Diaphragma*.

The Remedy for the *Hiccough*, according to *Hippocrates*, is to fetch the Breath very long, or even to ſtop the Breath for ſome Time. A Sneezing happening upon a *Hiccough* generally cures it; the Diaphragm, ſhook by the violent Expiration, being apt to throw off what before irritated it.

The Word is form'd of the Flemiſh *Hick*, which ſignifies the ſame Thing. Others derive it *ab* hiſcendo; others, *a difficili Anhelitu*.

HIDAGE, or HYDAGE, was an extraordinary Tax; antiently payable to the King for every Hide of Land. See HIDE.

Sunt etiam quædam communes Præſtationes, quæ Servitia non dicuntur, nec. de Conſuetudine veniunt, niſi cum neceſſitas intervenerit, vel cum Rex venerit; ſicut ſunt Hidagia, Coragia, & Carvagia, & *alia plura de neceſſitate & ex conſenſu communi totius regni introducta, & quæ ad dominum non pertinent*, &c. Bracton *Lib.* II. Cap. 6.

King *Æthelred*, in the Year of Chriſt 994, upon the Landing of the *Danes* at *Sandwich*, taxed all his Lands by *Hides*. Every 310 *Hides* of Land found one Ship furniſhed; and every 8 *Hides* found one *Jack*, and one Saddle for the Defence of the Realm.

Wilhelmus Conqueſtor *de unaquaque* Hida *per* Angliam *ſex ſolidos accepit. Floren. Wigorn. in* An. 1084.

The Word *Hidage* is alſo uſed for a being quit of that Tax; which was alſo call'd *Hyde-Gild*.

HIDE, the Skin of a Beaſt; particularly that of a Bullock or Cow. See SKIN and LEATHER.

We have *Hides* of divers Denominations, according to their State, Quality, &c.

Raw HIDE, or *Green* HIDE, is that which has not undergone any Preparation; being in the ſame Condition as when taken off the Carcaſe.

Salted HIDE, is a green *Hide*, ſeaſon'd with Sea-Salt and Alum, or Salt-Petre; to prevent its ſpoiling and corrupting, either by keeping it too long in Cellars, or in tranſporting it too far in a hot Seaſon.

There are alſo *Hides dried in the Hair*, ſent from *America*; particularly thoſe of Buffelo's, &c. See BUCANEER.

Tann'd HIDE, is a *Hide* either green, ſalted or dried, further dreſſed and prepared by the Tanner, by paring off the Hair, and ſteeping it in Pits of Lime and Tan. See TANNING.

Curried HIDE, is that which after tanning, has paſſed thro' the Curriers Hands, and has thus received its laſt Preparation, and is fitted for Uſe. See CURRYING.

HIDE, HYDE, or HYDA, in our antient Cuſtoms, was a Meaſure, or Quantity of Land, containing ſo much as could be yearly till'd with a ſingle Plough. See PLOUGH *Land*.

Beda calls the *Hide* of Land *Familia*, and defines it to be ſo much as was ſufficient for the ordinary Maintenance of one Family. See FAMILY.

In other Authors it is called *Manſum*, *Manens*, *Caſata*, *Carucata*, *Sullinga*, &c. See CARUCATA.

Crompton, in his *Juriſdict.* Fol. 222, ſays a *Hide* of Land, contains one hundred Acres: He adds, that eight *Hides* make a *Knight's Fee*. In an antient Manuſcript the *Hide* is fix'd at 120 Acres.

But Sir *Edward Coke* adds, that a Knight's Fee, a *Hide*, or Plough-Land, a Yard-Land, and an Oxgang of Land do not contain any certain, determinate Number of Acres. See KNIGHT'S *Fee*, YARD *Land*, &c.

The Diſtribution of *England* into *Hides* of Land is very antient; there being mention made of it in the Laws of King *John*, Cap. 14. *Henricus* I. *Maritand, filiæ ſuæ gratia Imperatori, cepit ab unaquaque* Hida *Angliæ tres Sol.* Spelman.

HIDE-*Bound*, a Diſorder of a Horſe, or other Beaſt, wherein his Skin ſticks ſo tight to his Ribs and Back, as not to be looſen'd from it with the Hand.

The Diſorder is ſometimes owing to Poverty and bad keeping; at other Times to over Riding or a Surfeit, the Horſe being ſuffered when he is hot, to ſtand long in the wet; or to a morbid Dryneſs of the Blood, which not having its natural Courſe, cauſes the Skin to ſhrink up, and cleave to the Bones.

HIDE-*Bound*, among Husbandmen, — Trees are ſaid to be ſo when the Bark ſticks too cloſe. See BARK.

HIDEL, in our antient Statutes, ſignifies a Place of Protection, or a Sanctuary. See SANCTUARY.

HIDGILD, in the Laws of King *Canute*, is explained by *Pretium redemptionis aut manumiſſionis Servi*; from the *Saxon* hide, *i. e.* the Skin, and gild, *pretium*, i. e. the Price by which he redeemed his Skin from being whipp'd. See GILD.

Si liber feſtis dictis operetur, perdat libertatem; ſi ſervus, corium perdat, vel Hidgildum, *i. e.* let him be whipped, which was the Puniſhment for Servants. *Vel* Hidgildum, *i. e.* let him pay for his Skin; by which Payment he is to be excuſed from Whipping.

HIDROTICKS, or rather HYDROTICKS, in Medicine, are the ſame with *Sudorificks*. See SUDORIFICKS.

Carduus Benedictus, Zedoary, Gayac, Angelica, &c. are of the Number of *Hidroticks*, or *Hidrotic* Medicines.

The Word is compoſed of the *Greek*, ἱδρώς, *Sweat*.

HIERACITES, HIERACITÆ, a Sect of antient Hereticks; denominated from their Leader *Hieracas*.

This

This *Hereſiarch* was by Nation an *Egyptian*; and, beſide his Mother-Tongue, was a Maſter of the *Greek*, and well ſeen in all the polite Parts of Learning. Being born a Chriſtian, he had been brought up to the Study of the Holy Scriptures, whereof he had a more than ordinary Acquaintance; ſo that he wrote Commentaries on ſome of them: But, by an ill Uſe of his Knowledge, he fell into divers Errors, in which his Intereſt and Authority among the Monks of *Egypt* procured him Abundance of Followers.

He abſolutely denied the Reſurrection of the Body; maintaining that the Soul alone roſe again; and that the Reſurrection was altogether ſpiritual. — *Epiphanius* ſurmiſes that he might have imbibed this Error from *Origen*.

The ſame *Hieracas*, and his Followers likewiſe condemn'd Marriage; being of Opinion that it was only allowed under the Old Teſtament, and till the Coming of Jeſus Chriſt; but that under the New Law, all Marriage was prohibited, as incompatible with the Kingdom of God.

S. *Epiphanius* produces the Paſſages of Scripture whereon he founded this Doctrine. He adds, that *Hieracas* did not give into *Origen*'s Error with Regard to the Myſtery of the Trinity, but allow'd the Son to be really and truly begotten of the Father: He was alſo Orthodox with reſpect to the Holy Ghoſt; exceepting for ſome Peculiarities received from the *Melchiſedechians*, on which he had refined. He lived a very auſtere Life, and promoted the ſame among his Followers: But after his Death they degenerated a-pace.

HIERA PICRA, in Pharmacy, a Kind of Electuary, firſt deſcribed by *Galen*; compoſed of Aloes, Cinnamon, Mace, Aſarabacca, Spicanardi, Saffron, Maſtic and Honey.

It is uſed to purge and cleanſe the Stomach; remove Obſtructions, promote the Meaſes and Hæmorrhoids, and ſweeten the Blood. Tho' its chief Uſe among us, is in making the *Tinctura ſacra*. See TINCTURA.

It is denominated from the *Greek*, ἱερὸν, *ſacer*, holy, by Reaſon of its rare Virtues; and πικρὸς, *amarus*, bitter; Aloes, which is the Baſe thereof, rendering it extremely bitter. See ALOES.

There is another *Hiera*, call'd *Hiera Diacolocynthidos Pachii*, by Reaſon *Colocynthis* is the Baſe thereof, and that it was firſt uſed with good Succeſs by *Pachius* of *Antioch*, in divers obſtinate Diſeaſes. — It is compoſed of *Colocynthis*, *Opoponax*, *Ariſtolochia rotunda*, *Agaric*, and other Ingredients.

It is uſed in Epilepſies, Apoplexies, Palſies, and Lethargies, to excite the Meaſes, and promote the Expulſion of the After-birth.

There is alſo a third Sort of *Hiera*, call'd *Liberanus*; but rarely uſed. — Dr. *Quincy* ſays, 'tis one of the moſt ridiculous Medleys ever contrived. It paſſes for a Cordial, &c.

HIERARCHY, HIERARCHIA, in Theology, the Order, or Subordination, among the ſeveral Choirs, or Ranks of Angels. See ANGEL.

St. *Dionyſius*, and other of the antient Writers, eſtabliſh nine Choirs, or Orders of celeſtial Spirits, *viz.* Seraphim, Cherubim, Thrones, Dominions, Principalities, Powers, Virtues, Angels and Archangels: And theſe he divides into three *Hierarchies*. See SERAPH, CHERUB, &c.

The Word is *Greek*, form'd of ἱερὸς, *ſacer*, holy, and ἀρχὴ, *Principatus*, Principality, *q. d.* ἱερὰ ἀρχὴ, *ſacer Principatus*, holy Principality or Command; and Principality in holy Things.

HIERARCHY, is alſo uſed on Earth, for the Subordination between Prelates and other Eccleſiaſticks. See ECCLESIASTICAL *Polity*.

Archbiſhops, Biſhops, Prieſts, and Deacons, compoſe the *Hierarchy* of the Church of *England*. In that of *Rome*, the Pope has likewiſe a Place at the Head of the *Hierarchi*.

Fa. *Cellot*, a Jeſuit of *Paris*, has publiſhed a Volume expreſs, *de Hierarchia* and *Hierarchis*, L. IX, on the *Hierarchy*, and thoſe who compoſe it. He there diſtinguiſhes a created, and an increated *Hierarchy*; a divine, and a human or eccleſiaſtical *Hierarchy*; and in this, a *Hierarchy* of Juriſdiction, a *Hierarchy* of Order, and a *Hierarchy* of Graces the moſt ſublime of all. — He defines *Hierarchy*, in the general, a Principality, Command, or Superiority in holy Things: *Principatus*, or *Imperium in rebus Sacris*. He holds, that *Hierarchy* excludes all below Biſhops; and that neither Prieſts nor Deacons can be reckon'd among the Number of *Hierarchy*. *Bellarmin*, *Hallier*, *Aurelius*, &c. he holds, were all miſtaken, and did not diſtinguiſh between being of the *Hierarchy*, and being under it. According to him, to *be of*, or *in the Hierarchy*, are the ſame Thing; and are only applicable to thoſe who govern the Church, or have ſome Part in the Adminiſtration thereof: On the contrary, to be under the *Hierarchy*, is to be ruled or governed by the *Hierarchy*.

Cellot will not admit of any Difference between theſe three Expreſſions. To prove that they all denote the ſame Thing, he inſtances in the Caſe of Monarchy, alledg'd for the ſame Purpoſe by *P. Aurelius*: Urging, that in a Monarchy, all, even the Subjects are in the Monarchy, of the Monarchy, or under the Monarchy; and that none are excluded but Foreigners: And that the Caſe is the ſame in the *Hierarchy*.

HIERATIC *Paper*, among the Antients, was the fineſt Sort of Paper; which was ſet apart only for ſacred or religious Uſes. See PAPER.

HIEROGLYPHIC, a Symbol, or Myſtic Figure, uſed among the antient *Egyptians*, to cover, or conceal the Secrets of their Theology. See CHARACTER.

Hieroglyphicks are properly Emblems, or Signs of divine, ſacred, or ſupernatural Things; by which they are diſtinguiſhed from common *Symbols*, which are Signs of ſenſible and natural Things. See SYMBOL.

Hermes Triſmegiſtus, is commonly eſteemed the Inventor of *Hieroglyphicks*: He firſt introduced them into the Heathen Theology; from whence they have been tranſplanted into the *Jewiſh* and *Chriſtian*.

The Word is compoſed of the *Greek*, ἱερὸς, *ſacer*, holy, and γλύφειν, *ſculpere*, to engrave; it being the Cuſtom to have the Walls, Doors, &c. of their Temples, Obeliſks, &c. engraven with ſuch Figures.

Sacred Things, ſays *Hippocrates*, ſhould only be communicated to ſacred Perſons. — Hence it was, that the antient *Egyptians* communicated to none but their Kings and Prieſts, and thoſe who were to ſucceed to the Prieſthood and the Crown, the Secrets of Nature, and the Myſteries of their Morality and Hiſtory; and this, by a Kind of Cabbala, which at the ſame Time that it inſtructed them, only amuſed the reſt of the People. — Hence the Uſe of *Hieroglyphicks*, or myſtic Figures, to veil their Morality, Politicks, &c. from prophane Eyes. *Spon.* This Author, it may be obſerved, and many others, do not keep to the preciſe Character of a *Hieroglyphic*, but apply it to prophane as well as divine Things.

Hieroglyphicks are a Kind of real Characters, which do not only denote, but in ſome Meaſure expreſs the Things. — Thus, according to *Clemens Alexandrin.* Strom. 5. A Lion is the *Hieroglyphic* of Strength and Fortitude; a Bullock, of Agriculture; a Horſe, of Liberty; a Sphinx of Subtlety, &c. See HIEROGLYPHICAL.

HIEROGLYPHICAL, ſomething containing a *Hieroglyphic*. See HIEROGLYPHIC.

In *Egypt* are ſtill found divers Obeliſks, Figures, &c. full of *Hieroglyphical* Figures or Characters. See HIEROGRAMMATEI.

'From the inmoſt Receſſes of the Dome, ſays *Apuleius*, 'he brings forth certain Books wrote in myſtic, unintel-'ligible Characters; conſiſting partly of Figures of Ani-'mals, apparently ſuggeſting ſome compendious Sayings; 'and partly of Knots, and Flouriſhes; all abundantly 'ſecured from the too curious Eyes of profane Readers. 'The religious Rites of the *Egyptians*, are moſtly involved in ſuch Figures of Animals, which are hence called 'ἱερογλυφικὰ γράμματα, *Hieroglyphical Letters*.

HIEROGRAMMATEI, among the antient *Egyptians*, were the Prieſts appointed to explain the Myſteries of Religion, and to direct the Performance of the Ceremonies thereof.

The *Hierogrammatei* invented and wrote Hieroglyphicks, and Hieroglyphical Books, and occaſionally explain'd 'em, with other Matters relating to the Doctrines of Religion. If we may believe *Suidas*, they were alſo Prophets; at leaſt, he relates, that a *Hierogrammateus* foretold to an antient King of *Egypt*, that there would be an *Iſraelite* of great Wiſdom, Virtue and Renown, who ſhould humble *Egypt*.

The *Hierogrammatei* were always near the King, to aſſiſt him with their Informations and Councils: The better to fit them for this, they made uſe of the Skill and Knowledge they had acquired in the Stars, and the Motions of the heavenly Lights; and even of the Writings of their Predeceſſors, wherein their Functions and Duties were deliver'd. They were exempted from all civil Employments; were reputed the firſt Perſons in Dignity next the King; and bore a Kind of Scepter in form of a Plough-ſhare.

After *Egypt* became a Province of the *Roman* Empire, the *Hierogrammatei* ſunk into Neglect.

HIEROMNEMON, an Officer in the antient *Greek* Church; whoſe principal Function was, to ſtand behind the Patriarch at the Sacraments, Ceremonies, &c. and ſhew him the Prayers, Pſalms, &c. he was to rehearſe. — He alſo cloath'd the Patriarch in his pontifical Robes; and aſſign'd the Places of all thoſe who had a Right to be around him, when ſeated on his Throne; as the Maſter of the Ceremonies now does to the Pope.

The *Hieromnemon* was commonly a Deacon; when he was in Priest's Orders, as it sometimes happen'd, he was excus'd from dressing the Pope in his pontifical Habits. Whether he were Deacon, or Priest, he had under him an Officer named *Castrisius*. He had also the keeping of the Book entituled *Contacion*, or Book of Ordination; and that call'd *Enthronianismus*, which was a Sort of Ritual.

The Word is composed of the *Greek*, ἱερὸς, *sacred*, and μνήμων, one who advertises, or puts in Mind of.

HIERONYMITES, or *Hermits of St. Jerom*. See JERONYMITES and HERMIT.

The Word is compounded of ἱερὸς, *holy*, and ονομα, *Name*.

HIEROPHANTES, or HIEROPHANTA, in Antiquity, a Priest among the *Athenians*. See PRIEST.

The *Hierophantes* was properly the Priest of the Goddess *Hecate*: At least, the Title was only given to the Priests when they performed the Sacrifices of that Goddess, and in respect of her.

St. *Jerom* says, that the *Hierophantes* extinguished the Fire of Lust, by drinking *Cicuta*, or the Juice of Hemlock; or even by making themselves Eunuchs. — *Appollodorus* observes, that it was the *Hierophanta* who instructed Persons initiated into the Religion, in the Mysteries and Duties thereof; and that it was hence he derived his Name. For the same Reason he was also called *Prophetes*, Prophet. — He had Officers under him to do the same Thing, or to assist him therein, who were also called *Prophetes* and *Exegetes*, i. e. Explainers of divine Things.

To the *Hierophantes* it belonged to dress and adorn the Statues of the Gods, and to bear them in Processions and Ceremonies.

The Word comes from ἱερὸς, *holy*, *sacred*, and φαινω, *I appear*.

HIEROPHYLAX, an Officer in the *Greek* Church. — His Quality is that of Guardian, or Keeper of the holy Things, Utensils, Vestments, &c. answering to our *Sacristan*, or Sexton. See SACRISTAN.

The Word is composed of ἱερὸς, *sacer*, and φύλαξ, *Keeper*, of φυλάττω, *I keep*.

HIEROSCOPY, HIEROSCOPIA, a Kind of Divination, perform'd by considering the Victim, and every Thing that occurs during the Course of the Sacrifice. See SACRIFICE and VICTIM.

The Word is form'd of ἱερὸς, *sacer*, and σκοπέω, *I consider*.

HIGH, *Altus*, a Term of Relation, applied to a Body, consider'd according to its third Dimension, or its Elevation above the Horizon, or even above the Ground. See HEIGHT.

Thus, we say, the Pike of *Tenariff* is reputed the *highest* Mountain in the World. See MOUNTAIN.

The Monument is 202 Foot *high* from the Ground. See MONUMENT.

The Tower of St. *Paul's*, before its first burning down in 1086, was 520 Foot *high*; on this was a Pole of Copper, and on that a Cross 15 Foot and a half high. — The Towers of *Notre Dame* at *Paris*, so much talk'd of, are 212 Foot *high*, &c. See ALTITUDE.

HIGH, is also used to denote a Person in Power, Dignity, &c. See TITLE and QUALITY.

Thus God is frequently called in Scripture the *most high*. So on Earth we say, *high* and puissant Lord, Prince, &c. — The States General of the United Provinces, are called their *High Mightinesses*. See STATES, &c.

So in *England* we say, *High* Court of Parliament. See PARLIAMENT.

Lord *High* Chancellor, } See { CHANCELLOR.
Lord *High* Treasurer, } See { TREASURER.

HIGH, in Music, is sometimes used in the same Sense with *loud*, in Opposition to *low*: And sometimes in the same Sense with *Acute*, in Opposition to *Grave*. See SOUND, ACUTENESS, GRAVITY, &c.

HIGH *Bearing-Cock*, is a Term used with Respect to Fighting Cocks; denoting one larger than the Cock he fights withal. — As a Low Bearing Cock is one overmatched for Height.

HIGH-*Dutch*, is the *German* Tongue in its greatest Purity, &c. as spoken in *Misnia*, &c. See LANGUAGE. See also GERMAN, DUTCH, &c.

HIGH *Operation*, in Chirurgery, is a Method of extracting the Stone; thus call'd, by Reason the Stone is taken out at the upper Part of the Bladder. See STONE.

For the Method of performing the *High* Operation. See LITHOTOMY.

The *High* Operation is said to have been first practised by *Rossy*, others say by *Franco* a Chirurgeon of *Lausan*. It has been lately retriev'd by Mr. *Douglas*, and now practised with good Success by Mr. *Chesselden*, and others.

HIGH *Relievo*, See RELIEVO.

HIGH *Sea*, or *Ocean*, is that far from Land. See SEA and OCEAN.

HIGH *Water*, is that State of the Tides when they cease to flow. See TIDES, FLUX, &c.

HIGHNESS, a Quality, or Title of Honour given to Princes. See TITLE and QUALITY.

The Kings of *England* and *Spain* had formerly no other Title but that of *Highness*; the first, till the Time of *James* I. and the second, till that of *Charles* V. See MAJESTY.

The petty Princes of *Italy* began first to be complemented with the Title of *Highness* in the Year 1630. — The Duke of *Orleans* assumed the Title of *Royal Highness*, in the Year 1631, to distinguish himself from the other Princes of *France*.

The Duke of *Savoy*, now King of *Sardinia*, bore the Title of *Royal Highness*, on Account of his Pretensions to the Kingdom of *Cyprus*. — 'Tis said that Duke only took the Title of *Royal Highness*, to put himself above the Duke of *Florence*, who was called great Duke; but the great Duke has since assumed the Title of *Royal Highness*, to put himself on a Level with the Duke of *Savoy*.

The Prince of *Conde* first took the Title of *Most serene Highness*, leaving that of simple *Highness* to the natural Princes.

HIIS *Testibus*, q. d. *These Witnesses*; was a Phrase antiently added in the end of a Deed that was written in the same Hand with the Deed; upon which the Witnesses were called, the Deed read, and then their Names entred. See DEED and WITNESS.

This Clause of *Hiis testibus*, in Subjects Deeds, continued till, and in, the Reign of *Hen.* VIII. but is now wholly omitted. *Coke* on *Littleton*.

HILARIA, in Antiquity, Feasts celebrated every Year, by the *Romans*, on the eighth of the Calends of *April*, in Honour of the Mother of the Gods. See FEAST.

The *Hilaria* were solemnized with great Pomp, and rejoycing. Every Person dress'd himself as he pleas'd, and took the Marks, or Badges, of whatever Dignity, or Quality, he had a Fancy for.

The *Romans* took this Feast originally from the *Greeks*; who call'd it ΑΝΑΒΑΣΙΣ, q. d. *Ascensus*: The Eve of that Day they spent in Tears and Lamentations, and thence denominated it ΚΑΤΑΒΑΣΙΣ, *Descensus*.

Afterwards, the *Greeks* took the Name ΙΑΑΡΙΑ, from the *Romans*; as appears from *Photius*, in his Extract of the Life of the Philosopher *Isidore*.

Casaubon maintains, that beside this particular Signification, the Word *Hilaria* was also a general Name for all Solemn, or Feast Days, whether public or private and domestic. But *Salmasius* does not allow of this.

Tristan, T. I. *p.* 482. distinguishes between *Hilaria* and *Hilariæ*. The former, according to him, were public rejoycings; and the latter, Prayers made in Consequence thereof; or even of any private Feast, or Rejoycing, as a Marriage, &c. The public lasted several Days; during which, all Mourning, and Funeral Ceremonies, were suspended.

The *Hilaria*, were first instituted in Honour of the Mother of the Gods, as is observed by *Macrobius*, L. I. *C.* 10. and *Lampridius*, in his Life of *Alexander Severus*; being apparently intended to express the Joy conceiv'd at the Birth of the Gods.

HILARODE, or HILARODUS, in the antient Music and Poetry, a Sort of Poet among the *Greeks*, who went about singing little gay diverting Poems, or Songs; tho' somewhat graver than the *Ionic* Pieces. See RHAPSODUS.

The *Hilarodes* appear'd dress'd in white, and were crown'd with Gold. At first they wore Shoes; but afterwards assumed the *Crepida*, which was only a Soal, tied over the Foot with Straps.

They did not sing alone; but had always a little Boy, or Girl, to attend them, playing on some Instrument.

From the Streets, they were at length introduced into the Tragedy; as the Magodes were into Comedy. See MAGODES, TRAGEDY. &c.

The *Hilarodes* were afterwards call'd *Simodes*, from a Poet named *Simus*, who excell'd in this Kind of Poetry.

The Word is compounded of ἱλαρὸς, *joyful*, and ᾠδὴ, *Singing*, *Song*. See HILARODIA.

HILARODIA, a Poem, or Composition in Verse, made, or sung by a Sort of Rhapsodists call'd *Hilarodes*. See HILARODE.

Scaliger holds *Hilarodia*, *Hilaro-Tragedia*, *Phlyacography*, and the *Rhintonic* Fable, to be all Names for the same Thing. See HILARO-TRAGEDIA.

HILARO-TRAGEDIA, a dramatic Performance, partly tragic, or serious; and partly comic, or merry. See DRAMA.

Scaliger, *Poet.* L. I. *C.* 52. holds, the *Hilaro-Tragedia* and Hilarodia, to be one and the same Thing. Others, rather take the *Hilaro-Tragedia* to have been pretty nearly what we call a *Tragi-Comedy*. Others, again, will have it to have been a pure Tragedy, only terminating with a happy Catastrophe, which brings the Hero out of a wretched into a fortunate State. — But the first Opinion seems the most probable, and the best warranted. See TRAGEDY.

Suidas

Suidas mentions one *Rhinton*, as the Inventor of this Kind of Poem: Whence it was also called *Rhintonica fabula*.

HILARY *Term*. See TERM.

HILL. See MOUNTAIN.

HILLOCK. See MOUNT.

HIN, a *Hebrew* Measure, containing the sixth Part of an Epha; or one Wine Gallon and two Pints. See MEASURE, EPHA, &c.

HIND, a Female Stag of the third Year. See HUNTING.

HIND *Calf*, a Hart of the first Year. See HUNTING.

HIND *Hand*, in the Manage. See HAND.

HINDENI *Homines*, antiently signified a Society of Men; from the *Saxon* hindene, *Societas*.

In the Time of our *Saxon* Ancestors, all Men were ranked into three Classes; the *Lowest*, the *Middle*, and the *Highest*; and were valued according to the Class they were in; that in Case an Injury were done by any one, Satisfaction might be made according to the Value, or Worth of the Man it was done to.

The *Lowest* were those who were worth ten Pounds, or two hundred Shillings; call'd *Viri ducentini*, or *Twyhindemen*, and their Wives *Twyhinda's*.

The *Middle* were valued at six hundred Shillings; and were called *Sixhindemen*, and their Wives *Sixhinda's*.

The *Highest* were valued at twelve hundred Shillings; and were called *Twelvehindimen*, and their Wives the *Twelvehinda's*. See TWIHINDI, and TWELVEHINDI.

HINE, or HIND, in the *Saxon* Language, signifies a Servant, or one of the Family: But it is now taken in a more restrictive Sense, for a Servant at Husbandry; and the Master-*hine*, is he that oversees the rest.

HINGES, in Building, those necessary Irons, by Means whereof Doors, Lids, Folds of Tables, &c. make their Motion, whether of opening, shutting, or folding, &c. See DOOR, &c.

The Species of *Hinges* are many, *viz.* Bed, Box, Butts, Casement; *Lancashire*, and smooth-filed; Casting, Chest-black, *Lancashire*, smooth-filed, Coach, Desk, Dovetails, Esses, Folding, Garnets, Dozen-ware-long, Dozen-ware-short, Weighty-long, Weighty-short, Lamb-heads, Port, Side-*Lancashire*, Side smooth filed, Side with rising Joynts; *Lancashire*, and smooth filed, Side with Squares, Screw, Scuttle, Shutter; *Lancashire*, and smooth filed, Stall, Trunk of sundry Sorts, Joynts; *Lancashire*, Dozen-ware with Hooks, Dozen-ware long, Dozen-ware short, Weighty long, Weighty-short.

HIP. See HAUNCH.

HIP-*Shot*, a Disorder of a Horse, when he has wrung or sprained his Haunches, or Hips, so as to relax the Ligaments, that keep the Bone in its due Place.

The Signs are, that the Horse will halt much, and go aside long, trailing his Leg after him; and the *Hip* which is hurt will be lower than the other; the Flesh falling away on the Side of his Buttock.

HIPS, in Building, are those Pieces of Timber, placed at the Corners of a Roof. See ROOF.

The *Hips* are much longer than the Rafters, by Reason of their oblique Position, and are placed not with a right or square Angle, but a very oblique one; and by Consequence are not, at least ought to be, square at any Angle, as Rafters are not at all, but Level at every one of 'em; and which is yet more, as Rafters have but four Plains, these commonly have five. See RAFTER.

They are commonly, by Country Workmen, called Corners: Some call them *principal Rafters*, and others *Sleepers*. Indeed, *Hips* and *Sleepers* are much the same; only the *Sleepers* lie in the Vallies, and joyn at Top with the *Hips*; but those Surfaces or Plains, which make the Back of the *Hip*, are the under Sides of the Sleeper.

The *Backs of a Hip*, are those two Superficies, or Plains, on the outside of the *Hip*, which lie parallel, both in Respect of their Length and Breadth, with the Superficies of the adjoyning Side, and End of the Roof.

HIP-*Mould*, is by some used for the back of the *Hip*. — Others understand it of a Prototype, or Pattern, commonly made of a Piece of thin Wainscot; by which the Back, and the Sides of the *Hip* are set out.

HIP-*Roof*, among Builders, called also *Italian* Roof; is a Roof which has neither Gable Head, nor Shread Head, or Jerkin Head; which last, are both Gable and *Hip* at the same End. See ROOF.

A *Hip-Roof* has Rafters as long, and with the Angles at the Foot, &c. at the Ends of Building, as it has at the Sides; and the Feet of the Rafters on the Ends of such Buildings as have *Hip-Roofs*, stand on the same Plane, *viz.* parallel with the Horizon, and at the same Height from the Foundation, with Rafters on the Sides of the Roof.

HIP-*Tyles*. See TYLE.

HIPPEUS, or EQUINUS, in Physiology, a Sort of Comet which some Writers suppose to bear a Resemblance to a Horse.

But the Shape of this Kind of Comet is not always alike; being sometimes oval, and sometimes imitating a Rhomboides. — So its Train is sometimes spread from the Front, or Fore-part, and sometimes from the hind Part.

Hence, this Class of Comets is distinguished into *Equinus Barbatus*, *Equinus Quadrangularis*, and *Equinus Ellipticus*. See COMET.

HIPPIATRICE, the Art of curing the Diseases of Brutes, and particularly *Horses*.

This we rather call the *Farrier*'s Art. See FARRIER.

The Word is composed of ἵππος, *Horse*, and ἰατρός, *Physician*.

HIPPOCENTAUR, in Antiquity, a fabulous Monster, supposed to be half Horse, and half Man.

What gave Occasion to the Fable, was, a People of *Thessaly*, inhabiting near Mount *Pelion*, who became thus denominated, by reason they were the first that taught the Art of Mounting on Horseback; which occasion'd some of their Neighbours to imagine that the Horse and Man made but one Animal. See HORSEMANSHIP.

The *Hippocentaurs* differ'd from the Centaurs, in this, that the latter only rode Bullocks, and the former Horses, as the Names themselves intimate. See CENTAUR.

Pliny affirms, he had seen a real *Hippocentaur* at *Rome*. — On the Medals of *Gallian*, is represented a Centaur drawing a Bow, or holding a Globe in the right Hand, and the Helm of a Ship in the left; with this Inscription, APOLLINI CONS. AUG. *To Apollo the Conservator of Augustus*. — *Tristan* considers both the one and the other, as a Symbol of the Protection *Gallian* had received from *Apollo* in his Wars against the *Persians*.

The Word is pure *Greek*, form'd of ἵππος, *Equus*, Horse, and κεντέω, *pungo*, I prick, spur, and ταῦρος, *Taurus*, Bull.

HIPPOCRAS, or HYPOCRAS. See HYPOCRAS.

HIPPOCRATES'S *Sleeve*, *Manica Hippocratis*, a Kind of Filter, or straining Bag, form'd by joyning the opposite Angles of a square Piece of Flannel, in Form of a Pyramid; and used to percolate, or strain Syrups, Decoctions, &c. for Clarification. See FILTRE, FILTRATION, &c.

HIPPOCRATICA *Facies*, See FACIES *Hippocratica*.

HIPPODROME, HIPPODROMUS, in Antiquity, a List, or Course, wherein their Horse Races were perform'd; as also their Horses exercised.

The Word is *Greek*, composed of ἵππος, *Equus*, Horse, and δρόμος, *Cursus*, of the Verb δίδρεμαι, *curro*, I run.

HIPPOLAPATHUM, in Natural History, a Species of Lapathum, call'd also *Monk's Rhubarb*. See RHUBARB.

HIPPOMANES, a Sort of Poison, famous among the Antients as an Ingredient in amorous Philters, or Charms. See POISON, PHILTER, and CHARM.

Naturalists are not agreed about the Nature of the *Hippomanes*. — *Pliny* describes it as a blackish Caruncle, found on the Head of a new born Colt; which the Dam bites off, and eats, assoon as she is delivered. He adds, that if she be prevented herein by any others cutting it off before, she will not take to, nor bring up, the young.

Servius and *Columella* describe it as a poisonous Matter, trickling from the *Pudendum* of a Mare, when proud, or longing for the Horse.

At the End of Mons. *Bayle*'s Dictionary, is a very learned Dissertation on the *Hippomanes*; and all its Virtues both real and pretended.

The Word is *Greek*, ἱππομανής, compounded of ἵππος, *Equus*, Horse, and μανία, *Furor*, Fury, Madness.

HIPPOPODES, or HIPPOPEDES, in the antient Geography, an Appellation given to certain People, situate on the Banks of the *Scythian* Sea; as being supposed to have Horse's Feet.

The *Hippopedes* are mention'd by *Dionysius*, Geogr. *v.* 310. *Mela*, L. III. *C.* 6. *Pliny*, L. IV. *C.* 3. And St. *Augustin*, de Civit. *L.* XVI. C. 8. But the Truth is, they had this Appellation given them on Occasion of their Swiftness, or Lightness of Foot.

The Word is composed of ἵππος, *Horse*, and πούς, *Pes*, Foot.

HIPPUS, in Medicine, an Affection of the Eyes, wherein they continually shake and tremble; and thus represent Objects as if continually fluctuating. See EYE.

It is thus called from the *Greek*, ἵππος, *Horse*; in regard the Objects appear to shift as much as when we are riding. *Blanchard*.

HIRCUS, in Anatomy, a Part of the Auricle, or outer Ear. See EAR.

The *Hircus* is that Eminence next the Temples. See AURICLE.

The Word is *Latin*, and signifies Goat.

HIRCUS, in Astronomy, a fixed Star; the same with *Capella*. See CAPELLA.

HIRCUS,

HIRCUS, is also used by some Writers for a Comet, encompassed as it were with a Main, seemingly rough and hairy. See COMET.

HISSING, an Appellation given by Grammarians to the three Consonants, S, X, and Z. See CONSONANT. See also S, X, and Z.

HISTERIC, See HYSTERIC.

HISTIODROMIA, or HYSTIODROMIA, the Art of Sailing, or of conducting Vessels on the Sea. See SAILING.

Histiodromia is the same with what we otherwise call *Navigation*. See NAVIGATION.

Histiodromia turns on four Points, any two whereof being given, the other two are easily found from 'em by the Loxodromic Tables, Sines, Tangents, Secants, Mertor's Chart, &c.

These four Things are, the Difference of Latitude, Difference of Longitude, the Course, and the Distance run. See LONGITUDE, LATITUDE, RHUMB and DISTANCE.

The Word is *Greek*, composed of ἱστίον, a *Sail*, of ἱστὸς, the *Mast* of a Ship, which comes from ἵστημι, *sto*, I stand; and δρόμος, *Course*, of δρέμω, *I run*.

HISTORICAL, something that relates to History. See HISTORY.

Thus, we say, *Historical Truth*, *Historical Style*, &c. The Donation of *Constantin*, the Reality of a Pope *Joan*, &c are *Historical* Points, very much controverted.

Henry Stevens has published a *Historical* and Poetical Dictionary; since improved and augmented by *Morery*. Mr. *Bayle* has given us an *Historical* and Critical Dictionary: *Diodorus Siculus*, *Vignier*, and Bishop *Nicholson*, *Historical* Libraries.

The *Historical* Art consists chiefly in the arranging and disposing of the various Incidents, so as to constitute one uniform, well connected whole. Fa. *Daniel*.

The principal Qualities of the *Historical* Style, are Perspicuity and Brevity. See STYLE.

HISTORICAL *Column*, is that whose Shaft is adorned with Basso-Relievo's carved all around from Bottom to Top, representing the History and Actions of some illustrious Person. See COLUMN.

In *Historical Columns*, the Figures may be either disposed in a spiral Line, continued from one End to the other; as in the *Trajan* Column at *Rome*: Or in distinct Bands, or Circles, containing so many different Subjects.

HISTORIOGRAPHER, a professed Historian, or Writer of History; or a Person who applies himself peculiarly thereto. See HISTORY.

The Term is chiefly used for a Person who has a peculiar Charge and Commission to write the History of his Time. — The *Historiographer* to his Majesty is an Officer under the Lord Chamberlain: His Salary 200 *l. per Ann.*

The Word is composed of the *Greek*, ἱστορία, *History*, and γράφω, *scribo*, I write.

HISTORY, a Recital, or Description of Things as they are, or have been; in a continued, orderly Narration of the principal Facts and Circumstances thereof. See ANNALS.

The Word is *Greek*, ἱστορία, *Historia*, and literally denotes a *Search of curious Things*, or a *Desire of knowing*, or even a *Rehearsal of Things we have seen*; being form'd of the Verb ἱστορεῖν, which properly signifies to *know a Thing by having seen it*. Tho' the Idea affected to the Term *History*, is now much more extensive; and we apply it to a *Narration of divers memorable Things*, even tho' the Relator only takes them from the Report of others.

The Origin of the Word is from the Verb ἴσημι, *I know*; and hence it is, that among the Antients several of their great Men were call'd *Polyhistores*, q. d. Persons of various, and general Knowledge. See POLYHISTORES.

History is divided, with Regard to its Subject, into the *History of Nature*, and the *History of Actions*.

HISTORY *of Nature*, or *Natural* HISTORY, is a Description of natural Bodies; whether terrestrial, as Animals, Vegetables, Fossils, Fire, Water, Air, Meteors, &c. or Celestial, as the Stars, Planets, Comets, &c. See NATURE, &c.

Such are *Aristotle*'s, *Dioscorides*'s, *Aldrovandus*'s, &c. *Histories*: Such also are *Ray*'s and *Gesners* History of Quadrupeds; *Willoughby*'s *Histories* of Birds, Fishes, &c. Such, lastly, are Mr. *Flamsteed*'s Historia *celestis*, or *History* of the heavenly Bodies.

Natural History is the same with what we otherwise call *Physiology*. See PHYSIOLOGY.

HISTORY, with Regard to Actions, is a continued Relation of a Series of memorable Events, in the Affairs, either of a single Person, a Nation, or several Persons and Nations; and whether included in a great, or a little Space of Time.

Thus, *Thucydides* has wrote the *History* of *Greece*; *Livy* of *Rome*; *Mezeray*, and Fa. *Daniel*, of *France*; *Tyrrel*, and *Echard*, the *History* of *England*; *Buchanan* of *Scotland*; *Clarendon*, the *History* of the Rebellion; *Thuanus*, Bishop *Burnet*, &c. the *History* of their own Lives and Times.

Eusebius, *Baronius*, &c. have wrote the *History* of the Church; Bishop *Burnet* that of the Reformation, &c.

Several Authors have wrote on the Method of Reading, and Studying *History*; and, among the rest *Lucian*, *Bodinus*, *Vossius* the elder, *Wheat*, *Patrici*, *Beni*, *Mascardi*, *de Silhon*, F. *le Moine*, Fa. *Rapin*, the Abbot *de St. Real*, Fa. *Thomassin*, &c.

History is divided into *Antient* and *Modern*, *Universal* and *Particular*, *Sacred* and *Profane*.

Fa. *Menestrier* gives us the proper Characters of the divers Kinds of *History*, with great Accuracy. — He distinguishes *History*, with Regard both to its Matter, and its Form; and gives curious Instances of each particular.

History, with Regard to its Matter, is either Sacred, or Natural, or Civil, or Personal, or Singular.

Sacred HISTORY, is that which lays before us the Mysteries and Ceremonies of Religion, Visions or Appearances of the Deity, &c. Miracles, and other supernatural Things, whereof God alone is the Author. — Such are the Book of *Genesis*, the Gospels, Apocalypse, &c. See MIRACLE, GOSPEL, REVELATION.

Natural HISTORY, is a Description of the Singularities of Nature; its Irregularities and Prodigies; and the Alterations it undergoes in the Birth, Progress, End, and Use of Things. — Such is *Aristotle*'s *History* of Animals; *Theophrastus*'s *History* of Plants; and the entire Body of *Natural History*, by *Pliny*: Such also are *Acosta*'s Natural *History* of the *Indies*; Plott's *History* of *Staffordshire*, &c.

Civil HISTORY, is that of People, States, Republicks, Communities, Cities, &c. — Such are those of *Thucydides*, *Halicarnassæus*, *Livy*, *Polybius*, *Mezeray*, Fa. *Daniel*, *Milton*, *Buchanan*, &c.

Personal HISTORY, is that which gives the Portrait, or Life of some single Person. — Such are the Lives of *Plutarch*, *Corn. Nepos*, *Suetonius*, &c. The Lives of the Painters, Poets, Philosophers, Saints, &c.

Personal History, is the same with what we otherwise call *Biography*. See BIOGRAPHY.

Singular HISTORY, is that which describes a single Action, Siege, Battel, or even War, Expedition, &c.

History, with Regard to its Form, is either *simple*, or *figurate*, or *mix'd*.

Simple History, is that deliver'd without any Art or foreign Ornament; being only a naked, and faithful Recital of Things, just in the Manner, and Order wherein they pass'd. — Such are the Chronicles of the *Eastern* Empire; the Fasti; Chronological Tables, Journals, &c. See FASTI.

Figurate History, is that which is further enrich'd with Ornaments, by the Wit, Ingenuity, and Address of the Historian. — Such are the Political, and Moral *Histories* of the *Greeks*, *Romans*, and most of the Moderns.

This latter is a Kind of rational *History*; which, without stopping at the Shell or Outside, the Appearances of Things, discovers the Springs and Movements of the several Events; enters into the Thoughts, the Breasts of the Persons concern'd therein; discovers their Intentions and Views; and by the Result of enterprizing Undertakings, discovers the Prudence or Weakness, wherewith they were laid, conducted, &c.

These are much the most useful, and entertaining *Histories*. — To this Class, may be peculiarly referr'd the *Histories* and Annals of *Tacitus*, among the Antients; and those of *Guiccardin*, *Petavius*, and Bishop *Burnet* among the Moderns.

Mix'd History, is that which, beside the Ornaments of figured *History*, calls in the Proofs and Authorities of simple *History*; furnishing authentic Memoirs, or original Letters, Manifesto's, Declarations, &c. to vouch the Truth of what is said. — Such are the *Histories*, or Collections of *Rushworth*; Mons. *Rapin Thoyras*'s *History* of *England*; the Genealogical *Histories* of *Duchesne*; Mons. *de Marca*'s *History* of *Bearn*, &c.

HISTORY, is also used for a Romance; or a fabulous, but probable Relation, of a Series of Actions or Adventures feign'd or invented by the Writer. — Such is the *History* of the Civil Wars of *Granada*; the *History* of *Don Quixot*; the Ethiopic *History* of *Heliodorus*, &c. See ROMANCE.

HISTORY, in Painting, is a Picture composed of divers Figures, or Persons, representing some Transaction, or Piece of *History*, either real or feign'd. See PAINTING.

Painters are distinguish'd into Portrait Painters, Flower and Fruit Painters, Painters of Beasts and Land-skips, and *History* Painters. — The first Place is universally allow'd to *History* Painters, as the most difficult, masterly, and sublime Province. See ORDONNANCE.

HISTRIO, in the antient Comedy, was a *Buffoon*, or Droll, who acted some humorous Part to excite Laughter and Merriment. See COMEDY.

HOAR,

HOAR-*Frost*, *Pruina*. See FROST and PRUINA.

HOARSENESS, *Raucedo*, a Diminution of the Voice. See VOICE.

The Part here affected is the Aspera Arteria, and particularly its Head or the Larynx. See ASPERA and LARYNX.

The next Cause of *Hoarseness* is a too plenteous Effusion of thin Lympha upon the Part.

Hoarseness is a Sort of Catarrhal Indisposition, arising from a too great Acrimony or Salmess of the Lymph. See CATARRH.

Sperma Ceti, Decoct. Rapar. & Rob. Passular, are approv'd Remedies herein. --- Where the Disorder is inveterate, Incidents and Expectorants are frequently of Service.

HOBBLERS, in our ancient Customs, were Men, who, by their Tenure, were oblig'd to maintain a little light Nag, or Hobby, for the certifying any Invasion toward the Sea Side.

The Name was also used for certain *Irish* Knights, who used to serve as light Horsemen upon *Hobbies*.

HOBBY, a Sort of Hawk that preys upon small Game, as Doves, Larks, *&c.* See HAWK.

HOBITS, a Sort of small Mortars, used for annoying the Enemy at a Distance with small Bombs. See MORTAR and BOMB.

HOC-*Tuesday Money*, or HOKE-*Day Money*, a Tribute anciently paid the Landlord, for giving his Tenants and Bondmen Leave to celebrate *Hock-day*, or *Hoke-day*; in Memory of the Expulsion of the domineering *Danes*. See HOKE *Day*.

HOD, a Sort of Tray for carrying Mortar, in use among Bricklayers.

HODEGOS, a Term purely *Greek*, signifying *Guide*.

The Word is chiefly used as the Title of a Book compos'd by *Anastasius* the *Sinaite*, toward the Close of the Vth Century; being a Method of disputing against the Hereticks, particularly the Acephali.

Mr. *Toland* has also publish'd a Dissertatinn under the same Title. Its Subject is the Pillar of Fire, *&c.* which went before the *Israelites*, as a Guide in the Desart.

HODGE *podge*, or HOTCH-*potch*, a Dish of Meat cut to Pieces, and strew'd with several Sorts of Things together.

HODGE-*podge*, or HOTCH-*pot*, in Law, is the putting together of Lands, of several Tenures, for the more equal dividing of them. See HOTCH-*pot*.

HODMAN, a young Scholar admitted from *Westminster* School to be Student in *Christ's Church* College in *Oxford*. See SCHOOL.

HOE, or HOW, a Husband-man's Tool, made like a Cooper's Adz, to cut up Weeds in Gardens, Fields, *&c.*

This Instrument is of great Use, and should be more employ'd than it is, in hacking and clearing the several Corners, Creeks, and Patches of Land, in spare Times of the Year, which would be no small Advantage thereto.

HOG-*steer*, among Hunters, a wild Boar of three Years old. See HUNTING.

HOGGET, or HOGREL, is a young Sheep of the second Year.

HOGINHINE, or rather AGENHINE, *q. d. servus proprius*, or *third Night own Servant*; is he that comes Guest-wise to an Inn or House, and lies there the third Night: After this he was accounted of that Family; and if he offended the King's Peace, his Host was answerable for him. See THIRD *Night own Hine*.

HOGOE, properly, HAUT-GOUT, a Mess in Cookery, denominated from its high Savour or Relish.

Its Preparations, Ingredients, *&c.* are various. --- Its Basis is usually some Meat, *e.gr.* Leg of Mutton, mine'd with Suet and savoury Herbs, as Shalot, Thyme, Spinage, *&c.* added thereto, with seasoning of Salt and Pepper, and Yolks of Eggs: The whole work'd up into a Ball, and thus boil'd; frequently, in the Body of a Cabbage, first fashion'd like a Duck, or other Fowl, with a Head stuck on. --- It remains to be serv'd up with a proper Sauce, as Butter, Yolks of Eggs, Anchovies, *&c.*

HOGSHEAD, a Measure, or Vessel of Wine, or Oil; containing the fourth Part of a Tun; or 63 Gallons. See MEASURE, TUN, GALLON, *&c.*

Two of these *Hogsheads* make a Pipe or But. See PIPE.

The Distillers weigh their Vessels when full, and for a *Hogshead* allow 4 hundred Weight, 2 Quarters, and 22 Pound, Cask and Liquor.

HOKE-*day*, or HOCK-*day*, or HOCK-*Tuesday*, in our ancient Customs, *Dies Martis quem quindenam Paschæ vocant*; the second *Tuesday* after *Easter* Week.

This Day was very remarkable in former Times, insomuch as to be used on the same Footing with *Michaelmas*, for a general Term or Time of Account. --- We find Leases without Date reserving so much Rent payable *ad duos Anni terminos, scil. ad le* Hoke-day, *& ad Festum Sancti Mich.* See HOCK-*Tuesday Money*.

In Accounts of *Magdalen* College in *Oxford*, there is yearly an Allowance, *pro mulieribus Hockantibus*, of some Manors of theirs in *Hampshire*; where the Men *hock* the Women on *Mondays*, *& contra* on *Tuesdays*. --- The Meaning of it is, that on that Day the Women in Merriment stop the Ways with Ropes, and pull Passengers to them, desiring something to be laid out in pious Uses.

HOLD *of a Ship*, the lowest Part of the Ship; including all that Part lying between the Keelson, and the lower Deck. See SHIP, *&c.*

In the *Hold* are the Steward's Room, the Powder Room, the Bread Room, and the Boatswain's Room; divided from each other by Bulk-Heads.

The *Hold* is the Store Room in a Merchant Ship, or the Place wherein the Goods, at least all the heaviee and more cumbersome, are stow'd. The rest are dispos'd between the two Decks; at least in *Dutch* Ships, which have their *Holds* very shallow, and the Space between the Decks high.

To find the Burthen of a Ship, the *Hold* is to be measur'd. See BURTHEN.

HOLD-*fast*, an Iron Hook in Shape of the Letter S, fix'd in a Wall to retain and support it.

HOLLAND, in the Commerce of Linnen, a fine, white, even, close kind of Linnen Cloth, chiefly used for Shirts, Sheets, *&c.* See LINNEN.

It is wrought in the Provinces of *Holland*, *Frizeland*, and other Parts of the United Provinces; whence the Appellation.

The principal Mart or Staple of this Cloth is at *Haerlem*, whither it is sent from most other Patta as soon as wove; there to be whiten'd the ensuing Spring.

That manufactur'd in *Frizeland* is the most esteem'd, and call'd *Frize Holland*. It is the strongest, and the best colour'd of any of that Fineness. --- It is never callender'd, nor thicken'd with Pap, as the rest; but is imported just as it comes from the Whitster. --- It is distinguish'd by its being Yard, Quarter, and half wide; which is half a Quarter more than those commonly call'd *Frize Hollands*, which are not right.

Gulix Holland is very white and fine, and is chiefly used for Shirts; being the strongest of any for its Fineness, except true *Frize*. 'Tis just Yard wide.

Alcamore Holland, is a very strong Cloth, and wears exceeding well. 'Tis about Yard, Quarter, and half wide.

HOLLOW, in Architecture, a Concave Moulding, about a Quadrant of a Circle; by some call'd *Casement*, by others an *Abacus*. See CASEMENT, *&c.*

HOLLOW *Square*, is a Body of Foot drawn up with an empty Space in the Middle, for the Colours, Drums, and Baggage; facing, and cover'd by the Pikes every Way to oppose the Horse. See SQUARE.

HOLLOW *Tower*, in Fortification, is a Rounding made of the Remainder of two Brisures, to join the Curtain to the Orillon; where the small Shot are play'd, that they may not be so much expos'd to the View of the Enemy. See TOWER, *&c.*

HOLM, HULMUS, signifies as much as *Insula amnica*, a River-Island, according to *Bede*; or plain grassy Ground upon the Water-sides, or in the Water, according to *Camden* ---*Cum duobus* Holmis *in Campis de Wedonc.* Mon.

Hence, where any Place is call'd by that Name, or where this Syllable is join'd with any other in the Names of Places, it signifies a Place surrounded with Waters. --- As the *Flatholmes*, the *Stepholmes*, near *Bristol*. --- If the Situation of the Place be not near the Water, it may signify a hilly Place; for *Holm* in *Saxon*, is in *English* an Hill, or Cliff.

HOLOCAUST, a kind of Sacrifice, wherein the whole Offering is burnt or consum'd by Fire; call'd also in the Scripture, *Burnt-offering*. See SACRIFICE and OFFERING.

The Word is *Greek*, ὁλόκαυστον, ὁλοκαύτωμα, compounded of ὅλ⊖, *totus*, whole; and καίω, *Uro*, *Igne Absumo*, I consume with Fire.

HOLOGRAPH, in the Civil Law, something written wholly in the Hand-writing of the Person who signs it.

The Word is chiefly used in speaking of a Testament, written wholly in the Testator's own Hand. See TESTAMENT.

The *Romans* did not approve of *Holographic* Testaments; and tho' *Valentinian* authoriz'd them by a Novel, they are not used where the Civil Law is in full Force.

The Word is *Greek*, compos'd of ὅλ⊖, all, and γράφω, I write.

HOLOMETER, a Mathematical Instrument, serving universally for the taking of all Sorts of Measures, both on the Earth, and in the Heavens.

The *Holometer* is the same with *Pantometer*. See PANTOMETER.

The Word is *Greek*, compos'd of ὅλ⊖, and μετρέω, I measure.

HOLSOM. --A Ship is said to be *holsom* at Sea, when she will hull, try, and ride well without rolling or labouring.

HOLYNESS, or HOLINESS, *Sanctity*; the Quality which conſtitutes or denominates a Perſon or Thing *holy*; *i. e.* free or exempt of Sin. See SIN.

HOLYNESS is alſo us'd in reſpect of Perſons and Things that are *ſacred*, *i. e.* ſet apart to the Service of God, and the Uſes of Religion. See SACRED and SAINT.

In this Senſe we ſay *holy* Days, *holy* Ordinances, the *holy* Bible, *holy* Goſpels, *holy* War, &c. — The *Roman* Catholicks call the Inquiſition the *holy* Tribunal; the See of *Rome*, the *holy* See, &c. See INQUISITION, &c.

Holy Oil, *holy* Water, &c. See OIL, WATER, &c.

Paleſtine is particularly call'd the *holy* Land, and *Jeruſalem* the *holy* City. — Princes formerly made a Practice of going to ſignalize their Religion in the *holy* Land; who, if they had had any Religion, would have ſtaid at Home. See CROISADE.

In the *Romiſh* Countries, one Third of the Year is taken up in *holy* Days, Saints Days, &c. In *Scotland*, they obſerve no ſtated *holy* Days, beſide *Sundays*.

Holy Week, is the laſt Week of Lent, call'd alſo *Paſſion Week*. See LENT and PASSION.

Holy Thurſday, is what we otherwiſe call *Maunday Thurſday*. See MAUNDAY.

Holy Year is ſometimes us'd for the Year of Jubilee. See JUBILEE.

In the *Jewiſh* Tabernacle, and afterwards in the Temple, were two Places; the one call'd the *Holy*, *Sanctorum*; and the other, which was more retir'd, the *Holy of Holies*, *Sanctum Sanctorum*, or the Sanctuary. See SANCTUARY.

The *Holy* was ſeparated from the *Holy of Holies* by a Veil.—In this latter Place was the Ark of the Covenant kept. See ARK.

HOLYNESS is alſo a Title or Quality attributed to the Pope; as that of Majeſty is to Kings. See TITLE, QUALITY, &c.

Even Kings writing to the Pope, addreſs him under the venerable Appellation of your *Holyneſs*, or *Holy* Father; in *Latin Sanctiſſime*, or *Beatiſſime Pater*. See POPE.

Anciently the ſame Title, *Holyneſs*, was given to all Biſhops; as appears in St. *Auguſtin*, *Fortunatus*, *Nicholas* I. *Caſſiodore*, &c. — St. *Gregory* compliments ſome of his cotemporary Biſhops with *Your Beatitude*, *Your Holyneſs*.

The *Greek* Emperors of *Conſtantinople* were alſo addreſs'd under the Title of *Holyneſs*, in regard of their being anointed with *holy* Oil at their Coronations. — *Du Cange* adds, that ſome of the Kings of *England* have had the ſame Title; and that the Orientals have frequently refus'd it to the Pope.

Order of the HOLY *Ghoſt*, is a military Order in *France*, the principal, in Point of Dignity, in that Kingdom. See ORDER and KNIGHT.

It was inſtituted by King *Henry* III. in 1569, in Memory of three great Events happening on the ſame Day, *viz.* his Birth, Acceſſion to the Crown of *France*, and Election to that of *Poland*; and is to conſiſt of 100 Knights only; who, to be admitted, are to make Proof of their Nobility for three Deſcents.

The King is the Grand Maſter or Sovereign, and takes the Oath as ſuch on his Coronation Day; whereby he ſolemnly vows to maintain for ever the Order of the *Holy Ghoſt*, without ever ſuffering it to ſhrink, fall, or diminiſh, ſo long as it is in his Power to hinder it; and never to attempt to alter or diſpenſe with any of the irrevocable Statutes of the Order.

The Knights are all to wear a Gold Croſs, hung about the Neck by a blue Silk Ribbon or Collar; and the Officers and Commanders are alſo to wear a Croſs ſewed on the left Side of their Cloaks, Robes, and other upper Garment.

Before they receive the Order of the *Holy Ghoſt*, that of St. *Michael* is conferr'd, as a neceſſary Degree; for which Reaſon their Arms are ſurrounded with a double Collar.

Croſs of the HOLY *Ghoſt*, in Heraldry. — A *Croſs of the Holy Ghoſt* conſiſts of a Circle in the Middle, and on it the *Holy Ghoſt* in Figure of a Dove: the four Arms are drawn narrow from the Centre, and widening to the Ends, where the returning Lines divide each of them into two ſharp Points, upon each of which is a Pearl. See CROSS.

From the Intervals of the Circle between the Arms, iſſue four Flower-de-luces. — This is the Croſs worn by the Knights of the Order of the *Holy Ghoſt* in *France*.

HOLY-*Rood Day*, a Feſtival obſerv'd by the *Roman* Catholicks, in Memory of the Exaltation of our Saviour's Croſs. See EXALTATION *of the Croſs*.

HOLY-*water Sprinkle*, among Hunters, ſignifies the Tail of a Fox. See TAIL.

HOMAGE, or HOMMAGE, in its general and literal Senſe, denotes the Reverence, Reſpect, and Submiſſion which a Perſon yields his Maſter, Lord, Prince, or other Superior. See LORD, &c.

HOMAGE, HOMAGIUM, HOMINIUM, in Law, is an Engagement or Promiſe of Fidelity, which the Vaſſal or Tenant who holds a Fee, renders to the Lord when admitted thereto. See FEE, VASSAL, LORD, &c.

The Word is form'd of the *Latin*, *Homo*, Man; by reaſon when the Tenant takes this Oath, he ſays, *Ego devenio homo veſter*, *I become your Man*: For the ſame Reaſon, *Homage* is call'd *Manhood*: So the *Homage* of his Tenant, and the Manhood of his Tenant, is all one. *Coke on Littl.* fol. 64.

In the original Grants of Lands and Tenements by Way of Fee, the Lord did not only tye his Tenants to certain Services; but alſo took a Submiſſion, with Promiſe and Oath to be true and loyal to him as their Lord and Benefactor.

This Submiſſion, &c. is call'd *Homage*, the Form whereof, as appointed by Stat. 17 *Edw.* II. is in theſe Words: When a Free-man ſhall do *homage* to his Lord, of whom he holdeth in Chief, he ſhall hold his Hands together between the Hands of his Lord, and ſhall ſay thus: "I become your "Man from this Day forth for my Life, for Member, and "for worldly Honour; and ſhall owe you my Faith for the "Land I hold of you, ſaving the Faith that I owe unto "our Sovereign Lord the King, and to mine other Lords.

In this Manner the Lord of the Fee, for which *Homage* is due, takes *Homage* of every Tenant as he comes to the Land or Fee. *Glanvil*, indeed, excepts Women; who only perform *Homage* by their Husbands; in regard *Homage* is ſuppos'd to have a more immediate Relation to Service in War; but *Fitzherbert* denies the Exception, *Nat. Brev.* fol. 157.

He adds, that Biſhops do no *Homage*, but only Fealty, and, probably, for the ſame Reaſon as Women. Yet do we read, that the Archbiſhop of *Canterbury* does *Homage* on his Knees to our Kings at their Coronation; and that the Biſhop of *Man* is *Homager* to the Earl of *Derby*.

Fulbec reconciles this: By our Law, ſays he, a religious Man may do *homage*; but may not ſay to the Lord, *Ego devenio homo veſter*; becauſe he has already profeſs'd himſelf to be only God's Man; but he may ſay to him, "I do unto "you *Homage*, and to you ſhall be faithful and loyal.

Homage and Fealty, or Faith, are two diſtinct Things, different Duties. See FEALTY.

Originally, *Homage* was perform'd by the Gentleman, and Fealty by the Peaſant. Others ſay, that *Homage* was that perform'd to the Lord himſelf; and Fealty to his Seneſchal or Steward, for his Lord. — 'Tis added, that he who holds Lands for Term of Life, owes *Homage*, but not Fealty.

Biſhops take the Oath of Fealty and Loyalty to the King for the Temporalities they hold of him; but without *Homage* or Vaſſalage. See TEMPORALITY.

HOMAGE-*Liege* was a more extenſive Kind of *Homage*, whereby the Vaſſal held of the Lord, not only for his Lands, but for his Perſon. — So that the Lord might uſe him againſt all Mankind, whether within or without the Kingdom, excepting the King. See LIEGE.

This Kind of *Homage* was render'd bare-headed, with the Hands join'd on the Goſpels, one Knee on the Ground, and without Sword, Girdle, or Spurs. — By which it was diſtinguiſh'd from *Frank Homage*. See FRANK.

There are alſo other Diſtinctions of *Homage*, as,

Plain Homage, or *Homage* of a Fee, where no Oath of Fidelity is taken.

Homage of Devotion, which is a Donation made the Church, and does not import any Duty or Service at all.

Homage of Peace, which a Perſon makes to another after a Reconciliation, as an Aſſurance that he will no longer diſturb his Peace, &c.

Homage, again, is divided into *new*, *i. e.* that perform'd upon the Grant of the Fee; and *Auncestrel*.

HOMAGE *Auncestrel*, is where a Man, and his Anceſtors, Time out of Mind, have held their Land of the Lord and his Anceſtors by *Homage*.

If ſuch Lord have receiv'd *Homage*, he is bound to acquit the Tenant againſt all other Lords above him, of every Manner of Service: And if the Tenant has done *Homage* to his Lord, and is impleaded, and vouches the Lord to warranty, the Lord is bound to warrant him; and if the Tenant loſe, he ſhall recover in Value againſt the Lord, ſo much of the Lands as he had at that Time of the Voucher, or any Time after. See VOUCHER.

HOMAGE is alſo us'd for the Jury in a Court Baron; becauſe commonly conſiſting of ſuch as pay *Homage* to the Lord of the Fee. See JURY and COURT-*Baron*.

HOMAGE is alſo taken, in ſome Caſes, for the particular Place or Diſtrict where the Services are to be perform'd.

HOMAGER, a Perſon that does, or is bound to do, *Homage* to another. See HOMAGE.

This Lordſhip is ſo extenſive, that there are above 120 Tenants or *Homagers* therein.

HOMAGIO *reſpectuando*, is a Writ iſſu'd out to the Eſcheator, commanding him to deliver Seiſin of Lands to the Heir that is at full Age, notwithſtanding his *Homage* not being done.

HOMESOKEN, or rather HAMSÖKEN, the Privilege or Freedom which every Man hath in his House. — Hence he who invades that Freedom, is properly said *facere Homesoken*. See HAMSOKEN.

This seems to be what we now call *Burglary*, which is a Crime of a very heinous Nature, as being not only a Breach of the King's Peace, but a Breach of that Liberty which a Man hath in his House, which, as we commonly say, should be his Castle, and therefore ought not to be invaded. *Bracton lib.* 3. See BURGLARY.

The Word is also us'd for an Impunity to those who have committed this Crime.—Hamsokne, *hoc est quietus esse de amerciamentis pro ingressu hospitii violenter & sine licentia contra pacem Regis, & quod teneatis placita de hujusmodi transgressione in curia vestra. W. Thorn*, 2030.

HOME-*stall*, a Mansion House or Seat in the Country. See MANSION.

HOMER, or OMER, a *Jewish* Measure, containing the tenth Part of the *Epha*. See MEASURE and EPHA.

HOMICIDE, in common Law, the killing of a Man.

It is divided into *voluntary* and *casual*.

Voluntary Homicide, is that which is deliberate, and committed with a set Purpose and Mind to kill; and is either with a precedent Malice, or without. — The former is Murder, and is a felonious killing, with Malice prepense, any Person in the Realm, living under the King's Protection. See MURDER and MANSLAUGHTER.

Casual Homicide, is either merely casual or mix'd. — Merely *casual*, is when a Person kills another by pure Mischance, being about his lawful Occasions; as in the Case of an Ax slipping out of a Man's Hand, or falling off the Helve while he is felling a Tree. See *Chance* MEDLEY.

It is accounted *mix'd*, when there is Negligence, or some other unwarrantable Circumstance, attending the Action.

HOMILY, or HOMELY, originally signify'd a Conference or Meeting; but has since been apply'd to an Exhortation, or Sermon deliver'd to the People. See SERMON.

The *Greek* Word, *Homilia*, says M. *Fleury*, signifies a familiar Discourse; like the *Latin*, *Sermo*: And Discourses deliver'd in the Church took these Denominations, to intimate that they were not Harangues, or Matters of Ostentation and Flourish, like those of prophane Orators; but familiar Discourses, as of a Master to his Disciples, or a Father to his Children.

All the *Homilies* of the *Greek* and *Latin* Fathers are compos'd by Bishops.—We have none of *Tertullian*, *Clemens Alexandrinus*, and other learned Persons; by reason, in the first Ages, none but Bishops were admitted to preach.

The Privilege was not ordinarily allow'd to Priests till toward the Vth Century. — St. *Chrysostom* was the first Priest that preach'd statedly: *Origen* and St. *Augustin* also preach'd, but it was by a peculiar Licence or Privilege.

Photius distinguishes *Homily* from *Sermon*; in that the *Homily* was perform'd in a more familiar Manner; the Prelate interrogating and talking to the People; and they, in their Turn, answering and interrogating him: So that it was properly a Conversation; whereas the Sermon was deliver'd with more Form, and in the Pulpit, after the Manner of the Orators.

There are several fine *Homilies* of the Fathers still extant; and particularly of St. *Chrysostom*, St. *Gregory*, &c.

The Word is *Greek*, ὁμιλία; form'd of ὅμιλος, *Cœtus*, Assembly, Council.

HOMINE *capto in Withernamium*, a Writ for apprehending him that has taken any Bondman or Woman, and led him or her out of the County; so that he or she cannot be replevy'd according to Law. See WITHERNAM.

HOMINE *Replegiando*, a Writ for the Bailing of a Man out of Prison. See BAIL, REPLEVY, &c.

HOMINICOLÆ, HOMINCOLÆ, in Antiquity, a Name which the Apollinarists gave to the Orthodox, to denote them Worshippers of a *Man*. See APOLLINARISTS.

As the Orthodox maintain'd that Jesus Christ was God-man; the Apollinarists accus'd them of adoring a Man, and call'd them *Hominicoles*.

The Word is form'd of the *Latin*, *homo*, *hominis*, Man, and *colo*, I worship.

HOMOCENTRIC, in Astronomy, a Term of the same Import with *concentric*. See CONCENTRIC.

The Hypothesis of *Ptolomy* is explain'd by means of divers *homocentric* and excentric Circles. See EXCENTRIC, &c.

The Word is *Greek*, compos'd of ὁμὸς, alike, similar, and κέντρον, Centre.

HOMOEOPTOTON, ὁμοιόπτωτον, a Figure in Rhetorick, where several Members of a Sentence end in like Cases.

HOMOEOTELEUTON, ὁμοιοτέλευτον, a Figure in Rhetorick, where several Members of a Sentence end alike.

HOMOGENEOUS, or HOMOGENEAL, is a Term apply'd to various Subjects, to denote, that they consist of similar Parts, or Parts of the same Nature and Kind. — In contra-distinction to *Heterogeneous*, where the Parts are of different Natures, &c.

Natural Bodies, for the generality, are compos'd of *homogeneous* Parts; as a Diamond, a Metal, &c. — Artificial Bodies, on the contrary, are Assemblages of *heterogeneous* Parts, or Parts of different Qualities; as a Building, of Stone, Wood, &c. See HETEROGENEAL.

The Word is compos'd of the *Greek*, ὁμὸς, *idem*, or *æqualis*, and γένος, *Genus*, Kind.

HOMOGENEAL *Light*, is that whose Rays are all of one and the same Colour, Degree of Refrangibility and Reflexibility. See LIGHT and RAY.

HOMOGENEAL *Numbers*, are those of the same Kind and Nature. See NUMBER.

HOMOGENEAL *Surds*, are such as have one common radical Sign; as $\sqrt[3]{:27}$, and $\sqrt[3]{:3}$. See SURD.

HOMOGENEUM, *Comparationis*, in Algebra, the known Quantity in an Equation; call'd also *Absolute Number*. See EQUATION, &c.

It is call'd *Homogeneum Comparationis*, of *Comparison*, to distinguish it from the other Terms; which tho' *homogeneous* as well as this, *i. e.* always rais'd to the same Degree of Power, are not the Quantities to which Things are here *compar'd* or referr'd.

HOMOIOMERICAL Principles, a peculiar Kind of Principles, suppos'd, by *Anaxagoras*, in all mix'd Bodies; being determinate Numbers of such similar Principles, as, when they came to become Parts, *e. gr.* of an Animal Body, would there make such Masses and Combinations as their Nature requir'd, *viz.* the Sanguinary Particles would then meet all together and make Blood, the Urinous Particles constitute Urine, the Osseous ones Bones, the Carneous Flesh, &c. See PRINCIPLE.

HOMOLOGATION, in the Civil Law, the Act of confirming or rendering a Thing more valid and solemn, by a Publication, Repetition, or Recognition thereof.

The Creditors have sign'd the Contract; there remains nothing but to get it *homologated*.

The Word comes from the *Greek*, ὁμολογία, Consent, Assent, form'd of ὁμὸς, *similis*, alike, and λόγος of λέγειν, *dicere*, to say, *q. d.* to say the same thing, to consent, agree.

HOMOLOGOUS, in Geometry, is apply'd to the Sides of similar Figures; which are said to be *homologous*, or in Proportion to each other. See SIMILAR.

Thus, the Base of one Triangle, is *homologous* to the Base of another similar Triangle: So, in similar Triangles, the Sides opposite to equal Angles, are said to be *homologous*. See TRIANGLE.

Equiangular or similar Triangles, have their *homologous* Sides proportional.

All similar Rectangles are to each other, as the Squares of their *homologous* Sides. See RECTANGLE.

The Word is *Greek*, compos'd of ὁμος, Similar, and λόγος, Ratio, Reason, *q. d.* Quantities alike to each other in Ratio. — So, if the Ratio of A to B, be the same as of C to D; here A is *homologous* to C, as B to D; by reason of the Similitude between the Antecedents and Consequents. The two Antecedents, and the two Consequents, then, in any continu'd Geometrical Proportion, are *homologous* Terms. See PROPORTION.

HOMOLOGOUS *Things*, in Logick, are such as agree in Name, but are of different Natures. — These coincide with what we otherwise call *Equivocal Terms*. See EQUIVOCAL.

HOMONYMIA, in Logic, an *Equivocation*. See HOMONYMUS, &c.

HOMONYMUS, or HOMONYMOUS, in Logic, is apply'd to a Word which has two different Meanings; or expresses two Things of different Nature and Quality.

Homonymous is the same as *Equivocal*. See EQUIVOCAL.

The Word is compos'd of ὁμὸς, *similis*, and the Ionic ονυμα for ονομα, *nomen*, Name.

HOMOOUSIOS, ὁμοούσιος, among Divines, a Being of the same Substance or Essence. See SUBSTANCE. See also PERSON, &c.

HOMOOUSIANS, HOMOUSIANS, HOMOUSIONS, HOMOUSIONISTS, HOMOUSIASTS, are Names which the Arians anciently gave to the Orthodox, by reason they held that God the Son is *Homoousios*, *i. e.* consubstantial with the Father. See HETEROUSIANS.

Huneric, King of the *Vandals*, publish'd a Rescript, directed to all the *Homoousian* Bishops. See PERSON, &c.

The Word is *Greek*, ὁμούσιος, or ὁμούσιας, signifying *of the same Substance*.

HOMOPHAGI, among the ancient Geographers, a Name given to certain Nations who fed on raw Flesh; as the *Scythians*, &c.

The Word is form'd of ὤμος, crude, raw; and φάγω, I eat.

HOMUNCIONATES, a Name the Arians gave to the Orthodox, in the IVth Century; by reason they admitted two Substances and two Natures in Jesus Christ.

HOMUNCIONISTS, a Sect of Hereticks, the Followers of *Photin*; and from him also call'd *Photinians*. See PHOTINIANS.

They had this Appellation in respect of their denying the two Natures in Jesus Christ, and holding that he was only mere Man.

The Word is form'd of the *Latin*, *Homuncio*, a Diminutive of *homo*, Man; *q. d.* little Man.

HOMUNCIONITES, were a Sect of ancient Hereticks, whose distinguishing Dogma it was, that the Image of God was impress'd on the Body, not on the Soul or Mind of Man.

HOND-*habend*, in our ancient Customs, from the *Saxon*, *hond*, Hand, and *habens*, having; a Circumstance of a manifest Theft, when the Party is taken with the Mainor, or Mainover, *i. e.* the Thing stolen in his Hand.

Bracton also uses *Hand-berend* in the same Sense. *Sc. Latro manifestus.* See HAND-*habend*.

So in *Fleta*, *Furtum manifestum est ubi aliquis latro deprehensus seisitus de aliquo latrocinio* Hand-habbind, & Backberinde, & *insecutus fuerit per aliquem cujus res aliqua fuerit, quæ dicitur Seeborgh, & tunc licet insecutori rem suam petere criminaliter ut furatam.*

It also signifies the Right which the Lord hath to judge and determine of this Offence in his Court,

HONE, a fine Sort of *Whet-stone*, whereon to set a Razor or Penknife.

It is of a yellowish Colour, being Holly-wood petrify'd or chang'd into Stone, by lying in the Water for a certain Season. See PETRIFACTION.

Of these there are said to be some in *Oxfordshire*, that will be thus petrify'd in a very short Time.

HONEY, *Mel*, a sweet sort of Juice suck'd from Vegetables by the Bees, and reposited in their Combs. See WAX.

Honey is properly one of the Juices afforded by the Flowers, and is found to exude from all Sorts thereof; the very bitterest, as Aloes and Colocynth, not excepted.

In all Male Flowers that have Utricles at the Bottom of the Petala, is found a viscid, ruddy, sweet Juice in good Plenty; whence it is, that we see the Children gather Cowslips, Fox-gloves, *Honey*-suckles, *&c.* and suck the *Honey* from them. --- The Bees too visit these Flowers; and putting in their Probosides, or Trunks, suck out the *Honey-Juice*, and load their Stomachs therewith; to be afterwards discharg'd and laid up in their Combs: --- So that *Honey* is a vegetable Substance.

In the Belly of the Bee is a small transparent Bladder, which is the proper Receptacle of the *Honey*: When the Animal finds this full, it returns, enters one of the Cells, and discharges it there by that Part of the Head situate between the two Jaws, which it extends wider than ordinary, moving its Head at the same time this way and that. --- If a Drop happen to be ill plac'd, it sucks it up again by its Probosis, and discharges it a-new. --- When a Cell is fill'd with *Honey*, they stop it up with Wax for Winter Store. See WAX.

Honey was anciently taken for a Dew that fell or descended on the Flowers; but what proves this a Mistake, is, that the Bees only gather it after the Sun is up, when there is no Dew left: It must therefore be either a Liquor prepar'd in the Flower, and excreted by its proper Vessels, like Manna. See MANNA.

Or rather, it appears to be the fine Dust, or Farina Fecundans of the Apices. --- For, according to the Observations of M. *du Vernay*, the Bees, when in the Search of *Honey*, fix on no other Parts but the Stamina and Apices, and not on such as yield any other Liquor. See FARINA.

What is very remarkable, is, that *Honey*, in Virtue of its vegetable Nature, is discover'd by M. *Lemery* to contain Iron; which Discovery may serve as an Answer to M. *Geoffroy*'s Chymical Question, *viz.* Whether there is any Part of a Plant without Iron? For if so delicate an Extract from the finest Part of the Flower, and this further elaborated in the little Viscera of the Insect, be not void of Iron, we may despair of seeing any so. See IRON.

We have two Kinds of *Honey*, *white* and *yellow*. --- The white, call'd also *Virgin Honey*, trickles out spontaneously from the Comb, by turning it up or breaking it.

The second is squeez'd from the Combs in a Press, after having first soften'd them with a little Water over the Fire. --- There is also an intermediate Sort, of a yellowish white Colour, drawn by Expression, without Fire.

The *Honey* left to stand two or three Days, purges itself; throwing up a Scum of Wax and other Dross, which is to be taken off.

Some Naturalists will have the *Honey* to be of a different Quality, according to the Difference of the Flowers or Plants the Bees suck it from. --- Accordingly *Strabo* relates, that there is a Kind of *Honey* in *Pontus*, which is a strong Poison; being procur'd by Bees which feed upon Aconite and Wormwood.

F. *Lamberti*, in his Account of *Mingrelia*, assures us of the contrary; and affirms it the best *Honey* in the World, by reason of the great Quantity of Bawm growing there. --- He adds, that there is another very white Kind of *Honey*, hard as Sugar, and which does not stick to the Hands.

The Ancients rank'd Sugar and Manna among the Species of *Honey*. See SUGAR and MANNA.

Honey has considerable medicinal Virtues; being reputed a good Detergent and Cleanser; and in that Quality used both internally and externally, for the Viscera, Wounds, Ulcers, *&c.*

Honey is the Basis of several Compositions in Pharmacy. --- Of *Honey*, with the Addition of Roses or Violets, Mercurialis, *&c.* is made *Mel Rosatum*, *Mercuriale*, *&c.*

There is also a *Mel Scilliticum*, or a Preparation of Squillæ: *Mel Passulatum Violatum*, made with Raisins boil'd in hot Water: And *Mel Anthosatum*, made of Rosemary Flowers.

The Chymists also draw a Water, a Spirit, an Oil, *&c.* from *Honey*.

Honey is also an Ingredient in several Drinks, as *Mum*, *Metheglin*, &c. See MUM, METHEGLIN, *&c.*

Wild HONEY. *S. Adamnan*, Abbot of *Hii*, in his Description of the holy Places, observes, that in the Place where St. *John Baptist* liv'd in the Desart, there are Locusts which the poor People boil with Oil, and a Sort of Herbs with large long Leaves, of a Milk Colour, and a Taste like that of *Honey*; and that this is what in Scripture is call'd *wild Honey*.

HONEY-*Dew*, is a sweet-tasted Dew, found early in the Morning on the Leaves of divers Sorts of Plants. See DEW.

Honey-Dews, or *Mildews*, are of a very different Nature from Blastings, being caus'd by the condensing of a fat moist Exhalation, rais'd in a hot dry Summer, from Plants and Blossoms; as also from the Earth; which, by the Coolness and Serenity of the Air in the Night, or in the upper clear Region of the Air, is thicken'd into a fat gluey Matter, and falls to the Earth again; Part whereof rests upon Oak Leaves, and some other Trees, whose Leaves are smooth, and do not easily admit the Moisture into them.

Gassendus holds, that a viscid Juice transpiring out of the Leaves, helps to compose this *Honey*, or to convert the Dew falling on them into a *Honey* Substance, which before had nothing of it: And hence he accounts for the Reason why we find it on some Trees, and not on others.

This *Honey-Dew* falling on the Ears and Stalks of Wheat, besmears them with a different Colour from the natural; and being of a clammy Substance, so binds up the young, tender, and close Ears of the Wheat, by the Heat of the Sun, that it prevents the Growth and Compleating of the perfect Grain therein.

A Shower of Rain succeeding presently after the Fall thereof, or the Wind blowing stiffly, are the only natural Remedies against it.

HONEY-*Comb*, a waxen Structure, full of Cells, fram'd by the Bees to deposit their *Honey*, Eggs, *&c.* See CELL, WAX, HONEY, *&c.*

The great Sagacity and Contrivance of the Bees in making their *Combs*, have often been admir'd. --- Their Labour is distributed regularly among them; sometimes those Bees that carry the Wax in their Jaws and Chaps, moisten and mollify it with some Liquor that they distil upon it; the same sometimes build the Walls of their hexagonal Cells; but sometimes others do it; but those that form the Cells never polish them. --- Others come and make the Angles more exact, and close and smooth the Superficies. --- And as in the doing of this, some small Bits of Wax are pared off, there are some whose Business is to take these, that they may not be lost.

M. *Maraldi* has also observ'd, that those Bees that polish the Walls, work longer than those that build them; as if Polishing were not so laborious as Building.

They begin their Work at the Top of the Hive, fastening it to the most solid Part thereof: Thence it descends downwards, being continu'd from Top to Bottom, and from one Side to another; and to make it the more Solid, they use a Sort of temper'd Wax that is pretty much like Glue. The Form of the Cells, of which the *Honey-Comb* is made, is hexagonal; a Figure that, besides what is common with a Square and equilateral Triangle, has the Advantage of including a greater Space within the same Surface.

HONEY-*Comb*, in Gunnery, is a Flaw in the Metal of a Piece of Ordnance when it is ill cast, and spongeous.

HONI *Soit Qui Mal y Pense*, q. d. *Evil to him that thinks Evil*; the Motto of the most noble Order of the Knights of the Garter. See GARTER.

HONOR, HONORABLE, HONORARY } See { Honour. Honourable. Honourary.

HONORIACI, in Antiquity, a Species or Order of Soldiery, under the Eastern Empire. — It was the *Honoriaci* that introduc'd the *Goths*, *Vandals*, *Alani*, *Suevi*, &c. into *Spain*.

Didymus and *Verinianus*, two Brothers, had, with great Vigilance and Valour, defended the Passages of the *Pyreneans* against the Barbarians for some time, at their own Expence; but being at length kill'd, the Emperor *Constans* appointed the *Honoriaci* to defend those Passages, who, not contented to lay them open to all the Nations of the North then ravaging the *Gauls*, join'd themselves to 'em.

HONOUR, Honor. — Beside its literal Sense, wherein it denotes a Testimony or Token of Esteem and Submission, *Honour* is particularly apply'd in our Customs to the more noble Kinds of Seignories or Lordships; whereof other inferior Lordships or Manors hold, or depend. See Seignory.

As a Manor consists of several Tenements, Services, Customs, &c. (See Manor, Service, &c.) So an *Honour* contains divers Manors, Knights-Fees, &c.

It was also formerly call'd *Beneficium* or *Royal Fee*; being always held of the King in Capite. *Spelman*. Anciently, *Honor* signify'd the same as *Barony*. See Barony.

By Stat. 37. *Hen.* 8. cap. 18. The King is impower'd by Letters Patent to erect four several *Honours*, *viz. Westminster*, *Kingston upon Hull*, St. *Osythe*, and *Donnington*; and as many other *Honours* as he will. — The Manner of creating these *Honours*, may be gather'd from the Star. 33 *Hen.* 8. cap. 37, &c.

Maids of Honour, are young Ladies, in the Queen's or Princess's Houshold, whose Office is to attend the Queen, &c. when she goes abroad, &c. They are six in Number, and their Salary 300*l. per Annum* each.

The *French* call *Chevaliers de* Honneur, *Knights*, or *Gentlemen of* Honour, the Gentlemen Ushers of Queens and Princesses, who attend them, give them their Hand, &c. See Usher.

Counsellors of Honour, or *honorary Counsellors*, are such as have a Right to enter or sit in Assemblies, Courts, &c. to deliberate or give Judgment in the same, tho' they do not properly and ordinarily belong thereto.

The *Honours of the Louvre*, are certain Privileges affected to divers Dignities or Offices, particularly those of Duke, Peer, Chancellor, &c. as, to enter the *Louvre* in a Coach; to have the Tabouret or Stool in the Queen's Presence, &c.

The *Honours of the House*, are certain Ceremonies observ'd in receiving Visits, making Entertainments, &c. perform'd either by the Master himself, or by some Person appointed for that Purpose; as, to go and receive the Guests, to conduct them out again, to see they be well seated, help them to the choice Bits, &c. And all this in a polite agreeable Manner.

The *Honours of the City*, are the publick Offices or Employments thereof. — He has been Constable, Overseer of the Poor, and Church-warden, of his Parish; Common-Councilman, Alderman, and lastly Mayor: He has pass'd all the *Honours* of the City.

The *Honours of the Church*, are the Rights belonging to the Patron, &c. As a Seat and Sepulchre in the Chancel, to be first serv'd with the consecrated Bread and Wine, &c.

The *Honours* is also us'd for the principal Parts of the Apparatus of great Ceremonies; as Coronations, Consecrations, Christenings, &c. Such are the Oil, Tapers, &c. — Such Lords or Ladies bore the *Honours* at such a Ceremony. In Obsequies, they anciently presented the *Honours*, that is, the Shield, Crest, Sword, Gantlets, Spurs, Banner, Horse, &c.

Funeral Honours, are the Ceremonies perform'd at the Interments of great Men; as Hangings, Hearses, Funeral Harangues, &c.

Honour *Courts*, are Courts held within the *Honours*, or Seignories above mention'd. See Court.

Honour *Point*, in Heraldry, is that next above the Centre of the Escutcheon; dividing the upper Part into two equal Portions. See Escutcheon.

HONOURABLE *Amends*, *Amende* Honorable, an infamous Kind of Punishment, us'd in *France*, &c. on Traytors, Parricides, Sacrilegious Persons, and other heinous Criminals.

It consists in this, that the Offender is deliver'd up to the common Hangman, who having stript him to his Shirt, and put a Rope about his Neck, and a Wax Taper in his Hand, leads him to the Court, where he is to beg Pardon of God, the King, the Court, and his Country.

Sometimes the Punishment ends here; and sometimes Death or the Galleys are added.

Honourable, or Honorable *Ordinaries*, in Heraldry, are the principal Ordinaries or Bearings, which, when in their full Extent, may possess one Third of the Field. See Ordinary.

Some only allow of nine, *viz.* the *Cross*, *Chief*, *Pale*, *Bend*, *Fesse*, *Chevron*, *Salteer*, *Giron*, and *Escutch-on*: Others add more, *viz.* the *Bar*, *Bordure*, &c. See each under its proper Article, Cross, Chief, Pale, &c.

HONOURARY, or Honorary, is understood of a Person who bears or possesses some Quality or Title, only for the Name's Sake, without doing any of the Functions thereto belonging, or receiving any of the Advantages thereof.

Thus we say, *honourary* Counsellors. See *Counsellors of* Honour.

In the College of Physicians, *London*, are four *Honourary* Fellows. See College.

The Royal Academy of Sciences at *Paris*, consists of four Classes of Members, *viz. Honourary*, Pensionary, Associates, and Adjuncts. See Academy.

The *Honourary* are to be twelve in Number, and all Inhabitants of the Kingdom.

Honourary *Services*, are such as relate to the Tenure of grand Sergeanty, and are commonly join'd with some *Honour*. See Service.

Honourary is also us'd for a Lawyer's Fee; or a Salary given to publick Professors of any Art or Science.

Honourary *Tutor*, is a Person of Quality appointed to have an Eye over the Administration of the Affairs of a Minor; while the Onerary Tutors have the real effective Management thereof. See Tutor, &c.

HONTEFONGENTHEF, a Thief taken hond-habend, *i. e.* having the Thing stolen in his Hand. See Hond-*halend*.

HOOD. See Chaperoon and Cucullus.

Hood, in Falconry, is a Piece of Leather, wherewith the Head of a Hawk, Falcon, or the like, is cover'd. See Hawk, Falcon, &c.

After feeling a young Hawk, she is to be fitted with a large easy *Hood*, which is to be taken off and put on very often, watching her two Nights; and handling her frequently and gently about the Head. When you perceive she has no Aversion to the *Hood*, unseel her in an Evening by Candle-light, continuing to handle, *hood* and *unhood* her, as before; till at last she takes no Offence, but will patiently endure handling. See Hawking.

After unseeling, anoint with the Finger and Spittle the Place where the feeling Thread was drawn through; then *hood* her, and hold her on your Fist all Night.

As soon as she is well reclaim'd, let her sit upon a Perch; but every Night keep her on the Fist three or four Hours, stroaking, *hooding*, and *unhooding*, &c. And thus you may do in the Day-time, when she hath learn'd to feed eagerly, and without Fear.

HOOF, *Ungula*, the horny Part which covers the Feet of divers Animals, as Horses, Bullocks, &c. See Horn.

The *Hoof* serves much the same Purposes as the Nails of some Animals, and the Claws of others. See Nail.

The *Hoof* of a Horse surrounds the Sole and the Coffin Bone. — To be good, it should be of a dark Colour, somewhat shining, high, smooth, of a round Shape, but a little larger below than above; short, that the Horse may tread more on the Toe than on the Heel; somewhat hollow within, having a narrow Frush, and broad Heels. See Horse.

The *Hoof* should not have Circles, which are a Sign of its being brittle, and that that Horse, having been often shod, has had his Feet spoil'd by the many Pieces broke out of it. — A white *Hoof* is commonly brittle.

To judge whether the *Hoof* be good and stanch, lift up the Foot, and consider if it have a Shoe forg'd purposely for it, and be very much pierc'd, and the Holes made in unusual Parts, as wanting Horn enough to take hold by in those Places where the Nails are commonly driven.

Sometimes they are forc'd to pierce the Shoes nigh the Heels, because the fore-part is bad; it being otherwise unusual to drive the Nails near the Heels, except the Toe be so much spl t and broke as not to hear Nails.

If the *Hoof* be not round, but broad, and spreading out at the Sides and Quarters, the Horse commonly has narrow Heels, and, in Time, will be flat-footed; which Sort of Foot is weak, and will not long carry a Shoe, nor travel far, but surbate: And that treading more on his Heels than Toes, will cause him to go low on his Pasterns.

If the *Hoof* be long, it will make him tread altogether on his Heels. — If crooked, *viz.* broad without and narrow within, so that the Horse is splay-footed, it will cause him to tread too much inward, and cut or interfere. — If the Frush be broad, the Heels will be weak and soft. — If the Heels be narrow and render, the Horse will in time grow *Hoof*-bound.

The Infirmities to which *Hoofs* are liable, are, the casting of the *Hoof*, *Hoof*-bound, *Hoof*-hard, *Hoof*-hurt, loose *Hoof*, false Quarters, &c.

Casting of the Hoof. — A Horse is said to *cast his Hoof*, when the whole Coffin of the *Hoof* becomes loosen'd, and falls

falls off from the Bone. — This may be remedy'd by Care and proper Application; a new *Hoof* being procurable, if the Coffin Bone, &c. be not hurt.

Horses sometimes cast their *Hoofs* by reason of some Prick, Stub, foundring, surbating, or other Accident, that causes an Imposthumation in the Foot; so that the *Hoof*, and sometimes the Coffin Bone, being spungy and easily broken, fall off in large Pieces. The last when it happens is desperate.

Hoof-*bound*, is a shrinking in of an Horse's *Hoof* on the Top, and at the Heel; which makes the Skin stare above the *Hoof*, and to grow over the same.

It befals an Horse divers ways, either by keeping him too dry in the Stable, by strait shoeing, or by some unnatural Heat after foundering.

Hoof-*hurt*. — In labouring Beasts, especially Oxen, if the *Hoof* be hurt with a Coulter or Share, it may be cur'd by a Salve of Pitch and Grease mix'd with Powder of Brimstone, dissolv'd together, and with an hot Iron melted in the sere *Hoof* or Clee.

Hoof-*loosen'd*, is a Dissolution or dividing of the Horn or Coffin of a Horse's *Hoof* from the Flesh, at the setting on of the Coronet.

If the parting be round about the Coronet, it comes by means of foundering; if in part, then by a Prick of some Channel-nail, Quitter-bone, Retreat, Gravelling, Cloying, or the like.

The Signs of being loosen'd by foundering, is its breaking first in the fore Part of the Coronet, right against the Toes; because the Humour always descends towards the Toe. — If it proceeds from pricking, graveling, or the like, the *Hoof* will loosen round about equally, even at first. — If occasion'd by a Quitter bone, or Hurt on the Coronet, it will break right above the grieved Part, and rarely be seen to go any farther.

Hoof-*swell'd*, is an Infirmity that sometimes befals young Horses, when they are over-rid, or wrought hard, which makes them swell in that Part, by reason of the Blood falling down and settling there; which if not speedily remov'd will beget a wet Spavin.

HOOK in Angling, &c. See Angling, &c.

HOOKS, in Buildings, &c. are of various Sorts; some of Iron, and others of Brass.

1°. *Armour Hooks*, which are generally of Brass, and are to lay up Arms upon, as Guns, Muskets, half Pikes, Pikes, Javelins, &c. 2°. Casement *Hooks*. 3°. Chimney *Hooks*, which are made both of Brass and Iron, and of different Fashions: Their Use is to set the Tongs and Fire-shovel against. 4°. Curtain *Hooks*. 5°. *Hooks* for Doors, Gates, &c. 6°. Double Line *Hooks*, large and small. 7°. Single Line *Hooks*, large and small. 8°. Tenter *Hooks* of various Sorts. See Tenter.

HOOK-*pins*, in Architecture, are taper Iron Pins, only with a *Hook*-head, to pin the Frame of a Roof or Floor together.

HOOP, a Measure of a Peck. See Peck.

HOP, or Hops, a Plant of the reptile Kind, whose Flower is a principal Ingredient in Beer, and other Malt Liquors. See Brewing. See also Beer and Malt-*Liquor*.

The *Hop* creeps like Snake-weed, unless it find Pales or Shrubs to hang to; or unless they who cultivate it, plant Poles for the Purpose. — Its Stem is long, flexible, rough, and hairy. — Its Leaf indented like that of the Vine, and cover'd with a kind of prickly Down like that of the Cucumber. Its Flowers are of a greenish Yellow, resembling, both as to Form and Size, those of the Female Elm; and grow in a kind of Bunch or Cluster. In this Flower is a blackish bitter Grain contain'd, which is the Seed of the *Hop*.

In the Spring time, while the Bud is yet tender, the Tops of the Plant being cut off, and boil'd, are eat like Asparagus; and found effectual to loosen the Body: The Heads and Tendrils are good to purify the Blood in the Scorbutus, and most cutaneous Diseases: Decoctions of the Flowers, and Syrops thereof, are of use against pestilential Fevers: Juleps and Apozems are also prepar'd with *Hops*, for Hypochondriacal and Hysterical Affections, and to promote the Menses.

The Propagation and Culture of *Hops*, being a Point of some Nicety, as well as great Advantage, we shall lay down a little System thereof. — 'Tis certain there is nothing in all the rural Employments, that, under prudent Management, turns to more account; very large Estates having been rais'd by this Commodity in a few Years past. — *Switzer* tells us, he has known Ground yield 30*l. per Annum per* Acre, planted therewith: To say nothing of the great Number of Poor that are employ'd therein, *viz.* in the Planting, Soiling, Digging, Houghing, Poling, Tying, Picking, &c.

Culture of Hops, *and* Hop *Gardens.*

Hops are of divers Kinds: *Mortimer* reckons four, *viz.* the *wild Garlic Hop*, which is not worth propagating; the *long and square Garlic Hop*, which, tho' valuable, yet on account of the Redness towards the Stalk, does not bear the best Price; the *long white Hop*, which is the most beautiful and fertile; and the *oval Hop*. Another Author distinguishes the *Hops* to be cultivated into the white and grey Binds; the latter being a large square *Hop*, more hardy, and bearing a plentifuller Crop than the former; tho' it does not ripen so early.

For the Soil of Hops. — There is scarce any but may serve, except stoney, rocky, and stiff Clay Ground: The best, however, is that which is light, deep, and rich; which will be the better if Sand be mix'd with it: A black Garden Mould is also excellent. If the Ground be cold, stiff, and sour, the best Means of Improvement is to burn-beat it. *Mortimer* adds, that in *Kent*, where they esteem new Land best for *Hops*, they plant their *Hop* Gardens with Cherry Trees and Apple Trees, at a good Distance; that when the Land is past the best for *Hops*, (which happens in about ten Years) the Cherry Trees may begin to bear; and 30 Years after, when the Cherry Trees are spent, the Apple Trees may be in Perfection.

For the planting of Hops. — The Ground is first to be prepar'd by tilling it the Beginning of the Winter, either with the Plough or Spade. In *October*, (and sometimes, tho' rarely, in *March*) they proceed to plant; marking out the Places where each Hillock or little Plantation is to be. Some plant in Squares, Checquer-wise, which is the most convenient Form, where they intend, in the Course of the Tillage, to plough with Horses between the Hills: But the best Form for the *Hop*, as well as the most pleasing to the Eye, is the *Quincunx*. See Quincunx.

If the Ground be poor, or stiff, 'tis necessary some good Mould, or else a Compost of Manure and Earth, be laid in Holes a Foot square, in the several Places where the Hills are to be. — The Distance of the Hills in dry hot Ground may be six Foot; but in moist and rich Ground, subject to bear large Hops, eight or nine.

For planting, the largest Sets are to be chosen, eight or ten Inches long, having each three or four Joints. These to be set in Holes, made for the Purpose, one at each Corner of a Hole, and a Fifth in the Middle, raising the Earth two or three Inches about.

For the dressing of Hops. — If the *Hop* Ground be old, and wore out of Heart, they find it convenient to dig about them, toward the Beginning of each Winter, and take away a Quantity of the old Earth; its Place to be supply'd with what is fatter and fresher. — If the *Hops* be in good Heart, Manuring and Pruning is most advisable. In order to this, they pull down the Hills, and undermine all about, till they come near the principal Roots. This done, taking off the Earth from the Roots, they find by the Colour, &c. which are new Shoots, and which old ones; and cut off all the new ones. — When the Roots are thus dress'd, the new Mould or Manure to be apply'd.

For the Poling. — The Time is when the *Hops* begin to appear above Ground: The Number and Dimensions of the Poles to be adjusted to the Distance of the Hills, the Nature of the Soil, and Strength of the *Hop*. — To prevent *Housling*, the Poles are to be made to lean outwards; and particularly toward the South, to receive more of the Sun's Beams; it being Matter of Observation, that a leaning Pole bears more *Hops* than an upright one.

As to tying. — When the *Hops* are got two or three Foot above Ground, the next Business is to conduct and tye them to such Poles as are empty, and at a proper Distance for them. — They are to be ty'd with wither'd Rushes, or Woollen Yarn; but not so close as to hinder their climbing up the Poles: Two or three Strings may suffice for a Pole. This Operation to be attended to in *April* and *May*.

About Midsummer, when they cease to run in Length, and begin to branch, such of them as are not yet got up to the Tops of the Poles, should have their Heads nipp'd off, or else be diverted from the Pole, that they may branch the better; which is more for the Increase of the *Hop*, than its extending in Length.

Sometimes in *May*, after Rain, the Hills are to be made up with a Hoe, or Spade, or by ploughing; which will be a Means to destroy the Weeds: And 'tis necessary, if the Spring or Summer prove dry, to water them twice or thrice in a Season.

Hops blow toward the latter End of *July*; and the forward ones are ripe by the Close of *August*. — Their Ripeness is discover'd by their fragrant Scent, their changing of Colour, being easily pull'd, and by the brownish Colour of the Seed.

Hops are to be gather'd when they look a little browoiſh, and that without delay: the moſt expeditious Way, is, to make a Frame with four ſhort Poles or Sticks, laid on four Forks driven into the Ground, of ſuch Breadth, as to contain either the Hair-Cloth of your Kiln, or a Blanket tacked round it about the Edges. --- On this Device, the Poles, with the *Hops* on them, may be laid, being either ſupported by Forks, or the Edges of the Frame; at each Side whereof, the Pickers may ſtand, and pick the *Hops* into it. --- When the Blanket or Hair-Cloth is full, untack it, carry it away, and place another, or the ſame empty'd, in the ſame Frame again; and this Frame may be daily remov'd, with little Trouble, to ſome new Place of the Garden near the Work.

Hops muſt not be gather'd while wet; but if the Dew he on them, or a Shower of Rain has taken them, the Pole may be ſhaken, and they'll dry the ſooner: If they be over-ripe, they'll be apt to ſhed their Seed, wherein conſiſts their chief Strength; neither will they look ſo green, but ſomewhat brown, which much leſſens their Value; though ſome let them ſtand as long as they can, becauſe they waſte leſs in the dropping; for four Pounds of undry'd *Hops*, thorough ripe, will make one of dry; whereas five Pounds of thoſe ſcarcely ripe, yet in their Prime, make but one; ſo that 'tis judg'd the Proprietors get more in the thorough-ripe *Hop* by the Weight, than they loſe in the Colour.

As faſt as the *Hops* are pick'd, they muſt be *dry'd*: Some among us, eſpecially the *Flemmings* and *Hollanders*, make uſe of an *Ooſt* or Kiln for this Purpoſe: Others dry them on the ordinary Malt Kiln in an Hair-Cloth: But the beſt Way, is to make a Bed of flat Ledges, about an Inch thick, and two or three Inches broad, ſawn, and laid one acroſs the other, Checkerwiſe, the flat Way; the Diſtances about three Inches, or the like; the Ledges ſo enter'd, are put into another, that the Floor may be even and ſmooth: This Bed may reſt on two or three Joyces ſet edgewiſe, to ſupport it from ſinking; then cover it with large double Tin ſolder'd together at each Joynt; and ſo order the Ledges before they are laid, that the Joynts of the Tin may always lie over the Middle of a Ledge; and when the Bed is wholly cover'd with Tin, fit Boards about the Edges of the Kiln to keep up the *Hops*, only let the one Side be to remove, that the Hops may be ſhoved off as before. The *Hops* may be turn'd on this Tin-Bed or Floor with great Safety, and ſmall Expence of Fuel; beſide that, any manner of Fuel will ſerve for this Purpoſe as well as Charcoal, the Smoak not paſſing thro' the *Hops*: But it muſt not be forgot, to make Conveyances for it at the ſeveral Corners and Sides of the Kiln.

The *turning of Hops* after the eaſieſt and moſt ſecure Manner, is found to be not only a Waſte and Injury to the *Hop*, but alſo an Expence of Fuel and Time; yet it may be prevented, in Caſe the upper Bed, whereon the *Hops* lie, have a Cover that may be let down and rais'd at Pleaſure; which Cover may be tinn'd over, by nailing ſingle Tin Plates to the Face of it, that when the *Hops* begin to dry, and are ready to be burnt, you may let down this Cover within a Foot and leſs of the *Hops*, which will reflect the Heat upon them, that the uppermoſt *Hop* will be as ſoon dry as the lower, and every *Hop* equally dry'd.

The *Method of bagging Hops*, (after they have lain a Month more to cool and toughen) is to make a round or ſquare Hole in an upper Floor, big enough for a Man with eaſe to go up and down, and turn and wind in it; then tack a Hoop about the Mouth of the Bag faſt with Packthread, that it may bear the Weight of the *Hops* when full, and of the Man that treads them: That done, let the Bag down thro' the Hole, and the Hoop will reſt above, ſo as to keep the Bag from ſliding wholly thro'; into this Bag caſt a few *Hops*, and before you go in to tread, let an handful of *Hops* be tyed at each lower Corner with a Piece of Packthread, to make, as it were, a Taſſel, whereby the Bag, when full, may be conveniently lifted or remov'd; then go into the Bag, and tread the *Hops* on every Side, another ſtill caſting in as faſt as you require, till it be full: When 'tis well trodden and fill'd, let the Bag down by unripping the Loop, and cloſe the Mouth of the Bag, filling the two upper Corners as you did the lower: This Bag, if well pack'd and dry'd, will keep ſeveral Years in a dry Place; only Care muſt be taken, that Mice do not ſpoil or waſte the *Hops*; not that they'll eat them, but make their Neſts therein.

HOPLITES, Hoplitæ, in Antiquity, were ſuch of the Candidates at the *Olympic* and other ſacred Games, as ran Races in Armour. See Game.

One of the fineſt Pieces of the famous *Parrhaſius*, was a Painting which repreſented two *Hoplites*; the one running, and ſeeming to ſweat large Drops; and the other laying his Arms down, as quite ſpent and out of Breath. *Pliny* l. xxxv. c. 10, and *Paſchas. de Coronis*, l. vi. cap. 14.

The Word is *Greek* ὁπλίτης, form'd of ὅπλον, Armour.

HOPLOMACHI, in Antiquity, were a Species of Gladiators. See Gladiator.

The *Hoplomachi* were thoſe who fought in Armour, either compleatly arm'd from Head to Foot, or only with a Cask and Cuiraſſe.

The Word is compos'd of the *Greek* ὅπλον, Armour, and μαχομαι, I fight.

HOP'PER, a Veſſel wherein Seed-Corn is carry'd at the Time of Sowing. See Sowing.

The Word is alſo uſed for that wooden Trough in a Mill, into which the Corn is put to be ground. See Mill.

HORARY, ſomething relating to *Hora*, *Hour*. See Hour.

Horary *Circles* of the Globe. See Globe.

Horary *Circles*, or *Lines*, in Dialling, are the Lines or Circles which mark the Hours on Sun-dials. See Dial.

The *Horary Motion of the Earth*, *i.e.* the Arch it deſcribes in the Space of an Hour, is 15 Degrees; not accurately, (for the Earth moves with different Velocity, according to its greater or leſs Diſtance from the Sun) but near enough for ordinary Computations. See Earth.

HORD, Horde, Horda, in Geography, is uſed for a Company or Body of wandering People which have no ſettled Abode or Habitation; but ſtrole about *Aſia* and *Africa*, dwelling in Chariots, or under Tents, to be ready to ſhift as ſoon as Herbage, Fruits, and the preſent Province is eaten bare.

Hord is properly the Name which the *Tartars*, who inhabit beyond the *Volga*, in the Kingdoms of *Aſtracan* and *Bulgaria*, give to their Villages.

A *Hord* conſiſts of 50 or 60 Tents rang'd in a Circle, leaving an open Place in the Middle. --- The Inhabitants of each *Hord* uſually form a military Company or Troop; the eldeſt whereof is commonly the Captain, and depends on the General, or Prince of the whole Nation.

The Term *Hord* is a *Tartarian* Word, and literally denotes a *Multitude*.

HORDEATUM, a liquid Medicine, made of Barley, beat and boil'd with other ſuitable Ingredients.

HORDEOLUM, in Medicine, a ſmall Tubercle ariſing on the Palpebræ or Eye-lids. See Palpebræ.

It is thus call'd from the *Latin*, *Hordeum*, Barley, as reſembling a Barley Corn.

The Cure of the *Hordeolum* and *Grando*, is by Diſcutients and Suppuratives.

HORDICALIA, or Hordicidia, in Antiquity, a religious Feaſt held among the *Romans*, wherein they ſacrific'd Cattle big with young. See Feast.

This Feaſt fell on the 15th of *April*; on which Day they ſacrific'd thirty Cows big with Calf, to the Goddeſs *Tethys*, or *Terra*, Earth: Part of them were ſacrific'd in the Temple of *Jupiter*. --- They were burnt, at firſt, by the Pontifices; afterwards, by the eldeſt of the Veſtal Virgins.

Alexand. ab Alexandro Genial. Dier. writes *Hordalis dies*; and from him, ſome of the Moderns call the Feaſt *Hordalia*; but *Varro* writes it *Hordicalia*, and *Feſtus*, *Hordicidia*.

The Word *Hordicidia* is form'd of *horda*; which *Feſtus* explains by *prægnans*, pregnant; and *cædo*, I ſacrifice. *Ovid*, in his *Faſti*, l. iv. v. 631, deſcribes *horda*, or *forda*, to be *Bos prægnans*; of φορέω, *gravida*.

HORIZON, or Horison, in Aſtronomy, a great Circle of the Sphere, dividing the World into two Parts or Hemiſpheres; the one upper, and viſible; the other lower, and hid. See Circle and Hemisphere.

The Word is pure *Greek*, and literally ſignifies *bounding* or *terminating the Sight*; being form'd of ὁρίζω, *termino*, *definio*, I bound, I limit; whence it is alſo call'd *Finiter*, Finiſher.

The *Horizon* is either *Rational* or *Senſible*.

The *rational*, *true*, or *Aſtronomical* Horizon, which is alſo call'd ſimply and abſolutely the *Horizon*, is a great Circle, whoſe Plane paſſes thro' the Centre of the Earth, and whoſe Poles are the *Zenith* and *Nadir*.

Such is the Circle H R (Tab. Aſtronomy, Fig. 52.) whoſe Poles are the *Zenith* and *Nadir*: Whence it follows, that the ſeveral Points of the *Horizon* are a Quadrant diſtant from the *Zenith* and *Nadir*.

The Meridian and Vertical Circles, all cut the rational *Horizon* at right Angles, and into two equal Parts. See Meridian and Vertical *Circle*.

The *ſenſible*, *viſible*, or *apparent* Horizon, is a leſſer Circle of the Sphere, as *hr*, which divides the viſible Part of the Sphere from the inviſible.

Its Poles, too, are the *Zenith* and *Nadir*: And conſequently the *ſenſible Horizon* is parallel to the *rational*; and it is cut at right Angles, and into two equal Parts by the Verticals.

The *ſenſible Horizon* is divided into Eaſtern and Weſtern.

The *Eaſtern* or *Ortive* Horizon, is that Part of the *Horizon* wherein the heavenly Bodies riſe. See Rising.

The *Weſtern* or *Occidual* Horizon, is that wherein the Stars ſet. See Setting.

Horizon, in Geography, is a Circle passing over a given Part of the Earth, and dividing the visible Part of the Earth and Heavens, from that which is invisible. See Earth.

The Altitude or Elevation of any Point of the Sphere, is an Arch of a Vertical Circle, intercepted between it and the sensible *Horizon*. See Altitude and Elevation.

This is peculiarly denominated *sensible Horizon*, to distinguish it from the *rational* or *true*, which passes thro' the Centre of the Earth; as already observ'd.

By *sensible Horizon* is also frequently meant a Circle, which determines the Segment of the Surface of the Earth, over which the Eye can reach; call'd also the *Physical Horizon*.

In this Sense we say, a spacious *Horizon*, a narrow scanty *Horizon*. To find the *Extent of the Horizon*, or how far a Man's Prospect reaches, by means of the Height of his Eye, supposing the Earth an uninterrupted Globe, is a common Case of right-angled plain Triangles, where two Sides and an opposite Angle are given. — Thus, suppose AHB (Tab. Geography, Fig. 8.) a great Circle of the terraqueous Globe, C the Centre, H C its Semidiameter, and E the Height of the Eye; since HE is a Tangent, the Angle at H is a right Angle; so that there are given HC, 398,386 Miles, or 21,034781 *English* Feet, CE the same Length as the Height of the Eye on the Mast of a Ship, or at only a Man's Height, &c. added to it, and EHC the opposite right Angle.

By these three Parts given, it is easy to find all the other Parts of the Triangle. — And first, for the Angle at C, in order to find the Side HE; the Proportion is, as the Side CE to the Angle at H, so is the Side HC to the Angle at E; which being substracted from 90 Degrees, the Remainder is the Angle at C. Then, as the Angle at E is to its opposite Side HC; or else, as the Angle at H is to its opposite Side CE; so the Angle at C to its opposite Side EH, the visible *Horizon*.

Or the Labour may be shorten'd by adding together the Logarithm of the Sum of two given Sides, and the Logarithm of their Difference; the half of which two Logarithms, is the Logarithm of the Side requir'd, nearly. For an Example, we will take the two Sides in Yards, by reason scarce any Table of Logarithms will serve us any farther: the Semi-diameter of the Earth is 7,011594 Yards; the Height of the Eye is two Yards more, the Sum of both Sides is 14,023190.

Logar. of which Sum is - - -	7,1468468
Logar. of two Yards, the Differ. is	0,3010300
Sum of both Logar. - - - -	7,4478768
The half Sum - - - - - -	3,7239384

is the Logarithm of 5296 Yards = three Miles, which is the Length of the Line EH, or Distance the Eye can reach at six Feet Height.

This, at least, would be the Distance on a perfect Globe, did the visual Rays come to the Eye in a strait Line; but by means of the Refractions of the Atmosphere, distant Objects on the *Horizon* appear higher than really they are, and may be seen at a greater Distance, especially on the Sea, which is a Matter of great Use, especially to discover the Land, Rocks, &c.

Father *Laval*, Professor of Hydrography at *Marseilles*, found that the *Horizon* of his Observatory to the Sea ward was never more than 15 Minutes, nor less than 13 ½; that is, the Arch of the Circumference of the Earth, intercepted between the Observatory and the *Horizon*, fluctuated between those two Quantities; whence M. *Cassini* deduces, that the Extent of the *Horizon* is seven *French* Leagues of three Miles each; and that the Observatory is 175 Foot high.

The Extent of the *Horizon*, at the same Place, and the same Height, is very subject to vary, by means of Differences in the Atmosphere, which occasion others in the Refractions. See Refraction.

When the Sea was full, or the North-West or South-East Wind blew, and the Air hazy about the *Horizon*, F. *Laval* always found his *Horizon* the lower; *i. e.* the Refraction which should raise it in that Case was less than ordinary. — And yet on the common Principles, the Air being now much charged with Vapours, the very contrary were rather to be expected. — This makes M. *Cassini* suspect, that there is some other refractive Matter in the Atmosphere, beside the Air itself.

The same Author observes, that at a Height much greater than that of F. *Laval*'s Observatory, he found the Arch terminated by the *Horizon* to the Seaward, 42', without any sensible Variation; whence he concludes, that the Variations are the greater, as the Height is the less; which may seem contrary to what he had asserted in another Place, *viz.* that the Variations in the apparent Altitudes of Bodies are greater, as these Objects are more remote, by reason they are seen thro' the larger Quantity of Air, which is all liable to be vary'd. — But the Contradiction may be solv'd.

Horizon *of the Globe*. See Globe.

HORIZONTAL, something that has a Regard to the *Horizon*, is taken in the *Horizon*, or on a Level with the *Horizon*. See Horizon.

In this Sense we say, a *Horizontal* Plane, *Horizontal* Line, *Horizontal* Distance, &c.

Horizontal *Plane*, is that which is parallel to the *Horizon* of the Place; or nothing inclin'd thereto. See Plane.

The Business of Levelling, is to find whether two Points be in the *horizontal* Plane; or how much the Deviation is. See Levelling.

Horizontal *Plane*, in Perspective, is a Plane parallel to the *Horizon*, passing thro' the Eye, and cutting the Perspective Plane at right Angles. See Perspective *Plane*.

Horizontal *Line*, in Perspective, is a right Line drawn thro' the principal Point, parallel to the *Horizon*: Or, it is the Intersection of the *horizontal* and perspective Planes.

Such is the Line PQ (Tab. Perspective, Fig. 12.) passing thro' the principal Point F.

Horizontal *Dial*, is that drawn on a Plane parallel to the *Horizon*; having its Gnomon, or Style elevated according to the Altitude of the Pole of the Place it is design'd for.

Horizontal Dials are, of all others, the most simple and easy. — The Manner of describing them, see under the Article Dialling.

Horizontal *Range*, or *Level Range* of a Piece of Ordnance, is the Line it describes, when directed parallel to the *Horizon*, or *horizontal* Line. See Range.

Dr. *Halley* gives two very ready Theorems, the one to find the greatest *horizontal* Range at 45 Degrees Elevation, in any Shot made upon any inclin'd Plane, with any Elevation of the Piece whatsoever; and the other to find Elevations proper to strike a given Object with any Force, greater than what sufficeth to reach it with the middle Elevation.

1°. A Shot being made on an inclin'd Plane: having the *horizontal* Distance of the Object it strikes, with the Elevation of the Piece, and the Angle at the Gun between the Object and the Perpendicular; to find the greatest *horizontal* Range of that Piece laden with the same Charge; that is half the Latus Rectum of all the Parabolæ made with the same Impetus. — Take half the Distance of the Object from the Nadir, and the Difference of the given Elevation from that half; substract the versed Sine of that Difference from the versed Sine of the Distance of the Object from the Zenith: The Difference of those versed Sines, will be to the Sine of the Distance of the Object from the Zenith, as the *horizontal* Distance of the Object struck, to the greatest Range at 45 Degrees.

2°. Having the greatest *horizontal* Range of a Gun, the *horizontal* Distance and Angle of Inclination of an Object to the Perpendicular; to find the two Elevations necessary to strike that Object. — Halve the Distance of the Object from the Nadir; this Half is equal to the half Sum of the two Elevations sought: Then say, As the greatest *horizontal* Range is to the *horizontal* Distance of the Object, so is the Sine of the Angle of Inclination, or Distance of the Object from the Perpendicular, to a fourth Proportional; which Fourth being substracted from the versed Sine of the Distance of the Object from the Zenith, leaves the versed Sine of half the Difference of the Elevations sought; which Elevations are therefore had, by substracting that half of the Difference to and from the aforesaid half Sum. See Projectile.

Horizontal *Shelters*, among Gardeners, are Defences disposed parallel to the *Horizon* for tender Plants, Blossoms, and Fruits in the Spring, against Blasts and pinching Nights.

The usual Shelters that have obtain'd, are Bass-mats, and other warm Coverings, which are roll'd up in the Day-time, and let down in the Night. — In lieu of these, the Revd. Mr. *Lawrence* first propos'd *horizontal Shelters*, chiefly on this Principle, that most of our Frosts and Blasts fall perpendicularly; *i. e.* the condens'd Vapours falling from the upper Region, do, at Night, form themselves toward the Surface of the Earth, into Drops of Dews, subject to be frozen by the Coldness of the Air. See Dew, Frost, &c.

The *horizontal Shelters* are to be made by laying Rows of Tyles, at certain Distances one above another, in the Structure of the Wall, so as to project or hang over the Plane of the Wall, to carry off the Dew, Wet, &c. — 'Tis an Inconvenience objected to this Method, that it is difficult to lead a Tree rightly among the Tyles, or to keep its Figure duly fill'd up.

Horizontal *Parallax*	See	Parallax.
Horizontal *Refraction*		Refraction.
Horizontal *Projection*		Map.
Horizontal *Distance*		Distance.

HORN, *Cornu*, a hard callous Substance, growing on the Head of divers Animals. See Animal and Head.

'Tis laid down as a Rule by some Naturalists, that no Animals have *Horns* but those that are cloven-footed.

The *Horns* are usually a double Part; insomuch that there is but one Exception, and this too controverted. See Unicorn.

The *Horns* of a Deer are properly call'd his *Head*. See Head.

In the History of the *French* Academy of Sciences, we have an Account of a Bullock's *Horn* dug out of the Ground in ploughing, which had shot forth fibrous Roots, and appear'd to have grown or vegetated after the Manner of a Plant.

Horns make a considerable Article in the Arts and Manufactures. — Bullocks *Horns* soften'd by the Fire, serve to make Lanthorns, Combs, Inkhorns, Tobacco-Boxes, &c.

Horn is sometimes also used for the Hoof of a Horse, &c. See Hoof.

Hart's-Horn, *Cornu Cervi*. — The Scrapings or Raspings of the *Horn* of this Animal are medicinal, and used in Astringent Draughts, Ptisans, &c. with that Intention.

It yields by Distillation a very penetrative volatile Spirit. See Spirit, &c.

Ammons Horn. See Cornu *Ammonis*.

Horn is also a Sort of musical Instrument, of the Wind Kind; chiefly used in Hunting, to animate and bring together the Dogs, and the Hunters. See Hunting.

The *Horn* may have all the Extent of the Trumpet. See Trumpet.

The Term anciently was, *Wind a Horn*; all *Horns* being in those Times compass'd: But since straight *Horns* are come in fashion, they say, *Blow a Horn*, and sometimes, *Sound a Horn*.

There are various Lessons on the *Horn*; as the *Recheat*, *Double Recheat*, *Royal Recheat*, *Running* or *Farewel Recheat*, &c. See Recheat.

The *Hebrews* made use of *Horns* form'd of Rams *Horns*, to proclaim the Jubilee; whence the Name *Jubilee*. See Jubilee.

Horn, in Anatomy. See Cornu, Matrix, &c.

Horn, in Architecture, is sometimes used for *Volute*. See Volute.

Horn *of Plenty*. See Cornu Copia.

Horn *with Horn*, or *Horn under Horn (cornutum cum cornuto)* when there is Common *per cause de vicinage*, Intercommoning of horned Beasts. See Common and Intercommon.

Horn *Work*, in Fortification, a Sort of Out-work advancing toward the Field, to cover and defend a Curtain, Bastion, or other Place suspected to be weaker than the rest; as also to possess a Height, &c. See Out-*work*.

It consists of two Demi Bastions, as LMN and OPQ, Tab. Fortification, Fig. 12. and a Curtain NO. — Its Sides or Wings are usually parallel; tho' sometimes they approach or contract toward the Place, forming what they call a *Queue d'Aronde*, or *Swallows Tail*. See Queue *d'Aronde*.

When the Wings are too long, they sometimes make Epaulements to flank them. — The Parts of the *Horn-work* next the Country, are to be furnish'd with a Parapet.

Two *Horn-works* join'd together, make a Crown-work. See Crown-*work*.

Horn *Beam Pollengers*, are Trees which have been lopp'd, and are of about twenty Years Growth. See Tree and Lopping.

Horngeld and Hornete, (from the *Saxon*, *Horn*, and *Geld*, Payment) signifies a Tax within the Forest, to be paid for the feeding of *horned* Beasts. See Geld.

To be free of this, is a Privilege granted by the King to such as he thinks good. — *Quietum esse omni collectione in Foresta de Bestiis cornutis asses. Et sint quieti de omnibus Geldis, & Danegeldis, & Wodgeldis, & Senegeldis, & Horngeldis*, &c. See Subsidy.

A Horse is said to be *Horn hipped*, when the Tops of the two Haunch Bones appear too high.

HORNAGIUM, Hornage, in our ancient Law Books, seems to import the same with Horngeld. See Horngeld.

HORODICTIC *Quadrant*. See Quadrant.

HOROGRAPHY, the Art of making or constructing Dials; call'd also *Horologiography*, *Gnomonica*, *Sciaterica*, *Photosciaterica*, &c. See Dialling.

The Word is compounded of ὥρα, *hora*, Time, Hour, and γράφω, *scribo*, I write.

HOROLOGIOGRAPHY, the Art of making or constructing Dials. See Dialling.

HOROLOGIUM, a common Name among the *Latin* Writers, for any Instrument or Machine to measure the Hours withal. See Chronometer.

Such are our Clocks, Watches, Sun-Dials, &c. See Clock, Watch, Dial, &c. See also Clepsydra.

The Word is originally *Greek*, ὡρολόγιον, compos'd of ὥρα, *hora*, Time, Hour, and λόγος, Speech, Discourse.

Horologium, Horologion, is also a Name the *Greeks* give to their Liturgy or Breviary; by reason it contains the daily *Hours*, or the several Offices to be rehears'd each Day. See Hour.

The *Greeks* call it ὡρολόγιον, which answers to what in *Latin* and *English* we call *Diurnum*, or *Diurnal*.

The ὡρολόγιον is the Breviary of the *Greeks*. See Breviary.

HOROPTER, in Opticks, is a right Line, drawn thro' the Point where the two Optic Axes meet, parallel to that which joins the Centres of the two Eyes, or the two Pupils.

Such is the Line AB (Tab. Opticks, Fig. 67.) drawn thro' the Point of Concourse C, of the Optic Axes of the Eyes D and E, parallel to HI, which joins the Centres of the Eyes H and I.

It is call'd *Horopter*, as being found by Experience to be the Limit of distinct Vision. See Vision.

Plane of the Horopter. See Plane *of the Horopter*.

HOROSCOPE, in Astrology, is the Degree of the Ascendant, or Star rising above the Horizon, at any certain Time when a Prediction is to be made of a future Event; as, the Fortune of a Person then born, the Success of a Design then laid, the Weather, &c. See Ascendant.

Mercury and *Venus* were in the *Horoscope*, &c. They were anciently so infatuated with *Horoscopes*, that *Albertus Magnus* is said to have had the Temerity to draw that of Jesus Christ.

The Word is *Greek*, compos'd of ὥρα, *hora*, Hour, and the Verb σκέπτομαι, *specto*; *considero*, I consider. — The *Latins* call it *Cardo Orientalis*.

Horoscope is also used for a Scheme or Figure of the twelve Houses, *i. e.* the twelve Signs of the Zodiac, wherein is mark'd the Disposition of the Heavens for the given Time. See House and Figure.

Thus we say, to draw a *Horoscope*, construct a *Horoscope*, &c. We call it more peculiarly *calculating* a Nativity, when the Life and Fortune of a Person are the Subject of the Prediction: For they draw *Horoscopes* of Cities, great Enterprizes, &c.

Lunar Horoscope, is the Point which the Moon issues out of, when the Sun is in the ascending Point of the East.

This is also call'd the *Part of Fortune*. See Part.

Horoscope, is also a Mathematical Instrument, in manner of a Planisphere; but now disused. See Planisphere.

It was invented by *J. Paduanus*, who composed a special Treatise thereon.

HORROR, Horrour, strictly signifies such an Excess of Fear, as makes a Person tremble. — In Physick it denotes such a Shuddering or Quivering as precedes an Ague Fit; and is often join'd with Rigores and Lumbagines. See Ague, Fever, &c.

Thro' Ignorance of this Acceptation, some have understood Fear to be accounted by Authors among the antecedent Symptoms of those Distempers.

HORS *de son fee*, *q. d.* out of his Fee, is an Exception to avoid an Action brought for Rent issuing out of certain Land, by him that pretends to be the Lord, or for some Customs and Services. — For if the Defendant can prove the Land to be without the Compass of his Fee, the Action falls See District.

HORSE, a Domestick Quadruped, of great Use in the Affairs of Agriculture, Commerce, War, Sporting, &c.

The *Horse* makes the Subject of a very extensive Art, call'd *Horsemanship*, consisting of divers subordinate Arts or Branches. See Horsemanship.

From the same Beast arise the Professions of Chivalry, Knighthood, &c. See Chievalier, &c.

Authors are divided as to the Time when Men first began to mount *Horses*. — The Scholiasts of *Euripides*, and *Eustathius* on the IId Book of the Iliad, speak as if the Ancients had been unacquainted with the Use of Saddle *Horses*, and had only used them to draw Chariots, &c. They add, that Courses on *Horse*-back were not introduc'd at the Olympic Games, before the 85th Olympiad. — But this can scarce be; in regard the Centaurs, to whom the Invention is attributed, liv'd long before that Time. See Centaur.

It appears likewise from *Pausanias*, that there were *Horse* Courses even in the Time of *Hercules*, the Institutor of the Olympic Games. See Olympic.

The Parts of a *Horse*'s Body furnish a great Variety of Terms, by no means to be overlook'd. — The Skin and Coat are call'd the *Hair*; the long Hair on the Neck the *Main*; the Fore-top the *Toping* or *Tuke*; the Hair behind, on the Feet, the *Fetlock* or *Fetter-lock*; that growing over the Top of the Hoof, the *Coronet* or *Cronet*; that on the Eye-lids, the *Brills*. — The Ridge whereon the Main grows, is call'd the *Crest* or *Crist*; the fore Part, from the Neck to the fore Legs, the *Brisket* or *Chest*; the Mark frequently running down his Face, the *Rache*; and that in the Forehead, the *Star*. — The

Top of the Shoulder Blades, at the setting on of the Neck, is call'd the *Withers*; the Place where the Saddle is set, the *Dock*; and a Bruise or Hurt thereon, a *Navel-gall*; the Middle of the Back, from the Main to the Hips, the *Reins*; the Extremity of the Reins above the Hips, the *Croupe*; the Tail, the *Dock* or *Runt*; the hollow or sinking of the Back-bone, the *Sway*; the hind Part of the Belly, next the Genital, the *Flank*; that nearer the Thighs, the *Groins*; the loose Skin wherein the Yard is, the *Sheath*; and the fore Parts of the Shoulders, next the Breasts, the *Fillers*. — The uppermost Part of the hind Leg, next the Buttock, is call'd the *Stiffle* or *Stiffle Joint*; the after Joint, or bending of the hind Leg, the *Chambrel* or *Elbow*; the inner, the *Ham* or *Hough*; the Joint at the Fetlock, the *Pastern*, *Ancle*, or *Fetlock Joint*; the Foot, above the Hoof of the Ancle Joint, the *Coronet*. — The Part from the Withers to the Top Joint of the Thigh, is call'd the *Shoulder*; the middle Joint of the fore Leg, the *Knee*; the right Leg before, the *farther Leg*; and the left, the *nearer*. — The Hoof is call'd the *Horn*; the Hollow of the Hoof, the *Coffin*; the tender Part of the Hoof, next the Heel, the *Frush*; the Ball of the Foot, the *Frog*; the Part to be pared or cut off the Hoof when overgrown, the *Rift*; the fore Part of the Hoof the *Toes*; the hind Part, where there is a Rising in the Middle of the Sole, the *Heel*; and the Insides meeting on the Heel, the *Quarters*. — *Of most of these a further Account will be found under their respective Articles.*

The Masters in this Art lay it down, that a Horse to be good, and well made, must have three Parts like those of a Woman, *viz.* the Breast, which is to be broad, the Hips round, and the Main long; three of a Lion, *viz.* Countenance, Intrepidity, and Fire; three of a Bullock, *viz.* the Eye, Nostril, and Joint; three of a Sheep, *viz.* the Nose, Gentleness, and Patience; three of a Mule, Strength, Constancy, and Foot; three of a Deer, Head, Leg, and Hair short; three of a Wolf, Throat, Neck, and Hearing; three of a Fox, Ear, Tail, and Trot; three of a Serpent, Memory, Sight, and Turning; three of a Hare or Cat, Running, Walking, and Suppleness.

Horses are distinguish'd into divers Kinds, and differently denominated, with regard to their Strain or Country. — As the *Neapolitan*, known by his Hawk Nose. — The *Spanish Genet*, by his small Limbs. — The *Barb*, by his fine Head and deep Hoof. — The *Dutch*, by the Roughness of his Legs. — The *English* by his strong knitting together, *&c.* — The *Flandrin*, &c. See Genet, Barb, *&c.*

Horses are also distinguish'd with regard to the Uses or Offices they are reserv'd for; as, the Coach *Horse*, War *Horse*, Hunting *Horse*, Running *Horse*, Pack *Horse*, &c. See Coach, Hunting, *&c.*

Horses are also distinguish'd with regard to their Colours; as — A *Bay*, which admits of divers Shades or Casts, *viz.* a black Bay, brown Bay, dapple Bay; all which have constantly black Mains and Tails. — *Dun* and *Mouse Dun*, having frequently a black List along the Back, which denominates them Flea-back'd. — *Flea-bitten*, which is white spotted with red.—*Grey*, Dapple Grey, Silver Grey, Sad or Powder'd Grey, Black Grey, Sandy Grey, and Iron Grey: — *Grissel* or *Roun*, a light Flesh Colour intermix'd with white. — *Peach Colour*, or *Blossom Colour*. — *Pyebald*, which consists of two Colours, one of them white. — *Roan*, a Bay, Black, or Sorrel, intermix'd with white Hairs. — *Rubican*, Black or Sorrel, with white Hairs scatter'd about his Body. — *Sorrel*, Common Sorrel, Red or Cow-colour'd Sorrel, bright or light-colour'd Sorrel, burnt Sorrel; all chiefly distinguish'd by the Colour of their Manes. — *Starling Colour*, resembling a brownish or blackish Grey, only more freckled, or intermix'd with white. — *Tyger Colour*, much the same with the brand. ed Grey, only the Spots smaller. — *Wolf Colour*. — *Deer Colour*. — *Black*. — *White*, &c.

These Colours are generally consider'd as Symbolical of the Nature, Qualities, *&c.* of the Beasts; and accordingly their Value is much influenc'd hereby. — The dapple Grey is priz'd for Beauty; the brown Bay for Service; the Black with Silver Hair for Courage; the Roan for Countenance; the Sorrel, Black without white, and Iron Grey, are reputed hot and fiery; the bright Grey, Flea-bitten, and Black with white Spots, are sanguine; the White, Dun, and Pye-bald, phlegmatic and heavy; the Mouse Dun, red Bay, and blue Grey, are dull; the Peach Colour rarely prove obedient to the Spur; the Sorrel seldom fail of being good, especially if their Legs, Tails, and Manes be black; and the same may be said of the Flea-bitten, at least those so mark'd in the fore Parts, or over the whole Body; for when only behind 'tis an ill Sign.

Indeed 'tis hard laying down any universal Rules. — The White, which promise the least, prove good when black about the Eyes and Nostrils. And there are excellent Iron Greys, tho' they are not reputed a good Colour.

For the Age, Teeth, Mark, &c. of Horses. See Age, Teeth, Mark, *&c.*

For the Furniture, &c. of a Horse. See Saddle, Bridle, Bit, *&c.*

Horse is also us'd, in the Military Language, to express the Cavalry. See Cavalry.

The Army consisted of 30000 Foot, and 10000 *Horse*. See Infantry.

The *Horse* includes *Horse* Guards, *Horse* Granadiers, and Troopers. — Dragoons are also frequently comprehended under the Name, tho' they fight on Foot. See Horse *Guards*, Granadier, Dragoon, *&c.*

Horse Guards, by the *Spaniards* call'd *Guardas de a Cavallo*; by the *French*, *Gardes de Corps*; the *Germans*, *Leibgardy*; and by the *English* usually *Life Guards*; are the Guards of the King's Person and Body, consisting of 800 Men, well arm'd and equipp'd. See Guard.

They are divided into three *Troops*; and to each is now added, by Establishment, a Troop of Granadiers, consisting of 64 Men; all under the Command of a Captain. See Troop, Granadier, Captain, *&c.*

Each Troop of *Horse* Guards is divided into four Divisions or Squadrons; two of which, consisting of 100 Men, commanded by a principal commission'd Officer, two Brigadiers, and two Sub brigadiers, with two Trumpets, mount the Guard, one Day in six, and are reliev'd in their Turns.

Their Duty is, by Parties from the Guard, to attend the King's Person when he goes out near Home. — When he goes out of Town, he is attended by Detachments out of all the three Troops.

One of the three *Captains of the Horse Guards* attends on the King when he walks on foot, immediately next his Person; carrying in his Hand an Ebony Staff or Truncheon with a Gold Head.

One Division of Granadiers mounts with a Division of the Troop to which they belong; and go out on small Parties from the Guard, perform Centinel Duty on foot, attend the King also on foot, *&c.*

Master of the Horse. See Master *of the Horse.*

Light Horse, includes all the *Horse* except those of the Life Guard.

The Term *Light Horse* is sometimes apply'd to an independent Troop; or a Troop not embody'd into a Regiment.

The Denomination arose hence, that anciently they were lightly arm'd, in Comparison of the Royal Guard, which were arm'd at all Points.

Horse, is also a Term used in various of the Arts and Manufactories, for something that helps to sustain their Work from the Ground, for the more commodious working at it.

The *Horse* used by the Tanners, Skinners, call'd also the *Leg*, is a Piece of Wood cut hollow and roundish, four or five Foot long, and placed aslope; upon which they pare their Skins to get off the Dirt, Hair, Flesh, *&c.* See Tanning, Currying, Chamoising, *&c.*

Horse is also used in Carpentry for a Piece of Wood jointed across two other perpendicular ones, to sustain the Boards, Planks, *&c.* which make Bridges over small Rivers; and on divers other Occasions.

Wooden Horse. See Equuleus.

Horse is also a Rope in a Ship, made fast to one of the Fore-mast Shrouds; having a dead Man's Eye at its End, through which the Pendant of the Sprit-sail Sheets is reev'd.

Horse is also a Cant Name lately introduc'd into the Affair of Lotteries, for the Chance or Benefit of a Ticket or Number for one or more Days, upon Condition, if it be drawn a Prize within the Time covenanted for, of returning to the Seller an undrawn Ticket. See Chance and Lottery.

To determine the Value of a *Horse*. — Multiply the Amount of the Prizes in the Lottery by the Time the *Horse* is hired for; and from the Product subtract the Amount of the Number of Prizes by the Value of an undrawn Ticket into the Time of the *Horse*: The Remainder being divided by the Number of Tickets into the whole Time of drawing, the Quotient is the Value of the *Horse*. See Gaming.

HORSEMANSHIP, the Art of breaking, disciplining, and managing *Horses*. See Horse.

Horsemanship, in its Latitude, includes what relates to the Make, Colour, Age, Temper, and Qualities of *Horses*; their respective Countries and Climates, with the Manner of breeding, propagating, *&c.* the Discovery of the Uses or Services they are fittest for, whether the Wars, the Race, the Saddle, or Labour; and forwarding and accommodating them thereto.

In this general Sense, it also includes the Knowledge of the Defects and Diseases of *Horses*, and the Remedies proper for the same; with the several Operations requisite thereto, as *Docking*, *Gelding*, *Shoeing*, &c. And thus takes in the Farrier's Province. See Farrier. See also Docking, Gelding, Shoeing, *&c.*

But the Word is in a more peculiar Manner underſtood of the Art of *Riding*; or of directing a *Horſe* to Advantage, not only in the ordinary Motions, but more eſpecially in the managing or making him work, upon Volts, Airs, &c. See MANAGE, RIDING, VOLT, AIR, &c.

HORSE *Shoe*, a Cover or Defence for the Sole of a *Horſe*'s Foot. See SHOE, HOOF, &c.

Of theſe there are ſeveral Sorts; as — 1°. The *Planch Shoe*, or *Pancelet*, which is ſaid to make a good Foot, and a bad Leg; as cauſing the Foot to grow beyond the Meaſure of the Leg. It is choſe for a weak Heel, and will laſt longer than any other *Shoe*; being borrow'd from the Moil which has weak Heels and Fruſhes to keep the Feet from Stones and Gravel.

2°. *Shoes with Calkins*, which, tho' intended to ſecure the *Horſe* from ſliding, yet are reputed by many to do him more harm than good, in that he cannot tread evenly upon the Ground, whereby many times he wrenches his Foot, or ſtrains ſome Sinew, eſpecially upon ſtoney Ways, where Stones will not ſuffer the Calkins to enter. *Double Calkins* are leſs hurtful, as he treads evener with them than on the ſingle Calkins; but then they muſt not be over long or ſharp-pointed, but rather ſhort and flat.

3°. There are *Shoes with Rings*, firſt invented to make the *Horſe* lift his Feet up high; tho' ſuch *Shoes* are more painful than helpful, beſide the Unhandſomeneſs of the Sight. — This Defect is moſt incident to *Horſes* that have not ſound Hoofs; for tender Feet fear to touch the Ground that is hard: But what is intended for Remedy, proves a Prejudice to the *Horſe*, by adding high Calkins, or Rings to his *Shoes*, as by that means his Heels are made weaker than before.

4°. *Shoes* with *ſwelling Welts or Borders* round about them, are us'd in *Germany*, &c. which being higher than the Heads of the Nails, ſave them from wearing. — Theſe are the beſt Sort of laſting *Shoes*, if made of well temper'd Stuff, as they wear equally in all Parts, and the *Horſe* treads evenly upon them.

5° Others, who uſe to paſs Mountains, where Smiths are not ſo eaſily met with, carry *Shoes* about them, with Vices, whereby they faſten them to the *Horſe*'s Hoofs without the Help of the Hammer or Nail: Yet is this more for Shew than Service; for though ſuch *Shoe* may ſave a *Horſe*'s Feet from Stones, yet it ſo pinches his Hoof that he goes with Pain, and perhaps injures it more than the Stones do. — On ſuch emergent Occaſions, therefore, it were better to make Uſe of the *Joint Shoe*, which is made of two Pieces, with a flat Rivet Nail joining them together in the Toe, ſo that it may be taken both wide and narrow to ſerve any Foot.

6°. The *Patten Shoe* is us'd for a *Horſe* that is burnt in the Hip, Stiffle, or Shoulder, as it cauſes him to bear upon that Leg the Grief is on, and conſequently makes him uſe it the better.

8°. The *Panton* or *Pantable Shoe*, which opens the Heels, and helps Hoof-binding. — To which may be added the *half Panton Shoe*.

HORSE *Shoe* in Fortification, is a Work ſometimes of a round, ſometimes of an oval Figure, rais'd in the Ditch of a marſhy Place, or in low Grounds, and border'd with a Parapet.

Its Uſe is to ſecure a Gate, or to ſerve as a Lodgment for Soldiers, to prevent Surprizes, or to relieve an overtedious Defence.

HORSE *Shoe Head*, a Diſeaſe in Infants, wherein the Sutures of the Head are too open, or too great a Vacuity is left between them; ſo that the Aperture ſhall not be totally clos'd up, or the Cranium in that Part be ſo hard as the reſt for ſome Years after. See SUTURE.

This Openneſs is found to be increas'd upon the Child's catching Cold. When the Diſeaſe continues long, 'tis reputed a Sign of Weakneſs and ſhort Life. In this Caſe 'tis uſual to rub the Head every now and then with warm Rum or Brandy, mix'd with the white of an Egg, and Palm Oil.

Sometimes the Diſorder ariſes from a Collection of Waters in the Head, call'd a *Hydrocephalus*. See HYDROCEPHALUS.

HORSE *Meaſure*, is a Rod of Box, to ſlide out of a Cane, with a Square at the End, being divided into Hands and Inches, to meaſure the Height of *Horſes*. See HAND.

HORSHAM *Stone*, is a kind of thin broad Slate, of a greyiſh Colour; formerly much uſed, eſpecially in *Suſſex*, to heal or cover Churches and Chancels, great Houſes, &c. See STONE, SLATE, COVERING, &c.

It is call'd *Horſham Stone*, becauſe chiefly brought from the Town of *Horſham*.

HORTAGILERS, in the Grand Signor's Court, are Upholſterers, or Tapiſtry-hangers. See TAPISTRY.

There is no City better or more orderly regulated than the Grand Signor's Camp: And to have a Notion of the Magnificence of that Prince, he muſt be ſeen in that Equipage; he being much better lodg'd and accommodated there, than at *Conſtantinople*, or any other City in his Dominions.

He has always two Tents or Pavilions, and two Sets of Furniture entire; that while he is in one, they may ſtretch or ſpread the other.

In order to this, he has conſtantly four hundred *Hortagilers* or Upholſterers in his Retinue, who go a Day's Journey before him, to fix on a proper Place. They firſt prepare that of the Sultan, then thoſe of the Officers of the Port, and the *Beglierbegs*, according to their Rank.

HORTICULTURE, the Art of Gardening. See GARDENING.

The Word is compounded of *Hortus*, Garden, and *colo*, I till, dreſs, &c.

HOSANNA, in the *Hebrew* Ceremonies, was a Prayer which they rehears'd on the ſeveral Days of their Feaſt of Tabernacles. See TABERNACLE.

It was thus call'd, by reaſon there was a frequent Repetition therein of the Word הושענא, *ſerva nunc*, or *ſerva precor*, *i. e. Save us now*, or *Save us, we pray*.

There are divers of theſe *Hoſannas*. — The *Jews* call them *Hoſchanneth*, *i e.* the *Hoſannas*. — Some are rehears'd on the firſt Day, others on the ſecond, &c. which they call *Hoſanna* of the firſt Day, *Hoſanna* of the ſecond Day, &c.

HOSANNA *Rabba*, or *Grand* HOSANNA, is a Name they give to their Feaſt of Tabernacles, which laſts eight Days; by reaſon, during the Courſe thereof, they are frequently calling for the Aſſiſtance of God, the Forgiveneſs of their Sins, and his Bleſſing on the new Year; and to that Purpoſe make great uſe of the *Hoſchanneth* or Prayers above mention'd.

The *Jews*, alſo, apply the Term *Hoſanna Rabba*, in a more peculiar Manner, to the ſeventh Day of the Feaſt of Tabernacles; by reaſon they apply themſelves more immediately on that Day to invoke the divine Bleſſing, &c.

HOSE, from the *Saxon*, *Hoſa*, a Stocking. See STOCKING.

HOSE *in Hoſe*, among Botaniſts, ſignifies one long Husk within another.

HOSE-*Husk*, in Botany, a long round *Husk* within another, as in Pinks, Julyflowers, &c. See FLOWER.

HOSPITAL, popularly SPITTAL, a Place or Building erected, out of Charity, for the Reception and Support of the Poor, Aged, Infirm, and otherwiſe helpleſs. See CHARITY.

The Word is form'd of the *Latin*, *Hoſpes*, Hoſt, Stranger. See HOST.

In the firſt Ages of the Church, the Biſhop had the immediate Charge of all the Poor, both ſound and diſeas'd; as alſo of Widows, Orphans, Strangers, &c.—When the Churches came to have fix'd Revenues allotted them, it was decreed, that, at leaſt, one fourth Part thereof ſhould go to the Relief of the Poor; and to provide for them the more commodiouſly, divers Houſes of Charity were built, which are ſince denominated *Hoſpitals*. See TITHE.

They were govern'd wholly by the Prieſts and Deacons, under the Inſpection of the Biſhop. See BISHOP, &c.

In Courſe of Time, ſeparate Revenues were aſſign'd for the *Hoſpitals*; and particular Perſons, out of Motives of Piety and Charity, gave Lands, and Money for erecting of *Hoſpitals*.

When the Church Diſcipline began to relax, the Prieſts, who till then had been the Adminiſtrators of *Hoſpitals*, converted them into a Sort of Benefices, which they held at Pleaſure, without giving account thereof to any Body; reſerving the greateſt Part of the Income to their own Uſe; ſo that the Intentions of the Founders were fruſtrated. — To remove this Abuſe, the Council of *Vienna* expreſly prohibited the giving any *Hoſpital* to ſecular Prieſts in the Way of a Benefice; and directed the Adminiſtration thereof to be given to ſufficient and reſponſible Laymen, who ſhould take an Oath, like that of Tutors, for the faithful Diſcharge thereof; and be accountable to the Ordinaries. — This Decree was executed and confirm'd by the Council of *Trent*. See OECONOMUS.

In *England*, *Hoſpitals* founded for the mere Relief of the Indigent and Neceſſitous, are peculiarly call'd *Alms-houſes*; the Name *Hoſpital* being reſerv'd to thoſe deſtin'd for the Sick, Aged, Young, &c.—The Principal of theſe are, The *Royal* HOSPITAL for diſabled Soldiers, commonly call'd *Chelſea College*. See COLLEGE.

It was founded by King *Charles* II. carry'd on by King *James* II. and finiſh'd by King *William* and Queen *Mary*.

The Building is very ſpacious and magnificent: Its Figure is a Π; the middle or front Part whereof conſiſts of a Chapel and Hall; the other two Lines being four Stories high, divided into Wards or Galleries, two in each Story, containing each twenty-ſix diſtinct Apartments for the Foot Soldiers. At each of the four Corners of the main Building, there is a Pavilion, in one whereof is the Governor's Lodging and the Council Chamber; the other being Lodgings for ſeveral of the Officers of the Houſe. Beſide the main

Building

Building, there are four Wings or Out-buildings; one for the *Infirmary*, another for several Officers of the House, another for old maim'd Officers of Horse and Foot; and the fourth for the Baker, Laundress, &c.

The Number of ordinary Pensioners is 476; beside the Officers and Servants of the House: The out, or extraordinary Pensioners, are also very numerous; and these, upon Occasion, do Duty in the several Garrisons, from whence Draughts are made for the Army, &c. See INVALIDS.

The Pensioners are all provided with Cloaths, Diet, Washing, Lodging, Firing, and one Day's Pay in every Week for spending Money.

The Qualificatioos requir'd to be admitted of this Body, are, that each Person bring a Certificate from his superior Officer, that he has been maim'd or disabled in the Service of the Crown; or that he has serv'd the Crown 20 Years, which must be made appear by Muster-Rolls.

To defray the Charges of this *Hospital*, there is a considerable Sum paid yearly out of the Poundage of the Army; beside one Day's Pay of each Officer, and each common Soldier, every Year; which, in Time of War, amounts to 13 or 14000*l.*

For the Administration of this *Hospital*, there is a Governor, Lieutenant-Governor, Major, Treasurer, &c.

Greenwich HOSPITAL, is a Retreat for Seamen, who, by Age, Wounds, or other Accidents, are disabled from Service; and for the Widows and Children of such as are slain in the Service.

This, in Point of Magnificence and Spaciousness, excels even *Chelsea Hospital*. A good Part of it was built in K. *Charles* II's Time, at the Expence of 36000*l.* It was much promoted by King *William*; and finish'd under Queen *Anne* and King *George*.

The Number of Pensioners entertain'd in this *Hospital* is 300. To each hundred Men are allow'd six Nurses, being the Widows of Seamen.

The Victualling is according to the Allowance of *Chelsea Hospital*, *viz.* four Men to a Mess; each Mess to contain four Pound of Flesh, a Gallon of Beer, &c.

It is administer'd by a Governor, Lieutenant-Governor, Captain, Lieutenant, Chaplain, Steward, Physician, &c.

Christ's HOSPITAL, popularly call'd the *Blue Coat* HOSPITAL, was anciently a Monastery of Grey Friars, founded by *Raibere*, the first Prior thereof, in the Time of *Henry* I. dissolv'd by *Henry* VIII. and converted by *Edward* VI. into an *Hospital* for poor Children, who are supply'd with all Necessaries and Conveniencies, cloath'd, dieted, and taught.

Since its first Endowment it has receiv'd abundance of new Donations. A great Part of it was burnt down by the great Fire; but is again rebuilt by the Care of the Governors, tho' not without incurring a great Debt, and anticipating the Revenues of the *Hospital*.

Formerly, a thousand poor Children, most of them Orphans, were maintain'd on this Foundation; and six or seven Score yearly put out Apprentices, and the Maids to Service; but the Number, thru' the Deficiency of the Funds, is now much less.

Here were two Mathematical Schools; the first founded by King *Charles* II; but they are now united. Youths are there taught several Parts of practical Mathematicks, particularly Navigation, to fit them for Apprentices to Masters of Ships: To say nothing of the Grammar School, (whence the most pregnant Boys are yearly sent to the University) Writing School, Drawing School, &c.

The Officers of this *Hospital* are a President, Treasurer, Governors, &c.

St. *Bartholomew's* HOSPITAL adjoins to *Christ's Hospital*, and formerly belong'd to the same Grey Friars.

At the Dissolution of Monasteries, *Henry* VIII. left 500 Marks a Year to it for the Relief of poor People; but it was more largely endow'd for the Use of sick and lame Persons only, by *Edward* VI.

It is govern'd by a President, Treasurer, &c. with other Officers. It is furnish'd with two Physicians, and three Master Surgeons, beside as many Assistant Surgeons.

In this *Hospital*, with two others depending on it, the one at *Kingsland*, the other call'd the *Lock* in *Southwark*, are about 300 Patients, provided with Lodging, Diet, Physick, Chirurgery, &c.

St. *Thomas's* HOSPITAL, in *Southwark*, is for the same Purposes as that of St. *Bartholomew*.

It was originally founded an *Hospital*, by *Richard*, Prior of *Bermondsey*, in 1213; surrender'd to King *Henry* VIII; and given by *Edward* VI. to the Citizens of *London*, for an *Hospital* for infirm and lame People.

It consists of four quadrangular Courts: In the first are six Wards for Women; in the second, two Chapels, the lesser for the private Use of the *Hospital*, and the larger Parochial: In the same Court are the Houses of the Treasurer, and other Officers: In the third Court are six or seven Wards for Men. The fourth has also three Wards, Baths hot and cold, a Chirurgery, Apothecary's Shop, &c.

There are about 3000 Persons taken in and discharg'd out of this *Hospital* yearly.

The Governors of this *Hospital* are the Lord Mayor and Court of Aldermen, with about 260 other Citizens. Among which are a President, Treasurer, &c. two Physicians, and three Surgeons.

Guy's HOSPITAL, or the HOSPITAL *of the Incurables*, is the Foundation of that wealthy Citizen and Bookseller, *Thomas Guy*, Esq;

It is chiefly intended for reputed incurable Persons; and is even to take in yearly a certain Number of Patients turn'd out of the other *Hospitals*, particularly *Bethlehem*, as incurable.

The Founder bestow'd 50000*l.* on the Building in his Life-time; and, by Will, endow'd it with 200000*l.* at his Death, in 1724: The greatest Benefaction, without Dispute, that ever was left by any one private Man.

Its Officers are a President and Governors, most of which are the same with those of St. *Thomas's Hospital*, which is in the Neighbourhood thereof, with a Treasurer, two Physicians, two Surgeons, &c.

BETHLEHEM *Hospital*, BRIDEWEL *Hospital*, SUTTON's *Hospital* - } See { BETHLEHEM. BRIDEWELL. CHARTER-*house*.

HOSPITALER, one that entertains and provides for poor People, Travellers, &c.

The Name is chiefly apply'd to certain Communities of Religious. --- As the *Hospitalers* of *Elsefort* in *Essex*, instituted to take Care of Lepers; *Hospitalers* of St. *John Baptist* of *Coventry*; *Hospitalers* of St. *Julian*; *Hospitalers* of St. *Leonard* at *York*, &c.

The Religious *Hospitalers* generally follow the Rule of St. *Augustin*. Most of them pretend that St. *Martha* was their first Foundress, and chuse her for their Patron, by reason she entertain'd Jesus Christ at her House. Some of them go back to the Patriarch *Abraham*.

There are also *Hospitallers* among the military Orders; such are the Knights of St. *Lazarus*, and St. *John* of *Jerusalem*.

HOSPITALERS, HOSPITALARII, were a certain Order of Religious Knights, so call'd, because they built an *Hospital* at *Jerusalem*, wherein the Pilgrims were receiv'd. --- To these Pope *Clement* the Fifth transferr'd the Effects and Revenues of the Templars; whom, by a Council held at *Vienna*, he suppress'd, for their many and great Misdemeanors. See TEMPLAR.

These *Hospitalers* were otherwise call'd Knights of St. *John* of *Jerusalem*, and are now the same with those whom we call Knights of St. *John* of *Malta*. See MALTA.

HOSPITIUM, an Inn; a Term peculiarly us'd in our Law Books for an *Inns of Court*. See INNS *of Court*.

HOSPITIUM is also us'd for a little Coovent, which the Religious built for the Reception of Strangers and Travellers of the same Order, who have occasion to stay with them some time.

Most of the *Hospitia*, or *Inns*, in Time became fix'd Convents. See CONVENT.

HOSPODAR, the Title borne by the Princes of *Walachia* and *Moldavia*. See PRINCE.

The *Hospodars* of *Walachia* and *Moldavia*, receive the Investiture of those Principalities from the Grand Signor, by a Vest and a Standard, which he gives them.

They are sometimes depos'd by him; tho', in other Respects, they have the Sovereign Power within their States.

HOST, HOSPES, a Term of mutual Relation, apply'd both to a Person who lodges and entertains another, and to the Person thus lodg'd, &c.

Thus, the Inn-keeper says, he has a good *Host*, in speaking of the Traveller who lodges with him: And the Traveller, again, says, he has a kind *Host*, in speaking of his Landlord.

The Word is form'd of the *Latin*, *Hospes*, which some will have thus call'd, *quasi hostium*, or *ostium petens*; for *ostium* was anciently wrote with an Aspirate.

It must be observ'd, then, that it was the Custom among the Ancients, when any Stranger ask'd for Lodging, for the Master of the House, and the Stranger, each of them to set a Foot on their own Side of the Threshold, and swear they would neither of them do any Harm to the other. --- It was this Ceremony that rais'd so much Horror against those who violated the Law, or Right of Hospitality on either Side; inasmuch as they were look'd on as perjur'd.

Instead of *Hospes*, the ancient *Latins* call'd it *Hostis*; as *Cicero* himself informs us: Tho', in Course of Time, *Hostis* came to signify an Enemy; so much was the Notion of *Hospitality* alter'd.

HOST is also us'd by Way of Abbreviation for *Hostia*, a Victim or Sacrifice to the Deity. See HOSTIA.

In this Sense, *Host* is more immediately understood of the Person of the Word incarnate, who was offer'd up a *Host* or *Hostia* to the Father, on the Cross; for the Sins of Mankind.

Host is peculiarly us'd in the *Romish* Church for the Body of Jesus Christ, contain'd under the Species of Bread and Wine, which is offer'd up every Day, a new *Host* or Sacrifice in the Mass. See Mass.

Pope *Gregory* IX. first decreed a Bell to be rung, as the Signal for the People to betake themselves to the Adoration of the *Host*.

The Vessel wherein the *Hosts* are kept, is call'd the *Cibory*.

HOSTAGE, a Person left as Surety for the Performance of the Articles of a Treaty. See Treaty.

When two Enemies are on the Point of concluding a Treaty or Capitulation, 'tis frequent for them to give *Hostages* on each Side, as Sureties for the Execution of what is contain'd therein.

The Garrison of such a Place has capitulated, and given *Hostages*. Such an Officer was given as an *Hostage*.---The Word is form'd of *Host*, and that of *Hospes*. See Host.

A *Hostage* is either a Principal or an Accessary, according to the State of the Case. He is only an Accessary, when, for Instance, a Prince promises Fidelity to another, and gives up his Son, or some other great Lord, to assure his Engagement, without any further Stipulation. For, here, if the Prince fail of his Word, the *Hostage* is no ways accountable for it.

But the *Hostage* becomes a Principal, when it is expressly stipulated, that he shall be answerable for the Event: For Instance, if a City engage to surrender, in Case it be not relief'd in so many Days; and to secure the Engagement give *Hostages*; these *Hostages* are what a Surety is to a Creditor for Debt of his Principal. So that if the Relief do not come, and yet the Citizens refuse to surrender, the *Hostages* stand in their Place, become Principals, and liable to be punish'd for the Prevarication of those they have become Surety for.

A *Hostage* given for another Person, becomes free when the Person dies.

HOSTEL, or Hotel, a *French* Term, anciently signifying a House, or Dwelling-place.

It is now more commonly used for the Palaces or Houses of the King, Princes, and great Lords. In this Sense they say, the *Hotel de Conde*, *Hotel de Conti*, *Hotel du Louvre*, &c.

The Grand *Prevot de l'Hotel* is the first Judge of the Officers of the King's Houshold. His Jurisdiction is much like that of the Lord Steward of the Houshold of the King of *England*. See Steward.

The *Hotel de Ville* is what we call a *Town-house*, or *Town-hall*. See Hall.

HOTEL-Dieu, is a common Name for the chief Hospital for the Reception of sick Persons, in most of the Cities of *France*. See Hospital.

The *Hotel de Mars*, is an Hospital near *Paris* of the same Nature with *Chelsea* Hospital.

HOSTIA, Host, in Antiquity, a Victim offer'd in Sacrifice to a Deity. See Victim.

The Word *Hostia* is form'd *ab hostibus*, it being the Custom to offer one before they join'd Battel, to render the Gods propitious; or after the Battel was over, to give them Thanks.

Isidore, on this Word, remarks, that the Name *Hostia* was given to those Sacrifices which they offer'd before they march'd to attack the Enemy; *ante quam*, says he, *ad Hostem pergerent*; in Contra-distinction from *Victims*, which were properly those offer'd after the Victory: However, *Ovid* confounds the two, when he says,

Victima quæ cecidit dextrâ Victrice vocatur;
Hostibus a Domitis Hostia *nomen habet.*

Fronton makes another Distinction: According to him, *Victima* was a grand Oblation, and *Hostia* a smaller and less considerable one.

But be the Custom in this respect what it will, 'tis generally allow'd that the Word *Hostia* comes from *Hostis*, Enemy: Tho' there are some who derive it from the *Latin* Verb *Hostio*, q. d. *ferio*, I strike, smite.

HOSTILITY, the Action of an Enemy. --- During a Truce, all *Hostilities* are to cease on both Sides: Such a City stands neuter, and commits no *Hostilities* on either Side.

The Word is *Latin*, *Hostilitas*, form'd of the Primitive *Hostis*, which signifies Enemy; and which anciently signify'd *Stranger*, *Hospes*. See Host.

HOT-Bath. See Bath and Thermæ.

Hot-Bed, a Piece of Earth or Soil plentifully enrich'd with Manure, and defended from cold Winds, &c. to forward the Growth of Plants, and force Vegetation, when the Season or the Climate of itself is not warm enough. See Soil, Manure, Vegetation, &c.

By means of *hot Beds* skilfully manag'd, we can so nearly imitate the Temperature of other Climates, that Seeds of Plants brought from any Country between the Tropicks, may be made to flourish even under the Poles. See Exotic.

Heat and Humidity being the great Instruments of Vegetation; to promote the Growth of any Plants, these must be duly proportion'd, so as neither to exceed nor come short of the Bounds Nature has allotted for it. ---Too much Heat we find rather scorches a Plant than makes it grow; and too much Moisture frequently chills it, unless quickly exhaled from the Roots. --- With us, a moderate Heat is found the most eligible; such as is rais'd by the Ferment of wet Straw and Horse-litter, which, from the Earth lying thereon, will send forth, for some time, a gentle Steam, impregnated with vegetative Salts. See Plant, Water, &c.

The usual Way of making *hot* Beds, is of Horse-litter and Grass mix'd together, and left on an Heap for eight or ten Days to putrefy; and then remov'd into a Bed, and cover'd up with Glasses or Frames. --- Others chuse to take Horse Dung a Month or six Weeks old, and make a Seed-Bed of it about four Foot high, and cover it up with Straw a Foot thick, which is to be remov'd in three or four Days, and its Place supply'd either with Cows Dung, or the last Years Ridges.

The Process of ordering a good serviceable *hot Bed*, for the customary raising of Cauliflowers, Cucumbers, Melons, Radishes, and other tender Plants and Flowers in *January* or *February*, is directed by Mr. *Mortimer* in Manner following:

Provide a warm Place defended from all Winds, by being inclos'd with a Pale or Hedge, made of Reeds or Straw; about six or seven Foot high, of such Distance or Capacity as Occasion requires. --- Within this Inclosure raise a Bed two or three Foot high, and three Foot over, of fresh Horse Dung, about six or eight Days old; then tread it down very hard on the Top, make it level, and if you think fit, edge it round with Boards or Bricks, laying fine rich Mould about three or four Inches thick on it: When the extream Heat of the Bed is over, which you may perceive by thrusting in your Finger; plant your Seeds at pleasure; and set your Forks four or five Inches above the Bed, to support a Frame made of Sticks, and cover'd with Straw or Bass-mat, in order to secure the Seeds and Plants from Cold and Wet; only the Covering may be open'd in a warm Day, for an Hour before Noon, and an Hour after. --- But take Care to earth up your Plants as they shoot in Height; and when able to bear the Cold, they may be transplanted.

In *Holland* they make use of *hot* Beds made of Sand; which are not so apt to raise unwholsome Damps as those of Horse Dung. --- The *Dutch* likewise make *hot* Beds of Tanner's Bark, which, when once rightly prepar'd, will maintain an equable Heat for six Months.

Bradley, with very good Reason, proposes a Thermometer to be us'd to regulate the Heat of *hot* Beds. --- For Plants that are either to be brought up in a colder Season, or a colder Climate than what they naturally require; you are to take the Height at which the Thermometer stands in their proper Season or Clime, as a Standard; and by applying a Thermometer to the *hot* Bed, judge whether the Heat is to be intended or remitted. --- Thus a *hot* Bed for Cucumbers must be kept, to raise the Spirit in the Glass, to the same Height as the natural Temperature of the Weather will raise it to about the latter End of *May* and *June*, when Cucumbers will grow abroad without any artificial Heat or Shelter. See Heat and Thermometer.

Hot-House. See Stove, Sudatory, Hypocaustum, &c.

Hot-Shoots, or Hovilses, a Sort of factitious or compound Fuel, made of a third Part of any Coal, Pit, Sea, or Charcoal, mix'd with Loam. See Fuel.

These Ingredients are to be made up into Balls, moisten'd with a little Urine, or in any other Form at Pleasure; and expos'd to the Air till thoroughly dry. --- Then may they be built into the most orderly Fire imaginable, affording a glowing, solemn, and constant Heat for seven or eight Hours without stirring. This Mixture is frequently us'd in some Parts to slacken the impetuous devouring of the Fire, and keep Coals from consuming too fast.

HOTCH-pot, or Hodge podge. See Hodge-podge.

A Man being seiz'd of thirty Acres of Land in Fee, hath two Daughters, and gives with one of them ten Acres in Frank-Marriage, and dies seiz'd of the other twenty. If now she that is thus marry'd will have any Part of the twenty Acres, she must put her Lands given in Frank-Marriage in *Hotch-pot*, that is, she must refuse to take the sole Profits of the ten Acres, but suffer them to be mingled with the other twenty, to the End an equal Division may be made of the whole thirty between her and her Sister. --- Thus for her ten Acres she will be intitled to fifteen. *Coke on Littl.*

HOTTS, or Hutts, the Pounces and round Balls of Leather ſtuffed, or ty'd on the ſharp End of fighting Cocks Spurs; to keep them from hurting one another in ſparring or breathing themſelves.

HOUGH, the Joint of the hind Leg of a Beaſt. See Ham.

To *Hough*, or *cut the Houghs*, is to *ham-ſtring*. See Hamstring.

Hough *bonny*, is a hard round Swelling or Tumor growing upon the Tip or Elbow of the Hoof or *Hough*.

It generally proceeds from ſome Stroke or Bruiſe; and if neglected till the Subſtance of the Swelling becomes hard like Glue, proves difficult to cure.

HOUND, *Canis Venaticus*, a Hunting Dog. See Hunting.

Hounds may be diſtinguiſh'd, with regard to the Manner of their Hunting, into ſuch as find out and purſue the Game by Sight, and the Quickneſs and Swiftneſs of their Motion; of which Kind are the *Gaze Hound*, *Agaſæus*; and *Grey Hound*, *Canis Graius*; the *Terrier*, &c. and thoſe which find and purſue the Game by the Goodneſs of their Smell.

The Species of ſcenting Dogs may be divided farther into *Hounds*, ſimply ſo call'd, and *Blood Hounds*, each whereof admits of ſome Diverſities.

1°. As to *Hounds*, ſimply thus call'd, in *Latin*, *Canes Venatici*, *Odoratores*, *Sagaces*, &c. — Thoſe which are all of one Colour, as white, black, &c. are the moſt valu'd; then thoſe ſpotted with red: Thoſe ſpotted with dun are little priz'd, as wanting Courage and Hardineſs. — Fallow *Hounds* are of good Scent, and hardy, not fearing the Water: They keep the Chaſe well without Change; but not ſo ſwift as the white: They love the Hart above any other Chaſe, having little Stomach for the Hare, &c. whence they are not ſo fit for private Gentlemen; beſide that, they are apt to run at tame Beaſts.

The dun *Hounds* are of more general Uſe, being fit for all Chaſes. — Their Sagacity and Fidelity in knowing and ſticking to their Maſter's Voice and Horn, and none elſe, are much admir'd: They alſo underſtand each other, and know which are Babblers, which Lyers, &c. — They are of different Sizes and Qualities in the ſeveral Countries, &c. Mountainous and Woodland Parts breed a tall heavy Sort, call'd *ſlow Hounds*: Moderate Soils, where the Champaign and Covert ſhare pretty equally, produce a middle-ſized *Hound* of a nimbler Make.

The Marks of a good and fair *Hound* are, to be of a middle Proportion, rather long than round; the Noſtrils wide; Back, bowed; Fillets, great; Haunches, large; Ham, ſtraight; Tail, big near the Reins, and the reſt ſlender to the End; the Leg, big; the Sole, dry; and Claws, large.

For the Terms uſed in reſpect of Hounds, *their Noiſes*, &c. See Hunting.

To enter a young *Hound*; after having taught him to know the Hollow and the Sound of the Horn, at about eighteen Months old he may be taken into the Field. The beſt Method to initiate him, is to take a live Hare, and trail her upon the Ground, this Way, then that; and, at length, hide her at a proper Diſtance. Then ſetting the *Hound* near the Trail, he will take Wind, and run to and fro about the Fields, Woods, Paths, &c. till he find which Way ſhe had gone: As he approaches nearer the lodged Hare, he will mend his Pace, and at laſt leap on his Prey, which he muſt be ſuffer'd to kill, and bringing it to his Maſter with Triumph, muſt be rewarded and encourag'd. — This done, he may be let run in a Pack of old *Hounds* to confirm and perfect him.

It ought to be noted, that whatever young *Hounds* are firſt enter'd at and rewarded with, they will ever after covet moſt; ſo that if they be intended, *e. gr.* for the Hart, they muſt not be enter'd at the Hind.

2. The *Grey-hound* might deſerve the firſt Place, by reaſon of his Swiftneſs, Strength, and Sagacity in purſuing his Game; ſuch being the Nature of this Dog, that he is well ſcented to find out, ſpeedy and quick of Foot to follow, fierce and ſtrong to overcome, yet ſilent, coming upon his Prey unawares.

The Make and Proportions requir'd in a good *Grey-hound*, are, that he have a long Body, ſtrong, and pretty large, a neat ſharp Head, ſparkling Eyes, a long Mouth, and ſharp Teeth, little Ears, with thin Griſtles in them, a ſtraight, broad, and ſtrong Breaſt, his fore Legs ſtraight and ſhort, his hind Legs long and ſtraight, broad Shoulders, round Ribs, fleſhy Buttocks, but not fat, a long Tail ſtrong and full of Sinews.

Of this Kind, thoſe are always fitteſt to be choſen among the Whelps that weigh lighteſt; for they will be ſooner at the Game, and ſo hang upon it, hindering its Swiftneſs, till the heavier and ſtrong *Hounds* come in to offer their Aſſiſtance; whence, beſide what has been already ſaid, 'tis requiſite for a *Grey-hound* to have large Sides, and a broad Midriff, that he may take his Breath in and out the more eaſily; his Belly ſhould alſo be ſmall, which otherwiſe would obſtruct the Swiftneſs of his Courſe; his Legs long, and his Hairs thin and ſoft.

The Huntſman is to lead theſe *Hounds* on his left Hand, if he be on Foot, and on the Right if on Horſeback. — The beſt Time to try and train them to the Game, is at twelve Months old, tho' ſome begin ſooner, with the Males at ten, and the Females at eight Months old, which laſt are generally more ſwift than the Dogs: They ſhould be kept in a Slip, while abroad, till they ſee their Courſe; neither ſhould you looſen a young Dog 'till the Game has been a conſiderable Time on Foot, being apt, by over Eagerneſs at the Prey, to ſtrain his Limbs.

5°. The *Gaze-hound*, or *Beagle*, is a Dog more beholden to the Sharpneſs of Sight, than his Noſe or Smelling; by Virtue whereof, he makes excellent Sport with the Fox and Hare. — He is alſo noted as exquiſite in chuſing of one that is not lank or lean, but full, fat and round, which, if it happen to return, and be mingled again with the Reſidue of the Herd, he will ſoon ſpy out, and leave the reſt untouch'd, never ceaſing, after he has ſeparated it from its Company, till he has weary'd it to Death.

Theſe Dogs are much us'd in the North of *England*, and on Champion Ground, rather than buſhy and woody Places, and by Horſemen more than Footmen. — If at any time he happen to take a wrong Way, upon the uſual Sign made by his Maſter, he immediately returns, takes the right and ready Courſe, beginning his Chaſe afreſh, with a clear Voice and ſwift Foot, following the Game with as much Courage as at firſt.

4°. The *Blood-hound* differs nothing in Quality from the *Scottiſh Slut Hound*, ſaving that it is more longly ſiz'd, and not always of the ſame Colour; but ſometimes red, ſanded, black, white, and ſpotted, &c. tho' moſt commonly either brown or red.

Their Nature is, that being ſet on by the Voice and Words of their Leader, to caſt about for the Setting of the preſent Game, and having found it, they will never ceaſe purſuing it with full Cry till it is tir'd, without changing for any other.

They ſeldom bark, except in their Chaſe, and are very obedient and attentive to the Voice of their Leader. — Thoſe that are really good, when they have found the Hare, make Shew thereof to the Huntſman by running more ſpeedily, and with Geſture of Head, Eyes, Ears, and Tail, winding to the Form or Hare's Muſe, never giving over Proſecution, with a Gallant Noiſe.

They have good and hard Feet, and ſtately Stomachs; and are very properly denominated *ſanguinary* or *Blood-hounds*, by reaſon of their extraordinary Scent; for if their Game be only wounded, ſo that it eſcapes the Huntſman's Hands, or if it be kill'd, and never ſo cleanly carry'd away, theſe Dogs, by their exquiſite Smell, will betray it, and not be wanting, either by Nimbleneſs or Greedineſs, to come at it, provided there be any Stains of Blood. — Nay, tho' by all the Cunning and Foreſight imaginable, a Beaſt be convey'd away without Spot or Blood, yet through the rougheſt and moſt crooked Ways and Meanders, will this Dog find out the Deer-ſtealer, and even in the thickeſt Throng, will, by his Smell, ſeparate and pick him out. See Blood-*hound*.

5°. The *Terrier*, or *Harrier* only hunts the Fox or Badger; being thus call'd, becauſe, after the Manner of a Ferret in ſearching for Coneys, he leaps into the Ground, and affrights or attacks the Beaſt, either tearing them in Pieces, or haling them out by Force; or, at leaſt, driving them out of their Harbours, to be taken in a Net, or otherwiſe.

The Huntſmen have commonly a Couple of *Terriers*, that they may put in a freſh one, as Occaſion ſerves, to relieve the other.

The Time of entering the *Terrier*, is when he is near a Twelve-Month old: If it be not done within that Time, they will hardly be brought to take the Earth. This entering and fleſhing of them may be perform'd ſeveral Ways. — Firſt, when the Foxes and Badgers have young Cubs, take an old *Terrier*, ſet him into the Ground, and when he begins to bay, hold the young one at the Hole or Mouth of the Earth, that he may liſten and hear the old ones Bay.

The old Fox or Badger being taken, ſo that nothing remains within but the Cubs, couple up the old ones, and put in the Young in their Stead, encouraging them by crying, To him, To him. — If they take any Cub within, let them do with it what they liſt; not forgetting to give the old *Terriers* their Reward, which is Blood and Livers fry'd with Cheeſe and ſome of their Greaſe; ſhewing them Heads and Skins to encourage them.

HOUR, *Hora*, an aliquot Part of a natural Day, uſually a 24th, ſometimes a 12th. See Day.

An

An *Hour*, with us, is a Measure or Quantity of Time, equal to a 24th Part of the natural Day, or Nycthemeron; or the Duration of $\frac{1}{24}$th Part of the Earth's diurnal Rotation. 15 Degrees of the Equator answer to an *Hour*; tho' not precisely, but near enough for common Use. See TIME.

It is divided into 60 Minutes; the Minute into 60 Seconds, &c. See MINUTE.

The Division of the Day into *Hours* is very ancient; as is shewn by *Kircher*, *Oedip. Ægypt.* T. II. P. II. Class VII. c. 8. Tho' the Passages he quotes from Scripture do not prove it. — The most ancient *Hour* is that of the 12th Part of the Day. *Herodotus*, lib. II. observes, that the *Greeks* learnt from the *Ægyptians*, among other Things, the Method of dividing the Day into twelve Parts.

The Astronomers of *Cathaya*, &c. Bishop *Beveridge* observes, still retain this Division. They call the *Hour Chag*; and to each *Chag* give a peculiar Name, taken from some Animal: The 1st is call'd *Zeth*, Mouse; the 2d *Chiu*, Bullock; the 3d *Zem*, Leopard; the 4th *Mau*, Hare; the 5th *Chin*, Crocodile, &c.

The Division of the Day into 24 *Hours*, was not known to the *Romans* before the first *Punic* War. — Till that Time they only regulated their Days by the Rising and Setting of the Sun.

They divided the twelve *Hours* of their Day into four, *viz. Prime*, which commence'd at six o'Clock; *Third* at nine, *Sixth* at twelve, and *None* at three. They also divided the Night into four Watches, each containing three *Hours*.

The Origin of the Word *Hour*, *hora*, comes, according to some Authors, from a Surname of the Sun, the Father of *Hours*, whom the *Ægyptians* call *Horus*. Others derive it from the *Greek*, ὁρίζειν, to terminate, distinguish, &c.

Others, from the Word *Urine*, which the *Greeks* call ὄρον; holding, that *Trismegistus* was the first that settled the Division of *Hours*, which he did from Observation of an Animal consecrated to *Serapis*, nam'd *Cynocephalus*, which makes Water twelve Times a Day, and as often in the Night; at equal Intervals.

There are divers Kinds of *Hours*, us'd by Chronologers, Astronomers, Dialists, &c.

Hours are divided into *equal* and *unequal*.

Equal, are the 24th Parts of a Day and Night precisely; that is, the Time wherein 15 Degrees of the Equator mount above the Horizon.

These are also call'd *Equinoctial Hours*, because measur'd on the Equinoctial; and *Astronomical*, because us'd by Astronomers.

They are also differently denominated, according to the Manner of accounting them.

Babylonish HOURS are equal *Hours*, reckon'd from Sunrise in a continu'd Series of twenty-four. See BABYLONISH *Hour*.

Italian HOURS are equal *Hours*, reckon'd from Sunset, in a continu'd Series of twenty-four. See ITALIAN *Hour*.

Astronomical HOURS are equal *Hours*, reckon'd from Noon, or Mid-day, in a continu'd Series of twenty-four. See ASTRONOMICAL.

European HOURS are equal *Hours*, reckon'd from Midnight; twelve from thence to Noon, and from Noon to Mid-night twelve more.

Unequal or *temporary Hours*, are 12th Parts of the artificial Day or Night. The Obliquity of the Sphere renders these more or less unequal at different Times; so that they only agree with the equal *Hours* at the Times of the Equinoxes.

Jewish, or *planetary*, or *ancient* HOURS, are twelfth Parts of the artificial Day or Night.

Hence, as 'tis only in the Time of the Equinoxes that the artificial Day is equal to the Night; 'tis then only that the *Hours* of the Day are equal to those of the Night: At other Times they will be always either increasing or decreasing.

They are call'd *Ancient* or *Jewish Hours*, because us'd by the Ancients, and still among the *Jews*. They are call'd *Planetary Hours*, by reason the Astrologers pretend, that a new Planet comes to predominate every *Hour*; and that the Day takes its Denomination from that which predominates the first *Hour* thereof: As *Monday* from the Moon, &c.

HOURS, *Horæ*, among the ancient Poets, were certain Goddesses, the Daughters of *Jupiter* and *Themis*: They were three in Number, *Eunomia*, *Dice*, and *Irene*. To which were afterwards added two more, *Carpo* and *Tallote*.

Homer makes them the Door-keepers of Heaven. *Ovid* allots them the Employment of harnessing the Horses of the Sun: *Jungere Equos Titan velocibus imperat* Horis.

HOURS, *Horæ*, in the *Romish* Church, are certain Prayers perform'd at stated Times of the Day; as *Mattins*, *Vespers*, *Lauds*. See MATTINS, &c.

The lesser *Hours*, are *Prime*, *Tierce*, *Sixth*, and *None*. — They are thus call'd, as being to be rehears'd at certain *Hours* prescrib'd by the Canons of that Church, in Commemoration of the Mysteries accomplish'd at those *Hours*.

These *Hours* were anciently call'd *Cursus*, *Cursus*. F. *Mabillon* has a Dissertation on these *Hours*, intitled, *de Cursu Gallicano*. The first Constitution enjoining the Observation of these *Hours*, is of the IXth Century, being found in a Capitular of *Herton*, Bishop of *Basil*, directed to his Curates, importing, that the Priests shall never be absent at the Canonical *Hours* either by Day or Night.

Prayers of forty Hours, are publick Prayers continu'd for the Space of three Days successively, and without Intermission, before the Holy Sacrament, to obtain the Assistance of Heaven on some important Occasion. — In these Days, Care is taken, that the Holy Sacrament be expos'd forty *Hours*, *viz.* 13 or 14 *Hours* each Day.

HOUR-CIRCLES, or HORARY-*Circles*, in Astronomy, &c. are great Circles, meeting in the Poles of the World, and crossing the Equinoctial at Right Angles; the same as Meridians. See MERIDIAN.

They are suppos'd to be drawn through every 15th Degree of the Equinoctial and Equator, and on both Globes are supply'd by the Meridian, *Hour-Circle*, and Index. See GLOBE.

The Planes of the *Hour-Circles* are perpendicular to the Plane of the Equinoctial, which they divide into 24 equal Parts.

HOUR-GLASS, a popular Kind of Chronometer or Clepsydra, serving to measure the Flux of Time, by the Descent or Running of Sand out of one Glass Vessel into another. See CHRONOMETER.

The best *Hour-Glasses* are those, which, instead of Sand, have Egg-shells well dry'd in the Oven, then beaten fine and sifted.

Hour-Glasses are much us'd at Sea for Reckoning, &c. See RECKONING, LOG, &c.

There are also a Sort of *Hour-Glasses*, which depend on the Flux of Water or other Liquid, more properly call'd *Clepsydræ*. See CLEPSYDRA.

HOUR-LINES, on a Dial, arise from the Intersections of the Plane of the Dial, with the several Planes of the *Hour*-Circles in the Sphere, and therefore must be all Right Lines. See DIAL and DIALLING.

HOUSAGE, a Fee which a Carrier or other Person pays for laying up Goods in a *House*.

HOUSE, a Habitation, or Place built with Conveniencies to live in; or a Building wherein to shelter a Man's Person and Goods from the Inclemencies of the Weather, and the Injuries of ill-disposed Persons. See BUILDING.

We say a Brick *House*, a Stone *House*, a *House* of two Stories, of three Stories, a Manor *House*, a Farm *House*, &c. See BRICK, STONE, STORY, MANOR, &c.

Ancient *Rome* consisted of 48000 insulated *Houses*. See INSULATED.

A Pleasure *House* or Country *House*, is that built for a Person to enjoy and divert himself occasionally in. This is the *Villa* of the ancient *Romans*; and what in *Spain* and *Portugal* they call *Quinta*; in *Provence*, *Cassine*; in some other Parts of *France*, *Closerie*; in *Italy*, *Vigna*.

In this Sense the Word *Vigna* is sometimes us'd in *English* to denote the Country Seats of the Noble *Romans*; as the *Vigna Farnese*, *Vigna Borghese*, &c. — The Citizens of *Paris* have also their *Maisons de Bouteilles*, Bottle-*houses*, to retire to, and entertain their Friends; which, in *Latin*, might be call'd *Micæ*, the Emperor *Domitian* having a *House* built for the like Purpose, mention'd under this Name by *Martial*, lib. II. *Epig.* 59.

'Tis a Thing principally to be aim'd at, in the Site or Situation of a Country *House* or Seat, that it have Wood and Water near it: If it cannot be conveniently built among Trees, yet there are few Places where Trees may not be speedily rais'd about it. See TREE, PLANTING, TRANSPLANTING, &c.

It is far better to have a *House* defended by Trees than Hills; for Trees yield a cooling, refreshing, sweet, and healthy Air, and Shade, during the Heat of the Summer, and very much break the cold Winds and Tempests from every Coast in the Winter. — The Hills, according as they are situated, defend only from some certain Winds; and if they are on the North Side of the *House*, as they defend from the cold Air in the Winter, so they also deprive you of the cool refreshing Breezes, which are commonly blown from thence in the Summer. — And if the Hills are situated on the South Side, it then proves also very inconvenient.

A *House* should not be too low seated, since this precludes the Convenience of Cellars. — If you cannot avoid building on low Grounds, set the first Floor above the Ground the higher, to supply what you want to sink in your Cellar in the Ground; for in such low and moist Grounds, it conduces much to the Dryness and Healthiness of the Air, to have Cellars under the *House*, so that the Floors be good, and ceiled underneath.

Houses

Houses built too high, in Places obvious to the Winds, and not well defended by Hills or Trees, require more Materials to build them, and more also of Reparations to maintain them; and are not so commodious to the Inhabitants as the lower built *Houses*, which may be at a much easier Rate, and also as compleat and beautiful as the other.

In Buildings or *Houses* not above two Stories with the Ground Room, and not exceeding twenty Foot to the Raison-Place, and upon a good Foundation; the Length of two Bricks, or eighteen Inches for the heading Course, will be sufficient for the Ground Work of any common Structure, and six or seven Courses above the Earth to a Water-Table, where the Thickness of the Walls are abated, or taken in, on either Side, the Thickness of a Brick, namely two Inches and a Quarter.

For large and high *Houses* or Buildings of three, four, or five Stories with the Garrets, the Walls of such Edifices ought to be from the Foundation to the first Water-Table, three heading Courses of Brick, or 28 Inches at least; and at every Story a Water-Table, or taken in on the Inside for the Summers, Girders, and Joints to rest upon, laid into the Middle, or one Quarter of the Wall at least, for the better Bond. --- But as for the innermost or partition Wall, a half Brick will be sufficiently thick; and for the upper Stories, nine Inches, or a Brick length, will suffice.

The Parts, Proportions, &c. of the *Houses* in *London*, are regulated by a Statute made for Rebuilding the City after Fire. --- By this it is enacted, That the *Houses of the first and least Sort of Building*, fronting By-streets or Lanes, shall be two Stories high, beside Cellars and Garrets; the Cellars six Foot and an half high, if the Springs of Water hinder not; and the first Story nine Foot from the Floor to the Ceiling, and the second Story as much: That all the Walls in Front and Rear be, as high as the first Story, full the Thickness of the Length of two Bricks; and thence upwards to the Garrets, of the Thickness of one Brick and an half; and that the Thickness of the Garret Walls on the back Part, be left to the Discretion of the Builder, so that the same be not less than one Brick Length; and that the Thickness of the Party Wall in the Garret, be of the Thickness of the Length of one Brick at least.

That the *Houses* of the *second Sort of Building*, fronting Streets and Lanes of Note, and the River of *Thames*, consist of three Stories high, beside Cellars and Garrets; that the Cellars thereof be six Foot and an half high, if the Springs hinder not; that the first Story contain full ten Feet in Height from the Floor to the Ceiling; the second ten Foot, the third nine Foot; that all the said Walls in the Front and Rear, as high as the first Story, be two Bricks and an half thick, and from thence upward to the Garret Floor of one Brick and an half thick; and the Thickness of the Garret Walls on the back Part, be left to the Discretion of the Builder, so that the same may not be less than one Brick thick: And also that the Thickness of the Party Walls between every *House* of this second and larger Sort of Building, be two Bricks thick, as high as the first Story, and thence upward to the Garrets of the Thickness of one Brick and an half.

Also that the *Houses of the third Sort of Buildings*, fronting the high and principal Streets, shall consist of four Stories high, besides Cellars and Garrets; that the first Story contain full ten Foot in Height from the Floor to the Ceiling, the second ten Foot and an half, and the third nine Foot, the fourth eight Foot and an half; that all the said Walls in the Front and Rear, as high as the first Story, be two Bricks and an half in Thickness, and from thence upwards to the Garret Floor, of the Thickness of one Brick and an half; and that the Thickness of the Garret Walls on the back Part, be not less than one Brick; and also that the Party Walls between every *House* of this third and larger Sort of Building, be two Bricks thick as high as the first Floor, and thence upwards to the Garret Floor one Brick and an half.

Also, that in all *Houses of the fourth Sort of Buildings*, being Mansion *Houses*, and of the greatest Bigness, not fronting any Streets or Lanes as aforesaid, the Number of Stories, and the Height thereof, shall be left to the Discretion of the Builder, so as he exceed not five Stories.

The same Act also enjoins, that no Timber be laid within twelve Inches of the fore Side of the Chimney Jambs; and that all Joysts on the Back of any Chimney, be laid, with a Trimmer, at six Inches distant from the Back; as also, that no Timber be laid within the Tunnel of any Chimney, upon Penalty to the Workman for every Day's Default, of 10 *s.* and 10 *s.* every Week it continues unreform'd.

Add, That as the Buildings of *London* join one upon another, and almost every several *House* hath a distinct Proprietor, the Parliament hath decreed, that the Wall dividing the Proprietors Ground, shall be built at the equal Charge of both the Owners: Whence it will not be impertinent to shew how these Party Walls are valu'd.

Now, all Brick-works, whether one, two, three, four, or any other Number of Brick Lengths in Thickness, are all to be reduc'd to the Thickness of a Brick and a half.

It hath been observ'd, that about 4500 of Bricks, of about 16 *s.* *per* 1000; a hundred and a Quarter of Lime, at 10 *s.* *per* Hundred; two Loads and a half of Sand, at 3 *s.* *per* Load, will compleatly raise one Rod of Brick-work of a Brick and a half Thickness. See Brick, &c.

And thus much will a Rod of Party Wall, the Materials only, reduc'd to a Brick and a half thick, amount to, at the former suppos'd Rates; to which may be added for Workmanship 1 *l.* 8 *s.*

So that for every Rod of Party Wall they allow 3 *l.* apiece; whence, if a Party Wall be measur'd, and the Measure when reduc'd to a Brick and a half, be found to contain sixteen Rods; that sixteen multiply'd by 3 *l.* giveth 48 *l.* and so much is the one Proprietor to allow the other. See Measuring, &c.

House *of Correction*. See Correction.

Work-House. See Worr-*House* and Rasphuys. See also Bridewell.

Town-House, or *Hall*, is a Place where the Officers and Magistrates of a Town or City hold their Meetings, for the due Administration of their Laws and Policy. See Hall, Gild, &c.

House is also us'd for a Convent or Monastery. See Convent, &c.

The Chief of such an Order has so many *Houses* dependent on it. --- There have been Reforms made of several religious *Houses*.

Regular Priests give the Name *Houses* to the Places they reside in, and not that of Convents or Monasteries, which properly belong to simple Friars. --- Thus we say, the *Jesuits House*, the *Barnabites* or *Theatins House*.

The Jesuits have both profess'd *Houses* and Colleges for Novices, which they call *Houses* of Probation.

They have also *Houses* of Retreat for Spiritual Exercises, where they receive secular Persons and Ecclesiasticks, dispos'd to practise the same with them, for eight or ten Days. See Jesuits.

House is also us'd for one of the Estates of the Kingdom assembled in Parliament. See Parliament.

Thus we say, the *House* of Lords, the *House* of Commons, &c. See Commons, &c.

House is also us'd for a Noble Family; or a Race of illustrious Persons issu'd from the same Stock.

In this Sense we say, the *House* or Family of the *Stewarts*, the *Bourbons*, the *House* of *Hanover*, of *Austria*, of *Lorrain*, of *Savoy*, &c.

House, in Astrology, is a twelfth Part of the Heavens. See Heaven.

The Division of the Heavens into *Houses* is founded on this, that the Stars and Planets when found herein have certain Influences, either good or evil ones, upon sublunary Bodies; and to each *House* is assign'd its particular Virtue or Influence; upon the Consideration whereof they draw Horoscopes. See Influence, Horoscope, &c.

This Division is made by six great Circles, call'd *Circles of Position*, which cut each other in the common Intersection of the Meridian and Horizon, in the common Way of Domifying, which is that of *Regiomontanus*: For the Ancients had three other Ways. See Position, Domifying, &c.

These Circles divide the Equator into twelve equal Parts, without any regard to the Zodiac.

The Horizon and Meridian are two Circles of the Cœlestial *Houses*, which divide the Heavens into four equal Parts, each whereof comprehends four *Houses*. --- There are six above the Horizon, and as many below it; six Eastern, and six Western ones.

The Theme or Figure of the Heavens also consists of twelve Triangles, which are likewise call'd *Houses*; wherein are laid down the Stars, Signs, and Planets, compriz'd within the respective Spaces of the Circles of Position. See Theme.

Each Planet has two certain *Houses*, wherein it exerts its self with peculiar Vigour; *Leo* is the Sun's *House*, and *Cancer* that of the Moon; *Capricorn* is *Saturn*'s, &c.

Some call the *Houses Dodecatemories*, and *Angles*; but that Name is more immediately appropriated to the twelve Signs or Divisions of the Zodiac. See Dodecatemory.

The Astrological *Houses* have their particular Names according to their Qualities. --- The first is the *House of Life*; being the Ascendant, and containing five Degrees above the Horizon, the rest beneath it. The second is the *House of Riches*. The third the *House of Brothers*. The fourth, in the lowest Part of Heaven, the *House of Relations*, and Angle of the Earth. The fifth, the *House of Children*. The sixth, the *House of Health*. The seventh, the *House of Marriage*, and the Angle of the West. The eighth, the *House of Death*, and upper Gate. The ninth, the *House of Piety*. The tenth, the *House of Offices*. The eleventh, the

House

House of Friends. And the twelfth, the *House of Enemies.*

It is popularly, and, as it were, poetically said, that the Sun has twelve *Houses*; by which are meant the twelve Signs; tho', in reality, it has only one Sign, *viz. Leo*: beside, the Division of *Houses* is made by the Equator, and not the Zodiac.

They begin numbering the *Houses* with the Ascendant, and pass thence to the Nadir, or *Fundas Cœli*; so as the Vertical Point makes the 10th.

House-*bote*, a Term compounded of *House* and Bote, *Compensation*; signifying Estovers, or an Allowance of Timber out of the Lord's Wood, for the Repair and Upholding a *House* or Tenement.

House-bote (says *Coke on Littl.* fol. 41. *b.*) is twofold, *viz. Estoverium ædificandi & ardendi.* See Estovers.

House-*robbing*, or House-*breaking*, (from the *Saxon Housebrice*) the robbing or plundering a Man in some Part of his *House*, or Booth or Stall in a Fair or Market; the Owner, or his Wife, Children, or Servants, being within the same. See Robbing.

This was Felony by Stat. 23 *Hen.* 8. and 3 *Edw.* 6. But is since made Felony, though none be within the *House*, 39 *Eliz.* See Burglary.

House-*wife's Cloth*, is a middle Sort of Linnen Cloth between fine and coarse, for Family Uses.

HOUSHOLD, the Family or Domesticks of a Prince or private Person. See Family and Domestic.

The Civil Government of the King's Court belongs chiefly to the *Lord Steward of the Houshold.* See Steward. — He has Authority over all Officers and Servants of the *King's House*, except those of the Chapel, Chamber, and Stable, who are under the Jurisdiction of the Lord Chamberlain, Master of the Horse, and Dean of the Chapel. See Chamberlain, Master *of the Horse*, and Chapel.

Under the Lord Steward are a Treasurer of the *Houshold*, Comptroller, Cofferer, Master of the *Houshold*, Clerks of the Green Cloth, *&c.* See Treasurer, Comptroller, Cofferer, Green *Cloth*, &c.

The *Troops of the Houshold* are the Horse Guards, Horse Granadiers, and Foot Guards. See Horse *Guard*, &c. — The *Houshold* Troops of *France* are call'd the *Gendarmerie.* See Gendarmes.

Houshold *Days*, are four solemn Festivals in the Year, when the King, after divine Service, offers a Bezant of Gold to God on the Altar. — These *Houshold* Days are *Christmas*, *Easter*, *Whitsunday*, and *All-Saints.* See Bezant.

The *Houshold* Days are part of the twelve Collar and Offering Days. See Collar *Day.*

HOUSING, or Housse, a Cover laid over the Saddle of a Horse, in order to save it from the Weather, Dirt, *&c.*

The Cavaliers appear'd with their embroider'd *Housings.* — The Word is form'd of the *French*, *Housse*, which signifies the same Thing, tho' it anciently signify'd a kind of Hood wore by Country People.

Shoe Housing, a Piece of Cloth border'd with a Fringe, oftentimes put round the Saddle, to cover the Croupe, and hang down to the lower Part of the Belly, to save the Stockings of those that ride without Boots.

Boot Housing, is a Piece of Stuff fasten'd to the hinder Part of the Saddle, that covers a Horse's Croupe, either for the Sake of Ornament, or to hide the Horse's Leanness, or to save the Cloaths of the Rider from being daub'd and soil'd by the Sweat of the Horse.

HOW, among Gardeners. See Hoe.

HOWKER, or Houcre, a Vessel much us'd by the *Dutch*; built something like a Pink, but rigg'd and masted like an Hoy. See Floating *Vessel.*

They carry from 50 to 200 Tun; and with a small Number of Hands will go to the *East-Indies.*

They tack soon and short, will sail well, and lie near the Wind; and live almost in any Sea.

HOZING of Dogs, the cutting the Balls of their Feet. See Expeditating.

HOY, a small Vessel or Bark, whose Yards are not across, nor the Sails square, like those of Ships, but the Sails like a Missen; so that she can lie nearer than a Vessel with cross Sails can do.

HOYSE, or Hoise, the Sea Word for haling up any thing into the Ship, for getting up a Yard, *&c.* — Thus they say, *Hoise* up the Yard, *Hoise* the Water in, *&c.*

HUCKLE *Bone*, the Hip Bone. See Hip *Bone.*

HUCKSTER, one that sells Provisions, or small Wares, by Retail. See Retail.

HUDSON's-BAY *Company.* See Company.

HUE *and* Cry, a Law Phrase. — *Hue* signifies the Complaint of the Party robb'd, *&c.* and *Cry* the Pursuit of the Felon on the Highway, by describing the Party, and giving Notice to several Constables from one Town to another, who are oblig'd to call upon the Parish for Aid in seeking the Felon, till he be apprehended, or, at least, pursu'd to the Sea-side.

The *Normans* had a Pursuit with a Cry after Offenders, not unlike this; which they call'd *Clamor de Haro.* See Haro.

Hue is us'd alone, Anno 1 *Edw.* I. Star. 2. — In ancient Records it is call'd *Hutesium & clamor.* See Vociferatio.

HUERS. See Conders.

HUG, or *Cornish* Hug, a Term us'd in Wrestling, when one has an Adversary on his Breast, and holds him fast there.

HUGUENOTS, an Appellation given to the Calvinists of *France.* See Calvinist.

The Name had its first Rise in 1560; but Authors are not agreed as to the Origin and Occasion thereof. *Pasquier*, *Menage*, &c. give us divers Etymologies, but none of them are stuck to.

Du Verdier derives it from *John Hus*, whose Opinions the *Huguenots* chiefly receive, and *Guenon*, Ape, *q. d. Hus*'s Apes. See Hussites.

Coquille deduces the Name from *Hugues Capet*, whose Right of Succession to the Crown, the Calvinists maintain'd against those of the House of *Guise*, who pretended to be the Successors of *Charlemaign.*

Others derive it from one *Hughes*, *Hugh*, a Sacramentarian, who had asserted much the same Doctrines as the *Huguenots*, under *Charles* VI.

Others fetch it from the *Swiss* Word *Hensquenaux*, *i. e.* seditious People; or from *Eidgnossen*, *i. e.* Allies or Associates in Faith, which is the Opinion *Maimbourg* inclines to, who hence concludes, that *Huguenot* is originally no Term of Reproach.

Castelnau Mauvissiere, in his Memoirs, maintains them to have been thus call'd by the Populace, as being of less Value than a little Piece of Money of the same Name, being a Maille or Farthing, which, in the Time of *Hugh Capet*, was call'd *Huguenot*, *q. d.* not worth a Farthing.

Others take the Name to have been first given by way of Derision to a certain *German*, who being taken and examin'd as to the Conspiracy of *Amboise*, before the Cardinal *de Lorrain*, was confounded, and stopp'd short in the Beginning of his Harangue, which began with *Huc nos venimus.*

But the most plausible Opinion is that of *Pasquier*, who observes, that at *Tours* the People have a Notion of a Spright or Goblin, call'd King *Hugon*, who stroles about in the Night Time; whence, as those of the Religion met chiefly in the Night Time to pray, *&c.* they call'd 'em *Huguenots*, *q. d.* Disciples of King *Hugon*: For it was at *Tours* they were first denominated. — This Opinion F. *Daniel* assents to.

HUISSIER, a *French* Name for *Usher*, *Sergeant*, and *Beadle.* See Usher, Sergeant, and Beadle.

HULKS, are large Vessels, having their Gun Decks from 113 to 150 Foot long, and from 31 to 40 Foot broad. — They will carry from 400 to 1000 Tuns. — But their chief Use is for setting in Masts into Ships, and the like: Though anciently the Word *Hulka* seems to signify a small Vessel.

HULL *of a Ship*, is her main Body, without any Masts, Yards, Sails, or Rigging. See Ship.

To *hull*, or *lie a hull*, is understood of a Ship, when, either in a dead Calm, (to preserve her from beating her Sails against the Masts) or in a Storm, when she cannot carry all her Sails; they are taken in to preserve them; so that nothing but her Masts, Yards, and Riggings are abroad, and her Helm ty'd down to the Lee-Side of the Ship. — In this State she will lie easily under the Sea, if she be a good Sailor; and make her Way one Point before the Beam.

To strike a Hull, in the Sea Language, is to lie closely or obscurely in the Sea in a Storm, or to tarry for some Consort, bearing no Sail, with the Helm lash'd a Lee.

HUMAN, something that relates to Man, or the Nature of Man. See Man and Nature.

The *human* Body is the Subject of Medicine. See Body.

Epicurus and his Followers deny that the Gods concern themselves with *human* Affairs. See Epicureans.

Faith is distinguish'd into Divine and *Human.* See Faith.

HUMANITY, the Nature of Man, or that which denominates him *human.*

Nestorius would not allow the Infirmities of *Humanity* to be attributed to the Deity; nor the Attributes of the Deity to *Humanity.* See Nestorians.

Humanities is also us'd, plurally, for the *Humaniores Literæ*, *i. e.* the Study of the *Greek* and *Latin* Tongues, Grammar, Rhetoric, Poetry, and the ancient Poets, Orators, and Historians. See Philology.

Such a Student has gone thro' his *Humanities* with Applause: *Calvin* perform'd his *Humanities* in the College *de la Marche* at *Paris*.

HUMECTATION, *Moistening*, in Pharmacy, the preparing of a Medicine, by steeping it a while in Water, in order to soften and moisten it when too dry, to cleanse it, or to prevent its subtile Parts from being dissipated in grinding it, or the like. See HUMIDITY.

The Term is also us'd for the Application of moistening or suppling Remedies. — In this Sense we say, Embrocations, Emplasters, Unctions, *Humectations*, Fomentations, &c.

The Word is *Latin*, *Humectatio*, of *Humor*, Moisture.

HUMERUS, in Anatomy, or *Os* HUMERI, the uppermost Bone of the Arm, popularly call'd the *Shoulder Bone*; extending from the Scapula or Shoulder-blade, to the upper End of the Cubitus, or Elbow. See ARM and SHOULDER, &c.

The *Humerus*, is a large, long, round fistular Bone, of a pretty hard, compact Substance; and its inward Cavity, which contains the Marrow, pretty long and large.

At its upper End it has a large round Head, which is cover'd with a very smooth Cartilage, and receiv'd into the Cavity of the Scapula, which makes a Juncture per Arthrodiam. — This Head of the Bone being much larger than the Socket into which it is receiv'd, the Part extant is strictly embrac'd by a Ligament, one Edge of which is fasten'd to the Margin of the Cartilaginous Socket of the Scapula, and the other to the lower Part of the Head of this Bone, thereby uniting them firmly together; yet so as to leave the Motion the freest of all the Articulations of the Body, and therefore liable to Dislocations. See SCAPULA.

At the lower End of the *Humerus* are two Processes, cover'd each with a Cartilage; the external and lesser receiving the Extremity of the Radius; and the internal, the Head of the Cubitus. See RADIUS.

On the Out-side of each of these Processes, is a small Eminence, to which are fasten'd the Ligaments and Heads of the Muscles that move the Carpus and Fingers. See CARPUS.

In this Bone are also three Sinus's; one on the fore Side of the large Process, receiving a Process of the Cubitus; another on the back Part which receives the Olecranum; and the third, a small semilunar one between the two Processes, answering to the Eminence of the Sinus's of the Cubitus. See CUBITUS.

The later Anatomists allow this Bone five different Motions, *viz.* upwards, downwards, forwards, backwards, and rotatory; and five Pair of Muscles for Performance of the same, *viz.* the *Deltoides*, *Teres*, *Pectoralis*, *Infraspinatus*, *Subscapularis*, &c. See each under its proper Article, DELTOIDES, TERES, &c.

HUMID, HUMIDUM, *moist*. See HUMIDITY.

The School Philosophers make Water the *primum Humidum*, the first of *humid* Bodies, and the Cause or Principle of *Humidity* in others, which are more or less moist, as they partake more or less of this Element. See WATER and ELEMENT.

HUMIDITY, or *Moisture*, the Quality or Power of wetting or moistening other Bodies. See QUALITY.

Aristotle defines *Humidity*, by a passive Quality which indispose a Body from being retain'd in its own Bounds, but makes it easily retain'd in those of another: which amounts to the same as his Definition of Fluidity. See FLUIDITY.

Others of the Peripatetick School, make *Humidity* a Quality whereby a Body is *humid*, *i. e.* moistens other Bodies, and, in moistening, softens and disposes them to receive any Figure or Impression.

The modern Writers consider *Humidity* as a particular Species of Fluidity; and define it a Fluor, which being apply'd on a solid Body, adheres thereto, and communicates the Quality to other Bodies. — Others, somewhat more accurately, call *Humidity* the Power whereby a Body moistens another: But what that Power is, they do not shew.

But of this we are certain, that *Humidity* is no more than a Sort of relative Mode. — So far as the component Particles of a Fluid, compar'd with respect to the Pores and Particles of other Bodies, or the Texture thereof, are apt and dispos'd to enter those Pores, or stick to those Particles; so far is that Fluid *humid*: On the contrary, so far as there is a Repugnance or Incongruity between the Particles, &c. in respect of such Bodies, the Fluid is not *humid*.

Thus Quicksilver is not moist in respect to our Hands or Cloaths, and other Things, which it will not stick to; but it may be call'd *humid* in reference to Gold, Tin, or Lead, to whose Surfaces it will presently adhere, and render them soft and moist.

Even Water itself, which wets almost every thing, and is the great Standard of Moisture and *Humidity*, is not capable of wetting all Things; for it stands, or runs off in globular Drops on the Leaves of Cabbages, and many other Plants; and it will not wet the Feathers of Ducks, Swans, and other Water-Fowl.

Add, that the Texture alone may cause the Fluid to be *humid*, as is plain, in that neither Quicksilver alone, Lead, or Bismuth, will stick upon Glass; yet being mix'd together, they will form a Mass that will do so; as appears from such a Composition being frequently us'd in foliating Looking-Glasses. See FOLIATING.

HUMIDIUM *Radicale*, or *Radical Moisture*. See RADICAL.

This, in reality, seems to amount to no more than the purest and most defecate Part of the nutritious Matter, in a Condition ready to be assimulated. See NUTRITION.

By too much Heat, as in Fevers, Hectics, &c. this *Humidity* is too hastily exhausted and spent.

HUMILIATION, the Act of *humbling*, *i. e.* of abating a Person's Pride, and bringing him lower in his own Opinion.

In this Sense, *Humiliation* stands contra-distinguish'd from Mortification: *Humiliation* brings down the Mind; Mortification subdues the Flesh. See MORTIFICATION.

HUMILIS *Musculus*. See EYE.

HUMOR, or HUMOUR. See HUMOUR.

HUMORISTS, or *gli* HUMORISTI, HUMOURISTS, HUMORISTÆ, the Title of a celebrated Academy of learned Men at *Rome*. See ACADEMY.

The Academy of *Humorists* was establish'd by *Paul Mancini*, who made use of *Gaspard Silvianus* to assemble together all the Men eminent for Learning about *Rome*, and form them into a Society; as is observ'd by *Janus Nicetus* in his Elogy of *Silvianus*, Part I. p. 32.

The Devise of this Academy is a Cloud, which being rais'd from the Salt Water of the Sea, returns again in Fresh; with this *Hemistick* of *Lucretius*, l. vi. *Redit agmine dulci*. *Jerom Alexander*, a *Humorist*, has three express Discourses on this Devise.

The Obsequies of M. *Peyresc* were celebrated in the Academy of the *Humorists*, whereof he was a Member, in above forty different Languages. *Gassendi de Vita Peyreskii*, l. vi. p. 399.

HUMOROSI, the Name of an Academy establish'd at *Cortona* in *Italy*. See ACADEMY.

The *Humorosi* of *Cortona* must not be confounded with the *gli Humoristi* of *Rome*. See HUMORISTS.

HUMOUR, or HUMOR, in its general Sense, signifies the same as *Liquor* or *Liquid*. See LIQUID and FLUID.

The Word is *Latin*, *Humor*, form'd of the *Greek* ὑγρα, *Pluvia*, Rain, of ὕω, *Pluo*.

HUMOUR, in Medicine, is apply'd to any Juice, or fluid Part of the Body, as the *Chyle*, *Blood*, *Milk*, *Fat*, *Serum*, *Lymph*, *Spirits*, *Bile*, *Seed*, *Salival* and *Pancbreatic* Juices, &c. See each under its proper Head, CHYLE, BLOOD, BILE, &c.

The *four Humours* so much talk'd of by the ancient Physicians, are four liquid Substances, which they suppose to moisten the whole Body of all Animals, and to be the Cause of the divers Temperaments thereof. See TEMPERAMENT.

These are *Phlegm*, *Pituita*, *Blood*, *Bile*, and *Melancholly*. See PHLEGM, PITUITA, &c.

But the Moderns do not allow of these Divisions. The *Humours* they rather chuse to distinguish into *Nutritious*, or *Alimentary*, as *Chyle* and *Blood*; those separated from the Blood, as *Bile*, *Saliva*, *Urine*, &c. and those return'd into the Blood.

Humours, again, are distinguish'd into *natural* or salutary, and *morbid* or corrupted. — To the former Class belong all the Juices ordinarily secreted for the Uses of the Body.

To the latter belong those compound *Humours* which thicken, and grow putrid; causing Tumors, Abscesses, Obstructions, and most Diseases. See DISEASE.

These are distinguish'd by various Names, *Malignant*, *Adust*, *Acrimonious*, *Corrosive*, *Crude*, *Peccant*, &c. See MALIGNANT, ADUST, &c.

HUMOUR is also us'd for the particular Temperament or Constitution of a Person, consider'd as arising from the Prevalence of this or that *Humour*, or Juice of the Body. See TEMPERAMENT.

Thus we say, a Bilious Coleric *Humour*; a Phlegmatic *Humour*; a Melancholic, Restless, Hypochondriac *Humour*; a Sanguine, Gay, Sprightly *Humour*, &c. See SANGUINE, &c.

HUMOURS *of the Eye*. — Anatomists and Opticians distinguish three particular *Humours* in the Eye, which they call the *Aqueous*, *Crystallin*, and *Vitrious*. See EYE.

The *Aqueous*, or *Watery Humour*, is plac'd in the anterior or fore Part of the Eye, which it possesses; and is thus call'd, because clear and fluid like Water. See AQUEOUS.

The *Vitrious*, or *Glassy Humour*, fills the posterior Part of the Eye; and is denominated from its Resemblance of melted Glass. See VITRIOUS.

The *Crystalline Humour* is plac'd between the other two; and is thus call'd from its Solidity and Transparency, resembling that of a Crystal. See CRYSTALLINE.

These three *Humours* have each their Share in the Refraction of the Rays of Light necessary to Vision. See VISION and REFRACTION.

Authors, both ancient and modern, speak of the Regeneration of the *Humours* of the Eye; and give us Instances of their Reproduction, when by any Accident they had been let out. But their Instances generally go no farther than to the Aqueous and Vitrious *Humours*.

Borby, only, in a Letter to *Bartholine*, says as much of the Crystalline. — He affirms, that he has slit the Pupil of the Eye of divers Animals, and squeez'd out all the *Humours*, even the Crystalline, and has again perfectly restor'd them to Sight; and that the Eyes of the Birds, whereon the Operation had been perform'd, instead of being damag'd thereby, were render'd more lively and vigorous than usual. He adds, that he had perform'd the same Experiment on divers Persons, with so much Success, that there remain'd not the smallest Appearance of a Cicatrix in the Eye.

HUMOUR is also us'd in Dramatic Poetry, for a subordinate or weaker Species of what the Criticks call *Manners*. See MANNERS.

Humour is usually look'd on as peculiar to the *English* Drama; at least, our Comic Poets have excell'd therein, and carry'd it beyond those of any other Nation: Ours is perhaps the only Language that has a Name for it.

Humour is usually consider'd by our Criticks, as a fainter or weaker Passion peculiar to Comic Characters, as being found in Persons of a lower Degree than those proper for Tragedy. See CHARACTER and TRAGEDY.

Every Passion may be said to have two different Faces, one that is serious, great, formidable, and solemn, which is for Tragedy; and another that is low, ridiculous, and fit for Comedy; which last is what we call *Humour*. See PASSION and COMEDY.

Wit only becomes few Characters: 'Tis a Breach of Character to make one half the Persons in a Modern, or, indeed, in any Comedy, talk wittily and finely; at least at all Times and on all Occasions. — To entertain the Audience, therefore, and keep the Dramatic Persons from going into the common beaten familiar Ways and Forms of speaking and thinking, recourse is to be had to something to hold the Place of Wit, that shall serve in lieu thereof, and divert the Audience, without going out of Character: And this does *Humour*; which therefore is to be look'd on as the true Wit of Comedy.

A very great Judge, the Duke of *Buckingham*, makes *Humour* to be all: Wit, according to him, should never be us'd, but to add an Agreeableness to some proper and just Sentiment, which, without some such Turn, might pass without its Effect. See WIT.

HUNDRED, *Centum*, *Cent.* the Number of ten Times ten; or the Square of ten. See NUMBER.

The Place of *Hundreds* makes the third in Order in the *Arabic* Numeration. See NUMERATION.

We usually express the Quantity or Proportion of the Profits made in the Way of Commerce, *&c.* by the *Hundred*. — They ask two and a half *per Cent.* or in the *Hundred*, for remitting Money to such a City. The legal Interest of Money is 5 *per Cent.* or in the *Hundred*. See EXCHANGE, REMITTANCE, INTEREST, *&c.*

HUNDRED, is also us'd as a Measure to express a certain Quantity or Number of Things. — A *Hundred* of Salt at *Amsterdam* is 14 Tons.

Deal Boards are six Score to the *Hundred*, call'd the *long Hundred*. — Pales and Laths are five Score to the *Hundred*, if five Foot long, and six Score of three Foot long.

HUNDRED *Weight*, or the *great Hundred*. See QUINTAL.

HUNDRED, HUNDREDUM, *Centuria*, is also a Part or Division of a Shire or County. See SHIRE and COUNTY.

It was so call'd, either because of old each *Hundred* found 100 Fidejussors or Sureties of the King's Peace, or 100 able Men for his War. See DECENNA, FRANK-*pledge*, &c.

Others rather think it so call'd, because originally compos'd of an *hundred* Families. — 'Tis true *Brompton* tells us, that an *Hundred* contains *centum Villas*; and *Giraldus Cambrensis* writes, that the *Isle of Man* hath 343 Villas: But in these Places the Word *Villa* must be taken for a Country Family; for it cannot mean a Village, because there are not above 40 Villages in that Island. See VILLAGE.

So, where *Lambard* tells us that an *Hundred* is so call'd, *a numero centum hominum*, it must be understood of an *hundred* Men, who are Heads and Chiefs of so many Families.

Hundreds were first ordain'd by King *Alfred*, the 29th King of the West *Saxons*: *Alfredus Rex* (says *Lambard*, *verbo* centuria) *ubi cum Guthrumo Dano fœdus inierat, prudentissimum olim a Jethrone Moisi datum secutus consilium, Angliam, primus in Satrapias*, Centurias, *& decurias partitus est. — Satrapium, Shyre, à* Scyrian (*quod partiri significat*) *nominavit, Centuriam*, Hundred; *& Decuriam, Toothing sive Tienmantale*, i. e. *Decemvirale Collegium, appellavit; atque iisdem nominibus vel hodie vocantur*, &c.

This dividing of Counties into *Hundreds*, for the better Government, King *Alfred* borrow'd from *Germany*; where *Centa* or *Centina* is a Jurisdiction over 100 Towns.

This is the Original of *Hundreds*, which still retain the Name; but their Jurisdiction is devolv'd to the County-Court, some few excepted, which have been by Privilege annex'd to the Crown, or granted to some great Subject, and so remain still in the Nature of a Franchise. See COURT.

This has been ever since the Stat. 14 *Edw.* III. whereby these *Hundred* Courts, formerly farm'd out by the Sheriff to other Men, were all, or most Part, reduc'd to the County Court, and so remain at present: So that where we read now of *Hundred* Courts, they are to be understood of several Franchises, wherein the Sheriff has not to do by his ordinary Authority, except they of the *Hundred* refuse to do their Office.

The Word *Hundredum* is sometimes also us'd for an Immunity or Privilege, whereby a Man is quit of the *Hundred*-penny, or Custom due to the *Hundred*. See TURN and WARD.

HUNDRED-*lagh*, from *Hundred*, and the *Saxon*, *Laga*, Law, signifies the *Hundred* Court; from which all the Officers of the King's Forest were freed by the Charter of *Canutus*. See WARSCOT.

HUNDRED *Secta*, the Payment of personal Attendance ordering Suit and Service at the *Hundred Court*.

HUNDREDERS, HUNDREDARII, are Men impanell'd, or fit to be impannell'd, of a Jury, upon any Controversy, dwelling within the *Hundred* where the Land in Question lies. See JURY.

The Word *Hundreder* is also us'd for him who hath the Jurisdiction of an *Hundred*, and holds the *Hundred* Court. See HEAD-*Borough*.

Sometimes it is also us'd for the Bailiff of an *Hundred*. See BAILIFF.

HUNGARY *Water*, *Aqua* HUNGARICA, a distill'd Water, denominated from a Queen of *Hungary*, for whose Use it was first prepar'd. See WATER.

Hungary Water is one of the distill'd Waters of the Shops; and is directed in the College Dispensatory, to be made of Rosemary Flowers infus'd some Days in rectify'd Spirit of Wine, and thus distill'd. See DISTILLATION.

Its Virtues are much the same as those of the Simple it is drawn from. See ROSEMARY.

HUNGER, *Fames*, a natural Appetite or Desire of Food. See APPETITE and FOOD.

Hunger is properly distinguish'd into Natural and Animal: *Natural Hunger* is an Irritation of the Stomach, occasion'd by Fasting; *Animal Hunger* is the Sensation or Perception of that Irritation, and the Desire of Food consequent thereon.

There are various Opinions as to the Nature, Cause, and Definition of *Hunger*; the Point having been controverted from *Aristotle* to our Time. — *Galen* defines it a painful Sensation, arising from a Divulsion of the Stomach; The other Peripateticks call it an Appetite or Desire of Hot and Dry: Which two Systems some Authors have endeavour'd to reconcile by taking them both in; and, accordingly define *Hunger* a natural Appetite or Desire of Hot and Dry, occasion'd by a painful Divulsion of the Membranes of the Stomach, arising from an Emptiness thereof. See STOMACH.

The modern Philosophers speak more accurately and intelligibly on the Point — *Hunger* is generally consider'd by them as owing to the Sharpness or Acrimony of the Liquor contain'd in the Stomach, which vellicating the Fibres thereof, occasions this uneasy Sensation. — They add, that the occasional Cause of this Vellication, is the Emptiness of the Stomach, which not furnishing Food for the Stomach-Liquor to be employ'd on, exposes its inner Membrane to the Action thereof.

In effect, 'tis generally agreed, that there is some menstruous Juice or Humour continually discharg'd from the excretory Ducts of the neighbouring Glands into the Stomach, to assist in the Dissolution and Digestion of the Food; and that this same Liquor, after the Food is gone, falls upon the Stomach itself, irritates its Nerves so strongly, as to propagate the Impression to the Brain, and thus produce the Perception of *Hunger*. See DIGESTION.

This Juice some will have to be acid, by reason Bodies of that Class are used to whet the Appetite and excite *Hunger*; and that fatty Bodies more readily remove it than others, by their adhering to the Acid Spicula, and blunting the Points thereof. See ACID.

Others denying the Existence of any such Stomach-Liquor, and accounting for Digestion without; it deny *Hunger* to have any Dependence thereon. — The dry Attrition of the Coats of the Stomach, according to them, is the only Cause.

Thus it is that the *Indians* elude their *Hunger*, by swallowing Pills made of Tobacco Leaves and calcin'd Shells: These Pills take away the Appetite, both as the Tobacco Leaves gradually diminish the Sensibility of the Stomach, and as the calcin'd Shells absorb the Salino-acid Menstruum.

Thus

Thus alſo it is, that poor People frequently ſmoak Tobacco to deceive their *Hunger*, not to ſatisfy it; for Tobacco affords no Nutriment; but it occaſions a plentiful Spitting, and by this Means diſcharges the Body of the corroſive Humour which cauſes *Hunger*.

This Syſtem Dr. *Drake* thus lays down: — When all the Chyme and Chyle is preſs'd out, the Stomach, which follows the Motions of its Contents, is again, by means of its muſcular Coat, reduc'd to a State of Contraction, and by that Means the Inner is brought to lay in Folds, which touching, and by means of the Periſtaltick Motion, rubbing lightly, upon one another, produce that gentle Senſe of fretting or Vellication, which we call *Hunger*, which being felt firſt in the upper Orifice, which is firſt evacuated, begins there to prompt us to repleniſh: But as by Degrees the Remainder of the Contents are expell'd, this Friction or Rubbing of the Membranes upon each other, ſpreads gradually over the whole Stomach, and renders our *Hunger* more urgent and impatient, till, by a new Repletion, we take away the Cauſe.

Others think the Blood, deriv'd from the adjacent Ramifications of Arteries into the Stomach, ſufficient to account for *Hunger*, without the Mediation either of Attrition or the Menſtruum. — The Maſs of Blood itſelf, they obſerve, is render'd acid thro' Abſtinence from Food; its ſoft balſamic Parts having been carry'd into all Parts of the Body, and lodg'd therein as Nutriment, to ſupply the Abſence of thoſe wore off and exhal'd: To which it may be added, that the Velocity of the Blood is conſiderably augmented a good while after eating, beyond what it was during the Action of Digeſtion.

Hence it is, that Perſons of a bilious Conſtitution, young People, and thoſe who labour hard, muſt ſooner find themſelves *hungry* than others. 2°. That *Hunger*, if it hold long, occaſions a violent Heat, and even ſometimes a Fever. 3°. That thoſe whoſe Humours are craſs and viſcid, are leſs incommoded with *Hunger* than others.

In effect, we obſerve, that ſome Animals, whoſe Humours are found to have thoſe Conditions, as Tortoiſes, &c. will live a long time without Food. — For Man, ſix or ſeven Days are commonly ſuppos'd the Limit within which, if he take no ſolid Food, he dies; tho' we have Inſtances of Abſtinence which far ſurpaſs this. See ABSTINENCE and FASTING.

HUNGRY *Evil*, is an unnatural and over-haſty Greedineſs in a Horſe, to devour his Meat faſter than he can chew it; and may be known by his ſnatching at it as if he would devour it whole.

HUNTING, the Art or Act of purſuing and chaſing Beaſts of Game. See GAME.

In its general Senſe *Hunting* includes the Purſuit both of hairy and feather'd Game; but in its more proper and reſtrain'd Signification, it is only applicable to Beaſts of Venery and Chace. See BEAST. See alſo FOWLING.

F. *de Launay*, Profeſſor of the *French* Laws, has an expreſs Treatiſe of *Hunting*. — From thoſe Words of God to *Adam*, *Gen.* i. 26 and 28. and to *Noah*, *Gen.* ix. 2, 3. *Hunting* was conſider'd as a Right devolv'd, or made over to Man; And the following Ages appear to have been of the ſame Sentiment, Accordingly we find that among the more civiliz'd Nations, as the *Perſians*, *Greeks*, and *Romans*, it made one of their genteeler Diverſions; and as to the wilder and more barbarous, it ſerv'd them for Food and Neceſſaries. — The *Roman* Juriſprudence, which was form'd on the Manners of the firſt Ages, made a Law of it; and eſtabliſh'd it as a Maxim, that as the natural Right of Things which have no Maſter, belongs to the firſt Poſſeſſor, wild Beaſts, Birds, and Fiſhes, are the Property of whoever can take them firſt.

But the Northern Nations of Barbarians, who over-run the *Roman* Empire, bringing with them a ſtronger Taſte for the Diverſion; and the People being now poſſeſs'd of other, and more eaſy Means of Subſiſtence from the Lands and Poſſeſſions of thoſe they had vanquiſh'd; their Chiefs and Leaders began to appropriate the Right of *Hunting*, and, inſtead of a natural Right, to make it a Royal one. — Thus it continues to this Day; the Right of *Hunting*, among us, belonging only to the King, and thoſe who derive it from him. See KING, LORD, &c.

And hence all our Laws and Charters of the Foreſt, Laws and Regulations for Preſervation of the Game, &c. See FOREST and GAME.

Hunting is practis'd in a different Manner, and with a different Apparatus, according to the Nature, Genius, and Addreſs of the particular Beaſt which is the Subject thereof. — Theſe Beaſts are the Hart, Hind, Hare, Boar, Wolf, Buck, Doe, Fox, Marten, and Roe; the five firſt whereof are denominated Beaſts of the *Foreſt*, or *Venery*, *Sylveſtres*; and the five latter, Beaſts of the *Field*, or of *Chace*, *Campeſtres*

The Gentlemen and Maſters of the Sport have fram'd a new Set of Terms, which may be call'd the *Hunting Language*; a little View or Vocabulary whereof we ſhall here give the Reader.

The Terms, then, us'd for Beaſts of Venery and Chace, as they are in Company, are theſe. — They ſay, A *Herd* of Harts, and all Manner of Deer. — A *Bevy* of Roes. — A *Sounder* of Swine. — A *Rout* of Wolves. — A *Richeſs* of Martens. — A *Brace* or *Leaſh* of Bucks, Foxes, or Hares. — A *Couple* of Rabbets or Conies.

There are alſo Terms for their Lodging. — A Hart is ſaid to *Harbour*. — A Buck *Lodges*. — A Roe *Beds*. — A Hare *Seats* or *Forms*. — A Coney *Sits*. — A Fox *Kennels*. — A Marten *Trees*. — An Otter *Watches*. — A Badger *Earths*. — A Boar *Couches*.

Hence, to expreſs their diſlodging, we ſay, *Unharbour* the Hart. — *Rouſe* the Buck. — *Start* the Hare. — *Bolt* the Coney. — *Unkennel* the Fox. — *Tree* the Marten. — *Vent* the Otter. — *Dig* the Badger. — *Rear* the Boar.

The Terms for their Noiſe at Rutting Time are as follows: — A Hart *Belleth*. — A Buck *Growns* or *Troats*. — A Roe *Bellows*. — A Hare *Beats* or *Taps*. — An Otter *Wkines*. — A Boar *Freams*. — A Fox *Barks*. — A Badger *Shrieks*. — A Wolf *Howls*. — A Goat *Rattles*.

Terms for their Copulation. — A Hart or Buck goes to *Rut*. — A Roe goes to *Tourn*. — A Boar goes to *Brim*. — A Hare or Coney go to *Buck*. — A Fox goes to *Clickitting*. — A Wolf goes to *Match* or *Make*. — An Otter *Hunteth* for his Kind.

Terms for the Footing and Treading. — Of a Hart we ſay the *Slot*. — Of a Buck, and all fallow Deer, the *View*. — Of all Deer, if on the Graſs, and ſcarce viſible, the *Foiling*. — Of a Fox the *Print*; and other the like Vermin the *Footing*. — Of an Otter the *Marks*. — Of a Boar the *Track*. — The Hare, when in open Field, is ſaid to *Sore*; when ſhe winds about to deceive the Hounds, ſhe *Doubles*; when ſhe beats on the hard Highway, and her Footing come to be perceiv'd, ſhe *Pricketh*: In Snow, it is call'd the *Trace* of the Hare.

The Tail of a Hart, Buck, or other Deer, is call'd the *Single*. — That of a Boar, the *Wreath*. — Of a Fox, the *Bruſh* or *Drag*; and the Tip at the End, the *Chape*. — Of a Wolf, the *Stern*. — Of a Hare and Coney, the *Scut*.

The Ordure or Excrement of a Hart, and all Deer, is call'd *Fewments* or *Fewiſhing*. — Of a Hare, *Crotiles* or *Crotiſing*. — Of a Boar, *Leſſes*. — Of a Fox, the *Billiting*; and of other the like Vermin, the *Fuants*. — Of an Otter, the *Spraints*.

As to the Heads of Deer, ſomething has already been ſpoken under the Article HEAD.

For the Attire, or Parts thereof, thoſe of a Stag, if perfect, are the *Bur*, the *Pearls*, the little *Knobs* on it, the *Beam*, the *Gutters*, the *Antler*, the *Sur-Antler*, *Royal*, *Sur-Royal*, and all at Top the *Croches*. — Of the Buck, the *Bur*, *Beam*, *Brow-Antler*, *Black-Antler*, *Advancer*, *Palm*, and *Spellers*.

If the Croches grow in the Form of a Man's Hand, it is call'd a *Palmed Head*. — Heads bearing not above three or four, and the Croches placed aloft, all of one Height, are call'd *Crowned Heads*. — Heads having doubling Croches, are call'd *Forked Heads*, becauſe the Croches are planted on the Top of the Beam like Forks.

They ſay, a *Litter* of Cubs, a *Neſt* of Rabbets, a Squirrels *Dray*.

The Terms us'd in reſpect of the Dogs, &c. are as follow. — Of Greyhounds, two make a *Brace*; of Hounds, a *Couple*. — Of Greyhounds, three make a *Leaſh*; of Hounds, a *Couple* and *Half*. — They ſay, *let ſlip* a Greyhound; and *caſt off* a Hound. — The String wherein a Greyhound is led, is call'd a *Leaſh*; and that of a Hound a *Lyome*. — The Greyhound has his *Collar*, and the Hound his *Couples*. — We ſay a *Kennel* of Hounds, and a *Pack* of Beagles.

Styles or Manners of HUNTING.

The Styles or Manners of *Hunting* are various, according to the Country, the Beaſt, and the Means whereby he is to be caught.

The *Hunting* us'd by the Ancients, was much like that now practis'd for the Rain Deer; which is ſeldom *hunted* at Force, or with Hounds; but only drawn with a Bloodhound, and foreſtall'd with Nets and Engines. — Thus did they with all Beaſts; whence a Dog is never commended by them for Opening, before he has diſcover'd where the Beaſt lies: Hence, they were not in any Manner curious as to the Muſick of their Hounds, or the Compoſition of their Kennel or Pack, either for Deepneſs, Loudneſs, or Sweetneſs of Cry, which is a principal Point in the *Hunting* of our Days.

Their *Huntſmen*, indeed, were accuſtom'd to ſhout and make a great Noiſe, as *Virgil* obſerves in the third of his *Georgicks*: *Ingentem clamore premes ad retia Cervum*. But that Confuſion was only to bring the Deer to the Nets laid for him.

The

The *Sicilian* Way of *Hunting* had something in it very extraordinary. --- The Nobles or Gentry being inform'd which Way a Herd of Deer pass'd, gave Notice to one another, and appointed a Meeting; every one bringing with him a Cross bow or Long-bow, and a Bundle of Staves shod with Iron, the Heads bored, with a Cord passing thro' 'em all: Thus provided, they came to the Herd, and casting themselves about in a large Ring, surrounded the Deer. --- Then each taking his Stand, unbound his Faggot, set up his Stake, and ty'd the End of the Cord to that of his next Neighbour, at the Distance of ten Foot from one another. --- Then taking Feathers, dy'd in Crimson, and fasten'd on a Thread, they ty'd them to the Cord; so that with the least Breath of Wind, they would whirl round. --- Which done, the Persons who kept the Stands withdrew, and hid themselves in the next Covert.

Then the chief Ranger entering within the Line with Hounds to draw after the Herd, rous'd the Game with their Cry; which flying towards the Line, were turn'd off, and still gazing on the shaking and shining Feathers, wander'd about as if kept in with a real Wall or Pale.

The Ranger still pursued, and calling every Person by Name, as he passed by their Stand, commanded him to shoot the first, third, or sixth, as he plea's'd; and if any of them miss'd, or singled out another than that assign'd him, it was counted a grievous Disgrace.

By such Means, as they pass'd by the several Stations, the whole Herd was kill'd by the several Hands. *Pierus Hieroglyphic.* lib. 7. cap. 6.

Hunting, as practis'd among us, is chiefly perform'd with Dogs; of which we have various Kinds, accommodated to the various Kinds of Game; as *Hounds*, *Grey-hounds*, *Staunch Hounds*, *Blood-hounds*, *Terriers*, &c. See HOUND.

In the Kennels or Packs they generally rank them under the Heads of *Enterers*, *Drivers*, *Flyers*, *Tyers*, &c.

On some Occasions, Nets, Spears, and Instruments for digging the Ground, are also requir'd: Nor is the *Hunting*-Horn to be omitted. See HORN.

The usual Chases among us, are the *Hart*, *Buck*, *Roe*, *Hare*, *Fox*, *Badger*, and *Otter*. --- We shall here give what relates to each thereof.

By the way let it be observ'd, with regard to the Seasons of Beasts, that Hart and Buck *Hunting* begins at the End of Fencer Month, which is a Fortnight after *Midsummer*, and lasts till *Holy Rood-Day*. -- The Hind and Doe come in Course on *Holy-Rood-Day*, and last till *Candlemas*. — Fox *Hunting* comes in at *Christmas*, and holds till the *Annunciation*. — Roe *Hunting* begins at *Michaelmas*, and ends at *Candlemas*. — Hare *Hunting* commences at *Michaelmas*, and goes out at the End of *February*. — Where the Wolf and Boar are hunted, the Season for each begins at *Christmas*; the first ending at the *Annunciation*, the second at the *Purification*.

Here, too, is the Place for some general Terms and Phrases, more immediately used in the Progress of the Sport itself: What belong to the several Sorts of Game, in particular, being reserv'd for the respective Articles.

When the Hounds, then, being cast off, and finding the Scent of some Game, begin to open and cry; they are said to *challenge*. — When they are too busy, e'er the Scent be good, they are said to *babble*. — When too busy where the Scent is good, they *bawl*. — When they run it end-ways orderly, holding in together merrily, and making it good, they are said to be in *full Cry*. — When they run along without Opening at all, it is call'd *running Mute*.

When Spaniels open in the String, or a Grey-hound in the Course, they are said to *Lapse*.

When Beagles bark and cry at their Prey, they are said to *yearn*.

When the Dogs hit the Scent the contrary Way, they are said to *draw amiss*.

When they take fresh Scent, and quit the former Chase for a new one, it is call'd *Hunting Change*.

When they *hunt* the Game by the Heel or Track, they are said to *hunt Counter*.

When the Chase goes off, and returns again, traversing the same Ground, it is call'd *Hunting the Foil*.

When the Dogs run at a whole Herd of Deer, instead of a single one, it is call'd *Running Riot*.

Dogs set in readiness where the Game is expected to come by, and cast off after the other Hounds are pass'd, are call'd a *Relay*. — If they be cast off e'er the other Dogs be come up, it is call'd a *Vauntlay*.

When finding where the Chase has been, they make a Proffer to enter, but return, it is call'd a *Blemish*.

A Lesson on the Horn to encourage the Hounds, is nam'd a *Call*, or a *Recheat*. — That blown at the Death of a Deer, is call'd the *Mort*. — The Part belonging to the Dogs of any Chase they have kill'd, is the *Reward*. — They say, *take off* a Deer's Skin; *strip* or *case* a Hare, Fox, and all Sort of Vermin; which is done by beginning at the Snout, and turning the Skin over the Ears, down to the Tail.

Hart HUNTING, or HUNTING *of Red Deer*. --- This Animal, the first Year is call'd a *Calf* or *Hind-Calf*. --- The second Year, a *Knobber*. --- The third, a *Brock*. --- The fourth, a *Staggard*. --- The fifth, a *Stag*. --- The sixth, a *Hart*.

The Female is call'd a *Hind*. --- The first Year she is a *Calf*. --- The second, a *Hearse*, and sometimes a *Brocket's Sister*. --- The third, a *Hind*.

Terms occurring more especially in *Hunting* the Hart, and not yet explain'd, are as follow: --- The Print or Impression where a Deer has lain, is call'd a *Layer*: If it be in Covert, or a Thicket, it is call'd his *Harbour*. --- Where a Deer has pass'd into a Thicket, leaving Marks whereby his Bulk may be guess'd at, it is call'd an *Entry*. --- When they cast their Heads, they are said to *Mew*. --- When they rub their Heads against Trees to bring off the Pills of their Horns, they are said to *Fray*. --- When a Deer hard *hunted* takes to Swimming in the Water, she is said to go to *Soil*. --- When they turn Head against the Hounds, they are said to *Bay*. --- When the Hounds touch the Scent, and draw on till they put up the Hart, they are said to *draw on the Slot*.

As to the Nature and Qualities of the Hart, it is to be observ'd that he is an excellent Swimmer; there being Instances, when sore *hunted*, of his plunging into the Sea, and being kill'd by Fishermen 12 Miles from Land. --- When in going to rut, they have occasion to cross a great River, or Arm of the Sea, 'tis said they assemble in great Herds; the strongest goes in first, and the next of Strength follows; and so one after the other, relieving themselves by staying their Heads on the Buttocks of each other.

The Hind commonly carries her Calf eight or nine Months, which usually falls in *May*: Some have two at once; and they eat up the Skin wherein the Calf laid. --- As the Young grows up, she teaches it to run, leap, and how to defend itself from the Hounds.

The Hart is amaz'd at hearing any Call, or whistle in his Fist: If you cry *ware*, *ware*, or *take heed*, you will see him instantly turn back, and make some little Stand. --- His Sense of Hearing is very perfect when his Head and Ears are erected; but very imperfect when he holds them down: Hence, when he pricks up his Ears, he is known to be apprehensive of Danger. When he is on Foot, and not afraid, he wonders and takes Pleasure to gaze at every thing he sees.

The Hart is very long-liv'd, commonly reaching to an hundred Years, or upwards. --- The principal Marks of his Age are taken from his Head; yet is this somewhat precarious, some having more Croches thereon at the same Age than others. --- Those are accounted to excell in Beauty of Horns, which bear them high.

The Horns do not grow to the Bone or Scalp, but only to the Skin, branching into many Spears, and falling off once a Year, in the Spring. --- Tho' solid throughout, as Stones, yet, if they remain awhile in the Air, they grow very light and friable, discovering themselves to be no other than an earthly Substance, concrete and harden'd with a strong Heat into the Form of Bones. See HEAD.

The Horns being fallen, they retire and hide themselves in the Shades, to avoid the Annoyance of Flies; and only come out to feed in the Night. --- Their new Horns appear at first like Bunches, very soft and tender; but by the Increase of the Sun's Heat, at length grow harder, and are cover'd with a rough Skin, call'd a *Velvet Head*. — As that Skin dries, they daily try the Strength of their new Heads upon Trees, which not only burnishes and scrapes off the Roughness, but, by the Pain they feel, hereby admonishes them how long to forbear the Company of their Fellows; for when the Horn grows insensible, they return to their former Condition.

The taking of this Beast requires a deal of Art and Attention. --- "The deceitful and subtle Hart, says *Gesner*, "by Windings and Turnings deceives its Hunters, no less "than the Harts of *Meandros* flying from the terrible Cry "of *Diana*'s Hounds: the prudent *Hunter*, therefore, must "frame his Dogs, as *Pythagoras* did his Scholars, with "Words of Art, to set them on, and take them off at Pleasure. See HOUND.

When he goes for Sport, he is first to encompass the Beast, *en son giste*, in her own Layer; and thus unharbour her in the View of the Dogs, that so they may never lose her Slot or Footing. --- But Note, a deal of Choice and Discretion is here requir'd; for he may not set off upon every one, either of the Herd, or those which wander solitary: The young, the small, &c. are to be pass'd over; and partly by Sight, and partly by the Footing, Fewmets, the largeness of the Layer, &c. he must make Judgment of the Game, singling out for that Purpose the largest Head in the whole Herd.

There are divers Means for knowing an old Hart, *viz.* by the *Slot*, the *Entries*, the *Abatures* and *Foils*, the *Fewmets*, *Gate* and *Walks*, *Praying-stocks*, *Head* and *Branches*.

1°. As to the *Slot* --- The Treadings of the Hart's Foot are to be carefully noted: If you find the Treadings of two,

the one long, and the other round, yet equally big, the longeſt Slot declares the largeſt Hart: Add, that the old Harr's hind Foot never over-reaches the fore Foot, as that of the young ones does. — 2°. The Fewmiſhing is chiefly to be judg'd of in *April* or *May*: If it be large and thick, it ſignifies the Hart to be old. — 3°. To know the Heighth and Thickneſs of the Hart, obſerve his *Entries* and *Galleries* into the Thickets, and what Boughs he hath over-ſtridden; and mark from thence the Heighth of his Belly from the Ground; for a young Deer uſually creeps low as he paſſes to his Harbour, and goes thro' Places which the old one, being ſtiff and ſtately, will not ſtoop to. — 4°. By his Gate it may be known whether the Hart be large, and whether he will ſtand long before the Hounds: If he have a long Step, he will ſtand long; being ſwift, light, and well-breath'd: If he have a great Slot, which is the Sign of an old Deer, he will be a Laſter. — As to his *Fraying-Poſt*, note, that the older the Hart is, the ſooner he goeth to fray, and the greater is the Tree he chuſes to fray upon; it being neceſſary it be ſuch as may not bend.

Now, to ſeek or find out a Hart in his Haunt, or Feeding-Place, it is to be obſerv'd, that he changes his manner of feeding every Month. — From the Concluſion of the Rutting time, which is in *November*, they feed in Heaths and broomy Places. — In *December* they herd together, and withdraw into the Strength of the Foreſts, to ſhelter themſelves from the ſeverer Weather, feeding on Holm Trees, Elder Trees, Brambles, &c. The three following Months they leave herding, but keep four or five in Company, and in the Corners of the Foreſt, will feed on the Winter Paſture, ſometimes making their Incurſions into the neighbouring Corn Fields, if they can perceive the Blades of Wheat, Rye, &c. appear above Ground. — In *April* and *May* they reſt in Thickets and ſhady Places, ſtirring very little till Rutting-time, unleſs diſturb'd. — The three ſucceeding Months they are in their Pride of Greaſe, and reſort to Spring Copſes and Corn Fields. — In *September* and *October* they leave the Thickets, and go to Rut; during which Seaſon, they have no certain Place either for Food or Harbour.

Having found out the Game, the *Hunters* diſcouple and caſt off the Dogs; and, ſome on Horſeback, others on Foot, follow the Cry with the utmoſt Art, Obſervation, and Speed; remembering and preventing the ſubtle Turnings and Headings of the Hart; ſtanding with Dexterity and Intrepidity to leap Hedge, Pales, Ditch, &c.

The utmoſt Addreſs and Circumſpection is to be uſed to keep to the Beaſt firſt attempted, and prevent the Dogs from purſuing any other: This, in effect, makes one of the principal Difficulties and Glories of the Chace; the Beaſt having a hundred Devices to put off ſome other Head for his own: Sometimes he will ſend forth ſome other little Deer in his Stead into the Dogs Way, lying cloſe the while himſelf; on which Occaſion the *Huntſman* is to ſound a Retreat, and break off the Dogs, and take in Leam, till the Game be recover'd.

Sometimes he will purpoſely ſeek out for other Deer at Layer, and rouſe them, to make the Hounds *hunt* change, himſelf lying down flat in ſome of their Layers upon his Belly, to make the Hounds over-ſhoot him: Add, that they may neither ſcent or vent him, he will gather up his fore Feet under his Belly, and blow or breathe on ſome moiſt Place of the Ground; ſo that the Hounds ſhall paſs within a Yard, without apprehending him. — He will break into one Thicket after another to find Deer, rouſing, gathering them together, and herding with them; and even beating ſome of them into his Treads, that he may the more eaſily eſcape. — Finding himſelf ſpent, he will break herd, and fall a doubling and croſſing in ſome hard beaten Highway; always running againſt the Wind, not only to cool himſelf, but the better to hear the Voice of the Purſuers.

The laſt Refuge of a Hart ſorely *hunted*, is the Soil; keeping the Middle, for fear, leſt by touching a Bough, or the like, he may give Scent to the Hounds. He always ſwims againſt the Stream, whence the old Rule, *He that will his Chace find, let him try up the River, and down the Wind.* In taking Soil, he will ſometimes cover himſelf under Water, ſo as to ſhew nothing but his Noſe.

Where Opportunity of Water fails, he will fly into Herds of Cattel, as Cows, Sheep, &c. and will ſometimes leap on an Ox, Cow, or the like, laying the fore Part of his Body thereon, that ſo touching the Earth only with his hinder Feet, he may leave a ſmall, or no Scent behind. — What is further ſtill, the chief *Huntſman* to *Lewis* XII. relates, that a Hart which they were in hard Chace of, leap'd into a great tall white Thorn, which grew in a ſhadowy Place, and there ſtood aloft, till he was thruſt through by a *Huntſman*, rather than he would ſtir.

This being done, the *Hunter* with his Horn windeth the Fall of the Beaſt; upon which every one approaches, the ſkilfuleſt opens the Beaſt, rewarding the Hounds with what properly belongs to them; the *Huntſman*, at the ſame time, dipping Bread in the Skin and Blood of the Beaſt to give the Hounds their full Satisfaction.

The Hart is known to be ſpent by his running ſtiff, high, and lompering; by his Mouth being black and dry, without Foam on it, and his Tongue hanging out; tho' he will ſometimes cloſe his Mouth to deceive the Spectators: And by his Slot; for he will ſometimes cloſe his Claws together, as if he went at Leiſure, and ſtraight again open them wide, making great Glidings, and hitting his Dew Claws upon the Ground, &c.

When quite ſpent, and cloſe beſet, or intercepted on all Sides, the Hart uſually takes to Bay, and makes Force with his Head againſt the firſt Man or Dog that cloſes in upon him, unleſs prevented with a Spear, Sword, or the like. — Hence 'tis very dangerous going in to a Hart at Bay, eſpecially at Rutting-time, for then they are more fierce.

The Hart being kill'd, his Death is ſolemniz'd with great Ceremony. — The firſt Thing, when the *Huntſmen* come in, is to cry *ware Haunch*, that the Hounds may not break into the Deer: Having ſecur'd this, they cut his Throat, and blood the younger Hounds, to make them love a Deer, and learn to leap at his Throat. Then having blown the *Mort*, and all the Company being come in, the moſt diſtinguiſh'd Perſon, who has not *taken Say* before, takes up the Knife, and lays it croſs the Belly of the Deer, (ſome of the Aſſiſtants holding by the fore Legs, and at the ſame Time the *Huntſman* drawing down the Pizzle) and thus draws the Knife along the Middle of the Belly, beginning near the Brisket, cutting deep enough to diſcover how fat he is. Then the moſt ſkilful Perſon breaks up the Deer, by firſt ſlitting the Skin from the cutting of the Throat downward, making the Arber, that the Ordure may not break forth, and then paunching him, and rewarding the Hounds therewith.

Laſtly, the Perſon that took the Say, being preſented with a drawn Hanger, he is to cut off the Head; which done, and the Hounds rewarded therewith, the concluding Ceremony, if a Buck, is a Double, if a Stag, a Treble, Mort blown by one, and a Recheat in Conſort by all that have Horns: The whole concluded with a general *Whoo, Whoop.*

Buck HUNTING, or HUNTING of Fallow Deer. — The Buck the firſt Year, is call'd a *Fawn.* — The ſecond Year, a *Pricker* — The third, a *Sorel.* — The fourth, a *Sore.* — The fifth, a *Buck of the firſt Head.* — The ſixth Year, a *Great Buck.*

The Female is call'd *Doe* or *Doo.* — The firſt Year, a *Fawn.* — The ſecond, a *Yegg.* — The third, a *Doe.*

This Beaſt is common in moſt Countries, being as corpulent as a Hart, but in moſt Things reſembling more a Roe, except in Colour; which is various, but moſt commonly branded or ſandy on the Back, having a black Liſt all along on the Ridge, and the Belly and Sides ſpotted with white.

The Male has Horns not much differing from a Hart, except in Largeneſs, and that they grow out of the Head like Fingers out of the Hand; whence it is call'd *Cervus Palmatus.* The Female is without Horns.

Leſs Art and Skill are requir'd in lodging a Buck, than in harbouring a Hart; nor does there need ſo much drawing after: 'Tis ſufficient that you judge by the View, and mark what Grove or Covert he enters; for he does not wander and rove ſo often as a Hart, nor ſo frequently change his Layer.

When hard *hunted*, he takes to ſome ſtrong Hold or Covert he is acquainted with; not flying far before the Hounds, nor croſſing nor doubling, noruſing any of the Subtleties the Hart is accuſtom'd to.

The Buck will beat a Brook, but ſeldom a great River, as the Hart; nor can he ſtay ſo long at Soil.

The greateſt Subtlety a *Huntſman* need uſe in *Hunting* the Buck, is to beware of *Hunting* Counter or Change, becauſe of the Plenty of Fallow Deer, which uſe to come more directly upon the Hounds than the Red Deer do.

The Buck herds more than the Hart, and lieth in the dryeſt Places: But if he be at large, unconfin'd in a Park, he herds but little from *May* to *Auguſt*, becauſe the Flies trouble him. He takes Delight in hilly Places, but chuſes the Dales to feed in.

Roe HUNTING. — The Roe, the firſt Year, is call'd a *Kid.* — The ſecond, a *Gyrle.* — The third, a *Hemuſe.* — The fourth, a *Roe-Buck of the firſt Head.* — The fifth Year, a *Fair Roe Buck.*

We have no Roe Deer in *England*; but they abound in *Scotland*, *Germany*, *Africa*, &c. And it ſhould ſeem they had been more common among us, our ancient *Huntſmen* ſtill retaining the proper Terms for the Chace.

They make good Chace, ſtand long, and fly end-way. — When a Roe croſſes and doubles, it is call'd *Trapyning.*

Their Swiftneſs appears not only on Earth, but in Waters, thro' which they cut their Way as with Oars; whence they love Lakes and Streams, breaking the Floods to come at freſh Paſture, feeding on Ruſhes, &c.

Horns

Horns only grow on the Male; being set with six or seven Branches, not palm'd, but Branchy, yet shorter than Fallow Deer. After Rutting he casts his Head.

They are said never to wink, not even when asleep; for which Conceit their Blood is prescrib'd to Persons dim-sighted or pur-blind. — The Tail of this Beast is less and shorter than that of a Fallow Deer, insomuch, that it is question'd whether it ought to have that Denomination.

They keep most in Mountains among the Rocks; and when *hunted*, *Martial* tells us, will hang thereon with their Horns, to delude the Dogs. — They are often taken by counterfeiting of their Voice, which the *Huntsman* does by the Assistance of a Leaf in his Mouth.

When *hunted*, they turn much, and often, and will come back on the Dogs directly, when they can no longer endure. They also take Soil, as the Hart; and will hang by a Bough in such a Manner, as that nothing shall appear but their Snout.

Hare Hunting. — A Hare, the first Year, is call'd a *Leveret*. — The second Year, a *Hare*. — The third, a *Great Hare*.

A Hare is call'd in *Hebrew*, *Arnebet*; which being Feminine, possess'd a great many with the Notion that all Hares were Females. — He is call'd *Lagos* by the *Greeks*, for his immoderate Lust, and by the same Nation *Proox*, for his Fear; and by the *Latins*, *Lepus*, *quasi levi-pes*, to denote Swiftness of Feet.

There are four Sorts of Hares. — Some live in the Mountains, some in the Fields, some in the Marshes, and some any where indifferently.

Those of the Mountains are the most swift, and those of the Marshes the slowest: The wandering Hares are most difficult and dangerous to follow.

Each Part and Member of the Hare is form'd for Celerity; the Head is round and short, of a convenient Length; the Ears long and lofty, to hear the Enemy at a Distance, and save itself in Time; the Lips continually move, sleeping and waking; and the Eye is too big and round for the Lid to cover it, even when asleep, so that the Creature sleeps as it were on the Watch. The Breast is capacious, and fitted to take more Breath than any other Beast.

They feed abroad to conceal their Forms; and never drink, but content themselves with the Dew. Her Ears lead the Way in her Chase; for with one of them she hearkeneth to the Cry of the Dogs, the other being stretch'd forth like a Sail to promote her Course.

The Hares of the Mountains often exercise themselves in Vallies and Plains, and, thro' Practice, grow acquainted with the nearest Ways to their Forms. Those which frequent Bushes and Brakes, are not able to endure Labour, nor very swift, as being tender footed, and growing fat thro' Discontinuance of Exercise.

When the Hare has left the Dogs far behind, she goes to some Hill or Rising Ground, where, raising on her hinder Legs, she observes at what Distance her Pursuers are.

The Scent is naturally stronger in Wood Hares than Field Hares; but in all Sorts it is strongest when they feed on Green Corn. — In Winter Mornings, the Scent does not lie till the Frost be a little thaw'd: And it may be added, that a Hare always leaves more Scent when she goes to Relief, than when she goes to Form.

Her Footsteps are more seen in Winter than Summer, because, as the Nights are longer, they travel farther. — Their Prints are very uncertain at the full Moon; at which Time they leap and play together. The Young, it is to be observ'd, tread heavier than the Old, by reason their Limbs are weaker.

A Buck, or Male Hare, is known by his beating the hard Highways, feeding farther out in the Plains, and making his Doublings of a greater Compass than the Female, who keeps close by some Covert Side, turning, winding, and crossing in the Bushes like a Coney, and rarely running out an End; whereas the Buck, having once made a Turn or two about his Form, then farewel Hounds, for he will frequently lead them five or six Miles without once turning his Head: Add, that the Buck is known, at his rising out of Form, by his hinder Parts, which are more white, or his Shoulders redder than the Does.

The Hare regulates her Conduct according to the Weather. — In a moist Day, she holds the Highways more than at any other Time, by reason the Scent is then most apt to lie; and if she come at the Side of any young Grove or Spring, she forbears to enter, but squats down a-side thereof, till the Hounds have over-shot her; upon which she returns the same Way she came, without turning into any Covert, for Fear of the Wet and Dew hanging on the Boughs.

Regard is also to be had to the Place where the Hare sits, and upon what Wind; for if her Form be either upon the North or South Wind, she will not willingly run into the Wind, but aside, or down the Wind: On the contrary, if she Form in the Water, 'tis a Sign she is foul and measled, and in the Course will make all her Doublings and Crossings about Brook Sides, and near Plashes; for her Scent, under this Condition, being very strong, she needs a Place that will take but little.

Sometimes, when *hunted* down, she will start a fresh Hare, and squat in the same Form: Other times, she will creep under the Door of a Sheep-Coat, and hide among the Sheep, or run among a Flock of Sheep; and not without the utmost Difficulty be taken from among them. — Add, that some will take the Ground like a Coney; which is call'd going to *Vault*.

Some Hares will go up one Side of the Hedge, and come down the other; and we have known a Hare, that being sorely *hunted*, has got upon a Quickset Hedge, and ran a good way on the Top thereof, and then leap'd off upon the Ground: And 'tis no unusual Thing for them to take themselves to Furz Bushes, and leap from one to another, whereby the Hounds are frequently in Default.

A Hare does not live above seven Years, at most, especially the Buck: And if he and the Doe keep one Quarter, they will not suffer any strange Hare to sit by them; whence the Proverb, *The more you* hunt, *the more Hares you shall have*; since, having kill'd one Hare, another comes and possesses his Form.

By the Way it is to be observ'd, that to enter a young Kennel of Hounds, regard must be had to the Nature of the Country, and of the Quarry; for, according to the Place wherein they are enter'd, and the Game first given them, will they afterwards prove. Thus, if they be enter'd in a Champion Country, they will ever after more delight to *hunt* there than in any other Place, &c.

Having found where a Hare hath reliev'd to some Pasture or Corn Field; to find her Form, the Season of the Year, and the State of the Weather, are to be consider'd. — In the Spring or Summer, a Hare will not sit in the Bushes, because frequently offended with Pismires, Snakes, and Adders; but will sit in Corn Fields and open Places. — In Winter, they chuse to sit near Towns and Villages, in Tufts of Thorns and Brambles, especially when the Wind is Northerly or Southerly. — According to the Season and Nature of the Place where the Hare is accustom'd to sit, there beat with your Hounds and start her; which is better Sport than Trailing of her from her Relief to her Form. — Having started her, step in; and hollow in the Hounds till they have undertaken it, crying, *That*, *That*, or *There*, *There*, and go on with full Cry; then Recheat them, and follow at a Distance, taking Care not to forward them too much at first, as being apt, in the first Heat, to over-shoot the Game. — Above all Things mind the first Doubling the Hare makes, which is to be a Key or Direction for the whole Day; all the other Doublings she afterwards makes being like the first. — According to the Policies you see her use, and the Place where you *hunt*, make your Compass, to help the Defaults, great or little, long or short; always seeking the moistest and most commodious Places for the Hounds to scent in.

Fox Hunting. — This Animal, the first Year, is call'd a *Cub*. — The second, a *Fox*. — The third, an *Old Fox*.

His Nature, in many Respects, is like that of a Wolf; and both bring the same Number of Cubs at a Litter; but the Fox litters deep under Ground, which the Wolf does not.

A Bitch Fox is hard to take, when bragged, and with Cub, in regard she lies near her Burrow, into which she runs upon Hearing the least Noise; indeed 'tis no easy Matter to take her at any Time, as being a Beast of exceeding Subtlety.

What makes Fox *Hunting* the more entertaining, is, the strong hot Scent he affords, which keeps up an excellent Cry; but as his Scent is hotter at Hand, so it dies sooner than that of a Hare, &c. Add, that he never flies far before the Hounds, as not trusting to his Legs, or the Champion Ground, but has Recourse to the strongest Coverts. — When he can no longer stand up before the Hounds, he takes Earth, and must be dug out. — When cours'd by Greyhounds on a plain, his last Refuge is usually to piss on his Tail, and slap it in their Faces as they come near him; sometimes squirting his thicker Excrement upon them, to make them give over the Course.

When a Bitch goes a Clicketing, and seeks the Dog, she cries with a hollow Voice, not unlike the hollowing of a mad Dog; and the like Noise she makes when she misses any of her Cubs; but never cries at all when she is killing, but defends herself in Silence to the last Gasp.

The Fox is taken with Hounds, Greyhounds, Terriers, Nets, and Gins. — Of Terriers there are two Sorts, the one crook-leg'd, and commonly short-hair'd, which take Earth well, and lie long at Fox or Badger; the other shagged and straight-leg'd, which will not only *hunt* above Ground as others, but also enter the Earth with great Fury, tho' they cannot stay in so long, by reason of their Vehemence.

The

The Fox chuſes to Earth in Ground hard to dig, as in Clay or Stoney Ground, or amongſt the Roots of Trees; and his Earth has commonly but one Hole, which goes ſtraight a long Way in, before it come at their Couch. He ſometimes by Craft poſſeſſes himſelf of a Badger's old Burrow, which has Variety of Chambers, Holes, and Angles. *Geſner* relates, that he frequently cheats the Badger of his Habitation, by laying his Excrements at the Mouth of his Burrow: Add, that the Wolf being an Enemy to the Fox, this latter ſecures his Earth, by laying an Herb call'd *Sea-Onion* in the Mouth thereof, which the Wolf has a natural Averſion to, ſo that he never comes near the Place where it either lies or grows.

Badger HUNTING. --- A Badger is call'd by ſeveral Names, *viz.* a *Gray Brock*, *Boreſon*, or *Bauſon*. --- The Male is a *Badger* or *Borepig*, and the Female a *Sow*.

This Beaſt is very frequent in *Italy*, *Sicily*, the *Alpine* and *Helvetian* Coaſts; and not uncommon in *France* and *England*.

There are two Kinds, the one reſembling a Dog in his Feet, and the other a Hog by his cloven Hoof: They differ too in their Snout and Colour, the one reſembling that of a Dog, the other of a Swine: The firſt has a greyer or whiter Coat than the other, and goes farther out to prey: They differ alſo in their Meat, the one eating Fleſh and Carrion like a Dog, the other Roots and Fruit like a Hog.

A late Author likewiſe mentions two Sorts of Badgers, but in a different Manner; the one, according to him, caſting his Flaunts long, like a Fox, having his Reſidence in Rocks, and making his Burrow very deep; whereas the Burrows of the other are made in light Ground, and have more Variety of Cells and Chambers: The one is call'd the *Badger-pig*, and the other the *Badger-whelp*; or the one may be call'd *Canine*, and the other *Sviniſh*: The firſt hath his Noſe, Throat, and Ears yellowiſh, and is much blacker and higher legg'd than the latter. Both live on Fleſh, hunting greedily after Carrion; and are pernicious to Warrens, eſpecially when big with young.

When the Badger Earths; after they have dug a good Depth, they make uſe of an Expedient to carry off the Earth. --- In order to which, one of them lies down on his Back, and on his Belly the reſt lay the Earth; thus taking his hind Feet in his Mouth, they draw the Belly laden Badger out of the Hole or Cave, and having disburden'd him, he re enters, and repeats the Labour till the Work be compleated.

The Badger is a very ſleepy Beaſt, eſpecially in the Day-time, ſeldom ſtirring abroad but in the Night; whence the Denomination *Luciſuga*, *q. d.* Avoider of the Light.

The Badger is a deep biting Beaſt, having very ſharp Teeth; to guard againſt the Effects whereof, it is uſual to put great broad Collars about the Dogs Necks. His Back is broad, and his Legs longer on the right Side than the left, whence he runs beſt on the Side of a Hill or Cart-Road Way. He fights on his Back, and by this means is at Liberty to uſe both his Teeth and Nails: He has a Faculty of blowing up his Skin after a ſtrange Manner, by which he defends himſelf againſt any Blow or Bite of the Dogs; ſo that you may thraſh your Heart out on his Back; but a ſmall Stroak on the Noſe diſpatches him preſently.

In *Italy* and *Germany* they eat the Fleſh of Badgers, boiling it with Pears; but in *England* it is not liked, being of a ſweet rankiſh Taſte. 'Tis beſt in *September*; and of the two Kinds, the Swiniſh Badger is the beſt Meat.

They are long Livers, and generally grow blind by meer Age; from which Time they never ſtir out of their Holes, but are fed by the reſt.

The Method of *Hunting* the Badger is thus: --- Seek the Earths and Burrows where he lies, and in a clear Moon-ſhine Night go and ſtop all the Holes but one or two, and therein place Sacks, faſten'd with drawing Strings, which may ſhut him in as ſoon as he ſtrains the Bag. --- The Bags thus ſet, caſt off your Hounds, and beat all the Groves, Hedges, or Tufts within a Mile or two. What Badgers are abroad, being alarm'd by the Dogs, will ſtraight repair to their Earths, and ſo be taken.

He that ſtays to watch the Sacks, muſt ſtand cloſe, and upon a clear Wind; elſe the Badger will find him, and fly ſome other Way for Safety. If the Hounds either encounter him, or undertake the Chaſe before he can get into his Earth, he will ſtand at Bay like a Boar, and make excellent Sport.

If the Badger be attack'd in his Earth; as ſoon as he perceives the Terriers yearn him, he will ſtop the Hole between the Dogs and himſelf; and if the Dog continues baying, he removes his Baggage with him, and goes into another Appartment or Chamber, of which he uſually has half a Dozen in the Burrow; thus retreating from one to the other, till he can go no further, and barricading the Way as he goes.

Otter HUNTING --- The Otter is ſuppos'd by ſome, of the Caſtor or Beaver Kind, being, like it, an amphibious Creature, and living both in the Water and on Land; beſide that, the Reſemblance in Point of Shape is ſuch, as, were his Tail off, he were in all Reſpects like the Beaver; differing in nothing but Habitation, the Beaver frequenting both the ſalt Water and the freſh, but the Otter only the freſh. See CASTOR.

Tho' the Otter live much in the Water, he does not breathe like Fiſhes, but after the Manner of Quadrupeds. -- He is web-footed, like our Water Fowl, and can endure to be under Water a long Time without Reſpiration: And yet in Fiſhing he is frequently found to pop up his Noſe for Breath. --- He has an admirable Smell, whereby he will directly wind a Fiſh in the Water a Mile or two off; and is a moſt pernicious Beaſt to a Fiſh-pond, his Dexterity at diving, and hunting under Water being ſuch, that ſcarce any Fiſh can eſcape him: If by painful *hunting* aſhore he cannot fill his Belly, he will feed on Herbs, Snails, or Frogs: He will ſwim a fiſhing two Miles together, always againſt the Stream, that when his Belly is full, the Current may carry him down again to his Lodging, which is near the Water, artificially built with Boughs, Sprigs, and Sticks couch'd together in fine Order.

The Fleſh of this Beaſt is cold and filthy, as feeding on ſtinking Fiſh; for which Reaſon it is not eaten among us: Tho' among the *Germans* it is a pretty common Food; and the *Carthuſian* Fryars, who are forbidden to eat all Manner of Fleſh, are allow'd this. Some in *England* have, of late, ſaid much in Praiſe of Otter Pye.

The Otter is to be *hunted* by particular Dogs, call'd *Otter Hounds*; and alſo with ſpecial Inſtruments, call'd *Otter Spears*.

To find him out, ſome are to go on one Side the River, and ſome on the other; beating all the Way on the Banks, with the Dogs following. --- Thus it is ſoon found if there be an Otter in that Quarter; for the Otter cannot endure long in the Water, but muſt come forth to make his Spraints, and in the Night ſometimes to feed on Graſs and other Herbs. If the Hounds find an Otter, look in the ſoft and moiſt Places, to learn by the Prints which Way he bent his Head: If theſe make no Diſcovery, it may be partly perceiv'd by the Spraints. --- This done, follow the Hound, and lodge him as a Hart or Deer.

The Otter always endeavours to keep to the Water, where he is Maſter. --- In *Hunting* him therefore, you are to be ready with your Spears, to watch his Vents, for that is the chief Advantage: If you perceive where he ſwims under Water, ſtrive to get a Stand before him, where you expect he will Vent, and there endeavour to ſtrike him with the Spear: If you miſs, purſue him with the Hounds; which, if they be good, and well enter'd, will come chaunting and trailing along by the River Side, and beat every Tree-Root, every Oſier-Bed, and Tuft of Bull-Ruſhes; nay, ſometimes, they will take the Water, and beat it like a Spaniel; by which Means the Otter can hardly eſcape.

If the Beaſt find himſelf wounded with a Spear, he makes to Land, where he will maintain a furious Battle with the Dogs.

HURDLES, in Fortification, Twigs of Willows or Oſiers, interwoven cloſe together, and uſually laden with Earth. Their Uſe is to render Batteries firm, or to conſolidate the Paſſages over muddy Ditches, or to cover Traverſes and Lodgments for the Defence of the Workmen, againſt the artificial Fires or Stones that may be caſt upon them.

HURDLES, in Husbandry, are Frames made either of ſplitted Timber, or of Hazle Rods, platted together; to ſerve for Gates in Encloſures, or to make Sheepfolds, *&c.*

HURDS, or HARDS *of Flax* or *Hemp*, the coarſer Parts, ſeparated in the Dreſſings from the Tear or fine Stuff. See HEMP and FLAX.

HURLE *Bone*, in an Horſe, is a Bone near the Middle of the Buttock; very apt to go out of its Sockets with a Slip or Strain.

HURLERS, a ſquare Set of Stones in *Cornwall*, ſo call'd from an odd Opinion advanc'd by the common People, that they are ſo many Men petrify'd or chang'd into Stones, for profaning the Sabbath-Day by *hurling* the Ball, an Exerciſe for which the People of that Country have been always famous.

HURTS, in Heraldry, by ſome wrote HEURTS, and by others HUERTS, are azure or blue Roundles. See ROUNDLE.

The *Engliſh* Heralds diſtinguiſh between the Colours of Roundles, and give them different Names agreeable thereto: Thoſe of other Nations content themſelves to call theſe *Torteaux d' Azure*; and in other Caſes, only add the reſpective Colour to the Term *Torteaux*.

But theſe being blue, ſome will have them ſignify Bruiſes or Contuſions in the Fleſh, which oft turn to that Colour; others ſuppoſe them Huttle Berries.

HURRICANE, a *Whirlwind*; or a Storm of Wind arising from a Contrariety and Opposition of several Winds. See WIND and WHIRLWIND.

Hurricanes are frequent in the *East* and *West Indies*; making terrible Ravages in the Islands thereof; blowing down Houses, rooting up Trees, and even whole Woods, &c.

They begin in the North, but turn round; and in a little time veer thro' all the Points of the Compass.

'Tis the Custom for the *French* and *English* Inhabitants in the *Caribbee Islands*, to send every Year about *June* to the Native *Caribbees* of St. *Dominico* and St. *Vincent*, to know whether there will be any *Hurricanes* that Year: And about ten or twelve Days e'er any *Hurricane* come, they constantly send them Word.

The Prognosticks those Barbarians go by, are given us by Capt. *Langford*, who, in 1697, engag'd one of them, by Civilities, to reveal them to him.

'Tis one of their Principles, that all *Hurricanes* come either on the Day of the Full, Change, or Quarter of the Moon; each of which is discover'd by a Number of Phænomena the preceding Quarters, as, a turbulent Sky, Sun red, universal Calm, the Stars appearing red, Noises in Hollows or Cavities of the Earth, strong Smell of the Sea, a settled westerly Wind, &c.

That Author assures us, he receiv'd this Benefit from the Information, that whereas *Hurricanes* are so dreadful, that all Ships are afraid to put out to Sea while they last, and chuse rather to perish at Anchor in the Roads; yet, with good Management, a Vessel may lie out at Sea in these, as safely as other Storms, by taking Care the Ports be well barr'd and calked, the Topmasts and Tops taken down, the Yards a port laced, and the Doors and Windows secur'd. --- With these Precautions, that experienc'd Navigator preserv'd his Vessel in two great *Hurricanes*, and taught others how to do the same, by putting out from Port, where they would inevitably have perish'd. And from the Prognosticks above, he foretold several *Hurricanes* at Land.

He adds, that all *Hurricanes* begin from the North, and turn to the Westward, till arriving at the South-East, their Force is spent.

The Cause he suggests to be the Sun's leaving the Zenith of those Places, and going back towards the South; and the repelling or bounding back of the Wind, occasion'd by the calming of the general Trade Wind. *Philosophical Transactions*, N°. 246.

HUSBAND, *Maritus*, a Man join'd or contracted with a Woman, in Marriage. See MARRIAGE.

By the Laws of *England*, the Wife is suppos'd wholly under the Dominion of her *Husband*, nor can act or will any thing of herself. See WIFE, FEME, &c.

In *Germany*, the Power of the *Husband* is not so extensive; even the Princes of the Empire have not a Sovereign and Despotic Power over their Wives and Children. --- *Pagenstecher*, a *German* Lawyer, has a Dissertation to prove, that, by the Law of Nature, a *Husband* has not a despotic Power over his Wife; and that Marriage is not Monarchy. He struggles hard to explain that Passage of St. *Paul* to the *Ephesians*, cap. v. 22. consistently with his Scheme.

J. Philip Palthen, Professor of Law at *Grypswald*, gives us a very learned Dissertation on the *Husband* of a Queen, who is not King, *De Marito Reginæ*. He defines him a Man marry'd with a Princess that holds a Crown by Right of Inheritance, but who only contracted Marriage with him, on Condition that the Marriage should not change his Condition, nor give him any Command over his Wife, or joint Authority with her; nor intitle him to succeed to any of her Royalties after her Decease, without the Intervention of some further Act. Hence he concludes, that in such Case 'tis the Queen is really King. See QUEEN and KING.

This, however, does not hinder but the *Husband* may be a King elsewhere, and in that Quality superior to his Wife; for a Maiden Queen may either marry a Sovereign Prince, or a Subject, and this either of her own Realm, or another: Of all which Cases he gives Instances: As, that of *Ferdinand* and *Isabella*, whose Marriage did not give any Authority to the one over the Kingdom of *Arragon*, nor to the other over that of *Castile*; of *Joan*, Daughter of *Isabella*, and *Philip* of *Austria*; *Philip* II. of *Spain*, and *Mary* Queen of *England*; the two *Joans* Queens of *Naples*; *Mary* Queen of *Scots*, and the Dauphin of *France*; and lastly, Queen *Anne*, whose *Husband* was her Subject, yielded Homage to her as her Vassal, and took an Oath of Fidelity to her as her Minister. M. *Palthen* proceeds to examine in what Kingdoms this may happen; and shews, that it cannot be in an elective Kingdom, nor an usufructuary one; whence he concludes, that we shall never see it in *Poland*, *France*, or *Germany*; but that there are Instances of it in all the other Monarchies, of any standing, in *Europe*. He goes on to shew, that a Queen ought not to marry a King; that it is no Violation of the Conjugal Society, for her Husband to be subject to her; and answers all the Difficulties that may be started with regard thereto, particularly from Passages of Scripture, as *Is.* iii. 11. *Cor.* xiv. 34. *Gen.* iii. 6. *Eph.* v. 23. *Col.* iii. 18, &c.

HUSK, among Botanists, the Part which a Flower grows out of. See FLOWER.

Of these there are several Kinds, as *bulbous* or *round Husks*, *Bottle Husks*, *middle Husks*, *Foot Husks*, *Hose Husks*, &c. See HOSE-*Husk*, &c.

HUSSARS, HUSSARDS, or HUSSARTS, an Order or Species of Soldiery in *Poland* and *Hungary*, commonly oppos'd to the Ottoman Cavalry.

The *Hussars* are Horsemen, cloath'd in Tygers and other Skins, and garnish'd and set out with Plumes of Feathers. Their Arms are the Sabre and Bayonet.

They are very resolute; firm Partisans; and better in a hasty Expedition, than a set Battle.

The Emperor and King of *France* have of these *Hussars* in their Service.

HUSSITES, a Party of Reformers, the Followers of *John Hus*. See REFORMATION.

John Hus, from whom the *Hussites* take their Name, was born in a little Village of *Bohemia*, call'd *Hus*. --- He fell into the Sentiments of *Wicklif* and the *Waldenses*; and in the Year 1407, began openly to oppose and preach against divers Errors in Doctrine, as well as Corruptions in Point of Discipline, then reigning in the Church. See WICKLIFFITES and WALDENSES.

He was condemn'd, with *Jerom* of *Prague*, by the Council of *Constance*, and burnt, in the Year 1415: But his Disciples still stuck to his Doctrines. --- *Joh. Ziska*, being put at their Head in *Bohemia*, maintain'd War a long Time against the Emperor *Sigismond*, with great Success. And *Procopius Holy*, another of their Leaders, conducted them with equal Courage.

The *Hussites* spread over all *Bohemia* and *Hungary*, and even *Silesia* and *Poland*; and there are some Remains of them still subsisting in all those Parts.

HUSTINGS, HUSTINGUM, from the *Saxon*, *Hus*, House, and *Thing*, Cause; *q. d. domus causarum*, a House where Causes are heard; or rather, from *Hustinge*, Court or Council: Is the principal and highest Court in *London*, held in *Guild-hall*. See COURT and GUILD *hall*.

Of the great Antiquity of this Court, we find this Mention in the Laws of King *Edward* the Confessor. --- *Debet etiam in* London *quæ est caput Regni & Legum, semper curia Domini Regis singulis septimanis, Die Lunæ* Hustingis *sedere & teneri: fundata erat olim & ædificata ad instar & ad modum & in memoriam veteris magnæ Troiæ, & usque in hodiernum diem, Leges, & Jura & Dignitates, & Libertates Regiasque consuetudines suas una semper inviolabilitate conservat.* *Taylor's* Hist. of Gavel-kind.

This Court is held before the Mayor and Aldermen of *London*. --- Error or Attaint lies there of a Judgment or false Verdict in the Sheriffs Courts.

Other Cities and Towns had also Courts of the same Name, as *Winchester*, *Lincoln*, *York*, *Shippey*, &c.

HUT, from the *Saxon*, *Hutte*, a small Cottage or Hovel. See COTTAGE and HOVEL.

The Word is also us'd for the Soldiers Lodges in the Field. See BARRACK.

HUXING *of the Pike*, among Fishermen, a particular Method of catching that Fish; very diverting. See *Pike* FISHING.

For this Purpose, they take thirty or forty as large Bladders as can be got; blow them up, and tye them close and strong; and at the Mouth of each, tye a Line, longer or shorter, according to the Depth of the Water. At the End of the Line is fasten'd an armed Hook, artificially baited; and thus they are put into the Water with the Advantage of the Wind, that they may gently move up and down the Pond.

Now, when a Master Pike has struck himself, it affords a deal of Entertainment to see him bounce it about in the Water with a Bladder at his Tail; at last, when they perceive him almost spent, they take him up.

HYACINTH, or JACINTH, in Natural History, a precious Stone; thus call'd from its Resemblance of the Purple Flower nam'd *Hyacinth*. See PRECIOUS *Stone*.

There are four Sorts of *Hyacinths*: those intermix'd with a Vermillion Colour; those of a Saffron Colour; those of an Amber Colour; and, lastly, those of a white, intermix'd with a slight red.

Hyacinths, again, are distinguish'd into Oriental and Occidental. The Oriental come from *Calicut* and *Cambaya*, and are equal in Hardness to the Oriental Amethyst. --- The Occidental are found in *Bohemia* and *Portugal*, which are a Degree softer.

The Stone graves or cuts fine, and would be more us'd for Seals, &c. but that the Graving frequently costs more than the Stone.

The Antients us'd it for Amulets and Talismans; and bore it about their Neck, or set in Rings, &c. supposing it to have the Virtue of securing them from the Plague, &c.

The *Hyacinth* us'd in Medicine, and whereof the Confection of *Hyacinth* is made, is a different Stone, of which there are three several Sorts: The first about the Bigness and Figure of a Grain of Salt, and pretty soft: The 2d ruddy, and shap'd like the Point of a Diamond, found in divers Parts of *Italy*, *Silesia*, *Bohemia*, &c. The third is white, intermix'd with yellow, and some other Colours; being found in the same Places as the red.

In Strictness, only the first Kind should be us'd in the Confection of *Hyacinth*; but the Druggists and Apothecaries frequently substitute the other.

Confection of HYACINTH, is a thin cordial Electuary, compos'd of divers Kinds of precious Stones, particularly of that whose Denomination it bears, with certain Earths, Seeds, Roots, Coral, Hartshorn, and divers other Ingredients, well mix'd, and ground together. See CONFECTION *of Hyacinth*.

HYACINTHIA, in Antiquity, Feasts held at *Sparta*, in Honour of *Apollo*, and in Commemoration of his Favourite *Hyacinth*.

This *Hyacinth* was the Son of *Amyclas*, King of *Sparta*, and was belov'd both by *Apollo* and *Zephyrus*. The Youth shewing most Inclination to the former, his Rival grew Jealous; and, to be reveng'd, one Day, as *Apollo* was playing at the *Discus*, *i.e.* Quoits with *Hyacinth*, *Zephyrus* turn'd the Direction of a Quoit which *Apollo* had pitch'd, full upon the Head of the unhappy *Hyacinth*, who fell down dead. *Apollo* transform'd him into a Flower of the same Name: And as a farther Token of Respect, instituted this Feast.

The *Hyacinthia* lasted three Days; the first and third whereof were employ'd in bewailing the Death of *Hyacinth*, and the second in Feasting and Rejoycing.

The People who assisted at the Ceremony were crown'd with Ivy; by reason, says *Vossius*, *de Idolol.* l. ii. c. 14. that *Bacchus* and *Apollo* were the same Person.

HYBISTRICA, in Antiquity, a solemn Feast, held among the *Greeks*, with Sacrifices and other Ceremonies; whereat the Men attended in the Apparel of Women, and the Women in that of Men, to do Hooour to *Venus* in Quality either of a God, or a Goddess, or both.

Or, according to the Account given by others, the *Hybistrica* was a Feast celebrated at *Argos*, wherein the Women, being dress'd like Men, insulted their Husbands, and treated them with all Marks of Superiority, in Memory of the *Argian* Dames having anciently defended their Country with singular Courage against *Cleomenes* and *Demaratus*.

Plutarch speaks of this Feast in his Treatise of the great Actions of Women. — The Name, he observes, signifies *Infamy*; which is well accommodated to the Occasion, wherein the Women strutted it about in Cloaks, while the Men were oblig'd to dangle in Petticoats.

HYADES, in Astronomy, are seven Stars, famous among the Poets for the bringing of Rain. — Whence their Name, from the *Greek*, ὕειν, *Pluere*, to rain.

Their Place is in the Bull's Head; The Principal of them in the left Eye, by the *Arabs* call'd *Aldebaran*. Their Longitudes, Latitudes, &c. see among those of the other Stars in the Constellation TAURUS.

The Poets feign them the Daughters of *Atlas* and *Ethra*. Their Brother *Hyas* being torn to Pieces by a Lioness, they wept his Death with such Vehemence, that the Gods, in Compassion to them, translated them into Heaven, and plac'd them in the Bull's Forehead, where they continue to weep; this Constellation being suppos'd to presage Rain.

Tho' others of the Poets represent the *Hyades* as *Bacchus*'s Nurses, and the same with the *Dodonides*, who fearing the Resentment of *Juno*, and flying from the Cruelty of King *Lycurgus*, were translated by *Jupiter* into Heaven.

HYDATIS, in Medicine, a Disease of the Eyes, consisting of a fatty Substance or Excrescence, growing under the Skin of the upper Eye-lid; by which the whole Eye-lid, in Children, is sometimes render'd Oedematous. See EYE.

HYDATIS is also us'd, among the modern Physicians, for a little Bladder of Water, occasionally found in divers Parts of the Body. See HYDATIDES.

HYDATIDES, in Medicine, are little transparent Bags or Bladders full of Water, frequently found in divers Parts of the Body.

Hydatides are most common in dropsical Persons, and are suppos'd to arise from a Distention and Rupture of the Lymphæducts; being found chiefly in the Parts abounding in those Vessels, as the Liver, Lungs, &c. — They are also sometimes found in Icterical Cases, See JAUNDICE, &c.

We have Instances of *Hydatides* voided both by Stool, by Urine, and by Vomiting. — They are of all Sizes, from a Pin's Head to a Pullet's Egg.

The Word is form'd of the *Greek*, ὕδωρ, Water, which, in the genitive Case, gives ὕδατος, whence ὑδατὶς, *Hydatis*. See HYDATIS.

HYDATOIDES, a Name some Authors give to the Aqueous Humour of the Eye, inclos'd between the Cornea and Uvea. See AQUEOUS *Humour*.

The Word is compos'd of ὕδωρ, ὕδατος, Water, and εἶδος, Form, Resemblance.

HYDATOSCOPIA, call'd also HYDROMANCY, a kind of Divination, or Method of foretelling future Events, by means of Water. See HYDROMANCY.

There is a natural or allowable Kind of *Hydatoscopia*: It consists in foretelling Storms, Tempests, Hurricanes, &c. from natural Signs or Indications in the Sea, Air, Clouds, &c.

The Word is compounded of ὕδατος, the Genitive of ὕδωρ, Water, and σκοπέω, I view, I consider.

HYDE *of Land*. See HIDE.

HYDE-*gyld*, from the *Saxon*, *Hydgyld*, a Price or Ransom paid to save one's Skin from beating: Also the same with Hidage. See HEDGELD.

HYDRA, a Southern Constellation, consisting of twenty-six Stars, and imagin'd to represent a Water-Serpent. See CONSTELLATION and STAR.

Stars in the Constellation HYDRA.

	Signs.	Longitude ° ′ ″	Latitude ° ′ ″	Mag.
	♌	5 32 11	22 29 15	4 3
		9 17 52	25 46 06	6
N. of those preced. in the Head		5 59 03	12 25 37	4
S. of those preced. agt. the Nost.		6 53 14	14 38 05	5
		11 58 02	29 44 42	6
5				
In the Aperture of the Mouth		7 59 12	14 17 10	4
		7 47 49	11 58 23	5
North of two in the Forehead		8 01 52	11 07 59	4
South in the Forehead		8 35 04	11 35 00	5
		11 31 06	20 26 05	5 6
10				
		13 15 41	23 50 45	6
In the hind Part of the Head		10 15 18	11 00 03	4
		14 31 58	24 18 44	6
Preced. of 2 in Root of the Neck		13 04 05	11 03 45	6
		18 08 22	23 53 09	6
15				
		18 26 01	24 00 29	6
		18 34 32	22 11 31	6
Subseq. in the Root of the Neck		15 57 04	13 02 47	4
		19 23 26	21 08 10	6
		20 14 28	23 23 33	6
20				
		22 12 42	26 11 13	6
		21 29 56	23 50 49	6
Small one over the Heart		21 09 15	19 15 08	6
		23 04 56	22 57 49	6
		22 57 59	22 24 32	2
25				
Mid. of 3 in bending of the Neck		21 15 42	16 44 01	5
South		21 25 41	15 00 03	5
		23 42 29	19 15 01	7
Last of 3 in bending of the Neck		25 49 39	22 15 00	7
30		23 19 19	14 18 17	4
		26 53 18	23 06 24	6
That following the Heart		28 21 17	26 37 06	5
That following this	♍	1 23 33	26 05 14	4
	♌	28 57 20	19 43 16	7
That, again, foll. this to the N.	♍	4 01 45	23 11 31	5
35				
		3 22 09	18 24 47	6
		5 07 52	22 29 43	7
Anoth. behind this, and more N.		5 04 10	22 01 02	4
		3 33 37	18 20 37	6
		5 03 01	17 24 10	7
40				
Preced. of three following these		10 44 50	24 40 10	4
as in a right Line]		12 22 47	24 08 24	5
		15 52 28	30 11 53	7
		12 58 27	23 14 02	7
Middle of 3 in the right Line		13 45 56	23 29 50	5
45				
Small one following this		15 54 24	23 04 24	6
Last of three in the right Line		16 03 39	21 49 28	4
		17 26 16	23 45 03	7
Contig. to Bottom of the Cup		18 44 33	24 59 42	6
South beneath Base of the Cup		25 01 40	30 16 31	5
50				
		26 14 11	30 41 12	6
North beneath Base of the Cup		24 15 35	25 37 33	4
In △, against the last Preced.	♎	3 37 39	31 35 14	3 4
and South Bend of South		6 47 40	33 26 12	4
the Tail Last		9 04 42	31 27 56	4
55				

Names

Names and Situation of the Stars.	Signs	Longitude ° ′ ″	Latitude ° ′ ″	Mag.
Antepenultimate of the Tail	♐	20 32 08	14 33 15	5 6
Last but one of Tail beh. *Corvus*		22 42 30	13 43 18	3
	♏	1 59 34	12 02 06	6
In the Extremity of the Tail		4 18 31	13 00 37	4
60		5 52 38	13 04 11	6
		8 20 00	12 54 21	5
		9 55 55	14 02 26	5
Informes following Hydra's Tail, between Libra, Centaurus, and Lupus.		12 28 42	8 57 04	5 6
		12 49 10	9 01 56	6
65		13 01 49	9 26 50	6
		14 08 58	11 03 09	5
		15 52 01	10 13 50	6 7
		16 43 19	10 23 52	6 7

HYDRAGOGUES, a Species of purgative Medicines; being such as are suppos'd peculiarly fitted to discharge serous, or watery Humours. See PURGATIVES.

The strongest Cathartricks, Dr. *Quincy* observes, chiefly answer to the Character of *Hydragogues*; in that by their forcible shaking and vellicating the Bowels and their Appendages, they squeeze out Water enough to make the Stools appear little else. See CATHARTIC.

The principal *Hydragogues*, on the common Opinion, are the Juices of Elder, of the Root of Iris, of Soldanella, Mechoacan, Jalap, &c.

In the general, all sudorific, aperitive, and diuretic Medicines, are *Hydragogues*

The Word is form'd of ὕδωρ, Water, and αγειν, to draw, to lead.

HYDRARGYRUM, a Name the Chymists give to Mercury or Quicksilver. See MERCURY.

The Word is *Greek*, form'd of ὕδωρ, *aqua*, Water, and ἀργυρος, *argentum*, Silver, *q. d. Water of Silver*, by reason of its resembling liquid or melted Silver.

HYDRAULICKS, that Part of Staticks which considers the Motion of Fluids, and particularly Water; with the Application thereof in artificial Water-works. See WATER.

To *Hydraulicks* belong, not only the conducting and raising of Water, with the constructing of Engines for those Purposes; but also the Laws of the Motion of fluid Bodies. See MOTION.

Hydrostaticks explain the Equilibrium of Fluids, or the Gravitation of Fluids at rest: Upon removing that Equilibrium, Motion ensues; and here *Hydraulicks* commence.

Hydraulicks, therefore, suppose Hydrostaticks; and the generality of Writers, from the immediate Relation between the two, join them together, and call them both either *Hydraulicks* or Hydrostaticks. See HYDROSTATICKS.

The Laws of *Hydraulicks* the Reader will find under the Article FLUID.

And the Art of raising Waters; with the several Machines employ'd for that Purpose, as *Siphons*, *Pumps*, *Syringes*, *Fountains*, *Jets d'Eau*, *Fire-Engines*, &c. are describ'd under their proper Articles, SIPHON, PUMP, SYRINGE, FOUNTAIN, FIRE-*Engine*, &c.

The Word is deriv'd from the *Greek*, ὑδραυλος, *sounding Water*, form'd of ὕδωρ, *aqua*, Water, and αὐλος, *Tibia*, Pipe or Flute: The Reason whereof is this; that at the Time of the first Invention of Organs, being unacquainted with the Method of applying Bellows to blow them, they made use of a Cataract or Fall of Water to make a Wind, and sound them. See ORGAN.

The principal Writers who have cultivated and improv'd the *Hydraulicks*, are *Jo. Ceva*, in his *Geometria Motus*: *Jo. Bap. Balianus*, *De Motu Naturali Gravium, Solidorum & Liquidorum*: *Mariotte*, in his *Mouvement des Eaux & autres Fluides*: *Dom. Guglielmini*, in his *Mensura Aquarum Fluentium*, where the higher Laws of *Hydraulicks* are reduc'd to Practice: Sir *Is. Newton*, in *Phil. Nat. Princ. Mathemat.* And *Varignon*, in the Memoirs of the Royal Academy of Sciences.

As to *Hydraulick* Machines, *Hero* of *Alexandria* is the first who has wrote thereon. Of the Moderns, the Principal are, *Solomon de Caux*, in a *French* Treatise of *Machines, and chiefly of Hydraulick ones*: *Casp. Schottus* in his *Mechanica Hydraulico Pneumatica*: *De Chales* in his *Mundus Mathematicus*; *Boecler* in his *Architectura Curiosa*: And *Luc. Anthonius Portius*.

HYDRAULO-PNEUMATICAL, a compound Term apply'd, by some Authors, to such Engines as raise Water by means of the Spring of the Air. See AIR, WATER, ENGINE.

Mr. *Boyle* mentions a very pretty Fountain, which he calls *Hydraulo-Pneumatical*; made by the Spring of the Air pressing up Water in a Pipe, upon the Air's being exhausted out of a Receiver, and thus the Weight of the Atmosphere taken off. See FOUNTAIN, VACUUM, &c.

HYDRELÆON, or HYDRELÆUM, in Pharmacy, a Mixture of common Oil and Water. See OIL and WATER.

Hydrelæon taken internally, excites Vomiting; externally, it is Anodyne, and promotes Suppuration.

The Word is a Compound of the *Greek*, ὕδωρ, *aqua*, Water, and ἔλαιον, *Oleum*, Oil.

HYDRENTEROCELE, in Medicine, a Hernia, or Tumor occasion'd by a Descent of the Intestines, and Water along with them, into the Scrotum. See HERNIA.

The Word is compounded of ὕδωρ, Water; ἔντερον, Intestine; and κηλη, Tumor.

HYDROCANISTERIUM, a *Fire-Engine*; or a Machine which spouts Water plentifully and with Force, to be apply'd to the extinguishing of Fires and Conflagrations of Houses, &c. See FIRE, SPOUTING, &c.

We have various Contrivances to this Effect. — The first, and which is, as it were, the Basis of the rest, is a Pump inclos'd in a Cistula or wooden Vehicle fill'd with Water, and mounted on Wheels; the Pump being wrought with long Levers which come out of the Cistula; and the Water it raises directed to the Place by means of a jointed Tube. See PUMP.

The *Dutch* and others use a long flexible Tube of Leather, Sail Cloth, or the like, which they carry or conduct in the Hand from one Room to another, as Occasion requires; so that the Engine may be apply'd where the Fire is only within-side, and does not burst out to expose it to its external Action.

To improve on this original Fire-Engine, they have since contriv'd to make it yield a continu'd Stream; by substituting a forcing or pressing Pump in lieu of the sucking Pump. See FORCING *Pump*.

HYDROCELE, in Medicine, a Swelling or Bloating of the outer Integument or Skin of the Scrotum, occasion'd by watery Humours cast or detain'd therein.

The Word is form'd of the *Greek*, ὕδωρ, Water, and βαλλω, I cast.

The *Hydrocele* is distinguish'd from an Hernia or Descent, in that the first is form'd by slow Degrees, and the latter all at once. See HERNIA.

Youth is most expos'd to the *Hydrocele*. — It is cur'd by drying Medicines; or by letting out the Water with a Lancet, a Seton, or the like. — But these only amount to a palliative Cure: To go to the Bottom of the Disease, recourse must be had to Cauteries.

The Word is compounded of the *Greek*, ὕδωρ, *aqua*, and κηλη, Tumor.

HYDROCEPHALUS, or HYDROCEPHALE, in Medicine, a *watery Head*, or Dropsy in the Head. See HEAD.

The *Hydrocephalus* is a Congestion of Water in the Head, so as to distend and render it soft. See DROPSY.

There are three Kinds of *Hydrocephali*. The first, when the Water is gather'd between the Skull and the Skin: The second, when between the Skull and the Brain: And the third, when the Water is collected in the Ventricles of the Brain.

Children are more liable to *Hydrocephali*, than Adults; by reason their Head is soft, and has been much compress'd in the Womb; or, perhaps, by their having been too roughly handled by the Midwife. — Add, that the Bones of Childrens Heads being very soft, and their Sutures not yet exactly clos'd; they easily open, and give Way to an Influx of Water from without; whereas in Adults, the Bones of the Cranium are very hard, and closely bound together. See CRANIUM.

The *Hydrocephalus* is a Disease very difficult to cure. — There is no Remedy but by severe blistering on the Sutures. — It sometimes ends in mortal Convulsions, and sometimes in Lethargies or Apoplexies.

The Head, in this Case, is sometimes extended to a prodigious Bulk; so that the Person cannot bear or sustain it. Of this we have an extraordinary Instance given us by Dr. *Freind*, of a Girl two Years old, whose Head was 26 Inches in Circumference. *Philosoph. Transact.* N°. 318.

The Word is *Greek*, form'd of ὕδωρ, Water, and κεφαλη, *Caput*, Head.

HYDROGRAPHICAL *Maps*, more usually call'd *Sea Charts*, are Projections of some Part of the Sea, in Plano; for the Use of Navigation. See MAP and NAVIGATION.

In these are laid down all the Rhumbs or Points of the Compass, the Meridians, Parallels, &c. with the Coasts, Capes, Islands, Rocks, Shoals, Shallows, &c. in their proper Places, Proportions, &c.

Christopher Columbus, the first great Discoverer of *America*, was a Man that earn'd his living by making and selling *Hydrographical Maps*. He happen'd to be Heir of the Memoirs or Journals of a noted Pilot, one *Alonso Sanchez de Huelva*, Captain of a Ship, who, by Chance, had been driven by a Storm to the Island of St. *Domingo*, and dy'd at *Columbus*'s House soon after his Return. This gave *Columbus*

lumbus the first Hint to attempt a Discovery of the *West-Indies*, in which he succeeded.

For the Construction of the several Kinds of Hydrographical Maps; See CHART.

For their Uses; See SAILING.

HYDROGRAPHY, that Part of Geography which considers the *Sea*; principally, as it is navigable. See SEA and GEOGRAPHY.

Hydrography teaches how to describe, and measure the Sea; gives an Account of its Tides, Counter-tides, Currents, Soundings, Bays, Gulphs, &c. as also its Rocks, Shelves, Sands, Shallows, Promontories, Harbours, Distances, &c. from Port to Port, with all that is remarkable, either out at Sea, or on the Coast.

Some of the best Authors use the Term in a more extensive Sense; so as to denote the same with *Navigation*.

In this Sense *Hydrography* includes the Doctrine of Sailing; the Art of making Sea Charts, with the Uses thereof; and every thing necessary to be known, in order to the safest and most expeditious Performance of a Voyage. See NAVIGATION. See also SAILING, CHART, &c.

Hydrography is the most perfect of all the Mathematical Sciences; there being scarce any thing wanting to its Perfection, but the Discovery of the Longitude. See LONGITUDE.

The Jesuits *Riccioius*, *Fournier*, and *De Chales*, are the principal Writers on the Subject of *Hydrography*.

In *France*, they have Professors of *Hydrography* established in all their Sea Ports, who are to instruct the Youth intended for the Sea, in all the Parts of Navigation, Sailing, Steering, &c. with the several Branches of Mathematicks necessary thereto; as Arithmetick, the Doctrine of the Sphere, Trigonometry.

They are Royal Professors, and teach Gratis; having Salaries allow'd them by the King. They are also charg'd with the Examination of Pilots, &c.

The Word is compounded of the *Greek*, ὕδωρ, *aqua*, Water, and γράφω, *scribo*, *describo*, I write, describe.

HYDROMANCY, HYDROMANTIA, the Act or Art of divining or foretelling future Events by means of Water. See DIVINATION.

Hydromancy is one of the four general Kinds of Divination; the other three, respecting the other Elements, *viz.* Fire, Air, and Earth, are denominated *Pyromancy*, *Aeromancy*, and *Geomancy*.

Varro mentions the *Persians* as the first Inventors of *Hydromancy*; adding, that *Numa Pompilius* and *Pythagoras* made use thereof. See HYDATOSCOPY.

The Writers in Opticks, furnish us with divers *Hydromantic* Machines, Vessels, &c.

To Construct a Hydromantic Machine, *by Means whereof an Image or Object shall be remov'd out of the Sight of the Spectator, and restor'd again at Pleasure; without altering the Position either of the one or the other.*

Provide two Vessels ABF and CGLK (Tab. Hydraulicks, Fig. 31.) the uppermost fill'd with Water, and sustain'd by three little Pillars, one whereof, BC, is hollow, and furnish'd with a Cock B.

Let the lower Vessel CL be divided by a Partition HI, into two Parts; the lower whereof may be open'd or clos'd by means of the Cock P.

Upon the Partition place an Image, which the Spectator in O cannot see by a direct Ray GL.

If now the Cock B be open'd; the Water descending into the Cavity CI, the Ray GL will be refracted from the Perpendicular GR to O; so that the Spectator will now see the Image by the refracted Ray OG. — And again, shutting the Cock B, and opening the other P, the Water will descend into the lower Cavity HL; whence, the Refraction ceasing, no Rays will now come from the Object to the Eye. — But, shutting the Cock P again, and opening the other B, the Water will fill the Cavity again, and bring the Object in Sight of O afresh. See REFRACTION.

To make a Hydromantic Vessel, *which shall exhibit the Images of external Objects, as if swimming in Water.*

Provide a Cylindrical Vessel ABCD, (Tab. Hydraulicks, Fig. 32.) divided into two Cavities by a Glass EF, not perfectly polish'd: In G apply a Lens Convex on both Sides; and in H incline a plain Mirror of an Elliptic Figure under an Angle of 45°; and let IH and HG be something less than the Distance of the Focus of the Lens G; so that the Place of the Images of Objects radiating thro' the same, may fall within the Cavity of the upper Vessel. — Let the inner Cavity be blacken'd, and the upper fill'd with clear Water.

If now the Vessel be dispos'd in a dark Place, so as the Lens be turn'd toward an Object illumin'd by the Sun; its Image will be seen as swimming in the Water.

The Word is *Greek*, compos'd of ὕδωρ, Water, and μαντεία, Divination.

HYDROMEL, a Drink made of Water and Honey; call'd by the *Greeks* μελίκρατον.

Hydromel is Honey diluted with a sufficient Quantity of Water, and fermented by a long and gentle Heat. See HONEY.

Under the Class of *Hydromels* come our Mead, and Metheglin. See MEAD and METHEGLIN.

Hydromel is either *Simple*, call'd also *aqueous*, where Honey and Water are the only Ingredients; which may be prepar'd at any Time; or *Compound*, when other Drugs are added, to improve and exalt the Flavour and Virtues.

'Tis particularly call'd *Vinous Hydromel*, when it equals the Strength of Wine; which it is brought to do, not only by the great Quantity of Honey us'd in it, but also by its long Coction, Infolation, &c. This is only made in the Heat of Summer.

Vinous Hydromel, (the same with what we otherwise call Mead, &c.) is made of Rain Water and the best Honey boil'd together, and skum'd from Time to Time till they become of a Consistence to sustain an Egg. This done, the Liquor is expos'd to the Sun for 40 Days, to dispose it to ferment; then, adding some *Spanish* Wine, and keeping it two or three Months, it acquires a Flavour scarce inferior to Malmsey. — It fuddles readily; and the drunken Fit holds longer than that produc'd by Wines, by reason of its more viscid Consistence.

Hydromel is the common Drink of the *Poles* and *Russians*. *Diodorus Siculus*, lib. V. and *Aristotle*, relate, that the *Celtiberi* and *Taulantii*, ancient People of *Illyria*, drank *Hydromel* instead of Wine.

The Word is compos'd of ὕδωρ, Water, and μέλι, *Mel*, Honey.

HYDROMETER, an Instrument wherewith to measure the Gravity, Density, Velocity, Force, or other Property or Circumstance of Water. See WATER.

That wherewith the specific Gravity of Water is determin'd, is more usually call'd an *Areometer* or *Water-poise*. See ARÆOMETER and WATER-*poise*.

The Word is compounded of the *Greek*, ὕδωρ, Water, and μέτρον, Measure.

HYDROMETRIA, HYDROMETRY, the Mensuration of Waters, and other fluid Bodies, their Gravity, Force, Velocity, Quantity, &c. See WATER and FLUID.

Hydrometria includes both Hydrostaticks and Hydraulicks. See HYDROSTATICKS and HYDRAULICKS.

The Term is modern, and very little in use. — The first Instance where we meet with it, is in the Year 1694, when a new Chair or Professorship of *Hydrometry* was founded in the University of *Boulogne*, in Favour of *S. Guglielmini*, who had carry'd the Doctrine of Running Waters, with respect to Rivers, Canals, Dikes, Bridges, &c. to an unusual Length. See RIVER, WAVE, &c.

HYDROMPHALUS, in Medicine, a Tumor in the Navel, arising from a Collection of Water.

The *Hydromphalus* is distinguish'd from other Tumors of the Navel by its being very soft, and yet not tractable or obedient to the Touch, so as to diminish or enlarge by compressing it. When view'd, plac'd between the Eye and the Light, it is found transparent.

The *Hydromphalus* is discuss'd by emollient and resolutive Medicines. It is also also cur'd by a Puncture made in the Middle of the Navel.

The Word is form'd of the *Greek*, ὕδωρ, Water, and ὀμφαλός, *umbilicus*, Navel.

HYDROMYSTES, or HYDROMYSTA, a Name given to certain Officers in the *Greek* Church, whose Business was to make the holy Water, and sprinkle it on the People. See *Holy* WATER.

The Word is compounded of ὕδωρ, *aqua*, Water, and μύστης, a Person set apart for the Offices of Religion.

HYDROPARASTATES, or HYDROPARASTES, a Sect of Hereticks, the Followers of *Tatian*, call'd also *Encratites*, *Apotactites*, *Saccophori*, *Severiani*, and *Aquarians*. See ENCRATITES and AQUARIANS, &c.

The *Hydroparastates* were a Branch of *Manichees*, whose distinguishing Tenet was, that Water should be us'd in the Eucharist instead of Wine.

The Word is form'd of the *Greek*, ὕδωρ, Water, and παρίστημι, I present, I offer.

HYDROPHOBIA, in Medicine, an Aversion or Dread of Water; a Symptom arising in Persons bitten by a mad Dog, or other Beast.

Tho' the Term *Hydrophobia* do, in Strictness, only denote this one Symptom; yet is it frequently apply'd to the whole Disease consequent on such Bite, with all its Symptoms.

The Word is *Greek*, compounded of ὕδωρ, Water, and φόβος, *Timor*, Fear, of φοβέομαι, *timeo*, I fear.

The History of this horrible Disease, as given by *Cœlius Aurelianus*, Dr. *Mead*, *Etmuller*, *Lister*, &c. is as follows:

The Bite of a mad Dog is attended with this surprizing Circumstance, that its Effects frequently do not discover themselves till after the Cause is forgot; the Wound itself closing and healing like any other common Wound. But, some time after, direful Symptoms ensue: Usually they commence in about forty Days; sometimes in sixty, sometimes not till six Months, and sometimes not till a Year, or even two. The first Thing observ'd, is a wandering Pain throughout the whole Body, but chiefly about the wounded Part: The Patient grows anxious and melancholly, and very prone to Anger; complaining of every Thing, as the ambient Air, the Heaviness of his Bed Cloaths, &c. He vomits; his Pulse intermits, and somewhat of a Tremor is observ'd, with Convulsions of the Nerves and Tendons: Along with these he feels an inward Heat and Thirst: At last the grand Symprom appears, which denominates the Disease, *viz.* the *Aquæ Pavor*, or Dread of Water, so that he cannot bear so much as the Sight of any Liquid, without the utmost Consternation; much less can he swallow the smallest Drop. This is the Pathogonomic Sign of the Disease's being come to its Height; and never happens till two or three Days before the Patient's Death; the Disease being then, by the unanimous Consent both of ancient and modern Physicians, absolutely incurable.

With this there are other concomitant Symptoms. — He foams at the Mouth, his Eyes stare, he cannot swallow his Spittle without Pain, and his *Penis* is constantly erected: Some bark and snarl like Dogs, and actually fancy themselves transform'd into those Creatures, and, in the Height of their Madness, are ready to fly upon and tear to Pieces the By-standers. — *Palmarius* observes, that the *Hydrophobous* Patient cannot bear to look in a Glass, or any transparent Body: And that he never recovers, unless he know himself in a Glass; this being a Sign that the Poison has not yet laid hold of the vital Parts.

It may be added, that the *Hydrophobia* is not only occasion'd by the Bite of a mad Dog, but also of other Brutes, as Cats, Foxes, Wolves, Horses, Mules, Bullocks, and even Cocks, &c. or of a Man in the like Condition.

Nor is any Bite or Wound at all necessary; the Saliva of a mad Dog, &c. being apt to convey the Disease by mere Contact, or Application to the Skin. — Thus, we have an Instance in the *Philosophical Transactions*, of two Men catching the Disease by putting their Fingers in the Mouth of a Puppy that had been bit by its mad Dam, and feeling its Tongue and Throat: And the like Instance we have in the same Work, of two Children in *Ireland*, who, by touching and handling the Head of a Dog that had been bit by a mad Dog, and washing the Wound, cur'd the Dog, but caught the Disease themselves.

For the Nature and Cause of the Hydrophobia; — Dr. *Mead*, from several Histories of particular Cases, concludes, that the *Hydrophobia* is the Effect of a particular Kind of Inflammation of the Blood, accompany'd with so great a Tension and Dryness of the nervous Membranes, and such an Elasticity and Force of the Fluid with which they are fill'd, that the most common Representations are made to the Mind with too great Effect; so that the usual Impressions on the Organs cannot be suffer'd. — Hence that Timorousness, unaccountable Anxiety, and Disquietude, which are always the Forerunners of the *Dread of Liquids*; as also, the Pain often felt in making of Water, and the strange Aversions sometimes found in Patients at the Sight of any thing white, the Retina being hurt and griev'd by the lively Impressions of that Colour thereon. — Nor is it hard to conceive, that when the Saliva is hot, and the Throat inflam'd and dry, the Swallowing of Drink should cause such an intolerable Agony.

M. *Tauvry*, from a nice Dissection and Examen of the Parts of a Person dead hereof, conjectures, that the Saliva and Bile are the Fluids first infected; and that the Patient vomiting a Mixture hereof, the Throat becomes excoriated thereby; and hence that Horror for all Foods, and particularly Water, in regard this dissolves those grievous Salts contain'd in the Saliva and Bile. He adds, That the Nature of the Poison is such, as dissolves the balsamic and nutritious Part of the Blood, whence the Veins are dry'd up, so as not to admit any Blood from the Arteries; and the Arterial Blood by this means sustaining the Action and Impression of its Vessels for so long a Time, is still further dissolv'd, attenuated, and spiritualiz'd, and thus sent, in too great Quantity, and with too great Rapidity, to the Brain; whence those Convulsions, Distractions, &c.

Dr. *Lister*, from the remarkable History of *J. Corton*, whom he attended under this Disease, concludes, 1°. That some of the organic Parts of his Body were actually transform'd into, or affected after the Nature of a Dog, especially the Gula, Tongue, &c. so that any Fluid offer'd him in the erect Posture of a Man, was frightful, as well as difficult to take, as much as it would be for us to get a Dog to drink standing on his hind Legs. But this was not all; for when he was turn'd upon his Belly, and would have acted the Dog, he could not drink; tho' the Sight of the Liquor in that Posture gave him as much Pleasure, as in the other Posture it did Pain; and tho' he frequently put out his Tongue, and lapp'd, yet he could not endure to take any thing Liquid into his Mouth, as tho' something hinder'd him within. 2°. That his Spittle was envenom'd; for as oft as he swallow'd it, his Stomach vehemently abhorring it, it went to his Heart, as he said, and was present Death to him: And so Liquid Things coming nearer to the Consistence of Spittle, might give him the greater Terror, as they tended to promote the Discharge of Saliva into his Mouth; and for the same Reason might be more difficult to swallow than solid Things.

As to the Cure of the Hydrophobia, Dr. *Mead*, after *Galen*, recommends it, in this as in other venomous Cases, to enlarge the Wound by a circular Incision, to apply a Cautery to it, and to keep it open for at least forty Days. But if this Method seem too cruel, it may suffice to extract the Poison by clapping a Cupping-glass on the Place, having first made a deep Scarification. The Doctor adds, he has known a Person fresh bitten, happily sav'd by the sole Application of the *Unguentum Ægypriacum* exceedingly hot.

If these external Precautions have not been us'd, or not in Time, recourse must be had to internal Remedies: Alexipharmachicks must be drank; among which, the Ashes of River Lobsters, or Cray Fish, are principally extoll'd by all the ancient Physicians; so that *Galen* affirms, no Body had ever dy'd who used this Remedy. These Ashes to be taken to the Quantity of one or two Spoonfuls every Day for forty Days successively, either alone, or with Gentian Root and Frankincense in Wine.

But the frequent and sudden plunging of the Patient over Head and Ears in the Salt Sea Water, is the best and surest Preservative against this Disease.

Etmuller recommends Cardiacks and Alexipharmachicks, but all in a double Dose, and long continu'd; and Garlic, Rue, and Salt to be beat together, and apply'd in form of a Cataplasm over the Wound. Purging with Hellebore and Mercurius Dulcis is also good; and Cantharides are a Sort of Specific. Scarrifying is commended; and after the Scarrification, an Onion roasted under the Ashes, to be apply'd. But the readiest Remedy, he adds, is burning the Place affected with a red hot Iron, which effectually removes all the Malignity. If the Physician be not call'd till late, a Cupping-glass is to be apply'd very hot: An Issue near the Place may likewise be of Service.

Sir *Theod. Mayerne* gives the following Prescriptions for the Bite of a mad Dog. Pluck the Feathers from the Breech of an old Cock, and apply it bare to the Bite: If the Dog were mad, the Cock will swell and die, and the Person bitten will do well: If the Cock dies not, the Dog was not mad. *Philosph. Transact.* N°. 191.

'Tis a common Notion, that a Hair of the same Dog apply'd on the Bite, attracts the Venom, and works a Cure: But a Physician of *Rostock*, in a formal Dissertation some Years ago, prov'd this a popular Error; and that the Remedy was more like to do harm than good.

The Marks whereby to know that a Dog is mad, are, his neither eating nor drinking, foaming at the Mouth and Nostrils, looking sad and sullen, and running at any thing in his Way, whether Man or Beast, known or unknown, without barking. - - *Baldus*, a famous Lawyer, dy'd of the *Hydrophobia* four Months after his being bit in the Lip by a little Dog. And the same is said of *Diogenes* the Cynic.

The Members of the Royal Academy of Sciences, furnish us with various Instances of Persons cur'd of the Disease by various Means. — M. *Poupart* mentions a Woman perfectly recover'd by bleeding her to a Deliquium, binding her in a Chair for a Year, and feeding her all that Time with Bread and Water. — M. *Berger* relates, that of several Persons bitten, two were cur'd by bleeding them in the Forehead. — M. *du Hamel* adds, that he has known Salt Water apply'd on the Wound, effect a Cure. — Divers Cases are produc'd of those cur'd of the *Aquæ Pavor*, by being overwhelm'd with a great Quantity of Water; and one, by being only ty'd to a Tree, and 200 Pails of Water thrown on him. — But the best Instance is that of M. *Morin*. A Maid of twenty Years of Age having all the Symptoms, was bath'd in a Tub of River Water, wherein a Bushel of Salt had been dissolv'd. They plung'd her naked again and again, till, harrass'd almost to Death, they left her in it quite senseless.—When she came to herself, she was surpriz'd to find herself looking at the Water without any Concern. *Histoire del Acad. An.* 1709.

HYDROPHORIA, in Antiquity, a Feast or Funeral Ceremony, held among the *Athenians* and People of *Ægina*, in Memory of those who perish'd in the Deluge. See DELUGE.

The Word is form'd of the *Greek*, ὕδωρ, Water, and φέρω, I beat, or carry off.

HYDROPIC, a dropsical Patient; or a Person swell'd and bloated with the Abundance of Water or Wind. See DROPSY.

The Word is form'd of ὕδωρ, Water, and ὀψ, *Facies*, Face.

HYDROPS, in Medicine. See DROPSY.

The Word is originally *Greek*, ὑδρωψ, of ὕδωρ and ὀψ.

HYDROPS *ad Matulam*, a Term sometimes used for a *Diabetes*. See DIABETES.

HYDROPOTES, in Medicine, are such as drink nothing but Water. See WATER.

It has long been controverted among Physicians, whether or no the *Hydropotes* live longer than other Persons. See DRINK.

The Word is *Greek*, ὑδροποτης, of ὕδωρ, Water, and ποτης, *Potor*, Drinker, of πινω, *bibo*, I drink.

HYDROSCOPE, an Instrument anciently used for the measuring of Time. See CHRONOMETER.

The *Hydroscope* was a Kind of Water-clock; consisting of a cylindrical Tube, Conical at Bottom: The Cylinder was graduated, or mark'd out with Divisions, to which the Top of the Water becoming successively contiguous, as it trickled out of the Vertex of the Cone, pointed out the Hour.

Synesius describes the *Hydroscope* at large in one of his Letters. See CLEPSYDRA.

The Word is *Greek*, ὑδροσκοπον, form'd of ὕδωρ, Water, and σκοπεω, I view, I consider.

HYDROSTATICAL *Ballance*, a kind of Ballance contriv'd for the easy and exact finding the Specific Gravities of Bodies both Liquid and Solid. See SPECIFIC *Gravity*.

The Instrument is of considerable Use in estimating the Degree of Purity of Bodies of all Kinds; the Quality and Richness of Metals, Ores, Minerals, &c. the Proportions in any Mixture, Adulteration, or the like: Of all which, the Specific Weight is the only adequate Judge. See WEIGHT, METAL, GOLD, MIXTURE, &c.

The *Hydrostatical Ballance* is founded on this Theorem of *Archimedes*, That a Body heavier than Water, weighs less in Water than in Air, by the Weight of as much Water as is equal to it in Bulk. — Whence, if we substract the Weight of the Body in Water from its Weight in Air, the Difference gives the Weight of as much Water as is equal in Magnitude to the Solid propos'd.

Having, therefore, two Bodies, the one firm, the other fluid, together with the Weight of each apart; to find their Proportion, divide the greater by the lesser, the Quotient compar'd to one that is an Unite, will be the Antecedent of the Proportion desir'd.

The Instrument, with all its Apparatus, is represented Tab. Hydrostaticks, Fig. 34. and needs little Description.

To use it, the Weights E are so adjusted, as to ballance what is to be hung on the other End of the Beam; in which State the Instrument is ready for Application.

Now, *to find the Specific Gravity of a Fluid.*—Hang to the other End of the Beam the little Scale F, and to the Bottom of the Scale the Bubble G; then fill a Cylindrical Vessel OP about two Thirds with common Water; and when the Bubble is let into it, the Beam will remain in an horizontal Position, if the Water be of the same Specific Gravity as that in which the Bubble was adjusted: If it be not, there will be a Variation; which is to be corrected by means of little Weights for that Purpose.

Having thus adjusted the Bubble in that Water, the Specific Gravity of any other Fluid will be found by weighing the Bubble therein; and since you always weigh so much of the Liquid as is equal to the Bulk of the Bubble, if there be any Variation between such Quantity, and the like Quantity of Water, it will be discover'd by putting Weights into the ascending Scale.

2°. *To find the Specific Weight of a Solid.* — Instead of the Bubble, hang on the Bucket HIK, and the Beam will be in Æquilibrio: Put the Solid intended to be examin'd therein, and counter-poise it with Weights in the other Scale: This done, note the Weight, and disburthen the Scales of the Solid and its Counter poise, and sink the Bucket into the Glass of Water. — Then, as the Bucket will lose as much of its Weight, as is the Weight of an equal Bulk of Water; add the Scale R upon the Part, which will bring all to an Æquilibrium. — Lastly, Put the Solid into the Bucket, and counter-poise it again with Weights; and as it answers in its Proportion to Water, it may be judg'd either genuine or adulterate, by comparing it to a Standard of that Species of Bodies to which it is supposed to belong.

HYDROSTATICKS, the Doctrine of Gravitation in Fluids; or that Part of Mechanicks which considers the Weight or Gravity of fluid Bodies, particularly Water; and of solid Bodies immerg'd therein. See GRAVITY and GRAVITATION.

To *Hydrostaticks* belong whatever relates to the Gravities and Equilibria of Liquors; with the Art of weighing Bodies in Water, in order to estimate their Specific Gravities. — Mr. *Boyle* has apply'd *Hydrostaticks* to good Purpose, in examining and proving the Goodness and Purity of Metals, Minerals, and other Bodies, particularly Fluids, in an express Treatise, entitled, *Medicina Hydrostatica*. See HYDROSTATICAL *Ballance*.

The Word is *Greek*, compos'd of ὕδωρ, Water, and στατικὴ, Staticks, of στατος, *stans*, standing, of ἱστημι, *sto*, *sisto*, I stand, I stop: *Hydrostaticks* being conceiv'd as the Doctrine of the Equilibrium of Liquors. See EQUILIBRIUM and STATICKS.

The Laws of HYDROSTATICKS, *with the Application thereof; see deliver'd at large under the Articles* FLUID and SPECIFIC *Gravity*.

Hydrostaticks are frequently confounded with *Hydraulicks*, by reason of the Affinity of the Subjects; and several Authors chuse to treat of the two promiscuously. See HYDRAULICKS.

The eldest Writer on *Hydrostaticks* is *Archimides*, who first deliver'd the Laws thereof in his Book *de insidentibus humido. Marin. Gleraldus* first brought his Doctrines to Experiment, in his *Archimedes promotus*: And from him Mr. *Oughtred* took the greatest Part of what he has given us on this Subject. Monf. *Mariotte*, in a *French* Treatise, publish'd at *Paris* in 1686, *Of the Motion of Water and other Fluids*, gives most of the Propositions of *Hydrostaticks* and Hydraulicks, prov'd by Reason, and confirm'd by Experiments: Nor are Mr. *Boyle's Hydrostatical Paradoxes*, and *Medicina Hydrostatica*, to be overlook'd: The Jesuit *Fr. Tertius de Lanis*, in the IIId Tome of his *Magisterium Naturæ & Artis*, lays down the Doctrines of *Hydrostaticks* more amply than they are elsewhere found. F. *Lamy*, in the 2d Part of his Mechanicks, entitled, *Traite de l'Equilibre des Liqueurs*, delivers the fundamental Laws of *Hydrostaticks*, and Hydraulicks; and the like is done by Dr. *Wallis*, in his *Mechanica*. Lastly, Sir *Is. Newton* gives some of the sublimer Matters in the 2d Book of his *Philosoph. Nat. Princip. Mathemat.*

HYDROTICKS, in Medicine, *Sudorificks*; or Remedies that promote Sweat. See SUDORIFICKS.

The Word is *Greek*, form'd of ὕδωρ, *aqua*, Water.

HYGIEINA, that Branch of Medicine which considers *Health*; and discovers proper Means and Remedies, with their Use, in the Preservation and Recovery of that State. See MEDICINE and HEALTH.

The Objects of this Branch of Medicine are the Non-Naturals: See NON-*Naturals*.

Hygieina may be divided into three Parts; *Prophylactice*, which foresees and prevents Diseases; *Synteritice*, employ'd in preserving Health; and *Analeptice*, whose Office is to cure Diseases, and restore Health. See PROPHYLACTICE, &c.

The Word is *Greek*, Υγιεινη, of ὑγιὴς, sound, healthy.

HYGROCYRSOCELE, in Medicine, a Branch of a Vein swell'd with ill Blood, or other Humours. See VAREX.

The Word is compos'd of ὑγρος, *humidus*, and κιρσοκὴλη, or rather κιρσοκὴλη, *ramex varicosus*.

HYGROMETER, a Machine or Instrument whereby to measure the Degrees of Dryness or Moisture of the Air. See AIR, HUMIDITY, &c.

The Word is compounded of the *Greek*, ὑγρος, *humidus*, moist, and μετρέω, *metior*, I measure. See HYGROSCOPE.

There are divers Kinds of *Hygroscopes*; for, whatever Body either swells or shrinks by Dryness or Moisture, is capable of being form'd into an *Hygrometer*. — Such are Woods of most Kinds, particularly Ash, Deal, Poplar, &c. Such also is a Cat-gut, the Beard of a wild Cat, &c. See WOOD, &c.

The best and most usual Contrivances for this Purpose, are as follow:

Construction of a HYGROSCOPE.

Stretch a hempen Cord, or a Fiddle-string, as AB (Tab. Pneumaticks, Fig. 7.) along a Wall, bringing it over a Truckle or Pulley B; and to the other Extreme D, tye a Weight E; into which fit a Style or Index FG.—On the same Wall fit a Plate of Metal HI, divided into any Number of equal Parts: And the *Hygroscope* is compleat.

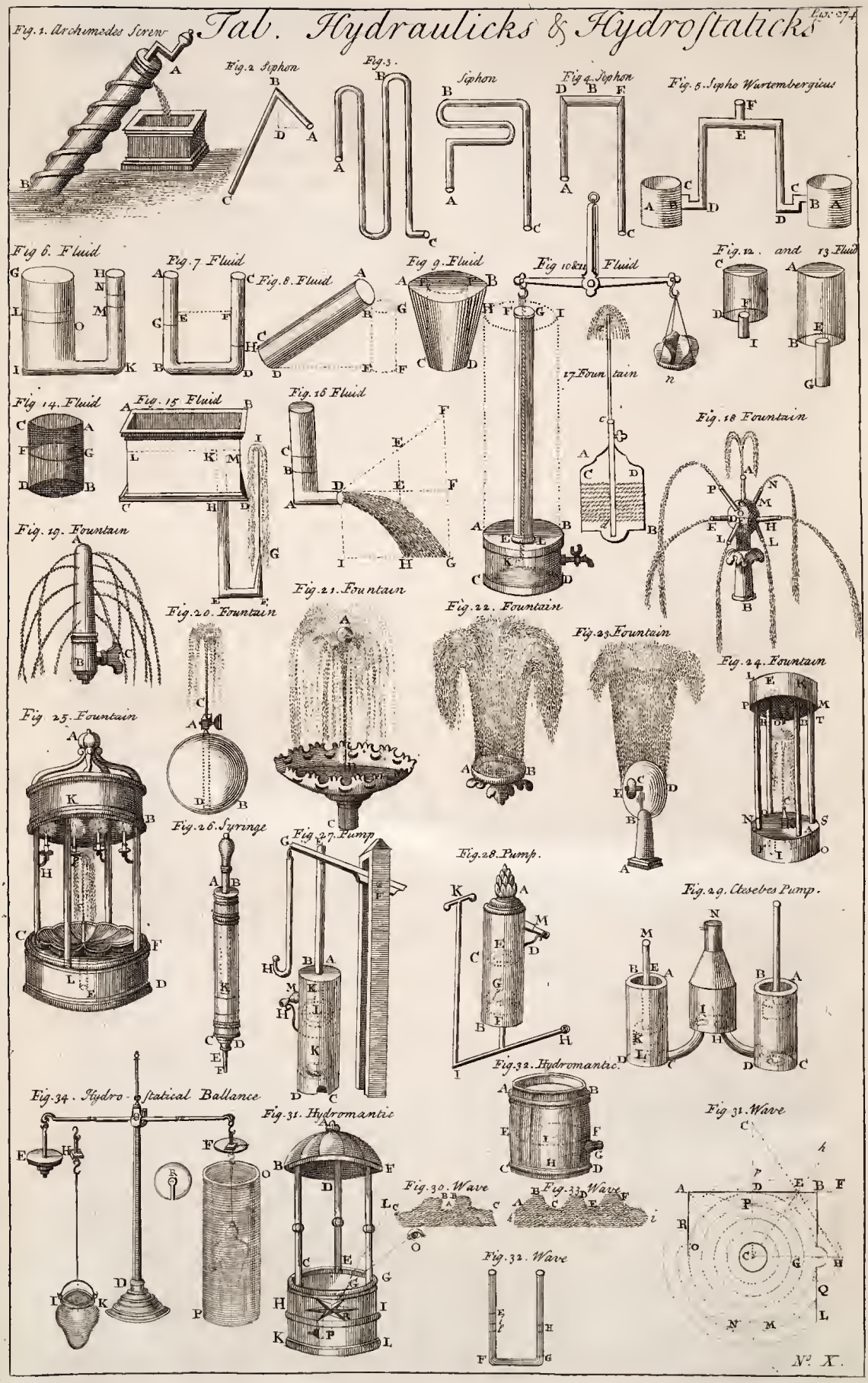
For it is Matter of undoubted Observation, that Moisture sensibly shortens the Length of Cords and Strings; and that, as the Moisture evaporates, they return to their former Length: And the like may be said of a Fiddle-string. — The Weight, therefore, in the present Case, upon an Increase of the Moisture of the Air, will ascend; and, upon a Diminution of the same, descend.

Hence, as the Index FG will shew the Spaces of Ascent and Descent; and those Spaces are equal to the Increments and Decrements of the Length of the Cord or Gut ABD; the Instrument will discover, whether the Air be more or less humid now, than it was at another given Time.

Or thus:

If a more sensible and accurate *Hygroscope* be requir'd, strain a Whipcord or Fiddle-string over several Truckles or Pulleys A, B, C, D, E, F, and G, (Fig. 8.) and proceed with the rest as in the former Example. Nor does it matter whether the several Parts of the Cord AB, BC, CD, DE, EF

Tab. Hydraulicks & Hydrostaticks



Nº X.

EF, and FG, be parallel to the Horizon, as expreſs'd in the preſent Figure, or perpendicular to the ſame.

The Advantage of this, above the former *Hygrometer*, is, that we have a greater Length of Cord in the ſame Compaſs: And the longer the Cord, the greater its Contraction and Dilatation.

Or thus:

Faſten a hempen Cord or Fiddle-ſtring AB (Fig. 9.) to an Iron Hook, and let the other End, B, deſcend upon the Middle of a horizontal Board or Table EF. Near B hang a leaden Weight of a Pound, C, and fit an Index CG. Laſtly, from the Center B deſcribe a Circle; which divide into any Number of equal Parts.

Now, it is matter of Obſervation, that a Cord or Gut twiſts itſelf as it is moiſten'd, and untwiſts again as it dries. --- Mr. *Molyneux*, Secretary of the *Dublin* Society, writes, that he could perceive this alternate Twiſting and Untwiſting in a Cord, by only breathing on it eight or ten times, and then applying a Candle toward it. Hence, upon an Increaſe or Decreaſe of the Humidity of the Air, the Index will ſhew the Quantity of Twiſting or Untwiſting; and, conſequently, the Increment or Decrement of Humidity or Siccity.

Or thus:

Faſten one End of a Cord or Fiddle-ſtring HI (Fig. 10.) to a Hook H; and to the other End faſten a Ball K, of a Pound Weight. Draw two concentric Circles on the Ball, and divide them into any Number of equal Parts. Fit a Style or Index NO into a proper Support N, ſo as the Extremity O may almoſt touch the Diviſions of the Ball.

Here, the Cord or Gut twiſting and untwiſting, as in the former Caſe, will indicate the Change of Moiſture, &c. by the ſucceſſive Application of ſeveral Diviſions of the Circles to the Index.

Or thus:

Provide two wooden Frames AB and CD, (Fig. 11.) with Grooves therein; and between thoſe Grooves fit two thin Leaves of Aſh AEFC, and GBDH, ſo as they may eaſily ſlide either Way. At the Extremes of the Frames A, B, C, D, confine the Leaves with Nails, leaving between them the Space EGHF, about an Inch wide. On I faſten a Slip of Braſs dented, IK; and in L a little dented Wheel, upon whoſe Axis, on the other Side of the Machine, an Index is to be put. Laſtly, from the Centre of the Axis, on the ſame Side, draw a Circle, and divide it into any Number of equal Parts.

Now, it being found by Experience, that Aſhen Wood readily imbibes the Moiſture of the Air, and ſwells therewith; and as that Moiſture ſlackens, ſhrinks again; upon any Increaſe of the Moiſture of the Air, the two Leaves AF and BH growing turgid, will approach nearer each other: And, again, as the Moiſture abates, they will ſhrink, and again recede.---Hence, as the Diſtance of the Leaves can neither be increas'd nor diminiſh'd without turning the Wheel L, the Index will point out the Changes in reſpect of Humidity and Siccity.

Or thus:

It is to be noted, that all the *Hygrometers* above deſcrib'd become ſenſibly leſs and leſs accurate; and, at length, undergo no ſenſible Alteration at all from the Humidity of the Air. The following one is much more laſting.

Take the *Manoſcope*, deſcrib'd under that Article, and, inſtead of the exhauſted Ball E, (Fig. 12.) ſubſtitute a Spunge, or other Body, which eaſily imbibes Moiſture. To prepare the Spunge, it may be neceſſary firſt to waſh it in Water; and when dry again, in Water or Vinegar wherein Sal Ammoniac or Salt of Tartar has been diſſolv'd, and let it dry again.

Now, if the Air become moiſt, the Spunge growing heavier, will preponderate; if dry, the Spunge will be hoiſted up; and, conſequently, the Index will ſhew the Increaſe or Decreaſe of Humidity of the Air.

In the laſt mention'd *Hygroſcope*, Mr. *Gould*, in the *Philoſophical Tranſactions*, inſtead of a Spunge, recommends Oil of Vitriol, which is found to grow inſenſibly lighter or heavier, in Proportion to the leſſer or greater Quantity of Moiſture it imbibes from the Air; ſo that being ſatiated in the moiſteſt Weather, it afterwards retains or loſes its acquir'd Weight, as the Air proves more or leſs moiſt. --- The Alteration is ſo great, that in the Space of 57 Days, it has been known to change its Weight from three Drams to nine; and has ſhifted an Index or Tongue of a Ballance 30 Degrees. --- A ſingle Grain, after its full Increaſe, has vary'd its Equilibrium ſo ſenſibly, that the Tongue of a Ballance only an Inch and half long, deſcrib'd an Arch one Third of an Inch in Compaſs; which Arch would have been almoſt three Inches, if the Tongue had been one Foot, even with ſo ſmall a Quantity of Liquor; conſequently, if more Liquor expanded under a large Surface were us'd, a Pair of Scales might afford as nice a *Hygroſcope* as any yet invented. --- The ſame Author ſuggeſts, that Oil of Sulphur per Campanam, or Oil of Tartar per Deliquium, or the Liquor of fix'd Nitre, might be ſubſtituted in lieu of the Oil of Vitriol.

This Ballance may be contriv'd two Ways; by either having the Pin in the Middle of the Beam, with a ſtender Tongue a Foot and half long, pointing to the Diviſions on an arched Plate; as repreſented in Fig. 12.

Or, the Scale with the Liquor may be hung to the Point of the Beam near the Pin, and the other Extreme be made ſo long, as to deſcribe a large Arch on a Board plac'd for the Purpoſe; as repreſented in Fig. 13.

From a Series of *Hygroſcopical* Obſervations made with an Apparatus of Deal Wood, deſcrib'd in the *Philoſophical Tranſactions*, Mr. *Coniers* concludes; 1°. That the Wood ſhrinks moſt in Summer, and ſwells moſt in Winter; but is moſt liable to change at Spring and Fall. 2°. That this Motion happens chiefly in the Day-time; there being ſcarce any Variation in the Night. 3°. That there is a Motion even in dry Weather; the Wood ſwelling in the Forenoon, and ſhrinking in the Afternoon. 4°. The Wood, by Night as well as Day, uſually ſhrinks when the Wind is in the North, North-Eaſt, and Eaſt, in Winter and Summer. 5°. By conſtant Obſervation of the Motion and Reſt of the Wood, with the Help of a Thermometer, one may tell the Situation of the Wind without a Weather-cock. See WIND.

He adds, that the Time of the Year may be known by it; for in Spring it moves quicker, and more than in Winter; in Summer it is more ſhrunk than in Spring; and has leſs Motion in Autumn than in Summer. See SEASON, WEATHER, &c.

HYGROSCOPE, is commonly us'd in the ſame Senſe with *Hygrometer*. See HYGROMETER.

Wolfius, however, regarding the Etymology of the Word, makes ſome Difference. According to him, the *Hygroſcope* only ſhews the Alterations of the Air in reſpect of Humidity and Dryneſs; but the *Hygrometer* meaſures them. A *Hygroſcope*, therefore, is a leſs accurate Hygrometer.

The Word is compounded of ὕγρος, moiſt, and σκοπέω, *video, ſpecto*, I ſee, I conſider.

HYLE, or HYLEC, among Alchymiſts, is their firſt Matter; or it is Matter conſider'd as produc'd by Nature herſelf; call'd alſo *Chaos*. See MATTER, ALCHYMY, &c.

The Word is *Greek*, ὕλη, which ſignifies Matter.

HYLEG, or HYLECH, in Aſtrology, an *Arabic* Term for a Planet; which in a Man's Nativity becomes the Moderator and Significator of Life. See NATIVITY, SIGNIFICATOR, &c.

HYLEGIAL *Places*, among Aſtrologers, are ſuch, in which, when a Planet happens to be ſet, it may be ſaid to be fit to have the Government of Life attributed thereto.

HYLOBII, or HYLOBIANS, a Sect of *Indian* Philoſophers, thus denominated by the *Greeks*, in regard they retir'd to Foreſts, to be more at Leiſure for the Contemplation of Nature.

The Name is compounded of the *Greek*, ὕλη, which, beſide Matter, ſignifies alſo Wood, Foreſt; and βίος, Life.

HYMEN, in Poetry, a Term of Invocation.---*Hymen* or *Hymenæus*, is properly a fabulous Divinity, ſuppos'd by the Ancients to preſide over Marriages; and who accordingly was invok'd in Epithalamiums and other matrimonial Ceremonies, under this Formula, *Hymen o Hymenæe*.

The Poets generally give this Deity a Chaplet of Roſes; and repreſent him as it were diſſolv'd and enervated with Pleaſures; dreſs'd in a yellow Robe, and Shoes of the ſame Colour; with a Torch in his Hand.---*Catullus*, in one of his Epigrams, addreſſes him thus:

Cinge tempora floribus,
Suave olentis Amaraci.

It was for this Reaſon, that the new marry'd Couple bore Garlands of Flowers on the Wedding-Day: Which Cuſtom alſo obtain'd among the *Hebrews*; and even among the Chriſtians, during the firſt Ages of the Church, as appears from *Tertullian*, *de Corona Militari*, where he ſays, *Coronant & Nuptæ Sponſos*.---S. *Chryſoſtom* likewiſe mentions theſe Crowns of Flowers; and to this Day the *Greeks* call Marriage στεφανωμα, in reſpect of this Crown or Garland. See CROWN and GARLAND.

HYMEN, in Anatomy, is a thin Membrane or Skin, reſembling a Piece of fine Parchment, ſuppos'd to be ſtretch'd in the Neck of the Womb of Virgins, below the Nymphæ; and to be broke when they are deflower'd; an Effuſion of Blood following the Breach. See DEFLORATION and VIRGIN.

The *Hymen* is generally look'd upon as the Teſt of Virginity; and when broke, or withdrawn, ſhews, that the Perſon is not in a State of Innocence.---This Notion is very ancient. Among the *Hebrews*, it was the Cuſtom for the Parents to ſave the Blood ſhed on this Occaſion, as a Token of the Virginity of their Daughter; and to ſend the Sheets, next Day, to the Husband's Relations. And the like is ſaid to be ſtill practis'd

practis'd in *Portugal*, and some other Countries. See VIRGINITY.

And yet Authors are not agreed as to the Existence of such *Hymen*. Nothing, Dr. *Drake* observes, has employ'd the Curiosity of Anatomists, in dissecting the Organs of Generation in Women, more than this Part: They differ not only as to its Figure, Substance, Place, Perforation, but even its Reality; some positively affirming, and others flatly denying it.

De Graaf himself, the most accurate Inquirer into the Structure of these Organs, confesses, he always sought it in vain, tho' in the most unsuspected Subjects and Ages: All he cou'd find, was a different Degree of Streightness or Wideness; and different Corrugations, which were greater or less according to the respective Ages; the Aperture being still the less, and the Rugosities the greater, as the Subject was younger, and more untouch'd.

Dr. *Drake*, on the other Hand, declares, that in all the Subjects he had had Opportunity to examine, he does not remember to have miss'd the *Hymen* so much as once, where he had reason to depend on finding it. The fairest View he ever had of it, was in a Maid who dy'd at 30 Years of Age: In this, he found it a Membrane of some Strength furnish'd with fleshy Fibres, in Figure round, and perforated in the Middle with a small Hole capable of admitting the End of a Woman's little Finger, situate a little above the Orifice of the urinary Passage, at the Entrance of the Vagina of the Womb.

In Infants, it is a fine thin Membrane, not very conspicuous, because of the natural Streightness of the Passage itself, which does not admit of any great Expansion in so little a Room; which might lead *de Graaf* into a Notion of its being no more than a Corrugation.

This Membrane, like most others, does probably grow more distinct, as well as firm, by Age. That it is sometimes very strong and impervious, may be collected from the History of a Case reported by Mr. *Cowper*: In a marry'd Woman, 20 Years of Age, the *Hymen* was found altogether impervious, so as to detain the Menses, and to be driven out by the Pressure thereof, beyond the Labia of the Pudendum, not unlike a Prolapsus of the Uterus. On dividing it, at least a Gallon of grumous Blood came forth. It seems the Husband, being deny'd a Passage that Way, had found another thro' the Meatus Urinarius, which was found very open, and its Sides extruded like the Anus of a Cock. See MEATUS.

Upon a Rupture of the *Hymen*, its Parts shrinking up, are suppos'd to form those little fleshy Knots, call'd *Carunculæ Myrtiformes*. See MYRTIFORMES *Carunculæ*.

HYMEN is also us'd by Botanists for a fine delicate Skin, wherewith Flowers are inclos'd while in the Bud, and which bursts as the Flower blows or opens. See BUD.

The *Hymen* is particularly us'd in speaking of Roses.

HYMN, a Song or Ode in Honour of God; or, a Poem proper to be sung, compos'd in Honour of some Deity. See SONG and ODE.

The *Hymns* or Odes of the Ancients generally consisted of three Stanzas or Couplets; the first call'd *Strophe*; the second, *Antistrophe*; and the last *Epode*. See STROPHE, ANTISTROPHE, and EPODE.

The Word is form'd of the *Greek*, ὕμνος, *Hymn*, of the Verb ὕδω, *celebro*, I celebrate. — *Isidore*, on this Word, remarks, that *Hymn* is properly a Song of Joy, full of the Praises of God; by which, according to him, it is distinguish'd from *Threna*, which is a mourning Song, full of Lamentation. See THRENA.

St. *Hilary*, Bishop of *Poictiers*, is said to have been the first that compos'd *Hymns* to be sung in Churches: He was follow'd by St. *Ambrose*. Most of those in the *Roman* Breviary were compos'd by *Prudentius*. They have been translated into *French* Verse by the Messieurs *de Port Royal*. See PSALM.

The *Te Deum* is also commonly call'd a *Hymn*, tho' it be not in Verse; so is the *Gloria in excelsis*. See TE DEUM and GLORIA *in excelsis*.

In the *Greek* Liturgy, there are four Kinds of *Hymns*; but then the Word is not taken in the Sense of a Praise offer'd in Verse, but simply of Laud or Praise.—The Angelic *Hymn*, or *Gloria in excelsis*, makes the first Kind; the Trisagion the second; the Cherubic *Hymn* the third; and the *Hymn* of Victory and Triumph, call'd ἐπινίκιος, the last. See TRISAGION.

HYOIDES, in Anatomy.—The *Os Hyoides*, call'd also *Bicorne*, is a Bone situate at the Root of the Tongue, making, as it were, the Basis or Foundation thereof. See TONGUE.

It is thus call'd from its imperfect Resemblance of the *Greek* Upsilon υ; the Word being form'd of υ and εἶδος, Form; for which Reason it is also call'd *Ypsiloides* and *Hypsiloides*.

It generally consists, in Adults, of three little Bones; and in Children of five or six. The middle Bone of the three, which is the shortest and broadest, is call'd the *Basis*, and the two Side Bones *Cornua* or *Horns*; whence also the Appellations *Bicorne* and *Ceratoides*.

The Basis of the *Hyoides* is about a Thumb's Breadth long on the outer Side, which is convex; the inner being concave. It is half a Finger broad, and has a small Protuberance in the Middle. The Cornua are an Inch and half long, and broader at Bottom than at the Extremes, which are about two Inches asunder.

It has two cartilaginous Processes, call'd *Cornicula*, fasten'd about the Juncture of its Cornua with the Basis. They are ty'd to the Processus Styloides by long slender Ligaments; tho' sometimes between them and the Styloides there is found a small Muscle, beside the *Styloceratohyoideus*.

The Basis of this Bone lies, as it were, on the Head of the Larynx; and its Horns are fasten'd by Ligaments to the upper Processes of the *Cartilago Scutiformis*, and Styloides. See LARYNX, SCUTIFORMIS, &c.

It is mov'd by five Pair of Muscles, *viz.* the *Sternohyoideum*, the *Coracohyoides*, the *Mylohyoideum*, *Geniohyoideum*, and *Stylohyoideum*. See each under its proper Article STERNOHYOIDEUM, CORACOHYOIDES, &c.

HYOTHYROIDES, in Anatomy, a Pair of Muscles of the Larynx. See LARYNX.

They rise from the anterior Part of the Os Hyoides, and are inserted into the Cartilago Thyroides.—They serve as Antagonists to the Sternothyroides; and lift up the Thyroid Cartilage.

The Word is compounded of *Hyoides* and *Thyroides*. See THYROIDES, &c.

HYPALLAGE, or *Immutation*, a Grammatical Figure, whereby, of different Expressions which give the same Idea, we make Choice of that which is least us'd; or, when there is a mutual Permutation or Change of Cases, Moods, Regimens, &c. See FIGURE.

As, in this Instance, *Dare Classibus Austros*, instead of *Dare Classes Austris*.

The Word is *Greek*, ὑπαλλαγὴ, form'd of ὑπαλλάττω, I change; compos'd of ὑπὸ and ἀλλάττω, I change; of ἄλλος, *alter*, another.

HYPAPANTE, or HYPANTE, a Name which the *Greeks* give to the Feast of the Purification of the Holy Virgin; or the Presentation of Jesus in the Temple. See PURIFICATION.

The Word literally expresses *meeting*; by reason of the Meeting of old *Simeon* and *Anna* the Prophetess in the Temple, at the Time the Child Jesus was brought thither.

The Words *Hypante* and *Hypapante* are *Greek*, ὑπάντη and ὑπαπάντη, which properly signify humble and lowly Meeting; being compounded of ὑπὸ, under, beneath, and ἀντάω, I meet, of ἀντὶ, *contra*, against.

HYPER, a *Greek* Word, us'd in the Composition of divers Terms deriv'd from that Language.

The *Greek* Preposition, ὑπὲρ, *hyper*, literally signifies above, beyond; and, in Composition, expresses some Excess, or something beyond the Signification of the simple Word it is join'd with. — Hence,

HYPERBATON, in Grammar and Rhetoric, a Transposition; or, a figurative Construction, inverting the natural and proper Order of the Terms of a Discourse. See TRANSPOSITION.

The *Hyperbaton*, *Longinus* observes, is no other than a Transposal of Sentiments or Words out of the natural Order and Method of Discourse; and always implies great Violence or Strength of Passion, which naturally hurries a Man out of himself, and distracts him variously.—*Thucydides* is most liberal in *Hyperbatons*.

Quintilian calls the *Hyperbaton*, *Verbi transgressio*.—It is of use to enliven and animate the Discourse: It is very proper to express a violent Passion, and represent an Agitation of Mind in the livelieſt Manner.

The Word is deriv'd of the *Greek*, ὑπερβαίνω, *transgredior*, I go beyond; form'd of ὑπὲρ, *ultra*, beyond, and βαίνω, *eo*, I go.

HYPERBOLA, in Geometry, one of the Curve Lines, form'd by the Section of a Cone. See CONIC *Section*.

The *Hyperbola* arises when the Plane that cuts the Cone is not parallel to one of its Sides, as it is in the *Parabola*; but diverges from it outwards, not inward, as in the *Ellipsis*. See PARABOLA and ELLIPSIS.

Thus: If the Cone ABC (Tab. Conicks, Fig. 27.) be so cut, as that the Axis of the Section DQ continu'd, concur with the Side of the Cone AC, continu'd to E; the Curve arising from this Section is an *Hyperbola*. See CONE.

Some Authors define the *Hyperbola* to be a Section of the Cone, by a Plane parallel to its Axis. But this Definition is faulty: For tho' it be true that such a Section really describes a *Hyperbola*; yet it is likewise true, that a thousand others may be describ'd where the Plane is not parallel to the Axis, and which of Consequence are not included in the Definition.

Authors sometimes call the Plane terminated by this Curve, by *Hyperbola*; and in respect hereof, call the Curve itself the *Hyperbolic Line*.

A *Hyperbola* may be defin'd, with respect to its Properties, to be a Curve Line, wherein the Square of the Semi-ordinate is to the Rectangle of the Abscis into a right Line compounded

pounded of the same Abscissa, and a given right Line call'd the Transverse Axis, as another given right Line, call'd the Parameter of the Axis, is to the Transverse Axis: Or, it is a Curve Line, wherein $ay^2 = abx + bxx$, that is, $b : a = y^2 : ax + x^2$.

In the *Hyperbola*, a mean Proportional between the transverse Axis and Parameter, is call'd the *Conjugate Axis*: And if the Transverse Axis AB (Tab. Conicks, Fig. 27.) be join'd directly to the Axis AX, and be bissected in C; the Point C is call'd the *Centre of the Hyperbola*. See Axis and Centre.

If a right Line DE pass thro' the Vertex A, (Fig. 20.) parallel to the Ordinates *Mm*, it is a *Tangent to the Hyperbola* in A. See Tangent.

If a right Line DE be drawn thro' the Vertex A of an *Hyperbola*, parallel to the Ordinates *Mm*, and be equal to the Conjugate Axis, *viz.* the Parts DA and AE equal to the Semi-axis; and right Lines CF and CG be drawn from the Centre C thro' D and E; those Lines are call'd *Assymptotes of the Hyperbola*. See Assymptotes.

The Square of the right Line CI or AI, is call'd the *Power of the Hyberbola*. See Power.

Properties of the Hyperbola.

In the *Hyberbola*, the Squares of the Semi-ordinates are to each other, as Rectangles of the Abscissa into a certain right Line compos'd of the Abscissa and Transverse Axis. — Hence, as the Abscisses x increase, the Rectangles $ax + x^2$, and, consequently, the Squares of the Semi-ordinates y^2, and therefore the Semi-ordinates themselves, increase. The *Hyperbola*, therefore, continually recedes from its Axis.

2°. The Square of the Conjugate Axis, is to the Square of the Transverse, as the Parameter, to the Transverse Axis. — And hence, since $b : a :: PM^2 : AP.PB$, the Square of the Conjugate Axis, is to the Square of the Transverse; as the Square of the Semi-ordinate is to the Rectangle of the Abscissa into a Line compos'd of the Abscissa and Transverse Axis.

3°. *To describe an Hyperbola*, in a continu'd Motion; the Transverse Axis, and the Distance from the Vertex being given. In the two Foci F and *f*, (Fig. 28.) fix two Nails or Pins; and to one of them, in F, tye a Thread FMC, fastening the other End C to the Ruler C*f*, which exceeds the same by the Transverse Axis AB. The other End of the Ruler being perforated, put it on the Pin *f*; and fixing a Style to the Thread, move the Ruler. Thus will the Style trace out an *Hyperbola*.

Again, with the same Data, any Number of Points in an *Hyperbola* are easily found, which may be connected into an *Hyperbola*. Thus, from the Focus *f*, with any Interval greater than AB, describe an Arch; and making $fb = AB$; with the remaining Interval *bm*, from the Point F, draw another Arch intersecting the former in *m*: For, as $fm - Fm = AB$; *m* is a Point in the *Hyperbola*. And so of the rest.

4°. If in an *Hyperbola*, the Semi-ordinate PM, Fig. 20. be produc'd till it meet the Asymptote in R; the Difference of the Squares of PM and PR is equal to the Square of the Conjugate Semi-axis DA.—Hence, as the Semi-ordinate PM increases, the right Line PR decreases, and consequently MR; and therefore the *Hyperbola* itself approaches nearer to the Asymptote; but it can never absolutely meet it, because, as $PR^2 - PM^2 = DA^2$; it is impossible $PR^2 - PM^2 - PM^2$ should ever become $= 0$.

5°. In an *Hyperbola*, the Rectangle of MR and M*r*, is equal to the Difference of the Squares PR^2 and PM^2. — And hence, the same Rectangle is equal to the Square of the Conjugate Semi-axis DA; and consequently all Rectangles form'd in the same Manner are equal.

6°. If *qm* be parallel to the Asymptote CF, the Rectangle of *qm* into C*q* is equal to the Power of the *Hyperbola*. — And hence, 1°. If we make $CI = AI = a$, $Cq = x$, and $qm = y$, we shall have $a^2 = xy$; which is the Equation expressing the Nature of the *Hyperbola* within its Asymptotes. 2°. The Asymptotes therefore being given in Position, and the Side of the Power of CI or AI; if in one of the Asymptotes CG, you take any Number of Abscisses; so many Semi-ordinates will be found, and by them any Number of Points in an *Hyperbola* will be determin'd by finding third Proportionals to the Abscissa, and the Side of the Power CI. — 3°. If the Abscisses be not computed from the Centre C, but from some other Point L; and CL be suppos'd $= b$; we shall have $Cq = b + x$; and consequently $a^2 = by + xy$.

7°. In the *Hyperbola*, as the Transverse Axis is to the Parameter; so is the Aggregate of the Transverse Semi-axis and Abscissa, to the Subnormal: And as the Aggregate of the Transverse Semi-axis and Abscissa is to the Abscissa; so is the Aggregate of the entire Transverse Axis and Abscissa to the Subtangent. See Subnormal and Subtangent.

8°. If within the Asymptotes of an *Hyperbola*, from a Point thereof, *m*, (Fig. 29.) be drawn two right Lines H*m* and *m*K, and other two LN and NO, parallel to the same; H*m*, *m*K = LN, NO. And the same will hold, if you draw LN*o* parallel to the right Line thus drawn H*mk*, *viz.* in this Case likewise $Hm.mk = LN.No$. — Consequently, all Rectangles form'd after this Manner of right Lines drawn parallel either to the same Line H*k*, or to two, H*m* and *m*K, are equal to each other.

9°. If a right Line H*k*, be drawn in any Manner between the Asymptotes of an *Hyperbola*; the Segments HE and *m*K intercepted on each Side between the *Hyperbola* and Asymptotes are equal. — And hence, if $Em = o$; the right Line H*k* is a Tangent to the *Hyperbola*: Consequently, the Tangent FD intercepted between the Asymptotes, is bissected in the Point of Contact V. Lastly, the Rectangle of the Segments H*m* and *mk*, parallel to the Tangent FD, is equal to the Square of half the Tangent DV.

10°. The Square of the Semi-ordinate in an *Hyperbola*, is to the Rectangle of the Abscissa, and Aggregate of the Transverse Diameter AB, (Fig. 30.) and Abscissa AP, as the Square of the Conjugate Semi-diameter AD, is to the Square of the Transverse Semi diameter CA. — Hence, if you suppose AP*x*, and $2r^2 = AB = a$, you will have $v^2 r^2 = ax + x^2$; consequently $y^2 = (c^2ax + c^2x^2) : \frac{1}{4}aa = \frac{4c^2x}{a} + \frac{4c^2x^2}{a^2}$. Make $4c^2 : a = b$; then will $y^2 = bx + bx^2 : a$. So that the same Equation defines the Nature of the *Hyperbola* in respect of its Diameter, as expresses it in respect of its Axis; and the Parameter is a third Proportional to the Conjugate Diameters DE and AB.

11°. If from the Vertex A, and any Point of a Parabola N, you draw AF and TN parallel to the Asymptote CR; the Rectangle of TN into TC, will be equal to the Rectangle of FA into FC. — Hence, if $TC = x$, $TN = y$; the Equation expressing the Nature of a *Hyperbola* within Asymptotes, in respect of its Diameter, will be $xy = ab$.

12°. An Asymptote being taken for a Diameter; divided into equal Parts, and thro' all the Divisions, which form so many Abscisses continually increasing equally, Ordinates to the Curve being drawn, parallel to the other Asymptote; the Abscisses will represent an infinite Series of natural Numbers; and the corresponding *Hyperbolic* or Asymptotic Spaces, will represent the Series of Logarithms of the same Numbers. See Logarithm and Logarithmic *Curve*.

Hence, different *Hyperbola's* will furnish different Series of Logarithms to the same Series of natural Numbers; so that to determine any particular Series of Logarithms, choice must be made of some particular *Hyperbola*. — Now, the most simple of all the *Hyperbola's* is the Equilateral one; *i. e.* whose Asymptotes make a right Angle between them. This, M. *de Lagni* alledges in Favour of the Binary Arithmetic, as being the Result of such Equilateral *Hyperbola*. See *Binary* Arithmetic.

For the Locus of an Hyperbola. See Locus.

For the Quadrature of an Hyperbola. See Quadrature.

Equilateral Hyperbola, is that wherein the Conjugate Axis AB (Fig. 20.) and DE are equal.

Properties of the Equilateral Hyperbola.

Since the Parameter is a third Proportional to the Conjugate Axis, it is also equal to the Axis.

Wherefore, if in the Equation $y^2 = bx + bx^2 : a$, you suppose $b = a$; the Equation $y^2 = ax + x^2$ will express the Nature of the Equilateral *Hyperbola*.

And hence, the Squares of the Ordinates y^2 and z^2, are to each other as $ax + x^2$ and $av + v^2$: That is, as the Rectangles of the Abscisses into right Lines compos'd of the Abscissa and Parameter.

If you suppose $CP = x$, $CA = r$, and $AP = x - r$, and $PB = r + x$. Consequently $y^2 = x^2 - x^2$.

And since $AE = CA$; the Angle ACE will be half right; and consequently the Angle of the Asymptotes FCG a right Angle.

Infinite Hyperbola's, or Hyperbola's *of the higher Kinds*, are thus defin d by the Equation $ay^{m+n} = bx^m (a+x)^n$. See Hyperboloides.

Hence, in infinite *Hyperbola's* ay^{m+n}, $av^{m+n} = bx^m (a+x)^n : bz^m (a+z)^n$: That is, $y^{m+n} : v^{m+n} = x^m (a+x)^n : z^m (a+z)^n$.

As the *Hyperbola* of the first Kind or Order has two Asymptotes, that of the second Kind or Order has three, that of the third, four, &c. See Asymptote, Curve, &c.

In respect of these, the *Hyperbola* of the first Kind, is call'd the *Apollonian* or *Conical Hyperbola*.

Apollonian Hyperbola is the common *Hyperbola*, or the *Hyperbola* of the first Kind: Thus call'd in Contradistinction to the *Hyperbola's* of the higher Kinds.

HYPERBOLE, in Rhetoric, a Figure, whereby the Truth and Reality of Things is exceſſively either enlarg'd or diminiſh'd.

As, He ran ſwifter than the Wind; He went ſlower than a Tortoiſe, &c.

The Character of an *Hyperbole* is to exaggerate or extenuate the Idea of the Thing ſpoke of, beyond the Bounds of Truth, or even Probability.

Hyperbole's, ſays *Seneca*, lye without deceiving; they lead the Mind to Truths by Fictions, they convey the Sentiment intended, by expreſſing it in Terms which render it incredible --- The *Hyperbole* promiſes too much, to make you conceive enough.

Ariſtotle obſerves, that *Hyperbole*'s are the favourite Figures of young Authors, who love Exceſs and Exaggeration; ſo that Philoſophers ſhould not uſe them without a great deal of Reſerve.

The Pitch to which an *Hyperbole* may be carry'd, is a Point of great Delicacy: To carry it too far, is to deſtroy it: It is of the Nature of a Bow-ſtring, which, by immoderate Tenſion, ſlackens; and frequently has an Effect quite contrary to that intended. *Longinus.*

Thoſe *Hyperbole*'s are beſt, which are latent, and are not taken for *Hyperbole*'s. For this Reaſon, they ſhould ſcarce ever be us'd but in a Paſſion, and in the Middle of ſome important Incident: Such is the *Hyperbole* of *Herodotus*, ſpeaking of the *Lacedæmonians*, who fought at *Thermopylæ*, "They "defended themſelves, for ſome time, with the Arms that "were left them, and at laſt with their Hands and Teeth; "till the Barbarians, continually ſhooting, buried them, as "it were, with their Arrows." Now, what Likelihood is there that naked Men ſhould defend themſelves with their Hands and Teeth againſt armed Men; and that ſo many Perſons ſhould be buried under their Enemies Arrows? Yet does there appear ſome Probability in the Thing, by reaſon it is not ſought for the Sake of the Figure; but the *Hyperbole* ſeems to ariſe out of the Subject itſelf. *Id.*

Of the like Kind is that Paſſage of a Comic Poet mention'd by *Longinus*: He had Lands in the Country no larger than a *Lacedæmonian* Epiſtle. See LACONIC.

There are certain Manners of tempering the Harſhneſs of *Hyperbole*'s, and giving them an Air of Probability. *Virgil* ſays, That to ſee the Fleets of *Anthony* and *Auguſtus* at the Battel of *Actium*, one would have taken them for the *Cyclades* floating on the Water: And *Florus* ſpeaking of the Expedition wherewith the *Romans* built a Number of Veſſels in the firſt *Punic* War, ſays, It ſeem'd, not that the Ships were built by Workmen, but that the Trees were transform'd into Ships by the Gods. They do not ſay that the Ships were floating Iſlands; nor that the Trees were metamorphoſed into Ships; but only that one might have taken them to be ſo. This Precaution ſerves as a Kind of Paſſport to the *Hyperbole*, if we may be allow'd the Phraſe, and makes it go down even in Proſe: For what is excus'd before 'tis ſaid, is always heard favourably, how incredible ſoever it be. *Bouhours.*

The Word is *Greek*, ὑπερβολη, *ſuperlatio*, form'd of the Verb ὑπερβαλλειν, *exſuperare*, to exceed, ſurpaſs by far.

HYPERBOLIC, ſomething relating either to an *Hyperbole*, or an *Hyperbola*. See HYPERBOLA and HYPERBOLE.

Thus we ſay, an *Hyperbolic* Expreſſion; an *Hyperbolic* Image, &c.

HYPERBOLIC *Line* is us'd by ſome Authors for what we call the *Hyperbola* itſelf.

In their Senſe, the plane Surface terminated by the Curve Line, is call'd the *Hyperbola*; and the Curve Line that terminates it, the *Hyperbolic Line*.

HYPERBOLIC *Leg* of a Curve, is that which approaches infinitely near to ſome Aſymptote.

Sir *Iſ. Newton* reduces all Curves, both of the firſt and of the higher Kinds, into thoſe with *Hyperbolic Legs*, and thoſe with Parabolic ones. See CURVE.

HYPERBOLIC *Conoid.* See CONOID.

HYPERBOLIC *Solid.* See CUBATURE.

HYPERBOLIC *Mirror.* See MIRROR.

HYPERBOLICAL *Cylindroid*, is a ſolid Figure, whoſe Generation is given by Sir *Chriſtopher Wren*, in the *Philoſophical Tranſactions.*

Two oppoſite *Hyperbola*'s being join'd by the Tranſverſe Axis, and thro' the Centre a right Line being drawn at right Angles to that Axis; and about that, as an Axis, the *Hyperbola*'s being ſuppos'd to revolve; by ſuch Revolution, a Body will be generated, which is call'd the *Hyperbolic Cylindroid*, whoſe Baſes and all Sections parallel to them will be Circles. In a ſubſequent *Tranſaction*, the ſame Author applies the new Figure to the grinding of *Hyperbolical* Glaſſes; affirming, that they muſt be form'd this Way, or not at all. See MIRROR.

HYPERBOLI-FORM *Figures*, are ſuch Curves as approach, in their Properties, to the Nature of the *Hyperbola*; call'd alſo *Hyperboloids.*

HYPERBOLOIDES, are *Hyperbola*'s of the higher Kind, wherein $m > 1$ and $n > 1$. *e.gr.* $ay^2 = bx^2(a+x)$.

HYPERBOREAN, in the ancient Geography.---The Ancients denominated thoſe People and Places *Hyperborean*, which were to the Northward of the *Scythians.* They had but very little Acquaintance with theſe *Hyperborean* Regions; and all they tell us of them is very precarious, much of it falſe.

Diodorus Siculus ſays, the *Hyperboreans* were thus call'd by reaſon they dwelt beyond the Wind *Boreas*; ὑπὲρ ſignifying above or beyond, and βορέας, *Boreas*, the North Wind. This Etymology is very natural and plauſible; notwithſtanding all that *Rudbecks* has ſaid againſt it, who would have the Word to be originally *Gothic*, and to ſignify Nobility. See BOREAS.

Herodotus doubts, whether or no there were any ſuch Thing as *Hyperborean* Nations. *Strabo*, who profeſſes that he believes there are, does not take *Hyperborean* to ſignify *beyond Boreas* or the North, as *Herodotus* underſtood it: The Prepoſition ὑπὲρ, in this Caſe, he ſuppoſes only to help form a Superlative; ſo that *Hyperborean*, on his Principle, means no more than *moſt Northern*: So that it appears the Ancients ſcarce knew themſelves what the Name meant.

HYPERCATALECTIC, in the *Greek* and *Latin* Poetry, is apply'd to Verſes which have one or two Syllables too much; or beyond the Meaſure of regular Verſe. See VERSE.

The *Greek* and *Latin* Verſes are diſtinguiſh'd, with reſpect to their Meaſure, into four Kinds: Acatalectic Verſes, where nothing is wanting at the End; Catalectic, which want a Syllable at the End; Brachicatalectic, which want a whole Foot at the End; and, laſtly, *Hypercatalectic*, which have one or two Syllables too many.---Theſe laſt are alſo call'd *Hypermeters.* See ACATALECTIC, CATALECTIC, &c.

The Word is *Greek*, compos'd of ὑπὲρ, over, beyond; and καταλήγω, I put to the Number, I add; ſo that *Hypercatalectic* denotes as much as *ſuper-added.*

HYPERCATHARSIS, in Medicine, *Super-purgation*; a too violent and exceſſive Purgation. See PURGE, PURGATION, and PURGATIVE.

The Word is compounded of the *Greek*, υπερ, *ſupra*, and καθαιρεω, I purge.

HYPERCRISIS, in Medicine, an immoderate critical Excretion. See CRISIS.

Thus, when a Fever terminates in a Looſeneſs, the Humours ſometimes flow off faſter than the Strength can bear, and are therefore to be check'd.---This is a *Hypercriſis.*

The Word is compounded of υπερ *ſupra*, and κρισις, *Criſis*, Judgment.

HYPERCRITIC, an over-rigid Cenſor, or Critic; one who will let nothing paſs, but animadverts ſeverely on the ſlighteſt Fault. See CRITICISM.

The Word is compounded of ὑπὲρ, *ſuper*, above, beyond, and κριτὴς, of κρίνω, *Judex*; of κρίνω, *Judico*, I judge.

HYPERDULIA, in the *Romiſh* Theology, is the Worſhip render'd to the Holy Virgin. See VIRGIN.

The Worſhip offer'd to Saints is call'd *Dulia*; and that to the Mother of God, *Hyperdulia*; as being ſuperior to the former. See WORSHIP.

The Word is *Greek*, ὑπερδουλεία, compos'd of ὑπὲρ, above, and δουλεια, Worſhip, Service.

HYPERMETER, in the ancient Poetry, the ſame with *Hypercatalectic.* See HYPERCATALECTIC.

The Word is compos'd of ὑπὲρ, *ſuper*, and μετρον, Meaſure.

HYPERTHYRON, in the ancient Architecture, a Sort of Table, us'd after the manner of a Frieze, over the Jambs of Doric Doors and Gates, and the Lintels of Windows. It lies immediately under the Corona; and is by our Workmen uſually call'd the *King-piece.* See DOOR, WINDOW, &c.

The Word is form'd of ὑπὲρ, *ſuper*, over, and θύρα, *janua*, Gate.

HYPERSARCOSIS, in Medicine and Chirurgery, an Exceſs of Fleſh; or rather, a fleſhy Excreſcence, ſuch as thoſe generally ariſing on the Lips of Wounds, &c. See EXCRESCENCE, WOUND, FUNGOUS, &c.

HYPÆTHROS, HYPÆTHRON, HYPETHRE, HYPÆTROS, in the ancient Architecture, a Kind of Temple, open a-top, and thereby expos'd to the Air. See TEMPLE.

The *Hypethron*, according to *Vitruvius*, is any open Building or Portico, ſuch as anciently were certain Temples that had no Roof or Covering. --- Of this we have an Inſtance in the Temple of *Jupiter Olympius*, built by *Coſſatius*, a *Roman* Architect, at *Athens.*

Of *Hypæthrons*, ſome were Decaſtyle, others Picnoſtyle. But they had all Rows of Columns within-ſide, forming a kind of Periſtyle; which was eſſential to this Sort of Temple. See PERISTYLE.

The Word is form'd of ὑπὸ, *ſub*, under, and αἰθὴρ, Air.

HYPHEN,

HYPHEN, an Accent or Character in Grammar, which implies, that two Words are to be join'd or connected into one Compound Word. --- As, Male-Sanus, Male-Administration. See ACCENT, CHARACTER, &c.

HYPNOTICK, in Medicine, a Remedy which promotes or induces Sleep; call'd also *Soporific*, *Opiate*, &c. See SOPORIFIC, OPIATES, &c.

The Word comes from the *Greek* ὑπνος, *somnus*, Sleep.

HYPO, a *Greek* Particle, retain'd in the Composition of divers Words borrow'd from that Language.

The *Greek* Preposition ὑπὸ, *Hypo*, literally denotes *under*, *beneath*: In which Sense it stands oppos'd to ὑπερ, *super*, above.

HYPOBOLE, in Rhetoric, a Figure whereby we answer before-hand, to what we apprehend the Adversary will object.

The Word comes from the *Greek*, ὑπὸ, and βάλλω, *jacio*, I cast.

HYPOCATHARSIS, in Medicine, a too faint or feeble Purgation. See PURGATION.

The Word is compounded of υπο, *sub*, under, and καθαιρω, I purge.

HYPOCAUSTUM, among the *Greeks* and *Romans*, was a subterraneous Place, wherein was a Furnace that serv'd to heat the Baths. --- *Vitruvius* calls it *Caldarium*. See BATH, &c.

The Ancients had properly two Sorts of *Hypocausta*; the one call'd by *Cicero Vaporarium*, and by others *Laconicum* or *Sudatio*; which was a large sweating Bath, in which were three brazen Vessels, call'd *Caldarium*, *Tepidarium*, and *Frigidarium*, accordiog to the Water contain'd therein.

The other Sort of *Hypocaustum*, was a Sort of *Fornax* or Kiln to heat their Winter Parlours, *Cœnatiunculæ Hybernæ*.

The latter *Hypocaustum* was call'd *Alveus* and *Fornax*; and the Man that tended the Fire *Fornacator*.

The *Hypocaustum* among the Moderns, is that Part or Place where the Fire is kept that warms a Stove or Hothouse. See STOVE.

The Word is *Greek*, ὑποκαυστον, form'd of the Preposition ὑπὸ, *sub*, under, and the Verb καίω, *incendo*, I burn.

HYPOCHYMA, or HYPOCHYSIS, in Medicine, a Disease of the Eyes, popularly call'd *Cataracts*. See CATARACT.

The Word is *Greek*, ὑπόχυμα, which literally denotes shedding, Effusion, or pouring out; the Disease having formerly been supposed to arise from an Effusion of some viscid Humour upon the Pupil.

HYPOCHYSIS, in Medicine. See HYPOCHYMA.

HYPOCISTIS, in Medicine, a Juice, us'd in the Composition of Treacle, &c. See TREACLE, &c.

The *Hypocistis* is the Juice, of a Shoot of the same Name, sprouting out from the Foot of a kind of Cistus Tree, call'd *Laudanum*; common enough in the hot Countries. See LAUDANUM.

The Shoot grows about a Foot high; and one, two, or three Inches thick; somewhat bigger at Top than at Bottom; soft, succulent, of a yellowish Colour, and surrounded from Space to Space with a Sort of Rings, or brownish Knots.

When gather'd, they pound it in a Mortar, and express the Juice: That done, they evaporate it on the Fire till it come to the Consistence of a hard blackish Extract, like *Spanish* Liquorice. Then they make it up into little Cakes for Carriage.

It is of a tart astringent Taste, and us'd to stop Fluxes of the Belly, Vomitings, and Hemorrhages; tho' anciently much more than at present. It is also an Ingredient in Treacle, and some Unguents.

It is sometimes us'd as a Substitute to Acacia.---Dr. *Quincy* says, it is the more powerful of the two. See ACACIA.

The Word is *Greek*, form'd of ὑπὸ, under, and κίστος, *Cistus*.

HYPOCONDRIA, or HYPOCHONDRIA, in Anatomy, a Space on each Side the Epigastric Region, or upper Part of the lower Belly. See ABDOMEN and EPIGASTRIC.

The *Hypocondria* compose the upper Part of the Epigastrium. They are situate on each Side, between the Cartilago Ensiformis, and the Cartilages of the Ribs, and the Tip of the Breast; and are divided, with respect to their Situation, into *Right* and *Left*.

In the *Right Hypocondrium* the Liver is found; and in the *Left* the Spleen, and a great Part of the Stomach. See LIVER, SPLEEN, &c.

Hippocrates sometimes uses the Word *Hypocondrium* for the whole lower Venter or Belly. See VENTER.

The *Hypocondria* are subject to divers Disorders. See HYPOCONDRIAC *Disease*.

The Word is compos'd of the Preposition ὑπὸ, *sub*, under, and χονδρος, Cartilage; *q. d. Cartilagini Subjacens*, or under the Cartilages of the Ribs, &c. See CARTILAGE.

HYPOCONDRIAC *Disease*, *Affection*, or *Passion*, is the same with what we popularly call the *Spleen*, *Vapours*, &c. See DISEASE.

The *Hypocondriac* is a very comprehensive Disease: It is variously denominated, according to the various Symptoms it is attended with, and the various Parts where it is supposed to be seated, or in which it arises.

When conceiv'd as situate in the *Hypocondriac* Regions, or arising from some Disorder of the Parts contain'd therein, viz. the Spleen, Liver, &c. it is properly call'd the *Hypocondriacal Disease*, *Spleen*, &c.

When conceiv'd as owing to some Disorder of the Womb, it is call'd *Hysteric Affection*, &c. See HYSTERIC.

And lastly, when the flatulent Rumblings in the Intestines, Belches, &c. are consider'd, it is call'd the *Vapours*. See VAPOURS.

The *Hypocondriac* is a very common and obstinate Disease: Few Men of a sedentary Life, and fewer Women, are free from it: Its Symptoms are very numerous: The most usual, are a Pain in the Stomach, Windiness, Vomitings, a Swelling or Distension of the *Hypocondrium's* or upper Part of the Belly, Noises and Rumblings in the lower Venter, wandering Pains, a Constriction of the Breast, Difficulty of Breathing, Palpitation of the Heart, Faintings, Vigiliæ, Inquietudes, Swimming of the Head, Fear, Suspicions, Melancholy, Deliriums, &c. Not that all these Accidents befal every Person seiz'd with this Disease; but sometimes some of them, and at other Times others, according to the Constitution, &c. of the Patient.

In effect, the *Hypocondriacal* is a very vague, indeterminate Sort of Disorder. Dr. *Sydenham* observes, that its Symptoms ape or emulate those of most other Diseases; and that whatever Part it is in, it produces somewhat like the common Diseases of that Part.---Thus, in the Head, it produces a Sort of Apoplexy; Fits like the Epilepsy, call'd *Hysteric* Fits; intolerable Head-ach, &c. In Persons affected with the Chlorosis, it produces a Palpitation of the Heart; sometimes, tho' rarely, it seizes the Lungs, and causes a continual dry Cough: It also imitates the Cholic, and Iliac Passion, and sometimes the Stone, Jaundice, &c. In the Intestines it produces a Diarrhæa; in the Stomach, Nauseas: Sometimes it seizes the external Parts, and particularly the Back, which it renders chilly and painful; and the Legs and Thighs, which it swells so as to resemble the Dropsy: Seizing the Teeth, it resembles the Scurvy (indeed, *Ermuller* makes the Scurvy itself to be only a great Degree of this Disease). Lastly, which is the most unhappy Circumstance of all, the Patient is more affected in Mind than in Body.

The Seat of this Disease is commonly supposed to be in the Animal Spirits, and the nervous System. Its Cause is referr'd to an acid Salt abounding in the Mass of Blood; to which the ill Disposition of the Stomach, and the other Parts contain'd in the Epigastrium, may greatly contribute. *Purcell* assigns Crudities and Indigestions as the prime Cause. According to *Sydenham*, vehement Motions of the Body, or more usually violent Perturbations of the Mind, as Grief, Anger, Fear, &c. are its procatarctic Causes.

For the Cure, the principal Indication is to purify and strengthen the Blood, which is to be effected, after proper Evacuations, by Chalybeats, Bitters, Strengthners, and Volatile Spirits. The Cortex has also notable Virtues in this Disease; as also a Milk Diet. Riding is admirable. *Sydenham*.

HYPOCONDRIACAL *Medicines*, are Remedies proper in the *Hypocondriac Disease*.

Such are all those which tend to purify the Blood, Humours, and Spirits; as Chervil, Balm, Agrimony, and the other Cephalic and Cardiac Herbs: Such also are those which purge Melancholy or Atrabilis, and those which dispel Wind and Vapours; and all Medicines good for Disorders of the Nerves, particularly Vervain both Male and Female; but above all, frequent, gentle, Anodyne Purges.

HYPOCONDRIACAL *Regions*. See HYPOCONDRIA.

HYPOCRAS, or rather HIPPOCRAS, *Vinum Hippocraticum*, a kind of medicated Wine. See WINE.

Hypocras is a Drink or Beverage compos'd of Wine, with Spices and other Ingredients infus'd therein; much us'd among the *French* by Way of Dram after Meals.

There are various Kinds of *Hypocras*, according to the Kind of Wine, and the other additional Ingredients made use of; white *Hypocras*, red *Hypocras*, Claret *Hypocras*, Strawberry *Hypocras*, *Hypocras* without Wine, Cyder *Hypocras*, &c.

That directed in our College Dispensatory, is to be made of Cloves, Ginger, Cinnamon, and Nutmegs, beat, infus'd in Canary, with Sugar; to the Infusion, Milk, a Lemon, and some Slips of Rosemary to be put, and the whole strain'd thro' a Flannel.

It is recommended as a Cordial, good in Paralytic, Apoplectic, and all nervous Cases.

Menage approves the Conjecture of those who derive *Hypocras* from *Hyppocrates*, as supposing him the Inventor hereof. --- Others derive the Word from the *Greek* ὑπὸ and κεραννυμι, to mix.

HYPODROME. See HIPPODROME.

HYPOGÆUM,

HYPOGÆUM, in the ancient Architecture, a Name common to all the Parts of a Building that are under Ground; as the Cellars, Butteries, and the like Places.

The Word is form'd of the *Greek* ὑπὸ, under, and γαῖα, *Terra*, Earth.

Hypogæum, ὑπόγαιον, in Astrology, is a Place under Ground, otherwise call'd the *Imum Cœli*.

HYPOGASTRIC *Region*. See Hypogastrium.

Hypogastric *Artery*, is an Artery arising from the Iliaca Interna, and distributed to the Bladder, the Rectum, and the Genital Parts, particularly in Women. See Artery.

Hypogastric *Vein* arises from the same Parts, and discharges itself into the Iliaca Interna. See Vein.

HYPOGASTRIUM, in Anatomy, the lower Part of the Belly, or lower Venter; commencing from two or three Inches below the Navel, and extending to the Os Pubis. See Venter and Abdomen.

The Word is *Greek*, form'd of ὑπὸ, *sub*, under, and γαστὴρ, *Venter*, Belly.

HYPOGLOSSIS, or Hypoglottis, in Medicine, an Inflammation or Ulceration under the Tongue; call'd also *Ranula*. See Ranula.

HYPOGLOTTIS, in Anatomy, is a Name given to two Glands of the Tongue. See Tongue.

There are four large Glands of the Tongue; two of them call'd *Hypoglottides*, situate under it, near the Venæ Ranulares; and two more on the two Sides of the Tongue. They all filtrate a kind of serous Matter, of the Nature of Saliva, which they discharge into the Mouth by little Ducts near the Gums.

The Word is *Greek*, compos'd of ὑπὸ, *sub*, under, and γλῶττα, *Lingua*, Tongue.

HYPOMOCHLION, in Mechanicks, the Fulcrum of a Lever; or the Point which sustains its Pressure, when employ'd either in raising or lowering Bodies. See Lever.

The *Hypomochlion* is frequently a Roller set under the Lever; or under Stones, Pieces of Timber, &c. that they may be the more easily lifted up or remov'd.

The Word is *Greek*, form'd of ὑπὸ, *sub*, under, and μοχλὸς, *Vectis*, Lever.

HYPOPYON, in Medicine, a Disease of the Eyes.—It consists in a Collection of Pus, under or behind the Cornea; which sometimes covers the whole Pupil, and obstructs the Light. See Eye.

Some will have it the same with *Unguis*; but the more accurate make a Difference. See Unguis.

The *Hypopyon* arises from a Rupture of the Vessels in the Uvea; occasion'd either by some external Violence, or the Acrimony of the Blood therein.

'Tis very difficult of Cure. — The Suppuration is to be prevented by proper Cataplasms; or, if these have not Effect, is to be promoted. See Suppuration.

The Word is *Greek*, ὑπόπυον; form'd of ὑπὸ, *sub*, under, and πυον, Pus.

HYPORCHEMA, in the *Greek* Poetry, a Poem compos'd in divers Kinds of Verses, and of different Lengths. They were always very short; and full of Pyrrhic Feet.

HYPOSPATISMUS, in the ancient Chirurgery. M. *Dionis* takes it to have been an Operation practis'd among the Ancients, by making three Incisions in the Forehead, to the very Bone, about two Inches long; in order to cut or divide all the Vessels between those Incisions. The Design of the Operation was to prevent Defluxions on the Eyes.

The Word comes from the *Greek*, ὑποσπασμὸς; form'd of ὑπὸ, under, and σπατθη, *Spatula*; by reason after the Incisions were made, they thrust a Spatula all along between the Pericranium and the Flesh.

HYPOSTASIS, a *Greek* Term, literally signifying *Subsistence*; used in Theology for *Person*.

Thus we hold, that there is but one Nature in God, and three *Hypostases*. See Person, Trinity, &c.

The Word *Hypostasis* is *Greek*, ὑπόστασις, *Subsistentia*; compounded of ὑπὸ, *sub*, under, and ἵστημι, or στάω, *sto*, *existo*, I stand, I exist.

The Term *Hypostasis* is of a very ancient standing in the Church. St. *Cyril* repeats it divers Times, as also the Phrase *Union according to Hypostasis*. The first Time it occurs in all Christian Antiquity, is in a Letter of that Father to *Nestorius*, where he uses it instead of πρόσωπον, the Word we commonly render *Person*, which did not seem expressive enough. "The Philosophers, says St. *Cyril*, have allow'd three *Hypostases*: They have extended the Divinity to three *Hypostases*: They have even sometimes used the Word Trinity: And nothing was wanting but to have admitted the Consubstantiality of the three *Hypostases*, to shew the Unity of the divine Nature, exclusive of all Triplicity in respect of Distinction of Nature, and not to hold it necessary to conceive any respective Inferiority of *Hypostases*."

This Term occasion'd great Dissentions in the ancient Church; first among the *Greeks*, and afterwards also among the *Latins*.

In the Council of *Nice*, *Hypostasis* was defin'd to denote the same with *Essence* or *Substance*; so that it was Heresy to say that Jesus Christ was of a different *Hypostasis* from the Father; but Custom alter'd its Meaning. — In the Necessity they were under of expressing themselves strongly against the *Sabellians*, the *Greeks* made Choice of the Word *Hypostasis*, and the *Latins* of *Persona*; which Change prov'd the Occasion of endless Disagreement. Those who took the Word *Hypostasis* in its ancient Signification, could not bear to hear of three *Hypostases*, which, according to them, were so many divine Essences or Substances. And yet they who used the Word in the new Sense against the *Sabellians*, all along declar'd, that they meant by it three Individuals, or three Subjects which subsist alike, and not three different Essences or Substances: So that in their Sense, they admitted three *Hypostases* in one and the same Essence.

Others, by Essence, understood a common and indefinite Nature, as Humanity is to all Men in the general; and by *Hypostasis*, a single Nature, peculiar to each Individual, as each Man in particular is a Modification of the whole human Nature or Essence.—But this last Signification, which some attribute to St. *Basil*, if apply'd to the Deity, would imply Tritheism: For if the three Persons in the Trinity be three *Hypostases*, just as *Peter*, *James*, and *John* are, there are manifestly three Gods.

Hypostasis, in Medicine, is the Sediment of the Urine, or that thick heavy Part of the Urine which subsides and settles at Bottom. See Sediment. See also Urine.

HYPOSTATICAL, in Theology, is a Term used in speaking of the Mystery of the Incarnation.

The *Hypostatical Union*, is the Union of the human Nature with the Divine. See Incarnation.

The Word was united *hypostatically* to the human Nature in the Person of Jesus Christ.

Hypostatical *Principles*, among the Chymists, and particularly Paracelsists, are the three Chymical Elements, *Salt*, *Sulphur*, and *Mercury*; call'd also the *Tria prima*. See Principle and Element.

HYPOTENAR, in Anatomy, the second Muscle of the little Finger. See Muscle and Finger.

The *Hypotenar* arises from the little Bone of the Carpus, situate over the others, and is inserted externally into the first Bone of the little Finger, which it serves to withdraw from the rest.

The sixth and last Muscle of the Toes is also call'd *Hypotenar* or Abductor. See Abductor.

The Word is compounded of ὑπὸ, *sub*, and *tenar*, a Muscle of the Thumb. See Tenar.

HYPOTHECA, in the Civil Law, an Obligation, whereby the Effects of a Debtor are made over to his Creditor, to secure his Debt: The same with *Mortgage* in the Common Law. See Mortgage.

As the *Hypotheca* is an Engagement procur'd on Purpose for the Security of the Creditor, various Means have been made use of to secure to him the Benefit of the Convention. The Use of the Pawn or Pledge is the most ancient; which is almost the same Thing with the *Hypotheca*; all the Difference consisting in this, that the Pledge is put into the Creditor's Hands; whereas, in a simple *Hypotheca*, the Thing remain'd in the Possession of the Debtor. It was found more easy and commodious to engage an Estate by a simple Covenant, than by an actual Delivery: Accordingly the Expedient was first practis'd among the *Greeks*; and from them the *Romans* borrow'd both the Name and the Thing; only the *Greeks*, the better to prevent Frauds, used to affix some visible Mark on the Thing, that the Publick might know it was mortgag'd by the Proprietor: But the *Romans*, looking on such Advertisements as injurious to the Debtor, forbad the Use of them.

The *Roman* Lawyers distinguish'd four Kinds of *Hypotheca*'s: The *Conventional*, which was with the Will and Consent of both Parties: The *Legal*, which was appointed by Law, and for that Reason call'd *Tacit*: The *Prætor*'s *Pledge*, when by the Flight or Non-appearing of the Debtor, the Creditor was put in Possession of his Effects: And the *Judiciary*, when the Creditor was put in Possession by Virtue of a Sentence of the Court.

The Conventional *Hypotheca* is sub divided into *general* and *special*. The *Hypotheca* is *general*, when all the Debtor's Effects, both present and future, are engag'd to the Creditor. It is *special*, when limited to one or more particular Things.

For the tacit *Hypotheca*, the Civilians reckon no less than 26 different Species thereof.

The Word comes from the *Greek*, ὑποθήκη, a Thing subject to some Obligation; of the Verb ὑποτίθεμαι, *suppono*, I am subjected; of τίθημι, *pono*, I put.

HYPOTHENUSE, or Hypotenuse, in Geometry, is the longest Side of a right-angled Triangle; or that Side which

which subtends, or is opposite to, the right Angle. See TRIANGLE.

Thus, in the Triangle KML, (Tab. Geometry, Fig. 71.) the Side ML, opposite to the right Angle K, is call'd the *Hypothenuse*.

'Tis a celebrated Problem in Geometry, that in every rectilinear right-angled Triangle, as KML; the Square of the *Hypothenuse* ML, is equal to the Squares of both the other Sides, KL and KM.---This is particularly call'd the *Pythagorean* Problem, from its Inventor *Pythagoras*, who is said to have sacrific'd a Hecatomb to the Muses, in Gratitude for their assisting him therein. See PROBLEM, &c.

The Word is *Greek*, ὑποτείνουσα, *subtendens*, form'd of ὑποτείνω, *subtendo*, I subtend.

HYPOTHESIS, in Logic, is a Proposition or Principle which we suppose, or take for granted, in order to draw Conclusions therefrom, for the Proof of a Point in Question. See SUPPOSITION and PRINCIPLE.

In Disputation, they frequently make false *Hypotheses*, in order to draw their Antagonists into Absurdities; and even in Geometry, Truths are deducible from such false *Hypotheses*. --- Thus, If the Sky should fall, we should catch Larks: The Consequence is good, tho' drawn from a false *Hypothesis*.

The Word is *Greek*, ὑπόθεσις, form'd of ὑπὸ, *sub*, under, and θέσις, *positio*; of τιθημι, *pono*, I put.

Every Conditional or Hypothetical Proposition, may be distinguish'd into *Hypothesis* and Thesis: The first rehearses the Conditions under which any Thing is affirm'd or deny'd; and the latter is the Thing itself affirm'd or deny'd. See HYPOTHETICAL.

Thus, in the Proposition, a Triangle is half of a Parallelogram, if the Bases and Altitudes of the two be equal: The latter Part is the *Hypothesis*, if the Bases, &c. and the former the Thesis, a Triangle is half a Parallelogram. See THESIS.

In strict Logic, we are never to pass from the *Hypothesis* to the Thesis; that is, the Principle suppos'd must be prov'd to be true, e'er we require the Consequence to be allow'd.

HYPOTHESIS, in Physicks, &c. is a kind of System, laid down from our own Imagination, whereby to account for some Phænomenon or Appearance of Nature. --- Thus we have *Hypotheses* to account for the *Tides*, for *Gravity*, for *Magnetism*, for the *Deluge*, &c. See TIDES, GRAVITY, MAGNETISM, DELUGE, &c.

The real and scientific Causes of natural Things generally lie very deep: Observation and Experiment, the proper Means of arriving at them, are in most Cases extremely slow; and the human Mind impatient: Hence we are frequently driven to feign or invent something which may seem like the Cause, and which is calculated to answer the several Phænomena; so that it may possibly be the true Cause.

Philosophers are divided as to the Use of such Fictions or *Hypotheses*, which are much less current now than formerly. --- The latest and best Writers are for excluding *Hypotheses*, and standing wholly on Observation and Experiment. See EXPERIMENTAL *Philosophy*.

Whatever is not deduc'd from Phænomena, says Sir *Is. Newton*, is an *Hypothesis*; and *Hypotheses*, whether Metaphysical, or Physical, or Mechanical, or of occult Qualities, have no Place in Experimental Philosophy. *Phil. Nat. Prin. Math. in Calce*.

The *Cartesians* take upon them to suppose what Affections in the primary Particles of Matter they please; just what Figures, what Magnitudes, what Motions, and what Situations they find for their Purpose. --- They also feign certain unseen, unknown Fluids, and endue them with the most arbitrary Properties; give them a Subtility which enables them to pervade the Pores of all Bodies, and make them agitated with the most unaccountable Motions. But is not this to set aside the real Constitution of Things, and to substitute Dreams in their Place! Truth is scarce attainable even by the surest Observations; and will fanciful Conjectures ever come at it? They who found their Speculations on *Hypotheses*; even tho' they argue from them regularly according to the strictest Laws of Mechanicks, may be said to compose an elegant and artful Fable; but 'tis still only a Fable. *Cotes in præfat. ad Newton. Princip.*

HYPOTHESIS is particularly apply'd, in Astronomy, to the several Systems of the Heavens: Or the divers Manners wherein different Astronomers have suppos'd the heavenly Bodies to be rang'd, mov'd, &c. See SYSTEM.

The principal *Hypotheses*, are the *Ptolomaic*, *Copernican*, and *Tychonic*. See PTOLOMAIC, COPERNICAN, TYCHONIC, &c.

The *Copernican* is now become so current, and is so well warranted by Observation; that the Retainers thereto, hold it injurious to call it an *Hypothesis*.

HYPOTHETICAL *Proposition*, is a Combination of two Categorical Propositions, the latter whereof follows from the former, which is distinguish'd by the Particle *if*. See PROPOSITION.

If he be a Man, he is an Animal: If the *Turk* sleep, the Cock crows: If you repent, you shall be forgiven. See CONDITIONAL.

HYPOTRACHELION, in Medicine, is the lower Part of the Neck. See NECK.

It is thus call'd from ὑπὸ, *sub*, under, and τράχηλος, *Collum*, Neck.

In Architecture, *Hypotrachelion* is used for a little Freeze in the *Tuscan* and *Doric* Capital, between the Astragal and Annulets; call'd also *Colarin*, *Gorgerin*, &c. See COLARIN, &c.

It is also apply'd by some Authors in a more general Sense, for the Neck of any Column; or that Part of the Capital thereof below the Astragal. See COLUMN and ASTRAGAL.

HYPOTYPOSIS, in Rhetoric, a Figure whereby a Thing is so livelily describ'd or painted, that it does not seem to be read or heard, but actually seen, or presented before the Eyes. See DESCRIPTION.

Such is that elegant one of *Cicero*, wherein he paints the Barbarity of *Verres*: *Ipse Inflammatus scelere & furore in forum venit. Ardebant Oculi; toto ex ore crudelitas emanabat. Expectabant omnes quo tandem progressurus, aut quid nam acturus esset; cum repente Hominem corripi, atque in foro medio nudari ac deligari, & Virgas expedire jubet. Clamabat ille miser se Civem esse Romanum*, &c.

The *Hypotyposis* is frequently used by the Poets, and particularly *Virgil*, who abounds in Paintings.

The Word is *Greek*, ὑποτύπωσις, form'd of the Verb ὑποτυπόω, *per figuram demonstro*, I shew, represent, or make any Thing be seen, of τύπτω, *Verbero*.

HYPOZOMA, in Anatomy, a Name given to such Membranes as separate two Cavities. See MEMBRANE.

In this Sense, the Mediastinum is a *Hypozoma*.

HYPSILOGLOSSUS, in Anatomy. See BASIOGLOSSUS.

HYPSILOIDES, in Anatomy. See HYOIDES.

HYPSISTARII, HYPSISTARIANS, a Sect of Heretics in the IVth Century; thus call'd from the Profession they made of worshipping the most High God, in *Greek* call'd ὕψιστος, *Hypsistos*.

The Doctrine of the *Hypsistarians*, was an Assemblage of Paganism, Judaism, and Christianity. They ador'd the most High God with the Christians; but they also rever'd Fire and Lamps with the Heathens; and observ'd the Sabbath, and the Distinction of clean and unclean Things, with the *Jews*.

The *Hypsistarii* bore a near Resemblance to the *Euphemites* or *Massalians*. See MASSALIAN.

HYSSOP, HYSSOPUS, a medicinal Herb, of a deterging cleansing Quality, and chiefly used in Diseases of the Breast and Lungs. See DETERGENT.

It is a standing Ingredient in pectoral Apozems. --- There is also a Syrop, and a simple distill'd Water from it, us'd in the Shops. See WATER, &c.

It has also a Faculty to comfort and strengthen; and is prevalent against Melancholy and Phlegm. --- It is propogated only by Slips.

Its Tops and Flowers reduc'd to Powder, are by some reserv'd to strew upon the colder Sallad Herbs. See SALLAD.

HYSSOPIC *Art*, a Name which *Paracelsus* gave to Chymistry, consider'd as that Art purifies Metals, Minerals, &c. In Allusion to that Text in the Psalms, Purge me with *Hyssop*, and I shall be clean. See CHYMISTRY.

HYSTERALGY, in Medicine, a Pain in the Matrix or Womb, occasion'd by an Inflammation, or other Disorder therein.

The Word is compounded of the *Greek*, ὑστέρα, *Matrix*, Womb; and ἄλγος, *dolor*, Pain.

HYSTERIC *Affection* or *Passion*, a Disease in Women, call'd also *Suffocation of the Womb*, and *Fits of the Mother*.

Hysteric Affection is generally used by Authors promiscuously with *Hypocondriac Affection*; the two Diseases being suppos'd to be, in reality, the same. --- They only differ in Point of Relations and Circumstance.

The *Hysteric* is properly a Species or Branch of the Hypocondriac, peculiar to Women, and suppos'd to arise from some Disorder of the Womb. See HYPOCONDRIAC *Affection*.

One of the Symptoms or Effects of Hypocondriac Diseases is Convulsions, and Fits not unlike those of the Epilepsy; these we call *Hysteric* Fits; and the Disease that produces them, the *Hysteric Affection*. *Sydenham*.

The Name *Hysteric* is form'd of the *Greek*, ὑστέρα, *Uterus*, Womb; the Patient frequently fancying a Ball rolling in the Abdomen, and sometimes rising to the Throat, which some weakly enough have attributed to an Elevation of the Womb.

It is particularly denominated *Hysteric Suffocation*, from one of its principal Symptoms, which is a Contraction of the Breast, and a Difficulty of Breathing.

†

Some Women under this Disorder, fancy a Rope ty'd about their Necks, ready to strangle them; and others, a Piece got into their Throats, which they cannot swallow, but stops their Breast: Some will even remain a good while as if really strangled, without any Sense or Motion.

The more common Symptoms or Accidents of this Disease, are a Swimming of the Head, Dazzling of the Eyes, Inquietudes, Pains of the Abdomen, Belches, Nauseas, Vomitings, Deliriums, Convulsions. It is not always attended with all these Symptoms, but sometimes with more, and sometimes with less, and those more or less violent.

Dr. *Purcel* describes a *Hysteric* Paroxysm, as beginning with a Sense of Coldness creeping up the Back, and afterwards spreading over the whole Body; Then ensues a Head-ach, and sometimes a Palpitation of the Heart, with a fainting, from which the Patient soon recovers. Sometimes, after the Coldness, succeeds a remarkable Heat; which brings on the fore-mention'd Symptoms. *Baglivi* adds, that *Hysteric* Women feel a Sense of Cold in the Crown of the Head; and this he takes to be the chief Diagnostic of the Disease.

The ordinary Causes of this Disorder are violent Passions, Rage, Love, Grief, ill News, sweet Smells, &c. As for the popular Notion of malignant Vapours rising from the Womb, and occasioning all these Symptoms; the Learned all discard it, and hold Men as subject to the Disease as Women. The real Cause is in the Animal Spirits, and the nervous System; and the Affection does not differ from the Hypocondriac.

For the Cure; as many of the Symptoms are convulsive, Antispasmodicks are indicated. During the Paroxysm, fœtid Things, whether internally or externally apply'd, are of Advantage; particularly Castoreum, the Smoak of burnt Horn, or burnt Feathers held to the Nose. Volatile Spirits also help to wake the Patient out of the Paroxysm; as also tickling in the Soles of the Feet. Where 'tis severer than ordinary, recourse must be had to Punction, Scarification, Vesicatories, Causticks, &c. See Hysteric *Medicines*.

HYSTERICKS, or Hysteric *Medicines*, are Remedies proper to remove *Hysteric* Affections; particularly Disorders of the Womb.

There are divers Species of *Hystericks*: Some evacuate or cleanse the Womb, by expelling any Impurities lodg'd therein: Others tend to stop immoderate Fluxes thereof: And others strengthen the Tone of the Womb.

According to Dr. *Quincy*, *Hysteric* Affections arise either from too titillating, or too uneasy Sensations: The former proceed from that Irritation of the Nerves, which the Make and Secretion of those Parts have naturally subjected them to, and which, in some Sorts of Constitutions, arise to that Degree, as to draw the whole System into Disorder, and occasion a surprizing Variety of Symptoms; *e. gr.* several Sorts of Convulsions, and Species of Madness; which therefore are by some termed *Furores Uterini*. See Uterine.

These Disorders seem most effectually allay'd, by such Things as are in a Manner the Reverse of Cordials, and are both in Smell and Taste very offensive and disagreeable: They seem to answer this End by suffocating, as it were, the Spirits, and damping their inordinate Sallies, so that such Stimulation ceases, and the Fibres return to their natural Tone and Motions: For as what is grateful to the Senses, gives an inexpressible Emotion to the fine nervous Filaments; so does what is fœtid and disagreeable quite destroy that Emotion, and deaden it: And as the former Kind consist chiefly of fine subtile volatile Parts, by which, as before explain'd under Cephalicks, they are fitter to enter the Nerves; so these are generally of a clammy viscous Contexture, and thereby the fitter to envelope and entangle that subtile Juice; whereby its Motion is much retarded, and consequently the Fibres render'd less spungy.

HYSTEROLOGY, Hysterologia, in Rhetoric, a vitious Manner of speaking, wherein the natural Order of Things is inverted; call'd by the *Greeks*, ὕστερον and πρότερον, *q. d.* to put the first Thing where the last should be.

The Word is *Greek*, ὑστερολογία, signifying a Discourse inverted.

HYSTEROMATOCY, in Chirurgery, an Operation more usually call'd in our Language the *Cæsarian Operation* or *Section*. See Cæsarian.

HYSTERON-Proteron, ὕστερον πρότερον. See Hysterology.

HYSTEROTOMIA, in Anatomy, an Anatomical Dissection of the Uterus, or Womb. See Matrix.

The Word is form'd of the *Greek*, ὑστέρα, *Matrix*, Womb, and τέμνω, *seco*, I cut, I dissect.

HYTH, a Port, Wharf, or little Haven, to embark or land Wares at. — Such are *Queen-hyth*, now *Maidenhead*, &c. See Port, Haven, &c.

I.